**IN THE ENVIRONMENT COURT OF NEW ZEALAND**
**CHRISTCHURCH REGISTRY**

**I TE KŌTI TAIAO O AOTEAROA**
**ŌTAUTAHI ROHE**

**ENV-2020-CHC-128**

| | |
|---|---|
| **UNDER** | the Resource Management Act 1991 (RMA) |
| **IN THE MATTER** | of the Omnibus Plan Change - Plan Change 8, being part of a proposal of national significance directed by the Minister for the Environment to be referred to the Environment Court under section 142(2)(b) of the RMA |
| **AND** | |
| **IN THE MATTER** | of an application under section 149T of the RMA |

**OTAGO REGIONAL COUNCIL**

**Applicant**

---

# COMMON BUNDLE OF DOCUMENTS

## PC8 - PRIMARY SECTOR PROVISIONS HEARING

---

Applicant's Solicitor
PO Box 4341 CHRISTCHURCH 8140
DX WX11179
Tel +64 3 379 7622
Fax +64 379 2467

Solicitor: L F de Latour / M A Mehlhopt
(lucy.delatour@wynnwilliams.co.nz /
michelle.mehlhopt@wynnwilliams.co.nz)

WYNNWILLIAMS

# Regional Plan: Water for Otago

## Proposed Plan Change 8 (Discharge management)

**ISBN 978-0-908324-59-0**

Otago Regional Council

**6 July 2020**

## Introduction

The Otago Regional Council has prepared Proposed Plan Change 8 (Discharge management) to the Regional Plan: Water for Otago. Proposed Plan Change 8 amends existing, and introduces new provisions for:

- Managing, through enhanced policy direction, decision-making on stormwater, wastewater and rural discharges;
- Effluent storage and application to land through new minimum standards;
- Promoting good farming practices, including better managing contaminant loss from intensive grazing and stock access to water bodies as well as incentivising the use of small in-stream sediment traps;
- Improving management of sediment loss from earthworks for residential development, and
- Clarifying provision for nationally and regionally significant infrastructure in wetlands.

This document should be read in conjunction with:
- Section 32 Evaluation Report; and
- Regional Plan: Water for Otago (operative as at 1 January 2004).

Amendments to the Regional Plan: Water for Otago as a result of Proposed Plan Change 8 are shown as follows:

- additions <u>underlined</u>
- deletions ~~struck out~~

Any person may make comments on this proposed plan change. You may do so by filling out the submission form either online or in hardcopy via the EPA website.

**Submissions will be received until 5pm on 17 August 2020.**

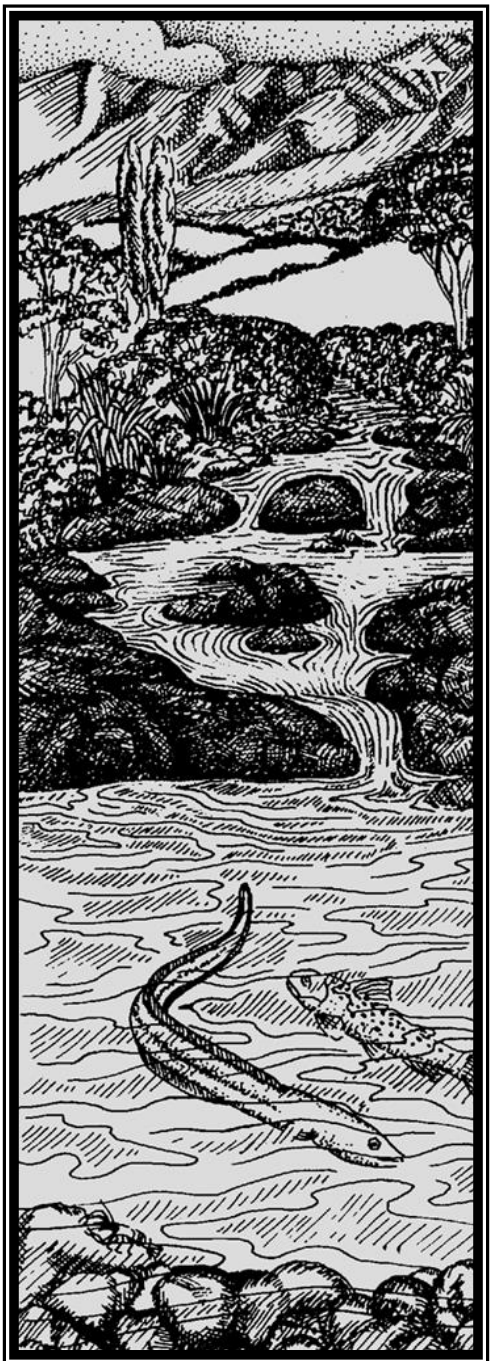
# Table of Contents

# **Part A:** Discharge policies

**Relevant provisions:**

# 7

# Water Quality



## 7.1 Introduction *[Unchanged]*

## 7.2 Issues in general *[Repealed – 1 May 2014]*

## 7.3 Issues related to point source discharges to water *[Repealed – 1 May 2014]*

## 7.4 Issues related to non-point source discharges to water *[Repealed – 1 May 2014]*

## 7.5 Objective *[Repealed – 1 May 2014]*

## 7.A Objectives *[Unchanged]*

## 7.B Policies general *[Unchanged]*

## 7.C Policies for discharges of human sewage, hazardous substances, hazardous wastes, specified contaminants, and stormwater; and discharges from industrial or trade premises and consented dams

**7.C.1 – 7.C.4** *[Unchanged]*

**7.C.5** **Minimise the adverse environmental effects of discharges ~~With respect to discharges~~ from any new stormwater reticulation system, or any extension to an existing stormwater reticulation system~~, to require:~~ by requiring:**

**(a) The separation of sewage and stormwater; and**

**(b) Measures to prevent contamination of the receiving environment by industrial or trade waste; and**

**(c) The use of techniques to trap debris, sediments and nutrients present in runoff.**

**Explanation**
In terms of the Plan's rules for permitted and discretionary activities for new discharges, or extensions to the catchment area of existing discharges from reticulated stormwater systems, the requirements of (a) to (c) will apply, as required.

**Principal reasons for adopting**
This policy is adopted to reduce the potential for contaminants to be present in new stormwater discharges. This is intended to mitigate the impact on the water quality of receiving water bodies in urbanised areas or other areas served by a stormwater reticulation system.

*Rules: 12.B.3.1*
*Other methods: 15.2.5.1, 15.4.2.1, 15.4.2.2.*

**7.C.6** **Reduce the adverse environmental effects from existing stormwater reticulation systems by:**

**(a) Requiring the progressive upgrade of stormwater reticulation systems to minimise the volume of sewage entering the system and the frequency and volume of sewage overflows; and**

**(b) ~~To promote~~ Promoting the progressive upgrading of the quality of water discharged from existing stormwater reticulation systems, including through:**

**(i) The separation of sewage and stormwater; and**

**(ii) Measures to prevent contamination of the receiving environment by industrial or trade waste; and**

**(iii) The use of techniques to trap debris, sediments and nutrients present in runoff.**

**Explanation**

The Otago Regional Council will ~~encourage~~ require the operator of any existing stormwater reticulation system to improve the quality of stormwater discharged from the system. ~~Measures that can be taken to achieve this improvement include:~~

~~(a) The separation of sewage and stormwater;~~

~~(b) Measures to prevent contamination of the receiving environment by industrial or trade waste; and~~

~~(c) The use of techniques to trap debris, sediments and nutrients present in runoff.~~

Priority will be given to improving discharges to those water bodies where natural and human use values are adversely affected. Such measures may not be necessary where an existing discharge is having no more than a minor adverse effect on any natural or human use value supported by an affected water body.

**Principal reasons for adopting**

This policy is adopted to reduce the level of contaminants present in existing stormwater discharges. This is intended to mitigate the impact on the water quality of receiving water bodies in urbanised areas or other areas served by a stormwater reticulation system.

*Rules: 12.B.3.1*
*Other methods: 15.2.5.1, 15.4.2.1, 15.4.2.2.*

**7.C.7 – 7.C.11** *[Unchanged]*

**7.C.12 Reduce the adverse effects of discharges of human sewage from reticulated wastewater systems by:**

**(a) Requiring reticulated wastewater systems to be designed, operated, maintained and monitored in accordance with recognised industry standards; and**

**(b) Requiring the implementation of measures to:**

**(i) Progressively reduce the frequency and volume of wet weather overflows; and**

**(ii) Minimise the likelihood of dry weather overflows occurring; and**

**(c) Preferring discharges to land over discharges to water, unless adverse effects associated with a discharge to land are greater than a discharge to water; and**

**(d) Having particular regard to any adverse effects on cultural values.**

## 7.D Policies for discharges of water and contaminants, excluding those discharges provided for in 7.C

**7.D.1 – 7.D.4** *[Unchanged]*

**7.D.5 When considering any discharge under section 12.C, ~~including the duration of any consent,~~ have regard to:**

**(a) The effects, including cumulative effects, of the discharge on water quality and natural and human use values, including Kāi Tahu cultural and spiritual beliefs, values and uses; and**

**(b) The physical characteristics and any particular sensitivity of the land and any receiving water; and**

**(c) The quality and performance of the discharge management system ~~used, or proposed~~ to be used, and in particular, options to be employed to reduce any adverse environmental effects of the ~~activity~~ discharge and monitoring of the performance of the discharge management system; and**

**(d) Any staged timeframe and any environmental management plan to achieve:**

**(i) Compliance with the permitted activity rules and Schedule 16 discharge thresholds during the duration of the consent; or**

**(ii) The ongoing reduction of adverse environmental effects of the discharge~~, where the permitted activity rules and Schedule 16 discharge thresholds cannot be met~~; and**

**(e) Trends in the quality of the receiving water relative to the Schedule 15 freshwater characteristics, limits, and targets; and**

**(f) The extent to which ~~the risk of~~ potentially significant~~,~~ adverse effects arising from the discharge ~~activity may be adequately managed through review conditions~~ are avoided; and**

**(g) The value of the existing investment in infrastructure; and**

**(h) The current state of technical knowledge and the use of industry best practice for managing environmental effects; and**

**(i) The extent to which co-ordinating the discharges across multiple landholdings enables water quality objectives to be more effectively met; and**

**(j) ~~Recognising t~~ The social, cultural and economic value of the use of land and water that gives rise to the discharge.**

**7.D.6 When considering applications for resource consent for discharges of nitrogen under Rule 12.C.3.2:**

**(a) Restrict the duration of resource consents to a term of no more than 10 years; and**

**(b) Have particular regard to:**

**(i) The water quality of the receiving water body; and**

**(ii) Any adverse effects on the natural or human use values of the receiving water body as set out in Schedule 1; and**

**(iii) Any adverse effects on Kāi Tahu cultural and spiritual beliefs, values and uses; and**

**(iv) The expected reduction in nitrogen discharged over the term of the resource consent, particularly from changes to land management practices or infrastructure; and**

**(iv) The administrative benefits of aligning the expiry date with other resource consents for the same activity in the surrounding area or catchment.**

**7.D.7 – 7.D.8** *[New Part – Part B]*

**7.D.9** *[New Part – Part C]*

**7.D.10** *[New Part – Part G]*

## 7.6 Policies for the enhancement of water quality *[Repealed – 1 May 2014]*

## 7.7 Policies for point source discharges *[Repealed – 1 May 2014]*

## 7.8 Policies for non-point source discharges *[Repealed – 1 May 2014]*

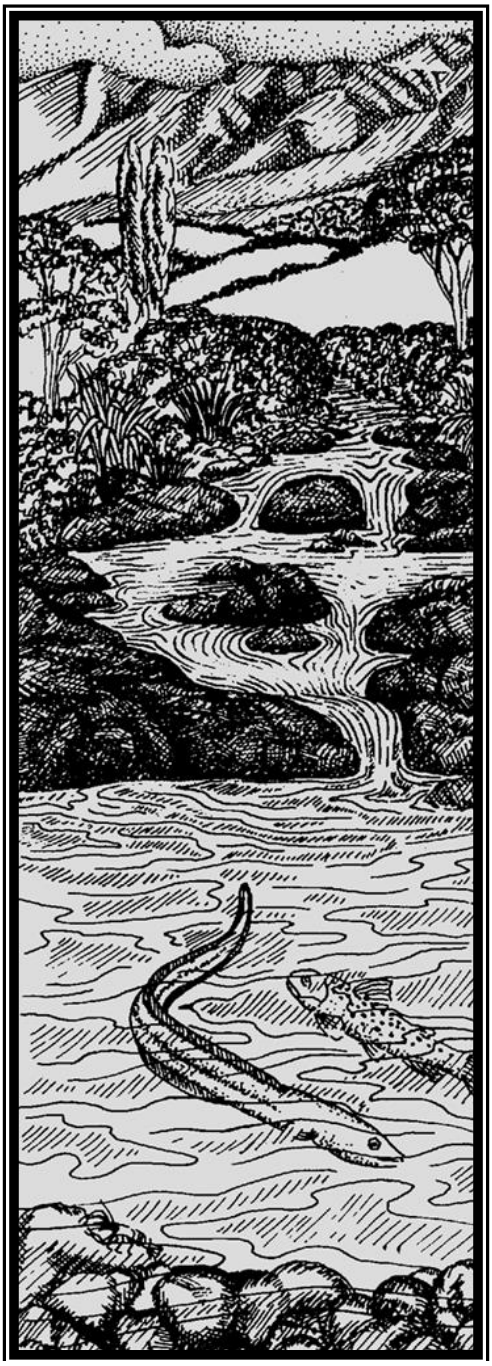
## 7.9 Anticipated environmental results *[Repealed – 1 May 2014]*

# **Part B:** Animal waste storage and application

**Relevant provisions:**

# 7

# Water Quality



**7.1 Introduction** *[Unchanged]*

**7.2 Issues in general** *[Repealed – 1 May 2014]*

**7.3 Issues related to point source discharges to water** *[Repealed – 1 May 2014]*

**7.4 Issues related to non-point source discharges to water** *[Repealed – 1 May 2014]*

**7.5 Objective** *[Repealed – 1 May 2014]*

**7.A Objectives** *[Unchanged]*

**7.B Policies general** *[Unchanged]*

**7.C Policies for discharges of human sewage, hazardous substances, hazardous wastes, specified contaminants, and stormwater; and discharges from industrial or trade premises and consented dams**

**7.C.1 – 7.C.4** *[Unchanged]*

**7.C.5 – 7.C.6** *[Amended - Part A]*

**7.C.7 – 7.C.11** *[Unchanged]*

**7.C.12** *[New - Part A]*

**7.D Policies for discharges of water and contaminants, excluding those discharges provided for in 7.C**

**7.D.1 – 7.D.4** *[Unchanged]*

**7.D.5** *[Amended - Part A]*

**7.D.6** *[New - Part A]*

**7.D.7** **Ensure the appropriate management and operation of animal waste systems by:**

**(a) Requiring animal waste systems to be designed, constructed and located appropriately and in accordance with best practice; and**

**(b) Ensuring that all animal waste systems:**

**(i) Have sufficient storage capacity to avoid the need to dispose of effluent when soil moisture or weather conditions may result in run-off entering water; and**

**(ii) Include contingency measures to prevent discharges to water in the case of equipment or system failure; and**

**(ii) Are operated in accordance with an operational management plan for the system that is based on best practice guidelines and inspected regularly; and**

**(c) Avoiding the discharge of animal waste to water bodies, artificial watercourses, the coastal marine area and to saturated land; and**

**(d) Requiring low-rate effluent application for any new discharge of animal waste to land and encouraging the transition to low-rate effluent application for existing discharges of animal waste to land.**

**7.D.8 Provide for the upgrading of existing animal waste systems that do not meet the standards of Rule 14.7.1.1 by:**

**(a) Granting resource consents only where consent applications contain a timebound action plan for upgrading the existing animal waste system so that it meets the standards of Rule 14.7.1.1 as soon as possible; and**

**(b) Staging implementation of performance standards based on risk.**

**7.D.9** *[New Part – Part C]*

**7.D.10** *[New Part – Part G]*

## 7.6 Policies for the enhancement of water quality *[Repealed – 1 May 2014]*

## 7.7 Policies for point source discharges *[Repealed – 1 May 2014]*

## 7.8 Policies for non-point source discharges *[Repealed – 1 May 2014]*

## 7.9 Anticipated environmental results *[Repealed – 1 May 2014]*

# 12

# Rules: Water Take, Use and Management

## 12.0 - 12.B *[Unchanged]*

## 12.C Other discharges

12.C.A.1 Discharge rules in section 12.C apply to any discharge not provided for in sections 12.A, 12.B or 13.5.

12.C.A.2 Within section 12.C, prohibited activity rules prevail over any permitted, controlled, restricted discretionary and discretionary activity rules.

Note: Rules applying to plantation forestry:

- Refer to the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017: http://www.legislation.govt.nz/regulation/public/2017/0174/latest/whole.html
- Refer to Schedule 17: Rules applying to plantation forestry in Otago.
- Rules that apply: 12.C.1.1 (d) (e) (f), excluding (iii); 12.C.2.1; 12.C.2.2; 12.C.2.4; 12.C.3.2.

### 12.C.0 Prohibited activities: No resource consent will be granted

12.C.0.1 *[Unchanged]*

12.C.0.2 The discharge of any contaminant from ~~an animal waste system,~~ silage storage or a composting process:

(i) To any lake, river or Regionally Significant Wetland; or

(ii) To any drain or water race that goes to a lake, river, Regionally Significant Wetland or coastal marine area; or

(iii) To the bed of any lake, river or Regionally Significant Wetland; or

(iv) To any bore or soak hole; or

(v) To land in a manner that results in overland flow entering any:

(a) Lake, river, Regionally Significant Wetland or coastal marine area that is not permitted under Rule 12.C.1.1 or 12.C.1.1A; or

(b) Drain or water race that goes to any lake, river, Regionally Significant Wetland or coastal marine area that is not permitted under Rule 12.C.1.1 or 12.C.1.1A; or

(vi) To land within 50 metres of:

(a) Any lake, river or Regionally Significant Wetland; or

(b) Any bore or soak hole; or

(vii) To saturated land; or

(viii) That results in ponding,

is a ***prohibited*** activity.

12.C.0.3 *[Unchanged]*

12.C.0.4 The discharge of animal waste from an animal waste system:

(i) To any lake, river or Regionally Significant Wetland; or

(ii) To any drain or water race that goes to a lake, river, Regionally Significant Wetland or coastal marine area; or

(iii) To the bed of any lake, river or Regionally Significant Wetland; or

(iv) To any bore or soak hole; or

(v) To land within 50 metres of:

(a) Any lake, river or Regionally Significant Wetland; or

(b) Any bore or soak hole; or

(vi) To land in a manner that results in ponding or overland flow to water, including to frozen land; or

(vii) That results in any of the following effects in receiving waters, after reasonable mixing:

(a) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or

(b) any conspicuous change in the colour or visual clarity; or

(c) any emission of objectionable odour; or

(d) the rendering of fresh water unsuitable for consumption by farm animals; or

(e) any significant adverse effects on aquatic life;

is a ***prohibited*** activity.

### 12.C.1 Permitted activities: No resource consent required

12.C.1.1 - 12.C.1.3 *[Unchanged]*

12.C.1.4 Notwithstanding any other rule in this Plan, the discharge of animal waste, or water containing animal waste, from an animal waste system onto or into land is a ***permitted*** activity providing:

(a) The animal waste system is permitted under Rule 14.7.1.2; and

(b) The discharge is not prohibited under Rule 12.C.0.4; and

(c) The discharge does not occur within 50 metres of the boundary of the property on which the animal waste is generated, or beyond that boundary.

**12.C.2 Restricted discretionary activities: Resource consent required**

12.C.2.1 – 12.C.2.4 *[Unchanged]*

12.C.2.5 The discharge of animal waste, or water containing animal waste, from an animal waste system onto or into land is a ***restricted discretionary*** activity provided:

(a) The discharge is not prohibited under Rule 12.C.0.2A; and

(b) The discharge is not permitted under Rule 12.C.1.4;

In considering any resource consent under this rule, the Otago Regional Council will restrict the exercise of its discretion to the following:

(i) The application depth and rate;

(ii) Size and location of the disposal area, including separation distances from lakes, rivers, Regionally Significant Wetlands, bores, soak holes, water supply for human consumption and dwellings;

(iii) Measures to avoid, remedy or mitigate adverse effects on water quality, taking into account the nature and sensitivity of the receiving environment;

(iv) Measures to avoid, remedy or mitigate adverse effects on Kāi Tahu cultural and spiritual beliefs, values and uses;

(v) Duration of consent and any review conditions;

(vi) Quality of, and compliance with, a management plan for the animal waste system; and

(vii) Any information and monitoring requirements.

**12.C.3 Discretionary activities: Resource consent required**

12.C.3.1 & 12.C.3.2 *[Unchanged]*

# 14

# Rules: Land Use other than in Lake or River Beds

**14.1 - 14.4** *[Unchanged]*

**14.5** *[New – Part G]*

**14.6** *[New – Part D]*

## 14.7 Animal Waste Systems

### 14.7.1 Permitted activities: No resource consent required

14.7.1.1 The use of land for the use and maintenance of an animal waste system (including storage pond(s) and ancillary structures) that was constructed prior to 25 March 2020 is a ***permitted*** activity providing:

(a) The storage pond is sized in accordance with the Dairy Effluent Storage Calculator; and

(b) The storage pond is either:

(i) Fully lined with an impermeable synthetic liner and has a leak detection system underlying the storage pond which is inspected not less than monthly, there is no evidence of any leakage, and a written record is kept recording the results of each inspection; or

(ii) Of impervious concrete construction; or

(iii) An above-ground tank; or

(iv) Certified by a Suitably Qualified Person within the last five years as:

(1) Structurally sound and without any visual defects; and

(2) Meeting the relevant pond drop test criteria in Schedule 18; and

(c) A management plan for the animal waste system is prepared and implemented that requires:

(i) Pond drop tests of the storage pond(s) every three years; and

(ii) Implementation of contingency measures to prevent the discharge of animal waste to a surface water body, an artificial watercourse, or the coastal marine area, either directly or indirectly, in the event of power outage or the failure of equipment; and

(d) Upon written request by the Regional Council a written statement or certificate from a Suitably Qualified Person is provided to show compliance with Conditions (a) to (c).

| Note: | Rule 14.7.1.1 does not manage discharges of animal waste to land. Animal waste systems that comply with Rule 14.7.1.1 will require resource consent under Rule 12.C.2.5 for the discharge of animal waste to land. |
|---|---|

14.7.1.2 The use of land for the use and maintenance of an animal waste system (including storage pond(s) and ancillary structures) that was constructed prior to 25 March 2020 and does not comply with the conditions of Rule 14.7.1.1 is a ***permitted*** activity until the application date specified in Schedule 19.

### 14.7.2 Controlled activities: Resource consent required

14.7.2.1 The use of land for the construction, use and maintenance of an animal waste system (including storage pond(s) and ancillary structures) constructed after 25 March 2020 is a ***controlled*** activity provided the following conditions are met:

(a) The storage pond is sized in accordance with the Dairy Effluent Storage Calculator; and

(b) The storage pond is either:

(i) Fully lined with an impermeable synthetic liner and has an effective leak detection system that underlies the storage pond; or

(ii) Of concrete construction; or

(iii) Is an above-ground tank; and

(c) The design of the animal waste system has been certified as being in accordance with IPENZ Practice Note 21[1] and IPENZ Practice Note 27;[2] and

(d) The animal waste system is not located:

(i) Within 50 metres of any lake, river or regionally significant wetland; or

(ii) Within 90 metres of any water supply used for human consumption; or

(iii) Within 50 metres of any bore or soak hole; or

(iv) Within 50 metres of the property boundary; or

(v) Above subsurface drainage (other than a leak detection system); and

(e) A management plan for the animal waste system is prepared and implemented that requires:

(i) For ponds that are fully lined with an impermeable synthetic liner and has an effective leak detection system that underlies the storage pond, inspections not

[1] Available from Otago Regional Council's website at http://www.orc.govt.nz
[2] Available from Otago Regional Council's website at http://www.orc.govt.nz

less than monthly with a requirement to keep a written record of the results of each inspection; and

(ii) Pond drop tests of the storage pond(s) every three years; and

(iii) Implementation of contingency measures to prevent the discharge of animal waste to a surface water body, an artificial watercourse, or the coastal marine area, either directly to water or onto or into land in circumstances which may result in these contaminants entering water, in the event of power outage or the failure of equipment; and

(iv) If a leak is detected by the leak detection system, an assessment is undertaken by a Suitably Qualified Person within two months of the detection to determine whether the leak is within the normal operating parameters of the pond.

In granting any resource consent under this rule, the Otago Regional Council will restrict the exercise of its control to the following:

(a) The design and construction of the system, including storage capacity, nature of the animal waste and the anticipated life of the system; and

(b) The design, construction and adequacy of ancillary structures that are components of the animal waste system; and

(c) The height of embankments and the placement and orientation relative to flood flows and stormwater run-off; and

(d) Methods to protect the system from damage by animals and machinery; and

(e) Quality of, and implementation of, a management plan for the animal waste system which requires pond drop tests of the system's storage pond(s) every three years; and

(f) Potential adverse effects of construction, maintenance and use on water bodies, drains, groundwater, bores, drinking water supplies, the coastal marine area, stop banks, dwellings, places of assembly and urban areas; and

(g) Location of the animal waste system; and

(h) Measures to avoid, remedy or mitigate adverse effects on Kāi Tahu cultural and spiritual beliefs, values and uses.

### 14.7.3 Discretionary activities: Resource consent required

14.7.3.1 The use of land for the construction, upgrade, use or maintenance of an animal waste system (including storage pond(s) and ancillary structures) is a ***discretionary*** activity provided it is not:

(a) Permitted under Rules 14.7.1.1 or 14.7.1.2; or

(b) Provided for by Rule 14.7.2.1.

# 20 Schedules

**Schedules 1 - 17** *[Unchanged]*

## 18. Schedule of storage pond drop test requirements and criteria

This schedule outlines the requirements for undertaking pond drop tests on storage ponds that are part of an animal waste system and the pass criteria for drop test results.

**Requirements**

- Testing is undertaken over a minimum period of 48 hours.
- Testing recording equipment is to be accurate to 0.8 mm or less.
- Continuous readings are to be taken over the entire test period at not more than 10 second intervals.
- Any change in pond fluid level over the test period needs to be accounted for.
- Ponds must be at or over 75% design depth before a test can be undertaken.
- The pond has been de-sludged in the 12 months prior to the test being undertaken and there is no sludge or crust on the pond surface during the test.
- The pond surface is not frozen during any part of the testing.
- An anemometer is installed for the duration of the test and wind speed is at 10 metres per second or less for at least 24 hours during the test.

**Criteria**

When tested in accordance with the requirements above, the pond is considered to meet the pond drop test criteria if the maximum pond level drop does not exceed the following:

| Maximum depth of pond (m) excluding freeboard | Maximum allowable pond level drop (mm per 24 hours) |
|---|---|
| <0.5 | 1.2 |
| 0.5 to 1.0 | 1.4 |
| 1.0 to 1.5 | 1.6 |
| 1.5 to 2.0 | 1.8 |
| >2.0 | 2.0 |

## 19. Schedule of progressive implementation of animal waste storage requirements

Many animal waste systems in Otago will need to be upgraded to meet the requirements of this Plan. The intent of this Schedule is to stage implementation of the Plan's requirements according to the environmental risk posed by existing systems. To assess this risk, Schedule 19 provides two calculations that will determine the current storage volume available on a landholding (in days) as follows:

- Schedule 19A sets out the calculations required to determine days of storage available on a landholding.

- Schedule 19B sets out the date by which a complete resource consent application must be lodged with the Otago Regional Council under Rule 14.7.3.1 (and correspondingly Rule 14.7.1.2 ceases to apply). A complete application is one that is not determined as being incomplete by the Otago Regional Council pursuant to section 88 of the Resource Management Act 1991.

## 19A Storage calculation

Two calculations are required to determine the current minimum number of days of animal waste storage available on a landholding. These are set out below.

**Step One: Daily waste volume**

To calculate the daily waste volume per farm, use the following formula:

$$\text{Daily waste volume } (m^3) = \text{Maximum number of cows milked per day} \times 0.05^{\wedge} \times \text{Maximum number of times per day that cows are milked during milking season}$$

^ being 0.05 cubic metres (50 litres per cow per day)

For example:

During milking season, Farm A milks 500 cows twice per day. Using the formula above:

$$\text{Daily waste volume } (m^3) = 500 \times 0.05 \times 2$$

$$\text{Daily waste volume } (m^3) = 50$$

**Step Two:**

To calculate the minimum number of days of storage available, use the following formula:

| | | |
|---|---|---|
| Days of storage available | = | Actual storage volume ($m^3$)^ ÷ Daily waste volume ($m^3$) |

^ determined assuming that the storage facility is empty.

For example:

As calculated above, Farm A has a daily waste volume of 50 $m^3$. The farm has a storage pond with a storage volume of 1000 $m^3$. Using the formula above:

| | | |
|---|---|---|
| Days of storage available | = | 1000 ÷ 50 |
| Days of storage available | = | 20 |

Using the table in Schedule 19B, Otago Regional Council must receive a complete resource consent application under Rule 14.7.3.1 from Farm A no later than two years from the date Plan Change 8 is made operative.

## 19B Application dates

The following table sets out the dates by which complete resource consent applications must be received under Rule 14.7.3.1 (and correspondingly Rule 14.7.1.2 ceases to apply). The "application date" is the date Plan Change 8 is made operative, plus the number of years in the "year" column below.

| Days of storage available as calculated in accordance with Schedule 19B | Year |
|---|---|
| 0 – 10 | 0.5 |
| 11 – 40 | 2 |
| 41+ | 3 |

# 21
# Glossary

***The table below only contains the Plan's definitions which are particularly relevant for this plan change***

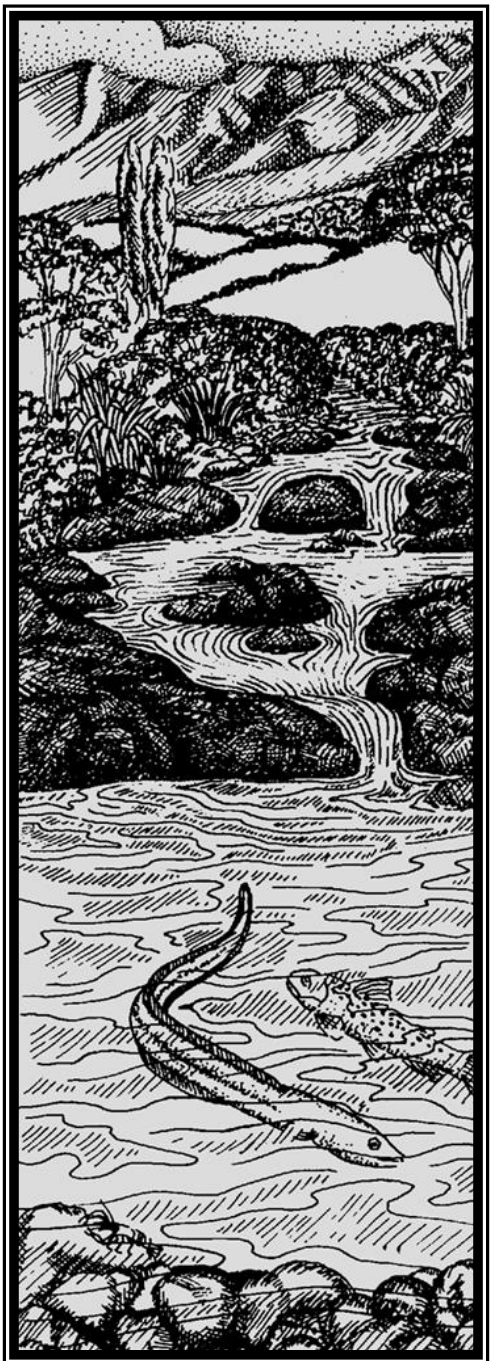
| | |
|---|---|
| ~~**Agricultural waste**~~ | ~~Waste from an agricultural process or premises that is derived from primary agricultural production. This includes animal waste and animal dip material.~~ |
| **Animal waste** | Faeces or urine from any animal. |
| **Animal waste system** | ~~Includes~~ Means the collection, conveyance, storage, treatment, disposal or application of liquid or solid animal waste. |
| **Dairy Effluent Storage Calculator** | Means the Dairy Effluent Storage Calculator available from Otago Regional Council's website at http://www.orc.govt.nz/ |
| **Suitably Qualified Person** | A person that has been assessed and approved by the Otago Regional Council as being appropriately qualified, experienced and competent in the relevant field of expertise. |

# **Part C:** Good farming practices

**Relevant provisions:**

# 7

# Water Quality



**7.1 Introduction** *[Unchanged]*

**7.2 Issues in general** *[Repealed – 1 May 2014]*

**7.3 Issues related to point source discharges to water** *[Repealed – 1 May 2014]*

**7.4 Issues related to non-point source discharges to water** *[Repealed – 1 May 2014]*

**7.5 Objective** *[Repealed – 1 May 2014]*

**7.A Objectives** *[Unchanged]*

**7.B Policies general** *[Unchanged]*

**7.C Policies for discharges of human sewage, hazardous substances, hazardous wastes, specified contaminants, and stormwater; and discharges from industrial or trade premises and consented dams**

**7.C.1 – 7.C.4** *[Unchanged]*

**7.C.5 – 7.C.6** *[Amended - Part A]*

**7.C.7 – 7.C.11** *[Unchanged]*

**7.C.12** *[New - Part A]*

**7.D Policies for discharges of water and contaminants, excluding those discharges provided for in 7.C**

**7.D.1 – 7.D.4** *[Unchanged]*

**7.D.5** *[Amended - Part A]*

**7.D.6** *[New - Part A]*

**7.D.7– 7.D.8** *[New - Part B]*

**7.D.9** **Enable farming activities while reducing their adverse environmental effects by:**

**(a) Promoting the implementation of good management practices (or better) to reduce sediment and contaminant loss to water bodies; and**

**(b) Managing stock access to water bodies to:**

**(i) Progressively exclude stock from lakes, wetlands, and continually flowing rivers; and**

**(ii) Avoid significant adverse effects on water quality, bed and bank integrity and stability, Kai Tahu values, and river and riparian ecosystems and habitats; and**

**(c) Setting minimum standards for intensive grazing; and**

**(d) Managing the risk of sediment run off from farming activities by:**

**(i) Implementing setbacks from water bodies and establishing riparian margins, and**

**(ii) Limiting areas and duration of exposed soil; and**

**(e) Promoting the identification and management of critical source areas within individual properties, to reduce the risk of nutrient or microbial contamination and sediment run-off.**

**7.D.10** *[New Part – Part G]*

## 7.6 Policies for the enhancement of water quality *[Repealed – 1 May 2014]*

## 7.7 Policies for point source discharges *[Repealed – 1 May 2014]*

## 7.8 Policies for non-point source discharges *[Repealed – 1 May 2014]*

## 7.9 Anticipated environmental results *[Repealed – 1 May 2014]*

# 21
# Glossary

***The table below only contains the Plan's definitions which are particularly relevant for this plan change***

| | |
|---|---|
| **Critical source area** | Means a landscape feature such as a gully, swale, or depression that accumulates runoff from adjacent flats and slopes and delivers it to surface water body such as rivers and lakes, artificial waterways, and field tiles. |
| ~~**Feed pad**~~ | ~~Any confined, uncovered structure, located on production land, which is designed for the purpose of controlled intensive feeding of stock with supplementary feed.~~ |
| ~~**Sacrifice paddock**~~ | ~~Any paddock which is set aside for the prolonged confinement and the controlled, intensive feeding of stock with supplementary feed, in order to avoid damage to their usual pasture.~~ |
| ~~**Stand-off pad**~~ | ~~Any purpose-built uncovered area, located on production land, for the confinement of stock in order to avoid damage to their usual pasture.~~ |

# **Part D:** Intensive grazing

**Relevant provisions:**

# 14

# Rules: Land Use other than in Lake or River Beds

**14.1 - 14.4** *[Unchanged]*

**14.5** *[New – Part G]*

## 14.6 Rural land uses

### 14.6.1 Permitted activities: No resource consent required

14.6.1.1 The use of land for intensive grazing is a ***permitted*** activity providing:

(a) The total cumulative area of the landholding used for intensive grazing is the lesser of:

(i) 100 hectares; or

(ii) 10% of the total cumulative area of the landholding.

(b) There is no intensive grazing in any critical source area; and

(c) Stock are progressively grazed (break-fed or block-fed) from the top of a slope to the bottom of a slope; and

(d) A vegetated strip of at least 10 metres is maintained between the intensively grazed area and any water body, and all stock are excluded from this strip during intensive grazing.

### 14.6.2 Discretionary activities: Resource consent required

14.6.2.1 Except as provided by Rule 14.6.1.1, the use of land for intensive grazing is a ***discretionary*** activity.

**14.7** *[New – Part B]*

# 21
# Glossary

***The table below only contains the Plan's definitions which are particularly relevant for this plan change***

| | |
|---|---|
| **Intensive grazing** | Means grazing of stock on forage crops (including brassica, beet and root vegetable crops), excluding pasture and cereal crops. |

# **Part E:** Stock access to water

**Relevant provisions:**

# 13

# Rules: Land Use on Lake or River Beds or Regionally Significant Wetlands

| | | |
|---|---|---|
| Note: | 1. | Where the rules in this chapter provide for any activity in the bed of a lake or river, or in any Regionally Significant Wetland, a resource consent may also be required for activities associated with it, such as discharges to water, takes of water, damming or diversion of water, bed disturbance or structures. |
| | 2. | A wetland may include open water which is part of a lake. |

## 13.1 - 13.4 *[Unchanged]*

## 13.5 Alteration of the bed of a lake or river, or of a Regionally Significant Wetland

### 13.5.A General rules for section 13.5 *[Unchanged]*

### 13.5.1 Permitted activities: No resource consent required

13.5.1.1 - 13.5.1.7 *[Unchanged]*

13.5.1.8 *[Repealed – 1 May 2014]*

13.5.1.8A The disturbance of the bed of any lake or river, or any Regionally Significant Wetland by livestock, excluding intentional driving of livestock, and any resulting discharge or deposition of bed material, is a ***permitted*** activity, providing ~~it does not~~:

(a) It does not

(i) Involve feeding out on that bed or wetland; or

(~~b~~ii) Cause or induce noticeable slumping, pugging or erosion; or

(~~c~~iii) Result in a visual change in colour or clarity of water; or

(~~d~~iv) Damage fauna, or New Zealand native flora, in or on any Regionally Significant Wetland; and

(b) From 2022:

(i) All dairy cattle and pigs are excluded from the beds of lakes, continually flowing rivers wider than 1 metre and Regionally Significant Wetlands; and

(ii) where stock are excluded under (i), a setback of five metres from the beds of lakes, continually flowing rivers wider than 1 metre and Regionally Significant Wetlands is implemented.

| | |
|---|---|
| Note: | 1. For the purposes of Rule 13.5.1.8A(b), a continually flowing river is considered to be wider than 1 metre if the river is wider than 1 metre at any point within the boundary of a landholding at its annual fullest flow without overtopping its banks. |
| | 2. For the purposes of Rule 13.5.1.8A(b)(ii), setbacks are measured from the edge of the wetted bed of a lake or river wider than 1 metre or Regionally Significant Wetland and are averaged across the landholding. |

13.5.1.8B *[Unchanged]*

13.5.1.9 *[Unchanged]*

13.5.1.10 *[New Part F]*

**13.5.2 & 13.5.3** *[Unchanged]*

## 13.6 & 13.7 *[Unchanged]*

# 21
# Glossary

***The table below only contains the Plan's definitions which are particularly relevant for this plan change***

| | |
|---|---|
| **Dairy cattle** | Means cattle farmed for milk production and includes dairy cows, weaned and unweaned calves of dairy cows, and non-milking dairy cattle such as youngstock and bulls. |

# **Part F:** Sediment traps

**Relevant provisions:**

# 13

# Rules: Land Use on Lake or River Beds or Regionally Significant Wetlands

| | | |
|---|---|---|
| Note: | 1. | Where the rules in this chapter provide for any activity in the bed of a lake or river, or in any Regionally Significant Wetland, a resource consent may also be required for activities associated with it, such as discharges to water, takes of water, damming or diversion of water, bed disturbance or structures. |
| | 2. | A wetland may include open water which is part of a lake. |

## 13.1 - 13.4 *[Unchanged]*

## 13.5 Alteration of the bed of a lake or river, or of a Regionally Significant Wetland

### 13.5.A General rules for section 13.5 *[Unchanged]*

### 13.5.1 Permitted activities: No resource consent required

13.5.1.1 - 13.5.1.7 *[Unchanged]*

13.5.1.8 *[Repealed – 1 May 2014]*

13.5.1.8A *[Amended – Part E]*

13.5.1.8B *[Unchanged]*

13.5.1.9 *[Unchanged]*

13.5.1.10 The disturbance of the bed of any ephemeral or intermittently flowing river for the purpose of constructing or maintaining a sediment trap is a ***permitted*** activity providing:

(a) The construction or maintenance of the sediment trap is undertaken solely for sediment control purposes or to maintain the capacity and effective functioning of the sediment trap; and

(b) The construction or maintenance does not result in destabilisation of any lawfully established structure or cause increased risk of flooding or erosion; and

(c) The works do not occur in flowing water; and

(d) The sediment trap cannot be accessed by livestock; and

(e) Any build-up of sediment and other debris (including vegetation) within the sediment trap is removed as soon as practicable; and

(f) All reasonable steps are taken to minimise the release of sediment to the ephemeral or intermittently flowing river during the disturbance and there is no conspicuous change in the colour or clarity of the water body beyond a distance of 200 metres downstream of the disturbance; and

(g) No lawful take of water is adversely affected as a result of the disturbance; and

(h) There is no change to the water level range or hydrological function of any Regionally Significant Wetland; and

(i) There is no damage to fauna or New Zealand native flora in or on any Regionally Significant Wetland.

# 21
# Glossary

***The table below only contains the Plan's definitions which are particularly relevant for this plan change***

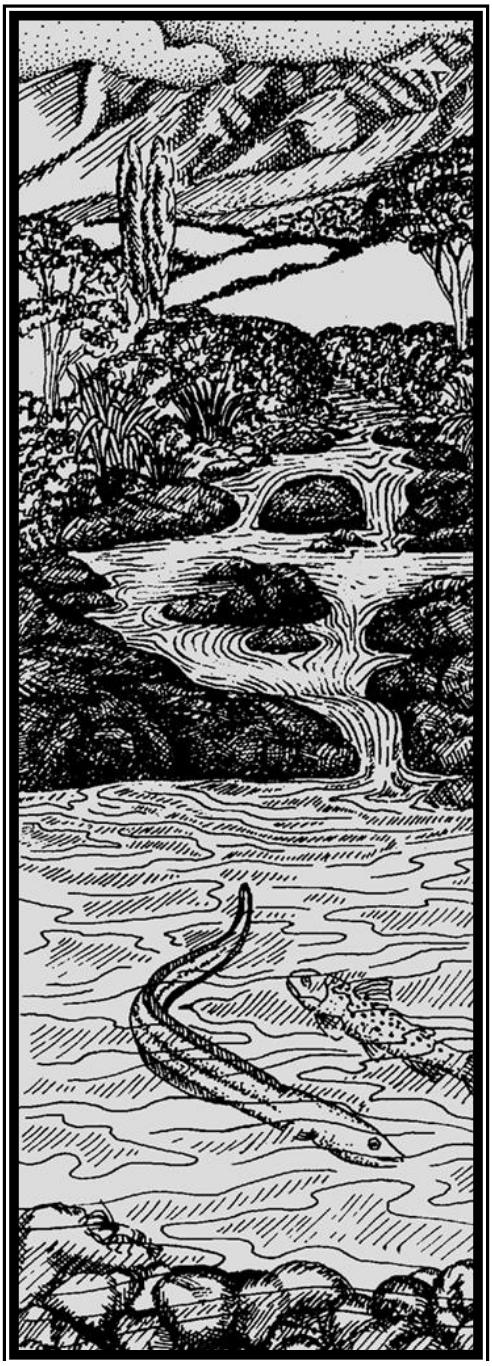
| | |
|---|---|
| **Sediment trap** | An excavated area in the bed of an ephemeral or intermittently flowing river designed and constructed solely for the purpose of slowing water velocity to allow sediments to drop from the water column. |

# **Part G:** Sediment from earthworks for residential development

**Relevant provisions:**

# 7

# Water Quality



**7.1 Introduction** *[Unchanged]*

**7.2 Issues in general** *[Repealed – 1 May 2014]*

**7.3 Issues related to point source discharges to water** *[Repealed – 1 May 2014]*

**7.4 Issues related to non-point source discharges to water** *[Repealed – 1 May 2014]*

**7.5 Objective** *[Repealed – 1 May 2014]*

**7.A Objectives** *[Unchanged]*

**7.B Policies general** *[Unchanged]*

**7.C Policies for discharges of human sewage, hazardous substances, hazardous wastes, specified contaminants, and stormwater; and discharges from industrial or trade premises and consented dams**

**7.C.1 – 7.C.4** *[Unchanged]*

**7.C.5 – 7.C.6** *[Amended - Part A]*

**7.C.7 – 7.C.11** *[Unchanged]*

**7.C.12** *[New - Part A]*

**7.D Policies for discharges of water and contaminants, excluding those discharges provided for in 7.C**

**7.D.1 – 7.D.4** *[Unchanged]*

**7.D.5** *[Amended - Part A]*

**7.D.6** *[New - Part A]*

**7.D.7– 7.D.8** *[New Part B]*

**7.D.9** *[New Part – Part C]*

**7.D.10 The loss or discharge of sediment from earthworks is avoided or, where avoidance is not achievable, best practice guidelines for minimising sediment loss are implemented.**

**7.6 Policies for the enhancement of water quality** *[Repealed – 1 May 2014]*

**7.7 Policies for point source discharges** *[Repealed – 1 May 2014]*

## 7.8 Policies for non-point source discharges *[Repealed – 1 May 2014]*

## 7.9 Anticipated environmental results *[Repealed – 1 May 2014]*

# 14

# Rules: Land Use other than in Lake or River Beds

**14.1 - 14.4** *[Unchanged]*

## 14.5 Earthworks for residential development

Note: 1. The rules in Section 14.5 do not apply to earthworks or soil disturbances covered by the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017.
2. Discharges resulting from earthworks are addressed only through rules in section 14.5.

### 14.5.1 Permitted activities: No resource consent required

14.5.1.1 The use of land, and the associated discharge of sediment into water or onto or into land where it may enter water, for earthworks for residential development is a ***permitted*** activity providing:

(a) The area of exposed earth is no more than 2,500 $m^2$ in any 12-month period per landholding; and

(b) Earthworks do not occur within 10 metres of a water body, a drain, a water race, or the coastal marine area; and

(c) Exposed earth is stabilised upon completion of the earthworks to minimise erosion and avoid slope failure; and

(d) Earthworks do not occur on contaminated or potentially contaminated land; and

(e) Soil or debris from earthworks is not placed where it can enter a water body, a drain, a race or the coastal marine area; and

(f) Earthworks do not result in flooding, erosion, land instability, subsidence or property damage at or beyond the boundary of the property where the earthworks occur; and

(g) The discharge of sediment does not result in any of the following effects in receiving waters, after reasonable mixing:

(i) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or

(ii) any conspicuous change in the colour or visual clarity; or

(iii) any emission of objectionable odour; or

(iv) the rendering of fresh water unsuitable for consumption by farm animals; or

(v) any significant adverse effects on aquatic life.

### 14.5.2 Restricted discretionary activities: Resource consent required

14.5.2.1 Except as provided by Rule 14.5.1.1, the use of land, and the associated discharge of sediment into water or onto or into land

where it may enter water, for earthworks for residential development is a ***restricted discretionary*** activity.

In considering any resource consent under this rule, the Otago Regional Council will restrict the exercise of its discretion to the following:

(a) Any erosion, land instability, sedimentation or property damage resulting from the activities; and

(b) Effectiveness of the proposed erosion and sediment control measures in reducing discharges of sediment to water or to land where it may enter water; and

(c) Compliance with the *Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016 (Auckland Council Guideline Document GD2016/005)*; and

(d) Any adverse effect on water quality, including cumulative effects, and consideration of trends in the quality of the receiving water body; and

(e) Any adverse effect on any natural or human use value, and on use of the coastal marine area for contact recreation and seafood gathering; and

(f) Measures to avoid, remedy or mitigate adverse effects on Kāi Tahu cultural and spiritual beliefs, values and uses.

**14.6** *[New – Part D]*

**14.7** *[New – Part B]*

# 21
# Glossary

***The table below only contains the Plan's definitions which are particularly relevant for this plan change***

| | |
|---|---|
| **Earthworks** | Means the alteration or disturbance of land, including by moving, removing, placing, blading, cutting, contouring, filling or excavation of earth (or any matter constituting the land including soil, clay, sand and rock); but excludes gardening, cultivation, and disturbance of land for the installation of fence posts. |

# **Part H:** Nationally or regionally important infrastructure

**Relevant provisions:**

# 10
# Wetlands

## 10.1 Introduction *[Repealed – 1 October 2013]*

## 10.2 Issues *[Repealed – 1 October 2013]*

## 10.3 Objectives *[Unchanged]*

## 10.4 Policies

**10.4.1 & 10.4.1A** *[Unchanged]*

**10.4.2 Avoid the adverse effects of an activity on a Regionally Significant Wetland or a regionally significant wetland value, but allow remediation or mitigation of an adverse effect only when the activity:**

**(a) Is lawfully established; or**

**(b) Is nationally or regionally <u>significant</u> ~~important~~ infrastructure, and has specific locational constraints; or**

**(c) Has the purpose of maintaining or enhancing a Regionally Significant Wetland or a regionally significant wetland value.**

**10.4.2A** *[Unchanged]*

**10.4.3 - 10.4.5** *[Repealed – 1 October 2013]*

**10.4.6** *[Unchanged]*

**10.4.7** *[Repealed – 1 October 2013]*

## 10.5 Anticipated Environmental Results *[Repealed – 1 October 2013]*

# Attachment 3

# Section 32 Evaluation Report

## Consideration of alternatives, benefits and costs

**Proposed Plan Change 8 (Discharge management)**

**to the Regional Plan: Water for Otago**

**Proposed Plan Change 1 (Dust suppressants and landfills)**

**to the Regional Plan: Waste for Otago**

*This Section 32 Evaluation Report should be read in conjunction with Proposed Plan Change 8 (Discharge management) to the Regional Plan: Water for Otago and Proposed Plan Change 1 (Dust suppressants and landfills) to the Regional Plan: Waste for Otago.*

Otago Regional Council

**9 April 2020**

# Table of contents

# Abbreviations

| | |
|---|---|
| ORC | Otago Regional Council |
| NPSFM | National Policy Statement for Freshwater Management 2014 (amended 2017) |
| LWRP | Otago Land and Water Regional Plan (to be notified in 2023) |
| PC1 | Proposed Plan Change 1 (Dust suppressants and landfills) to the Waste Plan |
| PC6A | Plan Change 6A |
| PC6AA | Proposed Plan Change 6AA |
| PC8 | Proposed Plan Change 8 (Discharge management) to the Water Plan |
| PORPS 2016 | Proposed Otago Regional Policy Statement – Decisions version |
| PORPS 2019 | Partially Operative Regional Policy Statement 2019 |
| PIP | Progressive Implementation Programme |
| RPS 1998 | Regional Policy Statement for Otago 1998 |
| RMA | Resource Management Act 1991 |
| The Plan Changes | Proposed Plan Change 8 to the Water Plan and Proposed Plan Change 1 to the Waste Plan |
| Waste Plan | Regional Plan: Waste for Otago |
| Water Plan | Regional Plan: Water for Otago |

# Executive Summary

Otago Regional Council (ORC) has approved the commencement of a review of the Regional Plan: Water for Otago and Regional Plan: Waste for Otago and a Progressive Implementation Programme for giving effect to the National Policy Statement for Freshwater Management 2014 (as amended 2017; NPS-FM). While this longer-term work is undertaken, ORC is proposing a series of plan changes[1] to address known deficiencies in the current planning framework. Collectively, these will introduce a strengthened interim management regime for specific water quality and quantity issues in Otago that will, in time, be superseded by a new Land and Water Regional Plan (LWRP).

Proposed Plan Change 8 (Discharge Management) to the Water Plan and Proposed Plan Change 1 (Dust suppressant and landfills) to the Waste Plan introduce a range of amendments targeting specific issues or activities known to be contributing to water quality issues in parts of Otago. Primarily this occurs by introducing new or amended provisions managing a range of rural activities as well as sediment from earthworks to address practices contributing to not achieving the water quality outcomes sought for Otago. In summary:

- Proposed Plan Change 8 amends existing, and introduces new provisions for:
    - Managing, through enhanced policy direction, decision-making on stormwater, wastewater and rural discharges
    - Effluent storage and application to land through new minimum standards
    - Promoting good farming practices, including better managing contaminant loss from intensive grazing and stock access to water bodies as well as incentivising the use of small in-stream sediment traps
    - Improving management of sediment loss from earthworks for residential development, and
    - Clarifying provision for nationally and regionally significant infrastructure in wetlands
- Proposed Plan Change 1 amends existing provisions for:
    - Use of dust suppressants and waste oil, and
    - Minimum standards for new landfills

[1] Proposed Plan Change 6AA to the Regional Plan: Water (notified in October 2019); Proposed Plan Change 7 to the Regional Plan: Water (notified on 18 March 2020); and Proposed Plan Change 8 to the Regional Plan: Water and Proposed Plan Change 1 to the Regional Plan: Waste (the Plan Changes that are the subject of this section 32 evaluation report).

# 1. Introduction

## 1.1. Purpose

The Resource Management Act 1991 (RMA) requires councils, when proposing changes to plans, to prepare an evaluation report in accordance with section 32 of the RMA. The purpose of this report is to set out the evaluation that ORC has undertaken of Proposed Plan Change 8 (Discharge Management) to the Water Plan and Proposed Plan Change 1 (Dust suppressant and landfills) to the Waste Plan (the Plan Changes).

Section 32 requires that the objectives of the Plan Changes must be examined for their appropriateness in achieving the purpose of the RMA and that the benefits, costs and risks of new policies and rules need to be clearly identified and assessed. This report documents the analysis under section 32 so stakeholders and decision-makers can understand the rationale for policy choices.

The Plan Changes are intended to strengthen Otago's regional planning framework in the interim period while a new Regional Policy Statement is prepared and the Water Plan and Waste Plan reviews are undertaken.

## 1.2. Structure

This report has been structured to reflect that it covers both Plan Changes, as follows:

- Part 1: Introduction
- Part 2: Consultation
- Part 3: Evaluation of Proposed Plan Change 8 to the Water Plan
- Part 4: Evaluation of Proposed Plan Change 1 to the Waste Plan
- Part 5: Planning context
- References

## 1.3. Requirements of section 32 of the RMA

ORC is required to prepare an evaluation report for the Plan Changes in accordance with section 32 of the RMA.[2] Section 32(1) sets out the requirements for an evaluation report, which are:

- Examining the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of the RMA;
- Examining whether the provisions in the proposal are the most appropriate way to achieve the objectives by –
  - identifying other reasonably practicable options for achieving the objectives; and
  - assessing the efficiency and effectiveness of the provisions in achieving the objectives; and
  - summarising the reasons for deciding on the provisions; and
- containing a level of detail that corresponds to the scale and significance of the environmental, economic, social and cultural effects that are anticipated from the implementation of the proposal.

Section 32(6) defines "objectives" as:

[2] Clause 5, Schedule 1 to the RMA

- for a proposal that contains or states objectives, those objectives; and
- for all other proposals, the purpose of the proposal.

Section 32(2) states that an examination of the appropriateness of the provisions must:

- identify and assess the benefits and costs of the environmental, economic, social and cultural effects anticipated from the implementation of the provisions, including the opportunities for:
  - Economic growth that are anticipated to be provided or reduced; and
  - Employment that are anticipated to be provided or reduced;
- if practicable, quantify the benefits and costs; and
- assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

The evaluation report must also summarise any advice on the proposal received from iwi authorities, including the Council's response to that advice and any provisions that are intended to give effect to the advice.

## 1.4. Background

In October 2018, ORC approved the commencement of a full review of the Water Plan and approved a Progressive Implementation Programme (PIP), as provided for in the NPS-FM 2014 (as amended 2017). The PIP, which was publicly notified in December 2018, sets out the various actions and timeframes for implementing the NPS-FM. Together, these programmes of work are intended to fully revise and replace the current Regional Plans for Water and Waste. In order to support the full review of the Plans and strengthen the existing policy framework in the interim period, the Council approved the development of PC6AA, PC8 and PC1 in August 2019, including the topics considered within scope of PC8 and PC1 in particular.[3]

In 2019, a review of ORC's planning functions was commissioned by the Minister for the Environment and undertaken by his appointee, Honorary Professor Peter Skelton. After receiving Professor Skelton's report and recommendations, in November 2019 the Minister for the Environment made a number of recommendations to ORC on the future of its freshwater planning framework. These were accepted by ORC in late November and include agreement to:

- prepare a plan change, by 31 March 2020, that will provide an adequate interim planning and consenting framework to manage fresh water until new discharge and allocation limits are set in line with the NPSFM;
- review the existing regional policy statements and notify a new regional policy statement by November 2020; and
- notify a new regional plan for land and water resources in accordance with the requirements of the NPSFM by December 2023.

At the time of the Minister's recommendations, work on PC6AA and PC8 to the Water Plan and PC1 to the Waste Plan was already underway. PC6AA was notified in October 2019 and addresses immediate implementation issues with some of the discharge rules that were introduced in 2014 through Plan Change 6A (PC6A) which have since been determined to be ambiguous, unenforceable and uncertain. The focus of PC6AA is to extend the date from which those rules become operative from 1

[3] See Council Policy Committee meeting agenda for 14 August, available at https://www.orc.govt.nz/media/7107/policy-committee-agenda-20190814.pdf

April 2020 to 1 April 2026 to provide time for the longer-term planning processes to occur. Council made a final decision on PC6AA on 8 February 2020 and no appeals have yet been received.

An additional plan change, Proposed Plan Change 7 (Water Permits) to the Water Plan (PC7) was prepared by ORC to manage applications for replacement water permits and deemed permits until a fit for purpose planning framework is developed through the new LWRP. PC7 was notified on 18 March 2020 and works alongside PC8 and PC1 to ensure both water quantity and quality issues are addressed in the interim period before a new regional planning framework (RPS and regional plan) is in place.

## 1.5. The Plan Changes

While the PIP is implemented and the full review of the Plans undertaken, ORC will continue to implement the operative Water and Waste Plans.[4] It is important that these Plans still deliver an effective and efficient water management framework, and that implementation supports (and does not undermine) the full plan reviews and the objectives of the NPSFM. Accordingly, PC8 and PC1 target the most significant deficiencies within the Water and Waste Plans. The proposals in PC8 and PC1 are limited in scope due to the need to improve specific practices as soon as possible and to recognise that any changes introduced may have a limited lifespan, given the scheduled review of both Plans. This also recognises the current uncertainty about the Government's proposals for changes to the current freshwater management framework.

The provisions of PC6A were intended to provide a framework for managing the effects of rural land uses on water quality. This framework included discharge contaminant concentration thresholds (Schedule 16) beyond which discharges require consent and a maximum nitrogen leaching limit per property, calculated using Overseer. The intent of PC6AA is to delay the implementation of those provisions, which leaves a 'gap' in the Plan for managing discharges from rural land uses. PC8 introduces a range of new provisions and amendments to existing provisions to strengthen the Water Plan's management of these types of discharges, as follows:

- Improved minimum standards for animal waste systems and application of animal waste to land;
- Targeted minimum standards and good farming practices for high-risk practices (intensive grazing and stock access to waterbodies);
- Enabling the installation and maintenance of sediment traps as a permitted activity, subject to standards.

There are also a range of known issues with the current Water and Waste Plans, mostly informed by implementation of their provisions by ORC's Consents and Compliance staff. Part of the scope of PC8 and the entirety of PC1 is to address these issues by introducing practical, targeted solutions that can be easily incorporated into a new regional plan in the future. Those changes cover:

- strengthened and clarified policy direction for assessing resource consent applications for discharges of stormwater, wastewater and from rural land uses;
- strengthened provisions for managing sediment loss from earthworks for residential development;
- clarification of one policy relating to the establishment of regionally important infrastructure in wetlands

[4] As is required by section 84(1) of the RMA. Section 84(1) states that *"While a policy statement or a plan is operative, the regional council or territorial authority concerned, and every consent authority, shall observe and, to the extent of its authority, enforce the observance of the policy statement or plan."*

- improving controls on the use of dust suppressants, including prohibiting the use of waste oil as a dust suppressant; and
- strengthened policy direction for assessing resource consent applications for landfills.

PC8 and PC1 have been developed together and are intended to be progressed in combination to ensure an efficient Schedule 1 process.

# 2. Consultation

Due to the requirements following the Minister's recommendation for the Plan Changes to be developed and notified in a short timeframe and their narrow scope, consultation with key stakeholders and the community has been targeted. The consultation undertaken on particular topics is outlined below. In addition, staff from Aukaha have been involved in internal meetings and workshops on the development of the Plan Changes. Aukaha is a Rūnaka -based consultancy service with Governance from five Rūnaka owners: Te Rūnanga o Waihao, Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga.

### 2.1.1. Animal waste storage and application

Prior to the development of PC8, ORC staff had a number of informal discussions with members of the dairy industry regarding the need for greater direction on acceptable minimum standards for the storage and application of animal waste. DairyNZ in particular was supportive of a clearer management regime for Otago that would bring the region closer to storage and application practices in place elsewhere in the country. Table 1 below outlines the details of the consultation that occurred through 2019 and 2020.

*Table 1: Consultation on animal waste storage and application*

| Date | Participants | Description |
|---|---|---|
| 11 October 2019 | DairyNZ | Written advice received from DairyNZ regarding current issues with effluent storage and application and proposed minimum standards. |
| 25 October 2019 | DairyNZ<br>ORC | Meeting to discuss DairyNZ's proposed minimum standards. |
| 6 December 2019 | DairyNZ<br>Fonterra<br>Otago Dairy working groups<br>ORC | Meeting to discuss minimum standards for storage and application. |
| 21 January 2020 | Dairy NZ<br>Fonterra<br>Aukaha<br>Te Ao Marama<br>ORC | Meeting to discuss implementation and support available for farmers. |

### 2.1.2. Sediment from earthworks

A meeting was held on 21 November 2019 with staff from Otago Regional, Dunedin City, Central Otago District, Queenstown-Lakes District, Clutha District and Waitaki District councils. The focus of the meeting was to discuss the current issues with sediment management in Otago, clarify the various district council controls and discuss potential regulatory and non-regulatory solutions.

### 2.1.3. Nationally or regionally important infrastructure

In the course of processing consent applications for which Policy 10.4.2 is relevant, there have been differing views on whether the term "nationally or regionally important infrastructure" in the Water Plan is to be read as equivalent to the term "nationally and regionally significant infrastructure" in the PORPS 2019.

On 16 December 2019, ORC sent an email to the Department of Conservation, Forest and Bird and Aukaha seeking feedback on two options for resolving the issues with the reference to nationally and regionally important infrastructure in Policy 10.4.2: aligning the definition with the PORPS 2016 or retaining the status quo until there is clarity over the Government's proposed NESFW (which contains a definition of the term "nationally significant infrastructure" as well as a suite of provisions for managing wetlands which include reference to that term). Feedback was received from Aukaha which supported the proposal to align the definition with the PORPS 2019.

### 2.1.4. Discharge policies

On 23 January 2020, ORC staff had an informal discussion with staff from the Dunedin City Council's Three Waters Department regarding the proposed changes to the policies for managing stormwater and wastewater discharges and landfills.

## 2.2. Pre-notification consultation: Clause 34, Schedule 1

Where a plan or plan change intends to incorporate material by reference, Clause 34(2) of Schedule 1 to the RMA requires ORC to publicly notify that the material is to be incorporated, make copies of the material available for public inspection and allow a reasonable opportunity for people to comment on the proposal.

Public notice was provided on 14 February 2020 and comments were received until 28 February 2020. Two submissions were received within the submission period (from Fulton Hogan and Louise Croot) and one was received late on 4 March 2020 (the Oil Companies). The feedback received and ORC's response is included in Table 2 below.

*Table 2: Summary of feedback from clause 34(2) consultation*

| Respondent | Summary of feedback | ORC response to feedback |
|---|---|---|
| Fulton Hogan | Section F of the Sediment and Erosion Control Guidelines contains a degree of prescription about current market brands and specifications. Suggest ORC ensures there is provision for alternatives in order to future-proof the application of the document. | No changes recommended. Compliance with the Guidelines is a matter of discretion under restricted discretionary Rule 14.5.2.1 which allows for case-by-case assessments to be made through resource consent applications. |
| | The waste acceptance criteria and site classification guidance in the Technical Guidelines for Disposal to Land is under review by the Ministry for the Environment. | Note that there may be an issue with parts of the Technical Guidelines. ORC considers it would be useful to hear more widely from the public through submissions before recommending any changes. |
| | Questions how the construction sector will be engaged if these documents are to be used. | ORC will develop material to support implementation of the Plan Changes, including factsheets and guidance, and revised applications forms and consent conditions where relevant. |
| Louise Croot | Comments on the effectiveness of the Waste Plan generally. | Note. The Waste Plan will be reviewed and incorporated into the LWRP. |
| | Support for incorporating the Technical Guidelines for Disposal to Land by reference. | Note. |

| | | |
|---|---|---|
| | Some of the language in the Technical Guidelines for Disposal to Land is euphemistic. | Note that some of the language is lacking direction, however this is still considered an improvement on the current Plan provisions. |
| | Mapping of waste disposal sites with location, dates and monitoring is crucial for future planning. Closed landfills need more monitoring. | Note. ORC is aware of the locations of existing landfills due to the requirement for them to have resource consent. Only new landfills are within scope of PC1 and these will also require resource consent so mapping is not required. Closed landfills are not within the scope of PC1. |
| Oil Companies | Do not support incorporating of the Technical Guidelines for Disposal to Land. Emphasise that they have not been endorsed by MfE. | Note. |
| | Particular issues with Chapter 6 (Waste Acceptance and Monitoring) and associated appendices (C, D, E, F, G, H). Hydrocarbon restrictions are unjustified and unduly conservative. | Note that there may be an issue with parts of the Technical Guidelines. ORC considers it would be useful to hear more widely from the public through submissions before recommending any changes. |

## 2.3. Pre-notification consultation: Clause 3, Schedule 1

Clause 3(1) of Schedule 1 to the RMA requires ORC to consult certain parties during the preparation of a proposed plan, prior to the plan or plan change being notified. Clause 3B clarifies how the consultation with iwi authorities under clause 3(1)(d) is required to be undertaken. In accordance with these clauses, a draft copy of the Plan Changes was provided to the following parties for comment on 17 February 2020:

- Minister for the Environment
- Ministry for the Environment
- Minister of Conservation
- Department of Conservation
- Minister for Primary Industries
- Minister for Agriculture
- Central Otago District Council
- Clutha District Council
- Dunedin City Council
- Queenstown-Lakes District Council
- Waitaki District Council
- Southland Regional Council
- Canterbury Regional Council
- Aukaha, Te Ao Marama Inc, and Te Rūnanga o Ngāi Tahu as iwi authorities

Two responses to the Clause 3 consultation was received, from Aukaha (on behalf of Te Rūnanga o Waihao, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga). The key points and ORC's response are summarised in Table 3 below.

*Table 3: Summary of feedback from clause 3(1) consultation*

| Respondent | Summary of feedback | ORC response to feedback |
|---|---|---|
| **Plan Change 8 to the Water Plan** | | |

| | | |
|---|---|---|
| Aukaha on behalf of:<br>Te Rūnanga o Waihao<br>Kāti Huirapa Rūnaka ki Puketeraki<br>Te Rūnanga o Ōtākou<br>Hokonui Rūnanga (Ngā Rūnanga) | Overall plan changes appear to be sound and generally in accordance with Nga Rūnanga kaupapa. Supportive of stronger policy direction and better environmental outcomes sought through this plan change and believe this is a good starting point. | Note support. |
| | Policy 7.C.12(c) – Any discharge of human sewage or water containing sewage is highly offensive to mana whenua and will have significant adverse effects on cultural values. | No changes recommended. Discharges of human sewage are either permitted or discretionary under the rules in section 12.A. Reassessing those rules is not within the scope of PC8, therefore stronger direction in Policy 7.C.12 would conflict with the rule framework. Wider issue will be reconsidered for full plan review. |
| | Policies in 7.D – Request consistent wording throughout section 7.D: "Kāi Tahu cultural and spiritual beliefs, values and uses." | Proposed wording adopted for policies 7.D.5 – 7.D.10, which are the only policies in scope of PC8. |
| | Policy 7.D.5(f) – Prefer "significant adverse effects are avoided." | No changes recommended. This would require reassessment of the rules in section 12.C which is outside the scope of PC8. |
| | Policy 7.D.7(d) – Support consenting of effluent systems, note that waterway contamination adversely affects the mauri of the water and mahika kai. | Note. |
| | Policy 7.D.9(a) and (e) – Prefer "require" to "promote". | Note. Sub-clauses are intended to encourage changes in practice and signal ORC's future policy direction. |
| | Rule 12.C.0.4 – Include "to land in a manner which may result in ponding or overland flow to water". | Accept, amendments made. |
| | Rule 12.C.2.5 – Include Kāi Tahu values. | No changes recommended, Kāi Tahu values provided for in (v). |
| | Rule 13.5.1.8A(b) – Support stock exclusion, consider all stock should be excluded eventually. | Note. Proposed Policy 7.D.9(b)(i) indicates ORC's long-term objective to exclude stock from water bodies. |
| | Rule 13.5.1.8A(b) – All wetlands are culturally significant and should be undisturbed, not modified and protected. | No changes recommended. Current Rule only manages access to Regionally Significant Wetlands, proposed amendments continue this approach. Management of wetlands will be reviewed in detail through the Plan Review. |
| | Rule 13.5.1.8A(b) – Clarify whether "dairy cattle" includes milking cows, calves, heifers, replacement cows and non-milking cattle. | Accept, definition of "dairy cattle" included. |
| | Rule 13.5.1.10 – Clarify whether work can occur only if the bed is not wet during construction. | Accept, amendments made to 13.5.1.10(c). |
| | Rule 13.5.1.10 – Query degree of enabling of sediment traps, best practice to stop sediment entering waterways in the first place. | No changes recommended. Proposals for managing stock access to water, intensive grazing and earthworks will assist with improving sediment management at source. |
| | Rule 14.5.1.1 – Suggest adding water quality guidelines or more stringent land use controls to reduce effects of overland flow and run off. | Accept, additional condition included. |
| | Rules 14.7.1.1 and 14.7.2.1 – Recommend requiring leak detection system to be designed | No changes recommended. Requiring a secondary containment system to underlie |

| | | |
|---|---|---|
| | to capture leachate from under the entire storage pond. | the entire pond would be effective, however it is beyond what is currently considered good practice. Requiring systems to be fully lined or concrete provides an effective safeguard against leakage in the first instance. |
| | Rule 14.7.2.1 – Include Kāi Tahu values as a matter of control. | Accept, additional matter of control included. |
| | Schedule 19 – Typographical errors and repetition. | Accept, amended. |
| | Schedule 19A – Include an example to assist implementation, clarify that the number of times cows are milked in peak season is the maximum number per day. Suggest using a different symbol to denote a footnote. | Accept, amended. |
| | Schedule 19B – Include an example to assist implementation. | Accept, amended to include example. |
| | Definition of sacrifice paddock – Not used in Plan, could delete. | Accept, definition deleted. |
| Department of Conservation | Generally support plan changes. | Note. |
| | Policies 7.C.12, 7.D.7, 7.D.10; Rules 13.5.1.10, 14.6.1, 14.7 – Support | Note. |
| | Policy 7.C.6 – Support but note there is a risk that this policy will be seen as justification for sewage leaks and overflows continuing while upgrades are still in progress. | Note. Communication about the intent and short-term nature of these plan changes will be important during implementation. |
| | Policy 7.C.6(a) – Reword to prevent sewage entering the system. | Accept, amendments made. |
| | Policy 7.C.6(b) – Amend to "requiring" rather than "promoting". | No changes recommended. Clause (b) relates to the quality of the water discharged. Ahead of freshwater objectives and limits being set, it would be difficult to "require" upgrades in quality because there are no supporting objectives to identify the level of improvement required, limits to implement those objectives, or timeframes for making those improvements. This work will occur through the new LWRP. |
| | Policy 7.D.7(b)(i) – Should cover groundwater as well as surface water. | Accept, amended. |
| | Policy 7.D.8 – Clarify what performance standards are. | Accept, amended. |
| | Policy 7.D.9 – Support, not clear how ORC will implement the requirement to promote identification and management of critical source areas. | Note. This policy is intended to outline ORC's longer-term intent for managing farming activities. Some of the actions will be supported through non-regulatory methods at this stage |
| | Rule 12.C.0.4 – Include restrictions on ponding, overland flow and application to frozen land. | Accept, amended. |
| | Rule 12.C.1.4 – Concern that conditions do not align with prohibited activity conditions in Rule 12.C.0.4. | Accept, delete clauses (c) and (d) which are already conditions of the prohibited activity rule (12.C.0.4). |

| | | |
|---|---|---|
| | Rule 13.5.1.8A(b) – Support but include beef cattle, deer and pigs. | No changes recommended. Pigs are already included. Beef cattle are not farmed as intensively as dairy cattle and excluding deer comes with more significant costs than other types of stock. |
| | Rules 14.5.1.1, 14.5.2.1 – Support, strongly encourage ORC to work with territorial authorities to ensure a consistent approach to managing earthworks. Sediment from non-residential development can also have significant adverse effects. | Note. ORC recognises the need to work collaboratively with territorial authorities. Sediment management more broadly will be reviewed through the preparation of the new LWRP. |
| **Plan Change 1 to the Waste Plan** | | |
| Aukaha on behalf of:<br>Te Rūnanga o Waihao<br>Kāti Huirapa Rūnaka ki Puketeraki<br>Te Rūnanga o Ōtākou<br>Hokonui Rūnanga (Ngā Rūnanga) | Rule 6.6.2 – Suggest adding a permitted activity criteria stating that the oil will not reach waterways, including drains etc. which are connected to waterways, or that the discharge will not occur within XX metres of water. | No changes recommended. Rule 6.6.2 does not provide for use of oil, only non-hazardous or approved substances. The general prohibited activity rule for discharges in the Water Plan (Rule 12.C.0.1) also applies and would allow enforcement action to be taken if discharges are causing the types of adverse effects listed in the rule. |
| Department of Conservation | Policy 6.4.10 – Support, note waste oil has been used in areas outside Central Otago. | Accept, deleted "Central" from explanation. |
| | Rules 6.6.2, 6.6.3 – Better located in Water Plan. | No changes recommended. Ultimately these plans will be combined into a new LWRP. |
| | 7.4.11 – Support the use of Technical Guidelines. | Note. |

## 2.4. Pre-notification consultation: Clause 4A, Schedule 1

Clause 4A of Schedule 1 to the RMA requires that, prior to notifying a proposed plan or plan change, ORC must provide a copy of the draft plan change to the iwi authorities previously consulted under Clause 3(1)(d) and have particular regard to any advice received from those iwi authorities. Adequate time and opportunity must be allowed for iwi authorities to consider the draft and provide advice.

Additionally, section 32(4A) of the RMA requires an evaluation report prepared under section 32 to summarise all advice concerning the proposal received from iwi authorities under the relevant provisions of Schedule 1 and summarise the response to the advice, including any provisions of the proposal that are intended to give effect to the advice.

The summary of advice from iwi authorities and ORC's response to that advice is set out in Table 4 below.

*Table 4: Response to advice from iwi authorities*

| Respondent | Summary of feedback | ORC response to feedback |
|---|---|---|
| **Plan Change 8 to the Water Plan** | | |
| Aukaha on behalf of: | Appreciate the changes made throughout drafting to the proposed plan changes as | Note. |

| | | |
|---|---|---|
| Te Rūnanga o Waihao | these have made the provisions clearer and addressed some of the concerns raised. | |
| Kāti Huirapa Rūnaka ki Puketeraki<br>Te Rūnanga o Ōtākou<br>Hokonui Rūnanga (Ngā Rūnanga) | Rules 14.7.1.1 and 14.7.2.1 – Recommend requiring leak detection system to be designed to capture leachate from under the entire storage pond. Suggestion two options:<br>1. Rule 14.7.2.1 remains a controlled activity, however, provision (b) is strengthened by requiring a leak detection system that captures leaks from under the entire pond. An example of how the provision could be re-worded is below:<br>(b) (i) fully lined with an impermeable synthetic liner and has a leak detection system <u>capturing</u> ~~underlying~~ the <u>entire</u> storage pond… ; or<br>2. Rule 14.7.2.1 for new effluent storage ponds is moved from being a controlled activity to a restricted discretionary activity with risks of pond leakage being a matter of discretion. This would allow new pond construction to evolve with Good Management Practice but also ensure that they are built at least to current Good Management Practice. | Requiring a secondary containment system to underlie the entire pond would be effective, however it is beyond what is currently considered good practice. Requiring systems to be fully lined or concrete provides an effective safeguard against leakage in the first instance.<br>Accept that leak detection systems need to be appropriate, recommend amending Rule 14.7.2.1(b)(i) to require new ponds to have an effective leak detection system that underlies the storage pond. |
| **Plan Change 1 to the Waste Plan** | | |
| Aukaha on behalf of:<br>Te Rūnanga o Waihao<br>Kāti Huirapa Rūnaka ki Puketeraki<br>Te Rūnanga o Ōtākou<br>Hokonui Rūnanga (Ngā Rūnanga) | Rule 6.6.2 – Still consider additional conditions are required to prevent dust suppressants from entering water, either by including a setback for application or controls on application or other methods. | Accept in part, amended to include conditions regarding water quality. |

# 3. Proposed Plan Change 8 to the Water Plan

## 3.1. Introduction

This section of the report evaluates the provisions of PC8 in accordance with the requirements of section 32 of the RMA as set out in section 1.3 of this report. ORC is required to examine the extent to which the objectives of the proposal are the most appropriate way to achieve the purpose of the RMA. It is also required to examine whether the provisions in the proposal are the most appropriate way to achieve the objectives. For changes to existing plans, this examination must relate to the provisions and objectives of the amending proposal, and the objectives of the existing proposal (i.e. the operative plan). For each topic assessed in this section, the relevant objectives from the Water Plan and the objective(s) of the proposed amendments are identified.

## 3.2. Overview of Proposed Plan Change 8

The overall purpose of PC8 is to strengthen the management of particular activities in order to, at a minimum, maintain water quality in Otago. It does this by strengthening the policy direction provided to decision-makers on resource consent applications for a range of discharges (including from stormwater and wastewater systems, and farming activities) and introducing new or amended provisions for managing particular activities with discharges that are known to have adverse effects on water quality (animal waste storage and application, intensive grazing, stock access to water, and earthworks). It also seeks to incentivise the use of sediment traps as a method for reducing sedimentation in water bodies and makes a minor clarification to one policy on infrastructure provisions within wetlands.

## 3.3. Development of Proposed Plan Change 8

Section 1.4 provides the wider context for the development of PC8. In summary, PC8 has been developed to make targeted improvements to the Water Plan until the new LWRP is notified in 2023. PC8 focuses on addressing known deficiencies within the operative Water Plan, particularly those which manage various types of discharges. Many of these deficiencies relate to the management of water quality and have been identified for some time. These were intended to be addressed primarily through PC6A which, as previously outlined, has not delivered the outcomes sought.

As described in section 2, targeted consultation has occurred with some stakeholders. This consultation, as well as the developments in national policy and through the section 24 investigation, led to discussions about alternative options for some topics. Where that occurred, the section in this chapter containing the relevant evaluation also describes discounted options.

### 3.3.1. Previous plan changes

In 2012, ORC identified that water quality was deteriorating in some parts of Otago, indicating that the provisions in the Water Plan were not proving effective at maintaining water quality.[5] In addition, the NPSFM came into force in 2011 and had not been given effect in the Water Plan. ORC initiated PC6A to address these issues. That plan change sought to manage rural discharges to water through an effects-based framework, focusing on controlling contaminants discharging from land to water instead of controlling land use activities and nutrient inputs. This was intended to provide farmers with flexibility

[5] Section 32 Report – Consideration of alternative, benefits and costs: Proposed Plan Change 6A (Water Quality), 31 March 2012.

to determine the on-farm practices necessary to meet specified discharge limits. The rules for nutrient leaching and contamination concentration limits were to come into effect on 1 April 2020.

As that date approached, it became apparent that the provisions of PC6A were ambiguous, unenforceable and uncertain. The result is that activities may be permitted or require resource consent depending on the day-to-day circumstances on the property.

In response to these issues, ORC prepared PC6AA to delay the implementation of the provisions until 1 April 2026. This will have the effect of permanently preventing their implementation given that a new regional plan for water and land is intended to be notified in 2023. ORC made its final decision on PC6AA on 8 February 2020 and the appeal period is currently open. If no appeals are lodged, PC6AA will be able to be made operative under Clause 20, Schedule 1.

### 3.3.2. Scope of PC8

The scope of PC8 was originally approved by ORC in August 2019.[6] That paper outlined the issues identified with the Water Plan and recommended the development of a plan change addressing:

- Gaps in the current discharge rule framework, for the adoption of good farm management practices in Otago.
- Stock effluent management.
- Sediment control from earthwork activities.
- Discharge policy framework, including for discharges of wastewater-contaminated stormwater, or discharges from municipal wastewater treatment plants.
- Permission to install and maintain sediment traps.
- Stock access to water bodies.
- Uncertainty about the meaning of the term "regionally important infrastructure"
- Permission to discharge waste oil on road as dust suppressants.
- Overlaps between the Water Plan and the Waste Plan.

Shortly afterwards, in September 2019, the Government announced its *Action for healthy waterways* discussion document, a draft NPSFM and a proposed NESFW. Furthermore, the investigation into Otago's planning functions was provided to the Minister for the Environment in October 2019 and in November 2019 the Minister made a raft of recommendations to ORC, in particular to bring forward the notification date of the new regional plan for water and land from 2025 to 2023. The consequence of these developments was to revise the scope of PC8, recognising that some of the original topics were now proposed to be managed through national direction and the lifespan of the plan change was shortened from five years to three.

A brief explanation of the changes to the original topics is provided below in Table 5.

*Table 5: Revised scope of PC8*

| Topic | Change in scope | New topic |
|---|---|---|
| **Good farm management practices** | Potential for significant inconsistency with Government proposals, creating uncertainty and potentially unnecessary costs for farmers. Proposal to outline ORC's long-term strategy for managing farming activities and introduce minimum standards for intensive grazing and | Good farming practices:<br>• Intensive grazing<br>• Stock access to water bodies |

[6] *Plan changes for water quality*. Agenda item prepared for ORC Policy Committee, 14 August 2019.

| | | |
|---|---|---|
| | stock access to water and incentivise installation of sediment traps. | • Sediment traps |
| **Stock effluent management** | No change. | As per original |
| **Sediment control from earthworks activities** | No change. | As per original |
| **Discharge policy framework** | No change. | As per original |
| **Sediment traps** | No change. | Part of 'Good farming practices' |
| **Stock access to water bodies** | Potential for inconsistency with Government proposals. Focus revised to introducing a basic stock exclusion regime that would provide an interim step towards the type of comprehensive exclusion envisaged by Government regulation. | |
| **Regionally important infrastructure** | No change. | As per original |
| **Waste oil** | No change. | As per original |
| **Overlaps between Water/Waste Plans** | Preliminary assessments indicated that the overlaps between the Plans were a result of their underlying principles, which could not be resolved through a plan change. Resolving overlaps will occur through the review of both Plans. | Replaced with 'Landfills'. |

In addition to the topics above, ORC became aware that Dunedin City Council was preparing a resource consent application for a new landfill at Smooth Hill. Staff identified that the provisions in the Waste Plan for landfills were more than 20 years old and out of step with current best practice. Given the long-term nature of landfills, it was considered important to address the issues with the Waste Plan to assist with decision-making on any consent application lodged before the new LWRP is notified.

## 3.4. Evaluation of Proposed Plan Change 8

For the purposes of this evaluation, the provisions in PC8 are grouped by topic as follows:

- Discharge policies
- Animal waste storage and application
- Good farming practices (including intensive grazing, stock access to water and sediment traps)
- Sediment from earthworks
- Nationally or regionally important infrastructure

### 3.4.1. Discharge policies

#### 3.4.1.1. Introduction

This section of the report assesses the provisions proposed in PC8 to strengthen the policy direction in the Water Plan for discharges of stormwater and wastewater and provide clearer direction to decision-makers on resource consent applications for discharges resulting from rural land uses under the existing rule framework. The general policies in section 7.B apply to all discharges, but the policies in sections

7.C and 7.D apply to specific types of discharges only. The policies in section 7.C have not been subject to review or amendment in recent years and are not considered to be sufficient to achieve the objectives of the Plan. The policies in section 7.D were introduced in 2014 through PC6A. They are not considered to provide clear direction to decision-makers on resource consent applications made under the corresponding rules on the matters to consider in decision-making or appropriate consent duration.

The relevant provisions are:

- Amendments to Policy 7.C.5
- Amendments to Policy 7.C.6
- New Policy 7.C.12
- Amendments to Policy 7.D.5
- New Policy 7.D.6

#### 3.4.1.2. Objectives

Section 32 requires an evaluation report to examine the extent to which the proposed provisions are the most appropriate way of achieving the objectives of the proposal. The most relevant objectives in the Water Plan are:

- **7.A.1:** To maintain water quality in Otago lakes, rivers, wetlands, and groundwater, but enhance water quality where it is degraded.
- **7.A.2:** To enable the discharge of water of contaminants to water or land, in a way that maintains water quality and supports natural and human use values, including Kāi Tahu values.
- **7.A.3:** To have individuals and communities manage their discharges to reduce adverse effects, including cumulative effects, on water quality.

The objective of the discharge policies proposal is to clarify and strengthen the policy direction in the Water Plan for discharges of stormwater and wastewater and from rural land uses.

#### 3.4.1.3. Current issues

Sections 7.B, 7.C and 7.D of the Water Plan contain the policies for water quality that are used to guide decision-making when assessing resource consent applications. They apply differently depending on the activity, as follows:

- **Section 7.B** applies to all discharges and includes direction on effects to consider as well as guidance on consent decision-making. These policies were introduced through Plan Change 6A and were intended to provide a consistent and transparent policy framework applying to rural and urban discharges.[7]
- **Section 7.C** applies only to discharges of human sewage, hazardous substances, hazardous wastes, specified contaminants and stormwater, and discharges from industrial or trade premises and consented dams. There are specific rules to which each policy applies. Aside from one deletion, these policies were not addressed through Plan Change 6A as the intent was to review them separately through another plan change.
- **Section 7.D** applies only to discharges of water and contaminants excluding those provided for in section 7.C, generally referred to as rural discharges. These policies were introduced through

[7] Decisions of Council on Proposed Plan Change 6A: Water Quality (20 April 2013)

Plan Change 6A and were intended to address particular matters relevant to these types of discharges.

Implementation of these policies has identified that they do not provide adequate direction for the consenting of the following discharges:

- Discharges of stormwater that contain sewage
- Discharges of wastewater
- Rural discharges requiring resource consent under Rule 12.C.3.2

The Water Plan permits stormwater discharges except where they contain sewage. A review of these provisions has identified that the policies under which consent applications are assessed do not adequately address cross-contamination from wastewater, particularly from existing systems (ORC, 2018a). While these policies encourage improvements, there is not a strong mandate for requiring improvements to the types of cross-connection issues which lead to contamination of stormwater by sewage. These issues can make it difficult for resource consent decisions to effectively assist with achieving the objectives of the Water Plan.

ORC has identified that currently only 16% of municipally treated wastewater is discharged to land and that most of Otago's wastewater is discharged to water. Discharges to water and the coastal marine area impact on the mauri and associated cultural values of water bodies and are considered highly offensive to Kāi Tahu (ORC, 2018b). There are currently no policies in the Water Plan relating specifically to discharges of wastewater, nor does the Water Plan encourage a shift towards discharges to land. The absence of policy guidance affects the ability of resource consent decisions to assist with achieving the objectives of the Water Plan and fails to recognise Kāi Tahu values.

The policies for managing rural discharges in the operative Water Plan are focused primarily on directing the content of the resulting rules. The rules apply different activity statuses and consent duration for different activities, but there is little guidance within the policies to assist with decision-making on consent applications. This issue was noted in the decision on PC6AA, which states that "the discharge policies in the Water Plan are vague and do not provide much guidance over when such consent should be granted and under what conditions."[8] ORC Consents staff have begun to receive applications for long-term discharge permits under Rule 12.C.3.2 and consider that additional policy guidance would assist in making decisions on these consent applications, including on duration.

#### 3.4.1.4. Reasonably practicable options

Two reasonably practicable options were identified to achieve the objectives of the Water Plan and of the proposal itself:

- Option 1: Status quo
- Option 2: PC8

Option 1: Status quo

The status quo and associated issues are outlined in section 3.4.1.3. As outlined in that section, the status quo is not considered to be effective at achieving the objectives of the Water Plan.

[8] Decision of Council on Proposed Plan Change 6AA to the Regional Plan: Water for Otago, 8 February 2020, p.11.

Option 2: PC8

This option introduces amendments to existing policies for discharges of stormwater and from rural land uses, and new policies for wastewater and discharges from rural land uses. Broadly, this option:

- strengthens the expectations regarding reductions in sewage overflows into stormwater systems;
- encourages the progressive upgrade of stormwater reticulation systems in order to improve the quality of discharges;
- requires reducing adverse effects from wastewater discharges by requiring the design and ongoing operation of wastewater systems to be in accordance with recognised industry standards and outlines a preference for wastewater discharges to land over discharges to water; and
- clarifies the intent of existing policies relating to decision-making on applications for rural discharges, including matters for decision-makers to consider when assessing applications under Rule 12.C.3.2.

Option 2 is the preferred option and is assessed in more detail below. It is apparent that the status quo is not adequate and that improvements are needed to the policies so that they better assist with achieving the objectives of the Water Plan and with decision-making on resource consent applications.

### 3.4.1.5. Efficiency and effectiveness evaluation

Table 6 below identifies and assesses the benefits and costs of the environmental, economic, social and cultural effects that are anticipated from the implementation of the changes proposed under Option 2 above.

*Table 6: Benefits and costs for discharge policies*

| BENEFITS | COSTS |
|---|---|
| **Environmental** | |
| ▪ Provides clear signal for infrastructure providers over what action should be prioritised to reduce environmental effects:<br>o Progressive reduction in sewage overflows to stormwater networks.<br>o Encouraging a progressive improvement in the quality of discharges from stormwater systems.<br>o Progressive improvements in the design and operation of wastewater systems in order to reduce the adverse effects of discharges.<br>o Outlining a preference for discharges of wastewater to land over discharges to water.<br>▪ Incentivises discharges to land while still allowing consents to take into account the specific circumstances of the discharge. | ▪ Given the timeframes associated with infrastructure upgrades, there may continue to be negative impacts on the environment until infrastructure is upgraded in line with the policy direction. |
| **Economic** | |
| ▪ Clearer direction regarding expectations for discharge permits, both for applicants and ORC staff, will assist with reducing the costs of the consenting process.<br>▪ Clearer direction on consent duration for rural discharges will assist with managing the transition from the current Water Plan to the new LWRP by clarifying the term and nature of the investments made now. | ▪ There will be costs to territorial authorities in progressively reducing sewage overflows and upgrading wastewater systems. These may be significant but are not timebound, allowing costs to be spread over time. These costs have not been quantified and will depend on the individual circumstances of each system.<br>▪ There will be costs to farmers (and potentially others) from improving practices to justify the |

| | |
|---|---|
| ▪ Upgrades to infrastructure may benefit the economy, including through employment opportunities, although this is expected to be limited. | granting of a longer-term consent for rural discharges. |
| **Social** | |
| ▪ Reduction in adverse effects on human health from reductions in sewage overflows.<br>▪ Improved water quality supports recreational pursuits such as fishing. | ▪ Increased costs to territorial authorities are likely to require reprioritisation of future spending, which may affect the delivery of other services provided to communities by territorial authorities. |
| **Cultural** | |
| ▪ Better recognition of Kāi Tahu values, in particular by acknowledging that discharges of wastewater to water are considered offensive and may have significant adverse effects on those values.<br>▪ Improved water quality will better support Kāi Tahu values and uses of fresh water, particularly mahika kai.<br>▪ Policy direction that is better aligned with Kāi Tahu values may reduce the level of involvement of Kāi Tahu advisors at the individual consent stage. | ▪ The policies do not prevent culturally offensive discharges of wastewater to water. |

Table 7 below assesses the effectiveness and efficiency of the proposed amendments in achieving the objectives of the proposal.

*Table 7: Efficiency and effectiveness evaluation for discharge policies*

| | |
|---|---|
| **Efficiency** | This option assists with achieving the relevant objectives of the Water Plan while providing for a more efficient consenting process. Improvements to practice required or encouraged by the policies will increase costs for users, but clearer policy guidance may reduce the costs of consenting by reducing debate about ORC's expectations. This is considered to be an appropriate balance given the short-term nature of PC8. Restricting the duration of consents granted for rural discharges will assist with managing the transition to a new regional plan that is compliant with the NPSFM (i.e. includes freshwater objectives and limits). |
| **Effectiveness** | This option provides a clearer pathway towards achieving the objectives of the Water Plan to maintain water quality or improve it where it is degraded. In line with Objective 7.A.3, it focuses on requiring those responsible for managing their discharges to reduce adverse effects on water quality. Stormwater and wastewater discharges can reduce water quality at the point of discharge and contribute to overall reductions in water quality downstream of the discharge. However, these systems perform an important and valuable service to communities so any requirement to upgrade systems and the quality of discharges must occur at a rate that is sustainable for those communities to fund.<br><br>There are likely to be considerable costs associated with progressively upgrading stormwater and wastewater infrastructure, however it is not clear what proportion of those costs will be borne within the lifetime of the current Plan. As drafted, the policies provide flexibility for discussions around the speed of those upgrades which will assist with spreading the cost over an acceptable time period. Costs will be borne by those managing the discharges (territorial authorities) but the benefits will be experienced by the communities they represent.<br><br>This option will improve the implementation of the provisions managing rural discharges by setting out the matters to be considered by decision-makers but does not address the larger problem with the implementation of the corresponding rules.<br><br>For all policies in this option, PC8 represents an improvement on the status quo but not a full solution to the issues identified with the Water Plan. |

#### 3.4.1.6. Risk of acting or not acting

Section 32(2)(c) of the RMA requires ORC to take into account the risk of acting or not acting if there is uncertain or insufficient information. ORC does not hold comprehensive information about the state of Otago's existing stormwater or wastewater systems, meaning it is not known how many overflows exist presently or what kind of upgrades might be required to these systems as a result of the strengthened policy direction. There are 24 current consents for discharges of stormwater that contain wastewater, however only four expire before 2025 and are therefore likely to be directly impacted by PC8. The remainder expire between 2029 and 2053 and will be decided under the new LWRP which may carry through the direction contained in PC8.

Given the changes in PC8 will be implemented progressively as consents come up for renewal, or new consents are applied for, these costs are likely to be spread over time with the majority being incurred beyond the lifetime of the current Plan. In order to meet the objectives of the NPSFM, it is likely that improvements to the quality of these discharges will be required in the future anyway.

There is uncertainty about how many consent applications are likely to be lodged for rural discharges under Rule 12.C.3.2. As at 16 Mach 2020, 19 applications had been received by ORC under this rule and 18 granted with expiry dates ranging between 2023 and 2053. ORC staff consider that applications will continue to be lodged in the coming years. The amendments in PC8 to the relevant policies will assist ORC staff in making decisions on these types of applications until the new LWRP is notified.

Despite these information gaps and uncertainties, it is considered that the risk of not acting is greater than the risk of acting due to the need to strengthen the Water Plan in the interim period before the new LWRP is notified.

#### 3.4.1.7. Conclusion

Strengthening the minimum standards for stormwater and wastewater systems will assist with reducing the adverse effects associated with these discharges. Clarifying the intent of the policies for rural discharges will improve implementation of the existing rule framework by providing clarity to decision-makers on how to assess applications received under those rules. Better decision-making on all of these types of resource consents will assist in achieving the objectives of the Water Plan as well as the higher order documents. This is consistent with the general intent of the NPSFM, RPS 1998, PORPS 2019 and PORPS 2016 to maintain water quality, or enhance water quality where it is degraded.

The cost-benefit and efficiency and effectiveness assessments above have shown that the proposed amendments in Option 2 are more efficient than the status quo and are more effective at achieving the objectives of the Water Plan and the proposal. This will, in turn, better achieve the outcomes sought by the NPSFM, RPS 1998, PORPS 2016 and PORPS 2019, as well as the purpose of the RMA. The costs, while potentially significant in some cases, are considered to be appropriate in relation to the contribution of those discharges to water quality generally. Additionally, there is flexibility for improvements to occur at a rate that is financially sustainable for communities. Amending the policies for rural discharges will improve the implementation of the current rules, however as those rules have been found to be ambiguous, unenforceable and uncertain PC8 will not entirely resolve the current issues with the Water Plan for managing rural discharges.

## 3.4.2. Animal waste storage and application

### 3.4.2.1. Introduction

The Water Plan defines animal waste as "faeces or urine from any animal" and animal waste systems as including "collection, storage, treatment, disposal or application of liquid or solid animal waste". From an RMA perspective, there are typically two parts to managing animal waste: the requirements for the collection and storage of waste and the requirements for the discharge or application of waste to land. Both elements are included in the Plan's definition of "animal waste system".

The Plan currently does not manage the storage component but contains permitted and prohibited activity rules for the discharge. PC8 proposes to introduce new policies establishing minimum standards for management and operation of animal waste systems, as well as four land use rules for the storage of animal waste, three discharge rules for the application of animal waste and amendments to the existing prohibited activity rule for discharges. Two new schedules support the application of the new rules. PC8 also proposes a consequential amendment to one existing rule.

The relevant provisions are:

- New Policy 7.D.7
- New Policy 7.D.8
- Amendments to Rule 12.C.0.2 (discharge – prohibited)
- New Rule 12.C.0.4 (discharge – prohibited)
- New Rule 12.C.1.4 (discharge – short term permitted)
- New Rule 12.C.2.5 (discharge – restricted discretionary)
- New Rule 14.7.1.1 (land use – permitted)
- New Rule 14.7.1.2 (land use – short term permitted)
- New Rule 14.7.2.1 (land use – controlled)
- New Rule 14.7.3.1 (land use – discretionary)
- New Schedule 18 (pond drop test requirements)
- New Schedule 19 (staged implementation)
- New definition – Dairy Effluent Storage Calculator
- New definition – Suitably Qualified Person
- Amended definition – Animal waste system
- Deleted definition – agricultural waste

### 3.4.2.2. Objectives

Section 32 requires an evaluation report to examine the extent to which the proposed provisions are the most appropriate way of achieving the objectives of the proposal. The most relevant objectives in the Water Plan are:

- **7.A.1:** To maintain water quality in Otago lakes, rivers, wetlands, and groundwater, but enhance water quality where it is degraded.
- **7.A.2:** To enable the discharge of water or contaminants to water or land, in a way that maintains water quality and supports natural and human use values, including Kāi Tahu values.
- **7.A.3:** To have individuals and communities manage their discharges to reduce adverse effects, including cumulative effects, on water quality.

The objective of this proposal is to improve the management and operation of animal waste systems (including both storage and application to land) so that they are consistent with good practice.

#### 3.4.2.3. Current issues

Dairy sheds and some other intensive farming operations remove liquid animal waste from stock holding areas and wash down these facilities to meet health and hygiene requirements for the animals and animal products. Animal waste collected from these systems includes animal urine, faeces and water, and varies in volume and composition depending on the individual situation. Animal waste is sometimes also collected from laneways, feed pads, wintering pads, silage stacks and stock underpasses.

Generally, collected animal waste is stored in a temporary containment facility (commonly referred to as an effluent pond or effluent tank) and then applied to pasture as a form of fertiliser, often through some kind of irrigation system and 'muck spreaders'. The length of time the animal waste is stored depends on the physical capacity of the facility as well as the suitability of soil conditions for applying the animal waste to land. Animal waste is a valuable fertiliser source – DairyNZ estimates that the average dairy cow produces approximately $25 worth of nutrients each year as effluent, representing about $10,000 worth of nutrients for a 400-cow herd each year (DairyNZ, 2012). Efficient use of animal waste can therefore have economic benefits as well as environmental benefits from capturing and managing waste appropriately.

The design, operation and maintenance of animal waste systems is critical for avoiding accidental discharges, either through overflows or seepage, which can have adverse effects on the environment. Similarly, the way animal waste is applied to land needs to be managed carefully to avoid ponding and run-off. Research has shown that between 2 and 20 percent of both the nitrogen and phosphorous in applied animal waste is either lost as runoff or leached from the soil profile (Houlebrook, 2008, p.13). The longer animal waste remains in the soil's active root zone, the more opportunity there is for the soil to filter the waste and absorb nutrients for plant growth. If the waste is able to be stored and applied evenly and at well-timed intervals, the waste is a valuable fertiliser resource.

Direct losses of animal waste can occur when it is applied to soils that have limited capacity to store moisture (resulting in ponding), or on slopes, where there is increased risk of overland flow. Direct losses tend to contain high nutrient concentrations, as soils have little opportunity to filter the waste. Indirect losses can occur when there is nutrient enrichment of soils during summer and autumn followed by leaching during winter and spring. Both direct and indirect losses can contribute to degradation in water quality. Water quality across Otago is variable but shows a clear spatial pattern related to land cover and land use, whereby water quality is generally poorer at sites on smaller, low-elevation streams that drain pastoral or urban catchments (Uytendaal & Ozanne, 2018, p.ii).

ORC does not collect detailed information on land use or land management practices, so it is difficult to determine the drivers of water quality issues in the region. However, in the Pomahaka catchment (South Otago), monitoring sites have shown high *E.coli* results which is likely to be caused, at least in part, by animal waste storage issues as well as a high prevalence of subsurface drainage (Uytendaal & Ozanne, 2018, p.10). An earlier report on the Pomahaka found that nutrient-enriched discharges in the catchment were the result of inappropriate effluent application when the soil was saturated or the application rate was too high for soils to absorb (ORC, 2011, p.ii).

Between September 2010 and 30 June 2019, ORC took the following enforcement actions in response to discharges of animal waste:

- 99 infringement notices
- 2 abatement notices
- 54 prosecutions

The number of enforcement actions taken per financial year has ranged from six to 31. This indicates a reasonable degree of non-compliance with the current Plan provisions and there are likely to have been adverse effects on water quality from all of these discharges.

In other regions, such as neighbouring Canterbury and Southland, the construction and use of animal waste systems is managed through regional rules for land use. Uses of land are permitted under section 9(b) of the RMA, unless there is a relevant regional rule. In Otago, there are no land use rules managing the construction or use of animal waste systems, meaning they are permitted activities. Without a regional rule, the Council does not have the ability to set minimum standards for these systems. Anecdotal reports from Council staff indicate that there are some poor storage practices across the region, particularly in South Otago. These are likely to be contributing to degraded water quality in some parts of the region.

Animal waste discharges are managed under the Water Plan. Rule 12.C.0.2 prohibits the discharge of animal waste:

- to any lake, river or regionally significant wetland (or bed thereof), drain or water race that goes to a lake, river, regionally significant wetland or the coastal marine area, or to any bore or soak hole;
- to land in a manner that results in overland flow entering any lake, river, regionally significant wetland or the coastal marine area, or any drain that goes to those waterways;
- to land within 50 metres of any lake, river or regionally significant wetland or any bore or soak hole;
- to saturated land; or
- that results in ponding.

This provides clear direction on some practices that are unacceptable but provides little guidance to farmers as to what is good practice for applying animal waste to land. Compliance staff from ORC have found this rule difficult to enforce, in part due to the issues with timing and weather, which can affect assessments of saturated land and ponding. The lack of regulatory oversight of storage facilities has also been an issue for Compliance staff, who have witnessed poor performance and practice in this area but have limited ability to take enforcement action. There is some concern that the focus on effects encourages application of animal waste to highly porous soils, which can contaminate surface and shallow ground water (for example, the river plains in Waitaki).

Rule 12.C.1 of the Water Plan permits the discharge of contaminants to land provided conditions are met. The conditions of the rule manage matters such as effects on land stability, transfer of water between catchments, hydrological effects on wetlands and visible changes in the water. While some of these may be relevant to animal waste application, they do not address any of the restrictions considered to be standard practice in animal waste application, such as loading rates. As a result, the Water Plan requirements are less restrictive than, and hence out of step with, generally accepted standards and industry guidelines for animal waste application.

#### 3.4.2.4. Reasonably practicable options

Two reasonably practicable options were identified to achieve the objectives of the Water Plan and of the proposal itself:

- Option 1: Status quo
- Option 2: PC8

Option 1: Status quo

The status quo and associated issues are outlined in section 3.4.2.3. As outlined in that section, the status quo is not considered to be effective at achieving the objectives of the Water Plan.

Option 2: PC8

This option introduces a package of provisions that will improve the current minimum standards for animal waste storage and subsequent land application in Otago, bringing the region into line with good practice across the country. There are two elements to the amendments: the first is introducing minimum standards for animal waste storage and requiring resource consent for discharges, and the second is staging implementation to spread the cost and effort required to plan and apply for resource consents over a three-year period. Timeframes for physical works can then be determined on a case-by-case basis through consent applications.

This option introduces:

- a new policy outlining the standards expected for animal waste systems;
- four land use rules managing the storage of animal waste;
- three discharge rules managing the discharge of animal waste;
- a new Schedule containing pond drop test requirements to support implementation of the rules;
- a new Schedule setting out the staged approach to implementing the storage and application rules;
- a new policy outlining how decisions on applications for upgrading existing systems will be made and introducing a staged approach to implementing the new requirements based on risk; and
- New, amended and deleted definitions to assist with interpretation and implementation.

In more detail, the package of provisions provides:

- For use of land for animal waste storage (note that this does not include the discharge of animal waste, which is managed separately):
  - Existing systems that meet the permitted activity criteria in Rule 14.7.1.1 remain a permitted activity.
  - Existing systems that do not meet the permitted activity criteria will either be required to undertake upgrades in order to meet the criteria (as a discretionary activity under Rule 14.7.3.1) or construct new systems (as a controlled activity under Rule 14.7.2.1).
  - For upgrades, existing systems remain permitted until the following dates (calculated using the formula in new Schedule 19) at which point resource consent applications must be received by ORC:
    - 0 – 10 days of storage: six months after PC8 becomes operative
    - 11 – 40 days of storage: two years after PC8 becomes operative
    - 41+ days of storage: three years after PC8 becomes operative
  - For new systems, resource consent applications must be received by ORC within six months of PC8 becoming operative.
- For discharges of animal waste:
  - All discharges will (eventually) require resource consent as a restricted discretionary activity under Rule 12.C.2.5. The date by which an application must be received by ORC is the same as the date in Schedule 19 for the use of land for the system:
    - For discharges from a system that is permitted under Rule 14.7.1.1 or a new system under Rule 14.7.2.1, resource consent applications must be received by ORC within six months after PC8 becomes operative.

- For discharges from a system that is permitted under Rule 14.7.1.2, the date in Schedule 19 that applies to the system is also the date by which resource consent applications for the discharge must be received by ORC.

It is important to note that the dates specified in Schedule 19 are for receiving resource consent applications, not the dates for meeting the minimum standards. Where resource consent applications for upgrades or new animal waste systems are granted, the consents will contain conditions specifying the timeframes for the upgrade or construction work.[9] This allows individual farmers some flexibility in designing a programme of works that will meet the minimum requirements of the Plan.

### 3.4.2.5. Efficiency and effectiveness evaluation

Table 8 below identifies and assesses the benefits and costs of the environmental, economic, social and cultural effects that are anticipated from the implementation of the changes proposed under Option 2 above.

*Table 8: Benefits and costs for animal waste storage and application*

| BENEFITS | COSTS |
|---|---|
| **Environmental** | |
| ▪ Improvements to animal waste systems will reduce the risk of unmanaged discharges of animal waste, for example through leaks or spills from storage ponds.<br>▪ More stringent management of discharges to land will assist with reducing adverse effects from poor practices, for example ponding or overland flow from over-application of animal waste.<br>▪ Staged implementation means the systems posing the most risk will be improved first, delivering environmental benefits in the short term.<br>▪ User-pays compliance monitoring will allow for greater oversight from ORC of animal waste storage and discharges. | ▪ Existing practices which adversely affect water quality will continue in the interim period before all of the provisions come into effect. |
| **Economic** | |
| ▪ A resource consent provides the consent holder with certainty about their operations for the full term of the consent. Consents are not affected by changes to plans, which is particularly important given the significant changes to Otago's planning framework occurring over the next few years.<br>▪ Improved storage and discharge practices will provide for more efficient use of an existing nutrient source, potentially leading to fertiliser cost savings.<br>▪ There will be growth in industries providing relevant services, such as effluent system design and construction, due to increased demand as a result of PC8. This may result in additional employment opportunities. | ▪ Some farmers will face costs to either upgrade their existing system or construct a new system. The actual costs will depend on the individual farm but are likely to be significant in some cases.<br>▪ All animal waste discharges will require resource consent, meaning applicants will incur costs in preparing and lodging applications. These will vary depending on the circumstances.<br>▪ Once consented, consent holders will be required to pay ongoing monitoring costs. These have yet to be determined.<br>▪ There is a shortage of appropriately qualified people in Otago to design animal waste systems that meet the requirements of PC8, meaning there may be additional costs for applicants in contracting services from outside the region. |

[9] In other regions this is normally around two years, but there is variation depending on the circumstances

| | |
|---|---|
| **Social** | |
| ▪ Improvements to water quality will better support a range of recreational activities in Otago's water bodies, particularly swimming and fishing. | ▪ For farmers who will incur significant costs to meet the standards, PC8 may place considerable stress on those farmers. |
| **Cultural** | |
| ▪ Improvements to water quality will better support Kāi Tahu cultural and spiritual beliefs, values and uses supported by Otago's water bodies.<br>▪ Improvements to water quality also better provide for mahika kai. | ▪ Existing practices which adversely affect water quality and therefore Kāi Tahu beliefs, values and uses will continue in the interim period before all of the provisions come into effect. |

Table 9 below assesses the effectiveness and efficiency of the proposed amendments in achieving the objectives of the proposal.

*Table 9: Efficiency and effectiveness evaluation for animal waste storage and application*

| | |
|---|---|
| **Efficiency** | This option is considered efficient as itprovides a clear and targeted management regime to achieve the objectives of the Water Plan, particularly in relation to the requirement to maintain or improve water quality. Evidence available suggests that a large number of farms across Otago are likely to be some way below the minimum standards proposed, meaning some farms will incur costs (some significant) in upgrading or replacing infrastructure. The staged approach to implementation is intended to assist with spreading these costs over a period of years, giving farmers some flexibility in planning and carrying out the necessary work. Although the costs have the potential to be significant, so do the environmental and cultural benefits. |
| **Effectiveness** | This option is effective at achieving the objectives of the Water Plan. Improved storage and discharge practices will reduce adverse effects on water quality, supporting the requirement to maintain water quality or enhance where it is degraded. There is evidence that poor animal waste management is contributing to water quality issues in some parts of Otago, particularly the Pomahaka catchment. This option enables the discharge of animal waste by requiring a resource consent on which conditions can be placed to ensure that the discharge supports natural and human use values, including Kāi Tahu values. Resource consents and management plans places management of the storage and discharge in the hands of individuals, in line with Objective 7.A.3. |

#### 3.4.2.6. Risk of acting or not acting

Section 32(2)(c) of the RMA requires ORC to take into account the risk of acting or not acting if there is uncertain or insufficient information. Because animal waste storage is unconditionally permitted, little information is available about the quality of systems currently in use. ORC Compliance officers collect some information on animal waste storage volumes (both total volume on farm and storage volume available on the day of the inspection). Of the 474 farms on ORC's dairy inspection list, there is only information recorded for 294 farms. Total storage volumes and storage volumes available on the day both rely on farmer-reported information about the dimensions of the ponds and it is unknown what level of accuracy this results in. Anecdotal evidence from ORC Compliance and Rural Liaison officers is that there are some very poor systems in use across Otago and that most systems would likely fall below the generally accepted standard for animal waste systems.

Fort these reasons, the risk of not acting outweighs the risk of acting so as to justify taking regulatory action.

#### 3.4.2.7. Conclusion

The current provisions in the Water Plan for managing animal waste systems are unlikely to be achieving the outcomes sought by the NPSFM, RPSs and Water Plan, particularly to maintain or

enhance water quality, due to the lack of standards for the storage component of the system and a discharge regime that has been difficult to enforce. Evidence demonstrates that poor practice animal waste discharges are contributing to water quality issues in some parts of Otago and are likely to be contributing in other areas which have not been the subject of scientific investigation (ORC, 2011, p.ii).

The cost-benefit and efficiency and effectiveness assessments above have shown that the proposed amendments in Option 2 are more efficient than the status quo and are more effective at achieving the objectives of the Water Plan and the proposal. This will, in turn, better achieve the outcomes sought by the NPSFM, RPS 1998, PORPS 2016 and PORPS 2019, as well as the purpose of the RMA. The costs, while potentially significant in some cases, are considered appropriate in relation to the contribution of those discharges to water quality generally. Additionally, there is flexibility for improvements to occur at a rate that is financially sustainable for communities.

### 3.4.3. Good farming practices

#### 3.4.3.1. Introduction

Contaminant discharges from farming activities are a major pressure on water quality in many catchments and a threat to further degradation (PCE, 2013; PCE, 2015). Farming activities and the environments within which they occur are highly diverse and the opportunities to address diffuse discharges are often highly property specific. Changes in practices on the ground are key to reducing diffuse discharges from farming activities. This has been a considerable focus of attention from the Government, regional councils and industry bodies in recent years.

Good farming practices (GFPs) are practices that can be used on farms to reduce environmental impacts, particularly by improving water quality through managing nitrogen, phosphorous, sediment and faecal contaminants. Most regional councils have adopted the use of GFPs as a practical method of addressing issues with water quality, however there are a wide range of ways this has occurred. For example, some councils have prescribed GFPs in regional plans, particularly through the use of Farm Environment Plans, while others have promoted their use through non-regulatory methods such as land management advice.

The Government's proposed NESFW, released in 2019, included a rigorous and mandatory regime for implementing GFPs through Farm Plans. There is uncertainty about when and whether this proposal will be progressed further. ORC recognised the deficiencies in the Water Plan for managing discharges from farming activities and introduced PC6A as a result. Some of these provisions were later found to be ambiguous and unenforceable, leading to PC6AA to delay their implementation until 2026. While the new LWRP is developed, it is important that ORC has an appropriate interim management framework for managing the adverse effects from rural discharges.

PC8 proposes to introduce a new policy, three new rules and new definitions relating to farming activities, as well as amendments to an existing rule. The policy sets out the general expectations for farming practices in the longer-term, signalling a shift away from the Plan's current approach to managing water quality. The policy is supported by new and amended provisions managing intensive grazing, stock access to water bodies, and sediment traps. The relevant provisions are:

- New Policy 7.D.9
- Amended Rule 13.5.1.8A
- New Rule 13.5.1.10
- New Rule 14.6.1.1
- New Rule 14.6.2.1
- New definition – critical source area

- New definition – intensive grazing
- New definition – sediment trap
- Deleted definition – feed pad
- Deleted definition – sacrifice paddock
- Deleted definition – stand off pad

#### 3.4.3.2. Objectives

Section 32 requires an evaluation report to examine the extent to which the proposed provisions are the most appropriate way of achieving the objectives of the proposal. The most relevant objectives in the Water Plan are:

- **7.A.1:** To maintain water quality in Otago lakes, rivers, wetlands, and groundwater, but enhance water quality where it is degraded.
- **7.A.2:** To enable the discharge of water of contaminants to water or land, in a way that maintains water quality and supports natural and human use values, including Kāi Tahu values.
- **7.A.3:** To have individuals and communities manage their discharges to reduce adverse effects, including cumulative effects, on water quality.
- **8.3.2:** To minimise reduction in water clarity caused by bed disturbance.

The objective of this proposal is to improve management of discharges from farming activities while reducing the potential for duplication with proposed regulation by the Government.

#### 3.4.3.3. Current issues

The diversity of farming activities and their environments poses challenges for managing discharges from these activities, particularly diffuse discharges. Many local and catchment-based groups are emerging across New Zealand, including in Otago, with a focus on changing behaviour and on-farm practices to address water quality issues. As a regional council, ORC has a statutory responsibility to manage the effects of farming activities on water quality. At a high level, the options for managing effects range from regulatory regimes (for example, mandatory Farm Environment Plans requiring specific actions to be undertaken on farms which may be monitored and/or audited by the regional council) through to non-regulatory approaches (for example, educating farmers by providing land management advice and/or supporting the preparation of voluntary Farm Environment Plans).

The Water Plan's approach for managing rural discharges focuses on managing contaminant discharges rather than the land use activities that lead to those discharges. ORC identified some time ago that this approach was not sufficient for managing discharges from rural activities and introduced PC6A as a result. Those provisions were later found to be ambiguous and unenforceable, and PC6AA was introduced to delay their implementation until 2026. This has left a gap in ORC's planning framework for managing these types of discharges. ORC has recognised the need to address this issue, but is constrained by the uncertainty about the future of the Government's proposals (which may require a comprehensive, mandatory Farm Plan regime for implementing GFPs) and the limited lifespan of the current Water Plan which will be replaced in 2023 by a new LWRP.

In the interim, ORC has identified two specific activities which can have significant adverse effects on water quality but are not well-managed under the current Water Plan: intensive grazing and stock access to water. Additionally, catchment groups in Otago have identified that the Plan provisions currently act as a disincentive to installing sediment traps on farms which can be a useful mitigation tool for reducing sedimentation in water bodies. The following sections discuss these activities in more detail.

### Intensive grazing

In parts of Otago, intensive grazing (also referred to as intensive winter grazing or winter grazing) forms an integral part of pasture-based livestock farming due to low pasture growth (particularly during winter months) and large areas of poorly drained soils. For the year ended June 2018, Otago was estimated to have 52,860 hectares of forage brassicas planted (Ministry for the Environment, 2019). That is the second largest area of forage brassicas in New Zealand after Canterbury. On a per hectares basis, nitrogen leaching losses from grazed winter forage crops are approximately two to five times greater than losses measured from pasture on equivalent soil types and landscapes (Laurensen et al 2018). These losses are a disproportionately large contribution to losses from the whole farm system. Monaghan et al (2017) reported sediment and phosphorus losses from grazed forage crops in South Otago that were 37 and 14 times greater (respectively) than the estimated losses from sheep-grazed pasture. Modelling suggests that winter forage cropping leads to erosion that is equivalent to 2.6 to 3.5 per cent of predicted winter sediment loads in South Island regions where the activity is most prevalent (Ministry for the Environment, 2019b).

As well as effects on water quality, intensive grazing can also have adverse effects on soil, particularly from pugging. Soil compaction resulting from pugging has high potential for damaging soil and, depending on the severity, can impact on land production (Ministry for the Environment, 2019b). It also increases the risk of overland flow.

The Water Plan does not place any controls on intensive grazing practices. Any discharges would be managed either as a permitted activity under Rule 12.C.1.1 or a prohibited activity under Rule 12.C.0.3. The permitted activity rule is generic and does not require implementation of any controls specific to land use practices and the prohibited activity rule only applies once a non-compliant discharge has already occurred, preventing the opportunity to reduce the potential for discharges through proactively managing the activity before it occurs. A prohibited activity also means that the activity must cease, and no resource consent can be applied for to authorise that activity.

### Stock access to water bodies

Livestock that enter water bodies can contaminate the water directly and damage the banks of the water body, particularly heavy livestock such as cattle and deer, and pigs. Livestock can defecate and urinate directly into the water and onto the bed and banks of the water body. Animal waste contains pathogens (disease-causing organisms), which pose a risk to human health. It also contains nutrients, which promote weed growth and reduce the ability of the water body to support healthy aquatic ecosystems. Trampling and pugging of the bed and banks of water bodies can cause soil loss and increased levels of sediment in the water body (Ministry for the Environment, 2019b). Broadly, the current approach taken by the Water Plan is to allow stock access to water bodies as a permitted activity where visible damage does not occur. If the permitted activity conditions are not met, consent is required as a discretionary activity. This has proved difficult to enforce as it required ORC Compliance officers to be on site when the damage is occurring to assess compliance with the rule. It also means that if damage does occur, the requirement to seek resource consent is redundant as the activity has already occurred.

### Sediment traps

Sediment loss from farming activities can be a contributor to poor water quality. One mitigation method for reducing sedimentation is the installation of sediment traps. There is no single definition of a sediment trap and their size and capacity can vary considerably. They range from simple excavations in the beds of waterways to large structures that dam water. Their overall purpose is to reduce water velocity, allowing sediments to settle on the bed. Sediment build-up is removed from the trap regularly to maintain its effectiveness. The Water Plan currently requires resource consent as a discretionary activity for bed disturbance activities that are not specifically provided for. Feedback from catchment

groups has been that this presents a disincentive to installing sediment traps which might otherwise assist with mitigating sedimentation.

#### 3.4.3.4. Reasonably practicable options

Two reasonably practicable options were identified to achieve the objectives of the Water Plan and of the proposal itself:

- Option 1: Status quo
- Option 2: PC8

A range of other options were identified and discounted. Table 10 below outlines the options considered and the reasons for discounting them.

*Table 10: Discounted options for good farming practices*

| Option | Summary of assessment |
|---|---|
| **Good farming practices** | |
| Mandatory farm plans requiring implementation of property-specific good farming practices | This option would improve farming practices across Otago in a property-specific manner, contributing to reducing contaminant loss from farming activities. However, the costs and resourcing required to establish, implement and monitor this type of regime are very high. Given that the Government is proposing a similar regime through the NESFW that would override the Water Plan, it was considered that this option was too risky to progress further due to the potential for farmers and ORC to incur unnecessary expenditure complying with a region-specific regime that may be replaced with a national regime in the coming years. |
| Voluntary farm plans | Voluntary farm plans provide flexibility for farmers to prepare and implement plans in a manner that suits their individual circumstances. However, there is no requirement to comply with or implement them and no monitoring of their effectiveness. There are many industry schemes which support the development of farm plans (for example, Beef & Lamb's Land Environment Plans, Fonterra's Farm Environment Plans). ORC is able to encourage the development of farm plans without requiring any changes to the Water Plan, therefore this option was considered to be outside the scope of PC8. |
| **Stock access to water** | |
| Adopting the proposed Stock Exclusion Regulations | Staff considered whether the stock exclusion in the provisions in the Water Plan should adopt the framework proposed by the Government's stock exclusion regulations. The regulations contain undecided matters (such as the degree of slope on land that differentiates between requirements for 'low slope land' and 'non-low slope land'). The critical nature of some of the undecided matters, in combination with the considerable cost implications for farmers, meant that this option was discounted due to the uncertainty about the Government's proposals. It was not considered efficient to implement a comprehensive stock exclusion regime that may be overridden by Government regulations, which may change from the current proposal given some matters have not yet been decided. |
| **Sediment traps** | |
| Installation and maintenance of sediment traps in flowing water bodies | Staff considered drafting provisions that would provide for sediment traps in flowing water bodies. There were some concerns raised by scientists that work in flowing water could have significant adverse effects and it was not clear from the feedback from catchment groups that those types of sediment traps were preferred. This option was discounted for those reasons. |

Option 1: Status quo

The status quo and associated issues are outlined in section 3.4.3.3. As outlined in that section, the status quo is not considered to be effective at achieving the objectives of the Water Plan.

Option 2: PC8

This option includes a policy setting out ORC's longer-term vision for managing farming practices in the region. The policy seeks to enable farming activities while reducing adverse effects through a range of actions, including:

- promoting implementation of GFPs (or better) to reduce contaminant loss;
- progressively excluding stock access to water;
- introducing minimum standards for intensive grazing;
- managing sediment run-off through setbacks, riparian planting and limits on areas or duration of exposed soils; and
- promoting identification and management of critical source areas to reduce the risk of contaminant loss.

The intent of this policy is largely to signal the 'direction of travel' for ORC's management of the effects of farming activities in the future. However, it is supported by targeted rules:

- A new permitted activity rule for intensive grazing with conditions that restrict the total area of intensive grazing and the location (not in a critical source area), and that requires progressive grazing (i.e. from the top of the slope to the bottom) and a vegetated strip to be maintained between the grazing and any water body.
- A new discretionary activity rule for intensive grazing that does not meet the permitted activity criteria.
- Amendments to an existing rule managing stock access to water bodies requiring, from 2022, the exclusion of dairy cattle and pigs from lakes, continually flowing rivers wider than 1 metre and Regionally Significant Wetlands with a 5-metre setback from the water body.
- A new permitted activity rule for constructing or maintaining a sediment trap in ephemeral or intermittently flowing river, with conditions restricting the types of effects generated and the purpose of the work undertaken. Sediment traps not complying with the permitted activity rule would be discretionary activities under existing Rule 13.5.3.1
- A new definition of 'critical source area', to assist with implementation.
- A new definition of 'intensive grazing', restricting the term to grazing on forage crops (excluding pasture and cereal crops) to assist with implementation.
- A new definition of 'sediment trap' restricting the term to excavated areas in the beds of ephemeral or intermittently flowing rivers designed to slow water velocity, to assist with implementation.

This option deletes three definitions which are not used anywhere in the Plan: feed pad, sacrifice paddock, and stand off pad.

### 3.4.3.5. Efficiency and effectiveness evaluation

Table 11 below identifies and assesses the benefits and costs of the environmental, economic, social and cultural effects that are anticipated from the implementation of the changes proposed under Option 2 above.

*Table 11: Benefits and costs for good farming practices*

| BENEFITS | COSTS |
|---|---|
| **Environmental** | |
| ▪ Reduction in sediment loss from intensive grazing and stock damage to beds and banks of water bodies. | ▪ The stock exclusion provisions do not address access to water by non-dairy cattle or deer, meaning those animals will still have access to water which may result in adverse effects. |

| | |
|---|---|
| ▪ Reduction in contaminant loss from intensive grazing and direct discharges from stock to water.<br>▪ Increased regulatory oversight of large intensive grazing operations which may have significant adverse effects.<br>▪ Potential reductions in sedimentation of water bodies through the use of sediment traps. | ▪ Poor land management practices on farms may continue in the absence of a requirement for farm plans or the implementation of GFPs. |
| **Economic** | |
| ▪ As the provisions are a step towards the Government's proposals there is limited potential for significant additional cost to be incurred by farmers in having to change practices should the Government's proposals come into effect.<br>▪ The current regulatory costs associated with installing and maintaining sediment traps in ephemeral and intermittent water bodies will be reduced by making these permitted.<br>▪ Stock exclusion requirements may provide limited economic growth and employment opportunities. | ▪ Farmers will incur costs in excluding stock from water bodies, particularly from fencing and water reticulation.<br>▪ Farmers may incur costs in changing their grazing practices to comply with the permitted activity conditions.<br>▪ Farmers may incur costs in preparing and lodging resource consent applications for intensive grazing and sediment traps that do not comply with permitted activity criteria. They may also incur ongoing monitoring costs should consents be granted.<br>▪ Depending on the costs to farmer of implementing the PC8 provisions, there may be reductions in on-farm employment opportunities. |
| **Social** | |
| ▪ Improved water quality supports a range of recreational activities for communities, including swimming and fishing.<br>▪ Restricting stock access to waterbodies may improve the amenity of these areas. | ▪ Restricting stock access to water may also prevent the public from accessing water if fences are constructed. |
| **Cultural** | |
| ▪ Improvements in water quality better provide for Kāi Tahu cultural and spiritual beliefs, values and uses.<br>▪ Managing the land uses that contribute to reductions in water quality is more consistent with the ki uta ki tai approach, which recognises the interconnections between water, land and people. | ▪ As the provisions proposed are an interim step, some adverse effects on water quality will continue to occur which may affect Kāi Tahu values and uses of fresh water.<br>▪ Restricting stock access to water may also restrict access by Kāi Tahu if fences are constructed, negatively affecting mahinga kai. |

Table 12 below assesses the effectiveness and efficiency of the proposed amendments in achieving the objectives of the proposal.

*Table 12: Efficiency and effectiveness evaluation for good farming practices*

| | |
|---|---|
| **Efficiency** | The provisions for intensive grazing and stock access are likely to reduce contaminant loss (particularly sediment) to water bodies, however they are deliberately designed to be a step towards a more comprehensive management regime rather than achieving the objectives in and of themselves. While there are environmental, cultural and social benefits to reducing contaminant loss, there are also costs for farmers particularly in implementing the provisions and from potentially having to change their practices again in the short term to comply with national direction or a new regional plan. Reducing the regulatory costs of installing and maintaining sediment traps will supporting farmers to implement on-farm mitigation measures to reduce sedimentation of water bodies. Given the drivers for PC6A remain outstanding, it is considered that the benefits from progressing this option outweigh the costs. |
| **Effectiveness** | This option assists with achieving the objectives of the Water Plan and of the proposal itself. Monitoring indicates that water quality is not being maintained in some parts of Otago and |

| | |
|---|---|
| | implementing controls on intensive grazing and stock access to water is likely to lead to some reduction in contaminant loss from those activities, assisting with achieving Objectives 7.A.1 and 7.A.2. The provisions place the onus on land managers to manage their discharges, consistent with 7.A.3. Restricting stock access to water will minimise reductions in water quality caused by bed disturbance in accordance with Objective 8.3.2. Enabling the installation and maintenance of sediment traps will also assist with maintaining or enhancing water quality |

#### 3.4.3.6. Risk of acting or not acting

Section 32(2)(c) of the RMA requires ORC to take into account the risk of acting or not acting if there is uncertain or insufficient information. ORC holds little information about the effect of rural land uses on water quality in Otago so there is uncertainty about the particular land uses that are contributing to degraded water quality. Some evidence is available at the national level about the effects of intensive grazing and stock access to water in particular, establishing that those activities can often result in adverse effects on water quality. ORC has known since prior to 2012 that the Water Plan was not effectively managing discharges from rural activities and there has been continued degradation in the years since due to the ineffectiveness of PC6A. It is well-recognised that the standards in the Water Plan need to be strengthened to achieve Otago's objectives for water quality and the longer that takes to occur, the larger the task at hand. In this case, the risks of not acting outweigh the risks of acting.

#### 3.4.3.7. Conclusion

ORC has identified some time ago that the Water Plan was not effectively managing discharges from rural land uses. The problems with PC6A and its deferral by PC6AA mean that there is now an urgent need to take some steps to reduce adverse effects on water quality until the new regional plan is notified. There is a lack of evidence on land use practices and considerable uncertainty about the future planning framework in Otago, particularly doe to Central Government direction. However the provisions in PC8 are considered to be an interim step towards a more comprehensive regime for managing rural discharges that will ultimately give effect to all higher order instruments.

The cost-benefit and efficiency and effectiveness assessments above have shown that the proposed amendments in option 2 are more efficient than the status quo and are more effective at achieving the objectives of the Water Plan and the proposal itself. This will, in turn, better achieve the outcomes sought by the NPSFM, RPS 1998, PORPS 2016 and PORPS 2019, as well as the purpose of the RMA. This option is considered to appropriately balance the environmental, social and cultural benefits from improving farming practices while limiting the costs incurred in the interim period before the new LWRP is notified and/or the Government's proposals come into force.

### 3.4.4. Sediment from earthworks

#### 3.4.4.1. Introduction

Earthworks are the alteration or disturbance of land, including by moving, removing, placing, blading, cutting, contouring, filling or excavation of earth (or any matter constituting the land including soil, clay, sand and rock) but excluding gardening, cultivation, and disturbance of land for the installation of fence posts.[10] Earthworks are often necessary to facilitate land development for urban expansion. When

[10] Definition from the National Planning Standards

earthworks are undertaken, sub-soils are exposed to the elements which can result in erosion and sediment-laden stormwater discharges, if not managed appropriately.

Stormwater generated and discharged from earthwork or development sites can contain large quantities of fine sediment that stay suspended in the water column and is challenging for sediment control treatment systems to remove. The impacts of sediment-laden stormwater discharges on water quality and downstream receiving environments and ecosystems can be significant. Such adverse effects can also lead to a loss in cultural values. The erosion and loss of soil can also cause adverse effects on soil conservation, which has the potential to reduce the on-site productive capability of land.

PC8 proposes to introduce a new policy and new rule for managing discharges of sediment from earthworks for residential development. The relevant provisions are:

- New Policy 7.D.10
- New Rule 14.5.1.1
- New Rule 14.5.2.1
- New definition – earthworks

#### 3.4.4.2. Objectives

Section 32 requires an evaluation report to examine the extent to which the proposed provisions are the most appropriate way of achieving the objectives of the proposal. The most relevant objectives in the Water Plan are:

- **7.A.1:** To maintain water quality in Otago lakes, rivers, wetlands, and groundwater, but enhance water quality where it is degraded.
- **7.A.2:** To enable the discharge of water or contaminants to water or land, in a way that maintains water quality and supports natural and human use values, including Kāi Tahu values.
- **7.A.3:** To have individuals and communities manage their discharges to reduce adverse effects, including cumulative effects, on water quality.

The objective of this proposal is to reduce sediment loss from earthworks for residential development.

#### 3.4.4.3. Current issues

The Otago Region is characterised by large areas of undulating and hilly topography. Earthworks undertaken on such topography in a manner that does not adequately manage erosion or sediment-laden runoff may result in adverse effects on the quality of water in surface water bodies and downstream ecosystems. Depending on site specific characteristics, this could result in significant adverse effects on water quality and ecology, and lead to a degradation of cultural values. The adverse effects of sediment on water quality and ecology can include (NIWA, n.d.):

- decreased water clarity, reducing visibility for fish seeking food and places to live;
- damage and smothering of fish gills and filter feeding apparatus of invertebrates;
- changes to the benthic environments of streams and waterbeds resulting in the smothering of course substrate with sands and silts;
- decreased numbers of invertebrate species from smothering of habitat;
- decreased food supply at the bottom of the food chain; and
- increased contaminants from surrounding land, as other contaminants such as nutrients and metals can bind to sediment.

The Council does not routinely measure sediment cover or water clarity at State of the Environment (SOE) sites in the Otago region. Turbidity is routinely monitored by Council and shows variable trends

in waterbodies and lakes across the region (Uytendaal & Ozanne, 2018). However, the reasons for such trends remain relatively unknown as the Council does not collect any information on changes in land use or land management that would allow for a confident assessment of drivers of increased turbidity and sediment in surface water bodies. However, SOE monitoring reports that a small number of waterbodies can be very high in turbidity due to natural processes, such as the presence of glacial flour in the Dart River, or a result of historic sources such as historic gold workings in the Taieri surface water reporting region (Uytendaal & Ozanne, 2018). Most water bodies show either an indeterminate or increasing trend in turbidity. Since 1 July 2016, ORC has taken enforcement action (including infringement notices, abatement notices and prosecutions) against 12 instances of non-compliant discharges of sediment from residential development. This has ranged from one to four actions per year.

Section 30(1)(c) of the RMA requires regional councils, among other things, to control the use of land for the purpose of soil conservation[11] and maintenance and enhancement of the quality of water in water bodies.[12] As set out in greater detail below, higher order planning documents anticipate controls for land use activities that could degrade Otago's natural and physical resources be included within the regional plan. There are currently no provisions in the Water Plan that manage the effects of earthworks for the purpose of soil conservation or the maintenance and enhancement of water quality, nor is there a bespoke rule framework which provides specific conditions for the discharge of sediment-laden water.

Historically, the Council has taken the view that controls on land use and development should be restricted to district plans (as a 'one-stop shop' approach), with ORC limiting its intervention to the control of discharges. This is outlined in Method 4.1.5 of the PORPS 2019 which requires ORC to seek the inclusion of appropriate provisions within district plans to manage the discharge of dust, silt and sediment associated with earthworks and land use. This approach has resulted in a varied approach to the management of earthworks in District Plans across the Otago Region. The current approach to having no regional land use rules also makes it difficult for ORC to proactively manage these discharges because the mitigation measures available relate to the use of the land. ORC can therefore only assess compliance with the rules once there has been a discharge, by which point only remediation is available to manage adverse effects. A description of the regional and district plan controls is provided below.

**Regional Plans**

Earthworks are managed under both the Water and Waste Plans. Currently, the Water Plan does not manage the land use component of earthworks,[13] meaning that these activities are able to be undertaken as permitted activities under section 9 of the RMA. Discharges of sediment from earthworks are managed in three ways:

- by the general discharge provisions in section 12.C of the Water Plan;
- by the stormwater discharge provisions in section 12.B of the Water Plan;
- by the contaminated land discharge provisions in the Waste Plan; and
- non-regulatory methods outlined in section 15 of the Water Plan.

General discharges

Rule 12.C.0.3 prohibits the discharge of sediment from disturbed land to water in any lake, river, Regionally Significant Wetland, drain or water race that flows to those water bodies, or the coastal marine area where no measure is taken to mitigate sediment run-off. This manages the very worst

[11] Section 30(1)(c)(i) of the RMA.

[12] Section 30(1)(c)(ii) of the RMA.

[13] It is understood the land use component of earthworks are managed under the relevant District Plans.

situations where there is no management of sediment prior to the discharge occurring. Rule 12.C.0.1 prohibits the discharge of contaminants to water that produce an objectionable odour or a conspicuous oil or grease film, scum or foam in any specified water body. This may apply to discharges from earthworks in addition to Rule 12.C.0.3 depending on the effects resulting from the discharge, including discharges from disturbed land where there were mitigation measures but they were inadequate to prevent a harmful discharge occurring.

Rule 12.C.1.1 sets out the permitted activity criteria for the discharge of water or contaminants to water, or onto or into land where it may enter water. The permitted activity conditions are relatively general and replicate the narrative water quality standards as set out in section 70(1)(c) to (g) of the RMA. In contrast to section 70, however, these standards apply at the point of discharge rather than after reasonable mixing. Particularly relevant for sediment discharges is condition (d)(i)(1) which requires that the discharge not result in a conspicuous change in colour or visual clarity. The glossary defines this as "a visual change in water clarity of more than 40%".

Rule 12.C.1.1 also includes a condition which requires compliance with Rule 12.C.1.1A from 1 April 2020.[14] Rule 12.C.1.1A refers to discharge thresholds in Schedule 16,[15] however there are no standards in Schedule 16 relevant to the measurement of sediment in surface water bodies. Where the permitted activity criteria are unable to be met, the activity is either a restricted discretionary activity under Rules 12.C.2.1 or 12.C.2.2 or a discretionary activity under Rule 12.C.3.2.

The conditions of Rule 12.C.1.1 are reactive rather than proactive as there must be a discharge before compliance can be assessed, increasing the risk that discharges are not managed appropriately at the time they are made. This also raises issues for the efficiency of the rule – as it currently stands, to ensure compliance with the Water Plan developers may need to apply for resource consent prior to the discharge occurring if there is a chance that the permitted activity criteria may not be met. This is difficult to predict in advance as discharges are often the result of weather events. It also means that the requirement for resource consent may only be triggered after the discharge has already occurred. Better environmental outcomes could be achieved with more proactive management of earthworks, particularly by implementing appropriate soil control measures on site prior to earthworks commencing.

<u>Stormwater discharges</u>

The Plan defines 'stormwater' as follows:

*"The water running off from any impervious surface such as roads, carparks, roofs and sealed runways."*

This definition means that stormwater is unlikely to be considered relevant for construction sites until impervious surfaces such as roads or car parks have been established. Rule 12.B.1.8 provides permitted activity criteria for the discharge of stormwater from a reticulated stormwater system to water or land. Similarly, Rule 12.B.1.9 provides permitted activity criteria for the discharge (to water or land) of stormwater from any road or that is not connected to a reticulated stormwater system. The permitted activity conditions of both rules are substantially similar, focusing on a series of general adverse effects including the flooding of property, erosion, land instability and sedimentation. Conditions of both rules also replicate narrative water quality standards that apply after reasonable mixing in the receiving water body as set out in section 70(1)(c) to (g) of the RMA. Where the permitted activity criteria are unable to be met, the activity is assessed as a restricted discretionary activity in accordance with Rule 12.B.3.1.

[14] Condition (g) of Rule 12.C.1.1.

[15] Schedule of Characteristics and numerical limits and targets for good quality water in Otago Lakes and Rivers

Discharges from contaminated land

Under Rule 5.6.1 of the Waste Plan, the disturbance of land at contaminated sites and the discharges of hazardous waste into water or land where it may enter water is a discretionary activity. This rule applies in addition to the relevant rules in the Water Plan.

Non-regulatory methods

Method 15.2.5.1 of the Water Plan states that ORC will encourage operators of existing stormwater reticulation systems to utilise techniques that will assist to reduce the level of contaminants discharged from the systems. Method 15.5.1 states that ORC will encourage and support the development and use of codes of practice and environmental management systems that reduce adverse effects on water resources. It does not appear that either of these methods have been proactively implemented by ORC in respect of discharges from earthworks.

**District plans**

Under section 31(1), territorial authorities have responsibility for managing the effects of the use, development or protection of land and associated natural and physical resources of the district as well as the control of any actual or potential effects of the use, development or protection of land. This provides for territorial authorities to manage the effects of land use from earthworks, including the adverse effects of soil erosion. A range of approaches to managing earthworks is taken by territorial authorities in Otago. Most district plans contain setback requirements from waterways, and some (such as in Queenstown-Lakes and Dunedin City) include requirements for implementation of sediment control practices to prevent sediment entering water bodies. The approaches taken around Otago vary in terms of the matters they control and the thresholds they establish.

The challenge for ORC is fulfilling its own obligations under the RMA regarding the management of discharges of sediment from earthworks while not unnecessarily duplicating controls in the district plans. The ability to more proactively manage discharges must be balanced with the complexity of having multiple planning documents addressing the same activity.

### 3.4.4.4. Reasonably practicable options

Two reasonably practicable options were identified to achieve the objectives of the Water Plan and of the proposal itself:

- Option 1: Status quo
- Option 2: PC8

Option 1: Status quo

The status quo and associated issues are outlined in section 3.4.4.3. As outlined in that section, the status quo is not considered to be effective at achieving the objectives of the Water Plan.

Option 2: PC8

This option proposes a new policy, two new rules and a new definition of earthworks to control the land use and discharge components of earthworks for residential development. The general intent of the provisions is to permit smaller-scale earthworks where on-site practices are implemented to prevent or reduce the adverse effects of sediment discharges and require resource consent for larger scale earthworks where the adverse effects of any discharges are likely to be more significant. The provisions are as follows:

- New Policy 7.D.10 prioritises avoiding discharges or, where this is not achievable, best practice guidelines for minimising sediment loss are implemented.
- New Rule 14.5.1.1 permits the use of land and associated discharge of sediment for earthworks for residential development subject to conditions, including that the area of exposed earth is no more than 2,500m$^2$ in any 12-month period, there are setbacks from water bodies, and basic on-site management practices are implemented to prevent accidental discharges.
- Any activities which do not comply with the conditions of Rule 14.5.1.1 are a restricted discretionary activity under Rule 14.5.2.1. The matters which ORC's discretion are restricted to are:
  - Erosion, land stability, sedimentation or property damage resulting from the activities.
  - Effectiveness of proposed erosion and sediment control measures.
  - Compliance with the *Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016.*
  - Adverse effects on water quality and natural or human use values, including Kāi Tahu values.

The *Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Region 2016* are considered to be best practice guidelines nationally and are a commonly used standard for earthworks activities, including in Queenstown-Lakes.

The existing prohibited activity rules (12.C.0.3 and 12.C.0.1) will continue to apply, along with Rule 5.6.1 of the Waste Plan. Rules 12.B.1.8, 12.B.1.9, and 12.B.3.1 for stormwater discharges will also continue to apply, to the extent that they are relevant.

#### 3.4.4.5. Efficiency and effectiveness evaluation

Table 13 below identifies and assesses the benefits and costs of the environmental, economic, social and cultural effects that are anticipated from the implementation of the changes proposed under Option 2 above.

*Table 13: Benefits and costs for sediment from earthworks*

| BENEFITS | COSTS |
|---|---|
| **Environmental** | |
| ▪ Provides greater regulatory oversight of an activity which has potential to result in significant environmental effects, particularly on water quality.<br>▪ Requiring consent for larger-scale earthworks provides an opportunity to proactively manage discharges, potentially reducing the frequency and volume of these types of discharges.<br>▪ Reduced sedimentation in Otago's water bodies. | |
| **Economic** | |
| ▪ Reduced risk of enforcement action by having consent for discharges in advance of them occurring.<br>▪ Consent holders have certainty over their activities and the adequacy of on-site mitigation measures proposed.<br>▪ There may be economic benefits from wider purchase and use of sediment control equipment and additional work on-site to install and implement them. | ▪ Applicants will incur costs in preparing and lodging resource consent applications. In some parts of Otago these will be additional to costs for land use consents from the relevant district council.<br>▪ Consent holders may incur costs in implementing a higher standard of sediment control measures than is currently the case.<br>▪ ORC will receive resource consent applications which are not currently required, potentially affecting resourcing. |

| Social | |
|---|---|
| ▪ Reduced sedimentation supports recreational uses of Otago's water bodies, particularly swimming and fishing, and improves peoples' general experience of the water bodies.<br>▪ Clarity for plan users about the acceptable minimum standards for earthworks activities. | ▪ There is potential for confusion for plan users due to the overlap of functions between ORC and the district councils. |
| **Cultural** | |
| ▪ More stringent management of sediment discharges better recognises the relationship with Kāi Tahu cultural values and desired outcomes for fresh water.<br>▪ Improvements in water quality better provide for Kāi Tahu cultural and spiritual beliefs, values and uses. | |

Table 14 below assesses the effectiveness and efficiency of the proposed amendments in achieving the objectives of the proposal.

*Table 14: Efficiency and effectiveness evaluation for sediment from earthworks*

| | |
|---|---|
| **Efficiency** | There are potentially significant environmental and cultural benefits arising from the proposed provisions, as well as general improvement and clarification to the current rule framework which has posed difficulties for compliance monitoring and enforcement. However there are also costs, some of which may duplicate the costs incurred by plan users under Otago's district plans. This arises from the overlap of regional council and territorial authority functions in the RMA. Some of these costs may only be incurred once (for example, technical advice on appropriate sediment control measures to support district and regional consent applications) whereas others will be in addition to existing charges (for example, the cost of applying for consent from ORC in addition to the relevant district council). Some of these costs may be reduced through ORC and district councils working together to implement their respective rules. The environmental and cultural benefits from reducing sedimentation in water bodies and potentially improving water quality are considered to outweigh the costs. |
| **Effectiveness** | This option is effective in assisting with achieving the objectives of the Water Plan and of the proposal itself. Reducing sedimentation is consistent with Objective 7.A.1 to maintain water quality or enhance where it is degraded. The proposed rule framework aims to enable earthworks for residential development in a way that maintains water quality and supports the values of the water bodies, in accordance with Objective 7.A.2. The proposed provisions will require people to better manage their discharges to reduce adverse effects on water quality which is consistent with Objective 7.A.3. The objective of the proposal itself is to reduce sediment loss from earthworks which is achieved through a proactive management regime of a permitted activity rule for smaller-scale earthworks and a requirement for resource consent for larger-scale earthworks. Resource consents provide an opportunity for ORC to place conditions on the exercise of the consent, setting out the required standards to be implemented and providing for compliance monitoring. |

#### 3.4.4.6. Risk of acting or not acting

Section 32(2)(c) of the RMA requires ORC to take into account the risk of acting or not acting if there is uncertain or insufficient information. ORC does not routinely monitor sediment cover or water clarity at SoE sites, but turbidity monitoring shows increasing trends in some water bodies. The reason for those increases is unclear. Despite this lack of information, engagement with communities in the Manuherekia, Arrow and Cardona catchments has indicated sediment from earthworks can be a significant issue in those areas and Compliance officers report considerable difficulty in monitoring and enforcing the current rules. Given the potential significance of the adverse effects arising from sediment discharges, the risk of not acting is considered to outweigh the risk of acting.

#### 3.4.4.7. Conclusion

Managing discharges of sediment from earthworks assists with supporting the life-supporting capacity of fresh water and maintaining the quality of fresh water, in accordance with the NPSFM and RPS 1998. Taking a more consistent approach to sediment management across Otago also supports integrated management of fresh water and the use and development of land. The PORPS 2016 requires minimising soil erosion resulting from activities, in part by using appropriate erosion controls and soil conservation methods. A regionally consistent approach to setting minimum standards for earthworks in order to minimise sediment loss gives effect to the NPSFM, RPS 1998 and PORPS 2016. It is also likely to assist with achieving the water quality outcomes sought by the NZCPS as sedimentation can adversely affect coastal water. Option 2 is not consistent with the direction in the PORPS 2019, however that document is currently under review and a new RPS is intended to be notified in November 2020 so this inconsistency will be short lived.

The cost-benefit and efficiency and effectiveness assessments above have shown that the proposed amendments in Option 2 may be more efficient than the status quo and are more effective at achieving the objectives of the Water Plan and the proposal. There will be costs in implementing Option 2, mostly arising from the requirement to implement appropriate mitigation measures and to seek resource consent for some activities. The latter may duplicate costs already being incurred to comply with district plan provisions across Otago. These may be reduced through ORC and the district councils working together to implement their respective plans and some costs will be incurred regardless (for example, technical advice on mitigation measures). The environmental benefits from the proposal will potentially outweigh the costs. The proposal is considered to be far more effective at achieving the Plan's objectives than the status quo.

### 3.4.5. Nationally or regionally important infrastructure

#### 3.4.5.1. Introduction

The Water Plan requires protecting the values of regionally significant wetlands while providing for nationally or regionally important infrastructure. Currently, the Water Plan uses the term "nationally or regionally important infrastructure" while the PORPS 2019 uses the term "nationally and regionally significant infrastructure" and provides a list of infrastructure meeting that definition. There has been debate through consent processes about whether "important" and "significant" are synonymous and whether the Water Plan provisions should be interpreted in reference to the list of infrastructure in the PORPS 2019. PC8 proposes one minor amendment to the relevant policy in order to align the terminology with the PORPS 2019 and clarify implementation of the policy. The relevant provisions are:

- Amendments to Policy 10.4.2

#### 3.4.5.2. Objectives

Section 32 requires an evaluation report to examine the extent to which the proposed provisions are the most appropriate way of achieving the objectives of the proposal. The most relevant objectives in the Water Plan are:

- **10.3.2:** Otago's Regionally Significant Wetlands and their values and uses are recognised and sustained.

The objective of this proposal is to clarify the implementation of Policy 10.4.2.

### 3.4.5.3. Current issues

Policy 10.4.2 in the Water Plan is to:

> *Avoid the adverse effects of an activity on a Regionally Significant Wetland or a regionally significant wetland value, but allow remediation or mitigation of an adverse effect only when the activity:*
>
> *(a) Is lawfully established; or*
>
> *(b) Is nationally or regionally important infrastructure, and has specific locational constraints; or*
>
> *(c) Has the purpose of maintaining or enhancing a Regionally Significant Wetland or a regionally significant wetland value.*

This policy is important for decision-making on consent applications for the take and use of water in sections 12.1 and 12.2, damming or diversion of water in section 12.3, discharges in sections 12.B and 12.C and the use of land (including for structures) in Chapter 13.

The term "nationally or regionally important infrastructure" is not defined in the Plan. However, Policy 4.3.2 of the PORPS 2019 lists the infrastructure considered to be nationally and regionally significant. There has been confusion for both ORC staff and those wishing to undertake activities in wetlands about what constitutes "nationally or regionally important infrastructure" and whether "important" and "significant" are synonymous.

### 3.4.5.4. Reasonably practicable options

Two reasonably practicable options were identified to achieve the objectives of the Water Plan and of the proposal itself:

- Option 1: Status quo
- Option 2: PC8

Option 1: Status quo

The status quo and associated issues are outlined in section 3.4.5.3. As outlined in that section, the status quo is not considered to be effective at achieving the objectives of the Water Plan.

Option 2: PC8

Under this option, the term "nationally or regionally important" in Policy 10.4.2 is replaced with "nationally or regionally significant infrastructure" in line with the terminology and definition used in the PORPS 2019.

### 3.4.5.5. Efficiency and effectiveness evaluation

Table 15 below identifies and assesses the benefits and costs of the environmental, economic, social and cultural effects that are anticipated from the implementation of the changes proposed under Option 2 above.

*Table 15: Benefits and costs for nationally or regionally important infrastructure*

| BENEFITS | COSTS |
|---|---|
| **Environmental** | |

| | |
|---|---|
| ▪ Clarifying the terminology may bring more activities within the requirement to avoid adverse effects on regionally significant wetlands, preventing adverse effects on those water bodies and protecting their values. | ▪ As the current term is not defined, defining it in line with the PORPS 2019 may allow activities with adverse effects on regionally significant wetlands to occur that were previously considered to not meet the exception provided in Policy 10.4.2(b). |
| **Economic** | |
| ▪ Reducing the potential for debates about interpretation and application of Policy 10.4.2 will improve the efficiency and reduce the cost of implementing those provisions.<br>▪ Clarifying the terminology also clarifies the expectations for both applicants and ORC staff, assisting to reduce costs in the consenting process. | ▪ Some activities currently occurring in wetlands may no longer be in scope of the 'exemption' provided by Policy 10.4.2(b). This may require those activities to seek resource consent or prevent them from continuing to occur where consent cannot be granted. |
| **Social** | |
| | ▪ Some activities currently occurring in wetlands may no longer be in scope of the 'exemption' provided by Policy 10.4.2(b). This may require those activities to seek resource consent or prevent them from continuing to occur where consent cannot be granted. |
| **Cultural** | |
| ▪ Kāi Tahu seek the protection and enhancement of existing wetlands, which is supported in part by this option which clarifies which activities are able to remediate or mitigate adverse effects on wetlands rather than avoid them. | |

Table 16 below assesses the effectiveness and efficiency of the proposed amendments in achieving the objectives of the proposal.

*Table 16: Efficiency and effectiveness evaluation for nationally or regionally important infrastructure*

| | |
|---|---|
| **Efficiency** | This option clarifies how achievement of Objective 10.3.2 should occur through the corresponding policies and rules. It is efficient at achieving the purpose of the proposal because it aligns the Water Plan terminology with that of the PORPS 2019. The costs are unclear but are likely to be limited given the amendment is for clarification purposes rather than substantially changing the policy approach. There are implementation benefits for plan users and ORC staff in clarifying the policy and reducing the potential for debates. |
| **Effectiveness** | This option provides a clearer pathway towards achieving Objective 10.3.2 to recognise and sustain regionally significant wetlands and their values. It assumes that Objective 10.3.2 and the corresponding policies and rules remain an effective way to achieve the purpose of the RMA – that assessment is out of scope of this plan change. |

#### 3.4.5.6. Risk of acting or not acting

Section 32(2)(c) of the RMA requires ORC to take into account the risk of acting or not acting if there is uncertain or insufficient information. In this case, it is not known how many activities are occurring under the 'exception' provided in Policy 10.4.2(b) – it is possible that some activities may no longer be within the scope of that exception, and also that some activities not exercising that exception may be able to in the future. The risk of acting is low as the amendment is purely operational and for clarification purposes. Therefore, the risk of not acting outweighs the risk of acting.

#### 3.4.5.7. Conclusion

The amendment proposed for this topic will give better effect to the PORPS 2019 and is introduced primarily for efficiency and implementation reasons. The cost-benefit and efficiency and effectiveness assessments above have shown that the proposed amendments in Option 2 are more efficient than the status quo and more effective at achieving the objectives of the Water Plan. This is because Option 2 clarifies the application of a key policy for implementing the corresponding rule framework and makes the provision more consistent with the PORPS 2019.

# 4. Proposed Plan Change 1 to the Waste Plan

## 4.1. Introduction

This section of the report evaluates the provisions of PC1 in accordance with the requirements of section 32 as set out in section 1.1 of this report. Under section 32(1), ORC is required to examine the extent to which the objectives of the proposal are the most appropriate way to achieve the purpose of the RMA. It is also required to examine whether the provisions in the proposal are the most appropriate way to achieve the objectives. For changes to existing plans (referred to as amending proposals), section 32(3)(b) clarifies that this examination must relate to the provisions and objectives of the amending proposal, and the objectives of the existing proposal (i.e. plan) to the extent that those objectives are relevant to the objectives of the amending proposal and would remain if the amending proposal was to take effect. For each topic, the relevant objectives from the Regional Plan: Waste for Otago (Waste Plan) and the objective of the proposed amendments are identified.

## 4.2. Overview of Proposed Plan Change 1

The Waste Plan was made operative in 1997 and has not been amended or reviewed under section 79 of the RMA since that time. As a result, it has become out of date with current expectations regarding environmental management. The entirety of the Waste Plan will be reviewed alongside the Water Plan in preparation of a new LWRP. PC1 is an interim measure to address two pressing issues with the existing Waste Plan provisions in order to improve environmental outcomes until the review of the Waste Plan has been completed and that Plan has been integrated into the new LWRP.

In tandem with PC8, the overall purpose of PC1 is to strengthen the management of discharges in order to maintain, as a minimum, water quality in Otago. It does this by introducing stricter controls on the use of dust suppressants (and particularly waste oil) and improved minimum standards for landfills in order to reduce the adverse effects of these activities.

## 4.3. Development of Proposed Plan Change 1

PC1 complements the focus of PC8 on making targeted improvements to Otago's planning framework until the new LWRP is notified in 2023. The Waste Plan has been operative for over 20 years but has not been amended in that time. Ultimately the Waste Plan will be reviewed and incorporated into the new LWRP, however in the meantime PC1 aims to ensure that its provisions remain fit-for-purpose.

The original scope of PC1 was to address overlaps between the Water and Waste Plans, however once assessments of the overlaps began it became clear that there are structural and jurisdictional issues with the Waste Plan that make it difficult to resolve the main tensions between the plans without a full review. Accordingly, the scope was then limited to issues with waste oil and landfills that were considered to be pressing environmental concerns.

## 4.4. Evaluation of Proposed Plan Change 1

For the purposes of this evaluation, the provisions in PC1 are grouped by topic as follows:

- Dust suppressants
- Landfills

### 4.4.1. Dust suppressants

#### 4.4.1.1. Introduction

PC1 proposes amendments and new provisions to incentivise the use of safer alternatives to waste oil as a dust suppressant and prevent the adverse effects of using waste oil by providing for the use of dust suppressants as a permitted activity (subject to conditions) or discretionary activity (where the permitted activity conditions are not met) and prohibiting the use of waste oil. The relevant provisions are:

- Amendments to Policy 6.4.10
- Amendments to Methods 6.5.6 and 6.5.23
- Amendments to Rules 6.6.2 and 6.6.3
- Amendments to 6.6.3.1 Assessment Matters
- New Rule 6.6.4
- New definition of 'waste oil'
- Consequential amendments to section 6.1.2.2, Issue 6.2.5, Objective 6.3.1, Methods 6.5.6 and 6.5.23, Principal Reasons for hazardous substances and hazardous waste rules, and Anticipated Environmental Result 6.7.6.

#### 4.4.1.2. Objectives

Section 32 requires an evaluation report to examine the extent to which the proposed provisions are the most appropriate way of achieving the objectives of the proposal. The most relevant objectives in the Waste Plan are:

- **6.3.1:** To avoid, remedy and mitigate the risk to the environment and human health from hazardous substances and hazardous wastes.
- **6.3.2:** To avoid, remedy and mitigate the harmful effects of hazardous substances and hazardous wastes on traditional water, land and mahika kai values of importance to Kāi Tahu.

The objective of this proposal is to manage the adverse effects arising from the use of dust suppressants.

#### 4.4.1.3. Current issues

There is a large network of unsealed roads in Otago, including approximately 1,800 kilometres in the Central Otago and Clutha districts alone. Dust from gravel roads can pollute the air, reduce visibility and road safety and generally be a nuisance for rural residences. Some residents apply dust suppressants to the roads close to their properties, including waste oil (primarily waste engine oil) or apply to their local territorial authority to have it applied on their behalf.

Some territorial authorities within the Otago region have already begun phasing out the use of waste oil as a dust suppressant. For example, Clutha District Council confirmed through its 2016/17 Annual Plan that it would no longer apply waste oil to gravel roads (Clutha District Council, 2018) and Central Otago District Council states that it is currently phasing out the use of waste oil (Central Otago District Council, 2015).

Waste engine oil contains a large number of hazardous contaminants, including a number of carcinogens (Ward, 2016). These substances are known to be hazardous to both human health and the environment. Contaminants can be transferred to the environment when the oil is applied to roads or once the surface of the oiled road breaks down. When the surface breaks down and the road becomes dusty again, contaminants can bind to the dust and be blown into the air or shifted by traffic or water.

There are safer alternatives to waste oil for human and environmental health (Gisborne District Council, n.d.).

Used oil is classified as a hazardous substance under the Hazardous Substances and New Organisms Act 1996 (HSNO) and is defined as:

> *any oil that has been refined from crude oil, or any synthetic hydrocarbon oil, that has been used, and as a result of such use, has become unsuitable for its original purpose due to the presence of impurities or contaminants or the loss of original properties (Environmental Protection Authority, 2013)*

Approvals under HSNO set controls for hazardous substances throughout their lifecycle, such as requirements for storage, identification, emergency management and disposal. The Environmental Protection Authority's code of practice for *Managing and handling used oil* specifically states inappropriate methods of disposal for waste oil, which include disposal on the ground and any practices in which the used oil may cause contamination of the ground and ground water, migrate to watercourses, contaminate air or have negative impacts on humans, plants, animals or other organisms. Applying waste oil to roads is likely to be considered an inappropriate disposal method under HSNO.

#### 4.4.1.4. Reasonably practicable options

Two reasonably practicable options were identified to achieve the objectives of the Waste Plan and of the proposal itself:

- Option 1: Status quo
- Option 2: PC1

These options are discussed in more detail below.

Option 1: Status quo

The status quo and associated issues are outlined in section 4.4.1.3. As outlined in that section, the status quo is not considered to be effective at achieving the objectives of the Waste Plan.

Option 2: PC1

This option proposes amendments to one existing policy and two existing rules as well as one new rule to incentivise the use of appropriate dust suppressants and prohibit the use of waste oil. Broadly, this option:

- allows the use of dust suppressants as a permitted activity subject to conditions, including that the substance is not hazardous, has been approved under HSNO and the use is undertaken in accordance with all conditions of the approval;
- allows resource consent to be applied for where a dust suppressant does not meet the permitted activity criteria;
- prohibits the use of waste oil as a dust suppressant; and
- makes consequential amendments to an objective, policy, method and assessment matters to reflect the revised rule framework.

Option 2 is the preferred option and is assessed in more detail below.

#### 4.4.1.5. Evaluation

Table 17 below identifies and assesses the benefits and costs of the environmental, economic, social and cultural effects that are anticipated from the implementation of the changes proposed under Option 2 above.

*Table 17: Benefits and costs for dust suppressants*

| BENEFITS | COSTS |
|---|---|
| **Environmental** | |
| ▪ Improved water quality due to a reduction in the use of waste oil as a dust suppressant.<br>▪ Continued suppression of dust, reducing air pollution.<br>▪ Reduction in the discharge of contaminants known to be toxic and/or carcinogenic. | ▪ Potential increase in air pollution if people choose not to apply alternatives to waste oil. |
| **Economic** | |
| ▪ Compliant with HSNO requirements for disposal of waste oil and use of hazardous substances, reducing the potential for compliance costs.<br>▪ There may be economic benefits arising from increased demand for dust suppressants that are not waste oil. | ▪ Likely increases in the cost of suppressing dust as alternative substances are generally more expensive than waste oil.<br>▪ Some activities may require resource consent, with applicants incurring costs in preparing and lodging applications. |
| **Social** | |
| ▪ Reduction in adverse effects on amenity from the use of waste oil (for example, odour).<br>▪ Reducing adverse effects on water quality supports recreational uses of water bodies, for example swimming and fishing. | |
| **Cultural** | |
| ▪ Avoids effects of waste oil discharges on traditional water, land and mahika kai values.<br>▪ Improvements in water quality will better provide for Kāi Tahu cultural and spiritual beliefs, values and uses supported by fresh water bodies in Otago. | |

Table 18 below assesses the effectiveness and efficiency of the proposed amendments in achieving the objectives of the proposal.

*Table 18: Efficiency and effectiveness evaluation for dust suppressants*

| | |
|---|---|
| **Efficiency** | This option achieves the objectives of the Waste Plan and the proposal by managing adverse effects more stringently and placing the costs of improvement on those responsible for the discharges. The costs likely to be incurred by those having to use an alternative substance do not outweigh the benefits of reducing the adverse effects from the use of waste oil. |
| **Effectiveness** | This option is effective at achieving the objectives of the Waste Plan as it prevents adverse effects from the use of waste oil while providing for safer alternatives, meaning the original problem (i.e. dust from roads) can continue to be managed. In line with the objectives, this option avoids or remedies the risk to the environment and human health and better manages the harmful effects on traditional water, land and mahika kai values of importance to Kāi Tahu. |

#### 4.4.1.6. Risk of acting or not acting

Section 32(2)(c) of the RMA requires ORC to take into account the risk of acting or not acting if there is uncertain or insufficient information. ORC does not hold comprehensive information on the amount of waste oil being applied to roads in Otago or current uptake of alternative products. Given the significant adverse effects of this activity, the risk of not acting outweighs the risk of acting.

#### 4.4.1.7. Conclusion

Waste oil is a hazardous substance that can have significant adverse effects on fresh water quality and habitats. Prohibiting its use as a dust suppressant will prevent these adverse effects, which will better achieve the general intent of the NPSFM, RPS 1998 and PORPS 2019 to maintain water quality, or enhance it where it is degraded. Providing for the use of other types of dust suppressants will allow the use of safer alternatives to waste oil, which is also consistent with reducing adverse effects on water quality.

The cost-benefit and efficiency and effectiveness assessments above have shown that overall, the proposed amendments are more efficient than the status quo and are more effective at achieving the objectives of the Waste Plan and the proposal. This will, in turn, better achieve the outcomes sought by the NPSFM, RPS 1998, PORPS 2016 and PORPS 2019, as well as the purpose of the RMA.

### 4.4.2. Landfills

#### 4.4.2.1. Introduction

PC1 introduces a new policy for landfills requiring implementation of current best practice for the design, construction and operation of landfills and deletes Appendix 2 which sets out the matters to be included in a landfill development and management plan. The intent of the amendments is to improve the current minimum standards for landfills. The relevant provisions are:

- New Policy 7.4.11
- Amendments to 7.6.1.1 Information requirements
- Amendments to 7.6.1.2 Assessment matters
- Amendments to Appendix 2
- Consequential amendments to Issues 7.2.2 and 7.2.3, Objectives 7.3.1 and 7.3.2, Policy 7.2.6, Method 7.5.7, 7.6.6.1 Information requirements and 7.6.7.1 Information Requirements

#### 4.4.2.2. Objectives

Section 32 requires an evaluation report to examine the extent to which the proposed provisions are the most appropriate way of achieving the objectives of the proposal. The most relevant objective in the Waste Plan is:

- **7.3.1:** To avoid, remedy or mitigate the adverse environmental effects arising from the discharge of contaminants at and from landfills.

The purpose of this proposal is to improve the policy direction in the Waste Plan so that it reflects current best industry practice for establishing and managing landfills.

#### 4.4.2.3. Current issues

Landfills are disposal sites for a variety of waste materials that are a necessary and valuable resource for society. However, they can result in adverse effects on the environment which can be significant if not managed appropriately. Potential adverse environmental effects include (Ministry for the Environment, 2000):

- discharge of leachate and subsequent contamination of groundwater or surface water (particularly for landfills sited in or close to sensitive water bodies or coastal environments) and impairment of their life-supporting capacity or use;
- discharge of potentially explosive or flammable landfill gas which may have a noxious odour and may damage soil health and vegetation;
- subsidence or instability of surrounding land;
- odour, noise and dust discharges to air;
- litter;
- nuisance effects from birds, flies and vermin; and
- effects on amenity generally (particularly visual amenity).

The Waste Plan takes an holistic approach to managing landfills by requiring resource consent for the discharge of contaminants into or onto land, into water, or into air as a discretionary activity under Rule 7.6.1. Section 7.4 of the Waste Plan contains specific policies for landfills that relate to waste and environmental management generally, as well as the siting, on-going operation, upgrading and monitoring of landfills specifically. None of these provisions has been amended since they became operative in 1997 and they are no longer considered to represent a 'best practice' approach to managing landfills. Additionally, they provide little guidance to decision-makers on resource consent applications for landfills. Policy direction is particularly useful for discretionary activities where the council has full discretion to consider any relevant matter and is not directed to consider particular matters.

Appendix 2 of the Waste Plan contains a list of matters to be included in a landfill development and management plan, which is an information requirement of the relevant rules for landfills and offal pits. Appendix 2 contains a range of matters, including some that more appropriately form part of the assessment of environmental effects included with a resource consent application (such as identifying discharges and environmental effects, mitigation measures, and description of the site). The matters are simply listed and do not contain associated standards for each matter. This is a permissive approach to an activity which can have significant, long-term adverse effects and is considerably out of date with current industry best practice.

The current approach is not considered to be effective in achieving the objectives of the Waste Plan.

#### 4.4.2.4. Reasonably practicable options

Two reasonably practicable options were identified to achieve the objectives of the Waste Plan and of the proposal itself:

- Option 1: Status quo
- Option 2: PC1

Option 1: Status quo

The status quo and associated issues are outlined in section 4.4.2.3. As outlined in that section, the status quo is not considered to be effective at achieving the objectives of the Waste Plan.

Option 2: PC1

Broadly, this option requires the design and operation of landfills to be in accordance with current industry best practice, being the Waste Minimisation Institute New Zealand's *Technical Guidelines for Disposal to Land* (August 2018) which covers siting, design, construction, operations and management. It implements this by introducing a new policy outlining minimum standards for landfill design and operation in order to minimise the adverse effects from discharges from landfills. It also makes amendments to a range of existing provisions, including the relevant rules requiring resource consent for landfills and amending Appendix 2 so that it only applies to offal pits because its content currently contains matters for inclusion in a landfill development and management plan that are not consistent with current best practice for landfill management.

#### 4.4.2.5. Efficiency and effectiveness evaluation

Table 19 below identifies and assesses the benefits and costs of the environmental, economic, social and cultural effects that are anticipated from the implementation of the changes proposed under Option 2 above.

*Table 19: Benefits and costs for landfills*

| BENEFITS | COSTS |
|---|---|
| **Environmental** | |
| ▪ Reduction in adverse effects from discharges to water and air from landfills, particularly from leachate and hazardous wastes.<br>▪ Fewer adverse effects in the long-term from improved minimum standards for the initial siting, design and construction of landfills. | |
| **Economic** | |
| ▪ Landfills operating in accordance with best environmental practice are likely to be more economically viable in the long-term as environmental regulation is unlikely to become more permissive in the future.<br>▪ Landfills directly and indirectly employ a number of people in Otago and their continued operation will maintain employment opportunities. | ▪ There may be costs to landfill operators to upgrade or change systems or practices where proposed or existing landfills do not comply with the required minimum standards.<br>▪ The cost of preparing and lodging applications for resource consent under existing rules may increase due to additional and more stringent requirements introduced by PC1. |
| **Social** | |
| ▪ Continued provision of valuable waste management services to communities. | ▪ Communities may continue to experience some adverse effects on amenity, particularly in the vicinity of landfills. |
| **Cultural** | |
| ▪ A reduction in adverse effects (particularly on water quality) will better support Kāi Tahu values and uses of resources.<br>▪ More stringent requirements at the policy level may reduce the level of involvement of Kāi Tahu at the individual consent stage. | |

Table 20 below assesses the effectiveness and efficiency of the proposed amendments in achieving the objectives of the proposal.

*Table 20: Efficiency and effectiveness evaluation for landfills*

| | |
|---|---|
| **Efficiency** | This option achieves the objectives of the Waste Plan and the proposal by setting minimum standards for landfills in order to reduce the potential for adverse effects on the environment. The costs of this option largely fall on those responsible for the discharges, while the benefits are experienced by communities more widely. The costs that may be incurred do not outweigh the benefits and are considered to be appropriate given the potential significance of the adverse effects arising. |
| **Effectiveness** | This option is effective at achieving the relevant objective of the Waste Plan to avoid, remedy or mitigate adverse environmental effects from discharges at and from landfills. This is because it establishes minimum standards for landfills based on current industry best practice, which aims to reduce the environmental impacts of landfills. |

#### 4.4.2.6. Risk of acting or not acting

Section 32(2)(c) of the RMA requires ORC to take into account the risk of acting or not acting if there is uncertain or insufficient information. ORC has not undertaken an assessment of every landfill against the WasteMINZ guidelines so there is some uncertainty about how far away from those standards Otago's landfills currently are. There are 45 resource consents granted for landfills under Rule 7.6.1 of the Waste Plan. These consents have expiry dates ranging from 2021 to 2053. There are 18 expiring before 2025 which are the most likely to be impacted by the content of PC1, although the standards set through PC1 may be carried through to the new LWRP.

The guidelines represent current best practice and are considered an appropriate minimum standard given the potentially significant adverse effects of landfills and their long-term nature. In this case, it is considered that the risk of not acting outweighs the risk of acting.

#### 4.4.2.7. Conclusion

Knowledge about the effects of landfills and best practice management approaches has evolved considerably over the past 20 years. Amending the Waste Plan to implement current best practice will assist with reducing adverse effects on land, water and air. The cost-benefit and efficiency and effectiveness assessments above have shown that the proposed amendments in Option 2 are more efficient than the status quo and are more effective at achieving the objectives of the Waste Plan and the proposal. This will, in turn, better achieve the outcomes sought by the NPSFM, RPS 1998, PORPS 2016 and PORPS 2019, as well as the purpose of the RMA. Costs are incurred by those responsible for the discharges while benefits are experienced by whole communities.

# 5. Planning context

## 5.1. Resource Management Act 1991

The purpose of a regional plan is to assist a regional council to carry out its functions in order to achieve the purpose of the RMA.[16] The purpose and principles of the RMA, and the functions of ORC, are set out in the following sections of this report. ORC has been mindful of the responsibilities and obligations imposed by sections 5-8, 30, 63, 65-70 and Schedule 1 of the RMA when preparing these plan changes, to ensure the RMA requirements have been met throughout.

### 5.1.1. Part 2 – Purpose and Principles

The purpose of the RMA is set out in Part 2, section 5 of the RMA:

*(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.*

*(2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—*

*(a) sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*

*(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*

*(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

The RMA also sets out the following matters of national importance (in section 6), directing that all persons exercising functions and powers under the RMA recognise and provide for them:

*(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:*

*(b) the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:*

*(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*

*(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers:*

*(e) the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:*

*(f) the protection of historic heritage from inappropriate subdivision, use, and development:*

*(g) the protection of protected customary rights:*

*(h) the management of significant risks from natural hazards.*

Section 7 of the RMA sets out other matters to which all persons exercising functions and powers under the RMA are directed to have particular regard:

*(a) kaitiakitanga:*

*(aa) the ethic of stewardship:*

*(b) the efficient use and development of natural and physical resources:*

[16] Section 63(1), RMA

*(ba) the efficiency of the end use of energy:*
*(c) the maintenance and enhancement of amenity values:*
*(d) intrinsic values of ecosystems:*
*(f) maintenance and enhancement of the quality of the environment:*
*(g) any finite characteristics of natural and physical resources:*
*(h) the protection of the habitat of trout and salmon:*
*(i) the effects of climate change:*
*(j) the benefits to* be derived from the use and development of renewable energy.

Section 8 of the RMA requires that persons exercising functions and powers under it shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi). The Treaty principles are used in a number of statues but are not defined in legislation. The principles relate to the obligations of the Crown under the Treaty of Waitangi and have been derived predominantly from Court of Appeal decisions in relation to cases under the State-Owned Enterprises Act 1986. The principles are:

- The two parties to the Treaty must act reasonably towards each other and in utmost faith;
- The Crown must make informed decisions (which will require consultation, but not invariably so);
- The Crown must not unreasonably impede its capacity to provide redress for proven grievances; and
- The Crown must actively protect Maori interests.

Sections 6-8 establish matters for consideration in decision-making under the RMA that contribute to the overall evaluation under section 5. There is a hierarchy across these sections, giving priority to matters of national importance under section 6 over the matters set out for consideration in sections 7 and 8. Section 6(a), (c) and (e) are particularly relevant to PC8 and PC1 given the Plan Changes manage effects on water resources. Sections 7(a), (aa), (b), (c), (d), (f) and (h) should also be considered alongside the Treaty principles when assessing the Plan Changes.

The Plan Changes are considered to comply with the requirements of Part 2. The intent of the provisions is to strengthen the management of activities that are contributing to degradation of water quality in Otago, assisting to recognise the relevant matters in sections 6 and 7. They have been developed in collaboration with Kāi Tahu and taking into account the Kāi Tahu Ki Otago Natural Resources Management Plan 2005.

### 5.1.2. Functions of ORC

Section 30 of the RMA sets out the functions of regional councils. It is extensive in nature, including a wide range of matters that relate to both land use and water. Those of relevance to PC8 and PC1 include:

- establishing, implementing and reviewing objectives, policies, and methods to achieve integrated management of the natural and physical resources of the region (section 30(1)(a));
- controlling the use of land (including the beds of lakes and rivers) to maintain and enhance the quality and quantity of water and ecosystems in water bodies (section 30(1)(c)); and
- controlling the discharge of contaminants onto land or water and discharges of water into water (section 30(1)(f)).

'Control' means the Council has statutory authority to regulate activities, and, if necessary, to enforce rules against individuals or organisations. All of the changes proposed by the Plan Changes are within the scope provided by section 30.

### 5.1.3. Regional Plans

Section 63(1) of the RMA sets out the purpose of regional plans, being to assist the regional council to carry out its functions to achieve the purpose of the RMA. Sections 65 to 70 set out a number of technical and procedural matters to be followed in the preparation of a regional plan. Of most relevance are the following:

- Any change to a regional plan must be carried out in the manner set out in Schedule 1 (section 65(2)).
- When changing a regional plan, the Council must have regard to a proposed Regional Policy Statement (section 66(2)(a)
- When changing a regional plan, the Council must have regard to management plans and strategies prepared under other Acts, and take into account any relevant planning document recognised by an iwi authority, to the extent that their content has a bearing on the resource management issues of the region (section 66(2)(c)(i) and (2A)(a)).
- Regional councils must prepare and change regional plans in accordance with their functions under section 30, the provisions of Part 2, a direction given under section 25(1), its obligation to prepare an evaluation report in accordance with section 32, its obligation to have particular regard to that evaluation report, a national policy statement, New Zealand coastal policy statement, national planning standard and any regulations (section 66(1)).
- Regional plans must state objectives, policies, and rules (if any) (section 67(1)).
- A regional plan must give effect to any national policy statement, national planning standard, New Zealand coastal policy statement and regional policy statement (section 67(3)).
- A regional plan must not be inconsistent with a water conservation order, or another regional plan for the region (section 67(4)).

Sections 68-70 contain specific requirements about the application of regional rules, including those related to water quality and discharges. The Plan Changes have been prepared in accordance with these sections.

## 5.2. National Policy Statements

In accordance with section 67(3)(a) of the RMA, a regional plan must give effect to any national policy statement. There are four national policy statements in force:

- National Policy Statement for Freshwater Management 2014 (as amended 2017; NPSFM);
- National Policy Statement on Electricity Transmission (NPSET);
- National Policy Statement on Urban Development Capacity (NPSUDC); and
- National Policy Statement for Renewable Electricity Generation (NPSREG)

Similarly, in accordance with section 67(3)(b) of the RMA, a regional plan must give effect to any New Zealand Coastal Policy Statement. There is one New Zealand coastal policy statement in force:

- New Zealand Coastal Policy Statement 2010 (NZCPS)

The NPSET, NPSREG and NPSUDC are not considered relevant to PC8 or PC1. The relevant parts of the NPSFM and NZCPS are set out below.

### 5.2.1. National Policy Statement for Freshwater Management

The NPSFM came into effect on 1 August 2014 and amendments made in August 2017 took effect on 7 September 2017. The matter of national significance that the NPSFM relates to is the management of fresh water through a framework that considers and recognises Te Mana o Te Wai as an integral part of freshwater management.

Broadly, the NPSFM sets the direction for freshwater quality and quantity management in New Zealand. Regional councils are directed under the RMA to give effect to the requirements of the NPSFM when developing statutory plans and plan changes. The NPSFM requires freshwater quality to be maintained (where it is of good quality) or improved over time (where it does not meet the requirements of the NPSFM) and includes a national objectives framework for achieving this. The NPSFM also requires engagement with iwi, hapū and community in setting freshwater outcomes and timeframes.

The NPSFM allows councils until 2025 (or 2030 in some circumstances) to fully implement all policies of the NPSFM. ORC has adopted a PIP setting out a time-staged process for implementing the NPSFM in the Otago region.[17] The PIP includes developing a new framework for water management in Otago, starting with establishing FMUs and a review of the Water and Waste Plans. The actions outlined in the PIP demonstrate that ORC is intending to implement the following policies through that time-staged process (which does not include these Plan Changes):

- Policies A1, A2 and A3(a)
- Policies B1, B2, B5 and B6
- Objective CA1, Policies CA1, CA2, CA3 and CA4
- Objective CB1, Policies CB1, CB2, CB3 and CB4

Additionally, Policy A6 has been implemented already.[18] Table 21 below provides an assessment of these Plan Changes against the NPSFM provisions that are relevant (i.e. excluding those listed above which are being implemented through an alternative process).

*Table 21: Assessment of NPSFM*

| Provision(s) | Assessment |
|---|---|
| **Objective AA1**<br>To consider and recognise Te Mana o te Wai in the management of fresh water.<br><br>**Policy AA1**<br>By every regional council making or changing regional policy statements and plans to consider and recognise Te Mana o te Wai, noting that:<br>a) Te Mana o te Wai recognises the connection between water and the broader environment – Te Hauora o te Taiao (the health of the environment), Te Hauora o te Wai (the health of the waterbody) and Te Hauora o te Tangata (the health of the people); and | Te Mana o te Wai is the integrated and holistic well-being of a freshwater body. The NPSFM anticipates that each community will decide what Te Mana o te Wai means to them at a freshwater management unit scale, based on their unique relationship with freshwater in their area.<br>When Te Mana o te Wai is given effect, the water body will sustain the full range of environmental, social, cultural and economic values held by iwi and the community.<br><br>The Water and Waste Plans do not currently recognise Te Mana o Te Wai explicitly as they were prepared before the provisions relating to Te Mana o Te Wai were introduced to the NPSFM. |

[17] https://goodwaterinotago.orc.govt.nz/national-policy-statements

[18] Draft targets can be viewed at https://www.orc.govt.nz/managing-our-environment/water/water-quality-targets/draft-regional-swimming-targets-for-otago and final targets at https://www.orc.govt.nz/managing-our-environment/water/water-quality-targets/regional-swimming-targets-for-otago

| | |
|---|---|
| b) values identified through engagement and discussion with the community, including tangata whenua, must inform the setting of freshwater objectives and limits. | They do however seek to maintain and enhance the values of Otago's water bodies (see Chapter 5 of the Water Plan).<br><br>Because of their targeted scope, PC8 and PC1 do not enable a full consideration and recognition of Te Mana o Te Wai. This is one of the matters that will be addressed through ORC's full review of the Water and Waste Plans. |
| **Objective A1**<br>To safeguard:<br>a) the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems, of fresh water; and<br>b) the health of people and communities, as affected by contact with fresh water;<br>in sustainably managing the use and development of land, and of discharges of contaminants.<br><br>**Objective A2**<br>The overall quality of fresh water within a freshwater management unit is maintained or improved while:<br>a) protecting the significant values of outstanding freshwater bodies;<br>b) protecting the significant values of wetlands; and<br>c) improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.<br><br>**Objective A3**<br>The quality of fresh water within a freshwater management unit is improved so it is suitable for primary contact more often, unless:<br>a) regional targets established under Policy A6(b) have been achieved; or<br>b) naturally occurring processes mean further improvement is not possible.<br><br>**Objective A4**<br>To enable communities to provide for their economic well-being, including productive economic opportunities, in sustainably managing freshwater quality, within limits.<br><br>**Policy A3**<br>By regional councils:<br>a) *not applicable*<br>b) where permissible, making rules requiring the adoption of the best practicable option to prevent or minimise any actual or likely adverse effect on the environment of any discharge of a contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process | The provisions of these Plan Changes relate to water quality and seek to safeguard important freshwater values in sustainably managing the use and development of land and the discharge of contaminants. PC8 and PC1 introduce strengthened management regimes for a range of specific activities known to have adverse effects on water quality. Better oversight and stricter minimum standards will reduce contaminant loss and assist with safeguarding the life-supporting capacity, ecosystem processes and indigenous species of fresh water. The National Objectives Framework in Appendix 2 assigns *E. coli* as the attribute for the human health for recreation value. Potential reductions in *E. coli* from preventing stock access to water and improving management of effluent and intensive grazing will assist with safeguarding the health of people and communities as affected by contact with fresh water.<br><br>The Plan Changes also seek to assist with achieving Objective 7.A.1 of the Water Plan, which is to maintain water quality in Otago lakes, rivers, wetlands and groundwater, but enhance water quality where it is degraded. This is generally consistent with the requirements of Objective A2. The Water Plan identifies natural and human use values supported by Otago's rivers and lakes as well as spiritual and cultural beliefs, values and uses of significance to Kāi Tahu. It also identifies regionally significant wetlands and includes specific restrictions on activities affecting those wetlands. PC8 does not alter this approach.<br><br>These Plan Changes form part of ORC's implementation of Objective A3 in that they seek to strengthen management of activities known to contribute *E. coli* to water bodies. Full implementation of this objective will occur in conjunction with the PIP.<br><br>The provisions in PC8 and PC1 seek to implement minimum standards, good management practices and best industry practice as applicable to the specific activities within scope of the Plan Change in order to prevent or minimise adverse effects of discharges, consistent with Policy A3(b). They have been developed with consideration of any effects on the economic well-being of |

| | |
|---|---|
| from the discharge of that contaminant, any other contaminant) entering fresh water.<br><br>**Policy A7**<br>By every regional council considering, when giving effect to this national policy statement, how to enable communities to provide for their economic well-being, including productive economic opportunities, while managing within limits. | communities, including productive economic opportunities, in accordance with Policy A7. |
| **Objective B1**<br>To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water, in sustainably managing the taking, using, damming, or diverting of fresh water.<br><br>**Policy B3**<br>By every regional council making or changing regional plans to the extent needed to ensure the plans state criteria by which applications for approval of transfers of water take permits are to be decided, including to improve and maximise the efficient allocation of water.<br><br>**Policy B4**<br>By every regional council identifying methods in regional plans to encourage the efficient use of Water.<br><br>**Policy B8**<br>By every regional council considering, when giving effect to this national policy statement, how to enable communities to provide for their economic well-being, including productive economic opportunities, while managing within limits. | None of the provisions in PC8 or PC1 relate to the taking, use, damming or diverting of fresh water; transfer of water take permits; or efficient use of water.<br><br>As outlined previously, these Plan Changes have been developed with consideration of any effects on the economic well-being of communities, including productive economic opportunities. |
| **Objective C1**<br>To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.<br><br>**Policy C1**<br>By every regional council:<br>a) recognising the interactions, ki uta ki tai (from the mountains to the sea) between fresh water, land, associated ecosystems and the coastal environment; and<br>b) managing fresh water and land use and development in catchments in an integrated and sustainable way to avoid, remedy or mitigate adverse effects, including cumulative effects.<br><br>**Policy C2**<br>By every regional council making or changing regional policy statements to the extent needed to provide for | PC8 and PC1 both seek to improve integrated management by better managing, in particular, land use activities that can have adverse effects on water bodies. Diffuse discharges from nutrient loss on farms are a major water quality problem in New Zealand (PCE, 2018). They are difficult discharges to manage because they come from a large number of small (sometimes unknown) sources, compared to point source discharges which tend to be from a small number of known points. Activities that expose bare earth (such as earthworks for development) significantly increase the potential for the discharge of sediment and other contaminants to water bodies, negatively affecting water quality (Leersnyder et al, 2018).<br><br>The traditionally effects-based approach of the Water Plan has focused on managing discharges directly rather than land uses. An effects-based approach is by nature reactive and has proven ineffective in some instances. In the case of sediment from earthworks, the Plan has limited |

| | |
|---|---|
| the integrated management of the effects of the use and development of:<br>a) land on fresh water, including encouraging the co-ordination and sequencing of regional and/or urban growth, land use and development and the provision of infrastructure; and<br>b) land and fresh water on coastal water. | ORC's ability to require good sediment control prior to sediment run-off occurring.<br><br>PC8 and PC1 introduce provisions to manage particular activities known to contribute to diffuse discharges: animal waste management and intensive grazing. This will more efficiently target particular activities that are causing problems while recognising that land uses across catchments contribute to issues with water quality. This also better recognises the link between upstream land uses and effects on water quality in the coastal marine area, assisting with maintaining or improving coastal water quality as well as freshwater quality. |
| **Objective CC1**<br>To improve information on freshwater takes and sources of freshwater contaminants, in order to:<br>a) ensure the necessary information is available for freshwater objective and limit setting and freshwater management under this national policy statement; and<br>b) ensure information on resource availability is available for current and potential resource users.<br><br>**Policy CC1**<br>By every regional council:<br>a) establishing and operating a freshwater quality accounting system and a freshwater quantity accounting system for those freshwater management units where they are setting or reviewing freshwater objectives and limits in accordance with Policy A1, Policy B1, and Policies CA1-CA4; and<br>b) maintaining a freshwater quality accounting system and a freshwater quantity accounting system at levels of detail that are commensurate with the significance of the freshwater quality and freshwater quantity issues, respectively, in each freshwater management unit.<br><br>**Policy CC2**<br>By every regional council taking reasonable steps to ensure that information gathered in accordance with Policy CC1 is available to the public, regularly and in a suitable form, for the freshwater management units where they are setting or reviewing, and where they have set or reviewed, freshwater objectives and limits in accordance with Policy A1, Policy B1, and Policies CA1-CA4. | The information gathering and accounting systems are subject to separate processes and are not affected by PC8 or PC1. However, the Plan Changes will assist with the collection of data and information on contaminants and risk in some instances, particularly where resource consents are required for activities that are currently permitted. |
| **Objective D1**<br>To provide for the involvement of iwi and hapū, and to ensure that tangata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding freshwater planning, including on | Aukaha have been involved in the preparation of these Plan Changes from the early stages. Section 3 outlines the specific stages at which Kāi Tahu have been consulted prior to notification of the Plan Changes. Feedback from Aukaha has been taken into account when drafting provisions in particular. |

| | |
|---|---|
| how all other objectives of this national policy statement are given effect to.<br><br>**Policy D1**<br>Local authorities shall take reasonable steps to:<br>a) a) involve iwi and hapū in the management of fresh water and freshwater ecosystems in the region;<br>b) work with iwi and hapū to identify tangata whenua values and interests in fresh water and freshwater ecosystems in the region; and<br>c) reflect tangata whenua values and interests in the management of, and decision-making regarding, fresh water and freshwater ecosystems in the region. | Feedback has also been sought from Te Ao Marama Inc, who represent runaka outside the Aukaha rohe, and Te Rūnanga o Ngai Tahu. |

The Plan Changes are considered to give effect to the NPSFM, noting that some of the provisions in the NPSFM are being implemented through a separate planning process while others have already been implemented.

### 5.2.2. New Zealand Coastal Policy Statement

The New Zealand Coastal Policy Statement 2010 (NZCPS) came into effect on 3 December 2010 and applies to the coastal marine area and the coastal environment. The NZCPS recognises that activities inland from the coastal environment can have a major influence on coastal water quality as a consequence of point source and non-point source discharges, including stormwater and wastewater.

The NZCPS requires a strategic approach to managing adverse cumulative effects on the coastal environment. It also provides for the integrated management of natural and physical resources and activities, and the management of discharges and enhancement of water quality in the coastal environment. Fresh water resources also occur within the coastal environment and the protection of this resource is important to the economic, social and cultural wellbeing of people and communities.

PC8 and PC1 are consistent with the NZCPS provisions.

## 5.3. National Environmental Standards

In accordance with section 43B(3) of the RMA, a rule in a regional plan is unable to be more lenient than a national environmental standard unless the national environmental standard expressly states that a rule can be more lenient. There are currently six national environmental standards in force:

- National Environmental Standards for Air Quality 2004 (NESAQ);
- National Environmental Standard for Sources of Human Drinking Water 2007 (NESHDW);
- National Environmental Standards for Telecommunication Facilities 2008 (NESTF);
- National Environmental Standard for Electricity Transmission Activities 2009 (NESETA);
- National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NESCS); and
- National Environmental Standards for Plantation Forestry 2017 (NESPF).

The NESHDW and NESPF are considered relevant in the context of PC8 and PC1.

### 5.3.1. National Environmental Standard for Sources of Human Drinking Water

The NESHDW came into effect on 20 June 2008 and sets requirements for protecting sources of human drinking water from becoming contaminated. The NESHDW requires regional councils to ensure that effects of activities on drinking water sources are considered in decisions on resource consents and regional plans. Specifically, regional councils are required to:

- decline discharge or water permits that are likely to result in community drinking water becoming unsafe for human consumption following existing treatment;
- be satisfied that permitted activities in regional plans will not result in community drinking water supplies being unsafe for human consumption following existing treatment; and
- place conditions on relevant resource consents that require notification of drinking water suppliers if significant unintended events occur (eg, spills) that may adversely affect sources of human drinking water.

PC8 and PC1 are consistent with the NESHDW.

## 5.4. National Environmental Standards for Plantation Forestry

The NESPF came into effect on 1 May 2018. The objectives of the NESPF are to:

- maintain or improve environmental outcomes associated with plantation forestry activities nationally; and
- increase certainty and efficiency in the management of plantation forestry activities.

The regulations apply to any forest larger than one hectare that has been planted specifically for harvesting. Eight core plantation forestry activities are covered by the standards, these include; afforestation; pruning and thinning to waste; earthworks; river crossings; forestry quarrying; harvesting mechanical land preparation and replanting. The regulations generally prevail over regional and district plan provisions that apply to plantation forestry. Plan rules cannot be more lenient than the regulations and can only be more stringent where they relate to managing the unique and sensitive environments defined in the NESPF.

The proposed provisions for managing earthworks for residential development apply to residential development only. A note has been included with these proposed provisions to clarify that they do not apply to activities managed by the NESPF.

## 5.5. National Planning Standards

Under section 67(3)(ba) of the RMA, a regional plan must give effect to a national planning standard. National planning standards have been introduced to improve the consistency of council plans and policy statements. The Minister for the Environment and the Minister of Conservation released the first set of national planning standards on 5 April 2019. The first set of national planning standards aim to provide national consistency for the structure, form, definitions and electronic accessibility of RMA plans and policy statements to make them more efficient and easier to prepare and use.

PC8 and PC1 do not give effect to the national planning standards, as the standards apply to regional plans (not plan changes), and regional councils are not required to adopt the standards in their plans until 10 years after their gazettal date (unless a regional plan is notified earlier). However, where terms are used that are defined in the national planning standards, those definitions are adopted in the Plan

Changes. ORC will give full effect to the national planning standards through the longer-term work programme to review and replace the Water and Waste Plans.

## 5.6. Water Conservation Orders

Under section 67(4)(a), a regional plan must not be inconsistent with a water conservation order. Water conservation orders are orders that recognise and sustain outstanding amenity or intrinsic values of waters. Once operative, water conservation orders place restrictions on the granting of some types of resource consents where they affect the water body subject to the order. In Otago, there is one water conservation order in force on the Kawarau River.

### 5.6.1. Water Conservation (Kawarau) Order 1997

This order recognises that the Kawarau River and its tributaries have the following outstanding amenity and intrinsic values:

- natural and physical qualities and characteristics that contribute to:
  - people's appreciation of pleasantness of waters
  - aesthetic coherence
  - cultural attributes
  - recreational attributes
- biological and genetic diversity of ecosystems
- essential characteristics that determine the ecosystem's integrity, form, functioning and resilience

As the protected waters are considered to be in their natural state, they must be preserved as far as possible in that state. For waters not in their natural state, the order recognises that they still have the following outstanding characteristics:

- as a habitat for terrestrial and aquatic organisms
- as a fishery
- for its wild, scenic and other natural characteristics
- for scientific values
- for recreational or historical purposes
- for significance in accordance with tikanga Māori

The order places a number of restrictions on the damming, diversion and quality of water in the protected waters in order to preserve or protect the values above, which affects ORC's ability to grant resource consents for some activities. There are some exemptions for particular activities listed in the order.

No parts of PC8 and PC1 are inconsistent with the provisions of this water conservation order.

## 5.7. Lake Wanaka Preservation Act 1973

When exercising functions under the RMA, including the development of regional plans or plan changes, ORC is required to have regard to the purposes of the Lake Wanaka Preservation Act 1973

and shall give effect to the policy of the government in relation to those functions as communicated by the Minister of Conservation.[19]

The Lake Wanaka Preservation Act 1973 has the following purposes:

- To prevent the water in the body of the lake from being impounded or controlled by, or, as far as possible, obstructed by, any works except in an emergency;
- To prevent the natural rate of flow of lake water between the outlet of the lake which forms the source of the Clutha River and the confluence of that river and the Cadrona River from being varied or controlled by any works except in an emergency;
- To preserve, as far as possible, the water levels of the lake and its shoreline in their natural state; and
- To maintain and, as far as possible, to improve the quality of water in the lake.

As with the Kawarau River water conservation order, the Plan Changes do not introduce any changes that affect the consistency with the Lake Wanaka Preservation Act. The full review of the RPS and Water Plan provides an opportunity to consider the overall resource management framework and whether any improvements are required to align with this legislation.

## 5.8. Regional Policy Statements

Under section 67(3), a regional plan must give effect to any regional policy statement. Under section 66(2)(a), a regional council must also have regard to any proposed regional policy statement. In Otago, there are currently three regional policy statements at play:

- Regional Policy Statement for Otago 1998 (RPS 1998)
- Partially Operative Otago Regional Policy Statement 2019 (PORPS 2019)
- Proposed Otago Regional Policy Statement 2016 (PORPS 2016)

The RPS 1998 is partially operative as some provisions have been revoked and are replaced by provisions in the PORPS 2019. The PORPS 2016 and PORPS 2019 are two versions of the same document: the PORPS 2019 contains all of the provisions that are beyond challenge and have been made operative while the PORPS 2016 contains the provisions still subject to appeal and therefore not operative. Generally, the most relevant provisions for these Plan Changes have not been made operative and so are contained in the RPS 1998 and the PORPS 2016. Greater weight should be afforded to the provisions of the PORPS 2016 than the RPS 1998 given how far through the planning process it is (under appeal) and the fact that it will, in time, replace the RPS 1998 entirely.

### 5.8.1. Regional Policy Statement for Otago 1998

There are two operative chapters of the RPS 1998 that are relevant for PC8 and PC1:

- Chapter 5: Land
- Chapter 6: Water

The relevant provisions from these chapters and an assessment of the Plan Changes against them is set out in Table 22 below. These provisions are operative and must be given effect to by the Plan Changes.

*Table 22: Assessment of RPS 1998*

[19] Clause 8, Lake Wanaka Preservation Act 1973.

| Provision(s) | Assessment |
|---|---|
| **Chapter 5: Land** | |
| **Objective 5.4.1**<br>To promote the sustainable management of Otago's land resources in order:<br>(a) To maintain and enhance the primary productive capacity and life-supporting capacity of land resources; and<br>(b) To meet the present and reasonably foreseeable needs of Otago's people and communities.<br><br>**Objective 5.4.2**<br>To avoid, remedy or mitigate degradation of Otago's natural and physical resources resulting from activities utilising the land resource.<br><br>**Policy 5.5.2**<br>To promote the retention of the primary productive capacity of Otago's existing high class soils to meet the reasonably foreseeable needs of future generations and the avoidance of uses that have the effect of removing those soils or their life-supporting capacity and to remedy or mitigate the adverse effects on the high class soils resource where avoidance is not practicable.<br><br>**Policy 5.5.3**<br>To maintain and enhance Otago's land resource through avoiding, remedying or mitigating the adverse effects of activities which have the potential to, among other adverse effects:<br>(a) Reduce the soil's life-supporting capacity<br>(b) Reduce healthy vegetative cover<br>(c) Cause soil loss<br>(d) Contaminate soils<br>(e) Reduce soil productivity<br>(f) Compact soils<br>(g) Reduce soil moisture holding capacity<br><br>**Policy 5.5.5**<br>To minimise the adverse effects of landuse activities on the quality and quantity of Otago's water resource through promoting and encouraging the:<br>(a) Creation, retention and where practicable enhancement of riparian margins; and<br>(b) Maintaining and where practicable enhancing, vegetation cover, upland bogs and wetlands to safeguard land and water values; and<br>(c) Avoiding, remedying or mitigating the degradation of groundwater and surface water resources caused by the introduction of contaminants in the form of chemicals, nutrients and sediments resulting from landuse activities. | PC8 introduces a range of amended and new provisions to manage uses of land that are known to have adverse effects both on water and soil quality. In particular, these are intensive grazing, effluent storage and application, and earthworks. These activities can negatively affect soil health and structure through the reduction of healthy vegetative cover, loss of soil, contamination of soil, reduction of soil productivity and compaction. The intent of the provisions in PC8 is to introduce controls on these activities to ensure they occur in a manner that minimises environmental effects and in line with good management practices.<br><br>PC1 revises the current regime for the use of dust suppressants, including prohibiting the use of waste oil as a dust suppressant which is currently permitted. Waste oil is a known contaminant which has the potential to adversely affect water and soil quality depending on the circumstances and locations in which it is applied. PC1 also contains strengthened policies for decision-making on resource consent applications for landfills. Landfills have the potential to contaminate soil and it is expected that the strengthened policies will require landfills to operate at best industry practice and minimise environmental effects.<br><br>For the above reasons, the provisions of PC8 and PC1 are considered to give effect to the provisions of Chapter 5 of the RPS 1998. |
| **Chapter 6: Water** | |
| **Objective 6.4.2** | The overall intent of both PC8 and PC1 is to strengthen the management of discharges that can adversely affect |

| | |
|---|---|
| To maintain and enhance the quality of Otago's water resources in order to meet the present and reasonably foreseeable needs of Otago's communities.<br><br>**Objective 6.4.3**<br>To safeguard the life-supporting capacity of Otago's water resources through protecting the quantity and quality of those resources.<br><br>**Objective 6.4.4**<br>To maintain and enhance the ecological, intrinsic, amenity and cultural values of Otago's water resources.<br><br>**Policy 6.5.5**<br>To promote a reduction in the adverse effects of contaminant discharges into Otago's water bodies through:<br>(a) Adopting the existing water quality of Otago's water bodies as a minimum acceptable standard; and<br>(b) Investigating and where appropriate, enhancing water quality so that as a minimum standard it is suitable for contact recreation and aquatic life where:<br>(i) There is a high public interest in, or use of the water; or<br>(ii) *Revoked*<br>(iii) There is a particular value to be maintained or enhanced; or<br>(iv) There is a direct discharge containing human sewage or wastes from commercial or industrial activities; and<br>(c) Requiring that all discharges into Otago's water bodies maintain the standard for the receiving waters after reasonable mixing; and<br>(d) Promoting discharges to land where practicable and where there are no significant adverse effects on groundwater or surface water resources, or soil; and<br>(e) Preparing contingency responses for accidental pollution spills; and<br>(f) Investigating and addressing the effects of diffuse source discharges on water quality;<br>while considering financial and technical constraints.<br><br>**Policy 6.5.6**<br>To protect Otago's remaining significant wetlands from the effects of any activity except:<br>(a) Where such activities can be shown to have no significant adverse effects on:<br>(i) Community needs; or<br>(ii) *Revoked*<br>(iii) The natural hydrological characteristics of the wetland; or<br>(iv) The natural character of the water body; or<br>(v) Amenity values; or<br>(vi) Intrinsic values of ecosystems or<br>(vii) Salmon or trout habitat; or | water quality. This is primarily achieved by introducing minimum standards for a range of activities that can negatively affect water quality, including intensive grazing, effluent storage and application and earthworks. In replacement of the changes introduced by PC6A, PC8 focuses largely on managing land uses that contribute to diffuse source discharges by requiring the adoption of good management practices and by setting thresholds above which resource consent is required to undertake the activity, providing more stringent oversight by ORC.<br><br>PC1 aims to reduce the discharge of contaminants from the use of waste oil as a dust suppressant and from landfills. Both types of discharges can contain hazardous substances which can have significant adverse effects on water quality. By prohibiting the use of waste oil and strengthening the policies for landfills, PC1 improves the management of these activities.<br><br>For the above reasons, the provisions of PC8 and PC1 are considered to give effect to the provisions of Chapter 6 of the RPS 1998. |

| | |
|---|---|
| (b) Where alternative habitats of a similar or improved nature are provided in compensation for any loss of habitat.<br><br>**Policy 6.5.9**<br>To allow for the community's use, development or protection of the beds and banks of Otago's water bodies provided:<br>(a) Any adverse effects on:<br>(i) *Revoked*<br>(ii) The natural character of the water body; or<br>(iii) Habitats of indigenous fauna; or<br>(iv) Amenity values; or<br>(v) Intrinsic values of ecosystems; or<br>(vi) Salmon or trout habitat; or<br>(vii) Outstanding natural features or landscapes<br>are avoided, remedied or mitigated, and that the life-supporting capacity of the water body is maintained and, where practicable, enhanced; while<br>(b) Considering the maintenance and, where practicable, enhancement of the natural functioning of river systems; and<br>(c) Considering the need to provide mitigation to lessen the threat posed by flooding and riverbank erosion. | |

For the above reasons, the Plan Changes are considered to give effect to the RPS 1998.

### 5.8.2. Partially Operative Otago Regional Policy Statement 2019

There are three operative chapters of the PORPS 2019 that are relevant for PC8 and PC1:

- Chapter 2: Kāi Tahu values and interests are recognised and kaitiakitaka is expressed
- Chapter 4: Communities in Otago are resilient, safe and healthy
- Chapter 5: People are able to use and enjoy Otago's natural and built environment

The relevant provisions from these chapters and an assessment of the Plan Changes against them is set out in Table 23 below. These provisions are operative and must be given effect to by the Plan Changes.

*Table 23: Assessment of PORPS 2019*

| Provision(s) | Assessment |
|---|---|
| **Chapter 2: Kāi Tahu values and interests are recognised and kaitiakitaka is expressed** | |
| **Objective 2.2**<br>Kāi Tahu values, interests and customary resources are recognised and provided for.<br><br>**Policy 2.2.1**<br>Manage the natural environment to support Kāi Tahu wellbeing by all of the following:<br>(a) Recognising and providing for their customary uses and cultural values in Schedules 1A and B; and<br>(b) Safe-guarding the life-supporting capacity of natural resources. | PC8 and PC1 seek to safeguard the life-supporting capacity of natural resources by strengthening management of activities known to cause contaminant loss to water. This will assist in recognising and providing for Kāi Tahu values, interests and customary resources. |
| **Chapter 4: Communities in Otago are resilient, safe and healthy** | |

| | |
|---|---|
| **Objective 4.3**<br>Infrastructure is managed and developed in a sustainable way.<br><br>**Policy 4.3.2**<br>Recognise the national and regional significance of all of the following infrastructure:<br>(a) Renewable electricity generation activities, where they supply the National Grid or local distribution network;<br>(b) National Grid;<br>(c) Electricity sub-transmission infrastructure;<br>(d) Telecommunication and radiocommunication facilities;<br>(e) Roads classified as being of national or regional importance;<br>(f) Ports and airports and associated navigation infrastructure;<br>(g) Defence facilities;<br>(h) Rail infrastructure;<br>(i) Municipal infrastructure.<br><br>**Policy 4.3.3**<br>Provide for the functional needs of infrastructure that has regional or national significance, including safety. | PC8 introduces amendments strengthens the policies for managing discharges from stormwater and wastewater infrastructure which contributes to healthy and safe communities as well as improved environmental outcomes.<br><br>PC8 contains a minor amendment to one policy which sets out how activities relating to nationally or regionally important infrastructure may be carried out within Regionally Significant Wetlands. The effect of the change is to give better effect to these provisions of the PORPS 2019 by aligning the terminology. |
| **Objective 4.6**<br>Hazardous substances, contaminated land and waste materials do not harm human health or the quality of the environment in Otago.<br><br>**Policy 4.6.2**<br>Manage the use, storage and disposal of hazardous substances by all of the following:<br>…<br>(f) Ensuring hazardous substances are treated or disposed of in accordance with the relevant regulatory requirements<br>…<br><br>**Policy 4.6.9**<br>Avoid the creation of new contaminated land or, where this is not practicable, minimise adverse effects on the environment. | PC1 introduces changes to the use of dust suppressants, including by prohibiting the use of waste oil. Waste oil is a hazardous substance that can adversely affect water quality through run-off when it is applied to land. Use of waste oil as a dust suppressant is not in accordance with the relevant regulatory requirements (namely the Hazardous Substances and New Organisms Act 1996; HSNO). PC1 will give effect to the PORPS 2019 by prohibiting the use of a hazardous substance in circumstances where contaminants may enter water and by complying with the relevant HSNO requirements for disposal.<br><br>PC1 also introduces changes to the policies for managing landfills in order to provide stronger guidance for decision-makers on resource consent applications. These changes are designed to require best industry practice is met by landfills in order to minimise adverse effects on the environment from landfill establishment and operation. |
| **Chapter 5: People are able to use and enjoy Otago's natural and built environment** | |
| **Objective 5.4**<br>Adverse effects of using and enjoying Otago's natural and physical resources and minimised. | The provisions of PC8 and PC1 broadly introduce minimum standards for particular activities with adverse effects on water quality. This will assist with minimising adverse effects, and |

| | |
|---|---|
| **Policy 5.3.1**<br>Manage activities in rural areas, to support the region's economy and communities, by:<br>(a) Enabling primary production and other rural activities that support that production;<br>*(b) not relevant*<br>(c) Minimising the loss of significant soils;<br>(d) Restricting the establishment of incompatible activities in rural areas that are likely to lead to reverse sensitivity effects;<br>*(e) not relevant*<br>(f) Providing for other activities that have a functional need to locate in rural areas.<br><br>**Policy 5.4.1**<br>Manage offensive or objectionable discharge to land, water and air by:<br>(a) Avoiding significant adverse effects of those discharges;<br>(b) Avoiding significant adverse effects of discharges of human or animal waste directly, or in close proximity, to water or mahika kai sites;<br>(c) Avoiding, remedying or mitigating other adverse effects of those discharges. | therefore maintaining or enhancing water quality. PC8 in particular has been prepared in recognition of the need to continue to enable primary production in the region, but to ensure appropriate management of adverse effects on water quality.<br><br>A number of the provisions within the scope of PC8 and PC1 relate to types of discharges that are likely to be offensive or objectionable, including discharges of wastewater, animal waste, and waste oil. The standards proposed by PC8 and PC1 seek to avoid significant adverse effects and avoid, remedy or mitigate other adverse effects. |

The Plan Changes are considered to give effect to the PORPS 2019.

### 5.8.3. Proposed Otago Regional Policy Statement 2016

There is one inoperative chapter of the PORPS 2016 that is relevant for PC8 and PC1:

- Chapter 3: Otago has high quality natural resources and ecosystems

The relevant provisions from these chapters and an assessment of the Plan Changes against them is set out in Table 24 below. The provisions of Chapter 3 are not yet operative but ORC must still have regard to them. These provisions have been subject to mediation on appeals and agreements between appeal parties have been reached and have been approved by the Environment Court. A consent order has been issued by the Environment Court to that effect.

*Table 24: Assessment of PORPS 2016*

| Provision(s) | Assessment |
|---|---|
| **Chapter 3: Otago has high quality natural resources and ecosystems** | |
| **Objective 3.1**<br>The values (including intrinsic values) of ecosystems and natural resources are recognises and maintained, or enhanced where degraded.<br><br>**Policy 3.1.1**<br>Safeguard the life-supporting capacity of fresh water and manage fresh water to:<br>a) Maintain good quality water and enhance water quality where it is degraded, including for: | In line with the high level direction in the PORPS 2016, the provisions of PC8 and PC1 broadly seek to maintain or improve water quality. The majority of the provisions in both Plan Changes seek to reduce the adverse effects of land uses, and discharge of contaminants to water or land where they may enter water.<br><br><u>Intensive grazing</u> |

| | |
|---|---|
| i. Important recreation values, including contact recreation; and<br>ii. Existing drinking and stock water supplies;<br>b) Maintain or enhance aquatic:<br>i. Ecosystem health;<br>ii. Indigenous habitats; and<br>iii. Indigenous species and their migratory patterns;<br>c) Avoid aquifer compaction and seawater intrusion;<br>d) Maintain or enhance, as far as practicable:<br>i. Natural functioning of rivers, lakes and wetlands, their riparian margins, and aquifers;<br>ii. Coastal values supported by fresh water;<br>iii. The habitat of trout and salmon unless detrimental to indigenous biological diversity; and<br>iv. Amenity and landscape values of rivers, lakes and wetlands;<br>e) Control the adverse effects of pest species, prevent their introduction and reduce their spread;<br>f) Avoid, remedy or mitigate the adverse effects of natural hazards, including flooding and erosion; and<br>g) Avoid, remedy or mitigate adverse effects on existing infrastructure that is reliant on fresh water.<br><br>**Policy 3.1.2**<br>Manage the beds of rivers, lakes, wetlands, their margins, and riparian vegetation to:<br>a) Safeguard the life supporting capacity of fresh water;<br>b) Maintain good quality water, or enhance it where it has been degraded;<br>c) Maintain or enhance bank stability;<br>d) Maintain or enhance ecosystem health and indigenous biological diversity;<br>e) Maintain or enhance, as far as practicable:<br>i. Their natural functioning and character; and<br>ii. Amenity values;<br>f) Control the adverse effects of pest species, prevent their introduction and reduce their spread; and,<br>g) Avoid, remedy or mitigate the adverse effects of natural hazards, including flooding and erosion.<br><br>**Policy 3.1.8**<br>Minimise soil erosion resulting from activities, by undertaking all of the following:<br>a) Using appropriate erosion controls and soil conservation methods;<br>b) Maintaining vegetative cover on erosion prone land;<br>c) Remediating land where significant soil erosion has occurred;<br>d) Encouraging activities that enhance soil retention.<br><br>**Policy 3.1.13** | Intensive grazing can have adverse effects on water quality from sediment loss as a result of the disturbance and exposure of large tracts of bare soil. Intensive grazing can also result in the loss of contaminants such as nitrogen and *E. coli*. PC8 introduces a permitted activity rule requiring good management practices to be implemented.<br><br><u>Stock exclusion from water</u><br>PC8 introduces a requirement for stock to be excluded from water bodies according to the type of stock and water body. The timeframes for compliance with this rule have been staged to allow costs to be distributed over the coming years rather than all at once.<br><br><u>Effluent management</u><br>PC8 introduces minimum standards for the storage of animal effluent, requiring operators to design and construct storage facilities in accordance with best practice and to manage their on-going use and maintenance. PC8 also proposes more stringent management of effluent application to land in order to better manage the adverse effects that can arise.<br><br><u>Sediment from earthworks</u><br>PC8 addresses this and strengthens management of this activity by including new provisions with minimum standards requiring best industry practice be adopted and requiring activities to seek resource consent above certain thresholds. Resource consents are a way for ORC to proactively manage the discharge by placing conditions on the exercise of the consent.<br><br><u>Policies</u><br>PC8 introduces amendments or new policies on a range of topics, including discharges of stormwater and wastewater and rural discharges. This will assist decision-makers on resource consent applications to assess whether proposals are acceptable in terms of their environmental effects. For farming activities in particular, new Policy 7.D.9 signals the longer-term resource management goals for these activities that ORC aims to achieve progressively. |

| | |
|---|---|
| Encourage, facilitate and support activities that contribute to the resilience and enhancement of the natural environment by where applicable:<br>a) Improving water quality and quantity;<br>b) Protecting or restoring habitat for indigenous species;<br>… | <u>Sediment traps</u><br>PC8 incentivises the use of sediment traps as a mitigation measure of sedimentation of water by allowing in-stream sediment traps to be constructed as a permitted activity, subject to minimum standards.<br><br><u>Waste oil and landfills</u><br>PC1 amends the Waste Plan to strengthen the management of waste oil as a dust suppressant and policy direction on landfills. |

The Plan Changes are considered to give effect to the PORPS 2016, with one exception. Method 4.1.5 establishes that district plans will be responsible for managing the discharges of dust, silt and sediment associated with earthworks and land use. This is not considered to reflect the division of responsibilities between regional councils and territorial authorities in sections 30 and 31 of the RMA. Controlling land uses for the purpose of water quality is a regional council function and therefore provisions for managing earthworks for residential development are appropriate to include in the Water Plan.

## 5.9. Regional Plans

Under section 67(4)(b), a regional plan must not be inconsistent with any other regional plan for the region. There are four regional plans in place in Otago:

- Regional Plan: Waste for Otago (the Waste Plan)
- Regional Plan: Water for Otago (the Water Plan)
- Regional Plan: Air for Otago (the Air Plan)
- Regional Plan: Coast for Otago (the Coast Plan)

### 5.9.1. The Water and Waste Plans

ORC publicly notified the Water Plan in 1998. Following the process of submissions, hearings and appeals, Council made the Water Plan operative in 2004. The Water Plan manages all other aspects of freshwater use in Otago. PC8 focuses on amending existing provisions or introducing new provisions that are within the scope of the Water Plan.

ORC publicly notified the Waste Plan in 1994. Following the process of submissions, hearings and appeals, Council made the Waste Plan operative in 1997. The Waste Plan was prepared to manage all aspects of waste in Otago, including hazardous substances. It includes rules applying to uses of land and discharges to air, water and land. PC1 maintains this distinction and is restricted to amending existing provisions within the scope of the Waste Plan.

There is potentially some duplication between the Waste and Water Plans due to the nature of the activities they manage and the ‘effects-based’ approach of the Water Plan in particular. Generally, this results in the provisions of both plans applying to an activity. This is a known issue with the current approach to the plans and is intended to be addressed through the wider review of both plans in the coming years.

The provisions of PC8 are not considered to be inconsistent with the provisions in the Waste Plan and the provisions of PC1 are not considered to be inconsistent with the provisions in the Water Plan.

### 5.9.2. The Air Plan

ORC publicly notified the Air Plan in 1998. Following the process of submissions, hearings and appeals, Council made the Air Plan operative in 2003. The Air Plan contains provisions managing the discharge of contaminants to air. There are no matters in PC8 that relate to discharges to air, therefore none of the provisions are inconsistent with the Air Plan.

The rules for landfills in the Waste Plan manage discharges into land, water and air. Resource consents are required for all discharges from landfills as a discretionary activity under the Waste Plan. Resource consent is also required for the discharge of odour from a landfill under the Air Plan. Although it is not particularly efficient to manage these types of discharge under two separate plans, the overall intent of the provisions in both plans is consistent. The broader issue of overlaps between the Air and Waste Plans will be addressed through the full review of the Waste Plan.

The rules for applying used oil to roads in the Waste Plan manage discharges to land only. The Air Plan contains rules managing discharges to air, including dust. The rules in the Waste Plan will help to achieve the objectives and policies of the Air Plan by providing for the use of dust suppressants which assist with preventing the adverse effects of dust discharges from unsealed roads. In particular, PC1 will assist with achieving Objective 6.1.2 and Policy 10.1.1 of the Air Plan.

None of the provisions in PC8 or PC1 are considered to be inconsistent with the Air Plan.

### 5.9.3. The Coast Plan

ORC publicly notified the Coast Plan in 1994. Following the process of submissions, hearings and appeals, and approval from the Minister of Conservation, Council made the Coast Plan operative in 2001.

The Coast Plan manages the use of resources in the coastal marine area and recognises that the Coast Plan only deals with point source discharges within the coastal marine area, with non-point source discharges and discharges of contaminants outside the coastal marine area managed by the Water or Waste Plans. Chapter 10 of the Coast Plan manages discharges in the coastal marine area and seeks to maintain existing water quality and to achieve water quality suitable for contact recreation and the eating of shellfish within 10 years of the date of approval of the Plan (Objective 10.3.1), consistent with the goals of the Water Plan. Chapter 10 places restrictions on a number of activities in order to avoid, remedy or mitigate adverse effects on water quality. The quantitative freshwater objectives in Schedule 15 of the Water Plan were developed to be consistent with the water quality objectives in the Coast Plan.

PC8 and PC1 seek to improve management of point source and non-point source discharges outside the coastal marine area, the outcome of which is considered to be consistent with the Coast Plan.

## 5.10. Iwi Management Plans

Section 66(2A)(a) requires the regional council to take into account any relevant planning document that is recognised by an iwi authority and that is lodged with the regional council. There are two iwi management plans lodged with ORC: the Kāi Tahu ki Otago Natural Resources Management Plan 2005 and Te Tangi a Tauira: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008.

### 5.10.1. Kāi Tahu ki Otago Natural Resources Management Plan 2005

Section 5.3 of the Plan focuses on Wai Māori. Some of the issues of concern include deteriorating water quality, particularly the cumulative effects of discharges, the discharge of human waste and other contaminants from point and non-point source discharges to water, stock entering waterways and sedimentation from land use and development. Section 5.3.3 contains the Wai Māori General Objectives, the following of which are relevant to these Plan Changes:

- The spiritual and cultural significance of water to Kāi Tahu ki Otago is recognised in all water management.
- The waters of the Otago Catchment are healthy and support Kāi Tahu ki Otago customs.
- There is no discharge of human waste directly to water.
- Contaminants being discharged directly or indirectly to water are reduced.

Section 5.3.4 contains the Wai Māori General Policies that include, of most relevance to these Plan Changes:

- To protect and restore the mauri of all water (Policy 4).
- To require land disposal for human effluent and contaminants (Policy 8).
- To encourage identification of non-point source pollution and mitigate, avoid or remedy adverse effects on Kāi Tahu ki Otago values (Policy 11).
- To require all discharge systems be well maintained and regularly serviced (Policy 15).
- To require that all practical measures are taken to minimise sedimentation or discharge of sedimentation (Policy 37).
- To encourage the exclusion of stock from waterways (Policy 55)

The provisions of the Kāi Tahi ki Otago Natural Resources Management Plan have been taken into account when preparing these Plan Changes.

### 5.10.2. Te Tangi o Tauira: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008

This plan applies from the true right of the Clutha River south to the border of the Otago region. Section 3.5.10 sets out the General Water Policy. Relevantly for these Plan Changes, the issues for iwi include:

- Stock grazing adjacent to and in the beds of waterways
- Discharges to land activities (e.g. farm effluent) and potential for run off into waterways
- Effects on the mauri of Murihiku Rivers due to land use and discharge activities, and water abstractions
- Poor water quality in some Murihiku Rivers: our children are not able to swim in some rivers

Section 3.5.10 also contains policies for water, including:

- Promote catchment management planning (ki uta ki tai) as a means to recognise and provide for the relationship between land and water
- Work with Regional Councils to ensure that cultural values and perspectives associated with freshwater management are reflected in statutory water plans, best practice guidelines and strategies, and in resource consent processes for activities involving water
- Use riparian enhancement, buffer zones, fencing and related streamside management tools as conditions of consent to ensure that human use of rivers and their water does not compromise river health.

- Avoid the use of rivers as a receiving environment for the discharge of contaminants (e.g. industrial, residential, recreational or agricultural sources)

The provisions of Te Tangi a Tauira have been taken into account when preparing these Plan Changes.

## 5.11. Other Management Plans

Section 66(2)(c)(i) requires regional councils to have regard to any management plans and strategies prepared under other Acts.

### 5.11.1. Otago Conservation Management Strategy 2016

The Conservation Act 1987 requires the Department of Conservation to prepare a conservation management strategy for each region. The Otago Conservation Management Strategy describes the conservation values present in Otago and provides guidance for the Department's work in the form of a vision supported by objectives, outcomes, policies and milestones. The Strategy applies to all public conservation land and waters in Otago (noting that this is based on the old Otago conservancy boundary which now covers parts of Eastern South Island and Southern South Island regions).

The vision for Otago includes that Otago's diverse freshwater systems support healthy aquatic ecosystems, all riparian margins are clothed in predominantly indigenous vegetation and people can safely swim in and gather food from all freshwater systems. Objectives 1.5.1.6, 1.5.1.12 and 1.5.1.19 relating to freshwater quality, integrated catchment management and management of water bodies are particularly relevant for these Plan Changes.

The Otago Conservation Management Strategy has been given regard in the preparation of these Plan Changes. Although it has a different application, many of the outcomes sought relating to freshwater are consistent with the intent of the changes in these Plan Changes.

### 5.11.2. Otago Sports Fish and Game Management Plan 2015-2025

The Conservation Act 1987 requires each Fish and Game Council to prepare any sports fish and game management plans that are necessary for the management of sports fish and game birds within its region of jurisdiction, for approval by the Minister of Conservation. There is one Fish and Game Council that falls wholly within the Otago region: the Otago Fish and Game Council. There is one management plan produced for Otago: the Otago Sports Fish and Game Management Plan 2015-2025. Most relevant to these Plan Changes is the outcome and the issues, objectives and policies for habitat protection and management. The outcome for this topic is:

> *Water quality ranges between good and excellent in Otago rivers, lakes and wetlands. River flows and lake or wetland water levels combine with the natural characteristics of waterways to support natural ecosystems functioning at a level that supports productive and diverse fish and game populations. Rivers are swimmable, fishable, and safe for food gathering. Otago's wetlands are improving in terms of quality, diversity and species productivity and the overall area of wetlands is expanding, underpinned by the regional focus on protection of regionally significant and other smaller wetlands, as well as an active programme of wetland creation on private land. Degraded headwater wetlands have been restored and contribute to maintenance of summer low flows in catchments downstream. Overall, rivers and wetlands are highly valued by the public for their intrinsic qualities and amenity values. (p.35)*

This management plan has been given regard in the preparation of these Plan Changes, noting that it establishes management frameworks for Fish and Game and its staff to ensure the sustained use of sports fish and game bird resources for anglers and hunters in the region.

## 5.12. Changing policy context

Since the Plan Changes were formally initiated by ORC, there have been changes signalled to the national and regional policy frameworks by central government and ORC. These do not directly affect the Plan Changes at this stage as the proposals are only drafts, however they may significantly alter the current approach to managing freshwater in the future if they are made operative and there is uncertainty about whether the Plan Changes will deliver the outcomes sought by those amended national and regional policies. Whether it is worthwhile to continue with the Plan Changes has been considered by ORC in detail. The potential for change is not a reason not to act on its own and it would create a risk of further degradation in water quality. The changes proposed by these Plan Changes address existing issues with the Plans and will support the transition towards a new planning regime by requiring resource users to begin to improve their practices now.

The effect of these proposals is to even further constrain the lifetime of these Plan Changes, given there is the potential for significant change to the higher order documents in coming years.

### 5.12.1. National policy

Shortly after the scope of PC8 and PC1 was approved by ORC, the Government released *Action for healthy waterways: a discussion document on national direction for our essential freshwater*. Part of that discussion document included:

- Draft changes to the National Policy Statement for Freshwater Management
- Draft National Environmental Standards for Freshwater
- Draft Stock Exclusion Regulations

These proposals indicate a substantial change in the current framework for managing freshwater resources. Submissions on the proposals closed on 31 October 2019 and are currently being summarised. No further timeframes have been announced by the Government so there is considerable uncertainty around when (or whether) the proposals will be progressed further and the extent to which the proposals may differ from the drafts produced in 2019. The RMA does not require draft national policy statements, national environmental standards or regulations to be given any weight in decision-making on plans or plan changes.

There are significant implications arising from the implementation of the package of proposals and ORC has been mindful of balancing the need for a stronger interim planning framework until the new planning framework (RPS and LWRP) is prepared with the potential for duplication, uncertainty and cost arising from managing many of the same activities the Government is proposing to manage.

The following sections briefly outline the key changes proposed and how they may affect Otago's regional plans, including the proposed Plan Changes.

#### 5.12.1.1. Draft National Policy Statement for Freshwater Management 2019

The draft changes to the NPSFM represent a complete overhaul of the current approach. Some of the most significant changes proposed are:

- Clarifying that the health and wellbeing of water will be put first in decision-making, providing for essential human needs (such as drinking water) will be second, and other uses will follow.
- Amending the structure and content to reinforce an holistic approach to freshwater management.
- Stronger requirements to identify and reflect Māori values in freshwater planning.

- Introducing new or revised indicators of ecosystem health to be monitored and either maintained or improved:
    - Nutrients (nitrogen and phosphorus)
    - Sediment
    - Fish and macroinvertebrate numbers
    - Lake macrophytes (amount of native or invasive plants)
    - River system metabolism
    - Dissolved oxygen in rivers and lakes.
- Introducing higher standards for 'swimmability' in summer.
- Faster implementation of the NPSFM in regional plans.

These changes will affect all of Otago's planning documents in the longer term, however the Plan Changes are not directly affected as they are not required by the RMA to consider draft national policy statements.

#### 5.12.1.2. Proposed National Environmental Standards for Freshwater 2019

The Proposed National Environmental Standards for Freshwater (NESFW) include rules to manage a range of specific activities:

- Vegetation destruction, earth disturbance and water takes in wetlands (including specific provisions for nationally and regionally significant infrastructure).
- Infilling of riverbeds.
- Providing for fish passage.
- Feedlots, sacrifice paddocks, stock holding areas and intensive winter grazing.
- Intensification of farming activities.
- Preparation, certification, implementation and auditing of mandatory Farm Plans.

The Proposed NESFW also includes a proposal for introducing a cap on nitrogen discharges in specified catchments. If the NESFW comes into force, its content will override regional plans, including the Water and Waste Plans. Without undertaking a full assessment of the implications, it is clear that there are likely to be considerable impacts on the following parts of PC8:

- Nationally or regionally significant infrastructure in wetlands.
- Good farming practices
- Intensive grazing
- Sediment traps

There is a risk with progressing PC8 that ORC will duplicate or conflict with the NESFW if it comes into force, incurring additional costs for plan users. However, potential for change is not a reasons not to act now given the risk of further degradation of water quality in the meantime.

#### 5.12.1.3. Draft Stock Exclusion Regulations

The draft stock exclusion regulations restrict stock access to water in different ways depending on the type of water body (wetlands, rivers and lakes), stock type (dairy, dairy support, pigs, beef cattle, deer) and slope of land. The regulations impose different timeframes for exclusion depending on whether the land is categorised as "low-slope" or "non-low-slope". "Low-slope" land is defined as land that is classified as low slope on the NESFW mapping tool which shows land parcels where the average slope is less than or equal to either 5, 7 or 10 degrees (still to be decided) and "non-low-slope" land is defined

as land that is not classified as lowland on the NESFW mapping tool and where the average slope at the land parcel scale is greater than either 5, 7 or 10 degrees (still to be decided).

The matters that remain undecided in the draft regulations make these proposals even more uncertain than those in the Draft NPSFM and Proposed NESFW. Restricting stock access to water is expensive for farmers to implement due to the costs involved in establishing alternative drinking water supplies and effectively excluding stock.

### 5.12.2. Regional policy

As a result of the Minister for the Environment's section 24 investigation into ORC's planning functions, ORC has revised some of its longer-term work programmes. These revisions affect the RPSs and the full Water and Waste Plan reviews.

#### 5.12.2.1. Regional policy statements

In response to recommendations from the Minister, ORC has approved the preparation of a new RPS to be notified in November 2020. It is not possible to predict the extent of change between the current RPSs and the new RPS, however the report by Prof Skelton indicated that the PORPS 2019 does not give effect to the NPSFM 2014 (as amended 2017) and that within the provisions freshwater management is not as prominent as one would expect.

It is reasonable to assume that the freshwater-related components of the RPSs, which are the most relevant for these Plan Changes, will be the provisions subject to the most change through the new RPS. There are also widespread structural changes required to implement the National Planning Standards which ORC has until 1 May 2022 to implement.

#### 5.12.2.2. Regional plan reviews

When the scope of the Plan Changes was approved in August 2019, ORC planned to complete full reviews of the Water and Waste Plans and notify a new LWRP by November 2025. This timeframe was revised to December 2023 in response to the Minister's recommendations and the signalled changes to the NPSFM. Like the RPS changes, this does not affect the Plan Changes directly but shortens further the expected lifespan of the provisions proposed.

# 6. References


Central Otago District Council. (2015). *Unsealed roads.* Retrieved from https://www.codc.govt.nz/services/roading/unsealed-roads/Pages/default.aspx

Clutha District Council. (2018). *Gravel road dust suppression – September 2018.* Retrieved from https://www.cluthadc.govt.nz/your-council/public-notices/public-notices/Pages/Gravel-Road-Dust-Suppression-September-2018.aspx

DairyNZ. (2012). *DairyNZ Farmfact: Nutrient value of effluent.* Retrieved from https://www.dairynz.co.nz/media/255840/7-22_nutrient_value_of_effluent.pdf

Environmental Protection Authority. (2013). *Management and handling of used oil: HSNOCOP 63.*

Federated Farmers. (2018). *Good Farming Practice: Action Plan for Water Quality*. Retrieved from http://www.fedfarm.org.nz/FFPublic/Policy2/National/Good_Farming_Practice-Action_Plan_for_Water_Quality_2018.aspx

Gisborne District Council. (n.d.) *Unsealed roads: dust suppressant options report (Gisborne).* Retrieved from http://www.gdc.govt.nz/assets/Uploads/15-476-Appendix-1.pdf

Houlebrooke, D. J. (2008). *Best practice management of farm dairy effluent in the Manawatu-Wanganui region*, p.13. Retrieved from http://envirolink.govt.nz/assets/Envirolink/421-hzlc43.pdf

*Industry-agreed Good Management Practices relating to water quality*. (2015)

Laurenson, S., Wall, A., Monaghan, R.M. & Orchiston, T.S. (2018). *Sediment losses from intensively grazed forage crops in New Zealand*. AgResearch Client Report RE450/2018/044 to Environment Canterbury.

Leersnyder, H., Bunting, K., Parsonson, M., & Stewart, C. (2018). *Erosion and sediment control guide for land disturbing activities in the Auckland region*. Auckland Council Guideline Document GD2016/005. Incorporating amendment 1. Prepared by Beca Ltd and SouthernSkies Environmental for Auckland Council.

Lynne, I., Manderson, A., Page, M., Harmsworth, G., Eyles, G., Douglas, G., Mackey, A. & Newsome, A. (2009). *Land Use Capability Survey Handbook – a New Zealand handbook for the classification of land – 3rd edition.* Hamilton, AgResearch; Lincoln, Landcare Research; Lower Hutt, GNS Science.

Ministry for the Environment. (2000). *Landfill guidelines.* Retrieved from https://www.mfe.govt.nz/sites/default/files/4139_landfill.pdf

Ministry for the Environment. (2019a). *Interim regulatory impact analysis for consultation: Essential Freshwater – Part II: Detailed analysis.* Retrieved from https://www.mfe.govt.nz/sites/default/files/media/Fresh%20water/interim-regulatory-impact-analysis-for-consultation-essential-freshwater-part-2.pdf

Ministry for the Environment. (2019b). *Looking after water on the land*. Retrieved from https://www.mfe.govt.nz/fresh-water/we-all-have-role-play/land

Monaghan, R.M., Laurenson, S., Dalley, D.E. & Orchiston, T.S. (2017). Grazing strategies for reducing contaminant losses to water from forage crop fields grazed by cattle during winter. *New Zealand Journal of Agricultural Research* 60(3): 333-348.

NIWA. (n.d.). *Sediment*. Retrieved from https://niwa.co.nz/our-science/freshwater/tools/kaitiaki_tools/impacts/sediment

(ORC) Otago Regional Council. (2011). *Effects of land use on water quality in the Pomahaka catchment.* Dunedin, Otago: Otago Regional Council.

(ORC) Otago Regional Council. (2018). *Stormwater discharge management review – section 35 RMA effectiveness and efficiency assessment and high level options.* Unpublished report.

(ORC) Otago Regional Council. (2018b). *Wastewater discharge management review – section 35 RMA effectiveness and efficiency assessment and high level options*. Unpublished report.

(PCE) Parliamentary Commissioner for the Environment. (2013). *Water quality in New Zealand: Land use and nutrient pollution.* Wellington, New Zealand: Parliamentary Commissioner for the Environment.

(PCE) Parliamentary Commissioner for the Environment. (2015). *Update report – Water quality in New Zealand: Land use and nutrient pollution.* Wellington, New Zealand: Parliamentary Commissioner for the Environment.

(PCE) Parliamentary Commissioner for the Environment. (2018). *Overseer and regulatory oversight: models, uncertainty and cleaning up our waterways*. Wellington, New Zealand.

Uytendaal, A. & Ozanne, R. (2018). *State of the environment: surface water quality in Otago 2006 to 2017*. Dunedin, Otago: Otago Regional Council.

Ward, N. (2016). *Memorandum: Used oil.* Prepared for the section 32 evaluation report for the Proposed Southland Water and Land Plan.

# Otago Regional Council

# Key Issues Report
# Plan Change 8 to the Regional Plan: Water for Otago
# and
# Plan Change 1 to the Regional Plan: Waste for Otago

# (The Omnibus Plan Change)

**9 October 2020**

**Authors: Dolina Lee and Rachel Ozanne**

# TABLE OF CONTENTS

## 1.1 INTRODUCTION

### *Purpose of the report*

1.2 On 8 April 2020, the Minister for the Environment (**Minister**) exercised his powers under section 142(2)(b) of the RMA and called in the Otago Regional Council's Omnibus Plan Change (comprised of Plan Change 8 (Discharge Management) to the Regional Plan: Water for Otago and Plan Change 1 (Dust Suppressants and Landfills) to the Regional Plan: Waste for Otago), having considered it to be part of a proposal of national significance, and directed that it be referred to the Environment Court for decision.[1]

1.3 This Key Issues Report has been commissioned by the Environmental Protection Authority (**EPA)** and prepared under section 149G(3) of the Resource Management Act 1991 (**RMA**).[2] It is a report on the key issues in relation to the Omnibus Plan Change and includes:

a. A summary of the state of the environment in the Otago Region as it relates to the Omnibus Plan Change;

b. A summary of the current planning framework in the Otago Region as it relates to the Omnibus Plan Change;

c. A description of the resource management issue(s) presented by the state of the environment and current planning framework that needs to be resolved;

d. A summary of the higher order planning and policy instruments relevant to the Omnibus Plan Change with a list of the relevant provisions of any relevant national policy statement, New Zealand Coastal Policy Statement, national planning standard, regional policy statement or proposed regional policy statement, plan or proposed plan to be appended to the report;[3] and

e. A description of the solution proposed by the Omnibus Plan Change.

### *The authors*

1.4 The authors of this report are Dolina Lily Lee, a policy analyst at Otago Regional Council and Rachel Ozanne, an Environmental Resource Scientist at Otago Regional Council.

### *The Omnibus Plan Change*

1.5 The overall purpose of Plan Change 8 (**PC8**) to the Regional Plan: Water for Otago (**Water Plan**) and Plan Change 1 (**PC1**) to the Regional Plan: Waste for Otago (**Waste Plan**) is to

[1] Ministerial direction to refer the Otago Regional Council's proposed Omnibus Plan Change to its Regional Plans to the Environment Court dated 8 April 2020. See Appendix A.
[2] The EPA formally commissioned the ORC to prepare a Key Issues Report under section 149G(3) of the RMA for the Omnibus Plan Change by letter dated 15 September 2020 attached as Appendix B.
[3] The EPA has noted that, where relevant, this section should include the section 24A RMA recommendations made by the Minister for the Environment (18 November 2019) and agreed to by ORC (16 December 2019), and instruments that have come into effect after preparation of the plan change, such as the National Policy Statement for Freshwater Management, National Environmental Standards for Freshwater and the Freshwater Planning Process.

strengthen the management of particular activities that result in discharges of contaminants to water which are known to contribute to water quality issues, in order to, at a minimum, maintain water quality in Otago.

1.6 It is acknowledged that water quantity and water quality are linked, however, water quantity has not been considered as part of this plan change. Water quality and water quantity and the link between them will be further considered as part of the new Land and Water Regional Plan (**LWRP**), which ORC has committed to be developed and notified by December 2023.

## 2. SUMMARY OF THE STATE OF THE ENVIRONMENT IN THE OTAGO REGION AS IT RELATES TO THE OMNIBUS PLAN CHANGE

***General Overview of the Region***

2.1 At 32,000 km$^2$, Otago is the second largest physical region in New Zealand. The region stretches from the eastern coastline across the central plains to the southern alps that border the western regional boundary. Otago is made up of five territorial authorities: Dunedin City Council, Queenstown Lakes, Central Otago and Clutha District Councils, and part of Waitaki District Council.

2.2 The population of Otago was 225,186 as per the 2018 census.[4] Dunedin City has the largest population of the Otago territorial authorities at 126,255, followed by the Queenstown Lakes district at 39,153, Waitaki district at 22,308, Central Otago district at 21,558 and Clutha district at 17,667.

2.3 The Otago region experiences two distinct climates due to the geographic variety between the coastal and inland areas. The coastal areas experience a cyclic weather pattern that alternates frequently between a warmer and drier climate, and a cooler, damper climate.

2.4 The heaviest regional rainfalls occur typically over the east coast, and western areas of Otago around the Lakes District. In contrast, the average rainfall in Central Otago is the lowest in New Zealand, with notably dry central catchments including the Manuherikia, Lindis, Ida and Upper Taieri catchments. Central Otago is characterised by hot, dry summers and contrastingly cold, frosty winters. The average summer temperatures in Central Otago range between 10 and 30 degrees, while the average winter temperatures range from -6 to 15 degrees.[5]

2.5 Otago has significant water resources in the form of surface water, groundwater, and wetlands, with these water resources playing an important role in providing for the social, cultural and economic wellbeing of Otago's communities.

2.6 For much of the past decades, Otago's economy has been primarily centred around tourism, education, mining (gold and mineral), hydro-electricity generation, and the primary industries, with hydro-electricity and mining often being reliant on non-consumptive takes of water and agriculture and viticulture/horticulture reliant on consumptive takes of water. In 2016 it was estimated that 64.5% of Otago's rural land use was farmed for agricultural and horticultural use. [6]

2.7 The Clutha River/Mata-Au drains much of the Otago region and is the largest river in New Zealand in terms of the quantity of water carried each year. Seventy five percent of the total flow of the Clutha River/Mata-Au at Balclutha results from the catchments of the three major features of Otago's Lakes district: Lakes Hawea, Wanaka and Wakatipu. Important

[4] 2018 Census place summaries: Stats NZ. (n.d.). Retrieved June 29, 2020, from https://www.stats.govt.nz/tools/2018-census-place-summaries/otago-region.
[5] Central Otago Climate. (n.d.). Retrieved June 24, 2020, from https://www.centralotagonz.com/living-here/central-otago-climate.
[6] http://archive.stats.govt.nz/browse_for_stats/environment/environmental-reporting-series/environmental-indicators/Home/Land/land-use.aspx.

rivers feeding into the Clutha catchment include the Cardrona, Lindis, Shotover, Nevis, Fraser/Earnscleugh, Manuherikia, Teviot and Pomahaka River.

2.8 The water resources of the Clutha River/Mata-Au play an important role in hydro-electricity generation. Two large hydroelectric dams are located on the Clutha River/Mata-Au's main stem, while smaller hydroelectricity generation schemes are also found on some of its tributaries, such as the Manuherekia, Fraser/Earnscleugh River and Teviot rivers.

2.9 The second largest catchment in Otago is that of the Taieri River. This river, which has a catchment area of approximately 5,650km$^2$, has its headwaters in Central Otago. The river then meanders through the almost semi-arid Maniototo plains and Strath Taieri Valley before crossing the fertile Taieri Plain. There it joins the waters of the Lake Waipori and Waihola catchments before discharging into the sea at Taieri Mouth.

2.10 Other significant Otago rivers drain the coastal hills in catchments of varying character. In the north, the Kakanui, Waianakarua, Shag and Waikouaiti Rivers rise in high country and pass through predominantly dry downlands. The Tokomairiro River drains rolling country between the Taieri and Clutha catchments. Rivers to the south of Otago, particularly the Catlins area, emerge from wetter, often forested hills. Figure 1 shows the various catchments in the Otago Region.

2.11 Despite the generally large water volumes present in the region, some parts of Otago are among the driest areas in New Zealand. Several catchments in Otago are characterised as being water-short, including the Taieri, Manuherekia, Shag and Kakanui catchments. In many of these catchments observed surface flows in the catchment main stems or their tributaries are often very low over summer.

2.12 Underground geological formations, capable of trapping and holding water, create groundwater sources. Groundwater can also be found in many parts of the region. However, many unknowns still exists about the extent and the state of the region's groundwater resources, the ecosystem values they support (either directly or indirectly) and the extent to which they can provide for diverse consumptive uses in a sustainable manner.

2.13 Wetlands make up many significant landscape and ecosystem elements in Otago, including blanket and string bogs, saline areas, swamp forest remnants, shallow lake complexes, estuarine saltmarshes, and valley floor swamps.


**Figure 1 showing catchments in the Otago Region.**

***Freshwater ecosystems in Otago***

2.14 The diversity of ecosystems, weather and geology result in a diversity of vegetation and species, many endemic to Otago. Otago's rivers, particularly the Taieri, hold among the most diverse indigenous fauna in New Zealand. [7]

2.15 Many of the region's streams, especially smaller tributaries are also the last remaining stronghold for a number of threatened and endemic galaxiid. Thirteen non-migratory indigenous freshwater species have been confirmed in Otago, including in the Taieri, Teviot, Manuherekia and Cardrona catchments, with sometimes a species being confined to one catchment. Protection of freshwater quantity and quality are critical to their survival.[8] However, more work needs to be undertaken to identify the exact spatial distribution of many of these species and their habitats and the impact that stream modification, flow alteration and land uses have on the long term survival of these species.

***Freshwater management units in Otago***

2.16 Under the National Policy Statement for Freshwater Management 2020 (**NPS-FM 2020**) regional councils are required to set Freshwater Management Units (FMUs).[9] An FMU is a water body or multiple water bodies that ORC believe is the appropriate scale for managing water, including the setting of freshwater objectives and limits. This can be a river catchment, part of a catchment, or a group of catchments

2.17 The operative Water Plan does not identify FMUs. However, the Council in April 2019, the Council adopted the following FMUs for managing freshwater across Otago following engagement with tangata whenua: [10]

a. Five freshwater management units for the Otago region, respectively called the Mata-Au, Taieri, North Otago, Dunedin Coastal and Catlins; and

b. A further delineation of the Mata-Au into five sub-units, called rohe, being Upper Lakes, Dunstan, Munuherikia, Roxburgh and Lower Clutha rohe.

2.18 The FMUs and Rohe for the Otago Region are shown on Figure 2.

2.19 The FMUs were developed through engagement with tangata whenua. ORC will engage with the communities and tangata whenua over the period October and November 2020 to identify long-term visions to be included as objectives in the new regional policy statement for Otago to be notified by June 2021. As part of this engagement, ORC will also undertake further engagement with communities and tangata whenua on the FMU boundaries and values for each FMU in accordance with the new NOF process set out in the NPS-FM and to be incorporated in the new LWRP.

2.20 The ORC monitors water quality in a selection of Otago rivers and lakes through long-term State of the Environment (**SoE**) monitoring programmes. Information from these underpins reporting on regional state and trends in river and lake health, performance against the NPSFM, and the effectiveness of the Water Plan. This is discussed below.

[7] Department of Conservation, 2016, Otago conservation management strategy, p22.
[8] Ibid.
[9] Section 3.8, NPS-FM 2020. See Appendix C.
[10] https://www.orc.govt.nz/media/6677/council-mtg-agenda-20190403.pdf.

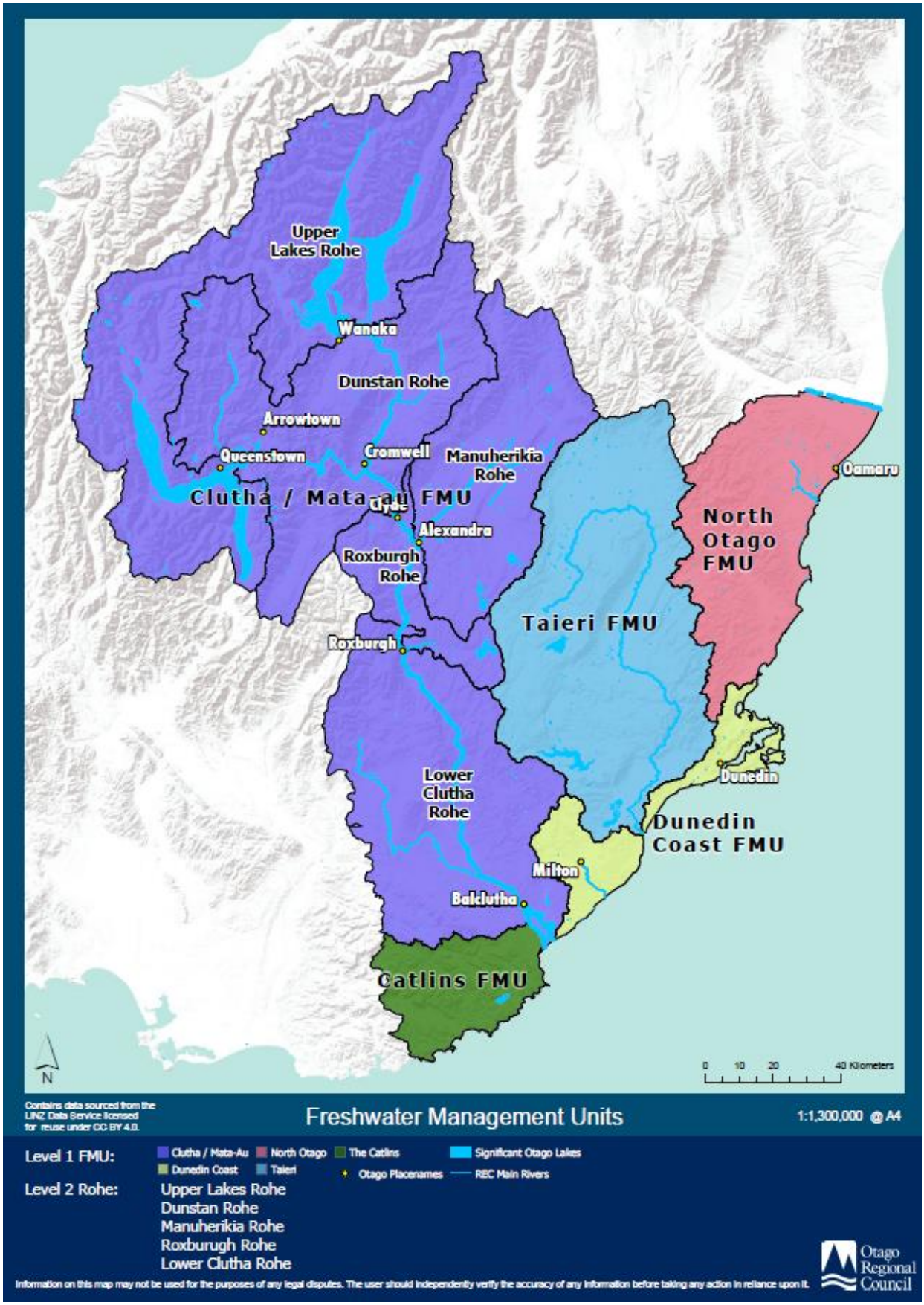



**Figure 2 Proposed FMUs and Rohe for the Otago Region**

***The Regional Plan: Water for Otago***

2.21 The Water Plan provides the regulatory framework for the management of river and lake water quality in Otago. On 1 May 2014, Plan Change 6A (water quality) (**PC6A**) became operative, establishing rules to control entry of contaminants from rural land into waterways from runoff, leaching and drains (non -point sources).[11]

2.22 Schedule 15 of the Water Plan sets out receiving water numerical limits for achieving "good water quality" in Otago rivers and lakes, with dates by which those limits shall be met. The limits apply to five variables: nitrate-nitrite nitrogen, dissolved reactive phosphorus, ammoniacal nitrogen, *E. coli* (a faecal indicator bacterium), and turbidity, assigned to five Receiving Water Groups (**RWGs**).

2.23 Schedule 15 identified five Receiving Water Groups, based on the nature of the water body (lakes or rivers), river accrual time, and lake condition, in order to reflect different levels of sensitivity. Figure 3 shows the boundaries for the five Receiving Water Groups and the monitoring sites covered in this report.

2.24 In addition to water quality limits, Schedule 15 contains narrative "characteristics" (essentially qualities or attributes) of good water quality. The listed characteristics are: (water) clarity, colour, (deposited) sediment, smell, algae and bank appearance.

2.25 The SoE report assesses water quality on a region-wide basis by determining compliance with the Schedule 15 limits in two time-periods, 2009-2014 (period 1 - before PC6A was operative) and 2014-2019 (period 2 - after the PC6A was operative). This process also allows spatial variation of water quality to be assessed.

2.26 To provide a national context, sites are also assessed against the NPS-FM 2020 to the degree possible.

[11] In terms of sediment, the rules apply to all activities, not just rural.

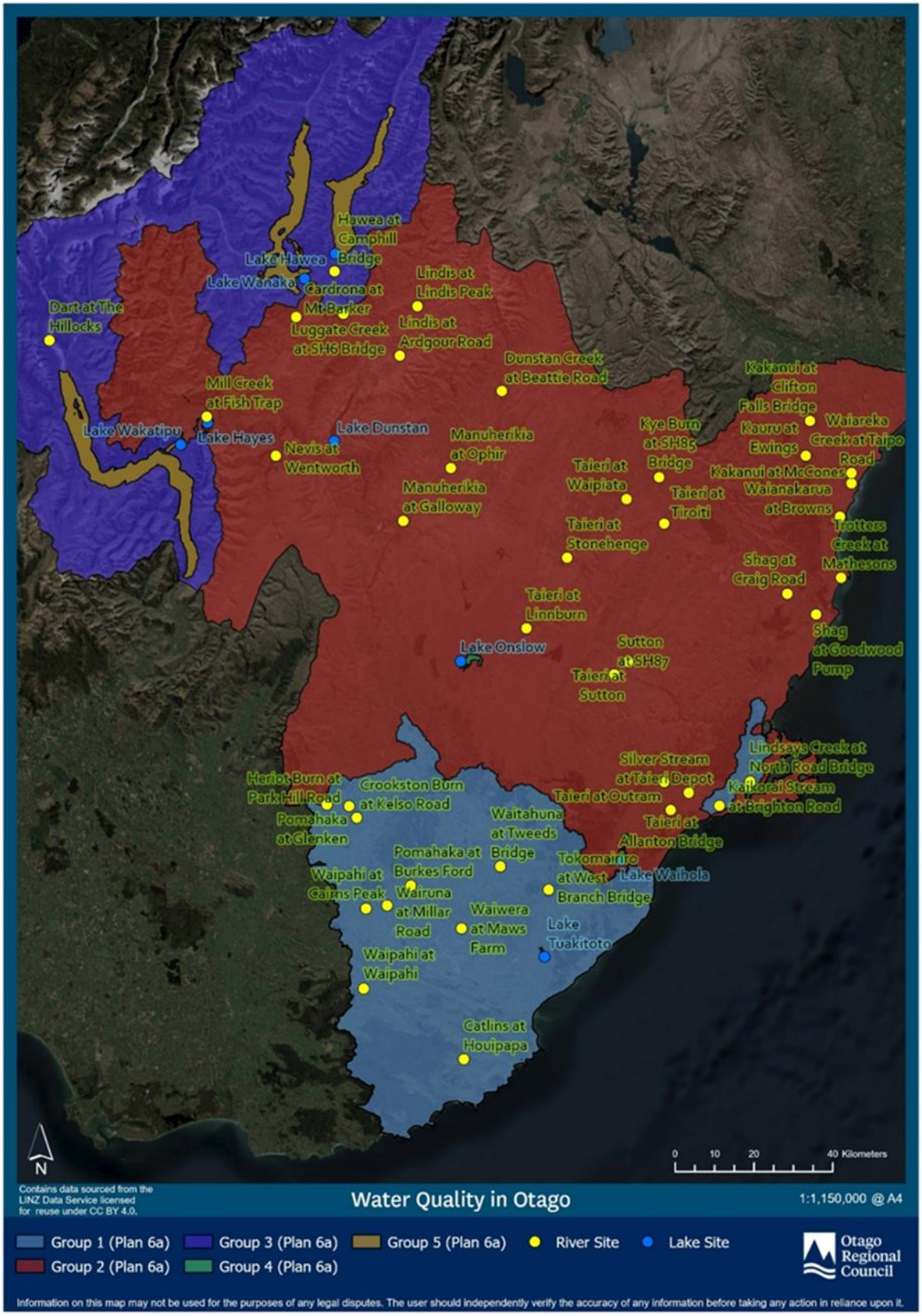



**Figure 3 showing the Receiving water groups and location of long term state of the environment river and lake monitoring sites**

***Methods***

2.27 Although ORC's SoE water quality monitoring network varied over the 2009 to 2019 period, 42 river sites and nine lake sites were monitored consistently over the period. Figure 3 shows the location of the monitoring sites covered in this report. Although a consistent sub-set of sites have been monitored consistently over the 10-year period, sampling frequency was not consistent. Up to June 2013, ORC collected surface water quality samples on a bi-monthly basis. From July 2013, sampling frequency increased to monthly.

***Parameters***

2.28 Water samples were analysed at the laboratory for turbidity, faecal bacteria (as *E. coli*), and total and dissolved nutrients (nitrogen and phosphorus).

2.29 Nitrite-nitrate nitrogen (**NNN**), ammoniacal-N and dissolved reactive phosphorus (DRP) are dissolved inorganic forms of the nutrients nitrogen (**N**) and phosphorus (**P**) respectively. N and P are the two key nutrients required for growth of plants and algae. DRP includes phosphate. The terms total nitrogen (**TN**) and total phosphorus (**TP**) refer to the sum total of all forms of N and P respectively in a sample; these include dissolved and particulate forms of these nutrients. TN and TP are most relevant for assessments in lakes and coastal waters. At sufficiently elevated concentrations, nitrate and ammoniacal forms of nitrogen have toxic effects on aquatic biota (and on humans in the case of nitrate), and ammoniacal nitrogen is considered an indication of the presence of raw effluent.

2.30 The limited field data required to assess compliance against the Schedule 15 narrative attributes for 'Characteristics of Good Water Quality' was identified by NIWA as a critical gap in the monitoring programme; to address this limitation, data collection began in 2018.

***Assessment against Schedule 15 limits***

2.31 For the river data (RWG 1-3), the Water Plan requires at least 80% of samples collected at a site under conditions when flows are at or below median flow at a reference site, over a 5-year period, to meet or be better than the limits specified in Schedule 15. Compliance with the five ORC numeric limits was assessed as follows:

a. The assessment period was categorised into two five-year periods: Period 1 (1 July 2009 to 30 June 2014) and Period 2 (1 July 2014 to 30 June 2019).

b. Each site was associated with one of the flow reference sites defined in Schedule 15 of the Water Plan.

c. For each water quality sample date, the flow at the relevant reference site was compared with the long-term median flow for the reference flow site and classified as 'above' or 'below' median. Water quality samples were discarded when flows were 'above' median at the reference flow site.

d. The 80th percentile[12] was calculated for the remaining data, collected when flows were 'at' or 'below' median flow.

e. The 80th percentile was compared to the Schedule 15 limit (RWG 1-3).

f. For the lake data (RWG 4 and 5) the Water Plan requires that 80% of samples collected at a site, meet or are better than the limits in Schedule 15 – there are no reference flow sites to consider.

***Assessment against the National Objective Framework (NOF) in the NSP-FM 2020***

2.32 To allow comparison of Otago's water quality across a national scale, analytes were also compared against the attribute tables provided in the NPS-FM 2020. The attributes provided in the NPS-FM 2020 are not directly comparable to those provided by Schedule 15 assesses compliance with limits as a rolling 5-year 80th percentile below median flow. The calculation of attribute states for the NSP-FM 2020 is described for each attribute below. Note that some attribute calculations have been altered from what is prescribed in the NPS-FM 2020 to provide a 5-year measurement spanning the Schedule 15 timeframe.

a. DRP is calculated using a monthly median to calculate a rolling median and 95th percentile over a 5-year period.

b. *E.coli* is calculated by determining the median, 95th percentile, percent exceedance for 260 and 540npn from at least 60 samples over a maximum of 5 years. For many sites in Otago, and particularly when sampling every other month (2009-June 2013), 60 samples are not available. Values are provided for the calculations along with sample size.

c. Nitrite Nitrate nitrogen is meant to be calculated as annual median and 95th percentile. As a result, five grades would be provided for each period. To incorporate annual variation and provide a single grade for the five-year period, here we use the five year median and 95th percentile. This grade is likely to provide a better description of the site over the five year period and will be influenced less by annual variability.

d. NH4-N is meant to be calculated as the annual median and maximum (like Nitrite nitrate nitrogen). To reduce annual variation and provide a single grade for the time period the five-year median and maximum are calculated. The maximum grade over five years would provide the "worst" annual grade out of the five year period.

e. Turbidity is not compared to NOF as ORC is still in the process of determining which catchments are exempt from the turbidity standard due to naturally occurring processes such as tannin staining or glacial flour. Furthermore visual clarity has not been monitored by ORC and although a turbidity/clarity conversion is available this has not yet been determined on a site by site basis.

[12] Hazen percentile method, Type 7.

***Results: Rivers - Dissolved Reactive Phosphorus***

| Name | DRP concentration (mg/L) | | | | |
|---|---|---|---|---|---|
| Site Name | LIMIT | 2009/ 2014 S.15 | 2009/2014 NOF | 2014/ 2019 S. 15 | 2014/2019 NOF |
| Dart at The Hillocks | 0.005 | 0.0025 (20) | A (35) | 0.003 (28) | A (54) |
| Hawea at Camphill Bridge | 0.005 | 0.0025 (18) | A (35) | 0.0025 (45) | A (59) |
| Cardrona at Mt Barker | 0.010 | 0.00425 (14) | A (33) | 0.004 (34) | A (58) |
| Dunstan Creek at Beattie Road | 0.010 | 0.008 (25) | A (39) | 0.0057 (24) | A (58) |
| Kakanui at Clifton Falls Bridge | 0.010 | 0.0025 (23) | A (44) | 0.004 (17) | A (53) |
| Kakanui at McCones | 0.010 | 0.005 (20) | A (40) | 0.0039 (18) | A (53) |
| Kauru at Ewings | 0.010 | 0.006 (20) | A (38) | 0.004 (19) | A (54) |
| Kye Burn at SH85 Bridge | 0.010 | 0.0075 (20) | A (36) | 0.006 (29) | A (58) |
| Lindis at Ardgour Road | 0.010 | 0.0025 (23) | A (38) | 0.004 (25) | A (56) |
| Lindis at Lindis Peak | 0.010 | 0.0025 (21) | A (33) | 0.005 (25) | A (58) |
| Luggate Creek at SH6 Bridge | 0.010 | 0.0177 (14) | C (34) | 0.013 (25) | B (59) |
| Manuherikia at Galloway | 0.010 | 0.0183 (31) | C (48) | 0.0177 (29) | B (57) |
| Manuherikia at Ophir | 0.010 | 0.0413 (26) | C (42) | 0.0337 (24) | C (58) |
| Mill Creek at Fish Trap | 0.010 | 0.008 (13) | A (35) | 0.008 (25) | A (58) |
| Nevis at Wentworth Station | 0.010 | 0.00565 (3) | A (18) | 0.0041 (12) | A (59) |
| Pomahaka at Glenken | 0.010 | 0.009 (18) | B (36) | 0.0097 (24) | B (58) |
| Shag at Craig Road | 0.010 | 0.0057 (19) | A (40) | 0.005 (30) | A (59) |
| Shag at Goodwood Pump | 0.010 | 0.01 (20) | B (39) | 0.0071 (27) | A (58) |
| Silverstream at Taieri Depot | 0.010 | 0.0086 (11) | A (34) | 0.007 (18) | A (59) |
| Sutton Stream at SH87 | 0.010 | 0.0067 (59) | A (60) | 0.0058 (50) | A (52) |
| Taieri at Allanton Bridge | 0.010 | 0.0113 (17) | B (41) | 0.0145 (25) | C (59) |
| Taieri at Outram | 0.010 | 0.008 (29) | B (60) | 0.01082 (34) | A (60) |
| Taieri at Stonehenge | 0.010 | 0.0075 (30) | A (49) | 0.008 (29) | A (59) |
| Taieri at Sutton | 0.010 | 0.0139 (28) | B (49) | 0.0146 (26) | B (58) |
| Taieri at Tiroiti | 0.010 | 0.0189 (40) | C (60) | 0.022 (37) | C (60) |
| Taieri at Waipiata | 0.010 | 0.0458 (29) | D (48) | 0.04 (27) | C (57) |
| Trotters Creek at Mathesons | 0.010 | 0.005 (11) | A (34) | 0.007 (20) | A (57) |
| Waianakarua at Browns | 0.010 | 0.006 (19) | A (37) | 0.0055 (20) | A (57) |
| Waiareka Creek at Taipo Road | 0.010 | 0.1654 (23) | D (44) | 0.2085 (20) | D (55) |
| Catlins at Houipapa | 0.026 | 0.0186 (16) | C (39) | 0.016 (34) | C (60) |
| Crookston Burn at Kelso Road | 0.026 | 0.0464 (14) | D (29) | 0.0447 (29) | D (58) |
| Heriot Burn at Park Hill Road | 0.026 | 0.0471 (19) | D (40) | 0.066 (37) | D (58) |
| Kaikorai Stream at Brighton Road | 0.026 | 0.0172 (11) | B (36) | 0.013 (24) | B (56) |
| Leith at Dundas Street Bridge | 0.026 | 0.0306 (11) | C (35) | 0.029 (23) | D (55) |
| Lindsays Creek at N Road Bridge | 0.026 | 0.0248 (11) | C (35) | 0.025 (24) | C (56) |
| Pomahaka at Burkes Ford | 0.026 | 0.0133 (21) | C (41) | 0.0141 (27) | C (58) |
| Tokomairiro at W Branch Bridge | 0.026 | 0.012 (26) | B (39) | 0.015 (30) | B (57) |
| Waipahi at Cairns Peak | 0.026 | 0.021 (21) | C (35) | 0.019 (28) | C (59) |
| Waipahi at Waipahi | 0.026 | 0.021 (24) | C (42) | 0.0255 (25) | C (58) |
| Wairuna at Millar Road | 0.026 | 0.1001 (17) | D (34) | 0.1364 (32) | D (58) |
| Waitahuna at Tweeds Bridge | 0.026 | 0.016 (16) | C (41) | 0.01791 (24) | C (57) |
| Waiwera at Maws Farm | 0.026 | 0.0347 (14) | D (40) | 0.0358 (36) | D (59) |

**Table 1: 80th percentile values for DRP over two time-periods (2009-2014 and 2014-2019). Values are calculated from samples taken when flows are at or below median flow. NOF grades for the same period are provided in the adjacent columns. Sample sizes for both values are provided in the parenthesis. The orange cells show where the 80th percentile exceeds the Schedule 15 limit or fall below the national bottom line. For DRP, no national bottom line is currently provided.**

2.33 Table 1 shows that the DRP results are similar in both periods. Thirteen sites (31%) exceeded the Schedule 15 limit in period 1 compared to fourteen sites (33%) exceeding the limit in period 2.

2.34 Sites that exceeded the Schedule 15 DRP limits over the two time-periods were Taieri River mainstem sites (Allanton, Sutton, Tiroiti and Waipiata), Manuherikia (Galloway and Ophir), Pomahaka catchment sites (Heriot Burn, Crookston Burn, Wairuna), Luggate Creek in Central Otago, the Waiwera River in the Lower Clutha, the Leith in Dunedin, and Waiareka Creek in North Otago. Only one site, the Taieri River at Outram met the Schedule 15 DRP limit in period 1, but this site exceeded the limit in in period 2.

2.35 No national bottom line is provided for DRP. Six sites received a "D" grade in both periods. The Taieri at Waipiata changed from a "D" grade in period 1 to a "C" grade in period 2 and the Leith at Dundas Street Bridge changed from a "C" in period 1 to a "D" in the period 2.

2.36 Figures 4 and 5 show the location of sites which meet or exceed the Schedule 15 DRP limit over both time periods.

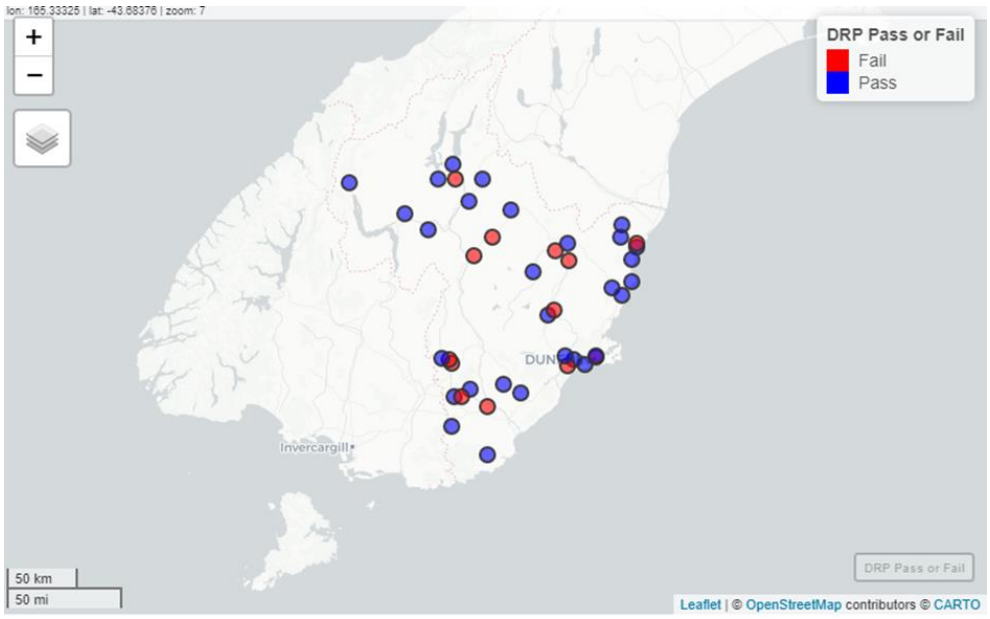



**Figure 4 showing 2009-2014 Dissolved Reactive Phosphorus, Schedule 15 compliance**

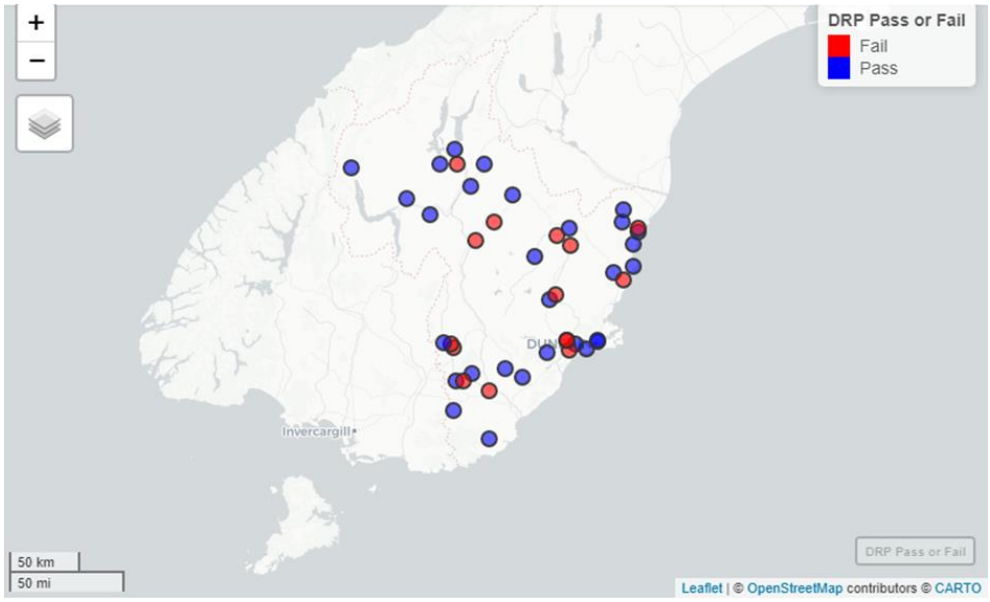



**Figure 5 showing 2014-2019 Dissolved Reactive Phosphorus, Schedule 15 compliance**

***Results: Rivers - Escherichia coli***

| | E.coli MPN/100m/L | | | | |
|---|---|---|---|---|---|
| Site Name | LIMIT | 2009/ 2014 S.15 | 2009/2014 NOF | 2014/ 2019 S.15 | 2014/2019 NOF |
| Dart at The Hillocks | 50 | 16 (20) | A (36) | 10.2 (27) | B (55) |
| Hawea at Camphill Bridge | 50 | 3.8 (18) | A (36) | 8.4 (44) | A (60) |
| Cardrona at Mt Barker | 260 | 180 (15) | B (36) | 127.4 (34) | A (84) |
| Catlins at Houipapa | 260 | 395.7 (16) | D (48) | 250 (34) | B (60) |
| Crookston Burn at Kelso Road | 260 | 6920(14) | E (28) | 1870 (28) | E (58) |
| Dunstan Creek at Beattie Road | 260 | 106 (26) | A (51) | 120.5 (24) | B (59) |
| Heriot Burn at Park Hill Road | 260 | 3800 (20) | E (41) | 1650 (36) | E (74) |
| Kaikorai Stream at Brighton Road | 260 | 3300 (11) | E (36) | 1693.1 (24) | E (57) |
| Kakanui at Clifton Falls Bridge | 260 | 469.7 (62) | D (127) | 357 (44) | C (90) |
| Kakanui at McCones | 260 | 140 (20) | B (52) | 180.6 (18) | B (58) |
| Kauru at Ewings | 260 | 315 (20) | B (52) | 140.5 (19) | B (59) |
| Kye Burn at SH85 Bridge | 260 | 239 (21) | A (48) | 197 (29) | A (59) |
| Leith at Dundas Street Bridge | 260 | 780 (11) | E (36) | 717 (23) | E (56) |
| Lindis at Ardgour Road | 260 | 121.1 (26) | A (54) | 87.5 (25) | A (59) |
| Lindis at Lindis Peak | 260 | 135 (24) | A (49) | 74.5 (25) | A (61) |
| Lindsays Creek at North Road Bridge | 260 | 1130 (11) | E (37) | 675.9 (24) | E (57) |
| Luggate Creek at SH6 Bridge | 260 | 130 (15) | D (36) | 289 (25) | A (64) |
| Manuherikia at Galloway | 260 | 229.5 (78) | C (115) | 240 (29) | D (58) |
| Manuherikia at Ophir | 260 | 435 (26) | D (53) | 357.5 (24) | D (59) |
| Mill Creek at Fish Trap | 260 | 372 (13) | C (36) | 378 (26) | B (58) |
| Nevis at Wentworth Station | 260 | 17.6 (3) | A (18) | 32.4 (12) | A (59) |
| Pomahaka at Burkes Ford | 260 | 262 (21) | D (47) | 150 (26) | D (59) |
| Pomahaka at Glenken | 260 | 324.1 (51) | D (84) | 454 (23) | D (59) |
| Shag at Craig Road | 260 | 180 (20) | B (57) | 125.5 (30) | A (71) |
| Shag at Goodwood Pump | 260 | 249 (21) | C (60) | 200.1 (27) | B (58) |
| Silverstream at Taieri Depot | 260 | 982 (11) | D (36) | 288.2 (18) | D (59) |
| Sutton Stream at SH87 | 260 | 344.8 (58) | D (59) | 411.25 (50) | D (51) |
| Taieri at Allanton Bridge | 260 | 266 (17) | D (41) | 440 (25) | C (59) |
| Taieri at Outram | 260 | 170.5 (94) | C (143) | 127 (69) | B (167) |
| Taieri at Stonehenge | 260 | 108.9 (33) | A (65) | 160 (29) | A (60) |
| Taieri at Sutton | 260 | 415 (28) | D (61) | 461 (26) | B (58) |
| Taieri at Tiroiti | 260 | 214.05 (40) | B (85) | 200.4 (37) | A (79) |
| Taieri at Waipiata | 260 | 687 (89) | D (129) | 269.7 (61) | C (92) |
| Tokomairiro at West Branch Br | 260 | 790 (26) | E (53) | 230 (30) | D (59) |
| Trotters Creek at Mathesons | 260 | 111 (11) | D (34) | 180 (20) | C (57) |
| Waianakarua at Browns | 260 | 196 (21) | B (58) | 189.5 (20) | B (58) |
| Waiareka Creek at Taipo Road | 260 | 572 (23) | D (56) | 435.5 (20) | D (59) |
| Waipahi at Cairns Peak | 260 | 1060 (21) | E (41) | 829 (28) | D (60) |
| Waipahi at Waipahi | 260 | 359 (24) | D (48) | 205 (25) | B (59) |
| Wairuna at Millar Road | 260 | 1820 (17) | E (40) | 909 (32) | E (74) |
| Waitahuna at Tweeds Bridge | 260 | 531 (16) | E (42) | 479 (24) | E (59) |
| Waiwera at Maws Farm | 260 | 1300 (14) | E (40) | 333 (36) | D (59) |

**Table 2: 80th percentile values for *E.coli* over two time periods (2009-2014 and 2014-2019). Values are calculated from samples taken when flows are below median flow. NOF grades for the same period are provided in the adjacent columns. Sample sizes for both values are provided in the parenthesis. The orange cells show where the 80th percentile exceeds the Schedule 15 limit or fall below the national bottom line.**

2.37 Table 2 shows that *E. coli* results exceeded Schedule 15 limits at 24 sites (57%) during period 1 and at 20 sites (48%) during period 2. Figures 6 and 7 show the location of sites which meet or exceed the Schedule 15 *E.coli* limit over both time periods.

2.38 Nineteen sites consistently exceeded limits. Of these, five were in the Pomahaka catchment (Crookston Burn, Heriot Burn, Pomahaka at Glenken, Waipahi at Cairns, Wairuna), three in Dunedin (Kaikorai, Leith, Lindsay's), two in North Otago (Kakanui at Clifton, Waiareka Creek), one in the Manuherikia (Ophir), five in the Taieri catchment (Silverstream, Sutton Stream, Allanton, Sutton, Waipiata). The other three were Mill Creek in Central Otago, and the Waitahuna River and Waiwera River (tributaries of the Lower Clutha).

2.39 Waipahi at Waipahi, the Catlins River, Kauru River, Pomahaka at Burkes Ford and Tokomariro at West Branch complied with the *E. coli* limit in period 2 when they hadn't in period 1. Luggate Creek was the only site to exceed the limit in the 2014-2019 period when it had complied with the limit in the earlier time period.

2.40 In comparison to the limits set in the NPS-FM 2020, 24 sites are likely to fall below the national bottom line for period 1. However, due to sampling every other month, very few sites have the required number of samples (60) needed for a comparison to the NPS-FM 2020. These numbers would have been likely to vary if more samples were taken. For period 2 only 17 sites fell below the national bottom line.

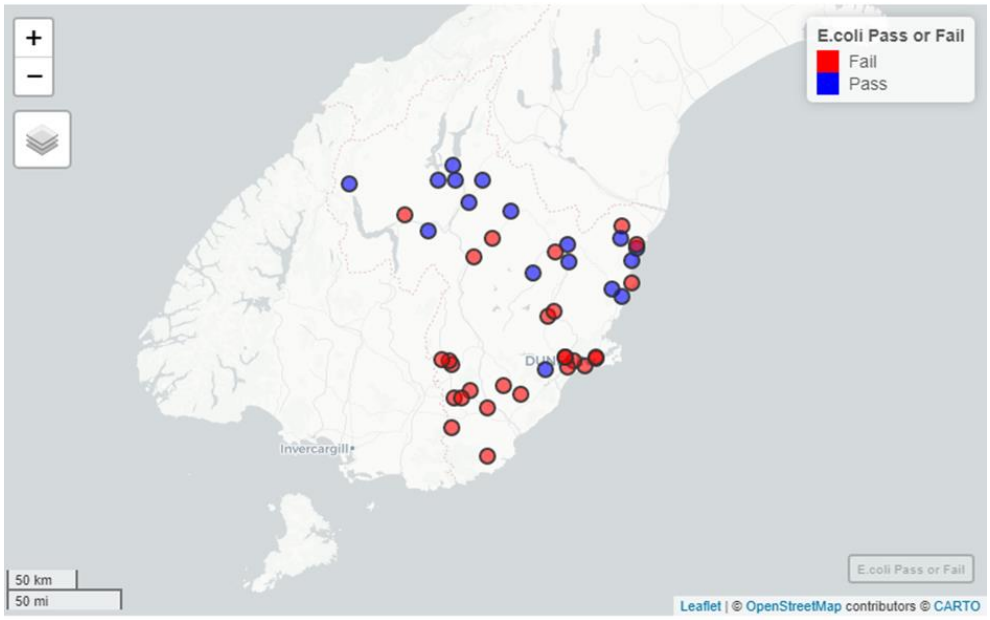



**Figure 6 showing 2009-2014 *E. coli*, Schedule 15 compliance**

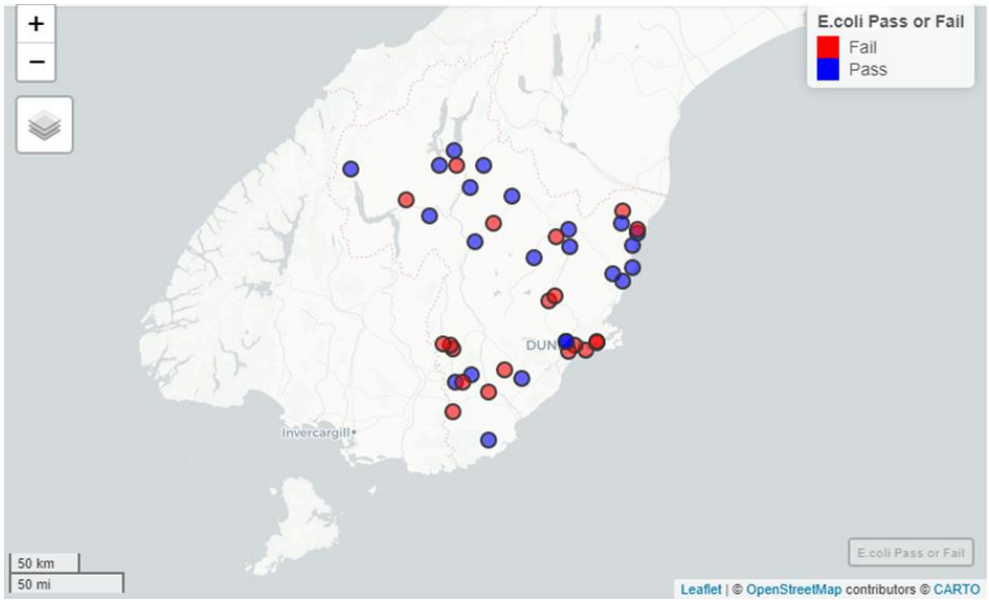



**Figure 7 showing 2014-2019 *E. coli*, Schedule 15 compliance**

***Results: Rivers - Nitrate-nitrite nitrogen***

| | NNN concentration (mg/L) | | | | |
|---|---|---|---|---|---|
| Site Name | LIMIT | 2009/ 2014 S.15 | 2009/2014 NOF | 2014/ 2019 S.15 | 2014/2019 NOF |
| Cardrona at Mt Barker | 0.075 | 0.05 (15) | A (35) | 0.0831 (34) | A (58) |
| Dart at The Hillocks | 0.075 | 0.0255 (20) | A (35) | 0.0436 (28) | A (54) |
| Dunstan Creek at Beattie Road | 0.075 | 0.046 (26) | A (38) | 0.0629 (24) | A (58) |
| Hawea at Camphill Bridge | 0.075 | 0.019 (18) | A (36) | 0.02 (45) | A (59) |
| Kakanui at Clifton Falls Bridge | 0.075 | 0.025 (24) | A (45) | 0.0391 (17) | A (54) |
| Kakanui at McCones | 0.075 | 0.28 (20) | A (40) | 0.283 (46) | A (58) |
| Kauru at Ewings | 0.075 | 0.026 (20) | A (40) | 0.0271 (19) | A (55) |
| Kye Burn at SH85 Bridge | 0.075 | 0.0563 (21) | A (36) | 0.053 (29) | A (58) |
| Lindis at Ardgour Road | 0.075 | 0.21 (25) | A (40) | 0.125 (25) | A (57) |
| Lindis at Lindis Peak | 0.075 | 0.0127 (24) | A (36) | 0.0155 (25) | A (59) |
| Luggate Creek at SH6 Bridge | 0.075 | 0.004 (15) | A (36) | 0.003 (25) | A (59) |
| Manuherikia at Galloway | 0.075 | 0.0262 (31) | A (48) | 0.0204 (29) | A (57) |
| Manuherikia at Ophir | 0.075 | 0.0601 (26) | A (42) | 0.0535 (24) | A (58) |
| Mill Creek at Fish Trap | 0.075 | 0.479 (13) | A (35) | 0.399 (26) | A (59) |
| Nevis at Wentworth Station | 0.075 | 0.0025 (3) | A (18) | 0.00396 (12) | A (60) |
| Pomahaka at Glenken | 0.075 | 0.0535 (18) | A (36) | 0.0477 (24) | A (59) |
| Shag at Craig Road | 0.075 | 0.0895 (20) | A (41) | 0.1515 (35) | A (59) |
| Shag at Goodwood Pump | 0.075 | 0.383 (21) | A (40) | 0.281 (27) | A (58) |
| Silverstream at Taieri Depot | 0.075 | 0.3639 (11) | A (35) | 0.668 (18) | A (59) |
| Sutton Stream at SH87 | 0.075 | 0.039 (59) | A (60) | 0.01 (50) | A (52) |
| Taieri at Allanton Bridge | 0.075 | 0.046 (17) | A (41) | 0.061 (25) | A (59) |
| Taieri at Outram | 0.075 | 0.048 (29) | A (60) | 0.0459 (34) | A (60) |
| Taieri at Stonehenge | 0.075 | 0.015 (30) | A (49) | 0.00789 (29) | A (59) |
| Taieri at Sutton | 0.075 | 0.0636 (28) | A (49) | 0.0499 (26) | A (58) |
| Taieri at Tiroiti | 0.075 | 0.06 (40) | A (60) | 0.033 (37) | A (60) |
| Taieri at Waipiata | 0.075 | 0.0421 (29) | A (48) | 0.0287 (27) | A (57) |
| Trotters Creek at Mathesons | 0.075 | 0.39 (11) | B (34) | 0.465 (20) | B (57) |
| Waianakarua at Browns | 0.075 | 0.405 (20) | A (39) | 0.31 (20) | A (57) |
| Waiareka Creek at Taipo Road | 0.075 | 0.456 (23) | B (44) | 0.395 (20) | B (56) |
| Catlins at Houipapa | 0.444 | 0.295 (16) | A (40) | 0.448 (34) | A (60) |
| Crookston Burn at Kelso Road | 0.444 | 1.992 (14) | C (29) | 1.5 (29) | B (59) |
| Heriot Burn at Park Hill Road | 0.444 | 1.883 (19) | B (40) | 1.491 (37) | B (59) |
| Kaikorai Stream at Brighton Road | 0.444 | 0.236 (11) | A (36) | 0.394 (24) | A (57) |
| Leith at Dundas Street Bridge | 0.444 | 0.4106 (11) | A (36) | 0.519 (23) | A (56) |
| Lindsays Creek at North Road Bridg | 0.444 | 0.6821 (11) | A (36) | 0.678 (24) | A (57) |
| Pomahaka at Burkes Ford | 0.444 | 0.651 (21) | B (41) | 0.449 (27) | B (59) |
| Tokomairiro at West Branch Bridge | 0.444 | 0.203 (26) | A (39) | 0.275 (30) | A (57) |
| Waipahi at Cairns Peak | 0.444 | 0.7402 (21) | B (35) | 0.69 (28) | B (59) |
| Waipahi at Waipahi | 0.444 | 1.289 (24) | B (42) | 0.88 (25) | B (58) |
| Wairuna at Millar Road | 0.444 | 1.252 (17) | B (34) | 0.888 (32) | C (58) |
| Waitahuna at Tweeds Bridge | 0.444 | 0.0973 (16) | A (41) | 0.1213 (24) | A (57) |
| Waiwera at Maws Farm | 0.444 | 1.0048 (14) | B (39) | 0.715 (36) | B (59) |

**Table 3: 80th percentile values for NNN over two time-periods (2009-2014 and 2014-2019). Values are calculated from samples taken when flows are below median flow. NOF grades for the same period are provided in the adjacent columns. Sample sizes for both values are provided in the parenthesis. The orange cells show where the 80th percentile exceeds the Schedule 15 limit or fall below the national bottom line. The national bottom line for Nitrate toxicity falls between the B and C grades.**

2.41 Table 3 shows that NNN results exceeded the Schedule 15 limit at 17 sites (40%) during period 1 and at 20 sites (48%) during period 2. Figures 8 and 9 show the location of sites which meet or exceed the Schedule 15 NNN limit over both time periods.

2.42 Seventeen sites consistently exceeded limits. Of these, six were in the Pomahaka catchment (Crookston Burn, Heriot Burn, Pomahaka at Burkes, Waipahi at Cairns Peak, Waipahi at Waipahi, Wairuna), one in Dunedin (Lindsay's), six in North Otago (Kakanui at McCones, Waiareka Creek, Shag at Craig Road, Shag at Goodwood, Trotters Creek, Waianakarua), one in the Lindis (at Ardgour), and one in the Taieri (Silverstream), one in Central Otago (Mill Creek) and one in Lower Clutha (Waiwera River).

2.43 Three sites (Cardrona River, Catlins River, and the Leith) complied with the NNN Schedule 15 limit in period 1, but did not meet the NNN limit in period 2.

2.44 For each time period, one site does not meet the national bottom line for nitrate toxicity set in the NPS-FM 2020 for each time period. The Crookston Burn at Kelso Road received a "C" in period 1 and the Wairuna at Miller Road received a "C" in period 2.

2.45 As outlined in paragraph 2.32 above, the NOF nitrate attributes are annual values whereas the grade provided above is based on a 5 year period. If calculated as annual values, sites display a similar grade although the Crookston Burn varies with grades of "A" to "C" during period 1. The Wairuna at Millar Road receives "C" and five "B" grades over period 2. All other sites remain above the NPS-FM 2020 bottom line on annual timescales.

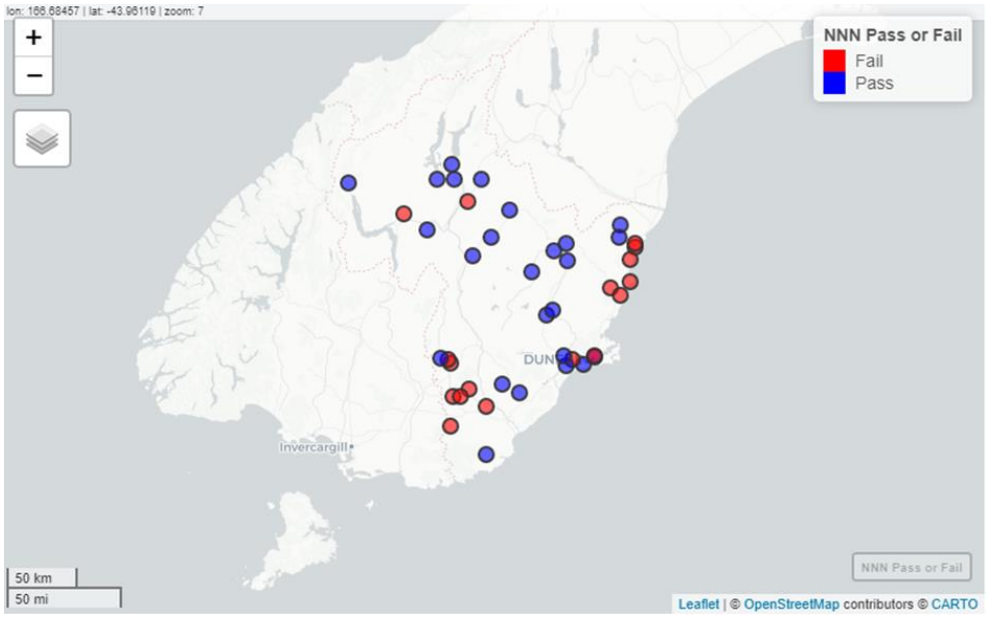



**Figure 8 showing 2009-2014 NNN, Schedule 15 compliance**

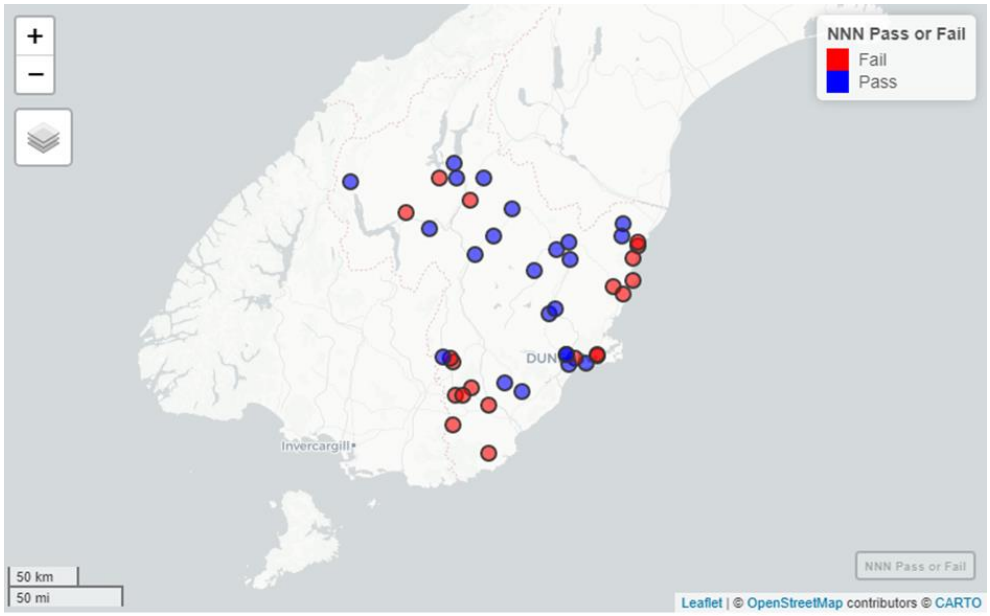



**Figure 9 showing 2014-2019 NNN, Schedule 15 compliance**

***Results: Rivers - Turbidity***

| | Turbidity (NTU) | | | | | | Turbidity (NTU) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Site Name | LIMIT | # P1 | 2009/ 2014 | # P2 | 2014/ 2019 | Site Name | LIMIT | # P1 | 2009/ 2014 | # P2 | 2014 / 2019 |
| Cardrona at Mt Barker | 5 | 15 | 1.7 | 25 | 1.6 | Pomahaka at Burkes Ford | 5 | 17 | 3.2 | 27 | 3.8 |
| Catlins at Houipapa | 5 | 9 | 6.7 | 34 | 4.1 | Pomahaka at Glenken | 5 | 15 | 3.0 | 24 | 3.2 |
| Crookston Burn at Kelso Road | 5 | 14 | 5.8 | 29 | 4.4 | Shag at Craig Road | 5 | 13 | 0.6 | 26 | 0.8 |
| Dart at The Hillocks | 3 | 20 | 95.5 | 28 | 14.8 | Shag at Goodwood Pump | 5 | 15 | 0.6 | 27 | 0.8 |
| Dunstan Creek at Beattie Road | 5 | 15 | 1.1 | 24 | 1.1 | Silverstream at Taieri Depot | 5 | 11 | 2.4 | 18 | 2.3 |
| Hawea at Camphill Bridge | 3 | 18 | 0.6 | 44 | 0.5 | Sutton Stream at SH87 | 5 | 65 | 3.4 | 50 | 2.7 |
| Heriot Burn at Park Hill Road | 5 | 19 | 10.0 | 37 | 5.7 | Taieri at Allanton Bridge | 5 | 17 | 3.9 | 25 | 5.1 |
| Kaikorai Stream at Brighton Road | 5 | 11 | 3.3 | 24 | 3.0 | Taieri at Outram | 5 | 31 | 2.6 | 25 | 2.3 |
| Kakanui at Clifton Falls Bridge | 5 | 23 | 0.5 | 17 | 0.6 | Taieri at Stonehenge | 5 | 18 | 2.4 | 29 | 1.8 |
| Kakanui at McCones | 5 | 20 | 0.7 | 18 | 0.8 | Taieri at Sutton | 5 | 17 | 3.2 | 26 | 2.9 |
| Kauru at Ewings | 5 | 20 | 0.4 | 19 | 0.4 | Taieri at Tiroiti | 5 | 29 | 4.0 | 37 | 4.6 |
| Kye Burn at SH85 Bridge | 5 | 10 | 3.4 | 29 | 1.7 | Taieri at Waipiata | 5 | 17 | 4.1 | 27 | 3.3 |
| Leith at Dundas Street Bridge | 5 | 11 | 4.2 | 23 | 2.2 | Tokomairiro at West Branch Bridge | 5 | 15 | 2.8 | 30 | 2.8 |
| Lindis at Ardgour Road | 5 | 25 | 0.6 | 25 | 1.4 | Trotters Creek at Mathesons | 5 | 11 | 2.0 | 20 | 2.3 |
| Lindis at Lindis Peak | 5 | 23 | 0.8 | 25 | 1.7 | Waianakarua at Browns | 5 | 14 | 0.6 | 20 | 0.5 |
| Lindsays Creek at North Road Bridge | 5 | 11 | 3.6 | 24 | 3.4 | Waiareka Creek at Taipo Road | 5 | 23 | 1.8 | 20 | 1.8 |
| Luggate Creek at SH6 Bridge | 5 | 15 | 1.2 | 24 | 1.5 | Waipahi at Cairns Peak | 5 | 17 | 16.4 | 28 | 7.7 |
| Manuherikia at Galloway | 5 | 20 | 4.3 | 29 | 2.7 | Waipahi at Waipahi | 5 | 20 | 3.7 | 25 | 2.5 |
| Manuherikia at Ophir | 5 | 15 | 5.0 | 24 | 2.8 | Wairuna at Millar Road | 5 | 11 | 17.4 | 32 | 14.0 |
| Mill Creek at Fish Trap | 5 | 13 | 3.2 | 26 | 4.1 | Waitahuna at Tweeds Bridge | 5 | 16 | 4.6 | 24 | 3.9 |
| Nevis at Wentworth Station | 5 | 3 | 1.0 | 12 | 0.6 | Waiwera at Maws Farm | 5 | 14 | 5.5 | 36 | 2.8 |

**Table 4: 80th percentile values for turbidity over two time-periods (2009-2014 and 2014-2019). Values are calculated from samples taken when flows are below median flow. The orange cells show where the 80th percentile exceeds the Schedule 15 limit. Sample sizes for the two periods are shown as #P1 and #P2.**

2.46 The Dart River is exempt from the turbidity criteria due to naturally high turbidity from glacial flour. Of the sites exceeding the limit over both time periods, all were in the Pomahaka catchment (Heriot Burn, Wairuna and Waipahi).

2.47 The Catlins and the Crookston Burn exceeded the turbidity limit in period 1, but complied in period 2. In contrast, the Taieri at Allanton exceeded the Schedule 15 turbidity limit in period 2 but had complied previously. Figures 10 and 11 show the location of sites which meet or exceed the Schedule 15 turbidity limit over both time periods.

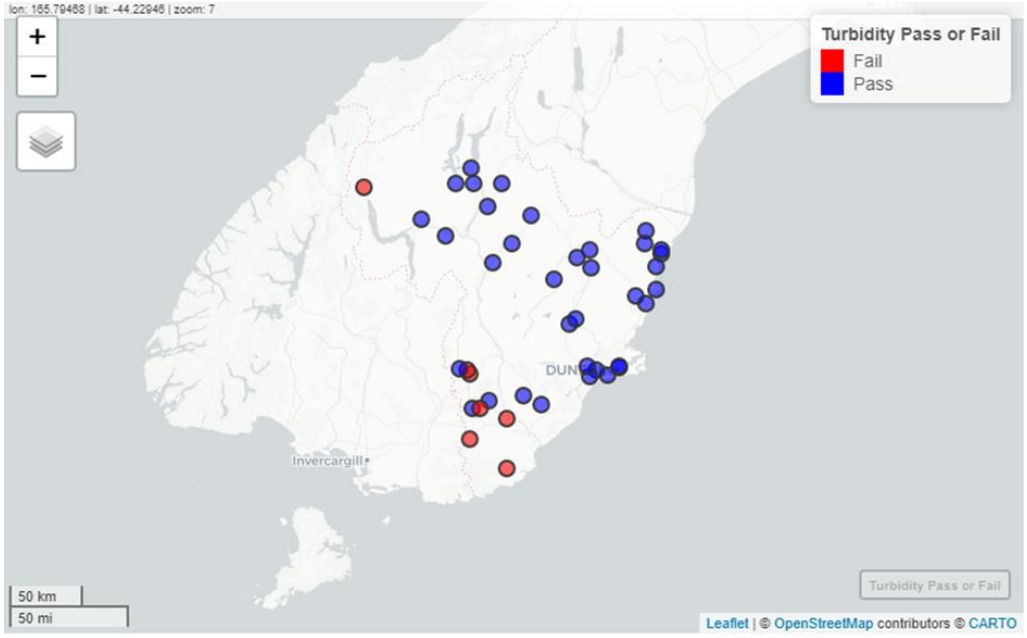



**Figure 10 showing 2009-2014 turbidity, Schedule 15 compliance**

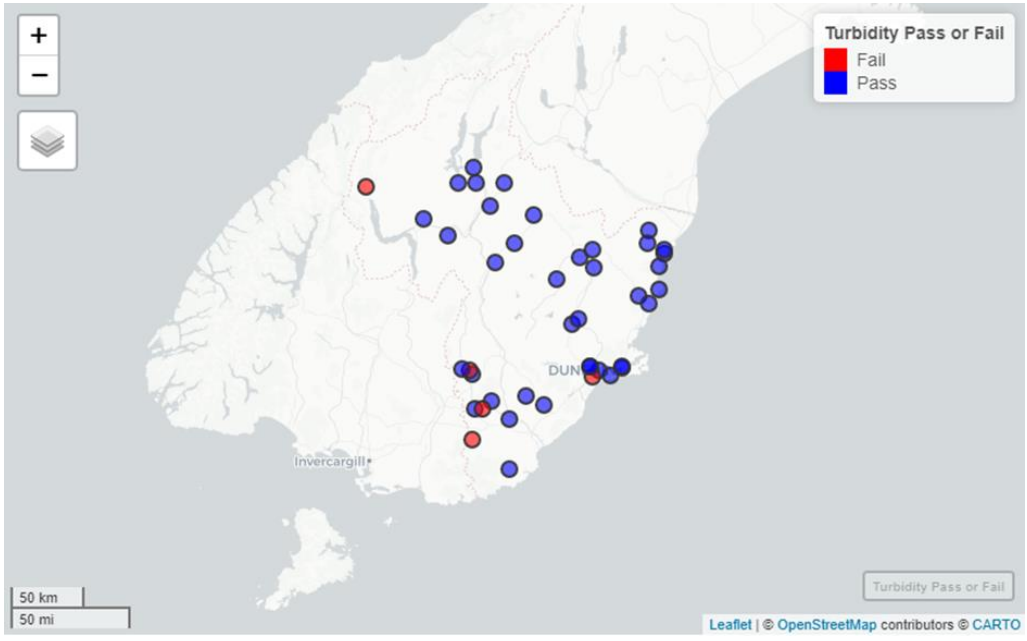



**Figure 11 showing 2014 to 2019 turbidity, Schedule 15 compliance**

***Results: Rivers - Ammoniacal nitrogen***

| | NH concentration (mg/L) | | | | |
|---|---|---|---|---|---|
| Site Name | LIMIT | 2009/ 2014 Schedule 15 | 2009/2014 NOF | 2014/ 2019 Schedule 15 | 2014/2019 NOF |
| Dart at The Hillocks | 0.01 | S.15 | A (34) | 0.0135 (28) | A (54) |
| Hawea at Camphill Bridge | 0.01 | 0.005 (18) | A (36) | 0.005 (45) | A (59) |
| Cardrona at Mt Barker | 0.1 | 0.0075 (15) | A (36) | 0.01 (34) | A (58) |
| Catlins at Houipapa | 0.1 | 0.01 (16) | B (40) | 0.0154 (34) | A (60) |
| Crookston Burn at Kelso Road | 0.1 | 0.03 (14) | B (29) | 0.0368 (29) | B (59) |
| Dunstan Creek at Beattie Road | 0.1 | 0.005 (26) | A (39) | 0.008 (24) | A (58) |
| Heriot Burn at Park Hill Road | 0.1 | 0.0328 (19) | B (40) | 0.0382 (37) | B (59) |
| Kaikorai Stream at Brighton Road | 0.1 | 0.0109 (11) | B (36) | 0.0147 (24) | B (57) |
| Kakanui at Clifton Falls Bridge | 0.1 | 0.005 (23) | A (44) | 0.0101 (17) | A (54) |
| Kakanui at McCones | 0.1 | 0.01 (20) | A (40) | 0.0148 (18) | A (54) |
| Kauru at Ewings | 0.1 | 0.005 (20) | A (40) | 0.0077 (19) | A (55) |
| Kye Burn at SH85 Bridge | 0.1 | 0.005 (21) | A (36) | 0.0104 (29) | A (58) |
| Leith at Dundas Street Bridge | 0.1 | 0.0103 (11) | B (36) | 0.0139 (23) | B (56) |
| Lindis at Ardgour Road | 0.1 | 0.005 (26) | A (41) | 0.0105 (25) | A (57) |
| Lindis at Lindis Peak | 0.1 | 0.005 (24) | A (36) | 0.007 (25) | A (59) |
| Lindsays Creek at North Road Bridge | 0.1 | 0.0144 (11) | A (36) | 0.02 (24) | B (57) |
| Luggate Creek at SH6 Bridge | 0.1 | 0.0075 (15) | A (36) | 0.0085 (25) | A (59) |
| Manuherikia at Galloway | 0.1 | 0.005 (31) | A (48) | 0.0107 (29) | A (57) |
| Manuherikia at Ophir | 0.1 | 0.02 (26) | A (42) | 0.0197 (24) | B (58) |
| Mill Creek at Fish Trap | 0.1 | 0.0122 (13) | A (35) | 0.0133 (26) | A (59) |
| Nevis at Wentworth Station | 0.1 | 0.005 (3) | A (18) | 0.0055 (12) | B (60) |
| Pomahaka at Burkes Ford | 0.1 | 0.01 (21) | A (41) | 0.019 (27) | B (59) |
| Pomahaka at Glenken | 0.1 | 0.01 (18) | A (36) | 0.0124 (24) | A (59) |
| Shag at Craig Road | 0.1 | 0.005 (19) | A (40) | 0.007 (30) | A (59) |
| Shag at Goodwood Pump | 0.1 | 0.0103 (21) | A (40) | 0.0101 (27) | A (58) |
| Silverstream at Taieri Depot | 0.1 | 0.0188 (11) | B (35) | 0.0168 (18) | B (59) |
| Sutton Stream at SH87 | 0.1 | 0.009 (59) | A (60) | 0.008 (50) | A (52) |
| Taieri at Allanton Bridge | 0.1 | 0.0124 (17) | A (41) | 0.022 (25) | B (59) |
| Taieri at Outram | 0.1 | 0.008 (28) | A (60) | 0.01 (34) | A (60) |
| Taieri at Stonehenge | 0.1 | 0.005 (30) | A (49) | 0.009 (29) | A (59) |
| Taieri at Sutton | 0.1 | 0.0095 (28) | A (49) | 0.0166 (26) | B (58) |
| Taieri at Tiroiti | 0.1 | 0.006 (40) | A (60) | 0.01 (37) | A (60) |
| Taieri at Waipiata | 0.1 | 0.0085 (29) | A (48) | 0.0131 (27) | B (57) |
| Tokomairiro at West Branch Bridge | 0.1 | 0.01 (26) | A (38) | 0.0175 (30) | A (57) |
| Trotters Creek at Mathesons | 0.1 | 0.0258 (11) | A (34) | 0.017 (20) | B (57) |
| Waianakarua at Browns | 0.1 | 0.01 (20) | A (40) | 0.01 (20) | A (57) |
| Waiareka Creek at Taipo Road | 0.1 | 0.0127 (23) | B (44) | 0.0395 (20) | B (56) |
| Waipahi at Cairns Peak | 0.1 | 0.02 (21) | B (35) | 0.0367 (28) | B (59) |
| Waipahi at Waipahi | 0.1 | 0.01 (24) | B (42) | 0.0175 (25) | B (58) |
| Wairuna at Millar Road | 0.1 | 0.0629 (17) | B (34) | 0.0503 (32) | B (58) |
| Waitahuna at Tweeds Bridge | 0.1 | 0.01 (16) | B (41) | 0.0157 (24) | A (57) |
| Waiwera at Maws Farm | 0.1 | 0.0191 (14) | B (40) | 0.0173 (36) | A (59) |

**Table 5: 80th percentile values for ammoniacal nitrogen over two time-periods (2009-2014 and 2014-2019). Values are calculated from samples taken when flows are below median flow. NOF grades for the same period are provided in the adjacent columns. Sample sizes for both values are provided in the parenthesis. The orange cells show where the 80th percentile exceeds the Schedule 15 limit or fall below the national bottom line. The national bottom line for Ammonia Toxicity falls between the B and C grades.**

2.48 Table 5 shows that no sites exceeded the Schedule 15 ammoniacal nitrogen limit in period 1. In period 2 the only site to exceed the ammoniacal nitrogen limit was the Dart River. At this site the Schedule 15 limit was exceeded on five occasions (of 28 results), with 0.041mg/L being the highest $NH_4$-N concentration recorded. All other sites were compliant for $NH_4$-N and had 80th percentile concentrations below at least half of the Schedule 15 limit of 0.100 mg/L. Figures 12 and 13 show the location of sites which meet or exceed the Schedule 15 ammoniacal nitrogen limit over both time periods.

2.49 Figures 12 and Figure 13 show the location of sites which meet or exceed the Schedule 15 ammoniacal nitrogen limit over both time periods.

2.50 No sites fall below the national bottom line for ammonia toxicity in either time period. As outlined in paragraph 2.32 above, the ammonia attributes provided in the NOF are on an annual scale whereas in Table 5 they are aggregated to a 5-year period. If calculated on an annual time step, sites receive similar grades (e.g. “A” or “B” band) with no sites falling below the national bottom line.

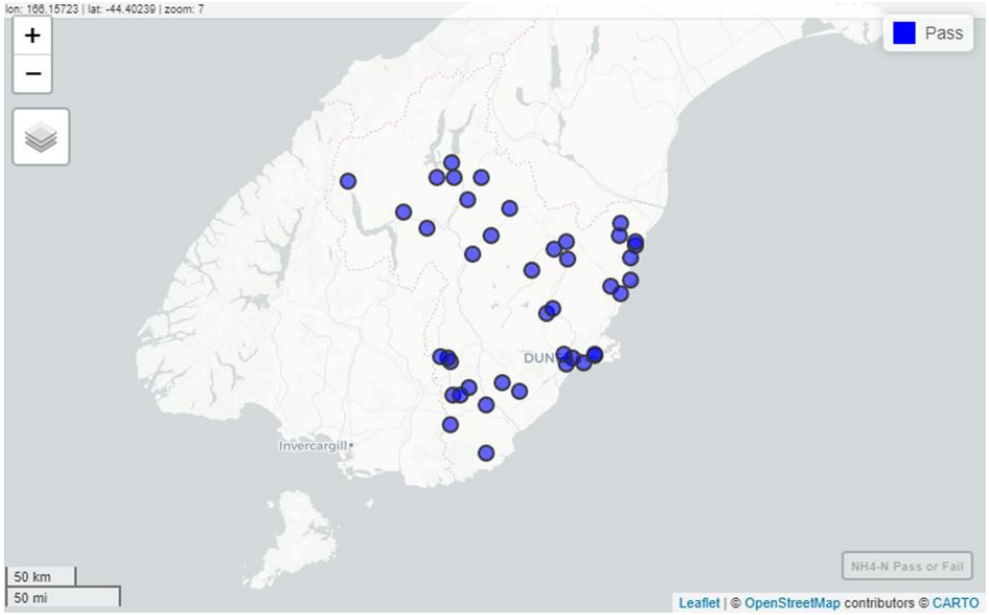



**Figure 12 showing 2009-2014 ammoniacal nitrogen, Schedule 15 compliance**

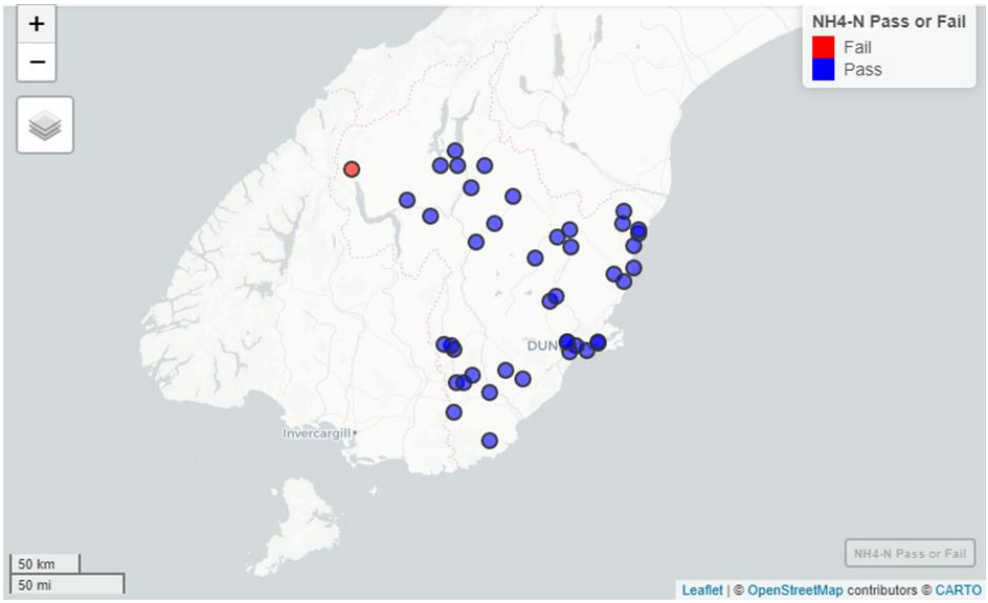



**Figure 13 showing 2014-2019 ammoniacal nitrogen, Schedule 15 compliance**

***Results: Lakes***

2.51 Nine lakes were sampled in both time periods, the results are shown in Tables 6 and 7.

2.52 Lake water quality is generally very good, and results were similar across the two time-periods, with three improvements: turbidity at Lake Johnson, *E. coli* at Lake Tuakitioto and TP at Lake Wakatipu.

2.53 Lakes were least compliant with the Schedule 15 limit for TP; only Lakes Onslow, Hawea and Wanaka met the criterion across both time periods. TN consistently exceeded the limit at Lake Johnson, Lake Tuakitoto and Lake Waihola (these lakes also exceeded the TP and turbidity limit).

2.54 In RWG 4, Lake Hayes exceeded the TP Schedule 15 limit and Lake Waihola exceeded Schedule 15 limits for turbidity, TN and TP, in both time periods. Although limits were exceeded in both lakes, the magnitude of exceedance decreased (period 2 vs period 1). In period 1 Lake Johnson exceeded the limits of four parameters (NH4-N, Turbidity, TN, and TP), in period 2 only three parameters exceeded the Schedule 15 limit. Lake Tuakitoto also exceeded three out of the five Schedule 15 limits in period 2 (Turbidity, TN, and TP) Ammoniacal nitrogen and *E. coli* met the Schedule 15 limit in this period. Lake Onslow met all five limits in both time periods.

2.55 In RWG 5, only Lake Wakatipu showed an improvement – the TP Schedule 15 limit was exceeded in period 1 but not in period 2. Lakes Dunstan, Hawea and Wanaka exceeded the TP Schedule 15 limit in both time periods.

2.56 The lakes monitored in the Otago region as part of ORC SoE network showed an improvement in water quality between the two reporting periods. The improvements, however, might be associated with a higher sampling resolution which changed from bi-monthly to monthly from July 2013.

| | Limit | #P1 | 2009/ 2014 Schedule 15 | 2009/ 2014 NOF | # P2 | 2014/ 2019 Schedule 15 | 2014/ 2019 NOF |
|---|---|---|---|---|---|---|---|
| | Turbidity | | | | | | |
| Lake Dunstan at Dead Mans Point | 3 | 36 | 1.3 | N/A | 60 | 1.2 | N/A |
| Lake Hawea Outflow at Dam | 3 | 36 | 0.7 | N/A | 48 | 0.7 | N/A |
| Lake Hayes at Bendemeer Bay | 5 | 30 | 204 | N/A | 48 | 2.1 | N/A |
| Lake Johnson at South Beach huts | 5 | 20 | 19.8 | N/A | 48 | 4.6 | N/A |
| Lake Onslow at Boat Ramp | 5 | 33 | 4.5 | N/A | 45 | 4.5 | N/A |
| Lake Tuakitoto at Outlet | 5 | 61 | 14.2 | N/A | 60 | 8.9 | N/A |
| Lake Waihola at End of jetty | 5 | 35 | 28.6 | N/A | 48 | 12.9 | N/A |
| Lake Wakatipu at Outflow | 3 | 36 | 1 | N/A | 48 | 0.7 | N/A |
| Lake Wanaka at Outlet | 3 | 38 | 0.5 | N/A | 48 | 0.7 | N/A |

**Table 6: Turbidity over two time-periods (2009-2014 and 2014-2019). NOF grades for the same period are not provided. Sample sizes for both periods are shown as #P1 and #P2. The orange cells show where the 80th percentile exceeds the Schedule 15 limit or fall below the national bottom line.**

| | Limit | #P1 | 2009/ 2014 Schedule 15 | 2009/ 2014 NOF | # P2 | 2014/ 2019 Schedule 15 | 2014/ 2019 NOF |
|---|---|---|---|---|---|---|---|
| | Ammoniacal Nitrogen | | | | | | |
| Lake Dunstan at Dead Mans Point | 0.01 | 36 | 0.005 | A | 60 | 0.008 | A |
| Lake Hawea Outflow at Dam | 0.01 | 36 | 0.005 | A | 48 | 0.008 | A |
| Lake Hayes at Bendemeer Bay | 0.1 | 30 | 0.019 | B | 48 | 0.060 | B |
| Lake Johnson at South Beach huts | 0.1 | 20 | 0.170 | B | 48 | 0.238 | C |
| Lake Onslow at Boat Ramp | 0.1 | 33 | 0.005 | A | 45 | 0.011 | A |
| Lake Tuakitoto at Outlet | 0.1 | 61 | 0.067 | C | 60 | 0.074 | B |
| Lake Waihola at End of jetty | 0.1 | 35 | 0.013 | B | 48 | 0.016 | A |
| Lake Wakatipu at Outflow | 0.01 | 36 | 0.005 | A | 48 | 0.005 | A |
| Lake Wanaka at Outlet | 0.01 | 38 | 0.005 | A | 48 | 0.009 | A |
| | E.coli | | | | | | |
| Lake Dunstan at Dead Mans Point | 10 | 36 | 5 | A | 60 | 7 | A |
| Lake Hawea Outflow at Dam | 10 | 36 | 5 | A | 48 | 5 | A |
| Lake Hayes at Bendemeer Bay | 126 | 30 | 59 | A | 48 | 20 | A |
| Lake Johnson at South Beach huts | 126 | 20 | 19 | A | 48 | 13 | A |
| Lake Onslow at Boat Ramp | 126 | 33 | 5 | A | 45 | 10 | A |
| Lake Tuakitoto at Outlet | 126 | 61 | 248 | D | 60 | 120 | A |
| Lake Waihola at End of jetty | 126 | 35 | 103 | A | 48 | 76 | A |
| Lake Wakatipu at Outflow | 10 | 36 | 5 | A | 48 | 7 | A |
| Lake Wanaka at Outlet | 10 | 38 | 5 | A | 48 | 5 | A |
| | Total Nitrogen | | | | | | |
| Lake Dunstan at Dead Mans Point | 0.1 | 36 | 0.080 | A | 60 | 0.091 | A |
| Lake Hawea Outflow at Dam | 0.1 | 36 | 0.055 | A | 48 | 0.063 | A |
| Lake Hayes at Bendemeer Bay | 0.55 | 30 | 0.435 | B | 48 | 0.421 | B |
| Lake Johnson at South Beach huts | 0.55 | 20 | 1.810 | D | 48 | 1.200 | D |
| Lake Onslow at Boat Ramp | 0.55 | 33 | 0.289 | BB | 45 | 0.290 | B |
| Lake Tuakitoto at Outlet | 0.55 | 61 | 1.506 | D | 60 | 1.385 | D |
| Lake Waihola at End of jetty | 0.55 | 35 | 0.720 | C | 48 | 0.629 | C |
| Lake Wakatipu at Outflow | 0.1 | 36 | 0.080 | A | 48 | 0.065 | A |
| Lake Wanaka at Outlet | 0.1 | 38 | 0.060 | A | 48 | 0.097 | A |

| | Total Phosphorus | | | | | | |
|---|---|---|---|---|---|---|---|
| Lake Dunstan at Dead Mans Point | 0.01 | 36 | 0.025 | A | 60 | 0.025 | A |
| Lake Hawea Outflow at Dam | 0.01 | 36 | 0.025 | A | 48 | 0.025 | A |
| Lake Hayes at Bendemeer Bay | 0.03 | 30 | 0.061 | C | 48 | 0.047 | C |
| Lake Johnson at South Beach huts | 0.03 | 20 | 0.103 | D | 48 | 0.087 | D |
| Lake Onslow at Boat Ramp | 0.03 | 33 | 0.029 | C | 45 | 0.028 | C |
| Lake Tuakitoto at Outlet | 0.03 | 61 | 0.155 | D | 60 | 0.144 | D |
| Lake Waihola at End of jetty | 0.03 | 35 | 0.095 | D | 48 | 0.062 | C |
| Lake Wakatipu at Outflow | 0.01 | 36 | 0.007 | A | 48 | 0.003 | A |
| Lake Wanaka at Outlet | 0.01 | 38 | 0.025 | A | 48 | 0.025 | A |

**Table 7: Ammoniacal nitrogen, *E. coli* and Total Nitrogen, and Total Phosphorus over two time-periods (2009-2014 and 2014-2019). NOF grades for the same period are provided in the adjacent columns. Sample sizes for both periods are shown as #P1 and #P2. The orange cells show where the 80th percentile exceeds the Schedule 15 limit or fall below the national bottom line.**

***Discussion***

2.57 Tables 8 and 9 summarise how many of the 42 river sites and 9 lake sites were not compliant with Schedule 15 limits during the two time-periods.

| *n=42* | $NH_4$-N | NNN | DRP | *E. coli* | Turbidity |
|---|---|---|---|---|---|
| 2009-2014 | 0 | 17 | 13 | 24 | 7 |
| 2014-2019 | 1 | 20 | 14 | 20 | 5 |

**Table 8: River site non-compliance with limits over the two time-periods (2009-2014 and 2014-2019).**

| *n=9* | $NH_4$-N | *E. coli* | Turbidity | TP | TN |
|---|---|---|---|---|---|
| 2009-2014 | 1 | 1 | 3 | 8 | 3 |
| 2014-2019 | 1 | 0 | 2 | 7 | 3 |

**Table 9: Lake site non-compliance with limits over the two time-periods (2009-2014 and 2014-2019).**

2.58 To determine likely causes, geographic clustering of non-compliance can be considered.

*The Pomahaka Catchment (Lower Clutha)*

2.59 Intensive farming in the Pomahaka catchment is characterised by the widespread use of artificial drainage.

2.60 Common practice on dairy farms in the Pomahaka catchment is to apply dairy shed effluent to land during the milking season. The application of effluent on artificially-drained land can result in effluent reaching the stream.[13] Losses can be exacerbated when too much effluent

[13] Houlbrooke et al., 2008.

is applied and/or effluent is applied to wet soils. Such a scenario is common in spring if soils are wet or effluent ponds are of an inadequate size (or full).

2.61 Artificial drainage can be a major pathway in the transfer of mobile pollutants (such as nitrate) from soil to water. Less mobile pollutants such as P, sediment, and faecal bacteria are also able to be transferred to surface waters via sub surface drainage systems.

2.62 Table 10 shows that the majority of the Pomahaka catchment does not meet the limits set out in Schedule 15. While the samples do not define the likely source, the most likely explanation is subsurface flow under intensive agriculture. Although limits are not met, there has been an improvement in the contaminant concentrations. For example *E. coli* met the Schedule 15 limit at two sites in period 2 and no sites met the limit in period 1. For the majority of other sites, the 80th percentile concentration has improved (i.e. concentration has decreased).

2.63 The efforts of individual farmers adopting best practice initiatives (i.e. practices proposed/endorsed/encouraged by industry groups such as Beef and Lamb, and Dairy NZ) alongside the establishment of successful catchment groups in the region (i.e. Pomahaka catchment group) is likely to have accounted for the improvement.

| | *E.coli* MPN/100mL | | | DRP concentration mg/L | | | NNN concentration mg/L | | | Turbidity NTU | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LIMIT | 2009/ 2014 | 2014/ 2019 | LIMIT | 2009/ 2014 | 2014/ 2019 | LIMIT | 2009/ 2014 | 2014/ 2019 | LIMIT | 2009/ 2014 | 2014/ 2019 |
| Crookston Burn at Kelso Road | 260 | 6920 | 1870 | 0.026 | 0.0464 | 0.0447 | 0.444 | 1.9920 | 1.5000 | 5 | 5.83 | 4.37 |
| Heriot Burn at Park Hill Road | 260 | 3800 | 1650 | 0.026 | 0.0471 | 0.0660 | 0.444 | 1.8830 | 1.4910 | 5 | 10.00 | 5.65 |
| Pomahaka at Burkes Ford | 260 | 262 | 150 | 0.026 | 0.0133 | 0.0141 | 0.444 | 0.6510 | 0.4490 | 5 | 3.24 | 3.81 |
| Pomahaka at Glenken | 260 | 324 | 454 | 0.01 | 0.0090 | 0.0097 | 0.075 | 0.0535 | 0.0477 | 5 | 2.96 | 3.22 |
| Waipahi at Cairns Peak | 260 | 1060 | 829 | 0.026 | 0.0210 | 0.0190 | 0.444 | 0.7402 | 0.6900 | 5 | 16.41 | 7.66 |
| Waipahi at Waipahi | 260 | 359 | 205 | 0.026 | 0.0210 | 0.0255 | 0.444 | 1.2890 | 0.8800 | 5 | 3.67 | 2.50 |
| Wairuna at Millar Road | 260 | 1820 | 909 | 0.026 | 0.1001 | 0.1364 | 0.444 | 1.2520 | 0.8880 | 5 | 17.36 | 14.00 |
| Waiwera at Maws Farm | 260 | 1300 | 333 | 0.026 | 0.0347 | 0.0358 | 0.444 | 1.0048 | 0.7150 | 5 | 5.48 | 2.83 |

**Table 10: Results from the Pomahaka catchment over two time-periods (2009-2014 and 2014-2019). The orange cells show where the 80th percentile exceeds the Schedule 15 limit. NH4-N not shown as all sites were within limit.**

*Dunedin/ Southern Coastal*

2.64 The Dunedin urban streams include the Leith Stream catchment (with Lindsay's Creek as a tributary) and the Kaikorai Stream.

2.65 Both streams have upper catchment covered in a mixture of native forest, indigenous hardwoods, production forest, manuka/kanuka, and native grassland. The lower catchment is occupied to a large degree by streets and buildings, parks and open spaces

2.66 Urban streams have catchment-specific water quality issues due to the presence of infrastructure and stormwater runoff from high levels of impervious surfaces. This is reflected in the high *E. coli* results. These streams do not have high primary contact recreational value but can contribute elevated bacteria levels to downstream receiving environments. This includes the upper Otago harbour which is extensively used for wind and kite surfing, kayaking and sailing, all of which are activities likely to result in immersion.

2.67 The Tokomairiro River has a catchment area of 403 km$^2$. Land use change in the lower catchment has included conversion from sheep and beef to intensive dairying. The monitoring site is upstream of the main area where intensification has occurred. The Catlins catchment covers an area of 415 km$^2$ of which approximately 40% is native bush. Both the Tokomairiro and Catlins Rivers have seen an improvement in *E. coli* concentrations in period 2 relative to period 1.

| | *E.coli* MPN/100mL | | | DRP concentration mg/L | | | NNN concentration mg/L | | | Turbidity NTU | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Name | LIMIT | 2009/2014 | 2014/2019 | LIMIT | 2009/2014 | 2014/2019 | LIMIT | 2009/2014 | 2014/2019 | LIMIT | 2009/2014 | 2014/2019 |
| Kaikorai Stream at Brighton Road | 260 | 3300 | 1693 | 0.026 | 0.0172 | 0.0130 | 0.444 | 0.2360 | 0.3940 | 5 | 3.28 | 2.97 |
| Leith at Dundas Street Bridge | 260 | 780 | 717 | 0.026 | 0.0306 | 0.0290 | 0.444 | 0.4106 | 0.5190 | 5 | 4.20 | 2.18 |
| Lindsays Creek at North Road Bridge | 260 | 1130 | 676 | 0.026 | 0.0248 | 0.0250 | 0.444 | 0.6821 | 0.6780 | 5 | 3.64 | 3.37 |
| Tokomairiro at West Branch Bridge | 260 | 790 | 230 | 0.026 | 0.0120 | 0.0150 | 0.444 | 0.2030 | 0.2750 | 5 | 2.80 | 2.80 |
| Catlins at Houipapa | 260 | 396 | 250 | 0.026 | 0.0186 | 0.0160 | 0.444 | 0.2950 | 0.4480 | 5 | 6.71 | 4.14 |

**Table 11: Results from the urban streams over two time-periods (2009-2014 and 2014-2019). The orange cells show where the 80th percentile exceeds the Schedule 15 limit. $NH_4$-N is not shown as all sites were within the limit.**

*Taieri*

2.68 The Taieri River catchment has an area of 5,650 km$^2$ and is Otago's second largest catchment after the Clutha River/Mata-Au.

2.69 The predominantly dry climate, combined with significant areas of low relief land typical of the Upper Taieri Plain, the Maniototo Plain and the Strath Taieri Plain, provides good opportunities for irrigation. More intensive land-uses associated with irrigated pasture can add pressure to water resources and water quality.

2.70 Table 12 shows that the main-stem Taieri has elevated DRP and *E. coli* results in both reporting periods. The reasons for this are unclear, but could include irrigation practices as some types of irrigation, such as flood or border-dyke irrigation, were identified previously as significant contributors to elevated *E. coli* levels instream (Kitto, 2012).

| Name | *E.coli* MPN/100mL | | | DRP concentration mg/ | | | NNN concentration mg/ | | | Turbidity NTU | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | LIMIT | 2009/2014 | 2014/2019 | LIMIT | 2009/2014 | 2014/2019 | LIMIT | 2009/2014 | 2014/2019 | LIMIT | 2009/2014 | 2014/2019 |
| Taieri at Stonehenge | 260 | 109 | 160 | 0 | 0.0075 | 0.0080 | 0.075 | 0.0150 | 0.0079 | 5 | 2.38 | 1.77 |
| Taieri at Waipiata | 260 | 687 | 270 | 0 | 0.0458 | 0.0400 | 0.075 | 0.0421 | 0.0287 | 5 | 4.05 | 3.31 |
| Kye Burn at SH85 Bridge | 260 | 239 | 197 | 0 | 0.0075 | 0.0060 | 0.075 | 0.0563 | 0.0530 | 5 | 3.37 | 1.67 |
| Taieri at Sutton | 260 | 415 | 461 | 0 | 0.0139 | 0.0146 | 0.075 | 0.0636 | 0.0499 | 5 | 3.22 | 2.85 |
| Sutton Stream at SH87 | 260 | 381 | 411 | 0 | 0.0071 | 0.0058 | 0.075 | 0.0380 | 0.0100 | 5 | 3.41 | 2.66 |
| Taieri at Tiroiti | 260 | 214 | 200 | 0 | 0.0189 | 0.0220 | 0.075 | 0.0600 | 0.0330 | 5 | 4.01 | 4.60 |
| Taieri at Outram | 260 | 173 | 115 | 0 | 0.0080 | 0.0115 | 0.075 | 0.0420 | 0.0430 | 5 | 2.55 | 2.25 |
| Taieri at Allanton Bridge | 260 | 266 | 440 | 0 | 0.0113 | 0.0145 | 0.075 | 0.0460 | 0.0610 | 5 | 3.90 | 5.10 |
| Silverstream at Taieri Depot | 260 | 982 | 288 | 0 | 0.0086 | 0.0070 | 0.075 | 0.3639 | 0.6680 | 5 | 2.37 | 2.28 |

**Table 12: Results from the Taieri catchment over two time-periods (2009-2014 and 2014- 2019). The orange cells show where the 80th percentile exceeds the Schedule 15 limit. $NH_4$-N not shown as all sites were within limit.**

*North Otago*

2.71 The North Otago region spans an area of 2,202 km$^2$ (220,208 hectares) and encompasses the lower Waitaki Plains; the Kakanui catchment that includes the Kakanui River, Kauru River and Waiareka Creek; the Waianakarua Stream and Trotters Creek; the Shag River; and catchments that drain directly to the sea. The water resource of the Kakanui River and Waiareka Creek is heavily used for irrigation. The lower Kakanui River and Waiareka Creek are dominated by dairy farming, particularly since the introduction of irrigation water into the Waiareka Creek catchment by the North Otago Irrigation Company irrigation scheme.

2.72 A common theme of these North Otago Rivers is a high incidence of groundwater-surface water interaction along alluvial ribbon aquifers. NNN leaches into shallow groundwater from intensive land use activity, evident as elevated NNN concentrations that frequently exceed Schedule 15 NNN limit.

2.73 NNN concentrations in the upper Kakanui are relatively low, increasing in a downstream direction, so that at the McCones site the 80th percentile NNN concentration persistently exceeds the Schedule 15 limit. This spatial trend is related to leaching of NNN into shallow groundwater from areas of intensive land use. In the Waiareka Creek (a tributary of the Kakanui) groundwater-surface water interaction is less prominent – water quality in this landscape is influenced principally by irrigation runoff from heavier soils, where infiltration is less prominent.

| Name | *E.coli* MPN/100mL | | | DRP concentration mg/ | | | NNN concentration mg/L | | |
|---|---|---|---|---|---|---|---|---|---|
| | LIMIT | 2009/ 2014 | 2014/ 2019 | LIMIT | 2009/ 2014 | 2014/ 2019 | LIMIT | 2009/ 2014 | 2014/ 2019 |
| Kakanui at Clifton Falls Bridge | 260 | 470 | 357 | 0.01 | 0.00 | 0.00 | 0.08 | 0.03 | 0.04 |
| Kakanui at McCones | 260 | 140 | 181 | 0.01 | 0.01 | 0.00 | 0.08 | 0.28 | 0.28 |
| Kauru at Ewings | 260 | 315 | 141 | 0.01 | 0.01 | 0.00 | 0.08 | 0.03 | 0.03 |
| Shag at Craig Road | 260 | 180 | 126 | 0.01 | 0.01 | 0.01 | 0.08 | 0.09 | 0.15 |
| Shag at Goodwood Pump | 260 | 249 | 200 | 0.01 | 0.01 | 0.01 | 0.08 | 0.38 | 0.28 |
| Trotters Creek at Mathesons | 260 | 111 | 180 | 0.01 | 0.01 | 0.01 | 0.08 | 0.39 | 0.47 |
| Waianakarua at Browns | 260 | 196 | 190 | 0.01 | 0.01 | 0.01 | 0.08 | 0.41 | 0.31 |
| Waiareka Creek at Taipo Road | 260 | 572 | 436 | 0.01 | 0.17 | 0.21 | 0.08 | 0.46 | 0.40 |

**Table 13: Results from North Otago over two time-periods (2009-2014 and 2014-2019). The orange cells show where the 80th percentile exceeds the Schedule 15 limit. NH4-N and turbidity not shown as all sites were within limit.**

***Summary and Conclusions***

2.74 Overall, water quality across Otago is variable, with some areas such as the Upper Clutha and the Taieri having higher water quality, with other areas, such as urban streams in Dunedin, intensified catchments in North Otago and some tributaries of the Pomahaka having lower water quality and a greater incidence of failure to meet Schedule 15 limits

2.75 Overall Schedule 15 compliance was similar over the two periods, but an additional three sites failed to meet the NNN Schedule 15 limit, and an additional site did not meet the DRP Schedule 15 limit in period 2.

2.76 There was an increase in compliance for *E. coli* with four additional river sites and one additional lake site meeting *E. coli* Schedule 15 limits in the 2014-2019 period. There were smaller increases in site compliance for turbidity and TP.

2.77 Water quality in rivers across Otago show a clear spatial pattern related to land cover and land use. Water quality is best at river and stream reaches located at high or mountainous elevations under predominantly native cover. These sites tend to be associated with the upper catchments of larger rivers (e.g. Clutha River/Mata-Au, Taieri River and Lindis River) and the outlets from large lakes (e.g. Hawea, Wakatipu and Wanaka). Water quality is lower in catchments where intensification of land use has been occurring, in particular, conversion of farms to dairy.

2.78 It is apparent that further intervention would be appropriate if the gains made are to be secured for the future and additional improvement is to occur. It is reasonably clear that land use change (namely, the establishment of intensive agriculture) coupled with increased irrigation is one of the causal factors in the water quality results. While the adoption of best practice initiatives is assisting with managing effects on water quality, there are clear gaps in the intervention coverage within the Water Plan, particularly in connection with dairy effluent collection and disposal and stock exclusion from water ways.

2.79 It is also apparent that water quality (particularly sediment and *E. Coli*) is lower in urban catchments where stormwater (from urban activities and development is discharged. Again, additional intervention is required to ensure ongoing degradation is prevented.

2.80 Monitoring by ORC is focused on the collection of numeric information on a limited number of water quality variables that is focussed heavily on nutrients and bacteria. Very little integrated information is collected that allows for confident assessment of overall stream and river health. For example, ORC monitoring of visual periphyton cover and biomass estimates (as chlorophyll-*a*), and fine deposited sediment cover only commenced in 2018.

2.81 The NPS-FM 2020 directs Council to look at overall ecosystem heath, which will go some way to allowing more informed consideration on the effects of stressor attributes such as nutrients, bacteria, or suspended sediments (as turbidity) on the overall health of a river or stream.

## 3. SUMMARY OF THE CURRENT PLANNING FRAMEWORK – REGIONAL PLAN: WATER FOR OTAGO (PLAN CHANGE 8)

3.1 The Regional Plan: Water for Otago (**Water Plan**) was notified in 1998 and became operative on 1 January 2004. Since then there have been a number of changes introduced which, in broad terms, have established flow and allocation regimes for some surface water catchments, groundwater allocation regimes for some aquifers, provisions to manage water quality issues, and most recently, provisions to delay the commencement of some unworkable water quality rules.

3.2 The general scheme of the Water Plan is that the provisions to manage the various natural and physical resources are arranged in 22 chapters. Following three chapters that cover introductory material there is a chapter entitled Kāi Tahu ki Otago Water Perspective. This chapter is proceeded by six chapters (Chapters 5 to 10) that set out issues, objectives and policies and, in some instances, anticipated environmental results. These six chapters are, respectively, concerned with:

a. Natural and Human Use Values of Lakes and Rivers;

b. Water Quantity;

c. Water Quality;

d. The Beds and Margins of Lakes and Rivers;

e. Groundwater; and

f. Wetlands.

3.3 Chapter 11 is the introduction to the rules, and this is followed by three chapters (Chapters 12 to 14) containing the rules that implement the policies. These three chapters are, respectively, concerned with:

a. Water Take, Use and Management;

b. Land Use on Lake or River Beds or Regionally Significant Wetlands; and

c. Land Use other than in Lake or River Beds.

3.4 The following five chapters (Chapters 15 to 19) contain provisions on:

a. Methods other than Rules;

b. Information Requirements;

c. Financial Contributions;

d. Cross Boundary Issues; and

e. Monitoring and Review.

3.5 Completing the document are chapters containing the Schedules (Chapter 20), Glossary (Chapter 21) and Appendices (Chapter 22). Chapter 20 comprises some twenty-five schedules organised under 16 different sub-chapters; and there are four appendices in Chapter 22.

3.6 The Water Plan also includes a separate volume of planning maps.

3.7 Finally, in terms of the general scheme of the Water Plan, the rules are organised, as applicable, in the following manner:

a. Prohibited Activities;

b. Non-complying Activities;

c. Permitted Activities;

d. Controlled Activities;

e. Restricted Discretionary Activities; and

f. Discretionary Activities.

3.8 The planning framework for managing water quality with respect to the activities addressed in Plan Change 8 (**PC8**)[14] is set out below:

***Chapter 5 Natural and Human Use Values of Lakes and Rivers***

3.9 Chapter 5 contains objectives and policies for the natural and human use values supported by Otago's lakes and rivers and their margins. It is cross referenced in chapters 7, 8 and 10. No changes are proposed to any of the provisions in Chapter 5 by PC8.

***Chapter 7 Water Quality***

3.10 Chapter 7 sets out the policy framework for managing water quality in Otago. It is divided into four sections, which are described below.

3.11 Section 7.A contains the objectives which seek to maintain or improve water quality[15] while providing for discharges of water or contaminants in a way that maintains water quality and supports natural and human use values, including Kāi Tahu values,[16] with individuals and communities managing their discharges to reduce adverse effects on water quality.[17]

3.12 Sections 7.B, 7.C and 7.D of the Water Plan contain the policies for water quality:

a. 7.B Policies General;

b. 7.C Policies for discharges of human sewage, hazardous substances, hazardous wastes, specified contaminants, and stormwater; and discharges from industrial or trade premises and consented dams; and

c. Policies for discharges of water and contaminants, excluding those discharges provided for in 7.C

[14] Relevant chapters of the Water Plan are included in Appendix F
[15] Objective 7.A.1.
[16] Objectives 7.A.2.
[17] Objective 7.A.3.

3.13 Section 7.B applies to all discharges, rural and urban. It provides the policy framework on the effects to consider and guidance for decision making on resource consent applications. No changes are proposed to the policies in Section 7.B in PC8.

3.14 Section 7.C applies to discharges of human sewage, hazardous substances, hazardous wastes, specified contaminants, and stormwater; and discharges from industrial or trade premises and consented dams. Of particular relevance to PC8 are the policies which manage discharges from stormwater reticulation systems.[18] There are currently no policies in the Water Plan relating specifically to discharges of wastewater.

3.15 Section 7.D applies to other discharges not provided for in 7.C. These are generally referred to as rural discharges. The policies focus primarily on directing the content of the resulting rules. The policies point to Schedule 16 discharge thresholds for permitted activities[19] from 1 April 2026;[20] provide guidance on the things that decision makers should have regard to when considering any discharge under the rules in section 12.C;[21] and prohibit objectionable discharges of contaminants that degrade the natural and human use values, including Kāi Tahu values.[22]

***Chapter 8 The Beds and Margins of Lakes and Rivers***

3.16 Chapter 8 contains objectives and policies for managing activities in the beds and margins of lakes and rivers. The relevant objectives seek to maintain the stability of the bed and bank of any lake or river,[23] and minimise reduction in water clarity caused by bed disturbance.[24]

3.17 The policies in Chapter 8 are divided into topics:

a. Section 8.4 General policies;

b. Section 8.5 Policies relating to structures;

c. Section 8.6 Policies applying to bed or margin disturbance;

d. Section 8.7 Policies applying to vegetation; and

e. Section 8.8 Policies applying to reclamation and deposition.

3.18 The policies relevant to PC8[25] are in Section 8.6 and seek to manage the disturbance of the bed or margin of any lake or river, and promote best management practices for activities that occur within or adjacent to the bed of lakes and rivers. No changes are proposed to any of the provisions in Chapter 8.

[18] Policies 7.C.5 and 7.C.6.
[19] Policy 7.D.2.
[20] Amended from 1 April 2020 by Plan Change 6AA.
[21] Policy 7.D.4 and 7.D.5.
[22] Policy 7.D.3.
[23] Objective 8.3.1(b).
[24] Objective 8.3.2.
[25] Policies 8.6.1 and 8.6.2.

***Chapter 10 Wetlands***

3.19 Chapter 10 of the Water Plan contains objectives and policies for wetlands. The objectives seek that Otago's wetlands and their values are maintained for present and future generations[26] and that regionally significant wetlands and their values are recognised and sustained.[27]

3.20 The policies in Section 10.4 set out how these objectives are to be implemented. The relevant policy[28] for PC8 sets out how the objectives, particularly relating to uses, are intended to be implemented in relation to nationally or regionally important infrastructure.

***Chapter 12 Rules: Water Take, Use and Management***

3.21 Chapter 12 contains rules managing the taking, use, and damming of water, and discharges. Sections 12.0 to 12.3 contain rules for the taking and use of water:

a. Section 12.0 Applications for taking water – prohibited activity;

b. Section 12.1 The taking and use of surface water;

c. Section 12.2 The taking and use of groundwater; and

d. Section 12.3 The damming and diversion of water.

3.22 The relevant sections for PC8 are sections 12.A, 12.B, and 12.C which focus on discharges and set distinct management regimes for:

a. 12.A Discharges of human sewage;

b. 12.B Discharges of hazardous substances, hazardous wastes, specified contaminants, and stormwater; and discharges from industrial or trade premises and consented dams; and

c. 12.C Other discharges.

*12.A Discharges of human sewage*

3.23 Section 12.A provides for discharges of human sewage to land, from long drop toilets or on-site wastewater treatment systems as permitted activities.[29] Discharges from community wastewater systems are classified as discretionary activities.[30]

*12.B Discharges of stormwater*

3.24 Amongst other things, Section 12.B manages discharges of stormwater, which is of relevance to PC8. With regard to stormwater, discharges from reticulated systems and roads are

[26] Objective 10.3.1.
[27] Objective 10.3.2.
[28] Policy 10.4.2.
[29] 12.A.1 Permitted activities.
[30] Rule 12.A.2.1.

provided for as permitted activities, with conditions.[31] Stormwater discharges that do not meet the conditions are restricted discretionary activities,[32] with ORC's discretion limited to the matters set out in the rule. The number and scope of the matters listed mean ORC has fairly broad discretion when it comes to considering applications under this rule.

*12.C Other discharges*

3.25 Section 12.C contains rules for a range of discharges which are not provided for in sections 12.A or 12.B. The rules focus on the effects of discharges on water quality. It predominately targets discharges from rural land uses. It sets:

a. prohibited activity rules[33] to prevent objectionable discharges and high-risk discharges, such as discharges from farm effluent systems or from poorly managed land disturbance; and

b. permitted activity rules,[34] setting a baseline beyond which discharge consents must be applied for as either discretionary[35] or restricted discretionary[36] activities.

3.26 The permitted activity rules for discharges are based on:

a. The visual effects of the discharge (changes to colour or clarity of the water; appearance of floatable materials, oil or grease film, scum or foam in the water), and odour[37];

b. Other quantitative indicators, including discharge contaminant concentration thresholds[38] and maximum nitrogen leaching rates.[39]

***Chapter 13 Rules: Land Use on Lake or River Beds or Regionally Significant Wetlands***

3.27 Chapter 13 contains rules relating to land use on lake or river beds or regionally significant wetlands. The rules in this chapter manage the effects of the erection, use, repair, maintenance alteration and demolition of structures.[40] It also contains sections managing the alteration of the bed of a lake, river or wetland, and the introduction or removal of vegetation.[41]

3.28 Disturbance of the bed of any lake or river or regionally significant wetland by livestock (excluding intentional driving of livestock) is permitted[42] as long as it does not involve feeding out in the bed or wetland, cause noticeable pugging, slumping or erosion, result in a

[31] Rules 12.B.1.8 and 12.B.1.9.
[32] Rule 12.B.3.1.
[33] 12.C.0 Prohibited activities.
[34] 12.C.1 Permitted activities.
[35] 12.C.3 Discretionary activities.
[36] 12.C.2 Restricted Discretionary activities.
[37] Rule 13.C.1.1.
[38] Rule 12.C.1.1A – Schedule 16.
[39] Rule 12.C.1.3 – Overseer.
[40] Rules 13.1 – 13.4.
[41] Rules 13.5-3.7.
[42] Rule 13.5.1.8A.

visual change to the colour or clarity of the water; or damage any fauna or native flora in a regionally significant wetland.

3.29 Disturbance of the bed of any lake or river or regionally significant wetland by livestock where they are being intentionally driven is also permitted provided there is no existing structure available for use and it does not result in a visible change in the colour or clarity of the water or noticeable pugging, slumping or erosion.[43]

3.30 Bed disturbance by livestock that does not meet the conditions of these rules is a discretionary activity.[44]

***Chapter 14 Land Use other than in lake or river beds***

3.31 Chapter 14 contains rules on land use other than in lake or river beds. The Water Plan is an effects based regime, with provisions focussed on managing contaminant discharges rather than the land use activities that lead to those discharges. Chapter 14 manages the construction of bores, drilling, defences against water, and structures on the margins of lakes and rivers.

***Chapter 15 Methods other than Rules***

3.32 Chapter 15 of the Water Plan contains methods other than rules which will be used to achieve the Plan's objectives.

a. Method 15.2.5.1 states that ORC will encourage operators of existing stormwater reticulation systems to utilise techniques that will assist to reduce the level of contaminants discharged from the systems.

b. Method 15.4.2.1 states that ORC will use promotion and education to encourage land management which, among other things, minimises the amount of nutrients, sediment or other contaminants present in runoff.

c. Method 15.4.2.2 states that ORC will provide information to landholders, industry groups and the general public about mechanisms and techniques to maintain or enhance water quality such as:

i. minimising land disturbance;

ii. maintaining or enhancing appropriate riparian vegetation and buffer strips;

iii. nutrient budgeting;

iv. avoiding the inappropriate use of stormwater systems; and

v. avoiding stock access to water bodies.

[43] Rule 13.5.1.8B.
[44] Rule 13.5.3.1.

d. Method 15.5.1 states that ORC will encourage and support the development and use of codes of practice and environmental management systems that reduce adverse effects on water resources.

***Schedule 15***

3.33 Schedule 15 of the Water Plan sets out receiving water limits for achieving good water quality in Otago rivers and lakes, with target dates by which they should be met. These limits apply to five variables: nitrate-nitrite nitrogen, dissolved phosphorus, ammoniacal nitrogen, *E.coli* and turbidity, assigned to five Receiving Water Groups.

3.34 Schedule 15 is composed of two tables. Table 15.1 sets narrative standards of good quality water. The listed characteristics are clarity, colour, sediment, smell, algae and bank appearance. Table 15.2 contains the numerical standards and target dates for good quality water.

***Schedule 16***

3.35 Schedule 16 describes the thresholds that apply to discharges permitted under Rule 12.C.1.1A in the catchments of each discharge threshold area. The limits will apply when the flows are at or below a reference flow based on median also included in Schedule 16. The river flow data and monitoring sites are available on the Water Info website.[45]

[45] https://www.lawa.org.nz.

## 4. SUMMARY OF THE CURRENT PLANNING FRAMEWORK – REIGONAL PLAN: WASTE FOR OTAGO (PLAN CHANGE 1)

4.1 The Regional Plan: Waste for Otago (**Waste Plan**) became operative on 11 April 1997. There have been no changes to this plan since then.

4.2 The general scheme of the Waste Plan is that the provisions are arranged in 11 chapters. Following two chapters that introduce the reader to the Plan and set out the statutory framework, there is a chapter entitled Manawhenua Issues. The Manawhenua Issues chapter also contains four Manawhenua waste objectives.

4.3 This chapter is proceeded by four chapters (Chapters 4 to 7) that set out issues, objectives, policies, methods, rules and anticipated environmental results. These four chapters are, respectively, concerned with:

a. Waste Minimisation;

b. Contaminated Sites;

c. Hazardous Substances and Hazardous Wastes; and

d. Landfills.

4.4 The following two chapters (Chapters 8 and 9) contain provisions on:

a. Cross Boundary Issues; and

b. Monitoring.

4.5 Completing the document are chapters containing the Glossary (Chapter 10) and Appendices. There are four appendices.

4.6 By way of further explanation, the following text has been copied from the Chapter 1 Introduction to the Waste Plan:

> ***Chapter 1*** *sets out the purpose of the document and provides background information relevant for its understanding.*
>
> ***Chapter 2*** *acknowledges the statutory framework under which this Plan is prepared, referring to the relevant provisions of the Resource Management Act, the relationship of this Plan to other resource management documents, the relevance of other legislation, and the roles of the statutory agencies involved with waste.*
>
> ***Chapter 3*** *describes the Manawhenua perspective. Their concerns are identified, with overall objectives related to those concerns. Policies and methods flowing from those concerns and objectives are included in parts 4 - 7, where specific issues are dealt with.*
>
> ***Chapter 4*** *considers waste minimisation, focusing on the means by which the level of waste generated within Otago can be reduced.*
>
> ***Chapter 5*** *examines contaminated sites and the framework under which these will need to be managed.*
>
> ***Chapter 6*** *discusses hazardous substances and hazardous wastes. Existing legislation*

*dealing with these issues is presently being reviewed, but until that review is complete the Otago Regional Council is required to carry out its legislative responsibilities.*

***Chapter 7*** *deals with landfills and the issues associated with that activity. In particular, this Plan seeks to ensure that the adverse effects from existing and future landfills are avoided, remedied or mitigated. This chapter covers farm landfills, offal pits, co-disposal landfills, cleanfill landfills, greenwaste landfills, and discharges from silage production and composting.*

***Chapter 8*** *considers cross-boundary issues and the means by which these can be resolved.*

***Chapter 9*** *provides for monitoring of resource consents, the environment and the policies in this Plan.*

4.7 In each of the chapters containing rules, the material is organised on a topic basis and within each topic, and as applicable, a normal rule hierarchy basis flowing from least to most intervention.

4.8 Plan Change 1 (**PC1**) deals with only two topics: dust suppressants (which are managed under Chapter 6 Hazardous substances and Hazardous waste), and landfills (which are managed under Chapter 7)[46].

***Chapter 6 Hazardous Substances and Waste***

4.9 The objectives in Chapter 6 seek to manage the risk of hazardous substances and hazardous wastes to the environment and human health[47] and on traditional water, land and mahinga kai of importance to Kai Tahu.[48]

4.10 The policies cover managing the use, treatment, storage, transportation, and disposal of hazardous substances and hazardous waste to avoid adverse environmental effects.

4.11 Specifically, Policy 6.4.10 currently discourages the use of waste oil as a dust suppressant. The explanation gives the rationale for allowing this practice given the absence of other practical alternative but notes that the practice should be undertaken with care. Policy 6.4.6 promotes the development and use of environmentally safe alternatives to hazardous substances.

4.12 Method 6.5.4 promotes the replacement of hazardous substances with non-hazardous substances and encourages the use of safer alternatives where appropriate and practicable. Method 6.5.22 promotes and encourages research into alternatives to the use of waste oil as a dust suppressant.

4.13 Rule 6.6.2 permits the use of oil or substances containing oil as a dust suppressant on formed roads provided that the lead concentration is under a specified limit and it is applied

[46] Relevant chapters of the Waste Plan are included in Appendix G
[47] Objective 6.3.1.
[48] Objective 6.3.2.

to the road in a manner whereby there is no run-off or ponding. A resource consent is required if those conditions cannot be met.[49]

***Chapter 7 Landfills***

4.14 Within Chapter 7, landfills have been classified by the types of waste that they accept and whether they are new, operating or closed.

4.15 The relevant objectives in Chapter 7 seek to manage the adverse environmental effects arising from the discharge of contaminants at and from landfills,[50] and eliminate illegal, uncontrolled, unmanaged, poorly managed and poorly located landfill sites.[51]

4.16 Section 7.4 contains specific policies for landfills that relate to waste and environmental management generally as well as the siting, on-going operation, upgrading and monitoring of landfills specifically.

4.17 Rule 7.6.1 requires resource consent for the discharge of contaminants into or onto land, into water, or into air from a new or operating landfill as a discretionary activity. There are separate rules for cleanfill landfills, offal pits , farm landfills, and green waste landfills.

***Appendix 2***

4.18 Appendix 2 contains a list of matters to be included in a landfill development management plan, which is an information requirement of the relevant rules for landfills and offal pits. The matters are simply listed and do not contain associated standards for each matter.

[49] Rule 6.6.3.
[50] Objective 7.3.1.
[51] Objective 7.3.2.

## 5. DESCRIPTION OF THE RESOURCE MANAGEMENT ISSUE(S) PRESENTED BY THE STATE OF THE ENVIRONMENT AND THE CURRENT PLANNING FRAMEWORK THAT NEED(S) TO BE RESOLVED

5.1 The current Water Plan framework for managing water quality poses some resource management issues. ORC has identified that water quality was deteriorating in some parts of Otago, indicating that the provisions of the Water Plan were not proving effective in maintaining water quality. There are still catchments that are not achieving the outcomes set in Schedule 15. The catchments where there is pressure on water quality are the same catchments that are seeing intensification of land use, in particular, conversion of farms to dairy. The current planning framework does not control particular activities that are known to contribute to deterioration in water quality. Good industry and farming practices have evolved, and the Plan does not reflect this.

5.2 Following a review of the Water Plan by ORC staff in 2018, it was acknowledged by the Council that the operative Water Plan does not give effect to the NPS-FM 2014 (amended 2017) (**NPS-FM 2014**), which was the relevant NPS-FM at the time.[52]

5.3 On 31 October 2018, ORC adopted a Progressive Implementation Programme (PIP), which outlined the staged implementation of actions that the ORC will undertake to implement the NPS-FM 2014.[53] As part of this implementation process ORC committed to undertake a full review of its operative Water Plan under Section 79 of the RMA and develop a new LWRP to be notified by 31 December 2025.

***RMA section 24A***

5.4 In May 2019, a review of ORC's planning functions was commissioned by the Minister for the Environment and undertaken by his appointee, Honorary Professor Peter Skelton. The focus of this review was to investigate whether ORC was on track to adequately perform its functions under the RMA in relation to freshwater management and allocation of freshwater and had an appropriate planning framework in place that gives effect to the relevant NPS-FM in time to consider all applications for new water permits before deemed permits expire.

5.5 Professor Skelton's Report is attached to this report as Appendix D.

5.6 The Minister concluded from the Skelton Report that the ORC's current framework for managing freshwater resources within the Otago region was not fit for purpose and not in line with current national directions, including the NPS-FM.[54] Consequently, he made the following recommendations that ORC:[55]

[52] https://www.orc.govt.nz/media/6263/council-agenda-31-october-2018.pdf.
[53] Ibid.
[54] The Skelton Report concluded that the Council will need to make a substantial investment to update the RPS (being both the Regional Policy Statement 1998 (now partially operative) and the proposed Regional Policy Statement 2016 (made partially operative in 2019) and the Water Plan to provide for existing and proposed national direction and legislative changes.
[55] Letter to ORC re section 24A investigation from Hon. David Parker 18 November 2019. Attached as Appendix C.

a. Take all necessary steps to develop a fit for purpose freshwater management planning regime that gives effect to the relevant national instruments and set a coherent framework for assessing all water consent applications, including those that are to replace any deemed permits;

b. Develop and adopt a programme of work to achieve the following:

i. by November 2020, a complete review of the current Regional Policy Statement that is publicly notified, with the intention that it be made operative before the review of its Land and Water Regional Plan is notified.

ii. by 31 December 2023, a new Land and Water Regional Plan for Otago that includes region-wide objectives, strategic policies, region-wide activity policies, and provisions for each of the Freshwater Management Units, covering all the catchments within the region.

c. Prepare a plan change by 31 March that will provide an adequate interim planning and consenting framework to manage freshwater up until the time that new discharge and allocation limits are set, in line with the requirements in the National Policy Statement for Freshwater Management.

5.7 To give effect to the Minster's recommendations ORC has developed and commenced a work programme that includes:[56]

a. The development of three water quality plan changes aimed at improving the efficiency and effectiveness of the existing planning framework for managing discharges: Plan Change 6AA and the Omnibus Plan Change;

b. The development of Plan Change 7 to the Water Plan (the Water Permits Plan Change, WPPC) that establishes an interim regulatory framework for assessing resource consent applications and will enable the transition towards the planning framework that will be established under the new LWRP.

c. The development of a new Regional Policy Statement to be notified in June 2021.[57]

d. The development of a new LWRP for Otago that that gives effect to the NPS-FM 2020 and will be notified by 31 December 2023.

5.8 The review of the RPS was commenced in November 2019 and was on track for a notification decision in November 2020 in compliance with the Minister for the Environment's recommendation. The requirements of the current NPS-FM, which came into force on 3 September 2020, stipulate that an RPS must include long-term visions at FMU, part FMU, or catchment level.[58] With the agreement of the Minister the timeframe for

[56] Letter from ORC Chairperson to the Minister for the Environment dated 16 December 2019 attaching work programme (see Appendix E).

[57] With the agreement of the Minister for the Environment, the timeframe for notification of the RPS has now been delayed to June 2021 to allow for the long-term visions to be developed in accordance with the relevant NPS-FM 2020 requirements (see clause 3.3, NPS-FM 2020), See Appendix D.

[58] The requirements of the new NPS-FM that an RPS includes freshwater visions at FMU, part FMU, or catchment level was not foreshadowed in the draft NPS-FM and the implications of this were considered at the Council meeting on 26 August 2020. At that meeting, Council resolved to request from the Minister for the Environment an extension to the notification of the RPS to June 2021. The additional time requested to

notification of the RPS has now been delayed to June 2021 to allow for these long-term visions to developed in accordance with the relevant NPS-FM requirements.[59]

5.9 ORC Policy staff have also commenced the development of the new LWRP which comprises the following key tasks:

a. a full review of the operative Water Plan and Waste Plan under Section 79 of the RMA, which has been commenced by staff;

b. the development of a regionwide framework for managing land and freshwater including regionwide objectives, policies and methods (including rules) between January 2021 and December 2023; and

c. staged delivery of separate FMU and Rohe (sub-FMU) chapters between December 2020 and December 2023.[60]

***Gap left by Plan Change 6AA***

5.10 In 2012, ORC identified that water quality was deteriorating in some parts of Otago, indicating that the provisions of the Water Plan were not proving effective in maintaining water quality. The first National Policy Statement for Freshwater Management came into force in 2011 and had not been given effect to in the Water Plan. Plan Change 6A (**PC6A**) sought to address these issues through managing rural discharges to water through an effects based framework as proposed by the Rural Water Quality Strategy, which had been developed in 2010.

5.11 Discharge limits were set for common rural contaminants (Schedules 15), and discharges which meet those limits are permitted. It also included a maximum nitrogen leaching limit per property (Schedule 16), calculated using Overseer. Land managers then had the flexibility to meet the discharge limits in the way that best suited their operation.

5.12 The rules for nutrient leaching and contamination concentration limits were to come into effect on 1 April 2020. Over time, it became apparent that the implementation of the provisions of PC6A was problematic as the provisions were uncertain, unenforceable and ambiguous.

5.13 In response to these issues, ORC prepared Plan Change 6AA (**PC6AA**) to defer the implementation of these provisions until 1 April 2026. This was intended to permanently prevent their implementation as a new LWRP is intended to be notified in 2023. PC 6AA became operative on 16 May 2020. Delaying the implementation of these provisions left a gap in the Plan for managing rural discharges and PC8 was always anticipated as part of that process to fill that gap.[61] While the new LWRP is developed it is important that ORC has an

notify by June 2021 will allow for meaningful engagement with the community and iwi in developing the freshwater visions.
https://www.orc.govt.nz/media/8880/agenda-council-20200826.pdf

[59] Clause 3.3, NPS-FM 2020.

[60] https://www.orc.govt.nz/media/8451/strategy-and-planning-agenda-20200513.pdf

[61] See Council Policy Committee meeting agenda for 14 August, available at https://www.orc.govt.nz/media/7107/policy-committee-agenda-20190814.pdf.

appropriate interim management framework for managing adverse effects from rural discharges.

***Regional Plan: Water for Otago (Plan Change 8)***

*Managing rural discharges*

5.14 The policies in the operative Water Plan are focused on directing the content of the resulting rules. There is little guidance within the policies to assist with decision making on consent applications. In the Decision Report on Plan Change 6AA, it was stated that "the discharge policies are vague and do not provide much guidance over when such consent should be granted and under what conditions."[62] ORC consents staff have begun to receive applications for long-term discharge permits under Rule 12.C.3.2 and consider that additional policy guidance would assist in making decisions on these consent applications, including duration.

*Managing animal waste storage and application*

5.15 The Water Plan currently does not manage the storage component of animal waste systems and there are no land use rules managing the construction or use of effluent ponds. Without a regional rule, ORC does not have the ability to set minimum standards for effluent ponds.

5.16 ORC reports[63] prepared on the Pomahaka catchment for PC6A show high *E.coli* results which are likely to be caused, at least in part, by animal waste storage issues, as well as a high prevalence of subsurface drainage. The 2011 report found that nutrient-enriched discharges in the catchment were the result of inappropriate effluent application when the soil was saturated, or the application rate was too high for soils to absorb.

5.17 The design, operation and maintenance of effluent ponds is critical for avoiding accidental discharges, either through overflows or seepage, which can have adverse effects on the environment. Anecdotal reports from Council staff indicate that there are some poor storage practices across the region which are likely to be contributing to degraded water quality.

5.18 The Water Plan does contain rules for managing the discharge or application of waste to land. The rules give clear direction on some practices that are unacceptable,[64] but provides little guidance to farmers as to what is good practice for applying animal waste to land. The permitted activity rule[65] allows the discharge of contaminants provided certain conditions are met. The conditions manage matters such as effects on land stability, transfer of water between catchments, hydrological effects on wetlands, and visible changes to water.

5.19 While some of the conditions may be relevant to animal waste application, they do not address any of the restrictions considered to be standard practice in animal waste

[62] See Recommendation Report Plan Change 6AA to the Regional Plan: Water for Otago, available at https://www.orc.govt.nz/media/8199/decision-of-council-on-pc6aa.pdf.
[63] Uytendaal & Ozane 2018 and ORC 2011.
[64] Rule 12.C0.2.
[65] Rule 12.C.1.

application, such as loading rates. As a result, the Water Plan requirements are less restrictive than, and out of step with, the generally accepted industry guidelines for animal waste application.

*Good farming practices to reduce adverse effects on water quality*

5.20 Under section 30 of the RMA, ORC has the function of the control of the use of land for the purpose of, amongst other things, the maintenance and enhancement of the quality of water in water bodies and coastal water. Contaminant discharges from farming activities are widely understood to put major pressure on water quality. The Water Plan's approach for managing rural discharges focuses on managing contaminant discharges.

5.21 ORC has identified that the Water Plan's approach of managing contaminant discharges rather than the land use activities that lead to those discharges was not sufficient, and PC6AA (discussed above) has left a further gap in the planning framework for managing these discharges. ORC is committed to notifying its new LWRP in 2023, but in the interim have identified specific activities which can have significant adverse effects on water quality but are not well managed under the current framework. Environmental monitoring undertaken by ORC does not identify particular land uses which are contributing to water quality issues , but has found that water quality is generally poorer at sites on smaller, low elevation streams draining pastoral or urban catchments.[66]

5.22 In September 2019 the government released its Action for Healthy Waterways (**AHW**) package which sets out proposals to stop the degradation of waterways and restore them to a healthy state. In response to what was signalled in AHW, ORC included in PC8 provisions to manage intensive grazing and stock access to water, two of the farming practices identified as high risk activities for contaminating water when poorly managed.

*Intensive grazing*

5.23 On a per hectare basis, nitrogen leaching losses from grazed winter forage crops are higher than loses measured from pasture on equivalent soil types and landscapes.[67] As well as effects on water quality, intensive grazing can also have adverse effects on soil, particularly from pugging.

5.24 The Water Plan currently does not place any controls on intensive grazing practices. There are no land use rules managing intensive grazing in the Plan and any discharges would be managed either as a permitted activity under Rule 12.C.1.1 or a prohibited activity under Rule 12.C.0.3. The permitted activity rule is generic and does not require implementation of any controls specific to land use practices and the prohibited activity rule only applies once a non-compliant discharge has already occurred, precluding the opportunity for preventing the potential discharges occurring. A prohibited activity also means that the activity must cease, and no resource consent can be applied for to authorise that activity.

5.25 Following notification of PC8, the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 came into force on 3 September 2020, with provisions

[66] Uytendall and Ozanne (2018).
[67] Laurensen et al 2018.

controlling intensive winter grazing coming into force on 1 May 2021. These regulations will control intensive winter grazing from 1 May 2021 and address the issue of the current gap in the Water Plan.

*Stock access to water*

5.26 Livestock that enter water bodies can contaminate water directly and damage the banks of the water body. Animal waste contains pathogens that pose a risk to human health. It also contains nutrients which promote weed growth and reduce the ability of the water body to support healthy aquatic ecosystems. Trampling and pugging of the bed and banks of water bodies can cause soil loss and increased levels of sediment in the water body.

5.27 The current approach taken in the Water Plan is to allow stock access to water bodies as a permitted activity where visible damage does not occur but prevent it where it does. If the permitted activity conditions are not met, consent is required. This has proved difficult to enforce as it requires compliance officers to be on-site when the damage is occurring. It also means that if damage does occur the requirement to seek resource consent is redundant as the activity has already occurred.

5.28 In recent years, stock access to water has become increasingly unacceptable because of the effects on water quality. The Water Plan's current approach is permissive and does not reflect this change in approach.

5.29 Following notification of PC8, the Resource Management (Stock Exclusion) Regulations 2020 came into force on 3 September 2020. These regulations require the exclusion of stock from lakes and wide rivers and address the issue of the current gap in the Water Plan.

*Sediment traps*

5.30 Sediment loss from farming activities can contribute to poor water quality. Sediment traps are a common method of reducing sedimentation by reducing water velocity and allowing sediments to settle on the bed.

5.31 The Water Plan currently requires resource consent for bed disturbances that are not specifically provided for.[68] The consent costs are often a large portion of the installation costs. Feedback from catchment groups has been that this acts as a disincentive to install sediment traps on farms which can be a useful mitigation tool for reducing sedimentation in water bodies.

5.32 Currently there are other bed disturbance activities permitted that would have similar or greater effects on the environment such as suction dredging[69] and the extraction of alluvium.[70]

[68] Rule 13.5.3.
[69] Rule 13.5.1.7.
[70] Rule 13.5.1.6.

*Discharges of wastewater and stormwater*

5.33 It has been identified that the policies do not provide adequate direction for the consenting of discharges of stormwater that contains sewage, discharges of wastewater, and rural discharges requiring resource consent under Rule 12.C.3.2.

5.34 There are currently no policies in the Water Plan relating specifically to discharges of wastewater, nor does the plan encourage a shift towards discharges to land. This absence of policy guidance affects the ability of resource consent decisions to assist with achieving the objectives of the Water Plan and fails to recognise Kai Tahu values.

5.35 Methods 15.2.5.1 and 15.5.1 are non-regulatory methods to assist in the reduction of contaminants discharges from stormwater systems by encouraging operators of existing stormwater reticulation systems to utilise techniques to assist in reducing the level of contaminants discharged from the system[71] and supporting the development of codes of practice and environmental management systems that reduce adverse effects on water resources.[72] These methods have not assisted with the maintenance and enhancement of the quality of water in water bodies.

*Sediment from earthworks for residential development*

5.36 Historically ORC has taken the view that controls on land use and development should be restricted to district plans with ORC limiting its intervention to the control of discharges.[73] This has resulted in a varied approach to the management of earthworks in district plans across the region.

5.37 Discharges of sediment from earthworks are managed by the general discharge provisions in Section 12.C. Most relevant to discharges of sediment is Rule 12.C.0.3 which prohibits discharges from disturbed land to water where no sediment runoff mitigation measure has been taken.

5.38 The approach of having no land use rules also makes it difficult for ORC to proactively manage these discharges because the mitigation measures available relate to the use of land. ORC can therefore only assess compliance with the rules once there has been a discharge and remediation is the only available option to manage adverse effects.

5.39 Sedimentation is affecting water bodies in some parts of Otago.[74] Although it is not clear what proportion of that sedimentation is due to earthworks, it is an activity that can be high risk for sediment loss to water bodies.

[71] Method 15.2.5.1.
[72] Method 15.5.1.
[73] Method 4.1.5 of the PRPS 2016.
[74] Uytendaal and Ozanne 2018.

*Other targeted issues with the current Water Plan: Nationally or regionally important infrastructure*

5.40 The Water Plan requires protection of the values of regionally significant wetlands while providing for "nationally or regionally important infrastructure". The proposed Regional Policy Statement 2016 (now partially operative) uses the term "nationally or regionally significant infrastructure" and provides a list of infrastructure meeting that definition.

5.41 During the processing of applications for resource consent, there has been uncertainty about whether "important" and "significant" are synonymous and whether the Water Plan provisions should be interpreted in reference to the list of infrastructure in the PORPS 2019.

***Regional Plan for Otago: Waste (Plan Change 1)***

5.42 The Regional Plan: Waste for Otago was made operative in 1997 and has not been amended or reviewed since that time. As a result it has become out of date with current expectations regarding environmental management and industry best practice. The Waste Plan will be reviewed in its entirety alongside the Water Plan in preparation of the new LWRP. PC1 is an interim measure to address two issues with existing Waste Plan provisions in order to improve environmental outcomes until the review is completed and the new LWRP is notified.

5.43 Alongside PC8, the intent of PC1 is to strengthen the management of discharges to water from two activities that are known to have impacts on water quality. It achieves this by managing the adverse effects arising from the use of dust suppressants on roads and improving the policy direction of the Waste Plan so that it reflects current best industry practice for establishing and managing landfills.

*Waste oil on roads*

5.44 There is a large network of unsealed roads in Otago. Dust from gravel roads can pollute the air, reduce visibility and road safety and generally be a nuisance for rural residences. Some residents apply dust suppressants to the roads close to their properties or apply to their local Territorial Authority to have it applied on their behalf. Waste oil, primarily waste engine oil, has been in common use as a dust suppressant.

5.45 Waste engine oil contains a large number of contaminants, including a number of carcinogens, which are known to be hazardous to both human health and the environment. Contaminants can be transferred to the environment when the oil is applied to roads, or once the surface of the oiled road breaks down and the road becomes dusty again. Contaminants can bind to the dust and be blown into the air or shifted by traffic or water.

5.46 Used oil is a hazardous substance under the Hazardous Substances and New Organisms Act 1996 (**HSNO**). The EPA's code of practice for *Managing and handling used oil* specifically states inappropriate methods of disposal for waste oil, which include disposal on the ground and any practices where the used oil may cause contamination of the ground or groundwater, migrate to watercourses, contaminate air or have negative impacts on humans, plants animals or other organisms. Applying waste oil to roads is likely to be considered an inappropriate disposal method under HSNO.

*Landfills*

5.47 Landfills are a necessary and valuable resource for society, but they can result in adverse effects on the environment if they are not managed appropriately. The Waste Plan's current approach is no longer considered to be industry best practice, being a permissive approach to an activity which can have significant, long term adverse effects. Further, this approach is not considered to be effective in achieving the objectives of the Waste Plan.

## 6. DESCRIPTION OF THE SOLUTION PROPOSED BY THE OMNIBUS PLAN CHANGE

***Regional Plan: Water for Otago (Plan Change 8)***

6.1 PC8 proposes a shift away from the Water Plan's current approach to managing water quality as well as setting out general expectations for farming practices in the longer term. While not fully complying with the NPS-FM 2020, PC8 is intended to be an interim first step measure while the new LWRP is being developed.

6.2 PC8 sets out to manage activities that are known to be potential drivers of poor water quality if not managed well, in order to achieve the water quality outcomes in Schedule 15. The Plan Change focuses on some key good farming practices (**GFP**) that can be used on farms to reduce land use impacts on water quality, particularly through managing nitrogen, phosphorous, sediment and faecal contaminants.

***Part A: Discharges***

*Stormwater and Wastewater*

6.3 PC8 aims to improve water quality in the Otago Region by reducing adverse effects associated with discharges of stormwater and wastewater from reticulated systems. It amends existing policies on stormwater (7.C.5, 7.C.6 and 7.C.12) and adds a new policy for wastewater in order to strengthen and clarify policy direction for assessing resource consent applications for discharges of stormwater and wastewater.

6.4 The amendments focus on the expectations regarding reductions in sewage overflows into stormwater systems, progressive upgrade of stormwater reticulation systems in order to improve the quality of discharges, reducing adverse effects from wastewater systems by requiring the design and operation of systems to be in accordance with recognised industry standards, and setting out a preference for discharges to land over discharges to water.

*Rural discharges*

6.5 PC8 aims provide clearer policy direction regarding expectations for resource consent applications for rural discharges This will result in improved implementation of the existing rule framework. Better decision making will assist with reducing adverse effects on water quality.

6.6 PC8 amends an existing policy (7.D.5) and adds a new policy (7.D.6) in order to clarify the intent of the policies for rural discharges, including matters for decisionmakers to consider when assessing applications under Rule 12.C.3.2.

***Part B: Animal waste storage and application***

6.7 PC8 proposes to introduce new provisions establishing minimum standards for the management and operation of animal waste systems. This will improve the current minimum standards for animal waste storage and subsequent application to land, bringing the region into line with good practice across the country.

6.8 There are two elements proposed. The first is introducing minimum standards for animal waste storage and requiring resource consent for discharges, and the second is staging implementation to spread the cost and the effort required to plan and apply for resource consents over a three year period, based on environmental risk.

6.9 PC8 proposes two new policies (7.D.7 and 7.D.8) and new land use rules (14.7.1.1 to 14.7.3.1) are proposed for managing the storage of animal waste. New discharge rules (12.C.0.4, with minor amendments to Rules 12.C.0.2, 12.C.1.4 and 12.C.2.5, are proposed for managing the application of animal waste to land. All discharges of animal waste will eventually require resource consent. The timeframe for when this is required is tied in with the staged approach for storage ponds set out in new Schedule 19. The dates specified in Schedule 19 are for receiving resource consent applications, not the dates for meeting the minimum requirements, which will be managed through the resource consent process.

***Part C: Good farming practices***

6.10 The intent of PC8 is to signal the direction of travel for ORC's management of the effects of farming activities in the future by introducing a new policy (7.D.9) promoting good farming practices through the management of rural discharges.

***Part D: Intensive grazing***

6.11 PC8 seeks to enable farming activities while reducing adverse effects on water quality by introducing minimum standards for intensive grazing.

6.12 Proposed Policy 7.D.9 is implemented through targeted rules that manage contaminant loss from intensive grazing by introducing minimum standards for intensive grazing. Proposed Rule 14.6.1.1 is a permitted activity rule for intensive grazing with conditions that restrict the total area and location of the activity. Intensive grazing that does not meet the conditions of proposed Rule 14.6.1.1 will be a discretionary activity under proposed Rule 14.6.2.1.

6.13 Following notification of PC8, the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 came into force on 3 September 2020 with provisions controlling intensive winter grazing coming into force on 1 May 2021. These regulations will control intensive winter grazing from 1 May 2021. Therefore, ORC has sought in its submission on PC8 that the proposed Rules 14.6.1.1 and 14.6.2.1 and the definition of intensive grazing be deleted, and an advice note be inserted to refer the plan user to the regulations.

***Part E: Stock access to water***

6.14 PC8 is also intended to promote good farming practices by progressively excluding stock access to water bodies. Excluding stock from water bodies is likely to result in better environmental outcomes than permitting their access based on observation of effects, which is the current management regime.

6.15 Amendments to an existing rule[75] require, from 2022, the exclusion of dairy cattle and pigs from lakes, continually flowing rivers wider than one metre, and Regionally Significant Wetlands (with a five metre setback).

6.16 Following notification of PC8, the Resource Management (Stock Exclusion) Regulations 2020 came into force on 3 September 2020. Therefore, ORC has sought in its submission on PC8 that the amendments to Rule 13.5.1.8A relating to stock exclusion from waterways be deleted and an advice note be inserted to refer the plan user to the regulations.

***Part F: Sediment traps***

6.17 PC8 intends to promote good farming practices by incentivising the use of small in-stream sediment traps. Proposed Rule 13.5.1.10 is a new permitted activity rule for constructing or maintaining a sediment trap in an ephemeral or intermittently flowing river, with conditions that manage the purpose of the work and the types of effects generated. Sediment traps not complying with the permitted activity rule would be discretionary under existing Rule 13.5.3.1.

***Part G: Sediment from earthworks for residential development***

6.18 PC8 proposes a new policy and rules to control the land use and discharge components of earthworks for residential development. The general intent of the new provisions is to permit smaller scale earthworks where on-site practices are implemented to prevent or reduce adverse effects of sediment discharges and require resource consent for larger scale earthworks where the adverse effects are likely to be more significant. This provides a regionally consistent approach to setting minimum standards for earthworks in order to minimise sediment loss.

6.19 Proposed Policy 7.D.10 prioritises avoiding discharges or where that is not possible, best practice guidelines for minimising sediment loss are to be implemented. Proposed Rule 14.5.1.1 permits the use of land and associated discharge of sediment for earthworks for residential development subject to conditions. Any activities that do not comply with the conditions of Rule 14.5.1.1 are a restricted discretionary activity under Rule 14.5.2.1. The existing prohibited activity rules (12.C.0.3 and 12.C.0.1) will continue to apply along with Rule 5.6.1 of the Waste Plan.

6.20 The discretionary activity rule includes compliance with the *Erosion and Sediment Control Guidelines for Land Disturbing Activities in the Auckland Regions 2016* as one of the matters that ORC will consider when assessing resource consent applications. The guidelines are a nationally recognised standard.

[75] Rule 13.5.1.8A

***Part H: Nationally or regionally important infrastructure***

6.21 PC8 proposes a minor amendment to the existing Policy 10.4.2 replacing the term "nationally or regionally important infrastructure" with "nationally or regionally significant infrastructure", to bring it into line with the terminology and definition in the PORPS 2019.

***Regional Plan: Waste for Otago (Plan Change 1)***

*Waste oil on roads*

6.22 PC1 proposes amendments to one existing policy and two existing rules and the inclusion of one new rule, to improve controls on the use of dust suppressants. Policy 6.4.10 is strengthened, from discouraging waste oil use as a dust suppressant to preventing its use, as safer alternatives are available.

6.23 PC1 proposes an new prohibited activity rule (6.6.4) which prohibits the discharge of waste oil except under certain controlled circumstances (Rules 6.6.1, 7.6.1 and 7.6.2). Proposed amendments to Rule 6.6.2 provide for the use of dust suppressants as a permitted activity subject to conditions, including that the substance used is not hazardous, and has been approved under the HSNO. Rule 6.6.3 is also amended to allow for application for resource consent where a dust suppressant does not meet the permitted activity criteria but is not waste oil.

*Landfills*

6.24 The purpose of PC1 is to improve the policy direction for assessing resource consent applications for landfills by introducing a new policy (7.4.11) requiring implementation of current best practice for the design, construction, and operation of landfills. Best practice has been identified as the *Waste Minimisation Institute New Zealand's Technical Guidelines for Disposal to Land (August 2018)*.

6.25 Proposed Policy 7.4.11 outlines minimum standards for landfill design and operation in order to minimise the adverse effects from discharges from landfills. PC1 also proposes amendments to the information requirements and assessment matters for resource consent applications in Rule 7.6.1, and amends Rules7.6.6, Rule 7.6.7 and Appendix 2 to only apply to offal pits.

## 7. OVERVIEW OF HIGHER ORDER PLANNING AND POLICY INSTRUMENTS RELEVANT TO THE OMBNISUB PLAN CHANGE

7.1 The Omnibus Plan Change has been prepared by ORC under the RMA. The RMA creates a hierarchy of planning instruments and directs how the provisions of these instruments must be considered when preparing a plan change. There are also a number of other statutes that are relevant to the Plan Changes. An overview of statutes and planning instruments relevant to the Omnibus Plan Change is set out below.

### *The Resource Management Act 1991*[76]

7.2 The purpose of a regional plan is to assist a regional council to carry out its functions in order to achieve the purpose of the RMA.[77] The purpose of the Act is set out in section 5.

7.3 Section 5 identifies promotion of the sustainable management of natural and physical resources, broadly defined managing natural and physical resources in a way that provides for people and communities social, economic and cultural wellbeing within the envelope of a healthy, functioning natural environment,[78] as the single purpose of the Act.

7.4 The principles set out in sections 6, 7 and 8 of the Act, further elaborate on the purpose of the RMA by stating particular obligations for those exercising functions and powers under the RMA.

7.5 Section 6 lists the matters of national importance that persons exercising functions and powers under the RMA must recognise the provide for. Matters in section 6 that are of particular relevance to the Omnibus Plan Change include sections 6(a), 6(e) and 6(g).

7.6 Section 7 outlines matters to which all persons exercising functions and powers under the RMA are directed to have particular regard to. Relevant mattes include sections 7(a), 7(aa), 7(b), 7(c), (7)(d), 7(f), 7(g), 7(h) and 7(i).

7.7 Section 8 requires that persons exercising functions and powers under the RMA shall take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

7.8 Section 30 sets out the functions of regional councils, including those that relate to the management of freshwater. The sections that are most relevant to the Omnibus Plan Change include sections 30(1)(a), 30(1)(c)(ii) and (iia), 30(1)(f)and 30(1)(fa)(iv).

7.9 Sections 65 and 66 set out technical and procedural matters to be followed in the preparation of a regional plan and/or plan change. A regional council must prepare and change any regional plan in accordance with the provisions of Part 2 (being sections 5, 6, 7 and 8) of the RMA; its functions under section 30; its obligation to prepare and have particular regard to a report in accordance with section 32; a national policy statement, a

[76] A list of relevant provisions of the RMA is included in Appendix H

[77] Section 63(1), RMA.

[78] Which requires: (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; (b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment

New Zealand Coastal Policy Statement, a national planning standard; and any regulations (which includes national environmental standards).[79]

7.10 Section 65(5) requires any change to a regional plan to be carried out in the manner set out in Schedule 1. Section 66 directs, regional councils, when changing a regional plan, to have regard to any proposed regional policy statement, and management plans and strategies prepared under other Acts, and take into account any relevant planning document recognised by an iwi authority, to the extent that their content has a bearing on the resource management issues of the region.[80]

7.11 Section 67 sets out the content of regional plans and the relationship between regional plans and other planning instruments. Regional plans must state objectives, policies and rules (if any).[81] In addition, regional plans must give effect to any national policy statement, national planning standard, New Zealand Coastal Policy Statement and regional policy statement and must not be inconsistent with a water conservation order, or another regional plan for the region.

7.12 Sections 68 - 70 contain specific requirements about the application of regional rules, including those related to water quality and discharges. Sections 86A - 86G specify when a rule in a proposed plan has legal effect.

7.13 Section 80A of the RMA, introduced under the Resource Management Amendment Act 2020, sets out a freshwater planning process (**FPP**). The FPP is a new plan-making process that regional councils must use for proposed regional plans or plan changes that give effect to the NPS-FM or otherwise relate to freshwater[82]. The FPP was introduced to enable regional councils to make changes to their freshwater plans in a robust but more efficient way than the current RMA Schedule 1 process.

7.14 As the Omnibus Plan Change has been referred to the Environment Court for decision under section 142(2) of the RMA, the FPP is not relevant to the Omnibus Plan Change.

***National Policy Statements***

7.15 National Policy Statements (**NPS**) are prepared pursuant to sections 45 to 55 of the RMA. The purpose of an NPS (other than a New Zealand coastal policy statement) is to state the objectives and policies for matters of national significance that are relevant to achieving the purpose of the Act[83]. They provide direction to local authorities about how to carry out their responsibilities under the RMA, when it comes to matters of national significance. New Zealand coastal policy statements are prepared pursuant to sections 56 to 58 of the RMA. The purpose of a New Zealand coastal policy statement is to state the objectives and policies in order the achieve the purpose of the RMA in relation to the coastal environment[84]. In

[79] Section 66(1) RMA.
[80] Section 66(2)(c) and (2A), RMA.
[81] Section 67(1), RMA.
[82] Freshwater plans notified after the Resource Management Amendment Act 2020 was enacted will be captured by the new freshwater planning process.
[83] Section 45(1), RMA.
[84] Section 56, RMA.

accordance with section 67(3)(a) of the RMA, a regional plan must give effect to any national policy statement and any New Zealand coastal policy statement.

7.16 There are currently four National Policy Statements and the New Zealand Coastal Policy Statement that are in force[85]. However, only the National Policy Statement for Freshwater Management 2020 (**NPS-FM**) and the New Zealand Coastal Policy Statement 2010 (**NZCPS**) are relevant to the Omnibus Plan Change.

***National Policy Statement for Freshwater Management 2020 (NPS-FM 2020)[86]***

7.17 The NPS-FM 2014 (amended 2017), was the NPS that was in force when the Omnibus Plan Change was notified by the EPA on 6 July 2020 and when the section 32 report was prepared. The NPS-FM 2020 came into force on 3 September 2020. It is the NPS-FM 2020 that the Omnibus Plan Change is required to give effect to, to the extent that it is reasonably practicable. What is reasonably practicable will be confined by the scope within submissions on the Omnibus Plan Change. The NPS-FM 2014 (amended 2017) is no longer a relevant consideration.

7.18 Clause 4.1 of the NPS-FM 2020 provides that "every local authority must give effect to this National Policy Statement as soon as reasonably practicable". In accordance with section 80A of the RMA, ORC must notify a freshwater planning instrument, where that instrument has the purpose of giving effect to the NPS-FM 2020, by 31 December 2024. In response to the Minister's recommendations, ORC has committed to notifying its new LWRP by 31 December 2023.

7.19 As stated above, the extent to which it is reasonably practicable for the provisions of the Omnibus Plan Change to give effect to the NPS-FM 2020 is confined by the scope within submissions to make changes to the Omnibus Plan Change. The Omnibus Plan Change does not need to immediately give full effect to the NPS-FM 2020.

7.20 The actions required of regional councils to implement the NPS-FM 2020 are set out in several clauses of Part 3, rather than through specific policy direction. There is one objective in the document, supported by 15 policies.

7.21 Te Mana o te Wai remains the fundamental concept of the NPS-FM 2020. The NPS-FM 2020 strengthens and clarifies Te Mana o te Wai by providing stronger direction on how it should be applied when managing freshwater. Te Mana o te Wai has the meaning set out in clause 1.3 and is described as a fundamental concept, encompassing six principles:

a. Mana whakahaere;

b. Kaitiakitanga;

c. Manaakitanga;

[85] National Policy Statement for Freshwater Management 2020 (NPS-FM),
National Policy Statement on Electricity Transmission (NPSET),
National Policy Statement on Urban Development (NPSUD),
National Policy Statement for Renewable Electricity Generation (NPSREG)
New Zealand Coastal Policy Statement 2010 (NZCPS).

[86] NPS-FM 2020 is included in Appendix I

d. Governance;

e. Stewardship; and

f. Care and respect.

7.22 This hierarchy of obligations that Te Mana o te Wai prioritises is enshrined in the only objective in the NPS-FM 2020, which provides:

*(1) The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:*
*(a) first, the health and well-being of water bodies and freshwater ecosystems*
*(b) second, the health needs of people (such as drinking water)*
*(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.*

7.23 In addition to the articulation of Te Mana o te Wai in clause 1.3 and the objective, ORC must engage with communities and tangata whenua to determine how Te Mana o te Wai applies to water bodies and freshwater ecosystems in the region.

7.24 Further, in giving effect to Te Mana o te Wai, ORC must:

a. actively involve tangata whenua in freshwater management (including decision-making processes);

b. engage with communities and tangata whenua to identify long-term visions, environmental outcomes, and other elements of the National Objectives Framework (NOF); and

c. apply the hierarchy of obligations when:

i. Developing long-term visions;

ii. Implementing the NOF;

iii. Developing objectives, policies, methods, and criteria relating to natural inland wetlands, rivers, fish passage, primary contact sites, and water allocation;

d. enable the application of a diversity of systems of values and knowledge to the management of freshwater (such as mātauranga Māori); and

e. adopt an integrated approach to the management of freshwater (ki uta ki tai).

7.25 Tangata whenua involvement is promoted and required by the NPS-FM 2020, with clause 3.4 requiring ORC to actively involve tangata whenua when identifying the local approach to giving effect to Te Mana o te Wai, when making or changing a regional policy statement or regional plan relating to freshwater, when implementing the NOF, and when developing and implementing mātauranga Māori and other monitoring. In respect of the NOF, the NPS-FM 2020 promotes the identification of Māori freshwater values (in addition to mahinga kai) that apply to any Freshwater Management Unit (**FMU**) or part of an FMU.

7.26 The NOF process articulated in the NPS-FM 2020 requires ORC to:

a. Identify FMUs in the region;

b. Identify values for each FMU;

c. Set environmental outcomes for each value and include them as objectives in regional plans;

d. Identify attributes for each value and set baseline states for those attributes;

e. Set target states, environmental flows and levels, and other criteria to support the achievement of environmental outcomes; and

f. Set limits as rules and prepare action plans (as appropriate) to achieve environmental outcomes.

7.27 Part 2 of the NPS-FM 2020 includes 15 policies to ensure this objective is achieved. Policy 1 provides that freshwater is managed in a way that gives effect to Te Mana o te Wai (noting that Te Mana o te Wai has the meaning set out in clause 1.3 of the NPS-FM 2020).

7.28 Policy 3 requires that freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole of catchment basis, including the effects on the receiving environment and Policy 13 requires that the condition of water bodies and freshwater ecosystems are monitored, and action taken where freshwater is degraded.

7.29 Policy 12 requires that the national target (as set out in Appendix 3) for water quality improvement is achieved.

*New Zealand Coastal Policy Statement 2010 (NZCPS)*

7.30 Although the NZCPS applies to the coastal environment, the preamble notes that activities inland can have a major impact on coastal water quality. It also notes that there is poor and declining coastal water quality in many areas as a consequence of point and diffuse sources of contamination, including stormwater and wastewater discharges, and poor water quality has adverse effects on aquatic life and opportunities for aquaculture, mahinga kai gathering and recreational uses such as swimming and kayaking. The NZCPS requires a strategic approach to managing cumulative adverse effects on the costal environment.

***Resource Management (Stock Exclusion) Regulations 2020***[87]

7.31 Under new stock exclusion regulations, stock must be prevented from grazing within a natural wetland, or within three metres of any lake or river. The regulations apply to beef and dairy cattle, dairy support cattle deer and pigs, but not sheep. There are different requirements and the regulations commence at varying times depending on type of stock, location and activity.

***National Environmental Standards***

7.32 In accordance with section 43B(3) of the Act, a rule in a regional plan is unable to be more lenient than a national environmental standard unless the national environmental standard

[87] Relevant provisions of the Resource Management (Stock Exclusion) Regulations 2020 are included in Appendix K

expressly states that a rule can be more lenient. A rule may be more stringent than a national environmental standard, if the standard expressly says that a rule can be more stringent.[88] There are currently seven national environmental standards in force.[89] National Environmental Standards for Freshwater 2020 (NESFW), the National Environmental Standard for Sources of Human Drinking Water 2007 (NESHDW), and the National Environmental Standards for Plantation Forestry (NESPF) are considered relevant to the Omnibus Plan Change.

*The National Environmental Standards for Freshwater 2020 (NESF)*[90]

7.33 The NESF include measures to stop the decline in freshwater quality. The NESF sets national rules for the ways particular activities are carried out to prevent further degradation of freshwater. Among others, the NESF includes measures to introduce new controls on intensive winter grazing. These regulations commence on 1 May 2021.

*National Environmental Standard for Sources of Human Drinking Water (NESHDW)*

7.34 The NESHDW came into effect on 20 June 2008. It sets requirements for protecting sources of human drinking water from becoming contaminated. The NESHDW requires regional councils to ensure that effects of activities on drinking water sources are considered in decisions on resource consents and regional plans. Specifically, regional councils are required to be satisfied that permitted activities in regional plans will not result in community drinking water supplies being unsafe for human consumption following treatment and decline discharge or water permits that are likely to result in community drinking water becoming unsafe for consumption following treatment. The Omnibus Plan Change has been prepared in accordance with the NESHDW.

*National Environmental Standards for Plantation Forestry (NESPF)*

7.35 The NESPF came into effect on 1 May 2018. The aim of the NESPF is to maintain or improve environmental outcomes associated with plantation forestry activities nationally, and increase certainty and efficiency in the management of plantation forestry activities.

7.36 The regulations apply to any forest larger than one hectare that has been planted for commercial purposes, specifically for harvesting. Eight core plantation forestry activities are covered by the standards, these include; afforestation; pruning and thinning to waste; earthworks; river crossings; forestry quarrying; harvesting mechanical land preparation and

[88] Section 43B(1) and (3), RMA.

[89] National Environmental Standards for Freshwater 2020 (NESFW)
National Environmental Standards for Air Quality 2004 (NESAQ);
National Environmental Standard for Sources of Human Drinking Water 2007 (NESHDW);
National Environmental Standards for Telecommunication Facilities 2008 (NESTF);
National Environmental Standard for Electricity Transmission Activities 2009 (NESETA);
National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 (NESCS);
National Environmental Standards for Plantation Forestry (NESPF).

[90] Relevant provisions of the NESF are included in Appendix J

replanting. Several ancillary activities are also covered, including discharges.[91] The regulations generally prevail over regional and district plan provisions that apply to plantation forestry. Plan rules cannot be more stringent than the regulations except where the rule gives effect to an objective developed to give effect to the National Policy Statement for Freshwater Management or certain policies of the New Zealand Coastal Policy Statement; or protects significant natural areas and outstanding natural features and landscapes; or if it relates to managing the unique and sensitive environments defined in the NESPF.[92]

7.37 The proposed provisions in PC8 for managing earthworks for residential development apply to residential development only. A note has been included with these proposed provisions to clarify that they do not apply to activities managed by the NESPF.

***National Planning Standards***

7.38 Under section 67(3)(ba) of the RMA, a regional plan must give effect to a national planning standard. National Planning Standards have been introduced to improve the consistency of council plans and policy statements. The first set of national planning standards were released on 5 April 2019 and came into effect on 3 May 2019.

7.39 The Omnibus Plan Change does not give effect to the national planning standards, as regional councils are not required to adopt them until 10 years after they came into effect (unless a regional plan, but not a plan change or variation, is notified earlier). Where terms are used in the Omnibus Plan Change that are defined in the national planning standards, the definitions are adopted in these plan changes. ORC will give effect to the national planning standards through the development of the new LWRP.

***Water Conservation Orders (WCO)***

7.40 Under section 67(4)(a) of the RMA, a regional plan must not be inconsistent with a water conservation order (**WCO**). WCOs are made by Order in Council by the Governor-General, upon the recommendation of the Minister for the Environment to recognise and sustain outstanding amenity or intrinsic values afforded by waters in their natural state and where waters are no longer in their natural state, the amenity or intrinsic values of those waters which in themselves warrant protection because they are considered outstanding. A WCO may contain restrictions on the granting of some types of resource consents where they affect the water body subject to the WCO. In Otago, there are two WCO in force:

a. The Water Conservation (Kawarau) Order 1997

b. The Water Conservation (Mataura River) Order 1997

[91] NESPF, Regulation 5.
[92] NESPF, Regulation 6.

*Water Conservation (Kawarau) Order*

7.41 The Water Conservation (Kawarau) Order 1997 recognises that the Kawarau River and its tributaries have outstanding amenity and intrinsic values[93]. Under the Kawarau WCO the protected waters considered to be in their natural state, must be preserved as far as possible in that state. For waters not in their natural state, the Kawarau WCO recognises that they still have the outstanding characteristics and requires these waters to be protected.

7.42 The Kawarau WCO places a number of restrictions on the damming, diversion and quality of water in the protected waters in order to preserve or protect the values, which affects ORC's ability to grant resource consents for some activities. There are some exemptions for particular activities listed in the WCO. No parts of Omnibus Plan Change are inconsistent with, or create inconsistencies with, the provisions of the Kawarau WCO.

*Water Conservation (Mataura River) Order*

7.43 The Water Conservation (Mataura River) Order 1997 recognises that the Mataura River and the Waikaia River and various other rivers, streams, and tributaries include outstanding fisheries and angling amenity features. The protected waters named in the WCO include the Mokoreta River, part of which flows through the Otago Region. The order includes various provisions to preserve and protect these features, including placing limits on the rates of flow in, the Mataura River and Waikaia River.

7.44 The WCO also places restrictions on damming, water permits, and discharge permits for any of the protected waters. There are some exemptions for particular activities listed in the WCO. No parts of Omnibus Plan Change are inconsistent with, or create inconsistencies with, the provisions of the Mataura River WCO.

***Lake Wanaka Preservation Act 1973***

7.45 When exercising functions under the RMA, including the development of changes to its regional plans, ORC is required to have regard to the purposes of the Lake Wanaka Preservation Act 1973. The Act makes provision for the protection of the natural state of the lake, and for the appointment of the Guardians of Lake Wanaka to advise the Minister of Conservation over:

a. Preventing the lake from being impounded, controlled or obstructed;

b. Preventing the natural rate of flow from the lake from being varied or controlled;

c. Preserving the lake level and shoreline in their natural states;

d. Maintaining and improving (where possible) the quality of water in the lake.

7.46 The Guardians of Lake Wanaka have a responsibility to liaise with ORC over matters which may affect the lake, and ORC are required to consult with the Guardians when considering

[93] Clause 3(1), Water Conservation (Kawarau) Order 1997

resource consent applications which may affect the lake. The Omnibus Plan Change does not propose any changes that are inconsistent with the Lake Wanaka Preservation Act.

***Regional Policy Statements***

7.47 Under section 67(3) of the RMA, a regional plan must give effect to any regional policy statement (**RPS**), while under section 66(2)(a) of the RMA, a regional council must also have regard to any proposed RPS when preparing or changing any regional plan.

7.48 In Otago there are currently two RPSs[94]:

a. The Regional Policy Statement for Otago 1998 (RPS 1998), which is partially operative; and

b. The Proposed Otago Regional Policy Statement 2016 (PRPS 2016), which was made partially operative on 14 January 2019.

7.49 ORC resolved to make those provisions of the PRPS 2016 that were beyond challenge operative on 12 December 2018. As some provisions of the PRPS 2016 were still subject to appeal at that time, those provisions were not made operative (however, those provisions have now largely been resolved through mediation and approved by the Environment Court, but not yet made operative by ORC).

7.50 Substantial weight should be afforded to those provisions of the PRPS 2016 that are not yet operative, given they are now mostly beyond challenge and the fact that they will, in time, replace the RPS 1998 entirely. For those provisions that are still subject to challenge, weight can still be afforded to these given the extent to which they have progressed through the Schedule 1 process.

7.51 Professor Skelton, while carrying out a review of Otago's planning framework under section 24 of the RMA, expected that freshwater management would have been more prominent in the PRPS 2016 and that a substantial update to this document is required in order to give full effect to the NPS-FM 2020.[95]

7.52 To achieve the 'fit for purpose planning regime' recommendations of the Minister for the Environment, ORC is currently developing a new RPS which will be notified in June 2021 (extension given by the Minister due to requirements in the NPS-FM 2020 for freshwater visions to be included).[96]

[94] Relevant provisions of the two RPSs are listed in Appendix L

[95] Prof. Peter Skelton (2019) Investigation of Freshwater management and Allocation Functions at Otago Regional Council. Report to the Minister for the Environment. pp.15-17. See Appendix D.

[96] As previously stated in paragraph 5.6 of this report, Minister for the Environment Hon. David Parker, in response to this review, has recommended that ORC prepares and notifies a new RPS (to be in place in time for the review of the Water Plan, scheduled to be notified as the Land and Water Regional Plan). ORC is currently undertaking development of this new RPS. With agreement of the Minister, the new RPS is to be notified in June 2021 to enable the long term visions required by the NPS-FM 2020 to be included.

*Proposed Regional Policy Statement for Otago 2016*

7.53 There is only one chapter of the PRPS 2016 that is relevant to the Omnibus Plan Change, which has not been made operative, namely *Chapter 3: Otago has high quality natural resources and ecosystems*. ORC must have regard to these provisions, noting that the provisions have been subject to mediation on appeals and resulting agreements have ben approved by the Environment Court.

7.54 Objective 3.1. requires the values (including intrinsic values) of ecosystems and natural resources to be recognised and maintained, or enhanced where degraded. Policies 3.1.1 and 3.1.2 require safeguarding the life-supporting capacity of fresh water and managing fresh water (3.1.1).

7.55 Objective 3.2 requires that Otago's significant and highly valued natural resources are identified and protected, or enhanced where degraded. Policy 3.2.13 requires identification of outstanding freshwater bodies, which are those with one or more of the following significant values: naturalness, amenity or landscape values, Kai Tahu cultural values, recreational values, ecological values, or hydrological values. There is no further guidance provided for determining whether a value is considered significant. Policy 3.2.14 requires protection of outstanding freshwater bodies by maintaining their values, managing effects, controlling adverse effects of pest species, and encouraging enhancement of values. While values underpin both provisions, there is no explanation of the values listed or how they may be used to determine whether a freshwater body is outstanding.

7.56 There are three operative chapters of the PRPS 2016 that are relevant for the Omnibus Plan Change and which must be given effect to, as follows:

a. Chapter 2: Kai Tahu values and interests are recognised and kaitiakitaka is expressed

b. Chapter 4: Communities in Otago are resilient, safe and healthy

c. Chapter 5: People are able to use and enjoy Otago's natural and built environment

7.57 Objective 2.2 seeks that Kai Tahu values, interests and customary resources are recognised and provided for and policy 2.2.1 seeks to manage the natural environment to provide for the customary uses and cultural values identified in Schedules 1A and B and safeguarding the life supporting capacity of natural resources.

7.58 Objective 4.3 seeks that infrastructure is managed and developed in a sustainable way and Policy 4.3.2 recognises the national and regional significance of a specific list of infrastructure. Policy 4.6.9 seeks to avoid the creation of new contaminated land or minimise the adverse effects on the environment when this is not practicable.

7.59 Objective 5.4 seeks to minimise the adverse effects of using and enjoying Otago's natural and physical resources. Policy 5.3.1 provides for activities in rural areas to support the region's economy and communities and policy 5.4.1 manages offensive and objectionable discharges to land, water or air.

*Regional Policy Statement for Otago 1998*

7.60 The RPS 1998 is currently partially operative as some provisions have been revoked and are replaced by provisions in the PRPS 2016, discussed above.

7.61 The two operative chapters of the RPS 1998 that are relevant are:

a. Chapter 5: Land

b. Chapter 6: Water

7.62 Objective 5.4.1 promotes the sustainable management of Otago's land resources in order to maintain and enhance the primary productive and life supporting capacity of the land and Objective 5.4.2 seeks to avoid, remedy or mitigate degradation of Otago's natural and physical resources resulting from activities using the land resource.

7.63 The policies seek to protect the soil and mineral resources along with the natural character and landscape values of Otago. In particular, Policy 5.5.5 seeks to minimise the adverse effects of land use activities on the quality and quantity of Otago's water resource by encouraging riparian planting and other vegetation cover and maintaining and enhancing wetlands along with avoiding, remedying or mitigating the degradation of water resources caused by the introduction of contaminants resulting from land use activities.

7.64 The Objectives 6.4.2 to 6.4.4 seek to maintain and enhance the life supporting capacity and values of the water resource by protecting both water quality and quantity, and Objective 6.4.5 seeks to avoid, remedy or mitigate degradation of the water resource resulting from use, development or protection of the beds and banks of water bodies and of adjacent land use.

7.65 Policy 6.5.5 seeks to promote a reduction in adverse effects of contamination and discharges by having minimum acceptable standards and requiring all discharges to maintain the standard for the receiving waters after reasonable mixing, promoting discharges to land where practicable, preparing contingency responses for accidental pollution and investigating the effects of diffuse source discharges on water quality, while considering financial and technical constraints.

7.66 Policy 6.5.6 seeks to protect Otago's remaining significant wetlands from the effects of activities unless the activities can be shown to have no significant effects on identified values, or alternative habitat of similar or improved nature is provided in compensation. Policy 6.5.9 provides for the community's use development or protection of the beds and banks of Otago's water bodies provided adverse effects on identified values are avoided remedied or mitigated and the life supporting capacity of the water body is maintained or enhanced.

***Regional Plans***

7.67 Under section 67(4)(b), a regional plan must not be inconsistent with any other regional plan for the region. There are four regional plans in place in Otago:

a. Regional Plan: Water for Otago (the Water Plan);

b. Regional Plan: Waste for Otago (the Waste Plan);

c. Regional Plan: Air for Otago (the Air Plan); and

d. Regional Plan: Coast for Otago (the Coast Plan).

7.68 PC8 proposes amendments to the Water Plan and PC1 amendments to the Waste Plan.

*Regional Plan: Air*[97]

7.69 The Regional Plan: Air (Air Plan) was made operative in 2003. It contains provisions managing the discharge of contaminants to air. There are no matters in PC8 that relate to discharges to air, therefore none of the provisions are inconsistent with the Air Plan.

7.70 The rules for landfills in the Waste Plan manage discharges into land, water and air. Resource consents are required for all discharges from landfills as a discretionary activity under the Waste Plan. Resource consent is also required for the discharge of odour from a landfill under the Air Plan. Although it is not particularly efficient to manage these types of discharge under two separate plans, the overall intent of the provisions in both plans is consistent. The broader issue of overlaps between the Air and Waste Plans will be addressed through the full review of the Waste Plan.

7.71 The Air Plan identifies dust from unsealed roads, driveways or yards as a resource management issue.[98] The objectives and policies of the air plan seek to avoid adverse effects of contaminant discharges to air.[99]

7.72 The rules for applying used oil to roads in the Waste Plan manage discharges to land only. The rules in the Waste Plan will help to achieve the objectives and policies of the Air Plan by providing for the use of dust suppressants which assist with preventing the adverse effects of dust discharges from unsealed roads. None of the provisions in PC1 are considered to be inconsistent with the Air Plan.

*The Coast Plan*

7.73 The Coast Plan sets out the regulatory framework for the integrated and sustainable management of Otago's coastal marine area. There are no matters in the Omnibus Plan Change that specifically relate to the coastal marine area.

***Iwi Management Plans***[100]

7.74 Section 66(2A)(a) requires the regional council to take into account any relevant planning document that is recognised by an iwi authority and that is lodged with the regional council. There are two iwi management plans lodged with ORC: the Kai Tahu ki Otago Natural Resources Management Plan 2005 and Te Tangi a Tauira: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008.

[97] Relevant provisions of the Air Plan are listed in Appendix L
[98] Issue 4.5 Regional Plan: Air.
[99] Objective 6.1.2 and Policy 10.1.1 Regional Plan: Air.
[100] Relevant provisions of the Iwi Management Plans are listed in Appendix M.

*Kāi Tahu ki Otago Natural Resources Management Plan 2005*

7.75 Section 5.3 of the Plan focuses on Wai Māori. Some of the issues of concern include deteriorating water quality, particularly the cumulative effects of discharges, the discharge of human waste and other contaminants from point and non-point source discharges to water, stock entering waterways and sedimentation from land use and development.

7.76 Section 5.3.3 contains the Wai Māori General Objectives, the following of which are relevant to these Plan Changes:

a. The spiritual and cultural significance of water to Kāi Tahu ki Otago is recognised in all water management.

b. The waters of the Otago Catchment are healthy and support Kāi Tahu ki Otago customs.

c. There is no discharge of human waste directly to water.

d. Contaminants being discharged directly or indirectly to water are reduced.

7.77 Section 5.3.4 contains the Wai Māori General Policies that include, of most relevance to these Plan Changes:

a. To protect and restore the mauri of all water (Policy 4).

b. To require land disposal for human effluent and contaminants (Policy 8).

c. To encourage identification of non-point source pollution and mitigate, avoid or remedy adverse effects on Kāi Tahu ki Otago values (Policy 11).

d. To require all discharge systems be well maintained and regularly serviced (Policy 15).

e. To require that all practical measures are taken to minimise sedimentation or discharge of sedimentation (Policy 37).

f. To encourage the exclusion of stock from waterways (Policy 55)

7.78 The provisions of the Kāi Tahu ki Otago Natural Resources Management Plan have been taken into account when preparing the Omnibus Plan Change.

*Te Tangi a Tauira: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008*

7.79 This plan applies from the true right bank of the Clutha River south to the border of the Otago region. Section 3.5.10 sets out the General Water Policy. Relevantly for these Plan Changes, the issues for iwi include:

a. Stock grazing adjacent to and in the beds of waterways.

b. Discharges to land activities (e.g. farm effluent) and potential for run off into waterways

c. Effects on the mauri of Murihiku Rivers due to land use and discharge activities, and water abstractions.

d. Poor water quality in some Murihiku Rivers: our children are not able to swim in some rivers.

7.80 Section 3.5.11 also contains policies for rivers, including:

a. Promote catchment management planning (ki uta ki tai) as a means to recognise and provide for the relationship between land and water.

b. Work with Regional Councils to ensure that cultural values and perspectives associated with freshwater management are reflected in statutory water plans, best practice guidelines and strategies, and in resource consent processes for activities involving water.

c. Use riparian enhancement, buffer zones, fencing and related streamside management tools as conditions of consent to ensure that human use of rivers and their water does not compromise river health.

d. Avoid the use of rivers as a receiving environment for the discharge of contaminants (e.g. industrial, residential, recreational or agricultural sources).

7.81 The provisions of Te Tangi a Tauira have been taken into account when preparing the Omnibus Plan Change.

***Other Management Plans***

7.82 Section 66(2)(c)(i) requires regional councils to have regard to any management plans and strategies prepared under other Acts to the extent that their content has a bearing on resource management issues of the region.

*Otago Conservation Management Strategy 2016*

7.83 The Conservation Act 1987 requires the Department of Conservation to prepare a conservation management strategy for each region. The Otago Conservation Management Strategy describes the conservation values present in Otago and provides guidance for the Department's work in the form of a vision supported by objectives, outcomes, policies and milestones. The Strategy applies to all public conservation land and waters in Otago (noting that this is based on the old Otago conservancy boundary which now covers parts of Eastern South Island and Southern South Island regions).

7.84 The vision for Otago includes that Otago's diverse freshwater systems support healthy aquatic ecosystems, all riparian margins are clothed in predominantly indigenous vegetation and people can safely swim in and gather food from all freshwater systems. Objectives 1.5.1.6, 1.5.1.12 and 1.5.1.19 relating to freshwater quality, integrated catchment management and management of water bodies are particularly relevant for these Plan Changes.

7.85 ORC has had regard to the Otago Conservation Management Strategy in the preparation of these Plan Changes. Although it has a different application, many of the outcomes sought relating to freshwater are consistent with the intent of these Plan Changes.

*Otago Sports Fish and Game Management Plan 2015-2025*

7.86 The Conservation Act 1987 requires each Fish and Game Council to prepare any sports fish and game management plans that are necessary for the management of sports fish and game birds within its jurisdiction, for approval by the Minister of Conservation. There is one Fish and Game Council that falls wholly within the Otago region: the Otago Fish and Game Council. There is one management plan produced for Otago: the Otago Sports Fish and Game Management Plan 2015-2025. Most relevant to these Plan Changes is the outcome and the issues, objectives and policies for habitat protection and management. The outcome for this topic is:

> *Water quality ranges between good and excellent in Otago rivers, lakes and wetlands. River flows and lake or wetland water levels combine with the natural characteristics of waterways to support natural ecosystems functioning at a level that supports productive and diverse fish and game populations. Rivers are swimmable, fishable, and safe for food gathering. Otago's wetlands are improving in terms of quality, diversity and species productivity and the overall area of wetlands is expanding, underpinned by the regional focus on protection of regionally significant and other smaller wetlands, as well as an active programme of wetland creation on private land. Degraded headwater wetlands have been restored and contribute to maintenance of summer low flows in catchments downstream. Overall, rivers and wetlands are highly valued by the public for their intrinsic qualities and amenity values.* (p.35)

7.87 ORC has had regard to this management plan in the preparation of these Plan Changes, noting that it establishes management frameworks for Fish and Game and its staff to ensure the sustained use of sports fish and game bird resources for anglers and hunters in the region.

**References:**

Laurenson, S., Wall, A., Monaghan, R.M. & Orchiston, T.S. (2018). *Sediment losses from intensively grazed forage crops in New Zealand*. AgResearch Client Report RE450/2018/044 to Environment Canterbury.

(ORC) Otago Regional Council. (2011). *Effects of land use on water quality in the Pomahaka catchment.* Dunedin, Otago: Otago Regional Council.

Uytendaal, A. & Ozanne, R. (2018). *State of the environment: surface water quality in Otago 2006 to 2017*. Dunedin, Otago: Otago Regional Council.

Otago Regional Council (2018). State of the environment: Surface water quality in Otago. 2006 to 2017. Otago Regional Council. 91 pp.

Houlbrooke, et al, 2008: Land application of farm dairy effluent to a mole and pipe drained soil: implications for nutrient enrichment of winter-spring drainage.

Ministry for the Environment. (2020). National Policy Statement for Freshwater Management.

Kitto, J. (2012) Water quality effects on instream values in the Upper Taieri. Otago Regional Council. 57 pp.

Otago Regional Council. 2004. *Regional Plan: Water for Otago.* Otago Regional Council, Dunedin.

Ozanne, R. (2012). State of the environment: Surface water quality in Otago. 2006 to 2011. Otago Regional Council. 91 pp.

## Ministerial direction to refer the Otago Regional Council's proposed Omnibus Plan Change to its Regional Plans to the Environment Court

Having had regard to all the relevant factors, I consider that the matters requested to be called in by Otago Regional Council (ORC), being the proposed Omnibus Plan Change (comprised of Water Plan Change 8 – Discharge Management, and Waste Plan Change 1 – Dust Suppressants and Landfills) to its relevant regional plans are part of a proposal of national significance. Under section 142(2) of the Resource Management Act 1991 (RMA), I direct those matters to be referred to the Environment Court for decision.

My reasons are as follows:

**National Significance**

I consider the matters are part of a proposal of national significance having given regard to the following relevant factors in section 142(3) of the RMA:

a) The issues the plan changes aim to address have aroused widespread public concern or interest regarding their actual or likely effect on the environment, as indicated by the Skelton Investigation;

b) The plan changes involve or are likely to involve the significant use of natural and physical resources while managing the impact of that use on the environment;

c) The plan changes affect or are likely to affect areas of national significance noting that Otago freshwater catchments provide a habitat for a suite of nationally important non-migratory Galaxias taxas;

d) The plan changes are part of the ORC's programme to give effect to the National Policy Statement on Freshwater Management;

e) Failure to implement the plan changes has the potential to result in significant and irreversible changes to the environment;

f) The plan changes are or are likely to be significant in terms of section 8 of the RMA given they are likely to be of high interest to Iwi because of the significance of freshwater management to Māori; and

g) The plan changes will affect more than one district given that they will apply across the whole Otago region.

**Direction to the Environment Court**

I direct that the proposed Omnibus Plan Change be referred to the Environment Court for decision because:

a) Calling in the related plan changes as parts of a proposal of national significance for a decision at the same time would:

   i. assist the Otago Regional Council by allowing its staff to focus on developing a new Land and Water Regional Plan; and

   ii. avoid potential delays associated with the Schedule 1 process of the RMA that could complicate the development of a new Land and Water Regional Plan.

b) The current COVID-19 situation would make the appointment of suitable members to a board of inquiry difficult in a short timeframe whereas the Environment Court process would provide surety in terms of progressing a decision on the matters.

In reaching my decision I considered:

a) The Environmental Protection Authority recommendation that I refer the matters to the Environment Court;

b) The views of the Otago Regional Council, being the applicant and the relevant local authority that would have processed and decided the matters if I had not directed that they be referred to the Environment Court for decision; and

c) The capacity of the Otago Regional Council to process the matters.

Dated at Auckland this 8th day of April 2020

Hon David Parker
**Minister for the Environment**

Environmental Protection Authority
Te Mana Rauhī Taiao

File ref: *NSP 45*

15 September 2020

Gwyneth Elsum
General Manager, Strategy, Policy and Science
Otago Regional Council
Private Bag 1954
Dunedin 9054
New Zealand

Private Bag 63002
Wellington 6140, New Zealand

Level 10, Grant Thornton House
215 Lambton Quay
Wellington 6011, New Zealand

epa.govt.nz
+64 4 916 2426

By email: Gwyneth.elsum@orc.govt.nz; peter.constantine@orc.govt.nz

Dear Ms Elsum

**Omnibus Plan Change – Section 149G(3) Report**

Further to our letter of 1 July 2020, the purpose of this letter is to formally commission the Otago Regional Council to prepare a Key Issue Report under section 149G(3) of the Resource Management Act 1991 (RMA) for the Omnibus Plan Change.

The scope for the report is outlined below and has been informed by discussions with Judge Borthwick, Philip Maw and Peter Constantine:

**Scope of Key Issues Report**

Pursuant to section 149G(3) of the Resource Management Act 1991, the EPA commissions the Otago Regional Council to prepare a report on the key issues in relation to Plan Change 8 (Discharge Management) to the Regional Plan: Water for Otago and Plan Change 1 (Dust Suppressants and Landfills) to the Regional Plan: Waste for Otago (**Omnibus Plan Change**) that includes:

- A summary of the state of the environment in the Otago Region as it relates to the Omnibus Plan Change;
- A summary of the current planning framework in the Otago Region as it relates to the Omnibus Plan Change;
- A description of the resource management issue(s) presented by the state of the environment and current planning framework that needs to be resolved;
- A summary of the higher order planning and policy instruments relevant to the Omnibus Plan Change with a list of the relevant provisions of any relevant national policy statement, New Zealand Coastal Policy Statement, national planning standard, regional policy statement or proposed regional policy statement, plan or proposed plan to be appended to the report. NB: Where relevant, this section should include the section 24A (RMA) recommendations made by the Minister for the Environment - (18 November 2019) and agreed to by ORC (16 December 2019), and instruments that have come into effect after preparation of the plan change, such as:
    - National Policy Statement for Freshwater Management (NPS-FM) - came into effect 3 September 2020
    - National Environmental Standards for Freshwater (NESF) - came into effect 3 September 2020 (except for some exceptions that have later deadlines)
    - Freshwater Planning Process (FPP) - came into effect via Section 80A of the Resource Management Amendment Act 2020 on 30 June 2020; and

- A description of the solution proposed by the Omnibus Plan Change.

Please contact Jillian Kennemore on mobile: 027 641 7250 or by email Jillian.Kennemore@epa.govt.nz if you have any questions.

Yours sincerely

Terry Calmeyer
Acting Manager
**Land and Oceans Applications - Regulatory Systems and Operational Policy**

**Office of Hon David Parker** BCom, LLB

Attorney-General
Minister for the Environment
Minister for Trade and Export Growth

Associate Minister of Finance

Chair and Councillors of Otago Regional Council

CC: Sarah Gardner, CEO, Otago Regional Council

Dear Hon Marian Hobbs and Councillors

**Section 24A Report: Investigation of Freshwater Management and Allocation Functions at Otago Regional Council under section 24A of the Resource Management Act 1991**

I am pleased to enclose the Report of Professor Peter Skelton resulting from his investigation under section 24A of the Resource Management Act 1991 (RMA). This was on whether Otago Regional Council (ORC) is adequately carrying out its functions under the RMA in relation to freshwater management and allocation of resources (the Report).

I would like to thank ORC for their willing contribution to the investigation process. I again record that the current predicament has been many years in the making, and that this letter should not be seen as a criticism of the current council or staff.

The main message from the Report is that the Otago region does not have a fit for purpose planning framework in place to appropriately manage applications for new water permits before 1 October 2021, when all deemed permits and a number of other water permits expire. This will also be the case for some other water permits that expire before the end of 2025.

Three important matters from the Report, accompanied by my specific recommendations on each, are set out below.

*Inadequacy of the planning framework generally*

The Report highlights the importance of ORC prioritising and accelerating work towards a new Regional Policy Statement (RPS) to be operative by 1 April 2022, and a new Land and Water Regional Plan (LWRP) to be operative by 31 December 2025.

Professor Skelton identified that these new planning documents are critical for the ability of ORC to give effect to the national directions.

Views expressed by a wide range of the people Professor Skelton spoke with – including Council staff; stakeholders; and Aukaha, representing Kāi Tahu – supported the need to overhaul the entire planning framework for the Otago region.

+64 4 817 8710 Private Bag 18041, Parliament Buildings, Wellington 6160, New Zealand d.parker@ministers.govt.nz beehive.govt.nz

Similar views on the planning framework have recently been expressed by Judge Jon Jackson. In two recent Environment Court judgements[1], he described the RPS as *prima facie* not giving effect to the RMA, and the Regional Water Plan as one which:

> *can barely be said to make any effort to manage water volumes in many Otago catchments (including the Lindis River) because in most cases the primary allocation of water for irrigation is simply set as the sum of all existing water takes granted in the catchment.*[2]

With this context in mind, I have given careful thought to the recommendations made by Professor Skelton and how I can best support ORC going forward.

*Recommendations*

In line with Professor Skelton's recommendations, I formally recommend, under section 24A of the RMA, that ORC:

1. take all necessary steps to develop a fit for purpose freshwater management planning regime that gives effect to the relevant national instruments and sets a coherent framework for assessing all water consent applications, including those that are to replace any deemed permits
2. develop and adopt a programme of work to achieve the following:
    - by November 2020, a complete review of the current RPS that is publicly notified, with the intention that it be made operative before the review of its LWRP is notified
    - by 31 December 2023, a new LWRP for Otago that includes region-wide objectives, strategic policies, region-wide activity policies, and provisions for each of the Freshwater Management Units, covering all the catchments within the region.

*Rollover of deemed permits*

Professor Skelton's report also recommended that I begin a process to initiate the necessary legislative process to change the date for expiry of the deemed permits in section 413(3) of the RMA, from 1 October 2021 to 31 December 2025 (being the date by which ORC's new LWRP is expected to be operative).

*Recommendations*

I am not in favour of changing the RMA to extend the date for expiry of the deemed permits. A 30-year transition period was already provided to manage this issue. I prefer that ORC takes steps to resolve the matter rather than taking up the time of Parliament.

*Urgent need for interim planning framework*

While the comprehensive overhaul of the ORC planning framework is underway, there is an urgent need to ensure that an interim framework is in place between now and 31 December 2025.

---

[1] *Alliance Group Limited v Otago Regional Council* [2019] NZEnvC 042.

[2] *Lindis Catchment Group Incorporated v Otago Regional Council* [2019] NZEnvC 166 – (RE PC5A to the Otago Regional Water Plan).

This is necessary to manage approximately 400 to 600 future consent applications in over allocated catchments.

The possibility of up to 600 consents being granted under the current planning and consenting framework is problematic.

I understand that around 70 per cent of ORC's currently issued water permits are for durations of 25-35 years, with various expiry dates. This includes over 50 permits that expire in 2050 or later, eight of which are 35 year permits issued this year. I am advised that there is a strong expectation from deemed and RMA water permit holders that their new consents will be for similarly long terms, and that the Council is likely to come under strong pressure to meet these expectations.

In my view, long terms for these new consents would be unwise, as they would lock in unsustainable water use, inhibiting the council from effectively implementing the outcomes of its intended new RPS and LWRP.

*Recommendations*

Professor Skelton highlights the importance of having robust interim measures in place to provide for short-term consents until the new RPS and LWRP are completed. In line with his recommendations, I formally recommend, under section 24A of the RMA, that ORC:

3. prepare a plan change by 31 March 2020 that will provide an adequate interim planning and consenting framework to manage freshwater up until the time that new discharge and allocation limits are set, in line with the requirements in the National Policy Statement for Freshwater Management.

It is important that these interim measures manage the processing of resource consents (including those to replace the deemed permits). I would encourage you to consider a narrow plan change that provides for the relatively low cost, and fast issuing of new consents on a short-term basis, as an interim measure until sustainable allocation rules are in place. Those consents could, for example, be for a maximum term of five years, or until the new LWRP becomes operative, whichever comes first. It may be beneficial to include these provisions in a stand-alone plan change.

I will need you to keep me informed regularly of progress on the above planning processes.

*Next steps*

In line with Professor Skelton's recommendations, I formally require, under section 27 of the RMA that ORC provide me with six-monthly reports in relation to the following matters:

- progress made in developing science, planning, consenting, monitoring and enforcement, and land management organisational capability and capacity
- progress in achieving the above recommendations 1, 2 and 3
- a summary of freshwater resource consenting activity for the reporting period.

I require the first report to be provided to me by 30 April 2020 and the reporting to continue on the six-monthly basis until the end of 2025.

I recognise that ORC is already working towards the recommended plan changes. I would like to meet with you to discuss how I can best assist you to lead your council forward to achieve the plan changes within the recommended timeframes.

I also request your formal response to my recommendations above, including an outline of how you intend to achieve the planning framework changes, by **24 December 2019.**

Yours sincerely

Hon David Parker
**Minister for the Environment**

Ministry for the Environment
Manatū Mō Te Taiao

# Investigation of Freshwater Management and Allocation Functions at Otago Regional Council

## Report to the Minister for the Environment

## by

**Professor Peter Skelton**

**CNZM; D.Nat.Res (Hon); LLB; FEIANZ**

1 October 2019

New Zealand Government

Ministry for the Environment
Manatū Mō Te Taiao

New Zealand Government

**Acknowledgements**

Peter Skelton wishes to acknowledge the considerable assistance he has received from Ministry for the Environment officials Robert McClean, Carly O'Connor and Rowan Taylor in both the investigation work and the preparation of this report.

This document may be cited as: Skelton, Peter (2019) *Investigation of Freshwater Management and Allocation Functions at Otago Regional Council - Report to the Minister for the Environment*. Wellington: Ministry for the Environment.

Cover photo: Falls Dam and the Hawkdun Range, Central Otago (R McClean, 25 June 2019)

Published (publication details to be confirmed)
Ministry for the Environment
Manatū Mō Te Taiao
PO Box 10362, Wellington 6143, New Zealand

ISBN: ISBN print version (print)
ISBN online version (online)

Publication number: MfE – to be confirmed



This document is to be made available on the Ministry for the Environment website: www.mfe.govt.nz.

Ministry for the Environment
Manatū Mō Te Taiao

Making Aotearoa New Zealand
the most liveable place in the world

# Contents

# Executive Summary

The Otago region is at a critical juncture for freshwater planning.

Existing planning provisions to manage freshwater are inadequate and the expiry of the Otago mining privileges (deemed permits) is only two years away. There are also growing challenges for the state of the freshwater resource in Otago in view of the high level of water abstraction and the significant alteration of natural flows, ecosystems and habitat for indigenous flora and fauna.

The Minister for the Environment has asked me to investigate the freshwater management and allocation functions exercised by the Otago Regional Council.

This report provides an overview of the state of the planning regime for freshwater in Otago. It examines the existing Regional Policy Statement and the existing Water Plan, and the Council's organisational capability and capacity.

The investigation has been informed by input from the Otago Regional Council, including its Chief Executive and staff; Aukaha (representing Kāi Tahu); and a range of stakeholders, including local farmers and water users, environmental groups, the Department of Conservation (DOC), Federated Farmers, the Otago Fish and Game Council, and two district council mayors.

The immediate issue facing the Council is the challenge of developing a fit for purpose planning framework ahead of the expiry of the deemed water permits on 1 October 2021.

It will be important to complete a new regional policy statement and a new land and water regional plan before undertaking the assessment of any new or replacement water consent applications. This will enable applications to be considered under the new freshwater planning framework and will halt the current unsatisfactory situation of ad hoc 'planning by consent'. This report recommends a pathway for achieving this.

In the interim, I consider the Minister for the Environment should recommend that the Otago Regional Council gives high priority to a planning process (which it has already commenced) to provide short-term measures for managing freshwater until the new regional policy statement and the new land and water regional plan are completed. This includes Plan Change 6AA, the Omnibus Plan Change, and a robust resource consenting regime which will avoid the granting of long term consents during this interim period.

While interim measures are necessary, the major focus of the Council should be the significant upgrade of the planning framework. I consider that the Minister for the Environment should recommend to the Otago Regional Council that it takes all necessary steps to develop a fit-for-purpose freshwater management planning regime. This regime should give effect to the relevant national instruments and set a coherent framework for assessing all water consent applications, including those that are made to replace any deemed permits.

To achieve this, the Minister should recommend that the Otago Regional Council adopts a comprehensive programme of work which will involve a complete review of the Regional Policy Statement by November 2020, and a new land and water regional plan by 31 December 2023.

It will be essential that the Council's policy and planning programme remains on track. To ensure that this occurs, I recommend that the Otago Regional Council provides 6-monthly progress reports to the Minister summarising the:

- organisational capability and capacity in science, planning, consenting, monitoring, enforcement and land management
- development of the new regional policy statement and new land and water regional

plan, and

- freshwater consenting activity.

A comprehensive freshwater planning framework, however, will not be in place before the deemed permits expire. I am therefore recommending that the Minister for the Environment initiates the necessary legislative process to change the date for expiry of the deemed permits in section 413(3) of the Resource Management Act 1991 from 1 October 2021 to 31 December 2025. This will ensure that the replacement consent applications are assessed against a robust policy framework.

Since this inquiry began, I have noted a significant change for the better in the way the Otago Regional Council and the stakeholders are now working together towards developing an effective and sustainable freshwater management framework in the region. In particular, I have observed the way the Council and Kāi Tahu are developing a close partnership relationship.

# Introduction

## Letter of appointment

By letter dated 16 May 2019, I have been engaged by the Hon David Parker, Minister for the Environment (the Minister), acting under section 24A of the Resource Management Act 1991 (the Act or the RMA), to investigate whether the Otago Regional Council (the Council or ORC) is adequately carrying out its functions under section 30(1) of the RMA in relation to freshwater management and allocation of resources. This includes implementation of the current National Policy Statement for Freshwater Management 2017 (NPS-FM).

A copy of the letter of appointment is attached to this report as Appendix 1.

## Timeline

In a subsequent letter, dated 2 September 2019, the Minister agreed to my request for the report back time to be extended to 1 October 2019 (copy attached as Appendix 2).

## My role

For transparency, I wish to make it clear that, while I am an appointed Councillor on the Canterbury Regional Council, I have undertaken this investigation in my private capacity. My Regional Council responsibilities, together with my former roles as an Environment Court Judge and a university Professor of Environmental Law, are relevant only insofar as they have enabled me to bring certain insights and experience to the investigation.

## Council co-operation

In carrying out this investigation, I have had free access to all relevant Council information, including a large number of documents. I have also had the full co-operation of Otago Regional Councillors and staff, and I am confident that I have been able to make all the necessary inquiries to enable me to complete this investigation.

## Focus of the investigation

The Minister wants to know if the Council has, or will have, an RMA-compliant planning and consenting framework in place to process and make decisions on new water permit applications by 1 October 2021. This is when the region's remaining 356 historic deemed permits expire, together with approximately 180 standard water permits.

This investigation has therefore focused on the Council's Regional Plan: Water for Otago (the Water Plan) and its associated documents and processes, including the Regional Policy Statement (RPS) and the Council's science, plan-making, and consenting capacities. The Terms of Reference for the investigation are set out in Appendix 3.

## Scope of the investigation

The investigation centres on the Manuherekia, Arrow, and Cardrona (MAC) river catchments. However, it also considers the need for an RMA-compliant water planning and consenting regime across all Otago catchments, particularly where deemed permits and over-allocation occur together, as in the Taieri catchment.

The investigation has examined:

1. the adequacy of the current planning framework from an RMA and NPS-FM standpoint
2. the adequacy of the performance by the Council of functions relating to planning for the management of water quality and water quantity issues in the Otago Region
3. whether, in the Manuherekia, Upper Cardrona and Arrow catchments, the planning framework will be appropriate and sufficient to consider applications for new water permits once deemed permits expire
4. the adequacy of the Council's resources, including its capacity to develop and implement an adequate planning framework that gives effect to the NPS-FM
5. the views of Kāi Tahu and stakeholders.

The investigation has involved reviewing relevant documents and interviewing a range of relevant Council staff, Aukaha staff (representing Kāi Tahu), stakeholders and interested parties. Appendix 4 to this report lists the people I have interviewed either in person or by telephone for the purposes of compiling this report. The process included:

1. a context-setting field trip to the Manuherekia catchment accompanied by Council staff
2. two Council workshop sessions to inform and update Councillors about the investigation and seek their views
3. various workshops and discussions with Council staff, including the chief executive, policy, strategy, science and planning managers and senior policy, planning and science staff
4. discussions with Aukaha, representing Kāi Tahu
5. discussions with the following stakeholders and interested parties:
   (a) Department of Conservation
   (b) Federated Farmers Otago
   (c) Otago Fish and Game Council
   (d) Central Otago District Council (the Mayor)
   (e) Waitaki District Council (the Mayor)
   (f) Otago Water Resource Users Group
   (g) Central Otago Winegrowers
   (h) Manuherekia Catchment Water Strategy Group (former Chair)
   (i) Upper Clutha Water Group
   (j) Irrigation NZ, plus local irrigators and their consultants
   (k) Central Otago Environmental Society
   (l) An unaffiliated Manuherekia resident and author

## Term of investigation

The investigation began on 25 June 2019 and has been completed with the presentation of this report to the Minister on 1 October 2019.

# Context

## Managing freshwater quality, quantity and ecology

The freshwater in our streams, rivers, lakes and aquifers is a national treasure which needs to be carefully managed to ensure that it can continue to meet a multiplicity of needs without becoming degraded or depleted. These include the habitat needs of our first freshwater users, the indigenous fish, fowl and invertebrates, and the more recent demands created by human activities, such as the need for clean drinking water, recreation, hydroelectricity generation, and farm irrigation.

The task of managing these needs and demands is challenging. One set of challenges relates to water quality. It requires the management of nutrient discharges, sediment and other water contaminants that arise from human activity. Another set of challenges relates to water quantity. It requires measures to ensure that the amount of water extracted for human use does not endanger the minimum flow needed for ecological processes, such as providing habitat for wildlife, and for recreational use.

These are pressing issues throughout much of New Zealand and particularly in Otago where tension exists between historic water use and current attempts to manage it. Hence this investigation. Responsibilities for managing water quality, and for setting minimum flow levels and allocating water takes, are set down in New Zealand's major planning statute, the Resource Management Act 1991 (RMA).

## RMA planning regime

Under the planning regime introduced by the RMA in 1991, the use of natural and physical resources is managed by regional and district councils. They do this through objectives, policies, rules and other methods specified by regional policy statements (RPS), regional plans, and district plans – in that order.

This hierarchical set of policies and plans determines which activities or environmental effects are permitted and which are not. Those which are not permitted may only be undertaken pursuant to a resource consent which stipulates conditions that the consent holder must comply with in order to avoid, remedy or mitigate particular adverse environmental effects.

In Otago, the Otago Regional Council is responsible for managing freshwater in approximately one hundred catchments. These include New Zealand's second and fourth longest rivers, the Mata-Au (Clutha) and the Taieri; and many small catchments with names like Gentle Annie, Dead Horse Creek, and Poison Creek.

## National Policy Statement for Freshwater Management (NPS-FM)

Where matters of national significance are involved, the RMA authorises the Minister to direct councils to set relevant environmental objectives, policies and rules. This national direction is achieved through national policy statements (NPS) and national environmental standards (NES). In 2011, the then Minister for the Environment established an NPS-FM which has since been revised twice, with a further revision pending

Regional water plans are required, by 2025, to show mapped areas called freshwater management units (FMUs) and, for each, to define its important values and set clear objectives and limits for water quality and quantity. These must comply with the detailed requirements of the NPS-FM, and councils must report annually on their progress towards this in progressive implementation programme reports (PIPs).

## The Essential Freshwater package

On 5 September 2019, the Government proposed some further changes to the way water is managed under the RMA. The proposed Essential Freshwater package includes a revised NPS-FM and a new NES for freshwater, which together will:

- strengthen Te Mana o Te Wai as the framework for freshwater management
- better provide for ecosystem health (water, fish and plant life)
- better protect wetlands and estuaries
- better manage stormwater and wastewater, and protect sources of drinking water
- control high-risk farming activities and limit agricultural intensification
- improve farm management practices.

## Resource Management Amendment Bill – freshwater hearings panel

On 23 September 2019 the Government introduced the Resource Management Amendment Bill. This Bill provides for a chief freshwater commissioner who will convene freshwater hearings panels to conduct public hearings of submissions on freshwater policies and plans prepared to give effect to the new NPS-FM. The freshwater policies and plans are required to be notified by 31 December 2023.

## Implication of revised national direction and legislation

These recent changes require all councils to impose tighter controls on freshwater management and to accelerate all policy and plan changes needed to give effect to the NPS-FM by 31 December 2025. The implication for ORC is that the consideration of any applications for replacements of the deemed permits by 1 October 2021 will now have to take place within the context of a more accelerated and intensive programme of NPS-FM-driven plan changes working to shorter deadlines than previously.

## Regional Plan: Water for Otago

In its 2018 PIP, the Council indicated that its Water Plan does not yet give effect to the 2017 NPS-FM but is expected to do so by 2025, consequent on a series of plan changes. However, in the Ministry for the Environment's summary of all PIPs from councils across the country it is noted that ORC's compliance with the NPS-FM by 2025 might not be able to be achieved given the amount of work the Council has yet to do.

Currently, most of Otago's 100 or so catchments are, by the Council's own estimation, over-allocated. This means the permits for water abstraction in those catchments allow more water in total to be taken than the catchment can sustain without adverse environmental effects. The Water Plan's Schedule 2 sets minimum flow and allocation limits for only 14 catchments, with the rest covered by comparatively permissive region-wide rules which set the default minimum flow at 50 per cent of mean annual low flow (MALF) – well below the national average of 75 per cent MALF.

Significantly, these rules do not apply to about a third of Otago's water takes which are authorised by the historic deemed permits. These are not subject to any of the Water Plan's allocation restrictions (see 'deemed permits' section below).

The Water Plan became operative in 2004 and has had 15 plan changes since then (see Appendix 7). Four of these plan changes set minimum flow and allocation limits for some of the larger catchments (e.g. the Taieri, upper Manuherekia, Luggate, and Pomahaka). The most recent of the plan changes (PC5A - Lindis: Integrated water management) was notified in 2013 and is still under appeal in the Environment Court where appellants have disputed its proposed minimum flow limit.

Another plan change (PC6A) on water quality became operative in 2014 but also provided for a deferment of the rules for limiting nutrient discharges until April 2020 in order to give water users time to adapt. The Council is now proposing to extend this deferment period through a new plan change (PC6AA) after recently identifying implementation problems with these rules. PC6AA will defer the nutrient rules until April 2026.

In the meantime, the Council intends to notify another plan change, known as the Omnibus Plan Change, in March 2020. This will, among other things, provide some interim water quality provisions to address some of the deficiencies in PC6A, and will also provide interim policy guidance for the issuing of freshwater resource consents.

In 2018, proposed plan change (PC7) would have set minimum flow and allocation limits in three Central Otago catchments (Manuherekia, Arrow, and Cardrona). It was withdrawn by the Council amid concerns from both water users and Council staff that the limits were not based on robust hydrological data and models. The decision to withdraw the plan change was not unanimous, and was opposed by Kāi Tahu and some environmental stakeholders whose view was that PC7 is a step in the right direction which would be able to be improved by future plan changes.

However, I consider this withdrawal was a responsible course of action to take, given the scientific uncertainty which is now being addressed. The Council has engaged the National Institute of Water and Atmospheric Research (NIWA) to provide an improved flow model for the Manuherekia catchment, referred to as the Cumulative Hydrological Effects Simulator (CHES) Model. It has expressed the intention of notifying plan changes for the three Central Otago catchments as soon as the data and modelling permit.

Even with these proposed and actual changes, however, a number of NPS-FM requirements will still not be addressed by the Water Plan. Further plan changes will be needed before all of the region's catchments are covered by FMU management plans with values, objectives and limits for minimum flow levels, allocation and water quality attributes.

The Council has recently completed the first stage of this work by dividing the region into eight FMUs which cover all of its catchments, and further subdividing some of these into rohes, or sub-FMUs. However, the Council has still to develop, in consultation with Kāi Tahu and the FMU communities, a full set of values, objectives and limits for each FMU and rohe and to then incorporate these via plan changes into the Water Plan. That work is now beginning in some FMUs, with, for example, a community meeting held on 25 September 2019 to discuss water values in the Manuherekia rohe.

# Deemed permits

In addition to the 1,400 or so water takes authorised by 883 resource consents in Otago, there are nearly 600 further water takes authorised by 356 deemed permits. Prior to the RMA, these permits were known as "mining privileges" and were held as a property right (see Appendix 5: History of Regulations - the Otago Mining Privileges).

Under section 413(3) of the RMA[1], all of these permits will expire on 1 October 2021. Many of their owners are expected to apply for replacement resource consents at least six months before then. As things currently stand, in catchments without specific flow and allocation limits, the replacement applications would have to be assessed under the Water Plan's default limits which may not be adequate to control environmental effects in a number of catchments.

The first mining privileges were established in 1858 to give gold-miners access to water and adjacent land for sluicing purposes. Later, they were re-purposed for farm irrigation. During the first half of the twentieth century, many mining privilege licences were acquired by the Government to enable economic development and employment creation through large-scale irrigation and dam construction works, such as the Falls Dam and the irrigation network in the Manuherekia catchment. While some mining privileges remained in private hands, by the 1980s, most belonged to the Crown.

Over time, the statutes governing mining privileges shifted from various mining acts and amendments to the Public Works Act, then the Water and Soil Conservation Act 1967 and finally, in 1991, the RMA. This final transition occurred during the economic liberalisation of the 1980s and early 1990s when the Crown was privatising public assets, including irrigation infrastructure.

The Crown's mining privilege licences were sold to local farmers and private irrigation companies who, to protect their investment, negotiated a 30-year exemption from any restrictions that might have been imposed under the impending RMA.

When the RMA came into effect, it provided for the mining privilege water takes as deemed water permits - as distinct from standard RMA water and discharge permits - and ensured the continuation of their mining privilege conditions until the expiry date of 1 October 2021.

Until that expiry date, the RMA requires decisions on any replacement resource consents to have regard to the previous deemed permit water right. Any plan change, during this time, which reduces a deemed permit water right may only be instigated by the permit holder. Permit holders who consider that their right to take or discharge water has been infringed by the Council may seek compensation up to, but not beyond, the expiry date.

In Otago, several hundred deemed permits were replaced by resource consents in the period leading up to the adoption of the Water Plan in 2004. In the absence of catchment-level flow and allocation limits, many of these consents were issued with relatively permissive conditions, often for terms of 30-35 years. This has continued piecemeal to the present day. Two water permits issued earlier this year have 35-year terms extending to 2054.

The Council's consenting team has recently indicated that, where there are no catchment-specific flow and allocation limits, it now intends to limit replacement consent terms to 5-10 years, on a case by case basis. However, many permit-holders still expect 25-35 year consents and, at present, there is no plan rule limiting consent terms.

Since the Water Plan became operative in 2004, the Council has promoted a policy of "use it or lose

[1] "Every deemed permit resulting from a mining privilege under subsection (1)(c) or (d) shall be deemed to include a condition to the effect that it finally expires on the 30th anniversary of the date of commencement of this Act."

it", encouraging the remaining deemed permit holders to use their water in order to demonstrate their volume of 'historic' usage when they apply to replace the permits. In some catchments, notably the Manuherekia, this "use it or lose it" message has reportedly had the effect of encouraging increased usage, including wasteful usage.

The Water Plan also has an "efficient use" requirement which has reportedly encouraged some deemed permit holders to shift away from flood or border dyke irrigation to more sophisticated spray and pivot irrigation, the funding of which requires greater productivity from more intensive land and water use. Dairy farming, for example, has increased in the Manuherekia from no dairy platforms in 2008 to at least 15 (refer to Table 1 below) now identified in the Agribase[2] database.

**Table 1: Otago catchments with the most deemed permits (as at 17 September 2019) and number of dairy farms in the region**

| Catchments with deemed permits | Deemed Permits *(takes)* | RMA Water Permits *(takes)* | Median Expiry Date of RMA water permits | Whether over-allocated | Whether subject to Schedule 2 allocation and flow limits | Dairy farms |
|---|---|---|---|---|---|---|
| **Taieri** | **74** *(103)* | **160** *(233)* | **2037** (2019-2023) | Yes | Yes | 76 |
| **Manuherekia** | **71** *(124)* | **122** *(225)* | **2023** (2019-2052) | Yes | Yes (part of river - Falls Dam to Ophir) | 15 |
| **Lindis** | **19** *(31)* | **17** *(28)* | **2029** (2021-2043) | Yes | Pending (notified and under appeal) | 0 |
| **Cardrona** | **14** *(27)* | **31** (55) | **2038** (2020-2050) | No | Yes | 0 |
| **Lowburn Creek** | **13** *(41)* | **1** (2) | **2046** | No | Yes | 0 |
| **Arrow** | **12** *(18)* | **8** (19) | **2030** (2021-2048) | No | Yes | 0 |
| **Luggate** | **12** *(16)* | **1** (1) | 1 Oct **2021** | Yes | Yes | 0 |
| **All others (ca 50)** | **141** *(223)* | **544** (836) | | Approx. 60% | Approx. 30% | 411 |
| **Totals** | **356** ***(583)*** | **884** **(1399)** | | | | **502** |

*Sources: Otago Regional Council (consent and plan data); Agribase (dairy farm data)*

With two years to go until their expiry, there are still 356 deemed permits in the Otago region – 275 for surface water takes and 81 for groundwater abstraction. They are spread thinly over approximately 60 catchments, though the bulk of them are concentrated in seven catchments, namely: the Taieri (74), Manuherekia (71), Cardrona (14), Lindis (19), Lowburn (13), Arrow (12), and Luggate (12). Four of these, the Taieri, Manuherekia, Lindis, and Luggate catchments are considered by the Council to be over-allocated.

[2] AgriBase is a national spatial farms database owned and maintained by AsureQuality, a state-owned enterprise which provides specialist food assurance services covering the entire food supply chain. Agribase holds information on approximately 142,000 live (current) New Zealand farms, including 828 dairy farms throughout Otago.

The Council is expecting 96 unused deemed permits to be surrendered by the hydroelectricity company, Trustpower. This will leave approximately 270 still needing to be retired or replaced in the next two years. In addition to the deemed permits, nearly 180[3] standard RMA water permits are also due for replacement on or before 1 October 2021.

In total then, the Council may receive up to 450 water resource consent applications in the next 18 months, including from catchments which are over-allocated and have no local minimum flow and allocation limits.

[3] This includes 20 consents which expired between 2016 and 1 October 2019 but, subject to RMA section 124 guidelines, are still in effect until decisions are made on their replacement consents which were applied for before the expiry dates.

# Overview of the Otago planning framework

Before commenting on the Regional Policy Statement and Regional Water Plan in more detail, I wish to report some observations about the state of the freshwater environment. While a comprehensive account of the state of the freshwater environment throughout the Otago region is beyond the scope of this investigation, a Ministry for the Environment summary for four key catchments (i.e. the Taieri, Manuherekia, Arrow, and Cardrona) is provided in Appendix 6 to this report.

As noted there, trend data for a number of environmental indicators are either absent or too recent to be interpreted clearly. However, from the data available, some general observations can be made. These observations have contributed to my assessment of the adequacy of the Council's planning framework and associated science capability and capacity. Key points to note are set out below.

## Water quality

While the overall water quality of most Otago rivers in the Land, Air, Water Aotearoa (LAWA) database[4] is considered "good", there is evidence of some degradation in those catchments or parts of catchments where intensification has occurred, such as in some of the tributaries or lower reaches of some rivers, including the Manuherekia, Cardrona, parts of the Taieri, and around Lake Hayes in the Arrow catchment.

In the Manuherekia catchment, for example, water quality shows declining trends for phosphorus, *E. coli* and turbidity. In the Arrow catchment, the condition of Lake Hayes may be close to a tipping point. Eutrophication and pathogens are an issue, with swimming warnings becoming more frequent, and Macroinvertebrate Community Index (MCI)[5] scores for the inflows to Lake Hayes also indicate water quality issues.

In the Cardrona catchment, nitrogen and *E. coli* appear to be the main water quality issue. MCI scores highlighted probable impact on water quality and/or habitat conditions. The Taieri catchment has variable quality along its length, with *E. coli* and phosphorus being the main water quality parameters of concern. Lake Waihola is particularly sensitive (due to its shallow nature) and has some signs of poor water quality and eutrophic status.

## Water flows

There is a high level of water abstraction in Central Otago. For instance, it is estimated that 75% of the available flow in the Manuherekia River is taken for irrigation and stock water. This compares with about 25% in other regions of New Zealand. In the Manuherekia catchment, which has the Falls Dam, multiple water storage sites and a complex network of water races, water quantity is poorly understood, but likely to be severely over-allocated in terms of abstractions and flow.

The Arrow is also considered to be severely over-allocated, though actual usage of water is low compared to paper allocation. The Cardrona River too is considered by ORC to be over-allocated. It has a natural drying stretch which recharges groundwater while impeding the summertime passage of trout and migratory fish passage. Although the Taieri catchment has water storage on some tributaries and has minimum flow limits set at multiple places throughout the catchment, the river

[4] LAWA is a partnership between the 16 regional and unitary councils, the Cawthron Institute, and the Ministry for the Environment. It is the most comprehensive source of water quality data in New Zealand.

[5] Macroinvertebrate Community Index (MCI) is an index used to measure the water quality of fresh water streams. The presence or lack of macroinvertebrates such as insects, worms and snails in a river or stream can give a biological indication of the health of that waterway.

sometimes reaches these minimum flows and is described on the LAWA website as 'heavily over-allocated, largely as a result of the use of historic deemed permits to allocate water."[6]

The high level of water abstraction in some Central Otago catchments has significantly altered the natural flows, ecosystems and fish habitats of some streams and rivers. The full extent of these changes is difficult to quantify without naturalised baseline hydrological and ecological data, but work is currently addressing this through NIWA's CHES model, commissioned by the Council, and also through research by Aukaha. This research will involve cultural health monitoring and habitat modelling at 90 freshwater sites during this coming summer, 30 each in the Manuherekia, Cardrona, and Taieri catchments.

### Ecology and endangered species

Wetlands have been particularly affected by historic land use, with 81% having been lost in the Manuherekia catchment, 84% in the Arrow, 83% in the Cardrona and 71% in the Taieri. The condition of remaining wetlands is not well known but appears to vary. The Taieri catchment has a large wetland-lake complex in its lower catchment that holds international significance.

In some river catchments, flow and habitat changes, together with the ingress of trout, have had a severe impact on endemic non-migratory galaxiids, several of which are threatened or endangered. I was informed by a Council freshwater scientist that there have been dramatic declines, and the loss of entire populations, in recent decades in a number of catchments, including the Manuherekia and the Taieri.

The Manuherekia catchment contains rare, endemic, fish species that may be in serious trouble, including one unique galaxiid species that is found only in the Manuherekia catchment. It also has a poor representation of more common species. In the Arrow, fish diversity is very low, with only one native species having been recorded. In contrast, the Cardrona River has at least seven fish species, including rare galaxiids, as well as freshwater mussels and koura. The Taieri catchment supports a diversity of fish life, of more than 20 species, including many rare species.

## The Otago Regional Policy Statement

The Otago Regional Policy Statement (RPS) was made partially operative on 14 January 2019. A number of the provisions are currently subject to High Court proceedings, including policies concerning mineral and petroleum exploration and offsetting for indigenous biological diversity.

I do not intend to comment on the overall quality of the RPS, noting that some outstanding matters are before the High Court, but I would expect freshwater management to be more prominent in the RPS which aspires to five primary outcomes:

1. resource management in Otago is integrated
2. Kāi Tahu values and interests are recognised, and kaitiakitaka (kaitiakitanga) is expressed
3. Otago has high quality natural resources and ecosystems
4. communities in Otago are resilient, safe and healthy
5. people are able to use and enjoy our natural and built environment.

These outcomes direct the framework of the RPS which covers issues of integrated management, Kāi Tahu values, natural resources and ecosystems, resilience, climate change, infrastructure, energy

[6] LAWA website: https://www.lawa.org.nz/explore-data/otago-region/water-quantity/surface-water-zones/taieri-catchment/

resources, urban growth, hazardous substances, the built environment, historic heritage, and managing adverse effects.

The primary objectives relating to freshwater in the RPS are Objectives 3.1 and 3.2. In the appeals version of the plan, these objectives state:

> **Objective 3.1** The values (including intrinsic values) of Otago's ecosystems and natural resources are recognised, and maintained, and/or enhanced where degraded
>
> **Objective 3.2** Otago's significant and highly-valued natural resources are identified, and protected, or enhanced where degraded.

Under Objective 3.1, Policy 3.1.1 fresh water states:

> Safeguard the life-supporting capacity of fresh water and manage fresh water to:
>
> a. Maintain good quality water and enhance water quality where it is degraded, including for:
>
> i. Important recreation values, including contact recreation; and,
>
> ii. Existing drinking and stock water supplies;
>
> b. Maintain or enhance aquatic:
>
> i. Ecosystem health;
>
> ii. Indigenous habitats; and,
>
> iii. Indigenous species and their migratory patterns.
>
> c. Avoid aquifer compaction and seawater intrusion;
>
> d. Maintain or enhance, as far as practicable:
>
> i. Natural functioning of rivers, lakes, and wetlands, their riparian margins, and aquifers;
>
> ii. Coastal values supported by fresh water;
>
> iii. The habitat of trout and salmon unless detrimental to indigenous biological diversity; and
>
> iv. Amenity and landscape values of rivers, lakes, and wetlands;
>
> e. Control the adverse effects of pest species, prevent their introduction and reduce their spread;
>
> f. Avoid, remedy or mitigate the adverse effects of natural hazards, including flooding and erosion; and,
>
> g. Avoid, remedy or mitigate adverse effects on existing infrastructure that is reliant on fresh water.

Policy 3.1.3 also provides for water allocation and use:

> Manage the allocation and use of fresh water by undertaking all of the following:
>
> a. Recognising and providing for the social and economic benefits of sustainable water use;
>
> b. Avoiding over-allocation, and phasing out existing over-allocation, resulting from takes and discharges;
>
> c. Ensuring the efficient allocation and use of water by:
>
> i. Requiring that the allocation does not exceed what is necessary for its efficient use;
>
> ii. Encouraging the development or upgrade of infrastructure that increases efficiency;
>
> iii. Providing for temporary dewatering activities necessary for

construction or maintenance.

Other relevant policies include 3.1.4 water storage; 3.1.7 soil values; 3.1.9 ecosystems and indigenous biological diversity; 3.2.13 and 3.2.14 in relation to outstanding freshwater bodies.

Methods 3.1.3(h) and (i) for regional plans state "to provide for resource users, people and communities that rely on freshwater within environmental limits" and "to set limits and targets to give effect to the National Policy Statement for Freshwater Management 2014".

I also note that provision is made for the habitat of trout and salmon unless detrimental to indigenous biological diversity (ie, Policy 3.1.9(b)(ii)). This has high relevance to a number of Otago catchments where I understand native fish are challenged not only by water flows and related ecological conditions, but also by competition with trout.

The Council acknowledges that the RPS does not fully give effect to the NPS-FM 2017 and I note that it will require a substantial additional update to give effect to the forthcoming reviewed NPS-FM. I consider for example, that there will need to be an explicit chapter relating to land use and freshwater management. At this stage, I understand the proposed revised NPS-FM will require amendments to the RPS relating to:

- Te Mana o Te Wai (section 3.2)
- integrated management directed at managing effects from urban development (section 3.4).
- avoiding loss and degradation of wetlands (section 3.15)
- maintaining ecosystem health in streams (section 3.16).

Other provisions will also be required as a result of the forthcoming national directions for urban development, highly productive land, and indigenous biodiversity.

In addition, the new national planning standards (planning standards) apply to all regional councils, and unitary authorities with separate regional policy statements. These must comply with all planning standards apart from the requirement for e-planning, by 3 May 2022 or at notification of a proposed RPS, whichever is sooner.

The new format will require significant changes to the current Otago RPS in terms of section headings, structure, definitions, and monitoring provisions. Further, a section heading for 'National direction instruments' is compulsory. This will contain all the operative national policy statements, national environmental standards, and regulations.

# Regional Plan: Water for Otago

The Regional Plan: Water for Otago provides a framework for the management of water in the region and was made operative on 1 January 2004. It applies to lakes, rivers, groundwater, and wetlands. The plan includes some provisions for assessing applications for replacement water consents once the deemed permits expire and it takes an effects-based approach to managing water quality. It focuses on controlling contaminant and sediment discharges, rather than regulating or managing land use activities themselves.

I consider that overall this plan does not give effect to the NPS-FM nor does it provide a comprehensive framework within which to support the deemed permit replacement process. A number of gaps in the Water Plan have been identified through discussions with ORC staff, Kāi Tahu and stakeholders, including:

- inadequate approach to flow and allocation limit setting, including failure to underpin with appropriate hydrological modelling and freshwater science
- failure to recognise or address over-allocation in plan provisions
- lack of provisions for aquatic biodiversity and habitat, particularly threatened species such as non-migratory galaxiids
- a risk of adverse effects on waterbodies arising from the efficiency policy which appears to have encouraged at least some users to maximise rather than minimise their water use.

## Allocation

Policy 6.4.2 of the plan defines the primary allocation limit for each catchment as the greater of the catchment limits set in:

- Schedule 2A (includes limits for Taieri and Manuherekia); or
- 50% of the 7-day Mean Annual Low Flow (MALF); or
- The sum of the consented maximum takes.

This (particularly the ability to determine primary allocation based on the sum of the consented maximum takes), in combination with Policy 6.4.2A (which provides for granting "*from within primary allocation, no more water than has been taken under the existing consent in at least the preceding five years"*) can provide a perverse incentive to maximise water use prior to applying for consents to replace expiring deemed permits, in order to obtain maximum allocation. In a situation where deemed permits are to be replaced on a "use it or lose it" basis, this can lead to spilling of unused water, as reported in discussions with Kāi Tahu and several other stakeholders.

Allocation is a significant issue in the Manuherekia catchment where the level of abstraction significantly exceeds the primary allocation in the plan, with paper allocation an order of magnitude higher[7] than Schedule 2A.

## Minimum flows, residual flow and efficiency

Minimum flow setting in the region has been protracted and remains in process for a number of catchments including those that contain the majority of the remaining deemed permits.

Where minimum flows have been set, whether or not they are sufficient is questionable due to a lack

[7] ORC Briefing Note: Minimum flows plan change for priority Otago catchments and deemed water permit replacement process.

of consistent methodology and insufficient hydrological investigations and investment in the freshwater science which underpins ORC's limit-setting process. (Policies 6.4.3 and 6.4.4 and Method 15.9.1.3).

With respect to deemed permits, the Mitchell Daysh consent review notes that the existing planning framework does not appear to provide clarity and certainty on the minimum flows that are likely to be applied. As a consequence, minimum flows will be contentious in respect of each application.

Policy 6.4.7 relates to the requirement to maintain a residual flow at the point of take.[8] The policy does not adequately protect instream values or reliability of supply, and does not consider downstream effects.

Policy 6.4.0A relates to water efficiency in terms of water transport, storage and application. However, the policy neither requires nor guides users to reduce the volume of water used. Without this, the adoption of more efficient application methods can enable the irrigation of larger areas and intensification of farming operations with no reduction in water take.

This has the potential to increase economic dependence on existing water takes and, in combination with the allocation policies outlined above (which enable deemed permit replacement consents to be based on inflated historic use), can heighten the risk of adverse environmental outcomes in terms of contaminant and sediment discharges. This risk is further heightened by the plan's failure to regulate land use activities (eg, intensive winter grazing, dairy intensification).

## Provisions pertaining to threatened species, fish passage and fish screening

Maintaining an up-to-date inventory of native fish is a core requirement for the effectiveness of a regional water plan. DOC has advised that the Threatened Species Schedule in the Water Plan is out-of-date (see Table 2 below).

[8] "The need to maintain a residual flow at the point of take will be considered with respect to any take of water, in order to provide for the aquatic ecosystem and natural character of the source water body."

**Table 2: Freshwater Fish Status in the Water Plan**

SCHEDULE 1AA: OTAGO RESIDENT NATIVE FRESHWATER FISH THREAT STATUS

**1AA Schedule of Otago Resident Native Freshwater Fish - Threat Status**

| Common name | Scientific name | Threat Status |
|---|---|---|
| Lowland longjaw galaxias | *Galaxias cobitinis* | Nationally Critical* |
| Canterbury mudfish (Kōwaro) | *Neochanna burrowsius* | Nationally Critical |
| Teviot flathead galaxias | *Galaxias* 'Teviot' | Nationally Critical* |
| Dusky galaxias | *Galaxias pullus* | Nationally Endangered* |
| Alpine galaxias | *Galaxias* aff. *paucispondylus* 'Manuherikia' | Nationally Endangered* |
| Eldon's galaxias | *Galaxias eldoni* | Nationally Endangered* |
| Central Otago roundhead galaxias | *Galaxias anomalus* | Nationally Vulnerable* |
| Clutha flathead galaxias | *Galaxias* sp. D. | Nationally Vulnerable* |
| Smeagol galaxias | *Galaxias* aff. *gollumoides* 'Nevis' | Nationally Vulnerable* |
| *Longfin eel (tuna)* | *Anguilla dieffenbachii* | Declining |
| Giant kokopu (Taiwharu) | *Galaxias argenteus* | Declining |
| *Galaxias gollumoides* | *Galaxias gollumoides* | Declining |
| Lamprey (kanakana) | *Geotria australis* | Declining |
| *Torrentfish (Piripiripōhatu)* | *Cheimarrichthys fosteri* | Declining |
| Koaro | *Galaxias brevipinnis* | Declining |
| Inanga (inaka) | *Galaxias maculatus* | Declining |
| Bluegill bully | *Gobiomorphus hubbsi* | Declining |
| Redfin bully | *Gobiomorphus huttoni* | Declining |

*NB: Fish marked with an * are only found in the Otago Region.

*Source: Regional Plan – Water for Otago*

DOC has provided a more recent table of non-migratory Galaxias in the Otago region and their current threatened species status (see Table 3 below). Notable changes in fish status are:

- **The Central Otago roundhead** galaxias, *Galaxias anomalus* (found in the Taieri and Manuherekia tributaries) are now nationally endangered, previously nationally vulnerable
- **The Clutha flathead** galaxias, *Galaxias* sp. D. (found in the Cardrona River, Lindis River, Clutha tributaries above Lake Dunstan, Bannock Burn, Manor Burn, Pool Burn and Benger Burn) are now nationally critical, previously nationally vulnerable, and
- **The Gollum** galaxias, *Galaxias gollumoides* (found in the Clutha/Mata-Au), are now nationally vulnerable, previously declining.

**Table 3: Non-migratory galaxias in the Otago region**

| Taxa | Common name | Distribution in Otago |
|---|---|---|
| ***Nationally Critical*** | | |
| *Galaxias* "species D" | Clutha flathead galaxias (Clutha River) | Cardrona River, Lindis River, Clutha tributaries above Lake Dunstan, Bannock Burn, Manor Burn, Pool Burn, Benger Burn |
| *Galaxias* "Teviot" | Teviot flathead galaxias (Teviot River) | Teviot River tributaries |
| *Galaxias cobitinis* | Lowland longjaw galaxias | Kauru and Kakanui Rivers |
| ***Nationally Endangered*** | | |
| *Galaxias anomalus* | Central Otago roundhead galaxias | Taieri and Manuherekia tributaries |
| *Galaxias eldoni* | Eldon's galaxias | Taieri and Tokomairiro River tributaries |
| *Galaxias pullus* | Dusky galaxias | Lower Clutha and Taieri River tributaries |
| *Galaxias* "Nevis" | Nevis galaxias (Nevis River) | Nevis River |
| *Galaxias* aff. *paucispondylus* "Manuherikia" | Alpine galaxias (Manuherikia River) | Manuherikia River above Falls Dam |
| ***Nationally Vulnerable*** | | |
| *Galaxias depressiceps* | Taieri flathead galaxias | Shag, Waikouaiti, Taieri, Tokomairiro river tributaries, Akatore Creek |
| *Galaxias gollumoides* | Gollum galaxias | Clutha/Mata Au |
| *Galaxias* "Pomahaka" | Pomahaka galaxias (Pomahaka River) | Pomahaka River |
| *Galaxias* "southern" | Southern flathead galaxias (Southland, Otago) | Upper Clutha River tributaries |
| *Galaxias* aff. *paucispondylus* "Southland" | Alpine galaxias (Southland) | Von and Lochy Rivers |

*Source: Department of Conservation*

The nationally endangered Alpine galaxia (Manuherekia River) *Source: Creative Commons*

DOC also advises that the fish passage and screening provisions of the plan are inadequate, falling short of national best practice and failing to provide specific measures to protect non-migratory galaxiid fish, such as fish barriers and eradication methods to exclude invasive species.

The damming provision (rule 12.3.2) is seen by DOC as permissive in providing a pathway for multiple small dams to be constructed as a permitted activity. In a small catchment this is likely to impact on non-migratory galaxiids by removing or reducing their habitat.

There are clearly opportunities to strengthen the existing provisions and afford greater protection to the region's unique galaxiid species.

## National planning standards requirements for regional plans

In addition to having to comply with the NPS-FM, the Water Plan will need to be updated to comply with the national planning standards (in particular *3. Regional Plan Structure Standard).* I am advised that the timeframes are: within 10 years of the planning standards coming into effect (2019), or notification of a proposed regional plan (but not a change or variation) for submissions, whichever is sooner.

The planning standards encourage an integrated region-wide approach to planning for a region's resources. A catchment-scale approach is provided for in the structure. Cost and resource implications for councils can be reduced by adopting 'regional-scale' responses where appropriate, and overlaying catchment-scale processes where required. Environmental benefits can be achieved by ensuring regional provisions are in place to prevent further degradation of freshwater resources until limit-setting processes can be initiated.

The standards do not prevent a separate Water Plan being created, but all the other required parts of the regional plan standard will need to be included. I note that most regions have, or are moving to, integrated regional plans.

# Current Council capacity and capability

For the Water Plan to give effect to the NPS-FM, the Council needs sufficient capacity in not just one, but all, of the following key areas: policy and planning, science, consenting and CME (compliance, monitoring and enforcement). Although ORC is fiscally strong, these key areas are seriously under-resourced and will need significantly more investment if the Council is to cope with the resource management tasks that currently face it, including compliance with the NPS-FM.

The new Council senior managers are aware of this and are beginning to address the capacity gaps within their current budget envelopes, but more investment is vital to fully address all of the identified shortfalls in capacity and capability. The Council's CEO Sarah Gardner is also aware of this and has told me that this investment will be provided for in forthcoming annual and long term planning processes.

## Science capacity and capability

Critical to the success of ORC's water management planning and implementation is a robust scientific evidence base. At present, the Council has 9.4 full-time equivalent (FTE) scientist positions comprising the science manager, 2 groundwater scientists, 2 freshwater ecologists, 2 minimum flows scientists, 1.4 hydrologists, and 1 air quality scientist.

An independent review[9], commissioned by the Council, recently reported that, for a region the size of Otago, this number of scientists is quite inadequate to support all of the Council's critical resource management functions. The reviewers also identified a shortage of scientific technical support staff. Approximately two technical staff are needed per FTE scientist to collect, process, store, and analyse data. ORC has insufficient technical staff to support even the current under-strength science team.

The reviewers' key findings were:

- capacity gaps in land, wetlands, coastal and catchment modelling are top priorities
- freshwater science (both quality and quantity) is under-resourced
- science, monitoring and data, overall, are under-resourced compared with other councils,

The high priority gaps are in:

- **land environments** (farm systems, irrigation, nutrient modelling, soil quality, sediment generation/transport)
- **coastal environments** (wetlands and estuaries)
- **catchment modelling** (land and water quality limits setting)
- **biodiversity** (terrestrial and wetland ecosystems)
- **cultural values** (Kāi Tahu environmental indicators and monitoring).

Looking specifically at water, the reviewers found a shortage, provisionally estimated at 2-3 water quantity FTEs (1 senior, 1 scientist, 1 support), for work on practical hydrology (flow naturalisation) and hydro-ecology (minimum flows), and a shortage, provisionally estimated at 2-3 water quantity FTEs (1 senior, 1 scientist, 1 support), for work on catchment processes and limits setting.

Overall, the review recommended a doubling of the Council's scientists from 9.4 to 19.4 FTE positions, including:

[9] Aquanet Consulting Ltd. (2019) *Otago Regional Council Science Capability and Capacity Review.* Presentation to the Executive Leadership Team, 20 August 2019.

- **a water quantity/hydrology team** with 6.4 scientists
- **a water quality/ecology team** with 5 scientists
- **a catchment process team** with 2 scientists (1 land, 1 modelling)
- **a biodiversity and coastal wetlands team** with 3 scientists.

The reviewers acknowledge the difficulty in finding suitably qualified staff at a time when the Essential Freshwater package is creating high nationwide demand for water and catchment expertise. They note therefore that strategic use of external consultants will be critical to the successful delivery of the Council's water resource management programme.

The reviewers also note that the deficiencies in science staffing are exacerbated by deficient staff training, a lack of development pathways and consequent staff turnover leading to loss of institutional knowledge. The impacts of lost institutional knowledge are exacerbated by a lack of robust data collection and databases to which staff can refer.

From my discussions with staff, the Council expects to take in-house ownership of the CHES hydrological flow model for the Manuherekia which is being developed by NIWA under contract. The final model will include various layers, each with differing assumptions and baselines, including a natural flows layer which will model ecological baselines in the absence of water storage and abstractions. The development of the CHES model is behind deadline due to the complexity of the Manuherekia catchment and its network of water races. However, once completed, the model is expected to be able to be adapted for the modelling of other river systems in the region.

Other parties are also contributing to the Council's scientific database on the Manuherekia. As mentioned earlier, Aukaha is undertaking cultural health monitoring and habitat modelling over the 2019-2020 summer, when the river is at its lowest flows; and the Manuherekia irrigators have made available their hydrological model, developed several years ago by Golder Associates.

The Council is aware of the capacity and capability deficiencies discussed here and has already begun advertising three new water science positions. However, without a substantial increase in in-house scientific capacity I consider that the Council will be insufficiently prepared to meet the NPS-FM Water Plan notification deadline of December 2023, and will certainly not have all the catchment data it needs to set allocation and flow limits before the expiry of the deemed permits on 1 October 2021.

## Planning Policy capacity

At present, to cover all its planning and policy functions, I understand that the Council employs seven planners with varying levels of seniority and experience and also contracts the services of consultant policy planning staff with extensive water planning experience.

The water policy and planning workload between now and 2023 is beyond the resources of such a small team and will require additional experienced planning staff. From my discussions with staff and management, it would appear that the planning team will need five additional planners to meet the coming workload – three with experience in water plan writing, and two with the skills to facilitate FMU community consultations on water values.

These are challenging requirements. Experienced water resource planners are in short supply nationally and will become even harder to recruit as the Essential Freshwater package drives up demand for their services across the country. Earlier this year, the Council received only four responses when it invited tenders from experienced plan writers to assist with its draft plan change for the Manuherekia catchment. Three of the responses were from outside the region and none had particular experience in water planning.

I consider that without a significant increase in resourcing and proactive recruitment initiatives by the

Council, the necessary planning capacity will not be achieved.

## Consenting capacity

The Council's consenting capacity and processes were reviewed earlier this year in an independent report[10] commissioned by the Council's chief executive. Among the report's findings was that there has been an upswing in consent applications in the past two years, with annual numbers now exceeding those of the previous peak year of 2012.

The reviewers concluded that this trend is almost certain to continue as new planning requirements under the NPS-FM come into effect and the deemed permits approach their expiry date. They considered that the Council's consenting and science capacity was insufficient to deal with the increase. They observed that:

> First, there does not appear to be much internal expertise in respect of processing of applications relating to water quality (farming land use consents/diffuse discharge consents). Secondly, there is a potential gap with respect to the processing of replacement consents for the deemed permits.

The reviewers recommended that the Council appoint two additional consent officers and that it dedicate part of one senior level job description to regularly projecting and planning for future consent application volumes.

The Council's response to this recommendation has been to advertise for additional consenting staff and to develop a programme of continually updated projections of consent volume. The Council's consenting managers are confident that they will have sufficient capacity to deal with the influx of replacement resource consent applications. As a back-up resource, in the event of staff overload, they have contracted Mitchel Daysh Ltd to process the more complex consent work.

I am satisfied that the Council is taking on board the recommendations of the independent report and improving its consenting capacity and processes.

## Compliance, monitoring and incident response capacity

According to Council management, the compliance team does not have the capacity to deal with the additional workload that will arise when the regional water quality rules of Plan Change 6A (PC6A) become operative. For this, the monitoring team will need to be doubled from the current five staff to 10.

As noted earlier the PC6A rules were decided back in 2013 with a deferred implementation date of April 2020. However, they are now recognised as deficient so the Council is proposing to further defer implementation until April 2026 while it makes the necessary interim corrections through an omnibus Water Plan change early next year.

I understand that the Council also needs dedicated incident response officers to deal with the increasing number of incidents (almost 1,200 per year – or 24 per week) which are currently diverting compliance officers away from their core roles.

## Accommodation capacity

An additional constraint on the Council's staffing capacity which ought to be acknowledged is the physical inability of the current offices in Dunedin to house additional staff on the scale discussed

[10] Maw P, Daysh S. 2019. *Consents Function Review*. A report prepared for the Otago Regional Council by Wynn Williams and Mitchel Daysh Limited.

here. If staff capacity-building is not to be delayed or compromised, temporary office premises for some staff may need to be considered in the short to medium term.

# Kāi Tahu perspectives

Kāi Tahu expects a partnership relationship with the Council and to share in the policy-making process on resource management matters. Although the iwi has a positive relationship with ORC, it considers that, to date, it's environmental and relationship aspirations have not been met by the Council. In the past, it was treated less as a partner and more as a stakeholder, interested party, applicant, submitter or appellant, depending on the issue. When treated as one party among many, in groups such as the Manuherekia Technical Advisory Group (TAG), Kāi Tahu's voice and values are inevitably diminished.

However, this may be changing. ORC Chief Executive, Sarah Gardner, supports a partnership role for Kāi Tahu and the Council recently made two seats available for them at the Policy Committee (a Committee of the whole Council), enabling them to participate in the setting of FMU and rohe (sub-FMUs) boundaries. Kāi Tahu played a key role in ensuring that the boundary of the Mata-Au FMU encompasses the entire Clutha catchment from the mountains to the sea.

Kāi Tahu employs a stand-alone commercial consultancy, Aukaha, to advocate for its environmental and cultural aspirations in resource management, to facilitate consultation with Kāi Tahu Papatipu Rūnanga, and to support Māori hauora (health) and wellbeing. Aukaha has protocols with the ORC Council and all district councils in Otago setting out the process for facilitating Kāi Tahu engagement in the Council's resource consent and plan change processes. [11]

My discussions for this investigation were with Aukaha's Chair, staff and advisors at their offices in Stuart Street, Dunedin.

## ORC's current planning framework

Aukaha has concerns about the adequacy of the current water planning framework from an RMA and NPS-FM standpoint. It does not see the Water Plan and its associated consenting practices as providing adequate direction or protection. Major concerns include:

- piecemeal processing of resource consents with no assessment of cumulative effects
- inadequate provision for ecological and cultural values, including:
    - the lack of a natural ecological baseline for water flows when determining the "existing environment" and
    - the acceptance of consent applications for water use that do not address ecological values, fish habitat and species distribution
- the "use it or lose it" policy which has incentivised permit holders to ramp up their metered water use in order to create a false history of inflated use when applying for new consents
- the "efficiency gains" policy which, instead of saving river water, perversely incentivises greater use of it, leading to more intensive farming and greater economic dependence on irrigation.

Aukaha considers that the "use it or lose it" policy has encouraged permit holders to "game the

[11] Aukaha, formerly known as Kāi Tahu ki Otago Ltd (KTKO Ltd), was established in 1997 to represent Kāi Tahu in RMA consent matters. It is wholly owned by the four Papatipu Rūnanga of Otago - Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou, and Hokonui Rūnanga (ngā Rūnanga/Rūnaka).

system" in preparation for the replacement of their deemed permits. Knowing that their excessive "paper" allocation will be replaced by one based on historic water use, rather than on "what the river needs", the permit holders' natural response has been to maximise their historic use.

Similarly, Aukaha sees the plan's "efficiency gains" policy as also encouraging greater water use. Instead of encouraging farmers to use less water for their existing activities, it encourages them to expand their activities with more efficient use of their water takes. This is because to pay for the expensive spray irrigation systems, such as centre pivots, which replace flood or border dyke irrigation, farmers must use more intensive farming practices and irrigate previously dry paddocks.

## ORC's performance of functions

In Aukaha's view, the Council has yet to develop adequate planning and consenting processes for the management of freshwater use, despite discussing this and the deemed permit issue with Kāi Tahu since the early 1990's. Aukaha considers that since 2004, the ORC's consenting practices have been deficient in failing to publicly notify consent applications with "more than minor" effects and granting RMA water permits for unreasonable durations of 25-35 years.

Aukaha also noted that ORC has managed water and natural resources in general under the paradigm of Otago exceptionalism, expressed as "we are different" with no place for central government interference. One result has been a failure to acknowledge over-allocation as an issue.

## Manuherekia, Upper Cardrona, and the Arrow (MAC) catchments

Aukaha does not consider the Water Plan fit for purpose for the assessment of applications for replacement water consents once the deemed permits expire. It opposed the withdrawal of the 2018 MAC plan change only because, despite the data inadequacies, this plan was a step in the right direction after such a long period of inaction. However, Aukaha is now undertaking work in the catchment to contribute to the information base for a revised MAC plan change.

Aukaha is sceptical of the CHES model, having serious doubts about the data quality and data gaps, and the assumptions of the model itself. There is some concern that the Council's adoption of the CHES model as the basis for setting flow and allocation limits is a foregone conclusion, despite it still having not been independently assessed or approved by the Technical Advisory Group (TAG).

Aukaha also noted that many other catchments with deemed permits, not covered by the MAC plan change, will remain problematic for the Council to resolve by the expiry date of 1 October 2021.

## Council capacity

Aukaha considers that the council is struggling to meet its RMA responsibilities and is not adequately resourced for the scientific and planning challenges of giving effect to the NPS-FM by 2025, or of addressing deemed permits by 1 October 2021. The Chairman of Aukaha, Edward Ellison, expressed the following in a recent letter:

> We believe it is critical, given the state of planning instruments in the region and the pending influx of deemed permit replacement applications, that decisions get made in the right order. Statutory changes and national direction, including the newest proposals, will determine the form and content of a revised Regional Policy Statement, which in turn will direct amendments to the relevant regional plans, enabling decisions on deemed permits to be made within a framework that is appropriately future focussed.
>
> We need to be able to see that pathway clearly, which has been a significant difficulty over the last year as we have discussed. Knowing the timeframes around each statutory process will enable us to plan and constructively resource our responses, working with

our local authority partner. We are mindful that momentum must be maintained and that concluding all processes in an efficient and timely manner is a priority.

Fundamental to making decisions in the right order is to ensure that deemed permit replacement applications are decided after all other processes have been completed. We understand that this would necessarily involve introduction of a legal mechanism that addresses the pending 2021 deadline for replacement resource consents. We need to know that deemed permit replacement decisions will be effectively "on hold" awaiting establishment of a robust decision-making framework.[12]

### State of the Environment

Aukaha has raised serious concern about the state of the threatened galaxiid species in Otago rivers. It is the position of Aukaha that the starting point for establishing a minimum flow and allocation regime should be based on naturalised baseline flows which reflect the river's original state, rather than modified baseline flows which understate the impacts of water use on natural values.

Aukaha will conduct cultural health monitoring and habitat modelling over the summer (2019/2020) in the Manuherekia Catchment. This information will be used to inform the Councils' flow modelling.

# Stakeholder perspectives

The stakeholders spoken to addressed a wide range of perspectives and insights. This summary does not reflect the views of any one stakeholder in particular, unless stated otherwise, but conveys my impression of the variety of views around the particular questions posed in the Terms of Reference for this investigation.

### Adequacy of the current planning framework from an RMA and NPS-FM standpoint

All stakeholders who expressed a view on the planning framework acknowledged that it does not yet give effect to the NPS-FM and will need further plan changes to achieve this. However, they differed in their views on whether the framework, as it currently stands, is adequate for assessing RMA water and discharge consents.

The Federated Farmers and the Otago Water Resource Users Group (OWRUG) consider the current plan to be generally adequate for replacing water consents and deemed permits, provided it is implemented properly by knowledgeable staff. They expressed the view that implementation is being undermined by staff turnover which has resulted in a loss of in-house knowledge and, in their view, misinterpretation and misapplication of some plan provisions.

The Department of Conservation, NZ Fish and Game, and the Central Otago Environmental Society (COES) considered the planning framework to be inadequate from an RMA perspective. They contend that the current framework does not give due consideration to all of the matters required by the RMA, particularly as it does not yet have catchment-level minimum flow and allocation limits in a number of over-allocated catchments.

Fish and Game also noted that the purpose of residual flows in the Water Plan (Policy 6.4.7) is overly restrictive in its focus on 'aquatic ecosystems and natural character' while ignoring amenity and cultural values.

These stakeholders also shared the view that the plan's efficiency provisions were encouraging

[12] Reference: Edward Ellison, Chairman – Aukaha to Peter Skelton, 19 September 2019.

increased use of irrigation water and driving environmentally undesirable land use intensification.

They were of the view that new, or forthcoming (replacement) water consent applications should be put on hold while these issues are addressed through necessary plan changes.

An unaffiliated local landowner, Mr William Cockerill, informed me that over the last 30 years there has been significant change in land and water use in the Manuherekia catchment. He has observed the attrition of the Central Otago dryland landscape as a consequence of irrigation enabled by deemed permits. As an example of the change in water use, the historic Black's Station at Ophir had a gold dredging operation which held 10 heads of water under a mining privilege.[13] This privilege was divided between two brothers - one ended up inheriting four heads of water and the other obtaining the remaining six heads. As a sheep farm, one of the four heads was used for watering stock, with this later increasing to about two heads. However, when the farm was sold for a dairy farm 10 years ago, it was sold with the value of the property having the original four heads. The dairy farm now uses much of the four heads of water for irrigation. Mr Cockerill's view is that the effect has been a significant change in land use enabled by irrigation under deemed permits during the transitional period.

### The Council's performance regarding planning for discharges of contaminants to land and water, and taking, using, damming or diverting water

All stakeholders who expressed a view on the Council's performance of their statutory functions under the RMA, considered it to be under-performing with respect to water management.

A common concern was that, in recent years, the Council has withdrawn from community and stakeholder engagement on water use, showing a lack of leadership or guidance. Now it is attempting to recover lost ground, but against challenging timeframes and national requirements and still with no clear sense of what it is seeking to achieve.

COES and Fish & Game saw the various consultation groups set up by the Council as being focused primarily on irrigator needs with community and environmental input either ignored or minimised.

They also raised concern about consents with 'more than minor' effects being processed by the Council on a non-notified basis. These stakeholders felt the Council was reluctant to consider environmental groups as affected parties, and failed to adequately consider instream values, such as amenity, recreational, and cultural (Kāi Tahu) values of waterbodies.

The environmental stakeholders also criticised the Water Plan's efficiency criterion which has encouraged farmers to convert to spray irrigation  often taking on considerable debt to do so, and intensifying both water and land use, with potential adverse effects in the catchment.

They also shared similar concerns about the Council's "use it or lose it" policy, which COES characterised as having triggered a "rush to ruin" by creating an incentive to use more water in order to prove historical usage for consent replacements. An example was given of one property in Chatto's Creek being water-logged by deliberate spilling of water by adjacent irrigator properties over 3 sets of 14 days in autumn (42 days in all).

[13] One 'head' equates to one cubic foot of water per second or approximately 100 cubic metres per hour.

### Whether the planning framework in the Manuherekia, Arrow and Cardrona catchments will be appropriate and sufficient to consider applications for new water permits once deemed permits expire

Federated Farmers, the Otago Water Resource Users Group (OWRUG) and some irrigators from the Manuherekia considered the planning framework appropriate and sufficient to consider new applications, but the other stakeholders did not.

Understandably, the Manuherekia Water Users Group and other deemed permit holders are looking for certainty about the process to transition from deemed permits to replacement resource consents. A number of irrigators were not supportive of any extension of the deemed permit deadline, citing the uncertainty of time delays as a factor in the reluctance of banks to finance irrigation development.

Contrasting views were expressed by other stakeholders on how to define the starting point for setting flow limits and for assessing environmental effects. These views related to the baseline for hydrological modelling when determining a minimum flow and allocation regime to establish ecological flows.

Water users expressed a view that the starting point should be the river in its existing state (ie, subject to damming and current levels of abstraction). Other stakeholders, including DOC, Fish and Game, and COES, shared Aukaha's view that the starting point should be the river in its natural state without damming and abstraction. The Council's Water Plan should use that as the baseline for setting a minimum flow and allocation regime, based on robust modelling.

These stakeholders also criticised the Council's lack of a method to determine historic usage, the assessment of effects at the point of take rather than the whole river, and its inadequate assessment of cumulative effects.

On the withdrawal of the MAC plan change in 2018, all stakeholders agreed that the evidence base for the proposed allocation and flow limits was scientifically flawed. However, COES felt that the plan change should have gone ahead anyway on the basis that it would at least improve on the current situation. The irrigators supported the withdrawal of the proposed plan change.

### The adequacy of Council resources, including its capacity to develop and implement an adequate planning framework that gives effect to the NPS-FM

All stakeholders had a similar view that the Council has not invested adequately in its science, technical, planning, and consenting capabilities. As a consequence, the Council lacks robust scientific models and data to set minimum flow and allocation limits, and also sufficient planning and consenting staff to develop the necessary plan changes and implement them.

# Findings and recommendations

This report focuses on the issues for freshwater planning and the particular challenges posed by Otago's deemed permits. Although its findings and recommendations are directed towards the ORC, some will also have relevance more broadly for freshwater planning across New Zealand.

## Findings - catchment planning, science and deemed permits

- The Council's existing water planning framework has suffered from a lack of investment in science, planning, and hydrological modelling.
- There is a lack of clear and robust minimum flows and a failure to address over-allocation.
- The existence of the deemed permits has also limited the ability of the Water Plan to manage water quality and quantity.[14]
- There is large variation in the planning frameworks for the region's catchments to deal with the expiry of deemed permits.
- Only the Pomahaka catchment is underway for transition to an RMA consenting process with an established primary allocation limit, minimum flows for primary allocation, supplementary allocation blocks, and minimum flows for supplementary allocations. This catchment, however, has only three deemed permits. Progress is also being made on the Arrow and Cardrona catchments which have started a planning process to set minimum flows and allocations
- Most other catchments are not so prepared. A minimum flow and allocation regime was proposed for the Lindis catchment some five years ago but has yet to be decided on by the Environment Court.
- A minimum flow and allocation regime for the Manuherekia catchment is still about two years away and even further is the Taieri catchment where hydrological modelling has yet to be started. The status of the Taieri catchment is significant since it includes the highest number of deemed permits (75).
- Due to the under investment in science and planning, I do not consider that the ORC is in a position to provide for the smooth transition from water allocation based on mining privileges to allocation based on RMA consents which are subject to appropriate flow and allocation limits before 1 October 2021. This is a major concern since we are now in 2019 – 'Year 28' of the 30 year transition period for the deemed permits.

## National Direction and Legislation

- National direction under the RMA is due to be strengthened. While this investigation was underway, the Government unveiled a range of new initiatives.[15]
- While most of these proposals are 'draft' and have been released for consultation, the

[14]As stated in Policy 6.2.8 of the Water Plan, 'opportunities for establishing minimum flow regimes on a number of streams and rivers are constrained by mining privileges (now called deemed permits)'.

[15] Proposed National Policy Statement for Freshwater Management and proposed new National Environmental Standards for Freshwater; new freshwater planning process under the Resource Management Amendment Bill 2019; proposed National Policy Statement on Urban Development to replace the existing National Policy Statement on Urban Development Capacity; proposed National Policy Statement for Highly Productive Land. The Government is also planning to release a proposed National Policy Statement for Indigenous Biodiversity later in 2019.

combined impact of the proposed national direction and potential legislative changes will have a fundamental impact on the future planning framework in Otago.

- The Council will need to make a substantial investment to update the RPS and the Water Plan to provide for existing and proposed national direction and legislative changes.
- The RPS will need to adopt the National Planning Standards three years from when the planning standards come into effect (3 May 2022), or at notification of a proposed RPS, whichever is sooner.
- The RPS will require amendments to identify areas of highly productive land within the Otago region under Proposed Policy 1, National Policy Statement for Highly Productive Land. Strengthened urban development provisions are also likely to be required.
- A reviewed Water Plan will need to be notified by 31 December 2023 to give effect to the NPS-FM. This will also be required to be restructured into the National Planning Standards template.
- The forthcoming freshwater planning process, currently proposed under the Resource Management Amendment Bill, will make a significant contribution to RMA practice in New Zealand and will become a primary vehicle to give effect to the NPS-FM.
- I am hopeful that legislation to implement the new freshwater planning process will be enacted by mid-2020 in time to progress the urgently required Otago planning programme. This will be of critical importance.
- One particular matter that will require attention in the design of the freshwater planning process is how the RPS will be progressed as a whole. Under section 59 of the RMA, the RPS must be designed to achieve 'integrated management of the natural and physical resources of the whole region.' This purpose is supported by the National Planning Standards requirements. If only the freshwater-related changes to the RPS are to be 'carved out' and sent to the freshwater planning process, then this could potentially undermine the integrated management structure of the RPS. It seems to me the scope of how the RPS and other combined RMA planning documents are treated in the Resource Management Amendment Bill under the freshwater planning process needs to be reconsidered in order to ensure integrated management.

## Future planning framework

A new planning framework is required for Otago. This framework, amongst other things, needs to provide a robust process for assessing any applications that are made to replace the deemed permits and set plan provisions, as guided by national direction, especially the NPS-FM.

In the Otago context, it is also important that consent applications are processed on the basis of a more adequate and robust planning framework that involves a minimum flow and allocation regime. This has relevance to both deemed permits and existing resource consents that are due to expire before the new planning framework is in place.

Importantly, the establishment of plan provisions for minimum flows and allocation must come before the processing of resource consents to replace the deemed permits. This is a critical matter.

Further, all the deemed permits within a sub-catchment should be considered together as a 'block'. Ad-hoc or individual processing of consents in advance of a robust policy and rule framework should be avoided.

Ideally, the planning framework will:

- provide certainty for the community with clear timeframes and processes

- avoid undue delay and duplication of planning effort and multiple community consultations
- establish minimum flows and limit setting based on robust science and hydrological modelling, including fair allocation within ecological limits
- ensure implementation of the NPS-FM and other national direction
- provide for the principles of the Treaty of Waitangi and the interests of Kāi Tahu in resource management.

After my discussions with a number of holders of deemed permits, I am confident that, provided they are given certainty of direction, there is sufficient good will among them to participate in the planning programme recommended in this report.

In the light of discussions I have had with the consenting staff at ORC it is my understanding that any water consents granted from now, whether new or replacement consents, will be granted for a short-term of 5 to 10 years. This is to ensure that, in the longer term, resource consents will be aligned with the new planning framework. The intent will be to avoid 'locking in' long term water resource use that will make it difficult to achieve new freshwater limits and allocation when set in the reviewed land and water regional plan.

### Short-term interim planning initiatives

Before making my formal recommendations to the Minister, I need to refer again to some planning work that is already underway in the form of two plan changes. I have referred to this briefly earlier in this report. The first is Plan Change 6AA to be notified in October 2019 to amend the starting date for discharge provisions affecting water quality in the region that are due to take effect from 1 April 2020.

Because the discharge provisions are defective and, in particular, because they rely on an Overseer version that no longer exists, the Council is proposing to extend the date when these provisions take effect to April 2026 by Plan Change 6AA. I understand that this date is likely to become academic, because the present defective rules in plan 6A will be replaced by new rules in the omnibus plan change which is anticipated to be notified in March 2020. Plan Change 6AA is necessary now because the water quality rules due to come into effect on 1 April 2020 are recognised to be defective.

The second plan change known as the 'omnibus plan change' is due to be notified in March 2020. My current understanding of the contents of this plan change is that it is intended to immediately remedy the deficiencies in the water management provisions of the current operative plan, in particular those relating to water quality, and provide for interim provisions relating to the management of freshwater resource consent applications.

In addition to the above, the ORC is developing a planning programme going forward that I have discussed with staff and which I will now summarise.

### Future comprehensive framework

By November 2020 ORC intends to publicly notify a complete review of its current Regional Policy Statement, first to give effect to the National Planning Standards and secondly to provide, amongst other things, objectives and policies for water management across the region ahead of a review of its Water Plan. The intention is to have this reviewed RPS operative before the reviewed Water Plan is notified.

By 31 December 2023, ORC intends to notify a complete review of its Water Plan to provide for a new Land and Water Regional Plan for Otago. This plan is to include region-wide objectives, strategic policies, region-wide activity policies, and provisions for each of the FMU sections that will cover all

the catchments within the region.

Given this timeframe, which I note is a tight one, it is clear that the new plan will not be ready in time to deal with applications for new and replacement consents arising from the expiry of the deemed permits. The result will be that these consent applications are assessed under the Water Plan's current default minimum flow limits which, as noted earlier, are inadequate.

### Possible extension of Otago deemed permits expiry

I consider that the only way to ensure that new and replacement consent applications will be assessed under the new planning framework is to defer the expiry date for deemed permits in Otago to a period when it can reasonably be expected that the new land and water plan will be in place. In my view extending the expiry date is justified on several grounds:

- first, it will enable the new planning framework to be put in place beforehand so that future resource consent applications can be properly assessed.
- secondly, it will ensure that all new and replacement water permits are subject to catchment level minimum flow and allocation limits
- thirdly, subjecting all consent applications to the new plan will avoid "planning by resource consent" in which ad-hoc resource consent decisions are made in the context of an inadequate planning regime
- fourthly, extending the deemed permits in conjunction with the interim measures and a revised planning framework will provide certainty for Kāi Tahu, permit holders, and stakeholders about the planning pathway going forward.

I also note that time is required for investment in the science that underpins the planning and this is needed to properly inform the plan rules and the assessment of future resource consent applications for freshwater.

Further, I gathered from my discussions that an extension is likely to be supported by the Council, Aukaha and at least several of the stakeholders who also see merit in having consent applications assessed under a fit for purpose planning framework.

I also note that this proposed extension would apply only to the Otago region and so is of limited interest or application in a national sense.

# Recommendations

In the light of the above comments and earlier discussions in this report I now make the following recommendations to the Minister for the Environment:

1. that pursuant to section 24A of the RMA, the Minister recommends to the Otago Regional Council that it provide an adequate interim planning and consenting framework without delay to manage freshwater in the intervening period up to 2025. This will include Plan Change 6AA and the Omnibus Plan Change
2. that pursuant to section 24A of the RMA, the Minister recommends to the Otago Regional Council that it takes all necessary steps to develop a fit for purpose freshwater management planning regime that gives effect to the relevant national instruments and sets a coherent framework for assessing all water consent applications including those that are made to replace any deemed permits
3. that pursuant to section 24A of the RMA, in order to achieve recommendation 2, the Minister recommends to the Otago Regional Council that it adopts the following policy and planning programme of work:

    - by November 2020 a complete review of the current Regional Policy Statement is publicly notified with the intention that it be made operative before the review of its Water Plan is notified

    - by 31 December 2023 a new land and water regional plan for Otago is publicly notified. This plan is to include region-wide objectives, strategic policies, region-wide activity policies, and provisions for each of the FMU sections that will cover all the catchments within the region

4. that pursuant to section 27 of the RMA, the Minister requires the Otago Regional Council to provide 6-monthly progress reports in relation to the following matters:

    - progress made in developing science, planning, consenting, monitoring and enforcement, and land management organisational capability and capacity

    - progress in achieving recommendations 1, 2 and 3

    - a summary of freshwater resource consenting activity for the reporting period

5. that the Minister initiates the necessary legislative process to change the date for expiry of the deemed permits in section 413(3) of the RMA, from 1 October 2021 to 31 December 2025, being the date by which the Otago Regional Council's new land and water regional plan is to be operative. For the avoidance of doubt this recommendation to amend section 413(3) of the RMA applies only to the Otago region

6. that if the new freshwater planning legislative process is delayed for any reason, consideration be given to promoting special legislation for the Otago region to establish a special hearing process to achieve completion of the Otago Regional Policy Statement by 2022 and the new land and water regional plan by 2025. This special legislation would need to provide for the hybrid hearings panel model and restricted appeals to the Environment Court.

Dated at Christchurch this 1st day of October 2019

P R Skelton

Honorary Professor Peter Skelton CNZM; D.Nat.Res (Hon); LLB; FEIANZ

# Appendix 1

# Letter of Engagement

**Hon David Parker** BCom, LLB

Attorney-General
Minister for Economic Development
Minister for the Environment
Minister for Trade and Export Growth

Associate Minister of Finance

16 May 2019

19-M-00702

Honorary Professor Peter Skelton

skeltonp@xtra.co.nz

Dear Peter

**Resource Management Act 1991, section 24A investigation, Otago Regional Council**

In accordance with 24A of the Resource Management Act 1991 (RMA), I am appointing you to investigate whether the Council is on track to adequately perform its functions under section 30(1) of the Act, in relation to freshwater management and allocation of resources.

The investigation will focus on whether Council has, or will have, an appropriate planning framework in place that gives effect to the National Policy Statement on Freshwater Management, in time to consider all applications for new water permits before deemed permits expire. It will also look at what support Council might need to achieve this.

The scope and timing of the investigation is outlined in the attached Terms of Reference.

Robert McClean, Manager, RMA Practice, will be in contact with you to provide information on the investigation process. If you have any questions about this investigation before then, please contact Robert on 0220676655 or Robert.McClean@mfe.govt.nz.

Your appointment will be subject to any necessary procurement, contracting and remuneration processes as required by the Ministry for the Environment.

Yours sincerely

Hon David Parker

**Minister for the Environment**

# Appendix 2

# Letter of extension

**Hon David Parker** BCom, LLB

Attorney-General
Minister for the Environment
Minister for Trade and Export Growth

Associate Minister of Finance

02 SEP 2019

19-M-01732

Honorary Professor Peter Skelton
skeltonp@xtra.co.nz

Dear Honorary Professor Peter Skelton

**Resource Management Act 1991, section 24A investigation, Otago Regional Council**

Thank you for your letter dated 20 August 2019 requesting an extension of the final report back date for this investigation to 1 October 2019.

I am pleased that the investigation is making good progress and I understand the complexity of the matters that the subject of your inquiry. I agree with you about the importance of the forthcoming decisions of the Environment Court relating to the Lindis catchment, which involve both water limits and allocation (including the deemed permits).

I also agree on the need to ensure that your report provides direction on the development of a new freshwater planning framework for Otago that aligns with the current initiatives to be outlined in the forthcoming discussion document on freshwater policy.

For the reasons outlined above, I agree to extend the final report back date to 1 October 2019. I have attached the revised Terms of Reference to this letter.

Yours sincerely

Hon David Parker
**Minister for the Environment**

# Appendix 3

## Terms of Reference for Section 24A Investigation of Otago Regional Council Performance under the Resource Management Act 1991

**Purpose of Investigation**

1. The purpose of this investigation is to identify whether the Otago Regional Council (ORC or the Council) are adequately carrying out their functions under section 30(1) of the Resource Management Act 1991 (RMA) in relation to freshwater management and allocation of resources.
2. This investigation is focused on the exercise of the Council function in relation to its planning framework, and its ability to process and transition deemed permits in a consistent way under the RMA and National Policy Statement for Freshwater Management (NPS-FM). This matter relates particularly to the Manuherekia, Upper Cardrona and Arrow rivers before the deemed permits expire in 2021.

**Context**

3. When the Resource Management Act 1991 (RMA) was enacted mining privileges granted or authorised under the Water and Soil Conservation Amendment Act 1971, and the Water and Soil Conservation Act 1967, were deemed to be water permits, discharge permits or a permit that confers on its owner rights over land in respect of which the holder is not the owner. These permits expire on the 30th anniversary of the date of commencement of the Act (this will be 1 October 2021).
4. Around 300 deemed permits remain in the Otago region. A significant number of the permits that have not yet been transitioned to standard resource consents are in the catchment areas of the Manuherekia, Upper Cardrona, and Arrow rivers.
5. In 2018, the ORC intended to notify a significant plan change to set minimum flow rates for the Arrow, Cardrona and Manuherekia catchments. This proposed plan change was halted and the Council is now planning to prepare a comprehensive minimum flows and allocation plan change in December 2025.
6. In August and December 2018, the Minister for the Environment (the Minister) wrote to ORC expressing concerns about the decision not to proceed with the plan change and met with ORC to discuss this on 22 March 2019. The Minister also noted an expectation that the ORC establish a framework that provides for a plan change to set minimum flows, ahead of the deemed permit expiry.
7. To date, no plan change has been notified. Until this occurs all applications to replace deemed permits will be considered under the current operative plan which does not contain minimum flow rates or other specific limits.
8. As the timeframe from notification to decisions on an RMA plan is 2 years, there is an increasing likelihood that the large volume of applications to replace the deemed permits will occur under the existing operative plan.
9. The Minister requires an understanding of the ability of ORC to carry out their functions

under section 30(1) of the RMA in relation to freshwater management and allocation of resources. In particular, the adequacy of the current planning framework and the capability of the ORC to process and make decisions on consents in a manner consistent with the obligations on the Council to set minimum water flows and allocation limits in their regional plan (as required by the National Policy Statement for Freshwater Management 2014 (NPS-FM)) .

**Scope of the Investigation**

10. The investigation will address the following:
    1. adequacy of the current planning framework from a RMA and NPS-FM standpoint;
    2. adequacy of the performance by ORC of functions relating to planning for discharges of contaminants to land and water, and taking, using, damming or diverting water. This will focus particularly on the Manuherekia, the Upper Cardrona and Arrow Rivers, and whether the planning framework will be appropriate and sufficient in time to consider applications for new water permits once deemed permits expire;
    3. adequacy of ORC resources, including its capacity to develop and implement an adequate planning framework that gives effect to the NPS-FM;
    4. Treaty partners and stakeholder perspectives; and
    5. any other relevant contextual matters.

**Methodology**

11. The investigator will:
    1. spend the time needed with ORC to inform Councillors of the investigation and then undertake discussions with council staff with a focus on Senior Leadership, Planning Policy Manager, relevant Policy Planners, and technical staff;
    2. the discussions with the ORC will be based around a set of investigation questions, prepared by the investigator. These questions will be pre-circulated to the ORC and the interested parties consulted;
    3. undertake any additional research and analysis to the discussions required to complete the investigation;
    4. seek the views of Ngāi Tahu as tangata whenua;
    5. seek the views of the Department of Conservation, Federated Farmers (Otago Division), Otago Fish and Game Council, and any other stakeholders the investigator deems necessary;
    6. complete a draft findings report, including recommendations for the Minister for the Environment on the options for addressing any issues identified in the investigation; and
    7. finalise and present a copy of the report to the Minister for the Environment.

**Term of investigation**

12. The investigation must begin no later than 1 July 2019 and be completed by 1 October 2019.
13. The Investigator must report back to the Minister with their final opinion by 1 October 2019.

**Costs**

14. The cost of the salary of the investigator will be covered by the Ministry for the Environment.

# Appendix 4

## The list of interviewees

| Organisation | Interviewee | Position |
|---|---|---|
| Otago Regional Council | Sarah Gardner | Chief Executive |
| | Andrew Newman | Acting GM Policy, Science & Strategy |
| | Peter Constantine | Planning Consultant |
| | Peter Winder | Acting General Manager Regulatory |
| | Julie Everett-Hincks | Science Manager |
| | Joanna Gilroy | Consenting Manager |
| | Anita Dawes | Acting Manager Policy |
| | Sylvie Leduc | Senior Policy Analyst |
| | Tom de Pelsemaeker | Senior Planner |
| | Peter Ravenscroft | Environmental Resource Scientist – Freshwater |
| Central Otago District Council | Tim Cadogan | Mayor |
| Waitaki District Council | Gary Kircher | Mayor (telephone discussion) |
| Aukaha, Kāi Tahu | Edward Ellison | Chair |
| | Phillip Broughton | Rūnaka Executive Member |
| | Maria Bartlett | Planner |
| | Gail Tipa | Consultant |
| | Kathryn Gale | Kairangahau Māori Freshwater Researcher |
| Central Otago Winegrowers | Nick Paulin | President |
| Manuherekia Catchment Water Strategy Group | Allan Kane | Former Chair |
| Upper Clutha Water Group | Mandy Bell | Chair |
| Local irrigators | Gary Kelliher | Acting Chair, Manuherekia River Ltd (MRL) |
| | Matt Hickey | Scientific consultant |
| | Geoff Crutchley | Chair, Maniototo Irrigation Company |

# Appendix 4

## The list of interviewees - continued

| Organisation | Interviewee | Position |
|---|---|---|
| Federated Farmers | Simon Davies | Otago chair |
| | Andrew Patterson | High Country chair |
| | Sally Dicey | Consultant Resource Management Planner |
| | Kim Rielly | Regional Policy Manager, South Island |
| Otago Water Resource Users Group (OWRUG) | Ken Gillespie | Chair, OWRUG & Chair, Hawkdun/Idaburn Irrigation Co. |
| | Chris Hansen | Chair, Arrow Irrigation Co. |
| | Tony Strain | Arrow Irrigation Co. |
| | Susie McKeague | Consultant for MAC catchments |
| | Graeme Martin | Adviser |
| Otago Fish & Game | Niall Watson | Former CEO |
| | Monty Wright | Chair |
| | Nigel Paragreen | Environmental Officer |
| | Ian Hadland | CEO |
| | Colin Weatherall | Councillor |
| DOC | Marie Long | Director, RMA planning & regulatory |
| | Neil Deans | Policy - freshwater liaison |
| | John Roberts | South Island Manager |
| Irrigation NZ | Elizabeth Soal | CEO |
| Central Otago Environmental Society | Ray Wright | Acting Chair |
| | Evelyn Skinner | |
| | Graye Shattky | |
| | Matthew Sole | |
| Individuals | William Cockerill | |

# Appendix 5

## History of regulation – the Otago mining privileges

Authored by Robert McClean, Ministry for the Environment

### Early gold mining legislation

Early gold mining legislation established and maintained a miner's right to use water. This right is often called a 'mining license' or 'mining privilege'. Under the RMA, the water right is called a deemed permit.

The earliest gold mining legislation dates from 1858 and was drafted in response to the discovery of gold in Nelson. The Gold Fields Act 1858[16] provided the power to grant leases for mining. This included the use of water.[17] Under section 7 of that Act, it was stated:

> It shall be lawful for the Governor in Council to demise to any person, for any term not exceeding fifteen years from the making of the Lease, any auriferous Crown Land for mining purposes, and also to grant water rights and other easements for such purposes, and to fix the amount to be paid by way of Rent or Royalty for the same respectively.

This provision set the basis for the granting of mining leases (later called privileges) by the Crown.

After the discovery of gold in Otago in 1861, a new Gold Fields Act was established in 1862 along with regulations for the administration of the Otago gold fields. The key sections of the Otago gold fields regulations relating to water are set out at the end of Appendix 5. The regulations prescribed:

- authorisation by a Court Warden for the construction of any water race
- the priority system based on 'superiority of right' determined by priority of occupation. This became connected to the date and time of a certificate or authority granted by a Warden
- the owner of a superior right could regulate less-superior rights during periods of insufficient water supply
- the Warden could regulate water supply during periods of low flow, provided that the allocation did not affect the superior right holder
- sluice heads (or 40 inches of water) are to be measured by the use of a gauged water box with dimensions of 12 feet long, 10 inches deep, and 20 inches wide
- the number of sluice heads allowed was established as one sluice head for 1 or 2 miners, two sluice-heads for 4 or additional miners; and so on at the rate of one sluice head to every additional two miners
- the holders of water rights were not allowed any water to run to waste; but such water was to be appropriated to the use of the next holder of a right, according to the date of their respective registrations
- two sluice heads of water were, if required, allowed to flow in the natural course of a creek or river for general use at all times.

This approach to regulating water use on the goldfields was codified in law in the Gold Fields Act 1866.

---

16 Gold Fields Act 1858: http://nzlii.org/nz/legis/hist_act/gfa185821a22v1858n74240/.

17 V.B. Gray, *An Examination of the Administrative System on the Otago Goldfields 1861-8*, MA Thesis, 1949.

This Act defined a 'sluice head' as equalling '40 inches of flowing water' and crystallised the nature of a miner's right whereby the Warden of the Court could authorise the construction of water races. One 'head' equates to one cubic foot of water per second or approximately 100 cubic metres per hour.

The Act also provided that 2 sluice heads of water be allowed to flow in the natural course of the stream 'if required' for general use. The Gold Fields Act 1866 also attempted to tackle the issue of miners' rights and land ownership and provided that the right to mine and use water was preserved even if the land was sold. It also allowed for the use of water (as part of a miner's right) to be sold.

Gold mining legislation after 1866 maintained the miners' rights system to water.[18] Annual renewal provisions were introduced and after 1882 owners of mining privileges had to reapply to the Court Warden for a fresh licence, but without the loss of priority.

## Shift from mining to farm irrigation

With the decline in mining in the later 19th century, water races became adapted for farm irrigation over large areas of Central Otago. This purpose was recognised in mining legislation from 1877 onwards which provided that water could be taken for irrigation, mill and industrial uses (in addition to water for gold mining). Permission could also be obtained to change the purpose of the water take from mining to irrigation or industrial uses. These provisions were supported by the Public Works Act 1876 which empowered the Government to supply water for gold fields.

Importantly, the Public Works Act 1876 (and subsequent public works laws) provided the Crown with the power to make dams and water races without any established water limit or renewal – the rights were perpetual.

In contrast, mining legislation contained limitations on licence terms for private gold miners and farm irrigators. In particular, the 1891 Mining Act stated that the Warden could not grant a licence for more than 15 years. It set out the priority of rights system which held that it was determined by the date of application for the water race licence (section 105(12)). The Mining Register was to note the day and time of the application.

The Mining Act 1891 reduced the amount of water that was to remain in the natural water course from 2 sluice heads of water to 1 sluice head (section 105(19)). This legislation continued to recognise that every interest in a water race was deemed to be a chattel interest.

In 1898, the legislation was amended to include a provision that the water supply of any city or town was not to be polluted.

The Mining Act of 1926 extended the quantity of water allowed to 10 heads, which could not be granted for more than 42 years.

## Management under the Water and Soil Conservation Act 1967

Mining privileges effectively remained unaltered until the Water and Soil Conservation Act 1967 (WSCA). This Act, which introduced a new national system for the regulation of water, was administered by the National Water and Soil Conservation Authority and regional water boards. Section 2 of the Act was amended in 1969 to provide for existing water uses. This required that every person taking water on 9 September 1966 (where this had been happening at any time for a period of 3 years up to 9 September 1966) was to give notice to the regional water board before 1 April 1970. If notice was given, then the water use was deemed to be a lawfully existing water use.

The Water and Soil Conservation Act was again amended in 1971 to explicitly provide for current mining privileges granted under the mining legislation. This provided for existing mining privileges to

[18] Peter Farley, *Irrigation Scheming, A History of Government Irrigation in New Zealand*, Peter Farley, 2013, p 23.

be authorised under section 2 of the Act. The amendment also transferred the administration of the mining privileges from the Court Wardens to the water boards. Key aspects of this transfer involved:

- retention of the priority right system (section 11)
- regional Water Board to issue certificates of priority (section 12)
- regional Water Board may direct a specified quantity of water not exceeding one cubic foot per second be allowed for public use before the point of intake (section 15)
- all records were transferred to Regional Water Board from the Warden (section 17)
- upon the expiry of a current mining privilege, the Board may grant, on application, the right to continue the use and maintenance of any water race that was authorised under the expired privilege (section 24).

The Water and Soil Conservation Act continued the exemption from expiry terms for mining privileges held by the Crown.

## Overview of irrigation in the Manuherekia

Alluvial gold mining started in the Manuherekia in 1863 and the Manuherekia Gold Field was proclaimed in August 1864. While mining was initially started by individuals with 'picks and shovels', the need for sluicing and the diversion of large qualities of water influenced the establishment of mining corporations and collectives and their decision to build water races and sluicing operations.[19] The Government also stepped in and subsidised the construction of large water races.

One of the longest water races was the Mt Ida Water race which was built between 1873 and 1877 to supply water to the Naseby township. The water race is 108 km long and takes water from the upper Manuherekia in the Hawkdun Range.[20] It was designed and supervised by the Otago Provincial Engineer and authorised by the Government Proclamation on 17 October 1873.

The conversion of water races for farm watering and irrigation purposes started in the late 19th century. The Government also had a keen interest in using the mining privileges to establish farm irrigation schemes. The first surveys of irrigation in the Manuherekia, Ida and Maniototo were undertaken in 1906 and by 1913-1914. The Crown had obtained grants of water amounting to 140 heads in the Manuherekia and had started the construction of large irrigation water races.[21] One of the projects was the reconstruction of the Mt Ida water race during the mid-1920s. This race had been abandoned and a storm in 1918 had washed away many stream crossings.

The Ministry of Public Works actively opposed the granting of new individual water rights in the Manuherekia in order to build the irrigation schemes. An example was an application by Mr Davies who applied for a change in water intake out of the Manuherekia in September 1921. At this time, Davies had the rights for 12 heads of water granted in 1908 for irrigation purposes. The water race, however, had never been built. The District Engineer commented to the Engineer in Chief at the Public Works Department:

> To allow the applicant to revive this old right of twelve heads unconditionally would rob the Government scheme of that quantity of water and consequently make a considerable portion of the expenditure on the Government scheme a dead loss.
>
> Altogether, it would not be in the interests of the eventual future progress of irrigation to

[19] Olssen, Erik. *A History of Otago.* Dunedin, N.Z.: J. McIndoe, 1984, p 65.

[20] D J Hamilton, Early Water Races in Central Otago, 3rd Australian Engineering Heritage Conference, 2009.

[21] Omakau Irrigation Scheme, AATE W3397 Box 24, Archives New Zealand.

permit the applicants to hold a grant of water unconditionally.[22]

By 1930, large irrigation schemes were underway in the Manuherekia catchment. One of the largest was the Omakau Area Irrigation Scheme which was comprised of one main race and five creek schemes. This involved the construction of the Falls Dam to deliver water to about 3,600 hectares of farm land via a 93km network of water races. To achieve this, the Government had acquired most of the water rights in the upper Manuherekia. The Omakau scheme provided 1 head of water to be allocated per 150 acres over a 150 day period.[23] At the time, the estimated cost of obtaining the remaining water rights held by the late John Wilson (14 heads of Lauder Creek water) was £17,000 (including compensation).[24]

The decision to progress an expanded Manuherekia Irrigation Scheme and the construction of Falls Dam as an unemployment relief project was made on 23 October 1931.

Other mining privileges in the area, which remained in private hands, were made submissive to the main irrigation schemes. As an example, the Thompson's Block water race mining privilege (No. 4363, Thurlow and Others) had a condition which made its water priority subservient to the 75 heads required for the Manuherekia Scheme. Further, the privilege was conditional on the owner entering an agreement to 'sell the right to the Crown on demand at fair valuation for the actual construction of their proposed main race in so far as it would be useful for inclusion in the Government Scheme, no claim being made for the value of water'.[25] Later in the 1940s, as irrigation works continued, the Crown obtained the Thompson's Block water race for £1,520 including the cost of building new race structures.[26] Further licences were obtained over Thompsons Creek (No. 253 and 564) in 1945 for £300. It was commented at the time that 'they are in fact the only remaining private rights of any value and should be acquired by the Crown'.[27]

The irrigation construction phase in 1910-1940s resulted in six main schemes being constructed in the Manuherekia-Taieri catchments:

- Hawkdun Ida Burn Irrigation Scheme (1929-1931), incorporating the reconstruction of the historic Mt Ida water race, which takes water from tributaries in the Hawkdun Range and delivers water to the upper catchment of the Ida Burn and Ewe Burn catchments
- Ida Valley Irrigation Scheme (1917), which is sourced from two large dams, the Poolburn and Manorburn reservoirs
- Blackstone Irrigation Scheme (1920), which takes water from the main stem of the Manuherekia River and discharges water into the lower Ida Burn
- Omakau Irrigation Scheme (1936), which takes water from the main stem of the Mauherekia River and also takes from Dunstan Creek, Lauder Creek, Chatto Creek and Thomsons Creek
- Manuherekia Irrigation Cooperative (1922), which takes water from the Manuherekia main-stem at the Ophir Gorge and some smaller takes from Chatto Creek
- Galloway Irrigation Scheme (1920), which takes water from the Manuherekia main-stem, lower Manor Dam and Dip Creek.

---

22 *District Engineer to Engineer in Chief,* Public Works Department, 21 September 1921, Omakau Irrigation Scheme, AATE W3397 Box 24, Archives New Zealand.

23 Ministry of Works, Irrigation in Central Otago, 1954, p 33.

24 Irrigation Omakau Scheme, 1930-1933. W1 W2550 8 64/69, Archives New Zealand.

25 Ibid.

26 Omakau Irrigation Scheme, Matokanui Water Rights, AATE W3397 Box 26, Archives New Zealand.

27 *Resident Engineer to District Engineer*, PWD, 23 May 1945, Omakau Irrigation Scheme, Matokanui Water Rights, AATE W3397 Box 26, Archives New Zealand.

The bulk of these schemes were constructed by the Ministry of Works, and their water takes (except for the Hawkdun/Ida Burn) were largely dependent on the mining privileges held by the Crown.

Since the 1940s, there have been various calls to increase irrigation and water storage in the Manuherekia. An example of this was a meeting between Manuherekia farmers and the Minister of Works in 1956.[28] It was commented at the time that the valley was desperately short of water and that the Falls Dam had not been completed to its originally intended height (as it was considered to be 42 feet short). The dam would also require strengthening. It was commented that the capital cost was very high and funding to upgrade the dam was not supported by the Minister of Works at the time.

Increasing costs to maintain the water storage and races continued to be a major hurdle in Central Otago from the 1950s onwards. A variety of studies carried out by the Ministry of Works (later Minister of Works and Development) noted the challenges around the cost of maintenance, reliance on run-of-the-river intakes, difficultly in management of small schemes and inadequacy of flow to meet summer water demands.[29] A 1954 report also highlighted that the government irrigation schemes in the Manuherekia were entirely dependent on the mining privileges authorised under mining legislation. [30]

## Irrigation restructuring in the 1980s

Government restructuring in the late 1980s radically changed the irrigation landscape in Central Otago and elsewhere around New Zealand. Faced with mounting costs to maintain the historic irrigation schemes, the Government made a decision to end the construction and maintenance of farm irrigation and embarked on a plan to sell the schemes to farmer cooperatives or corporations. This coincided with the disestablishment of the Ministry of Works and Development in 1987.

Negotiations for the sale of the Crown irrigation schemes started in the late 1980s. Groups of irrigators established incorporated societies, such as the Galloway Irrigation Society Incorporated which was created in 1986. It was the Crown's policy to transfer all the mining privileges to irrigation companies or adjacent landowners by 31 May 2000.[31]

A primary concern of the irrigators was the fate of mining privileges. As indicated above, the Crown irrigation schemes were built on the basis of the Crown holding perpetual rights to the water under the mining privileges. These perpetual rights were to be extinguished during the sale of the irrigation schemes.

As an example, the Omakau Scheme included a number of primary expired mining privileges for the taking of water as outlined in the table below. The primary deemed permits included No. 5785 (the 5th Priority) which provided a take of 70 heads from the Manuherekia and the Falls Dam share of 80 heads (No.5768N). These water takes had been continued by the Crown under the Public Works Act exemption. In addition to these takes, there were a number of bywash or discharge privileges. The most significant of these discharges was the No. 1 to the Manuherekia River (providing a maximum discharge of 200 cusecs).

---

28 12 March 1956, Notes of interview between Hon Minister Goosman, Minister of Works and a deputation representing people served by the Falls Dam area (Roxburgh), Omakau Irrigation Scheme, Matokanui Water Rights, AATE W3397 Box 26, Archives New Zealand.

29 MWD, Working Party Report, Central Otago Irrigation, 1981.

30 Ministry of Works, Irrigation in Central Otago, 1954.

31 Peter Farley, *Irrigation Scheming, A History of Government Irrigation in New Zealand*, Peter Farley, 2013, p 26.

### Summary of Omakau Scheme Water Takes (estimates only at 1987)

| Mining privilege no. | Water take | Original expiry date | Maximum usage (cusecs) | |
|---|---|---|---|---|
| | | | Summer | Winter |
| **5768N** | Falls Dam in Manuherekia River | 2.5.1980 | | |
| **WR4363** | Manuherekia River | | 12 | 2 |
| **WR5785N** | Manuherekia River (5th priority) | 3.10.1959 | 80 | - |
| | Two Public Works Act takings, Becks Creek (unknown) | | 6 | - |
| | Two Public Works Act takings, Thompsons Creek (unknown) | | 4 | |
| **WR1464B, 3033, 289, 295** | Thompsons Creek | Expiry dates from 1941-1966 | 15 | 3 |
| **WR5784N** | Dunstan Creek (2nd priority) | 3.10.1959 | 18 | - |
| **WR513B** | Lauder Creek (2nd Priority) | 30.8.1948 | 15 | - |
| **WR219B** | Muddy Creek | 24.7.1944 | 1 | |
| | Two Public works Act taking, Blackbush Creek (unknown) | | 4 | 1 |
| **WR518** | Middle Creek | 28.5.1945 | 3 | 1 |
| **WR516** | Coal Creek | | 1 | - |
| **WR515** | Scotts Creek | 30.8.1948 | 2 | 1 |
| **WR301** | Devonshire Creek | | 1 | - |
| **WR306, 1240** | Thompsons Creek | | 10 | 3 |

Source, Archives New Zealand[32]

In addition to the water takes listed in the table above, the Omakau scheme involved many other expired and unused mining privileges relating to Thompsons Creek, Blackbush Creek, Devonshire Creek and other streams.[33]

For most of the negotiations based on mining privileges in Central Otago, the irrigator societies requested a 30 year security of water supply. The 30 year period was chosen on the basis that the new private owners would need to invest funds to upgrade the historic water races and the 30 year period

[32] ALLR W5427 873 Box 719 Irrigation Schemes South Island Omakau, Archives New Zealand.

[33] ALLR W5427 873 Box 719 Irrigation Schemes South Island Omakau, Archives New Zealand.

would give time to recover the capital expenditure incurred.[34] As explained by Peter Farley:

> The approach taken was to sell the government-owned schemes, including all "Headworks," on an "as is, where is" basis with the purchaser being given a period of statutory access rights to enable them to complete at their own cost, matters such as the definition and registration of access rights which would otherwise have to have been done by the government. The sale process did not involve altering the nature of the water rights held by schemes except to limit the term of any water right to its current term or to 30 years, whichever was less. Access rights were also preserved.[35]

It was intended that the period of transition would influence the sale price of the irrigation scheme:

> As the schemes were sold as going concerns, the water rights were included as one of the scheme assets. There was no attempt to use the sale process to extend or modify water rights except to set a limit of 30 years on the Mining Rights. In some cases, major schemes faced applying for new water rights within two years of the sale. This issue was addressed by allowing for the expected costs of applying for renewal of the rights when negotiating the sale price.[36]

The Crown agreed to the 30 year period during the individual irrigation negotiations and a clause was inserted in the purchase agreements for those irrigation schemes based on mining privileges. This clause promised that the Crown would introduce legislation to secure the 30 year water right term. As an example, the Agreement for Sale and Purchase of Omakau Irrigation Scheme of 23 August 1989 stated:

> 5.2 The Crown shall pass legislation providing for the Mining Privileges, Water Rights and Dam Licence (called 'the Rights') to be transferred to the Purchaser with the same conditions, priorities, privileges and terms upon which they are held by the Crown PROVIDED THAT the terms of the Rights shall expire on the earlier of the date of termination of those Rights upon the terms as now held by the Crown or 30 years from the settlement date.[37]

All the major Central Otago irrigation schemes were sold to local farmer cooperatives and corporations during 1989, including the Manuherekia, Omakau, Hawkdun, Blackstone and Galloway schemes. The Ida Valley scheme was not sold until 1996. The schemes were sold for either nothing or $1 and involved substantial grants by the Crown to upgrade the historic water race infrastructure.[38]

The Omakau, Manuherekia and Blackstone irrigation groups ended up with shares in the Fall Dam (managed by the Falls Dam Company Ltd) and the bulk of the water managed by the irrigation schemes (except for Hawkdun) was held under mining privileges.

The irrigation sales were followed by the Irrigation Schemes Act 1990 which delivered the promised legislation to transfer the mining privileges. For mining privileges acquired by the Crown for the construction of the irrigation schemes, the Irrigation Schemes Act confirmed the 30 year transition period whereby any water rights acquired would continue to exist for a 30 year period after acquisition of the scheme.

---

[34] ALLR W5427 873 Box 719 Irrigation Schemes South Island Omakau, Archives New Zealand.

[35] Peter J Farley, *Privatization of Irrigation Schemes in New Zealand*, International Irrigation Management Institute, 1994, p 7.

[36] ibid, p 8.

[37] ALLR W5427 873 Box 719 Irrigation Schemes South Island Omakau, Archives New Zealand.

[38] The Manuherekia Irrigation Scheme was purchased for $125,000 but the sale price included two houses and a depot as part of the irrigation assets. Reference, Peter Farley, *Irrigation Scheming, A History of Government Irrigation in New Zealand*, Peter Farley, 2013, p 224.

Under section 6(1) of the Irrigation Schemes Act 1990, the transfer of mining privileges was provided for:

> Where an irrigation scheme is sold or otherwise disposed of by the Crown pursuant to this Part, any mining privilege held by the Crown in relation to the scheme shall be deemed to be transferred to the person to whom the scheme is sold or otherwise disposed of.

Section 6(2) of the Act also provided that 'any such mining privilege deemed to be transferred…shall continue in force for a period of 30 years commencing on the date of transfer and shall then expire.' Later, the Resource Management Act 1991, amended this provision to state:

> Except as otherwise provided in section 413(3) of the Resource Management Act 1991, any such mining privilege deemed to be transferred pursuant to subsection (1) shall continue in force for a period of 30 years commencing on the date of transfer and shall then expire.

## Mining Privileges under the RMA

At the same time as the Government was in the process of privatising the irrigation schemes, the Resource Management Law Reform (RMLR) process was overhauling environmental laws. A key concern of the reform was a review of water management and the need to ensure sufficient instream flows, especially for the habitat of trout and salmon. Another key concern was a shift away from 'water rights and private ownership' to 'water management' especially in view of the principles of the Treaty of Waitangi.

In terms of the mining privileges in Central Otago, the Resource Management Law Reform (RMLR) papers indicate that the Crown considered that the mining privileges needed to be phased out due to the impact of over allocation (leading to insufficient instream flows), loss of environmental water quality, and lack of transferability as the privileges are 'tied to a piece of land'.[39]

Initially, the Ministry for the Environment proposed that the Resource Management Bill establish a 10 year expiry date for the mining privileges. This period was strongly opposed by the Treasury and the Ministry of Agriculture and Fisheries (MAF) on the basis of the Crown irrigation sales and the negotiated 30 year period for the mining privileges. At the time, Treasury estimated that a 10 year term would reduce the value of irrigation schemes and sales and revenue to the Crown by around $7 million.[40] It was stated that the 30 year transition period was to provide for the 'reasonable expectations of the current generation to realise their investment in their present irrigation arrangements.'

To enhance minimum water flows, it was proposed to promote voluntary acquisition of the deemed permits by the regional council. It was also envisaged that compulsory taking of the mining privileges would be considered with the provision of compensation to the owners.

Consequently, when the Resource Management Bill was being considered by Cabinet in April 1990 (POL (90) M 11/6), a 30 year transition period had been decided and it was agreed:

> That Government's concern is for the establishment of flows that are sufficient to meet minimum standards and that protect the national interest in instream values in Central Otago rivers and streams.

Cabinet also noted that the 'detailing of this national interest for instream flows will require the collection of basic data on flows, uses and instream needs over the next two years'.

Despite the recent sale of the mining privileges as part of the disposal of the Crown irrigation schemes,

---

39 RMLR: Funding and Accountability Mechanisms for Conversion of Mining Privileges, POL(90) 81, 10 April 1990.

40 Peter Farley, *Irrigation Scheming, A History of Government Irrigation in New Zealand*, Peter Farley, 2013, p 101.

the Government was interested in buying-back the privileges to protect the rivers of Central Otago. Cabinet noted that 'water and soil block subsidy is able to be allocated to fund the national interest in the investigation and measures of purchase and compensation for the Otago mining privileges conversation programme and that the Minister for the Environment determines the priorities.' If the water and soil block subsidy programme was to be discontinued (which it was), or funds were insufficient, then officials were to report back on 'how to fund the achievement of these national interest outcomes in the Otago mining privilege conversion programme.'[41]

With the enactment of the RMA in 1991, all the mining privileges became deemed permits. In 2014, it was estimated that in the Manuherekia catchment, 'the six irrigation schemes (Blackstone, Galloway, Hawkdun Idaburn, Ida Valley, Manuherekia and Omakau) have entitlement to 68.7% (on a volume basis) of the available water allocation in the catchment.'[42] The water takes and discharges for all the irrigation schemes, with the exception of the Hawkdun Idaburn, are authorised by deemed permits. With reference to the Omakau Irrigation Scheme as an example, 15 deemed permits provide for the use of 3,850 L/s of water.[43] All of the deemed permits are set to expire on 1 October 2021.

[41] RMLR: Funding and Accountability Mechanisms for Conversion[?] of Mining Privileges, POL(90) 81, 10 April 1990.

[42] Golder Associates, Manuherikia Feasibility Study – Consent Review – Current Resource Consents, 2 April 2014.

[43] Ibid.

# Extract from Rules and Regulations of the Otago Goldfields 1862

http://nzetc.victoria.ac.nz/tm/scholarly/tei-Stout63-t13-body-d1.html

**IV.—WATER RIGHTS AND RACES.**

**1.—Head Races.**

Any person intending to divert and use water for mining purposes by means of any Head Race, shall give notice thereof, in writing to the Warden, and to the holder or holders (if any) of a prior right or rights to divert and use water from the same source; and such notice shall be in the form hereinafter set forth; and copies of such notice shall be posted and maintained for 14 clear days at the source whence it is proposed to obtain water, and at the proposed termination of such race; and the intended course thereof shall be indicated by pegs not less than 2 inches square, or by large stones marked ↑, and placed not more than two hundred yards apart. And if no valid objection be entered against such races within 14 clear days from the posting of such notices, a Certificate of Registration may be granted by the Warden to the applicant.

FORM OF NOTICE.

(District and date.)

To the Warden at

I hereby give notice that I intend to construct a Head Water Race for Mining Purpose, commencing at a point (*) and terminating (*) The length of each Race is _____ or thereabouts, and its intended course is (*).

[Signature and address in full of applicant]—

* Here describe precise localities. * Do. * Do.

**2.—Races already constructed.**

Races constructed prior to the Proclamation of any Gold Field, or of these Rules and Regulations, must be registered with the Warden, as provided by Section 1.

**8.—Superiority of Right.**

Superiority of right to a supply of water shall be determined by priority of occupation, the earlier occupant having the superior right. In all cases when the occupier claims under a certificate or other authority in writing granted by a Warden or Commissioner, occupation shall be taken to have commenced at the date of such certificate or authority.

**4.—Races to be commenced within one month.**

The cutting and formation of races must be commenced within one calendar month from the date of registration, and the occupiers shall continue cutting and forming the same until the work is completed, otherwise any superiority of right to which they may be entitled by virtue of such registration shall be deemed to be forfeited.

**5.—Superiority of Right Forfeited by Disuse.**

If any race shall be entirely unused for a full period of thirty days at a time when water is available for it, occupation of the right shall be deemed to have recommenced at the last re-occupation thereof.

**6.—Abandonment of Races.**

All rights to any race shall become forfeited if abandoned for the space of one calendar month, unless

in cases of sickness or unavoidable absence, or in consequence of failure of water; but it shall be lawful for the Warden in his discretion, upon sufficient cause being shown, to suspend the operation of this Regulation for a further period of one month, and a certificate of such suspension shall be given in writing to the occupiers.

**7.—Heads of Races.**

All races that may hereafter be cut, shall have a point specified at which they shall be taken from the creek or river. In races already cut, this point shall be taken to be the spot from which the race now heads. No person shall shift or alter the head of any race without the written sanction of the Warden, nor to the prejudice of any existing right.

**8.—Alteration of Races.**

The alteration or extension of a race at any time shall not in any way affect any right or privilege attached to such race; and the holders thereof shall, during such alteration or extension, be deemed to be in occupation of all the rights and privileges attached to such race: provided that such alteration or extension shall first be approved by the Warden.

**9.—Insufficient Supply of Water.**

If the water flowing in any creek or river is insufficient to supply all the races connected therewith, the owner of any right shall—on receipt of a written notice from the owner of a superior right, stating that the supply of such superior right is less than he is entitled to—immediately cease to use the water, or such portion thereof as may be necessary to make up the supply of the superior right.

**10.—Water Gauge.**

If any dispute shall arise between holders of water-rights deriving their supply from the same creek or water-course, relative to the quantity of water to which each of them, the said holders, is or may be entitled, the following shall be taken to be a head of water, and such holders shall be limited thereto:—

A stream of water gauged by a box, 12 feet long, 10 inches deep, and 20 inches wide, all measured in the clear. The box shall be covered throughout. The upper or entrance end of such box may be left entirely open; but the lower end, or end of exit, shall be fitted with a bar 2 inches high, affixed to the floor of the box, and with a pressure or headboard, 6 inches deep, affixed to the top of the box, leaving an aperture of 2 inches in depth, and of the full width of the box.

(a.) If more than one sluice head of water requires to be gauged, the gauge-box should be enlarged horizontally to ensure accurate measurement. But when this cannot be done owing to natural obstacles, or other sufficient reasons, the gauge-box may be enlarged perpendicularly, in which case the depth of the pressure or headboard shall be reduced at the rate of 1 inch for every additional head of water that is perpendicularly measured.

(b.) The gauge-box shall at all times be placed on a level. When water is taken from one source only, the supply shall be gauged at the head of the race, or the source of supply. But if the race is fed, or supplied in part, by any side stream, or streams, the gauge-box shall be placed immediately below such side stream, or the last of such side streams.

(c.) The velocity of the water above the gauge-box shall, if required, be lessened by the construction of a dam bank, or by levelling the race for a distance of 30 feet; and such velocity shall not exceed an average of 1 foot per second in the said 30 feet, to be gauged by a float.

**11.—Supply of Water may be Reduced.**

When the supply of water from any creek or stream shall be insufficient for the use of all the holders of water rights thereon, it shall be lawful for the Warden, upon adequate cause being shown, to reduce the quantity, in due and equal proportion, which the said holders shall be entitled to draw therefrom, and to regulate the time and mode in which such water may be used.

Provided that nothing herein contained shall be deemed or taken to affect the rights of the holder or holders of a first water-right hereafter granted on any stream; but such holder or holders shall at all times be entitled to the lull supply of water for which he or they shall be registered.

**12.—Number of Sluice Heads allowed.**

The number of sluice heads allowed for any such race, as aforesaid, shall be as follows:—One or two miners, one sluice head, or 40 inches of water; four or more miners, two sluice-heads; and so on at the rate of one sluice-head to every additional two miners.

**13.—Water not to be wasted.**

Holders of rights shall not allow any water to run to waste; but such water shall be appropriated to the use of the next holder of a right, according to the date of their respective registrations.

**14.—Transfer or assignment.**

The transfer or assignment of any race, or of any interest therein, shall not affect any right or privilege attached to such race; provided that, any such transfer or assignment shall have been duly registered at the office of the Warden, and a memorandum thereof made upon the back of the original certificate.

**15.—Keeping Races in Repair, Bridging, &c.**

The holder or occupier of any race shall keep the same in repair, and shall make an efficient bridge where any road in ordinary use crosses the race, upon being required to do so by the Warden.

**16.—Working Ground occupied for Races.**

Any person desirous of working the ground on which any race or portion of a race is situated, may do so by first providing an equally good race for the use of the occupier; provided that the consent of the Warden thereto be first obtained.

**17.—Reservations.**

No water-right shall be granted for the use or diversion of any water which is, or may be, required for public purposes, or for the use of the miners generally.

**18.—Water for General Use.**

Two sluice-heads of water shall, if required, be at all times allowed to flow in the natural course of a creek or river for general use.

**19.—Causing Claims to be flooded.**

No person shall back the water of any creek, river, race, or water-course, upon any claim, or otherwise cause any claim to be flooded, either wilfully or by neglect.

**20.—Obstructions to Water Courses.**

No person shall deposit any earth, stones, tailings, or other substance in the bed of any water-course, to as to obstruct the flow of water therein.

**21.—Side streams.**

Where a race crosses any water-course, the use of which is required by holders of Miners' Rights, it shall be carried either over or under the same, so as not to interfere with the natural flow of water therein.

**22.—Construction of Tail-races.**

Before any person shall construct a tail-race, he shall first proceed by notice in the same manner as is directed in Section 1, for headraces. But such notice shall only require to be posted for seven (7) clear days; at the expiration whereof the applicant shall return to the Warden a copy of the notice, which shall be signed by the holders of the four (4) nearest claims, as expressing their assent to or dissent

PAGE 10cient size to carry off the sludge or water), shall be constructed and kept in repair by the owner of the machine whence such sludge or water proceeds.

**8.—Forfeiture of Dams or Machines.**

The site of any dam or machine not commenced within seven days from the date of the grant thereof, or not completed within a reasonable time, or any dam or machine unoccupied for one calendar month during a period when sufficient water has been available, shall be deemed to be forfeited, and may be granted by the Warden to any person who may apply for the same.

**9.—Injury to Property by Dams.**

If any claim shall be flooded, or property injured by the bursting of any dam-bank, the owner of such dam shall be liable for any loss or damage occasioned thereby; provided that it is proved to the satisfaction of the Warden that such breaking away resulted from the faulty construction of such dam.

**10.—Sites proving Auriferous.**

If it shall be proved that the ground occupied by any dam or machine contains auriferous earth or quartz, the owner of such dam or machine may be compelled to leave or remove the same: Provided that adequate compensation for such leaving or removal shall first have been estimated by assessors and paid by the person desirous of working the ground.

**VI.—CREEK CLAIMS.**

**1.—Notice of Diversion to be given.**

Any person desirous of diverting the course of a permanent stream for the purpose of working the bed thereof as a creek claim, shall first give notice of his intention to the Warden, and to all parties wording in, or occupying claims adjoining the proposed line of diversion. Such Notices shall be in the form hereinafter prescribed, and copies thereof shall be posted and maintained, for a period of Ten clear days, at the points proposed for the commencement and termination of such diversion, as aforesaid, and if no valid objection be entered there against within the aforesaid period, the Warden may issue a Certificate of Registration to the applicant.

FORM OF NOTICE.

(District and data)

No.

I hereby give notice that I intend to divert the course of (name of stream) and to form a new channel therefor, commencing at a point situate (*), and terminating at a point (*)

(Signature, &c.)____

____

*Here insert, with sufficient accuracy, the localities.

**2.—Wall to be Allowed.**

Holders of creek claims shall be allowed a sufficient wall between the channel of diversion and the bed of the stream; and the width of such wall shall be defined by the Warden.

# Appendix 6

## Summary of the state of the freshwater environment for the Manuherekia, Arrow, Cardrona, and Taieri catchments

Authored by Isaac Bain, Ministry for the Environment

### Introduction

This report aims to provide a brief summary of the state of the freshwater environment for the Manuherekia, Arrow, Cardrona, and Taieri catchments. It focusses on drivers, pressures, state (including trends) and impact. We are limited to only reviewing existing state of the environment information and no new field data were collected.

### Manuherekia catchment

#### Overview

The Manuherekia is a large catchment (3035 $km^2$) located near Alexandra, central Otago.[44] It has a long history of water abstractions, and a convoluted network of structures has been developed to abstract, store, and transport water around the catchment. There is widespread concern over water quantity and to a lesser degree water quality in the catchment.

#### Key drivers and pressures

Land cover in the Manuherekia catchment, as of 2012, was dominated by grassland (90% of total land area)[45] and much of this was exotic grassland (62%). Tussock grassland extent was around half of exotic grassland (27%). There was a significant increase in the extent of cropland between 1996 and 2012, increasing by 306ha or 24%. This appears to be mostly conversions from grassland or shrubland into cropland.

Land use of the grassland systems is dominated by sheep and beef grazing, with the lower catchment able to support more intensive uses due to irrigation.[46] There has also been recent expansion of dairy.

#### State and trends of wetlands

No assessment of wetlands in the Manuherekia catchment is provided by ORC in state of the environment reports found on their website.[47] This lack of reporting is concerning as wetlands are an

[44] https://www.lawa.org.nz/explore-data/otago-region/river-quality/manuherikia-river/

[45] https://www.lawa.org.nz/explore-data/land-cover/

[46] https://www.orc.govt.nz/media/6188/water-quality-and-ecosystem-health-in-the-manuherikia-soe-web.pdf

[47] https://www.orc.govt.nz/media/6129/2018-wq-report-card-lower-manuherikia-pdf.pdf
https://www.orc.govt.nz/media/6143/2018-wq-report-card-upper-manuherikia-pdf.pdf
https://www.orc.govt.nz/media/6188/water-quality-and-ecosystem-health-in-the-manuherikia-soe-web.pdf
https://www.orc.govt.nz/media/6957/final_orc_soe_report_2006_to_2017.pdf
https://www.orc.govt.nz/media/6296/2017-2018-soe-report-card.pdf

important type of freshwater ecosystem and are sensitive to changes in hydrology and land use change.

A search of the Freshwater Ecosystems of New Zealand[48] (FENZ)'s wetland layer revealed current wetland extent to total 1,598ha. Historic wetland extent totalled 8,508ha, which means 81% of wetlands have been lost throughout the catchment.

Field data is not available for us to comment on the condition of remaining wetlands. However the FENZ index of condition (overall index of integrity from completely degraded: 0 to pristine: 1) had a mean value for all wetlands in the catchment of 0.645 (range: 0.203 – 0.967) which indicates a moderate level of impact.

ORC does publish a wetland inventory which contains some information about the location, values and size of various wetlands (especially regionally significant wetlands). However, this is lacking in information about the condition of remaining wetlands.

### State and trends of lakes

ORC states that there are 63 lakes in Otago that are greater or equal to 10ha in size. It monitors nine of these lakes as part of its state of the environment programme,[49] none of which are located in the Manuherekia catchment. The Council mentions that these nine lakes provide a good representation of lake types and lake-catchment land-uses across the region.

A search of the FENZ lake layer revealed 42 lakes greater than 1ha (including dams and reservoirs) in the Manuherekia catchment. If dams are excluded, this number drops to nine lakes; the largest of which is a 10.5ha glacial-type lake at the head of the west branch of the Manuherekia River (upstream land cover: 100% natural). Also of note is the man-made 8ha Blue Lake (upstream land cover: 12.8% natural, 64.9% pasture).

None of the nine SOE monitored lakes in Otago are similar to the lakes found in the Manuherekia catchment. Of the two reservoir-lakes monitored, these are both large (> 1000ha) and have predominately natural catchments (> 90%). The smallest monitored lake (26ha) has a predominately natural catchment (97.6%). Thus, the reservoirs in the Manuherekia catchment are poorly represented in monitoring because they are much smaller and of dissimilar catchment land cover. The small lakes of the Manuherekia catchment are also poorly represented because ORC does not monitor small lakes that are likely to be affected by pasture catchments. The smallest lake that ORC monitors that has predominately pasture catchment (80%) is 130ha in size, many times larger than the lakes of the Manuherekia.

Sufficient data are not available for us to comment on the condition of lakes in the Manuherekia catchment. In addition, ORC does not monitor lakes representative of the ones found in the catchment.

### State and trends of streams/rivers

### Water quality

Numerical limits for water quality are set in Schedule 15 of the ORC Regional Plan: Water. The relevant statistics are five-year 80$^{th}$ percentiles, when flows are at or below median flow.

https://www.doc.govt.nz/our-work/freshwater-ecosystems-of-new-zealand/

https://www.orc.govt.nz/media/6957/final_orc_soe_report_2006_to_2017.pdf

[48] https://www.doc.govt.nz/our-work/freshwater-ecosystems-of-new-zealand/

[49] https://www.orc.govt.nz/media/6957/final_orc_soe_report_2006_to_2017.pdf

Results as of June 2018 show that phosphorus, *E. coli* and turbidity have the most exceedances.[50] Exceedances of these parameters are associated with poor land management.[51] Nitrogen appears to be of less concern in this catchment given current concentrations.

| Parameter | Number of sites that exceed limit |
|---|---|
| Nitrogen (NNN) | 1 (20%) |
| Ammonium ($NH_4$-N) | 0 (0%) |
| Dissolved phosphorus (DRP) | 3 (60%) |
| *E. coli* | 2 (40%) |
| Turbidity | 2 (40%) |

Data from Environment Aotearoa 2019[52] for ten-year trends indicate that, at one site, *E. coli* trends were indeterminate, and likely worsening at the other site. For total nitrogen and nitrate nitrogen, trends were either indeterminate or improving. For ammoniacal nitrogen, trends were either indeterminate or very likely worsening. Note that indeterminate trends do not mean trends were remaining stable, simply that sufficient data were not available to provide statistical significance of direction. Information received from ORC highlights similar trends, with the addition of worsening trends for DRP and turbidity.

## Water quantity

Our assessment of the state of water quantity has been restricted by the lack of good hydrological information in the Manuherekia catchment. Two critical pieces of information are unable to be reliably estimated; (1) naturalised flows in the river, (2) actual water usage. With better investment in hydrological modelling these barriers could be overcome.

Notwithstanding the lack of reliable hydrological information, it is clear that the water quantity of the Manuherekia catchment is severely impacted – the point of contention surrounds the exact degree of impact. This impact is due to landscape characteristics (arid climate, high evapotranspiration, low precipitation) mediated by a high degree of hydrological modification (abstractions and transport).

Consented primary surface water takes are estimated to total approximately 32 cumecs, which is eight times the naturalised Mean Annual Low Flow (MALF) (3.9 $m^3/s$), or twice the naturalised mean flow (18.5 $m^3/s$). Actual water use is estimated to be lower than consented use, at 16 $m^3/s$ when flows are favourable or 7-9 $m^3/s$ during peak summer conditions.

## Aquatic life

### *Macroinvertebrates*

Macroinvertebrates were measured during the summer of 2017/18 as a snapshot at two sites in the Manuherekia.[53] Manuherekia at Ophir scored a 111 for MCI (good) and 5.4 for SQMCI (good). Dunstan Creek scored a 119 for MCI (good) and 7.6 for SQMCI (excellent). Care must be taken in interpreting a

[50] https://www.orc.govt.nz/media/6129/2018-wq-report-card-lower-manuherikia-pdf.pdfhttps:/; /www.orc.govt.nz/media/6143/2018-wq-report-card-upper-manuherikia-pdf.pdf

[51] https://www.orc.govt.nz/media/6188/water-quality-and-ecosystem-health-in-the-manuherikia-soe-web.pdf

[52] https://www.mfe.govt.nz/environment-aotearoa-2019

[53] https://www.orc.govt.nz/media/6296/2017-2018-soe-report-card.pdf

single snapshot of macroinvertebrates as it may not reflect a true overview of the long-term state of macrioinvertebrates in the Manuherekia catchment.

### *Periphyton*

Relatively low abundances of algae were reported in 2017/18. However, two sites had both Didymo and *Phormidium*.

### *Fish*

Electric fish monitoring was conducted at Thompsons Creek in 2017/18 which found 4 different species, mostly upland bully and brown trout with longfin and shortfin eels also present. These results show low diversity and abundance of fish species relative to what would naturally be expected under reference conditions.

It is known that Central Otago, including the Manuherekia catchment, is a hotspot of diversity for endemic galaxiids, with 13 described and undescribed taxa recognised in the region. Non-migratory galaxias are threatened by water abstraction, land-use change, and salmonids. Their remaining populations are highly fragmented, typically occurring in smaller tributary streams and wetlands.

### *Habitat*

Information on habitat is not available from routine state of the environment reporting by ORC. An investigation of water quality and ecosystem health was conducted between late 2009 and early 2011.[54] This report found that the majority of the Manuherekia catchment had minimal fine sediment build-up on the stream bed, with the exceptions of Pool Burn upper and Lauder Creek, which were covered in fine sediment.

Fish passage is an issue, due to water infrastructure, both in the Manuherekia catchment and downstream in the Clutha main-stem. This has led to connectivity of habitat being reduced for fish.

### *Ecological processes*

Ecological processes are the interactions among biota and their physical and chemical environment, including biogeochemical processes. Indicators of ecological processes in rivers provide a measure of how well a stream is functioning, as opposed to how the ecosystem is structured.[55]

No information is available to assess ecological processes in the Manuherekia catchment. This probably reflects a lack of monitoring, though simple indicators of ecological processes are now available and are used by other regional councils (such as cotton strip assay).

## State and trends of groundwater

ORC recognises various aquifers in the Manuherekia catchment. These are the Alluvium Aquifer, Manuherekia Groundwater Management Zone, Ida Valley Groundwater Management Zone, and the Manuherekia Clay Bound Aquifer. Their water quality allocation limit has been set at 50% of MAR.

Information could not be found to assess the state of groundwater quality in the Manuherekia catchment.

---

54 https://www.orc.govt.nz/media/6188/water-quality-and-ecosystem-health-in-the-manuherikia-soe-web.pdf

55 https://www.mfe.govt.nz/sites/default/files/media/Fresh%20water/freshwater-ecosystem-health-framework.pdf

## Conclusions

- Wetlands remain in the Manuherekia catchment, but their condition is not well understood.
- The lakes of the Manuherekia catchment are not SOE monitored, nor does representative monitoring take place in the region. These lakes are likely to be in poor condition given surrounding land use.
- Water quality in rivers is poor and declining for phosphorus, *E. coli* and turbidity.
- Water quantity is poorly understood, but likely to be severely over-allocated in terms of abstractions and flow.
- The Manuherekia contains many rare, endemic, fish species that may be in serious trouble. Other common species are also poorly represented.

# Arrow catchment

## Overview

The Arrow is a small catchment of 240km$^2$ that feeds into the Kawarau River just east of Arrowtown. If the Arrow/Wakatipu Basin is considered part of the area, then this includes Lake Hayes, though this is not part of the catchment of the Arrow River.

The Arrow catchment has steep headwaters draining the Harris mountain range.

## Key drivers and pressures

Land cover in the Arrow catchment is dominated by low producing grassland (80%) which includes tussocklands, with large areas of high producing grassland in the lower catchment (7.3%). The settlement of Arrowtown covers approximately 1.2% of the catchment – but urban areas can have a disproportionate impact on freshwaters relative to their areal extent.

## State and trends of wetlands

A search of the Freshwater Ecosystems of New Zealand[56] (FENZ)'s wetland layer revealed current wetland extent to total 3.66ha. Historic wetland extent totalled 22.9ha, which means 84% of wetlands have been lost throughout the catchment.

Field data is not available for us to comment on the condition of remaining wetlands. However the FENZ index of condition (overall index of integrity from completely degraded: 0 to pristine: 1) had a mean value for all wetlands in the catchment of 0.818 (range: 0.296 – 0.905) which indicates low levels of impact.

## State and trends of lakes

There are no lakes greater than 1ha in the Arrow catchment. Lake Hayes is however in the wider Arrow Basin area, which had the following exceedances:

| Parameter | Number of sites that exceed limit |
|---|---|
| Nitrogen (TN) | 0 (0%) |
| Ammonium ($NH_4$-N) | 0 (0%) |
| Phosphorus (TP) | 1 (100%) |
| *E. coli* | 0 (0%) |
| Turbidity | 0 (0%) |

Note the above *E. coli* statistic is reported as part of SOE monitoring which uses long-term measures to assess average state. However, surveillance monitoring for swimming indicates a number of breaches for *E. coli* over the last three years, which has resulted in a medium risk rating.[57]

Lake Hayes had a Trophic Level Index of 3.6 as of 2017 (*cf.* 4.69 as of 2009). This indicates average water quality and mesotrophic lake conditions (moderate levels of nutrients and algae).

[56] https://www.doc.govt.nz/our-work/freshwater-ecosystems-of-new-zealand/

[57] https://www.lawa.org.nz/explore-data/otago-region/swimming/lake-hayes-at-mill-creek-shallows/swimsite

## State and trends of streams/rivers

### Water quality

SOE monitoring sites have only recently been established in the Arrow catchment (July 2018) so it will be a number of years before exceedance statistics can be calculated. There is one river site in the Arrow Basin, Mill Creek at Fish Trap, which had the following exceedances:

| Parameter | Number of sites that exceed limit |
|---|---|
| Nitrogen (NNN) | 1 (100%) |
| Ammonium ($NH_4$-N) | 0 (0%) |
| Dissolved phosphorus (DRP) | 0 (0%) |
| *E. coli* | 1 (100%) |
| Turbidity | 0 (0%) |

Given the low intensity land use upstream of Arrowtown, water quality is expected to be good above the residential areas. There is potential for urban and agricultural contaminants to impact water quality in the lower reaches.

### Water quantity

Observed 7d MALF is 1.03 $m^3/s$ compared with a naturalised 7d MALF of 1.4 $m^3/s$.[58] This indicates relatively low levels of actual water usage from the 22 surface water takes. The average ratio of actual: consented water takes varied throughout the year, with very low (~2%) ratios in winter months to moderate during summer months (~30%).

### Aquatic life

#### *Macroinvertebrates*

Macroinvertebrate results are not available yet as the new biomonitoring programme for the Arrow catchment was only established in January 2019. MCI and SQMCI results for Mill Creek both indicate "probable moderate pollution"[59] (85 and 4.1 respectively). The SQMCI results of 4.1 is close to the boundary of < 4 which indicates "probable severe pollution".

#### *Periphyton*

Periphyton data is not available, but may be an issue during prolonged low flow periods especially below Arrowtown.

#### *Fish*

Koaro is the only native fish recorded in the catchment. Brown and rainbow trout are also present, but do not penetrate far upstream of Arrowtown. Eels are likely to be significantly impeded by fish barriers at hydro-electric dams on the Clutha River / Mata-Au.

---

58 https://www.orc.govt.nz/media/4204/arrow-river-science-update-dec-2017_web.pdf

59 https://www.mfe.govt.nz/sites/default/files/mci-user-guide-may07.pdf

*Habitat*

Data is not available to comment on for the state of habitat in the Arrow catchment. It is noted however that gravel and sand beds may be important spawning grounds for the resident trout.

*Ecological processes*

Data is not available to comment on for the state of ecological processes.

*State and trends of groundwater*

Aquifers in the Arrow/Wakatipu are not particularly well monitored in terms of quantity and especially quality. A 2017 ORC report on the Arrow-Bush Ribbon aquifer recommended a complete aquifer study is required to have better understanding of extent, capacity, recharge zones, and the effects of abstraction.[60]

A 2004 investigation into Wakatipu Basin aquifers[61] stated that water quality was generally very good. Nitrate-nitrogen and potassium concentrations were slightly elevated, probably because of animal grazing and fertiliser application. It is possible that water quality has declined since this time but to what extent is unknown.

## Conclusion

- Small areas of wetland exist throughout the catchment, but their condition are unknown.
- The condition of Lake Hayes is concerning, and may be close to a tipping point. Eutrophication and pathogens are an issue, with swimming warnings becoming more frequent.
- Actual usage of water is low compared to paper allocation.
- Macroinvertebrate scores for the inflows to Lake Hayes indicate water quality issues.
- Fish diversity is very low, with only one native species having been recorded.

60 https://www.orc.govt.nz/media/4197/arrow-bush-ribbon-aquifer-report.pdf

61 https://www.orc.govt.nz/media/4198/wakatipu-aquifers-groundwater-investigation-report-web.pdf

# Cardrona catchment

## Overview

The Cardrona River drains a moderately sized catchment of 350km$^2$ before entering the Clutha River at Albert Town.

## Key drivers and pressures

The dominant land cover in the Cardrona catchment is low producing grassland (82.8%), with the next largest land cover being high producing grassland (8.5%). Much of the high producing grassland has intensified from low producing grassland between 1990 and 2008.

Irrigation is widespread throughout the flat areas of the lower catchment, with a total irrigated area of 2,850ha.[62] Known irrigation methods include center-pivot, flood, and spray.

## State and trends of wetlands

A search of the Freshwater Ecosystems of New Zealand[63] (FENZ)'s wetland layer revealed current wetland extent to total 3.28ha. Historic wetland extent totalled 19.40ha, which means 83% of wetlands have been lost throughout the catchment.

Field data are not available for us to comment on the condition of remaining wetlands. However the FENZ index of condition (overall index of integrity from completely degraded: 0 to pristine: 1) had a mean value for all wetlands in the catchment of 0.902 (range: 0.895 – 0.905) which indicates low levels of impact.

## State and trends of lakes

There are no lakes greater than 1ha in the Cardrona catchment.

## State and trends of streams/rivers

## Water quality

In June 2018, the Cardrona catchment at the Mt Baker SOE site exceeded nitrogen (NNN) and ammonium ($NH_4$-N) limits, and is very close to exceeding *E. coli* limits (ORC advise there is a worsening trend of *E. coli* at this site).

Luggate Creek is a small, adjacent catchment that exceeds for dissolved phosphorus (DRP) and *E. coli*.

## Water quantity

The Cardrona River has a natural drying reach below Mt Barker where surface flow is lost to groundwater. The loss of surface flow here often exceeds the 7d MALF of the river, so surface flow is lost most summers. When the river is dry, this prevents upstream spawning migrations for salmonids.

62 https://www.orc.govt.nz/media/4379/water-quality-study-cardrona-river-catchment.pdf

63 https://www.doc.govt.nz/our-work/freshwater-ecosystems-of-new-zealand/

| Site | Observed 7-day MALF | Naturalised 7-day MALF |
|---|---|---|
| **Cardrona River at Mt Barker** | 0.8 $m^3/s$ | 1.1 $m^3/s$ |
| **Cardrona River at Clutha confluence** | 0.3 $m^3/s$ | NA |

## Aquatic life

### *Macroinvertebrates*

In June 2018, the Cardrona catchment at the Mt Baker SOE site had a MCI result of 101 which indicates "doubtful quality or possible mild pollution". SQMCI result at this site was 2.8 which indicates "probable severe pollution". The percentage of EPT taxa was 50%, which indicates many sensitive taxa were missing.

### *Periphyton*

*Didymosphenia* and *Synedra are* the dominant algae present at the Cardrona river site, and these are both in moderate abundance. Low flows may enable the proliferation of long filamentous algae.[64]

### *Fish*

Electric fishing during the summer of 2017/18 at Cardrona at Mt Barker SOE site found 5 fish species (an unidentified eel, koaro, upland bully, brown and rainbow trout). A search of the Freshwater Fish Database also found Longfin eel, Brook Char, unidentified galaxiid, Clutha flathead galaxiid (nationally critical), freshwater mussels, and Koura.

This indicates a reasonable number and diversity of species, but is probably still low compared to what would naturally be expected. Clutha flathead galaxis are restricted to headwaters of the Cardrona, likely due to the presence of trout and koaro. Koaro are able to inhabit the Cardrona catchment due to the establishment of Lake Dunstan.

### *Habitat*

Riparian vegetation was dominated (assessed during 2014) by willows, exotic pasture grasses, and lupins.[65] There was low levels of fencing and stock generally had direct access to the stream bed.

Riffles and runs in the upper catchment were dominated by coarse gravels, while the lower catchment was dominated by fine gravels.[66]

There is a risk that water abstractions are having an additional impact on the connectivity and extent of habitat in the Cardrona river.[67] A single habitat model exists, but it is old (2001) and possibly unsuitable due to lack of calibration data.

64 https://www.orc.govt.nz/media/4496/cardrona-catchment-science-update-2011_2017.pdf

65 https://www.orc.govt.nz/media/4379/water-quality-study-cardrona-river-catchment.pdf

66 https://www.orc.govt.nz/media/4379/water-quality-study-cardrona-river-catchment.pdf

67 https://www.orc.govt.nz/media/4496/cardrona-catchment-science-update-2011_2017.pdf

*Ecological processes*

Data are not available to comment on the state of ecological processes.

*State and trends of groundwater*

Only information related to groundwater quantity could be found, whilst data related to groundwater quality was lacking. Due to high levels of nitrogen and *E. coli* in surface water, it is likely that the Cardrona River is negatively contributing to aquifer quality.

## Conclusion

- Nitrogen and *E. coli* appear to be the main water quality issue.
- There is a natural drying reach in the Cardrona River which makes it sensitive to further water abstractions during low flow periods.
- MCI scores highlighted probable impact on water quality and/or habitat conditions.
- Rare fish species are still present in the catchment.
- Riparian vegetation is dominated by exotic species, and stock have easy access to the river.

# Taieri catchment

## Overview

The Taieri catchment is a large (5,700km$^2$) catchment which joins the Lake Waihola and Lake Waipori complex before entering the sea south of Dunedin.

## Key drivers and pressures

Land cover in the Taieri catchment is dominated by grassland, both low producing (56.2%) and high producing (30.4%). Other major land covers include natural forest (2.4%) and planted forest (4.9%).

## State and trends of wetlands

A search of the Freshwater Ecosystems of New Zealand[68](FENZ)'s wetland layer revealed current wetland extent to total 9,802ha. Historic wetland extent totalled 34,126ha, which means 71% of wetlands have been lost throughout the catchment.

The FENZ index of condition (overall index of integrity from completely degraded: 0 to pristine: 1) has a mean value for all wetlands in the catchment of 0.715 (range: 0.203 – 0.969) which indicates moderate levels of impact.

ORC recognises the Waipori/Waihola wetland complex as regionally significant,[69] and has a number of recorded values that indicate good condition (high degree of wetland naturalness, high diversity of indigenous wetland flora and fauna, high diversity of wetland habitat types, etc.).

## State and trends of lakes

A search of the FENZ lake layer revealed 105 lakes (including dams and reservoirs) greater than 1ha in size in the Taieri catchment. If dams are excluded this number drops to 28 lakes.

ORC has one SOE lake monitoring site in the catchment at Lake Waihola. This lake is a large (650ha), shallow, tidal freshwater lake. It is located on the Taieri plains 20km from the coast, and is part of the Waihola-Waipori wetland complex. This wetland complex is internationally significant and regarded as one of the largest and most significant remaining freshwater wetlands in New Zealand.

| Parameter | Lake Waihola site |
|---|---|
| Total nitrogen (TN) | Exceeds limit |
| Ammonium ($NH_4$-N) | Not exceed limit |
| Total phosphorus (TP) | Exceeds limit |
| *E. coli* | Not exceed limit |
| Turbidity | Exceeds limit |

Lake Waihola generally has a Trophic Level Index (TLI) score in the range of 4-5 which indicates eutrophic lake conditions and poor water quality.[70]

[68] https://www.doc.govt.nz/our-work/freshwater-ecosystems-of-new-zealand/

[69] https://www.orc.govt.nz/managing-our-environment/water/regionally-significant-wetlands/clutha-district/waiporiwaihola-wetland-complex

[70] https://www.lawa.org.nz/explore-data/otago-region/lakes/lake-waihola/

## State and trends of streams/rivers

### Water quality

Water quality is variable across the Taieri catchment.[71] Most parameters exceed limits at multiple sites, except for ammonium which only exceeds at one site. Phosphorus and *E. coli* are of particular concern in this catchment.

| Parameter | Number of sites that exceed limit |
|---|---|
| Nitrogen (NNN) | 2 (13%) |
| Ammonium ($NH_4$-N) | 1 (7%) |
| Dissolved phosphorus (DRP) | 6 (40%) |
| *E. coli* | 8 (53%) |
| Turbidity | 2 (13%) |

Trends over the period 2008 – 2017 indicate worsening *E. coli* at most sites.[72] Turbidity trends are worsening at about half of the sites.[73] Nitrate-nitrogen[74] and total phosphorus[75] are improving at most sites.

### Water quantity

SOE information related to water quantity could not be found. There are 74 deemed permits located in the Taieri catchment. Minimum flow limits are set at multiple places throughout the catchment, and the river sometimes reaches these minimum flows.[76]

### Aquatic life

#### *Macroinvertebrates*

MCI scores in five out the six monitored sites are between 100 and 115, indicting 'good' condition.[77] The sixth site at Silver Stream has a score of approximately 90, which indicates 'poor' condition.

#### *Fish*

A number of fish species have been found in the Taieri catchment, including: Perch, Brook char, Koaro, Brown trout, Koura, Rainbow trout, Inanga, Giant kokopu, Longfin eel, Yelloweye mullet, Shortfin eel, black flounder, common bully, dusky galaxis, lamprey, eldons galaxis, flathead galaxis, roundhead galaxis, upland bully, banded kokopu, freshwater mussels, and others.

---

71 https://www.orc.govt.nz/media/6957/final_orc_soe_report_2006_to_2017.pdf

72 https://statisticsnz.shinyapps.io/river_water_quality_ecoli/

73 https://statisticsnz.shinyapps.io/river_water_quality_clarity/

74 https://statisticsnz.shinyapps.io/river_water_quality_nitrogen/

75 https://statisticsnz.shinyapps.io/river_water_quality_phosphorus/

76 https://www.orc.govt.nz/news-and-events/news-and-media-releases/2015/january/orc-extends-water-restrictions-to-safeguard-the-taieri

77 https://www.orc.govt.nz/media/6957/final_orc_soe_report_2006_to_2017.pdf

Fish densities were high in upper and lower Lug Creek, and Lower Pig Burn. Trout condition was 'fair' across most sites.

### *Habitat*

A 2004 report on the upper Taieri[78] investigated habitat in tributaries and found the majority of sites had minimal fine sediment cover, but three sites had a high percentage of fine sediment cover.

A relatively low number of fish passage barriers probably enables good connectivity throughout the catchment from mountains-to-sea.

### *Ecological processes*

Data is not available to comment on for the state of ecological processes.

### *State and trends of groundwater*

The Lower Taieri Basin has a low level of water quality impact from human impact.[79] Nitrate concentrations are generally low, with highest concentrations in the north of the basin near Mosgiel – though these concentrations are still less than the drinking water standard.

Some areas of the basin have elevated iron and manganese levels, with concentrations regularly exceeding drinking water standards for "appearance, taste, and odour".

Salinity is an issue in some small areas of the basin, and could worsen given sea level rise and further abstractions.

## Conclusion

- The Taieri catchment has a large wetland-lake complex in its lower catchment that holds international significance.
- Lake Waihola is particularly sensitive (due to its shallow nature) and has some signs of poor water quality and eutrophic status.
- *E. coli* and phosphorus are the main water quality parameters of concern in rivers.
- The Taieri catchment supports a surprising diversity of fish life, including many rare species.

78 https://www.orc.govt.nz/media/6189/water-quality-and-ecosystem-health-in-the-upper-taieri.pdf

79 https://www.orc.govt.nz/media/3809/l-t-g-allocation-study-web.pdf

# Appendix 7 Regional Plan: Water

The Council notified the Water Plan on 28 February 1998 and made it operative, after submissions, hearings and appeals, on 1 January 2004. It has made 15 plan changes since then.

| Changes | Date Notified | Decision Released | Date Operative |
|---|---|---|---|
| **Waitaki Catchment Water Allocation Regional Plan** | 19 Feb '05 | 30 Sep '05 | 3 Jul '06 |
| **Plan Change 1A** (Minor amendments) | 17 Aug '05 | 1 Apr '06 | 1 Aug '06 |
| **Plan Change 1B** (Minimum Flows for Waianakarua River, Trotters Creek, Luggate Creek) | 20 Dec '08 | 31 Oct '09 | 1 Mar '10 |
| **Plan Change 1C** (Water Allocation and Use) | 20 Dec '08 | 10 Apr '10 | 1 Mar '12 |
| **Plan Change 3A** (Minimum Flow for Taieri River at Tiroiti) | 26 Jun '10 | 11 Dec '10 | 1 May '11 |
| **Plan Change 4A** (Groundwater and North Otago Volcanic Aquifer) | 18 Sep '10 | 24 Sep '11 | 1 Mar '12 |
| **Amendment 1** (NPS Freshwater Management) | 24 Jun '11 | 24 Jun 11 | 1 Jul 2011 |
| **Plan Change 2** (Regionally Significant Wetlands) | 2 Jul '11 | 12 May '12 | 1 Oct '13 |
| **Plan Change 6A** (Water Quality)<br>Plan Change 6A Archive | 31 Mar '12 | 20 Apr '13 | 1 May '14 |
| **Plan Change 4B** (Groundwater allocation) | 17 May '14 | 13 Dec '14 | 1 Sep '15 |
| **Plan Change 4C** (Groundwater management: Cromwell Terrace) | 16 Aug '14 | 13 Dec '14 | 1 Sep '15 |
| **Plan Change 3B** (Pomahaka Catchment minimum flow) | 16 Aug '14 | 14 Feb '15 | 1 Jun '15 |
| **Plan Change 3C** (Waiwera Catchment minimum flow) | 13 Dec '14 | 8 Aug '15 | 1 Mar '16 |
| **Amendment 2** (NES Plantation Forestry) | 30 Jun '18 | 30 Jun '18 | 1 Jul '18 |
| **Proposed Plan Change 5A** (Lindis: Integrated water management) | 8 Aug '15 | 13 Aug '16 | Under appeal |

Otago Regional Council

## *From the Office of the Chairperson*

Our Ref: A1306728

16 December 2019

Hon David Parker
Minister for the Environment
Private Bag 18041
Parliament Buildings
Wellington 6160

Dear Minister

**Investigation of Freshwater Management and Allocation Functions at Otago Regional Council under S24A of the Resource Management Act 1991: Otago Regional Council Response to Recommendations**

The Otago Regional Council welcomes and accepts the position laid out in your letter of 18 November 2019, which was informed through the investigation by Professor Skelton. We acknowledge the legacy issues in our planning framework and note the Otago Regional Council has made a lot of changes in the last 18 months as an organisation. We are focused on the future and the new governance team is committed to sorting these issues out.

In your letter, you requested by 24 December 2019, a formal response to your recommendations, including an outline of how the Otago Regional Council intends to achieve the planning framework changes.

On 27 November 2019, Council convened an extraordinary meeting, and agreed to a work plan (Appendix 1) to meet the recommendations laid out in your letter. We provide further detail below.

**Recommendation 1: Take all necessary steps to develop a fit for purpose freshwater management planning regime that gives effect to the relevant national instruments and sets a coherent framework for assessing all water consent applications, including those that are to replace any deemed permits**

The Otago Regional Council, at its meeting on 31 October 2018, agreed to a full review of its Water Plan. This work is progressing, and a more detailed timeframe is outlined under Recommendation 2 below.

At the extraordinary Council meeting, we agreed to a review of the Regional Policy Statement for Otago to be notified by November 2020. Further detail is also outlined under Recommendation 2 below.

Other changes to our freshwater management planning regime that are being progressed include the following:

*Plan Change 6AA & Omnibus Plan Change*
Plan change 6AA defers the implementation of some water quality provisions in the Otago Regional Council's existing Water Plan. The Omnibus plan change will introduce into the Water Plan a suite of provisions designed to immediately remedy the deficiencies in the Water Plan in respect of water quality management and to achieve water quality improvement outcomes. They are a substitute for the existing provisions that have been found wanting. The Omnibus plan change is to be notified by 31 March 2020.

Plan Change 6AA has already been notified, a number of submissions have been filed and an Independent Hearing Commissioner has been appointed to hear the plan change. The hearing has been set down for 18 – 20 December 2019.

**Recommendation 2: Develop and adopt a programme of work to achieve the following:**

- **By November 2020, a complete review of the current RPS that is publicly notified, with the intention that it be made operative before the review of the LWRP is notified**

At its extraordinary meeting, Council agreed to a review of the Regional Policy Statement for Otago, to make it compliant with all current national directions in line with the timeframes you have outlined.

As noted by Professor Skelton, our ability to achieve the programme set out in your recommendations is dependent on a 'single hearing' pathway being available to Council (e.g. direct referral to the Environment Court or Board of Inquiry, or access to freshwater hearing panel or similar). We will need your assistance with this.

ORC will be endeavouring to draft a new Regional Policy Statement to include content from proposed National Direction. However, a rapidly evolving landscape does provide some risk. At this stage, we are aware of, and have submitted on the proposed National Policy Statement for Highly Productive Land, the proposed National Policy Statement for Urban Development and the proposed National Policy Statement Freshwater Management 2019. We also note the recent release of the National Policy Statement on Indigenous Biodiversity. The more certainty Otago Regional Council is able to have around content of the national direction to ensure appropriate Regional Policy Statement provisions can be drafted, the better.

- **By December 2023, a new LWRP for Otago that includes region-wide objectives, strategic policies, region-wide activity policies, and provisions for each Freshwater Management Unit, covering all the catchments within the region**

Council agreed to a full Water Plan review on 31 October 2018. As part of that process, Council adopted five Freshwater Management Units (FMUs) for the Otago Region in April 2019 – Clutha Mata-au, Taieri, North Otago, Dunedin Coastal and Catlins – as well as five sub-units or "rohe". Currently, a staged approach to FMU and rohe value and objective setting is underway. Each rohe or Freshwater Management Unit will be a "chapter" of the new Water Plan. The next focus for each Freshwater Management Unit and rohe community will be to meet and agree on local values that sit alongside national values for human and ecological health; these will inform setting objectives and water quality and quantity limits.

The Council agreed to notify this Land and Water Regional Plan by December 2023. This accords with the recommendation and the timeline indicated in the Resource Management Amendment Bill.

Council agreed that the "MAC Catchments" – Manuherekia, Arrow and Cardrona – will proceed with an expanded work programme under the Water Plan review, but that the resultant plan provisions will be inserted directly into the reviewed Land and Water Plan rather than the subject of a separate plan change in 2020, as was originally intended. This will allow a process that is more efficient in terms of community engagement, resources required, and planning outcome and will achieve compliance with all relevant national direction.

**Recommendation 3: Prepare a plan change by 31 March 2020 that will provide an adequate interim planning and consenting framework to manage freshwater up until the time that new discharge and allocation limits are set in ORC's planning framework, in line with the requirements in the National Policy Statement for Freshwater Management**

At the extraordinary meeting, Council agreed to prepare and notify by 31 March 2020 a plan change to be called the Water Permits Plan Change, that will provide an adequate interim planning and consenting framework to manage freshwater up until the Otago Regional Council's Water Plan becomes operative. The focus of this plan change is to be the processing of applications for water permits (including those to replace deemed permits).

Council agreed a number of key principles that should inform this work:

a. The focus must remain on the bigger picture – the Water Plan review – the Water Permit plan change should be as concise as required to achieve a fit for purpose management regime.
b. Water allocation should be based on existing water use not paper allocation.
c. Consideration of potential impacts on existing water abstractors, and existing priorities in deemed permits.
d. Efficiency of time and cost for both Council applicants and other parties.
e. Opportunities for data gathering that will inform the Water Plan review should be pursued.

Council intends to hold a workshop on 7 January 2020 to discuss the content of the draft plan change and is aiming to notify in advance of your March deadline. Facilitating community engagement with this plan making process will be essential but will be tailored such that it allows Council to achieve the recommended timeframes.

*Resourcing*
Within current budget resourcing levels have been increasing in science, policy, consents and compliance. Council is looking at further resourcing needs with forecasts for this financial year and next providing for further staff increases in critical areas.

*Further reporting*
As requested, we will provide you with six monthly updates until the end of 2025, the first to be submitted by 30 April 2020 covering:

- Progress made in developing science, planning, consenting, monitoring and enforcement and land management organisational capability and capacity
- Progress in achieving your recommendations 1, 2 and 3
- A summary of freshwater resource consenting activity for the reporting period.

We would like to extend an invitation to you to attend our Council meeting scheduled for 29 April 2020 to discuss the progress the Council is making.

In conclusion, I welcome the clear framework you have set for us. The Otago Regional Council has a lot of work ahead of it. We are committed to continue working with the community every step of the way.

Yours sincerely,

Marian L. Hobbs

Hon Marian Hobbs
**Chairperson**
**Otago Regional Council**

**Appendix 1**

# Preparation of Fit for Purpose Planning Regime for Otago Overall Timeline

| Plan Changes to Regional Plan Water for Otago | Water Plan Review |
|---|---|
| **PC6AA**<br>• December 2019 - Hearing<br>• January 2020 - Decision<br>**Water Permits Plan Change**<br>• February 2020 - Notify<br>• 30 November – Operative<br>**Omnibus Plan Change**<br>• 31 March 2020 - Notify<br>• June 2021 - Decision | **Regional Policy Statement**<br>• November 2020 - Notify<br>• January 2023 - Operative<br>**Land & Water Regional Plan**<br>• December 2023 – Notify<br>• December 2025 - Operative<br><u>Draft FMU Development Plan:</u><br>• Arrow & Cardrona 2019 – June 2020<br>• Manuherekia: 2019 – December 2020<br>• Taieri & Catlins: June 2020 - March 2021<br>• North Otago & Dunedin Coast: April 2021 – February 2022<br>• Clutha (main stem followed by rohe): March 2022 – April 2023<br>• Upper Lakes<br>• Roxburgh<br>• Dunstan<br>• Lower Clutha |

## APPENDIX H

## Overview of the relevant provisions of the Resource Management Act 1991

**Part 2**

**Purpose and principles**

| | |
|---|---|
| 5 | Purpose |
| 6 | Matters of national importance |
| 7 | Other matters |
| 8 | Treaty of Waitangi |
| | *Water* |
| 14 | Restrictions relating to water |

**Part 4**

**Functions, powers, and duties of central and local government**

*Functions, powers, and duties of Ministers*

| | |
|---|---|
| 24A | Power of Minister for the Environment to investigate and make recommendations |

*Functions, powers, and duties of local authorities*

| | |
|---|---|
| 30 | Functions of regional councils under this Act |
| 32 | Requirements for preparing and publishing evaluation reports |

**Part 5**

**Standards, policy statements, and plans**

Subpart 1—National direction

*National environmental standards*

| | |
|---|---|
| 43B | Relationship between national environmental standards and rules or consents |

*National policy statements*

| | |
|---|---|
| 45 | Purpose of national policy statements (other than New Zealand coastal policy statements) |

*New Zealand coastal policy statements*

| | |
|---|---|
| 56 | Purpose of New Zealand coastal policy statements |

*Regional plans*

| | |
|---|---|
| 63 | Purpose of regional plans |
| 65 | Preparation and change of other regional plans |
| 66 | Matters to be considered by regional council (plans) |
| 67 | Contents of regional plans |
| 68 | Regional rules |
| 68A | Regional coastal plan not to authorise aquaculture activities in coastal marine area as permitted activities |
| 69 | Rules relating to water quality |
| 70 | Rules about discharges |

*Review*

**Reprint**
**as at 30 April 2021**

# Resource Management (National Environmental Standards for Freshwater) Regulations 2020

(LI 2020/174)

Patsy Reddy, Governor-General

## Order in Council

At Wellington this 3rd day of August 2020

Present:
The Right Hon Jacinda Ardern presiding in Council

These regulations are made under section 43 of the Resource Management Act 1991—

(a) on the advice and with the consent of the Executive Council; and

(b) on the recommendation of the Minister for the Environment made in accordance with section 44 of that Act.

## Contents



---

**Note**

Changes authorised by subpart 2 of Part 2 of the Legislation Act 2012 have been made in this official reprint.

Note 4 at the end of this reprint provides a list of the amendments incorporated.

**These regulations are administered by the Ministry for the Environment.**

## Part 1
## Preliminary provisions



## Part 2
## Standards for farming activities

## Regulations

### 1 Title

These regulations are the Resource Management (National Environmental Standards for Freshwater) Regulations 2020.

### 2 Commencement

(1) These regulations come into force on 3 September 2020.

(2) However,—

(a) regulations 28 to 31 (temporary standards for intensification of intensive winter grazing) come into force on 1 May 2021:

(b) regulations 12 to 14 (stockholding areas other than feedlots) and subpart 4 of Part 2 (application of synthetic nitrogen fertiliser to pastoral land) come into force on 1 July 2021:

(c) regulations 26 and 27 (general standards for intensive winter grazing) come into force on 1 May 2022.

Regulation 2(2)(a): replaced, on 30 April 2021, by regulation 4(1) of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2021 (LI 2021/77).

Regulation 2(2)(c): inserted, on 30 April 2021, by regulation 4(2) of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2021 (LI 2021/77).

# Part 1
# Preliminary provisions

## 3 Interpretation

In these regulations, unless the context otherwise requires,—

**Act** means the Resource Management Act 1991

**annual forage crop** means a crop, other than pasture, that is grazed in the place where it is grown

**apron** means a hard (generally concrete) surface layer constructed at the entrance or outlet of a structure to protect the structure from erosion

**arable land use** has the meaning given by section 217B of the Act

**bed substrate** means the material that makes up the bed of any river or connected area (for example, sand, silt, gravel, cobbles, boulders, or bedrock)

**certified freshwater farm plan** has the meaning given by section 217B of the Act

**certifier** has the meaning given by section 217B of the Act

**culvert** means a pipe, box structure, or covered or arched channel that has an inlet and outlet that is in, and that connects the water or bed of, the same river or connected area

**dairy cattle**—

(a) means cattle farmed for producing milk; and

(b) includes—

(i) any bull on the farm whose purpose is mating with those cattle; and

(ii) unweaned calves of those cattle; but

(c) does not include dairy support cattle

**dairy farm land** means land on a farm that is used for grazing dairy cattle

**dairy support cattle** means cattle that—

(a) are farmed for producing milk, but are not being milked (for example, because they are heifers or have been dried off); and

(b) are grazed on land that is not grazed by dairy cattle

**dairy support land** means land on a farm that is used for grazing dairy support cattle

**dam**, in subpart 3 of Part 3 (passage of fish affected by structures), means a structure—

(a) whose purpose is to impound water behind a wall across the full width of any river or connected area; and

(b) that is not a weir

**distribution network**—

(a) means lines and associated equipment that are used for conveying electricity and are operated by a business engaged in the distribution of electricity; but

(b) does not include lines and associated equipment that are part of the national grid

**drain** has the meaning given by the National Planning Standards 2019

**earthworks** has the meaning given by the National Planning Standards 2019

**ecosystem health** has the meaning given by the National Policy Statement for Freshwater Management

**farm** means a landholding whose activities include agriculture

**feedlot** means a stockholding area where cattle—

(a) are kept for at least 80 days in any 6-month period; and

(b) are fed exclusively by hand or machine

**flap gate** means a hinged gate that controls fluctuations in tidal or flood water, such as a tide gate or flood gate

**ford** means a structure that—

(a) is artificial, shallow, and designed for crossing any river or connected area; and

(b) is in contact with most of the width of the bed of the river or connected area

**harvest operator**, in relation to a harvest of sphagnum moss, means the person who is responsible for the organisation and operation of the harvest

**horticultural land use** has the meaning given by section 217B of the Act

**hydro-electricity infrastructure** means infrastructure for generating hydro-electricity that is to be transmitted through the national grid or a distribution network

**hydrological regime** means the characteristic changes in hydrological variables over time, including changes to water levels, water flows, and discharges of water

**improved pasture** has the meaning given by the National Policy Statement for Freshwater Management

**intensive winter grazing** means grazing livestock on an annual forage crop at any time in the period that begins on 1 May and ends with the close of 30 September of the same year

**irrigation** means the activity of applying water to land by means of a constructed system for the purpose of assisting production of vegetation or stock on that land

**land disturbance** has the meaning given by the National Planning Standards 2019

**landholding** means 1 or more parcels of land (whether or not they are contiguous) that are managed as a single operation

**Māori freshwater values** has the meaning given by the National Policy Statement for Freshwater Management

**national grid** has the meaning given by regulation 3(1) of the Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009

**National Planning Standards 2019** means the National Planning Standards whose approval under section 58E of the Act was notified on 5 April 2019 (as amended or replaced from time to time)

**National Policy Statement for Freshwater Management** means the National Policy Statement for Freshwater Management whose approval under section 52 of the Act was notified in August 2020 (as amended or replaced from time to time)

**natural wetland** has the meaning given by the National Policy Statement for Freshwater Management

**non-passive flap gate** means a flap gate whose opening and closing is controlled by an automated and powered system (for example, electric or hydraulic) when the water reaches certain levels

**other infrastructure** means infrastructure, other than specified infrastructure, that was lawfully established before, and in place at, the close of 2 September 2020

**passive flap gate** means a flap gate whose opening or closing—

(a) is caused by a positive head differential on the upstream or downstream side, respectively; and

(b) is not controlled by an automated and powered system (for example, electric or hydraulic) when the water reaches certain levels

**pastoral land use** has the meaning given by section 217B of the Act

**pest** has the meaning given by section 2(1) of the Biosecurity Act 1993

**plantation forestry** has the meaning given by regulation 3(1) of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017

**pugging** means the penetration of soil to a depth of 5 cm or more by the hooves of grazing livestock

**reclamation** has the meaning given by the National Planning Standards 2019

**reference period** means the period that started on 1 July 2014 and ended with the close of 30 June 2019

**restoration** has the meaning given by the National Policy Statement for Freshwater Management

**river or connected area** means—

(a) a river; or

(b) any part of the coastal marine area that is upstream from the mouth of a river

**sacrifice paddock** means an area on which—

(a) cattle are repeatedly, but temporarily, contained (typically during extended periods of wet weather); and

(b) the resulting damage caused to the soil by pugging is so severe as to require resowing with pasture species

**sediment control measures** means measures or structures that do 1 or more of the following:

(a) stop sediment from being washed away from its source:

(b) slow or stop water with sediment in it so that the sediment drops out of suspension before the water reaches a water body:

(c) divert the flow of water so that it is does not become contaminated with sediment

**setback**, in relation to an activity in the vicinity of a natural wetland, means the distance measured horizontally from the boundary of the natural wetland that creates a buffer within which the activity cannot take place except in accordance with these regulations

**shelter belt** has the meaning given by regulation 3(1) of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017

**specified infrastructure** has the meaning given by the National Policy Statement for Freshwater Management

**stockholding area**—

(a) means an area for holding cattle at a density that means pasture or other vegetative ground cover cannot be maintained (for example, feed pads, winter pads, standoff pads, and loafing pads); but

(b) does not include an area used for pastoral purposes that is in the nature of a stockyard, milking shed, wintering barn, or sacrifice paddock

**unwanted organism** has the meaning given by section 2(1) of the Biosecurity Act 1993

**values**, in relation to a natural wetland, means the ability of the wetland to provide for any of the following:

(a) ecosystem health:

(b) Māori freshwater values:

(c) hydrological functioning:

(d) indigenous biodiversity:

(e) amenity

**vegetation clearance**—

(a) means the disturbance, damage, destruction, or removal of vegetation by any means (for example, by cutting, crushing, application of chemicals, or burning); and

(b) includes activities that result in the disturbance, damage, destruction, or removal of vegetation (for example, over-planting, applying the seed of exotic pasture species, mob-stocking, or draining away water); but

(c) does not include—

(i) the removal of sphagnum moss for the purpose of a harvest in accordance with regulation 48 or 49; or

(ii) the crushing of other vegetation for the purpose of maintaining the dominance of sphagnum moss, if the crushing is carried out during a harvest of sphagnum moss or to rehabilitate the moss after it is harvested; or

(iii) an activity described in paragraph (a) or (b) that is for the maintenance or construction of fencing for the purpose of excluding stock or marking property boundaries; or

(iv) an activity described in paragraph (a) or (b) that is for the maintenance of shelter belts; or

(v) the grazing of improved pasture within the relevant setback from a natural wetland

**weir** means an open-topped structure across the full width of any river or connected area that—

(a) alters the water level and the flow characteristics of the water; and

(b) allows water to flow passively through or over the top

**wetland utility structure**—

(a) means a structure placed in or adjacent to a wetland whose purpose, in relation to the wetland, is recreation, education, conservation, restoration, or monitoring; and

(b) for example, includes the following structures that are placed in or adjacent to a wetland for a purpose described in paragraph (a):

(i) jetties:

(ii) boardwalks and bridges connecting them:

(iii) walking tracks and bridges connecting them:

(iv) signs:

(v) bird-watching hides:

(vi) monitoring devices:

(vii) maimai

**wetted margin**, for a structure in any river or connected area, means an area that—

(a) has shallow water that flows at low velocity; and

(b) is at the edges of the water flow; and

(c) is continuous over the length of the structure; and

(d) is suitable for the passage of climbing species of fish.

Regulation 3 **pugging**: replaced, on 28 August 2020, by regulation 4 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2020 (LI 2020/228).

### 4 Transitional, savings, and related provisions

The transitional, savings, and related provisions (if any) set out in Schedule 1 have effect according to their terms.

### 5 Regulations deal with functions of regional councils

These regulations—

(a) deal with the functions of regional councils under section 30 of the Act:

(b) do not deal with the functions of territorial authorities under section 31 of the Act.

### 6 Relationship between regulations and plan rules and resource consents

(1) A district rule, regional rule, or resource consent may be more stringent than these regulations.

(2) A district rule, regional rule, or resource consent may be more lenient than any of regulations 70 to 74 (culverts, weirs, and passive flap gates) if the rule is made, or the resource consent is granted, for the purpose of preventing the passage of fish in order to protect particular fish species, their life stages, or their habitats.

### 7 Regulations are subject to Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017

These regulations are subject to the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017.

## Part 2
## Standards for farming activities

### 8 This Part applies to farms of certain size

(1) This Part applies only to farms on which—

(a) 20 ha or more is in arable land use; or

(b) 5 ha or more is in horticultural land use; or

(c) 20 ha or more is in pastoral land use; or

(d) 20 ha or more is in a combination of any 2 or more of the land uses described above.

(2) However, subclause (1) does not limit the application of regulations 16 to 19 (conversions of plantation forestry to pastoral land use and conversions of land on farm to dairy farm land).

## Subpart 1—Feedlots and other stockholding areas

*Feedlots*

### 9 Permitted activities

(1) The use of land on a farm for holding cattle in a feedlot is a permitted activity if it complies with the condition.

(2) The following discharge of a contaminant is a permitted activity if it complies with the condition:

(a) the discharge is associated with the use of land on a farm for holding cattle in a feedlot; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Condition*

(3) The condition is that 90% or more of the cattle held in the feedlot must—

(a) be no more than 4 months old; or

(b) weigh no more than 120 kg.

### 10 Discretionary activities

(1) The use of land on a farm for holding cattle in a feedlot is a discretionary activity if it—

(a) does not comply with the condition in regulation 9(3); but

(b) complies with the conditions in subclause (3) of this regulation.

(2) The following discharge of a contaminant is a discretionary activity if it does not comply with the condition in regulation 9(3) but complies with the conditions in subclause (3) of this regulation:

(a) the discharge is associated with the use of land on a farm for holding cattle in a feedlot; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Conditions*

(3) The conditions are that—

(a) the base area of the feedlot must be sealed to a minimum permeability standard of $10^{-9}$ m/s; and

(b) effluent expelled in the feedlot must be collected, stored, and disposed of in accordance with a rule in a regional or district plan, or a resource consent; and

(c) the feedlot must be at least 50 m away from any water body, any water abstraction bore, any drain, and the coastal marine area.

### 11 Non-complying activities

(1) The use of land on a farm for holding cattle in a feedlot is a non-complying activity if it does not comply with—

(a) the condition in regulation 9(3); and

(b) any condition in regulation 10(3).

(2) The following discharge of a contaminant is a non-complying activity if it does not comply with the condition in regulation 9(3) and any condition in regulation 10(3):

(a) the discharge is associated with the use of land on a farm for holding cattle in a feedlot; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Stockholding areas other than feedlots*

### 12 Permitted activities: stockholding areas for small and young cattle

(1) The use of land on a farm for holding cattle in a stockholding area (other than a feedlot) is a permitted activity if it complies with the condition.

(2) The following discharge of a contaminant is a permitted activity if it complies with the condition:

(a) the discharge is associated with the use of land on a farm for holding cattle in a stockholding area (other than a feedlot); and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Condition*

(3) The condition is that 90% or more of the cattle held in the stockholding area must—

(a) be no more than 4 months old; or

(b) weigh no more than 120 kg.

### 13 Permitted activities: stockholding areas for larger and older cattle

(1) The use of land on a farm for holding cattle in a stockholding area (other than a feedlot) is a permitted activity if it—

(a) does not comply with the condition in regulation 12(3); but

(b) complies with the applicable condition or conditions in subclause (3) or (4) of this regulation.

(2) The following discharge of a contaminant is a permitted activity if it does not comply with the condition in regulation 12(3) but complies with the applicable condition or conditions in subclause (3) or (4) of this regulation:

(a) the discharge is associated with the use of land on a farm for holding cattle in a stockholding area (other than a feedlot); and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Conditions*

(3) The condition is that the holding of cattle in the stockholding area must be undertaken in accordance with the farm's certified freshwater farm plan if—

(a) the farm has a certified freshwater farm plan that applies to the holding of cattle in the stockholding area; and

(b) a certifier has certified that the adverse effects (if any) allowed for by the plan in relation to the holding of cattle in the stockholding area are no greater than those allowed for by the conditions in subclause (4).

(4) In any other case, the conditions are that—

(a) the base area of the stockholding area must be sealed to a minimum permeability standard of $10^{-9}$ m/s; and

(b) effluent expelled in the stockholding area must be collected, stored, and disposed of in accordance with a rule in a regional or district plan, or a resource consent; and

(c) the stockholding area must be at least 50 m away from any water body, any water abstraction bore, any drain, and the coastal marine area.

*Enforcement officer may require information*

(5) A person undertaking a permitted activity under this regulation must provide any information reasonably required by a regional council enforcement officer for the purpose of monitoring compliance with any of the conditions in subclause (4)(a) to (c).

### 14 Discretionary activities: stockholding areas for larger and older cattle

(1) The use of land on a farm for holding cattle in a stockholding area (other than a feedlot) is a discretionary activity if it does not comply with—

(a) the condition in regulation 12(3); and

(b) the applicable condition, or any of the applicable conditions, in regulation 13(3) or (4).

(2) The following discharge of a contaminant is a discretionary activity if it does not comply with the condition in regulation 12(3) and the applicable condition, or any of the applicable conditions, in regulation 13(3) or (4):

(a) the discharge is associated with the use of land on a farm for holding cattle in a stockholding area (other than a feedlot); and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

## Subpart 2—Agricultural intensification: temporary standards

### 15 Application of this subpart

(1) Except as provided in subclause (2), this subpart applies to—

(a) farms; and

(b) for the purposes of regulations 16 and 17, other landholdings in which land used for plantation forestry is being converted to pastoral land use.

(2) This subpart does not apply to a farm or other landholding if the relevant regional council has publicly notified the amendments required by section 55(2B) of the Act to give effect to the National Policy Statement for Freshwater Management.

(3) In subclause (2), **publicly notified the amendments** means that the proposed policy statement or plan containing the amendments has been publicly notified in accordance with clause 5 of Schedule 1 of the Act.

Regulation 15(2): replaced, on 28 August 2020, by regulation 5 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2020 (LI 2020/228).

Regulation 15(3): inserted, on 28 August 2020, by regulation 5 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2020 (LI 2020/228).

*Conversions of plantation forestry to pastoral land use*

### 16 Permitted activities

(1) The conversion of land used for plantation forestry to pastoral land use is a permitted activity if it complies with the applicable condition.

(2) The following discharge of a contaminant is a permitted activity if it complies with the applicable condition:

(a) the discharge is associated with the conversion of land used for plantation forestry to pastoral land use; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Condition*

(3) If the land is part of a farm that included pastoral land use at the close of 2 September 2020, the condition is that, at all times, the area of the farm that is in pastoral land use must be no greater than—

(a) the area that was in pastoral land use at the close of 2 September 2020; plus

(b) 10 ha.

(4) In any other case, the condition is that, at all times, the area of the farm that is in pastoral land use must be no greater than 10 ha.

### 17 Discretionary activities

(1) The conversion of land used for plantation forestry to pastoral land use is a discretionary activity if it does not comply with the applicable condition in regulation 16(3) or (4).

(2) The following discharge of a contaminant is a discretionary activity if it does not comply with the applicable condition in regulation 16(3) or (4):

(a) the discharge is associated with the conversion of land used for plantation forestry to pastoral land use; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

(3) *See* regulation 24 (discretionary activities: conditions on granting resource consents).

*Conversions of land on farm to dairy farm land*

### 18 Permitted activities

(1) The conversion of land on a farm to dairy farm land is a permitted activity if it complies with the applicable condition.

(2) The following discharge of a contaminant is a permitted activity if it complies with the applicable condition:

(a) the discharge is associated with the conversion of land on a farm to dairy farm land; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Condition*

(3) If the farm included dairy farm land at the close of 2 September 2020, the condition is that, at all times, the area of the farm that is dairy farm land must be no greater than—

(a) the area of dairy farm land at the close of 2 September 2020; plus

(b) 10 ha.

(4) In any other case, the condition is that, at all times, the area of the farm that is dairy farm land must be no greater than 10 ha.

### 19 Discretionary activities

(1) The conversion of land on a farm to dairy farm land is a discretionary activity if it does not comply with the applicable condition in regulation 18(3) or (4).

(2) The following discharge of a contaminant is a discretionary activity if it does not comply with the applicable condition in regulation 18(3) or (4):

(a) the discharge is associated with the conversion of land on a farm to dairy farm land; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

(3) *See* regulation 24 (discretionary activities: conditions on granting resource consents).

*Irrigation of dairy farm land*

**20 Permitted activities**

(1) The irrigation of a farm's dairy farm land is a permitted activity if it complies with the applicable condition.

(2) The following discharge of a contaminant is a permitted activity if it complies with the applicable condition:

(a) the discharge is associated with the irrigation of a farm's dairy farm land; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Condition*

(3) If the farm included dairy farm land that was irrigated at any time in the 12 months before the close of 2 September 2020, the condition is that, at all times, the area of the farm's dairy farm land that is irrigated must be no greater than—

(a) the maximum area of the farm's dairy farm land that was irrigated in that 12-month period; plus

(b) 10 ha.

(4) In any other case, the condition is that, at all times, the area of the farm's dairy farm land that is irrigated must be no greater than 10 ha.

**21 Discretionary activities**

(1) The irrigation of a farm's dairy farm land is a discretionary activity if it does not comply with the applicable condition in regulation 20(3) or (4).

(2) The following discharge of a contaminant is a discretionary activity if it does not comply with the applicable condition in regulation 20(3) or (4):

(a) the discharge is associated with the irrigation of a farm's dairy farm land; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

(3) *See* regulation 24 (discretionary activities: conditions on granting resource consents).

*Use of land as dairy support land*

**22 Permitted activities**

(1) The use of land on a farm as dairy support land is a permitted activity if it complies with the conditions.

(2) The following discharge of a contaminant is a permitted activity if it complies with the conditions:

(a) the discharge is associated with the use of land on a farm as dairy support land; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Conditions*

(3) The conditions are that—

(a) land on the farm must have been used as dairy support land in the reference period; and

(b) at all times, the area of the farm that is used as dairy support land must be no greater than the maximum area of the farm that was used as dairy support land in the reference period.

### 23 Discretionary activities

(1) The use of land on a farm as dairy support land is a discretionary activity if it does not comply with either of the conditions in regulation 22(3).

(2) The following discharge of a contaminant is a discretionary activity if it does not comply with either of the conditions in regulation 22(3):

(a) the discharge is associated with the use of land on a farm as dairy support land; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

(3) *See* regulation 24 (discretionary activities: conditions on granting resource consents).

*Resource consents for discretionary activities*

### 24 Discretionary activities: conditions on granting resource consents

(1) A resource consent for an activity that is a discretionary activity under this subpart may be granted only if the consent authority is satisfied that granting the consent will not result in an increase in—

(a) contaminant loads in the catchment, compared with the loads as at the close of 2 September 2020; or

(b) concentrations of contaminants in freshwater or other receiving environments (including the coastal marine area and geothermal water), compared with the concentrations as at the close of 2 September 2020.

*Term of resource consent*

(2) A resource consent granted for the discretionary activity must be for a term that ends before 1 January 2031.

*Revocation*

**25 Revocation of this subpart**

This subpart is revoked on 1 January 2025.

## Subpart 3—Intensive winter grazing

**26 Permitted activities**

(1) The use of land on a farm for intensive winter grazing is a permitted activity if it complies with the applicable condition or conditions.

(2) The following discharge of a contaminant is a permitted activity if it complies with the applicable condition or conditions:

(a) the discharge is associated with the use of land on a farm for intensive winter grazing; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Conditions*

(3) The condition is that the intensive winter grazing must be undertaken in accordance with the farm's certified freshwater farm plan if—

(a) the farm has a certified freshwater farm plan that applies to the intensive winter grazing; and

(b) a certifier has certified that the adverse effects (if any) allowed for by the plan in relation to the intensive winter grazing are no greater than those allowed for by the conditions in subclause (4).

(4) In any other case, the conditions are that,—

(a) at all times, the area of the farm that is used for intensive winter grazing must be no greater than 50 ha or 10% of the area of the farm, whichever is greater; and

(b) the mean slope of a paddock that is used for intensive winter grazing must be 10 degrees or less; and

(c) on a paddock that is used for intensive winter grazing,—

(i) pugging at any one point must not be deeper than 20 cm, other than in an area that is within 10 m of an entrance gate or a fixed water trough; and

(ii) pugging of any depth must not cover more than 50% of the paddock; and

(d) livestock must be kept at least 5 m away from the bed of any river, lake, wetland, or drain (regardless of whether there is any water in it at the time); and

(e) the land that is used for intensive winter grazing must be replanted as soon as practicable after livestock have grazed the land's annual forage crop (but no later than 1 October of the same year).

(5) But *see* regulation 29 (permitted activities and restricted discretionary activities: temporary further conditions).

*Enforcement officer may require information*

(6) A person undertaking a permitted activity under this regulation must provide any information reasonably required by a regional council enforcement officer for the purpose of monitoring compliance with the condition in subclause (4)(a), (d), or (e).

*Temporary extension for replanting on farms in Otago and Southland*

(7) If the farm is in the region of the Otago Regional Council or the Southland Regional Council, the latest date by which the land must be replanted under subclause (4)(e) is 1 November of the same year (rather than 1 October).

(8) This subclause, subclause (7), and the heading above subclause (7) are revoked on 1 May 2024.

Regulation 26(4)(c)(i): replaced, on 28 August 2020, by regulation 6 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2020 (LI 2020/228).

### 27 Restricted discretionary activities

(1) The use of land on a farm for intensive winter grazing is a restricted discretionary activity if the use does not comply with the applicable condition, or any of the applicable conditions, in regulation 26(3) or (4).

(2) The following discharge of a contaminant is a restricted discretionary activity if it does not comply with the applicable condition, or any of the applicable conditions, in regulation 26(3) or (4):

(a) the discharge is associated with the use of land on a farm for intensive winter grazing; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

(3) But *see* regulation 29 (permitted activities and restricted discretionary activities: temporary further conditions).

*Matters to which discretion is restricted*

(4) The discretion of a consent authority is restricted to the following matters:

(a) the adverse effects of the activity on ecosystems, freshwater, and water bodies:

(b) the adverse effects of the activity on the water that affect the ability of people to come into contact with the water safely:

(c) the adverse effects of the activity on Māori cultural values:

(d) the susceptibility of the land to erosion, and the extent to which the activity may exacerbate or accelerate losses of sediment and other contaminants to water:

(e) the timing and appropriateness of the methods (if any) proposed to avoid, remedy, or mitigate the loss of contaminants to water.

*Intensification: temporary standards*

### 28 When regulations 29 and 30 do not apply

(1) Regulations 29 and 30 do not apply if the relevant regional council has publicly notified the amendments required by section 55(2B) of the Act to give effect to the National Policy Statement for Freshwater Management.

(2) In subclause (1), **publicly notified the amendments** means that the proposed policy statement or plan containing the amendments has been publicly notified in accordance with clause 5 of Schedule 1 of the Act.

Regulation 28: replaced, on 28 August 2020, by regulation 7 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2020 (LI 2020/228).

### 29 Permitted activities and restricted discretionary activities: temporary further conditions

(1) To be a permitted activity, an activity described in regulation 26(1) or (2) must also comply with the conditions in subclause (3) of this regulation (in addition to the applicable condition, or applicable conditions, in regulation 26(3) or (4)).

(2) To be a restricted discretionary activity, an activity described in regulation 27(1) or (2) must comply with the conditions in subclause (3) of this regulation.

*Further conditions*

(3) The conditions are that—

(a) land on the farm must have been used for intensive winter grazing in the reference period; and

(b) at all times, the area of the farm that is used for intensive winter grazing must be no greater than the maximum area of the farm that was used for intensive winter grazing in the reference period.

(4) To avoid doubt, the activity must comply with the conditions in subclause (3) of this regulation even if the maximum area used in the reference period was less than the applicable area under regulation 26(4)(a).

*Enforcement officer may require information*

(5) A person undertaking a permitted activity under regulation 26 must provide any information reasonably required by a regional council enforcement officer for the purpose of monitoring compliance with the conditions in subclause (3) of this regulation.

*How this regulation applies until regulations 26 and 27 come into force*

(6) Until regulations 26 and 27 come into force, this regulation applies as follows:

(a) despite subclause (1) of this regulation, an activity described in regulation 26(1) or (2)—

(i) must comply with the conditions in subclause (3) of this regulation to be a permitted activity; but

(ii) does not need to comply with the applicable condition, or applicable conditions, in regulation 26(3) or (4) to be a permitted activity; and

(b) subclauses (2) and (4) of this regulation have no effect; and

(c) subclause (5) of this regulation applies as if it referred to a person undertaking a permitted activity under this regulation (rather than under regulation 26).

(7) This subclause, subclause (6), and the heading above subclause (6) are revoked on 1 May 2022.

Regulation 29(6) heading: inserted, on 30 April 2021, by regulation 5 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2021 (LI 2021/77).

Regulation 29(6): inserted, on 30 April 2021, by regulation 5 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2021 (LI 2021/77).

Regulation 29(7): inserted, on 30 April 2021, by regulation 5 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2021 (LI 2021/77).

## 30 Discretionary activities

(1) The use of land on a farm for intensive winter grazing is a discretionary activity if it does not comply with either of the conditions in regulation 29(3).

(2) The following discharge of a contaminant is a discretionary activity if it does not comply with either of the conditions in regulation 29(3):

(a) the discharge is associated with the use of land on a farm for intensive winter grazing; and

(b) the discharge is into or onto land, including in circumstances that may result in the contaminant (or any other contaminant emanating as a result of natural processes from the contaminant) entering water.

*Conditions on granting resource consent*

(3) A resource consent for the discretionary activity may be granted only if the consent authority is satisfied that granting the consent will not result in an increase in—

(a) contaminant loads in the catchment, compared with the loads as at the close of 2 September 2020; or

(b) concentrations of contaminants in freshwater or other receiving environments (including the coastal marine area and geothermal water), compared with the concentrations as at the close of 2 September 2020.

*Term of resource consent*

(4) A resource consent granted for the discretionary activity must be for a term that ends before 1 January 2031.

### 31 Revocations

The following are revoked on 1 January 2025:

(a) regulation 26(5):

(b) regulation 27(3):

(c) the cross-heading above regulation 28:

(d) regulations 28 to 30:

(e) this regulation.

## Subpart 4—Application of synthetic nitrogen fertiliser to pastoral land

### 32 Interpretation of this subpart

In this subpart,—

**contiguous landholding** means each area of 1 or more contiguous parcels of land within a farm

**Example**

A farm is managed as a single operation on 50 ha of land, comprising 2 parts: 20 ha of contiguous parcels and a separate 30 ha of contiguous parcels. Each of those parts is a contiguous landholding.

**nitrogen cap**, for the land in pastoral land use in a contiguous landholding, means the application of nitrogen at a rate of no more than 190 kg/ha/year—

(a) to all of that land, as averaged over that land; and

(b) to each hectare of that land that is not used to grow annual forage crops

**pastoral land use** does not include the use of land for the grazing of livestock on the stubble of a crop that has been harvested after arable land use

**synthetic nitrogen fertiliser**—

(a) means any substance (whether solid or liquid) that—

(i) is more than 5% nitrogen by weight; and

(ii) is applied to any plant or soil as a source of nitrogen nutrition for plants; and

(b) includes any manufactured urea, diammonium phosphate, or sulphate of ammonia to which paragraph (a) applies; but

(c) does not include a compost, soil treatment, or fertiliser that—

(i) is derived from plant or animal waste or residue; and

(ii) is minimally processed (for example, by being composted, mixed, dried, and pelleted).

### 33 Permitted activity

(1) The following discharge of synthetic nitrogen fertiliser is a permitted activity if it complies with the condition:

(a) the discharge is for the purpose of applying nitrogen to land in pastoral land use; and

(b) the discharge is into the air, or into or onto land, including in circumstances that may result in the synthetic nitrogen fertiliser (or any other contaminant emanating as a result of natural processes from the fertiliser) entering water.

*Condition*

(2) The condition is that the application of nitrogen, as a component of the synthetic nitrogen fertiliser, to the land in pastoral land use in a contiguous landholding must not exceed the nitrogen cap.

### 34 Non-complying activity

(1) The following discharge of synthetic nitrogen fertiliser is a non-complying activity if it does not comply with the condition in regulation 33(2):

(a) the discharge is for the purpose of applying nitrogen to land in pastoral land use; and

(b) the discharge is into the air, or into or onto land, including in circumstances that may result in the synthetic nitrogen fertiliser (or any other contaminant emanating as a result of natural processes from the fertiliser) entering water.

*Requirements for granting resource consent*

(2) A resource consent may be granted for the non-complying activity only if (in addition to section 104D of the Act being satisfied)—

(a) the applicant provides the consent authority with a report by a suitably qualified and experienced practitioner that—

(i) sets out good practices for applying synthetic nitrogen fertiliser to the land in pastoral land use in each relevant contiguous landholding; and

(ii) states that granting the consent would not result in the rate at which nitrogen may enter water exceeding the baseline rate for each contiguous landholding; and

(b) the consent authority is satisfied as to the matters in the practitioner's report.

*Conditions required in resource consent*

(3) A resource consent granted for a non-complying activity under subclause (2) must impose conditions requiring its holder to—

(a) ensure that the rate at which nitrogen may enter water as a result of their application of synthetic nitrogen fertiliser to the land in pastoral land use in a contiguous landholding does not exceed the baseline rate for that contiguous landholding; and

(b) report their use of synthetic nitrogen fertiliser to the consent authority each year.

*Term of resource consent*

(4) A resource consent granted for a non-complying activity under subclause (2) must be for a term of no more than 5 years.

*Meaning of baseline rate*

(5) In this regulation, **baseline rate** means the rate at which nitrogen may enter water if—

(a) nitrogen, as a component of the synthetic nitrogen fertiliser, were applied to the land in pastoral land use in a contiguous landholding at the highest rate that does not exceed the nitrogen cap; and

(b) the synthetic nitrogen fertiliser were applied to the land in pastoral land use in the contiguous landholding using the good practices set out in the practitioner's report.

*Alternative requirement for granting resource consent*

(6) As an alternative to subclause (2), a resource consent may be granted for the non-complying activity if (in addition to section 104D of the Act being satisfied) the consent authority is satisfied that the applicant has provided it with a synthetic nitrogen reduction plan.

(7) A **synthetic nitrogen reduction plan** must demonstrate how the applicant will reduce their use of synthetic nitrogen fertiliser (year by year) so that, on and from 1 July 2023, their application of nitrogen, as a component of the fertiliser, to the land in pastoral land use in each relevant contiguous landholding does not exceed the nitrogen cap.

*Conditions required in resource consent*

(8) A resource consent granted for a non-complying activity under subclause (6) must impose conditions requiring its holder to—

(a) comply with their synthetic nitrogen reduction plan; and

(b) report their use of synthetic nitrogen fertiliser to the consent authority each year.

*Term of resource consent*

(9) A resource consent granted for a non-complying activity under subclause (6) must be for a term that ends before 1 July 2023.

*Revocation of alternative*

(10) Subclauses (6) to (10), and the headings above those subclauses, are revoked on 1 July 2023.

### 35 Compliance with regional rules

To avoid doubt, a discharge to which regulation 33(1) or 34(1) applies must comply with any applicable regional rule that relates to the discharge of nitrogen or its compounds (including synthetic nitrogen fertiliser) for agricultural purposes.

### 36 Operating dairy farm: monitoring and information required

A person who is responsible for operating a contiguous landholding that includes any dairy farm land must provide to the relevant regional council, no later than 31 July of each year, the following information relating to the previous 12-month period ending on 30 June of that year:

(a) the area of land in pastoral land use in the contiguous landholding and, within that land, the areas of the following (all in hectares):

  (i) the land used to grow annual forage crops:

  (ii) the other land:

(b) the area of land in other uses in the contiguous landholding (in hectares):

(c) the receipts for the synthetic nitrogen fertiliser purchased for the contiguous landholding:

(d) the types of synthetic nitrogen fertiliser applied to the contiguous landholding and, for each type, the percentage of the nitrogen component by weight:

(e) the rate at which each type of synthetic nitrogen fertiliser was applied (in kg/ha/year)—

  (i) to the land in pastoral land use in the contiguous landholding and, within that land, to—

    (A) the land used to grow annual forage crops:

    (B) the other land:

  (ii) to the land in other uses in the contiguous landholding:

(f) the dates on which the synthetic nitrogen fertiliser was applied.

# Part 3
# Standards for other activities that relate to freshwater

## Subpart 1—Natural wetlands

### 37 When this subpart does not apply

This subpart does not apply to the customary harvest of food or resources undertaken in accordance with tikanga Māori.

*Restoration of natural wetlands*

### 38 Permitted activities

(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of natural wetland restoration; and

(b) complies with the conditions.

(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of natural wetland restoration; and

(b) complies with the conditions.

(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of natural wetland restoration; and

(b) complies with the conditions.

*Conditions*

(4) The conditions are that—

(a) the activity must comply with the general conditions on natural wetland activities in regulation 55; and

(b) if the activity is vegetation clearance, earthworks, or land disturbance, the activity must not occur over more than 500 $m^2$ or 10% of the area of the natural wetland, whichever is smaller.

(5) However, the condition in subclause (4)(b) does not apply if the earthworks or land disturbance is for planting.

### 39 Restricted discretionary activities

(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of natural wetland restoration; and

(b) does not comply with either of the conditions in regulation 38(4).

(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of natural wetland restoration; and

(b) does not comply with either of the conditions in regulation 38(4).

(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of natural wetland restoration; and

(b) does not comply with the condition in regulation 38(4)(a).

*Matters to which discretion restricted*

(4) The discretion of a consent authority is restricted to the matters set out in regulation 56.

*Requirement when applying for resource consent*

(5) An application for a resource consent for the restricted discretionary activity must include a restoration plan that includes the information set out in Schedule 2.

*Condition required in resource consent*

(6) A resource consent granted for the restricted discretionary activity must impose a condition that requires compliance with the restoration plan.

Regulation 39(3): replaced, on 28 August 2020, by regulation 8 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2020 (LI 2020/228).

## *Scientific research*

### 40 Permitted activities

(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of scientific research; and

(b) complies with the conditions.

(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of scientific research; and

(b) complies with the conditions.

(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of scientific research; and

(b) complies with the conditions.

*Conditions*

(4) The conditions are that—

(a) the activity must comply with the general conditions on natural wetland activities in regulation 55; and

(b) the activity must not result in the formation of new pathways, boardwalks, or other accessways; and

(c) if the activity is vegetation clearance, earthworks, or land disturbance, the activity must not—

(i) occur over a single area within the natural wetland that is more than 10 $m^2$; or

(ii) occur over a total area within the natural wetland that is more than 100 $m^2$.

(5) However, the conditions in subclause (4)(c) do not apply if the earthworks or land disturbance is for planting.

Regulation 40(3): amended, on 28 August 2020, by regulation 9 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2020 (LI 2020/228).

### 41 Restricted discretionary activities

(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of scientific research; and

(b) does not comply with any of the conditions in regulation 40(4).

(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of scientific research; and

(b) does not comply with any of the conditions in regulation 40(4).

(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of scientific research; and

(b) does not comply with any of the conditions in regulation 40(4), but does comply with the conditions in subclause (4) of this regulation.

*Conditions*

(4) The conditions are that—

(a) the activity must be undertaken only for as long as necessary to achieve its purpose; and

(b) before the activity starts, a record must be made (for example, by taking photographs) of the original condition of the natural wetland's bed profile and hydrological regime that is sufficiently detailed to enable compliance with paragraph (c) to be verified; and

(c) the bed profile and hydrological regime of the natural wetland must be returned to their original condition no later than 30 days after the start of the activity.

(5) However, the condition in subclause (4)(c) does not apply to any part of the bed that is in direct contact with scientific research equipment.

*Matters to which discretion restricted*

(6) The discretion of a consent authority is restricted to the matters set out in regulation 56.

Regulation 41(3)(b): replaced, on 28 August 2020, by regulation 10 of the Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2020 (LI 2020/228).

*Construction of wetland utility structures*

**42 Restricted discretionary activities**

(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a restricted discretionary activity if it is for the purpose of constructing a wetland utility structure.

(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a restricted discretionary activity if it is for the purpose of constructing a wetland utility structure.

(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of constructing a wetland utility structure; and

(b) complies with the conditions.

*Conditions*

(4) The conditions are that—

(a) the activity must be undertaken only for as long as necessary to achieve its purpose; and

(b) before the activity starts, a record must be made (for example, by taking photographs) of the original condition of the natural wetland's bed profile and hydrological regime that is sufficiently detailed to enable compliance with paragraph (c) to be verified; and

(c) the bed profile and hydrological regime of the natural wetland must be returned to their original condition no later than 30 days after the start of the activity.

(5) However, the condition in subclause (4)(c) does not apply to any part of the bed that is in direct contact with the wetland utility structure.

*Matters to which discretion restricted*

(6) The discretion of a consent authority is restricted to the matters set out in regulation 56.

*Maintenance of wetland utility structures*

**43 Permitted activities**

(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of maintaining a wetland utility structure; and

(b) complies with the conditions.

(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of maintaining a wetland utility structure; and

(b) complies with the conditions.

(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of maintaining a wetland utility structure; and

(b) complies with the conditions.

*Conditions*

(4) The conditions are that—

(a) the activity must comply with the general conditions on natural wetland activities in regulation 55; and

(b) the activity must not be for the purpose of increasing the size of the wetland utility structure; and

(c) the activity must not result in the formation of new pathways, boardwalks, or other accessways; and

(d) if the activity is vegetation clearance, earthworks, or land disturbance, the activity must not—

(i) occur over more than 2 $m^2$ around the base of each pile or post of the wetland utility structure, or 10% of the area of the natural wetland, whichever is a smaller area in total; or

(ii) occur more than 1 m away from the structure, if the activity is vegetation clearance.

(5) However, the conditions in subclause (4)(d) do not apply if the earthworks or land disturbance is for planting.

### 44 Restricted discretionary activities

(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of maintaining a wetland utility structure; and

(b) does not comply with any of the conditions in regulation 43(4).

(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of maintaining a wetland utility structure; and

(b) does not comply with any of the conditions in regulation 43(4).

(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is done for the purpose of maintaining a wetland utility structure; and

(b) does not comply with any of the conditions in regulation 43(4), but does comply with the conditions in subclause (4) of this regulation.

*Conditions*

(4) The conditions are that—

(a) the activity must be undertaken only for as long as necessary to achieve its purpose; and

(b) before the activity starts, a record must be made (for example, by taking photographs) of the original condition of the natural wetland's bed profile and hydrological regime that is sufficiently detailed to enable compliance with paragraph (c) to be verified; and

(c) the bed profile and hydrological regime of the natural wetland must be returned to their original condition no later than 30 days after the start of the activity.

(5) However, the condition in subclause (4)(c) does not apply to any part of the bed that is in direct contact with a part of the wetland utility structure that was constructed for maintenance purposes.

*Matters to which discretion restricted*

(6) The discretion of a consent authority is restricted to the matters set out in regulation 56.

## *Construction of specified infrastructure*

### 45 Discretionary activities

(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure.

(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure.

(3) Earthworks or land disturbance outside a 10 m, but within a 100 m, setback from a natural wetland is a discretionary activity if it—

(a) is for the purpose of constructing specified infrastructure; and

(b) results, or is likely to result, in the complete or partial drainage of all or part of the natural wetland.

(4) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure.

*Maintenance and operation of specified infrastructure and other infrastructure*

**46 Permitted activities**

(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and

(b) complies with the conditions.

(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and

(b) complies with the conditions.

(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and

(b) complies with the conditions.

*Conditions*

(4) The conditions are that—

(a) the activity must comply with the general conditions on natural wetland activities in regulation 55 (but regulation 55(2), (3)(b) to (d), and (5) do not apply if the activity is for the purpose of maintaining or operating hydro-electricity infrastructure); and

(b) the activity must not be for the purpose of increasing the size of the specified infrastructure or other infrastructure; and

(c) the activity must not result in the formation of new pathways, boardwalks, or other accessways; and

(d) if the activity is vegetation clearance, earthworks, or land disturbance, the activity must not occur over more than 500 $m^2$ or 10% of the area of the natural wetland, whichever is smaller; and

(e) if the activity is earthworks or land disturbance,—

(i) trenches dug (for example, to maintain pipes) must be backfilled and compacted no later than 48 hours after being dug; and

(ii) the activity must not result in drains being deeper, relative to the natural wetland's water level, than they were before the activity.

(5) However, the condition in subclause (4)(d) does not apply if the earthworks or land disturbance is for planting.

### 47 Restricted discretionary activities

(1) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and

(b) does not comply with any of the conditions in regulation 46(4).

(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and

(b) does not comply with any of the conditions in regulation 46(4).

(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a restricted discretionary activity if it—

(a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and

(b) does not comply with any of the conditions in regulation 46(4), but does comply with the conditions in subclause (5) of this regulation.

(4) However, the conditions in subclause (5) of this regulation do not apply if the activity is for the purpose of maintaining or operating hydro-electricity infrastructure.

*Conditions*

(5) The conditions are that—

(a) the activity must be undertaken only for as long as necessary to achieve its purpose; and

(b) before the activity starts, a record must be made (for example, by taking photographs) of the original condition of the natural wetland's bed profile and hydrological regime that is sufficiently detailed to enable compliance with paragraph (c) to be verified; and

(c) the bed profile and hydrological regime of the natural wetland must be returned to their original condition no later than 30 days after the start of the activity.

(6) However, the condition in subclause (5)(c) does not apply to any part of the bed that is in direct contact with a part of the specified infrastructure or other infrastructure that was constructed for maintenance purposes.

*Matters to which discretion restricted*

(7) The discretion of a consent authority is restricted to the matters set out in regulation 56.

### *Sphagnum moss harvesting*

### 48 Permitted activity: existing sphagnum moss harvests

(1) The harvest of sphagnum moss within a natural wetland is a permitted activity if—

(a) sphagnum moss was harvested, or actively managed for harvest, in the area being harvested at any time between the start of 1 January 2010 and the close of 2 September 2020; and

(b) the harvest complies with the conditions.

*Conditions*

(2) The conditions are that—

(a) the harvest is carried out in accordance with a sphagnum moss harvesting plan that has been—

(i) provided to the relevant regional council at least 20 working days before the harvest is due to start; and

(ii) accepted by the relevant regional council on the basis that it has been prepared by a suitably qualified and experienced harvest operator and includes the information required by Schedule 3; and

(b) the harvest operator—

(i) monitors the harvesting operation throughout the harvest; and

(ii) no later than 20 working days after the harvest ends, assesses the natural wetland by completing the form set out in Schedule 4 and provides the form to the relevant regional council.

### 49 Discretionary activity: new sphagnum moss harvests

(1) The harvest of sphagnum moss within a natural wetland is a discretionary activity if sphagnum moss was not harvested, or actively managed for harvest, in the area being harvested at any time between the start of 1 January 2010 and the close of 2 September 2020.

*Requirement when applying for resource consent*

(2) An application for a resource consent for the harvest must include a sphagnum moss harvesting plan that—

(a) has been prepared by a suitably qualified and experienced harvest operator; and

(b) includes the information required by Schedule 3.

*Conditions required in resource consent*

(3) A resource consent granted for the harvest must impose conditions that require—

(a) the harvest to comply with the sphagnum moss harvesting plan; and

(b) the harvest operator to monitor the harvest operation throughout the harvest; and

(c) the harvest operator to assess the natural wetland after the harvest by completing the form set out in Schedule 4 and to provide the form to the consent authority no later than 20 workings days after the harvest ends.

### *Arable and horticultural land use*

### 50 Permitted activities

(1) Vegetation clearance outside, but within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of arable land use or horticultural land use in an area that was used for either of those uses at any time between the start of 1 January 2010 and the close of 2 September 2020; and

(b) complies with the general conditions on natural wetland activities in regulation 55 (but regulation 55(2) does not apply).

(2) Earthworks or land disturbance outside, but within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of arable land use or horticultural land use in an area that was used for either of those uses at any time between the start of 1 January 2010 and the close of 2 September 2020; and

(b) complies with the general conditions on natural wetland activities in regulation 55 (but regulation 55(2) does not apply).

### *Natural hazard works*

### 51 Permitted activities

*Meaning of natural hazard works*

(1) In this regulation, **natural hazard works** means works for the purpose of removing material, such as trees, debris, and sediment, that—

(a) is deposited as the result of a natural hazard; and

(b) is causing, or is likely to cause, an immediate hazard to people or property.

*Permitted activities for purpose of natural hazard works*

(2) Vegetation clearance within, or within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of natural hazard works; and

(b) complies with the conditions.

(3) Earthworks or land disturbance within, or within a 10 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of natural hazard works; and

(b) complies with the conditions.

(4) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland is a permitted activity if it—

(a) is for the purpose of natural hazard works; and

(b) complies with the conditions.

*Conditions*

(5) The conditions are that—

(a) the activity must not—

(i) result in land becoming unstable; or

(ii) result in, or involve, debris or other materials being deposited in the natural wetland; and

(b) the activity must be undertaken only to the extent necessary to achieve the purpose of the natural hazard works; and

(c) if the activity changes the profile of the bed of the natural wetland, the profile must be restored so that it does not inhibit the passage of fish; and

(d) if the activity is earthworks or land disturbance, erosion and sediment control measures must,—

(i) during and after the earthworks, be applied and maintained at the site of the activity to minimise adverse effects of sediment on the natural wetland; and

(ii) include stabilising or containing soil that is exposed or disturbed by the activity as soon as practicable after the activity ends; and

(e) as soon as practicable (but no later than 3 months) after the activity ends,—

(i) debris, materials, and equipment relating to the activity must be removed from the site; and

(ii) the site must be free from litter.

*Drainage of natural wetlands*

**52 Non-complying activities**

(1) Earthworks outside, but within a 100 m setback from, a natural wetland is a non-complying activity if it—

(a) results, or is likely to result, in the complete or partial drainage of all or part of a natural wetland; and

(b) does not have another status under any of regulations 38 to 51.

(2) The taking, use, damming, diversion, or discharge of water outside, but within a 100 m setback from, a natural wetland is a non-complying activity if it—

(a) results, or is likely to result, in the complete or partial drainage of all or part of a natural wetland; and

(b) does not have another status under any of regulations 38 to 51.

**53 Prohibited activities**

(1) Earthworks within a natural wetland is a prohibited activity if it—

(a) results, or is likely to result, in the complete or partial drainage of all or part of a natural wetland; and

(b) does not have another status under any of regulations 38 to 51.

(2) The taking, use, damming, diversion, or discharge of water within a natural wetland is a prohibited activity if it—

(a) results, or is likely to result, in the complete or partial drainage of all or part of a natural wetland; and

(b) does not have another status under any of regulations 38 to 51.

*Other activities*

**54 Non-complying activities**

The following activities are non-complying activities if they do not have another status under this subpart:

(a) vegetation clearance within, or within a 10 m setback from, a natural wetland:

(b) earthworks within, or within a 10 m setback from, a natural wetland:

(c) the taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural wetland.

*General matters*

### 55 General conditions on natural wetland activities

(1) This regulation applies if a regulation in this subpart refers to the compliance of an activity with the general conditions in this regulation.

*General condition for permitted activities: prior notice of activity*

(2) If this regulation applies in relation to a permitted activity, the 1 or more persons responsible for undertaking the activity must, at least 10 working days before starting the activity, provide the relevant regional council with the following information in writing:

(a) a description of the activity to be undertaken; and

(b) a description of, and map showing, where the activity will be undertaken; and

(c) a statement of when the activity will start and when it is expected to end; and

(d) a description of the extent of the activity; and

(e) their contact details.

*General conditions: water quality and movement*

(3) The general conditions relating to water quality and movement are as follows:

(a) the activity must not result in the discharge of a contaminant if the receiving environment includes any natural wetland in which the contaminant, after reasonable mixing, causes, or may cause, 1 or more of the following effects:

(i) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials:

(ii) a conspicuous change in colour or visual clarity:

(iii) an emission of objectionable odour:

(iv) the contamination of freshwater to the extent that it is not suitable for farm animals to drink:

(v) adverse effects on aquatic life that are more than minor; and

(b) the activity must not increase the level of flood waters that would, in any flood event (regardless of probability), inundate all or any part of the 1% AEP floodplain (but *see* subclause (4)); and

(c) the activity must not alter the natural movement of water into, within, or from any natural wetland (but *see* subclause (5)); and

(d) the activity must not involve taking or discharging water to or from any natural wetland (but *see* subclause (5)); and

(e) debris and sediment must not—

(i) be placed within a setback of 10 m from any natural wetland; or

(ii) be allowed to enter any natural wetland.

(4) Subclause (3)(b) does not apply if the person undertaking the activity—

(a) owns or controls the only land or structures that would be affected by a flood in all or any part of the 1% AEP floodplain; or

(b) has—

(i) obtained written consent to undertaking the activity from each person who owns or controls the land or structures that would be affected by a flood in all or part of the 1% AEP floodplain, after informing them of the expected increase in the level of flood waters; and

(ii) satisfied the relevant regional council that they have complied with subparagraph (i).

(5) Despite subclause (3)(c) and (d), the temporary taking, use, damming, or diversion of water around a work site, or discharges of water into the water around a work site, may be undertaken if the following conditions are complied with:

(a) the activity must be undertaken during a period when there is a low risk of flooding; and

(b) the activity must be undertaken only for as long as necessary to achieve its purpose; and

(c) before the activity starts, a record must be made (for example, by taking photographs) of the original condition of any affected natural wetland's bed profile and hydrological regime that is sufficiently detailed to enable compliance with paragraph (d) to be verified; and

(d) the bed profile and hydrological regime of the natural wetland must be returned to their original condition no later than 14 days after the start of the activity; and

(e) if the activity is damming, the dam must be no higher than 600 mm; and

(f) if the activity is a diversion that uses a pump, a fish screen with mesh spacing no greater than 3 mm must be used on the intake.

(6) In subclauses (3) and (4), **1% AEP floodplain** means the area that would be inundated in a flood event of a size that has a 1% or greater probability of occurring in any one year.

*General condition: earth stability and drainage*

(7) The general condition relating to earth stability and drainage is that the activity must not create or contribute to—

(a) the instability or subsidence of a slope or another land surface; or

(b) the erosion of the bed or bank of any natural wetland; or

(c) a change in the points at which water flows into or out of any natural wetland; or

(d) a constriction on the flow of water within, into, or out of any natural wetland; or

(e) the flooding or overland flow of water within, or flowing into or out of, any natural wetland.

*General conditions: earthworks, land disturbance, and vegetation clearance*

(8) The general conditions on earthworks, land disturbance, and vegetation clearance are as follows:

(a) during and after the activity, erosion and sediment control measures must be applied and maintained at the site of the activity to minimise adverse effects of sediment on natural wetlands; and

(b) the measures must include stabilising or containing soil that is exposed or disturbed by the activity as soon as practicable after the activity ends; and

(c) the measures referred to in paragraph (b) must remain in place until vegetation covers more than 80% of the site; and

(d) if the activity is vegetation clearance, it must not result in earth remaining bare for longer than 3 months.

*General conditions: vegetation and bird and fish habitats*

(9) The general conditions relating to vegetation and bird and fish habitats are as follows:

(a) only indigenous species that are appropriate to a natural wetland (given the location and type of the natural wetland) may be planted in it; and

(b) the activity must not result in the smothering of indigenous vegetation by debris and sediment; and

(c) the activity must not disturb the roosting or nesting of indigenous birds during their breeding season; and

(d) the activity must not disturb an area that is listed in a regional plan or water conservation order as a habitat for threatened indigenous fish; and

(e) the activity must not, during a spawning season, disturb an area that is listed in a regional plan or water conservation order as a fish spawning area.

*General condition: historic heritage*

(10) The general condition relating to historic heritage is that the activity must not destroy, damage, or modify a site that is protected by an enactment because of the site's historic heritage (including, to avoid doubt, because of its significance to Māori), except in accordance with that enactment.

(11) In subclause (10), **enactment** includes any kind of instrument made under an enactment.

*General conditions: machinery, vehicles, equipment, and construction materials*

(12) The general conditions on the use of vehicles, machinery, equipment, and materials are as follows:

(a) machinery, vehicles, and equipment used for the activity must be cleaned before entering any natural wetland (to avoid introducing pests, unwanted organisms, or exotic plants); and

(b) machinery that is used for the activity must sit outside a natural wetland, unless it is necessary for the machinery to enter the natural wetland to achieve the purpose of the activity; and

(c) if machinery or vehicles enter any natural wetland, they must be modified or supported to prevent them from damaging the natural wetland (for example, by widening the tracks of track-driven vehicles or using platforms for machinery to sit on); and

(d) the mixing of construction materials, and the refuelling and maintenance of vehicles, machinery, and equipment, must be done outside a 10 m setback from any natural wetland.

*General conditions: miscellaneous*

(13) The other general conditions are as follows:

(a) the activity must be undertaken only to the extent necessary to achieve its purpose; and

(b) the activity must not involve the use of fire or explosives; and

(c) if there is existing public access to a natural wetland, the activity must not prevent the public from continuing to access the natural wetland (unless that is required to protect the health and safety of the public or the persons undertaking the activity); and

(d) no later than 5 days after the activity ends,—

(i) debris, materials, and equipment relating to the activity must be removed from the site; and

(ii) the site must be free from litter.

### 56 Restricted discretionary activities: matters to which discretion is restricted

The discretion of a consent authority is restricted to the following matters if an activity is a restricted discretionary activity under this subpart:

(a) the extent to which the nature, scale, timing, intensity, and location of the activity may have adverse effects on—

(i) the existing and potential values of the natural wetland, its catchment, and the coastal environment; and

(ii) the extent of the natural wetland; and

(iii) the seasonal and annual hydrological regime of the natural wetland; and

(iv) the passage of fish in the natural wetland or another water body:

(b) whether there are practicable alternatives to undertaking the activity that would avoid those adverse effects:

(c) the extent to which those adverse effects will be managed to avoid the loss of the extent of the natural wetland and its values:

(d) other measures to minimise or remedy those adverse effects:

(e) how any of those adverse effects that are more than minor may be offset or compensated for if they cannot be avoided, minimised, or remedied:

(f) the risk of flooding upstream or downstream of the natural wetland, and the measures to avoid, minimise, or remedy that risk:

(g) the social, economic, environmental, and cultural benefits (if any) that are likely to result from the proposed activity (including the extent to which the activity may protect, maintain, or enhance ecosystems).

## Subpart 2—Reclamation of rivers

### 57 Discretionary activities

Reclamation of the bed of any river is a discretionary activity.

## Subpart 3—Passage of fish affected by structures

*How this subpart applies*

### 58 Purpose of this subpart

The purpose of this subpart is to deal with the effects on the passage of fish of the placement, use, alteration, extension, or reconstruction of any of the following structures in, on, over, or under the bed of any river or connected area:

(a) a culvert:

(b) a weir:

(c) a flap gate (whether passive or non-passive):

(d) a dam:

(e) a ford.

### 59 When multiple provisions of this subpart apply

If an overall structure is made up of 2 or more structures to which different provisions of this subpart apply (for example, a culvert with a flap gate), those provisions apply to the respective parts of the overall structure.

### 60 When this subpart does not apply

This subpart does not apply to any of the following structures in, on, over, or under the bed of any river or connected area:

(a) an existing structure, meaning a structure that was in the river or connected area at the close of 2 September 2020, and including any later alterations or extensions of that structure:

(b) a customary weir, meaning a weir that is used for the purpose of practising tikanga Māori, including customary fishing practices.

*Information requirements*

### 61 Purpose of information requirements

The purpose of the regulations in this subpart that require information is to ensure that the relevant regional council obtains information on the design and performance of structures in relation to the passage of fish.

### 62 Requirement for all activities: information about structures and passage of fish

(1) This regulation applies to any activity that—

(a) is the placement, alteration, extension, or reconstruction of any of the following structures in, on, over, or under the bed of any river or connected area:

(i) a culvert:

(ii) a weir:

(iii) a flap gate (whether passive or non-passive):

(iv) a dam:

(v) a ford; and

(b) is a permitted activity, or a class of activity that requires a resource consent, whether under this subpart or otherwise.

(2) The information specified in this regulation must be collected and provided to the relevant regional council, together with the time and date of its collection, within 20 working days after the activity is finished,—

(a) for a permitted activity; or

(b) as a condition of a resource consent granted for the activity, for another class of activity.

(3) The information is—

(a) the type of structure:

(b) the geographical co-ordinates of the structure:

(c) the flow of the river or connected area (whether none, low, normal, or high):

(d) whether the water is tidal at the structure's location:

(e) at the structure's location,—

(i) the width of the river or connected area at the water's surface; and

(ii) the width of the bed of the river or connected area:

(f) whether there are improvements to the structure to mitigate any effects the structure may have on the passage of fish:

(g) whether the structure protects particular species, or prevents access by particular species to protect other species:

(h) the likelihood that the structure will impede the passage of fish:

(i) visual evidence (for example, photographs) that shows both ends of the structure, viewed upstream and downstream.

### 63 Requirement for culvert activities: information about culverts

(1) This regulation applies to any activity that—

(a) is the placement, alteration, extension, or reconstruction of a culvert in, on, over, or under the bed of any river or connected area; and

(b) is a permitted activity, or a class of activity that requires a resource consent, whether under this subpart or otherwise.

(2) The information specified in this regulation must be collected and provided to the relevant regional council, together with the time and date of its collection, within 20 working days after the activity is finished,—

(a) for a permitted activity; or

(b) as a condition of a resource consent granted for the activity, for another class of activity.

(3) The information is—

(a) the culvert's asset identification number, if known:

(b) whether the culvert's ownership is—

(i) held by the Crown (for example, the Department of Conservation), a regional council, a territorial authority, the New Zealand Transport Agency, or KiwiRail Holdings Limited; or

(ii) held publicly by another person or organisation; or

(iii) held privately; or

(iv) unknown:

(c) the number of barrels that make up the culvert:

(d) the culvert's shape:

(e) the culvert's length:

(f) the culvert's diameter or its width and height:

(g) the height of the drop (if any) from the culvert's outlet:

(h) the length of the undercut or erosion (if any) from the culvert's outlet:

(i) the material from which the culvert is made:

(j) the mean depth of the water through the culvert:

(k) the mean water velocity in the culvert:

(l) whether there are low-velocity zones downstream of the culvert:

(m) the type of bed substrate that is in most of the culvert:

(n) whether there are any remediation features (for example, baffles or spat rope) in the culvert:

(o) whether the culvert has wetted margins:

(p) the slope of the culvert:

(q) the alignment of the culvert:

(r) the numbers of each other type of structure to which this subpart applies, or of wingwalls or screens, on the culvert:

(s) if there is any apron or ramp on the culvert, the information required by regulation 68 for each of them.

### 64 Requirement for weir activities: information about weirs

(1) This regulation applies to any activity that—

(a) is the placement, alteration, extension, or reconstruction of a weir in, on, over, or under the bed of any river or connected area; and

(b) is a permitted activity, or a class of activity that requires a resource consent, whether under this subpart or otherwise.

(2) The information specified in this regulation must be collected and provided to the relevant regional council, together with the time and date of its collection, within 20 working days after the activity is finished,—

(a) for a permitted activity; or

(b) as a condition of a resource consent granted for the activity, for another class of activity.

(3) The information is—

(a) the weir's asset identification number, if known:

(b) whether the weir's ownership is—

(i) held by the Crown (for example, the Department of Conservation), a regional council, a territorial authority, the New Zealand Transport Agency, or KiwiRail Holdings Limited; or

(ii) held publicly by another person or organisation; or

(iii) held privately; or

(iv) unknown:

(c) the type of weir:

(d) the weir's crest shape:

(e) the weir's height:

(f) the weir's width:

(g) the material from which the weir is made:

(h) the type of bed substrate that is present across most of the weir:

(i) whether there are any remediation features (for example, baffles or spat rope) in the weir:

(j) whether the weir has wetted margins:

(k) the slope of the weir:

(l) the backwater distance from the weir, meaning the distance furthest upstream where the water level is influenced by the weir:

(m) the numbers of each other type of structure to which this subpart applies, or of wingwalls or screens, on the weir:

(n) if there is any apron or ramp on the weir, the information required by regulation 68 for each of them.

### 65 Requirement for flap gate activities: information about flap gates

(1) This regulation applies to any activity that—

(a) is the placement, alteration, extension, or reconstruction of a flap gate (whether passive or non-passive) in, on, over, or under the bed of any river or connected area; and

(b) is a permitted activity, or a class of activity that requires a resource consent, whether under this subpart or otherwise.

(2) The information specified in this regulation must be collected and provided to the relevant regional council, together with the time and date of its collection, within 20 working days after the activity is finished,—

(a) for a permitted activity; or

(b) as a condition of a resource consent granted for the activity, for another class of activity.

(3) The information is—

(a) the flap gate's asset identification number, if known:

(b) whether the flap gate's ownership is—

(i) held by the Crown (for example, the Department of Conservation), a regional council, a territorial authority, the New Zealand Transport Agency, or KiwiRail Holdings Limited; or

(ii) held publicly by another person or organisation; or

(iii) held privately; or

(iv) unknown:

(c) the type of flap gate:

(d) the flap gate's height:

(e) the flap gate's width:

(f) the material from which the flap gate is made:

(g) the numbers of each other type of structure to which this subpart applies, or of wingwalls or screens, on the flap gate:

(h) if there is any apron or ramp on the flap gate, the information required by regulation 68 for each of them.

### 66 Requirement for dam activities: information about dams

(1) This regulation applies to any activity that—

(a) is the placement, alteration, extension, or reconstruction of a dam in, on, over, or under the bed of any river or connected area; and

(b) is a permitted activity, or a class of activity that requires a resource consent.

(2) The information specified in this regulation must be collected and provided to the relevant regional council, together with the time and date of its collection, within 20 working days after the activity is finished,—

(a) for a permitted activity; or

(b) as a condition of a resource consent granted for the activity, for another class of activity.

(3) The information is—

(a) the dam's asset identification number, if known:

(b) whether the dam's ownership is—

(i) held by the Crown (for example, the Department of Conservation), a regional council, a territorial authority, the New Zealand Transport Agency, or KiwiRail Holdings Limited; or

(ii) held publicly by another person or organisation; or

(iii) held privately; or

(iv) unknown:

(c) the dam's height:

(d) whether the dam has a spillway, meaning a structure used to control the release of flows from the dam into a downstream area:

(e) the numbers of each other type of structure to which this subpart applies, or of wingwalls or screens, on the dam:

(f) if there is any apron or ramp on the dam, the information required by regulation 68 for each of them.

### 67 Requirement for ford activities: information about fords

(1) This regulation applies to any activity that—

(a) is the placement, alteration, extension, or reconstruction of a ford in, on, over, or under the bed of any river or connected area; and

(b) is a permitted activity, or a class of activity that requires a resource consent.

(2) The information specified in this regulation must be collected and provided to the relevant regional council, together with the time and date of its collection, within 20 working days after the activity is finished,—

(a) for a permitted activity; or

(b) as a condition of a resource consent granted for the activity, for another class of activity.

(3) The information is—

(a) the ford's asset identification number, if known:

(b) whether the ford's ownership is—

(i) held by the Crown (for example, the Department of Conservation), a regional council, a territorial authority, the New Zealand Transport Agency, or KiwiRail Holdings Limited; or

(ii) held publicly by another person or organisation; or

(iii) held privately; or

(iv) unknown:

(c) the ford's length:

(d) the ford's width:

(e) the height of the drop (if any) from the ford's downstream end:

(f) the material from which the ford is made:

(g) the type of bed substrate that is across most of the ford:

(h) the numbers of each other type of structure to which this subpart applies, or of wingwalls or screens, on the ford:

(i) if there is any apron or ramp on the ford, the information required by regulation 68 for each of them.

### 68 Requirement for certain structure activities: information about aprons and ramps

*Apron*

(1) The following information relating to an apron is required:

(a) the apron's length:

(b) the height of the drop (if any) from the apron's downstream end:

(c) the material from which the apron is made:

(d) the mean depth of the water across the apron:

(e) the mean water velocity across the apron:

(f) the type of bed substrate that is across most of the apron.

*Ramp*

(2) The following information relating to a ramp is required:

(a) the ramp's length:

(b) the slope of the ramp:

(c) the type of surface that the ramp has:

(d) whether the ramp has wetted margins.

### *Monitoring and maintenance requirements*

### 69 Condition of resource consent for activities: monitoring and maintenance

(1) This regulation applies to any activity that—

(a) is the placement, use, alteration, extension, or reconstruction of any of the following structures in, on, over, or under the bed of any river or connected area:

(i) a culvert:

(ii) a weir:

(iii) a flap gate (whether passive or non-passive):

(iv) a dam:

(v) a ford; and

(b) is a class of activity that requires a resource consent, whether under this subpart or otherwise.

(2) A resource consent granted for the activity must impose conditions that—

(a) require monitoring and maintenance of the structure that is sufficient to ensure that its provision for the passage of fish does not reduce over its lifetime; and

(b) require a plan for that monitoring and maintenance that includes—

(i) how the monitoring and maintenance will be done; and

(ii) the steps to be taken to avoid any adverse effects on the passage of fish; and

(iii) the steps to be taken to ensure that the structure's provision for the passage of fish does not reduce over its lifetime; and

(iv) how often, as specified by the consent authority, the information must be provided under paragraph (c) (for the purposes of reassessing the structure's effect on the passage of fish); and

(v) a process for providing that information; and

(c) require an updated version of the information relating to the structure that was required for the original resource consent to be provided to the consent authority at the following times:

(i) at the intervals required by the plan; and

(ii) each time a significant natural hazard affects the structure.

*Culverts*

**70 Permitted activities**

(1) The placement, use, alteration, extension, or reconstruction of a culvert in, on, over, or under the bed of any river or connected area is a permitted activity if it complies with the conditions.

*Conditions*

(2) The conditions are that—

(a) the culvert must provide for the same passage of fish upstream and downstream as would exist without the culvert, except as required to carry out the works to place, alter, extend, or reconstruct the culvert; and

(b) the culvert must be laid parallel to the slope of the bed of the river or connected area; and

(c) the mean cross-sectional water velocity in the culvert must be no greater than that in all immediately adjoining river reaches; and

(d) the culvert's width where it intersects with the bed of the river or connected area (**s**) and the width of the bed at that location (**w**), both measured in metres, must compare as follows:

(i) where $w \leq 3$, $s \geq 1.3 \times w$:

(ii) where $w > 3$, $s \geq (1.2 \times w) + 0.6$; and

(e) the culvert must be open-bottomed or its invert must be placed so that at least 25% of the culvert's diameter is below the level of the bed; and

(f) the bed substrate must be present over the full length of the culvert and stable at the flow rate at or below which the water flows for 80% of the time; and

(g) the culvert provides for continuity of geomorphic processes (such as the movement of sediment and debris).

*Information requirements*

(3) *See also* regulations 62 and 63 for information requirements that apply to the permitted activity (unless the activity is use).

### 71 Discretionary activities

(1) The placement, use, alteration, extension, or reconstruction of a culvert in, on, over, or under the bed of a river is a discretionary activity if it does not comply with any of the conditions in regulation 70(2).

*Conditions required in resource consent*

(2) A resource consent granted for the discretionary activity must impose the conditions required by—

(a) regulations 62 and 63 (information about structures and passage of fish and about culverts), unless the activity is use; and

(b) regulation 69 (monitoring and maintenance).

*Weirs*

### 72 Permitted activities

(1) The placement, use, alteration, extension, or reconstruction of a weir in, on, over, or under the bed of any river or connected area is a permitted activity if it complies with the conditions.

*Conditions*

(2) The conditions are that—

(a) the weir must provide for the same passage of fish upstream and downstream as would exist without the weir, except as required to carry out the works to place, alter, extend, or reconstruct the weir; and

(b) the fall height of the weir must be no more than 0.5 m; and

(c) the slope of the weir must be no steeper than 1:30; and

(d) the face of the weir must have roughness elements that are mixed grade rocks of 150 to 200 mm diameter and irregularly spaced no more than 90 mm apart to create a hydraulically diverse flow structure across the weir (including any wetted margins); and

(e) the weir's lateral profile must be V-shaped, sloping up at the banks, and with a low-flow channel in the centre, with the lateral cross-section slope between 5° to 10°.

*Information requirements*

(3) *See also* regulations 62 and 64 for information requirements that apply to the permitted activity (unless the activity is use).

### 73 Discretionary activities

(1) The placement, use, alteration, extension, or reconstruction of a weir in, on, over, or under the bed of a river is a discretionary activity if it does not comply with any of the conditions in regulation 72(2).

*Conditions required in resource consent*

(2) A resource consent granted for the discretionary activity must impose the conditions required by—

(a) regulations 62 and 64 (information about structures and passage of fish and about weirs), unless the activity is use; and

(b) regulation 69 (monitoring and maintenance).

*Passive flap gates*

### 74 Non-complying activities

(1) The placement, use, alteration, extension, or reconstruction of a passive flap gate in, on, over, or under the bed of any river or connected area is a non-complying activity.

*Conditions required in resource consent*

(2) A resource consent granted for the non-complying activity must impose the conditions required by—

(a) regulations 62 and 65 (information about structures and passage of fish and about flap gates), unless the activity is use; and

(b) regulation 69 (monitoring and maintenance).

## Part 4
## Local authorities may charge for monitoring permitted activities

### 75 Local authorities may charge for monitoring permitted activities

A local authority may charge for monitoring activities that are permitted activities under these regulations, if the authority is responsible for monitoring those activities.

## Schedule 1
## Transitional, savings, and related provisions

r 4

## Part 1
## Provisions relating to these regulations as made

There are no transitional, savings, or related provisions relating to these regulations as made.

# Schedule 2
# Restoration plans for natural wetlands

r 39

## 1 Details of activity site and natural wetland

The following information:

(a) the physical address of the site of the activity:

(b) the names of the owners of the site:

(c) the contact details for the owners:

(d) the legal description of the site, including the estate or interest held by the owners and any legal status or designation that applies to the site:

(e) a map showing the location and boundaries of the natural wetland:

(f) the details of the legal status of the natural wetland under any enactment or plan:

(g) the details of any management partners or key stakeholders involved in the restoration plan.

## 2 Features and values of natural wetland

A description of the features and values of the natural wetland that are relevant to a restoration plan, including the following information:

(a) the type of natural wetland:

(b) the vegetation in the natural wetland, including the dominant types of vegetation and any species of note (for example, rare species, invasive weeds, or unusual plant communities):

(c) the hydrology of the natural wetland, including—

(i) its water sources and flows (for example, streams, rivers, seeps, or solely rain):

(ii) its water levels (for example, permanent open water of more than 1 m depth, shallow water of 5 cm to 1 m depth, or conditions of being saturated with water of -5 to +5 cm depth, seasonally saturated, generally dry, or dry):

(iii) any modifications (for example, drains, weirs, culverts, canals, or stop banks):

(d) the types of soil in the natural wetland:

(e) any artificial features in the natural wetland (for example, roads, electricity lines, buildings, and access points):

(f) any fauna known to use the natural wetland or its surrounding area:

(g) any special features of the natural wetland (for example, sites of cultural significance such as archaeological features, areas of cultural harvest, historic sites, or recreational areas).

### 3 Issues with natural wetland

The following information:

(a) a description of the current state or condition of the features and values of the natural wetland:

(b) a discussion of the threats to the natural wetland and the opportunities for restoring its features and values.

### 4 Management objectives for natural wetland

The specific objectives for managing the natural wetland based on its features, values, and issues, and taking into account—

(a) its legal status under any enactment or plan; and

(b) any existing or required resource consents or agreements with landowners or other relevant persons.

### 5 Operational details for achieving management objectives

An outline of the activities that will be carried out to achieve the objectives for managing the natural wetland, including the following:

(a) the timelines for the activities and the persons responsible for resourcing and delivering them:

(b) scale plans showing the operational areas:

(c) the planting to be done, including—

(i) a diagram showing the general areas for planting:

(ii) the species to be used within specific areas (for example, areas of standing water, wetter margin areas, or drier areas):

(iii) the spacing of the plants:

(iv) the sources of the plants (for example, local native plant nurseries or locally-sourced seed):

(v) the approach to releasing the plants (including how often, for how many years, and by what method weeding will be done around the plants):

(d) any vegetation to be removed, including species and methods of removal (for example, cutting, digging, or spraying):

(e) any machinery to be used and the purpose of its use:

(f) a description of the approach to water management, including—

(i) any changes to water levels or movement of water during and after the restoration works:

(ii) if water will be dammed or diverted,—

(A) how that will restore or enhance the natural wetland:

(B) any structures that will be installed:

(C) the time of year when the works will be carried out:

(D) the methods to be used to minimise effects on flora and fauna:

(g) the approach to managing erosion and sediment to be used during all of the works:

(h) any animal pest control to be carried out, including—

(i) which animal pests are present:

(ii) how often, and for how many years, the animal pest control will be carried out:

(iii) the method by which the animal pest control will be carried out:

(i) a description of the actions to be taken to minimise any adverse effects on fauna or to enhance values for fauna.

**6 Review and reporting**

A description of the approach for assessing progress against the restoration plan and reporting that progress to the consent authority, including—

(a) timelines for reporting progress; and

(b) how any requirement to report under a resource consent will be met.

# Schedule 3
# Sphagnum moss harvesting plans

rr 48, 49

## 1 Property and natural wetland details

The following information:

(a) the physical address of the site of the activity:

(b) the names of the owners of the site:

(c) the contact details for the owners:

(d) the name of the harvest operator:

(e) the contact details for the harvest operator:

(f) the legal description of the site, including the estate or interest held by the owners and any legal status or designation that applies to the site:

(g) a map showing the location and boundaries of the natural wetland that is to be harvested:

(h) photographs of the area to be harvested:

(i) the details of the legal status of the natural wetland under any enactment or plan.

## 2 Operational details

An outline of the activities to occur in undertaking the sphagnum harvesting (including maps showing the operational areas), timelines for the harvesting, and confirmation that each requirement specified in the checklist of conditions for harvesting in Schedule 4 will be met.

# Schedule 4
# Form for assessing natural wetlands after harvest of sphagnum moss

rr 48, 49

Form

Assessment of natural wetland after harvest of sphagnum moss

**General information**

1 Today's date:

2 Name of harvesting organisation/company:

3 Name of harvest operator:

4 Name and identification number of natural wetland (if any):

5 Address/location of harvesting site:

6 Legal description of area that includes site:

7 Map reference for site:

8 Harvested area: [*attach map*]

9 Dates of harvesting:

**Checklist of conditions for harvesting**

1 Natural hydrological processes have been maintained because—

(a) the post-harvest moss surface is near but above the water level □

(b) the hydrological regime of the area has not been altered in any way □

(c) only existing formed accessways were used to access the harvested area [*attach map showing accessways*] □

(d) drains and weirs were not used to manipulate water levels □

2 Machinery or vehicles that entered the natural wetland were modified or supported to prevent them from damaging the natural wetland (for example, by widening the tracks of a track-driven vehicle or using platforms for the machinery to sit on) □

3 Vegetation was crushed only for the purpose of maintaining sphagnum dominance and only during harvesting, as a component of the harvesting, or after harvesting to rehabilitate the sphagnum moss in the natural wetland area □

4 Only the living portion (acrotelm) of the moss was removed □

5 All machinery, vehicles, and equipment were cleaned before entering the natural wetland (to avoid introducing pests, unwanted organisms, or exotic plants) □

6 No moss or plant was removed from the margins of a water body □

| | | |
|---|---|---|
| 7 | Only containers of 20 litres or less were used to refuel machinery, vehicles, and equipment outside a 10 m setback from the natural wetland | □ |
| 8 | Fertiliser was not dispersed in the natural wetland | □ |
| 9 | No breeding, roosting, or nesting site of an indigenous, a rare, or a threatened bird species was disturbed | □ |
| 10 | Debris, materials, and equipment relating to the harvesting were removed from the site, and the site was free from litter, after the harvesting was finished | □ |
| 11 | The harvested area and its accessways were disturbed only to the extent necessary to carry out harvesting | □ |

**Detailed information on particular conditions**

1 Describe how the harvesting was undertaken:

2 Describe how any vehicle or machinery used for harvesting was modified or supported to prevent it from damaging the natural wetland: [*attach photos of vehicles or machinery*]

3 Provide any other information that you think is relevant:

4 Attach dated photos showing the site before, during, and after the harvesting.

**Note about site visit**

After compliance staff receive this form, they will organise a visit to the site to assess the information contained in the form.

Michael Webster,
Clerk of the Executive Council.

Issued under the authority of the Legislation Act 2012.
Date of notification in *Gazette*: 5 August 2020.

## Reprints notes

### *1 General*

This is a reprint of the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 that incorporates all the amendments to those regulations as at the date of the last amendment to them.

### *2 Legal status*

Reprints are presumed to correctly state, as at the date of the reprint, the law enacted by the principal enactment and by any amendments to that enactment. Section 18 of the Legislation Act 2012 provides that this reprint, published in electronic form, has the status of an official version under section 17 of that Act. A printed version of the reprint produced directly from this official electronic version also has official status.

### *3 Editorial and format changes*

Editorial and format changes to reprints are made using the powers under sections 24 to 26 of the Legislation Act 2012. See also http://www.pco.parliament.govt.nz/editorial-conventions/.

### *4 Amendments incorporated in this reprint*

Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2021 (LI 2021/77)

Resource Management (National Environmental Standards for Freshwater) Amendment Regulations 2020 (LI 2020/228)

Wellington, New Zealand:
Published under the authority of the New Zealand Government—2021

2020/175

# Resource Management (Stock Exclusion) Regulations 2020

Patsy Reddy, Governor-General

## Order in Council

At Wellington this 3rd day of August 2020

Present:
The Right Hon Jacinda Ardern presiding in Council

These regulations are made under section 360 of the Resource Management Act 1991 on the advice and with the consent of the Executive Council.

### Contents

## Regulations

### 1 Title

These regulations are the Resource Management (Stock Exclusion) Regulations 2020.

### 2 Commencement

These regulations come into force on 3 September 2020.

### 3 Application

(1) Regulations 9 and 10 (which relate to dairy cattle and pigs on any terrain) apply on and from—

(a) the commencement date in relation to dairy cattle or pigs in a new pastoral system; and

(b) 1 July 2023 in any other case.

(2) Regulation 11 (which relates to dairy support cattle on any terrain) applies on and from—

(a) the commencement date in relation to dairy support cattle in a new pastoral system; and

(b) 1 July 2025 in any other case.

(3) Regulations 12 and 13 (which relate to beef cattle and deer that intensively graze on any terrain) apply on and from—

(a) the commencement date in relation to beef cattle or deer in a new pastoral system; and

(b) 1 July 2023 in any other case.

(4) Regulations 14 and 15 (which relate to beef cattle and deer on low slope land) apply on and from—

(a) the commencement date in relation to beef cattle or deer in a new pastoral system; and

(b) 1 July 2025 in any other case.

(5) Regulation 16 (which requires the exclusion of stock from natural wetlands identified in a regional or a district plan that is operative on the commencement date) applies on and from—

(a) the commencement date in relation to stock in a new pastoral system; and

(b) 1 July 2023 in any other case.

(6) Regulation 17 (which requires the exclusion of stock from natural wetlands that support a population of threatened species) applies on and from—

(a) the commencement date in relation to stock in a new pastoral system; and

(b) 1 July 2025 in any other case.

(7) Regulation 18 (which requires the exclusion of stock from natural wetlands on low slope land) applies on and from—

(a) the commencement date in relation to stock in a new pastoral system; and

(b) 1 July 2025 in any other case.

## 4 Interpretation

In these regulations, unless the context otherwise requires,—

**Act** means the Resource Management Act 1991

**annual forage crop** means a crop, other than pasture, that is grazed in the place where it is grown

**beef cattle** means cattle that are reared for producing meat

**break feeding** means the feeding of stock within an area of pasture or crop—

(a) within a paddock in which the fence is moved regularly to allow the stock to graze another area of pasture or crop within the paddock; or

(b) within a paddock—

(i) that is subdivided into cells or grids using temporary fencing; and

(ii) where the stock are moved regularly

**commencement date** means 3 September 2020

**dairy cattle**—

(a) means cattle that are farmed for producing milk; and

(b) includes—

(i) any bull on the farm whose purpose is mating with those cattle; and

(ii) unweaned calves of those cattle; but

(c) does not include dairy support cattle

**dairy support cattle** means cattle that—

(a) are farmed for producing milk but are not being milked (for example, because they are heifers or have been dried off); and

(b) are grazed on land that is not grazed by dairy cattle

**dedicated bridge or culvert** means a bridge or culvert—

(a) on which stock can safely cross a lake or river; and

(b) that is designed so that any runoff is channelled away from the lake or river

**improved pasture** means an area of land where exotic pasture species have been deliberately sown or maintained for the purpose of pasture production, and species composition and growth has been modified and is being managed for livestock grazing

**intensively grazing** means—

(a) break feeding; or

(b) grazing on annual forage crops; or

(c) grazing on pasture that has been irrigated with water in the previous 12 months

**low slope land** means land identified as low slope land in https://www.mfe.govt.nz/fresh-water/freshwater-acts-and-regulations/stock-exclusion

**natural wetland** means a wetland (as defined in the Act) that is not—

(a) a wetland constructed by artificial means (unless it was constructed to offset impacts on, or restore, an existing or former natural wetland); or

(b) a geothermal wetland; or

(c) any area of improved pasture that, at the commencement date, is dominated by (that is more than 50% of) exotic pasture species and is subject to temporary rain-derived water pooling

**new pastoral system** means any land that has been converted to pastoral land use

**pastoral land use** has the meaning given in section 217B of the Act

**stock**—

(a) means beef cattle, dairy cattle, dairy support cattle, deer, or pigs; and

(b) to avoid doubt, does not include any feral animal

**wide river** means a river (as defined in the Act) with a bed that is wider than 1 metre anywhere in a land parcel.

### 5 Transitional, savings, and related provisions

The transitional, savings, and related provisions set out in Schedule 1 have effect according to their terms.

*Who must comply with these regulations*

### 6 Who must comply with these regulations

A person who owns or controls stock must comply with these regulations.

*When compliance is not required*

### 7 When compliance with water crossing requirements not required

A person does not have to comply with the requirements in regulation 9(b), 10(b), 11(b), 12(b), or 14(b) in relation to a wide river if—

(a) it is too difficult to install a dedicated bridge or culvert because the river has a highly mobile bed; and

(b) the person ensures that stock are supervised and actively driven across the river.

*Exclusion of stock from lakes and wide rivers*

### 8 Exclusion of stock from lake or wide river includes 3-metre setback

(1) Stock that are required by these regulations to be excluded from lakes and wide rivers must not be allowed closer than 3 metres to the edge of the bed of a lake or wide river (**3-metre setback rule**).

(2) The 3-metre setback rule does not apply if—

(a) stock need to access the area in order to enter or exit a dedicated bridge or culvert; or

(b) stock—

(i) are supervised and actively driven across the lake or wide river; and

(ii) do not cross the same lake or wide river more than twice in any month; or

(c) regulation 7 applies.

**9 Dairy cattle on any terrain**

Dairy cattle on any terrain—

(a) must be excluded from lakes and wide rivers (except when crossing); and

(b) must cross a lake or wide river by using a dedicated bridge or culvert unless they—

(i) are supervised and actively driven across the lake or wide river; and

(ii) do not cross the same lake or wide river more than twice in any month.

**10 Pigs on any terrain**

Pigs on any terrain—

(a) must be excluded from lakes and wide rivers (except when crossing); and

(b) must cross a lake or wide river by using a dedicated bridge or culvert unless they—

(i) are supervised and actively driven across the lake or wide river; and

(ii) do not cross the same lake or wide river more than twice in any month.

**11 Dairy support cattle on any terrain**

Dairy support cattle on any terrain—

(a) must be excluded from lakes and wide rivers (except when crossing); and

(b) must cross a lake or wide river by using a dedicated bridge or culvert unless they—

(i) are supervised and actively driven across the lake or wide river; and

(ii) do not cross the same lake or wide river more than twice in any month.

### 12 Beef cattle intensively grazing on any terrain

Beef cattle that are intensively grazing on any terrain—

(a) must be excluded from lakes and wide rivers (except when crossing); and

(b) must cross a lake or wide river by using a dedicated bridge or culvert unless they—

(i) are supervised and actively driven across the lake or wide river; and

(ii) do not cross the same lake or wide river more than twice in any month.

### 13 Deer intensively grazing on any terrain

Deer that are intensively grazing on any terrain must be excluded from lakes and wide rivers (except when crossing).

### 14 Beef cattle on low slope land

Beef cattle on low slope land—

(a) must be excluded from lakes and wide rivers (except when crossing); and

(b) must cross a lake or wide river by using a dedicated bridge or culvert unless they—

(i) are supervised and actively driven across the lake or wide river; and

(ii) do not cross the same lake or wide river more than twice in any month.

### 15 Deer on low slope land

Deer on low slope land must be excluded from lakes and wide rivers (except when crossing).

*Exclusion of stock from natural wetlands*

### 16 Exclusion of stock from natural wetlands identified in regional or district plan operative on commencement date

All stock must be excluded from any natural wetland that is identified in a regional or district plan or a regional policy statement that is operative on the commencement date.

### 17 Exclusion of stock from natural wetlands that support threatened species described in National Policy Statement for Freshwater Management 2020

(1) All stock must be excluded from any natural wetland that supports a population of threatened species as described in the compulsory value for threatened species in the National Policy Statement for Freshwater Management 2020.

(2) A natural wetland referred to in subclause (1) includes a natural wetland identified in a regional plan that becomes operative after the commencement date.

### 18 Exclusion of stock from natural wetlands on low slope land

All stock on low slope land must be excluded from any natural wetland that is 0.05 hectares or more.

*Miscellaneous*

### 19 More stringent regional rule prevails over provision in these regulations

Despite section 68(2) of the Act, a more stringent rule in a regional plan prevails over a provision in these regulations that relates to the same matter.

### 20 Resource Management (Infringement Offences) Regulations 1999 amended

(1) This regulation amends the Resource Management (Infringement Offences) Regulations 1999.

(2) In regulation 2, insert as subclause (2):

(2) Non-compliance with a provision of the Resource Management (Stock Exclusion) Regulations 2020 listed in Schedule 1A is an infringement offence for the purposes of sections 343A to 343D of the Resource Management Act 1991.

(3) In regulation 3, replace "Schedule 1" with "Schedules 1 and 1A".

(4) After Schedule 1, insert the Schedule 1A set out in Schedule 2 of these regulations.

(5) In Schedule 2, after "Section of Resource Management Act 1991 contravened", insert "or provision of Resource Management (Stock Exclusion) Regulations 2020 not complied with".

(6) In Schedule 3, after "Section of Resource Management Act 1991 contravened", insert "or provision of Resource Management (Stock Exclusion) Regulations 2020 not complied with".

# Schedule 1
# Transitional, savings, and related provisions

r 5

## Part 1
## Provisions relating to these regulations as made

### 1 Application of 3-metre setback rule to lakes and wide rivers with existing permanent fencing or riparian vegetation on commencement date

(1) Regulation 8(1) does not apply in relation to all or part of a lake or wide river if there is, on the commencement date, a permanent fence or riparian vegetation that effectively excludes stock from the bed—

(a) of the lake or wide river; or

(b) of that part of the lake or wide river.

(2) In this clause, **permanent fence** means—

(a) a post and batten fence with driven or dug fence posts; or

(b) an electric fence with at least 2 electrified wires and driven or dug fence posts; or

(c) a deer fence.

# Schedule 2
# New Schedule 1A inserted

r 20(4)

## Schedule 1A
## Infringement offences and fees under Resource Management (Stock Exclusion) Regulations 2020

| Infringement offence provision | General description of offence | Infringement fee for offence by natural person ($) | Infringement fee for offence by non-natural person ($) | Infringement fee per animal* ($) |
|---|---|---|---|---|
| Regulation 9(a) | Non-compliance with regulation 9(a) (failure to exclude dairy cattle from lakes or wide rivers) | 2,000 | 4,000 | 100 |
| Regulation 9(b) | Non-compliance with regulation 9(b) (failure to comply with water crossing requirements for dairy cattle) | 2,000 | 4,000 | 100 |
| Regulation 10(a) | Non-compliance with regulation 10(a) (failure to exclude pigs from lakes or wide rivers) | 2,000 | 4,000 | 100 |
| Regulation 10(b) | Non-compliance with regulation 10(b) (failure to comply with water crossing requirements for pigs) | 2,000 | 4,000 | 100 |
| Regulation 11(a) | Non-compliance with regulation 11(a) (failure to exclude dairy support cattle from lakes or wide rivers) | 2,000 | 4,000 | 100 |
| Regulation 11(b) | Non-compliance with regulation 11(b) (failure to comply with water crossing requirements for dairy support cattle) | 2,000 | 4,000 | 100 |
| Regulation 12(a) | Non-compliance with regulation 12(a) (failure to exclude from lakes or wide rivers beef cattle that intensively graze) | 2,000 | 4,000 | 100 |
| Regulation 12(b) | Non-compliance with regulation 12(b) (failure to comply with water crossing requirements for beef cattle that intensively graze) | 2,000 | 4,000 | 100 |
| Regulation 13 | Non-compliance with regulation 13 (failure to exclude from lakes or wide rivers deer that intensively graze) | 2,000 | 4,000 | 100 |

| Infringement offence provision | General description of offence | Infringement fee for offence by natural person ($) | Infringement fee for offence by non-natural person ($) | Infringement fee per animal* ($) |
|---|---|---|---|---|
| Regulation 14(a) | Non-compliance with regulation 14(a) (failure to exclude beef cattle on low slope land from lakes or wide rivers) | 2,000 | 4,000 | 100 |
| Regulation 14(b) | Non-compliance with regulation 14(b) (failure to comply with water crossing requirements for beef cattle on low slope land) | 2,000 | 4,000 | 100 |
| Regulation 15 | Non-compliance with regulation 15 (failure to exclude deer on low slope land from lakes and wide rivers) | 2,000 | 4,000 | 100 |
| Regulation 16 | Non-compliance with regulation 16 (failure to exclude stock from natural wetland identified in regional or district plan operative on the commencement date) | 2,000 | 4,000 | 100 |
| Regulation 17 | Non-compliance with regulation 17 (failure to exclude stock from natural wetland supporting threatened species) | 2,000 | 4,000 | 100 |
| Regulation 18 | Non-compliance with regulation 16 (failure to exclude stock on low slope land from natural wetland of 0.05 hectares or more) | 2,000 | 4,000 | 100 |

*The infringement fee of $100 for each animal to which the non-compliance relates must not exceed $2,000 in any case.

Michael Webster,
Clerk of the Executive Council.

## Explanatory note

*This note is not part of the regulations, but is intended to indicate their general effect.*

These regulations, which come into force on 3 September 2020, apply to a person who owns or controls beef cattle, dairy cattle, deer, pigs, or dairy support cattle (**stock**).

These regulations require the exclusion of stock from lakes, wide rivers, and specified natural wetlands. Measures for excluding stock include requiring dedicated culverts and bridges for stock crossings over water bodies and limiting the frequency of stock crossings without dedicated culverts and bridges. In addition, stock that are required

to be excluded must not come closer than 3 metres to the edge of the bed of a lake or wide river unless exceptions apply.

These regulations apply on and from 3 September 2020 to stock that are in a new pastoral system.

On 1 July 2023, the following apply in relation to stock that are not in a new pastoral system:

- dairy cattle and pigs must be excluded from lakes and wide rivers:
- beef cattle and deer that are intensively grazing must be excluded from lakes and wide rivers:
- all stock must be excluded from natural wetlands identified in regional or district plans that are operative on the commencement date.

On 1 July 2025, the following apply in relation to stock that are not in a new pastoral system:

- dairy support cattle must be excluded from lakes and wide rivers:
- beef cattle and deer on low slope land must be excluded from lakes and wide rivers:
- all stock must be excluded from natural wetlands identified in regional plans on the commencement date and from natural wetlands that support threatened species (as described in the compulsory value for threatened National Policy Statement for Freshwater Management 2020):
- all stock must be excluded from natural wetlands on low slope land.

## Regulatory impact statement

The Ministry for the Environment produced a regulatory impact statement on 6 May 2020 to help inform the decisions taken by the Government relating to the contents of this instrument. A copy of this regulatory impact statement can be found at—

*Action for healthy waterways part 1: Summary and overall impacts*

- https://www.mfe.govt.nz/regulatory-impact-statements/action-for-healthy-waterways-part-1

*Action for healthy waterways part 2: Detailed analysis*

- https://www.mfe.govt.nz/regulatory-impact-statements/action-for-healthy-waterways-part-11

Issued under the authority of the Legislation Act 2012.
Date of notification in *Gazette*: 5 August 2020.
These regulations are administered by the Ministry for the Environment.

Wellington, New Zealand:
Published under the authority of the New Zealand Government—2020

CB393

New Zealand Government

# National Policy Statement for Freshwater Management 2020

August 2020

This National Policy Statement was approved by the Governor-General under section 52(2) of the Resource Management Act 1991 on 3 August 2020, and is published by the Minister for the Environment under section 54 of that Act.

This National Policy Statement replaces the National Policy Statement for Freshwater Management 2014 (as amended in 2017), which came into force on 7 September 2017.

# Contents

# Part 1: Preliminary provisions

## 1.1 Title

(1) This is the National Policy Statement for Freshwater Management 2020.

## 1.2 Commencement

(1) This National Policy Statement comes into force on 3 September 2020.

(2) *See* Part 4 for provisions about the timing of the implementation of this National Policy Statement.

## 1.3 Fundamental concept – Te Mana o te Wai

*Concept*

(1) Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.

(2) Te Mana o te Wai is relevant to all freshwater management and not just to the specific aspects of freshwater management referred to in this National Policy Statement.

*Framework*

(3) Te Mana o te Wai encompasses 6 principles relating to the roles of tangata whenua and other New Zealanders in the management of freshwater, and these principles inform this National Policy Statement and its implementation.

(4) The 6 principles are:

(a) *Mana whakahaere*: the power, authority, and obligations of tangata whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater

(b) *Kaitiakitanga*: the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations

(c) *Manaakitanga*: the process by which tangata whenua show respect, generosity, and care for freshwater and for others

(d) *Governance*: the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future

(e) *Stewardship*: the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations

(f) *Care and respect*: the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.

(5) There is a hierarchy of obligations in Te Mana o te Wai that prioritises:

(a) first, the health and well-being of water bodies and freshwater ecosystems

(b) second, the health needs of people (such as drinking water)

(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

## 1.4 Interpretation

(1) In this National Policy Statement:

**Act** means the Resource Management Act 1991

**attribute** means a measurable characteristic (numeric, narrative, or both) that can be used to assess the extent to which a particular value is provided for

**baseline state**, in relation to an attribute, means the best state out of the following:

(a) the state on the date it is first identified by a regional council

(b) the state on the date on which a regional council set a freshwater objective for the attribute under the National Policy Statement for Freshwater Management 2014 (as amended in 2017)

(c) the state on 7 September 2017

**commencement date** means the date on which this National Policy Statement comes into force

**compulsory value** means the 4 values described in Appendix 1A, being: ecosystem health, human contact, mahinga kai, and threatened species

**degraded**, in relation to an FMU or part of an FMU, means that as a result of something other than a naturally occurring process:

(a) a site or sites in the FMU or part of the FMU to which a target attribute state applies:

(i) is below a national bottom line; or

(ii) is not achieving or is not likely to achieve a target attribute state; or

(b) the FMU or part of the FMU is not achieving or is not likely to achieve an environmental flow and level set for it; or

(c) the FMU or part of the FMU is less able (when compared to 7 September 2017) to provide for any value identified for it under the NOF

**degrading**, in relation to an FMU or part of an FMU, means that any site or sites to which a target attribute state applies is experiencing, or is likely to experience, a deteriorating trend (as assessed under clause 3.19)

**environmental outcome** means, in relation to a value that applies to an FMU or part of an FMU, a desired outcome that a regional council identifies and then includes as an objective in its regional plan(s) (*see* clause 3.9)

**Freshwater management unit, or FMU,** means all or any part of a water body or water bodies, and their related catchments, that a regional council determines under clause 3.8 is an appropriate unit for freshwater management and accounting purposes; and **part of an FMU**

means any part of an FMU including, but not limited to, a specific site, river reach, water body, or part of a water body

**kaitiakitanga** has the meaning given in the Act but includes the principle referred to in clause 1.3(4)(b)

**limit** means either a limit on resource use or a take limit

**limit on resource use** means the maximum amount of a resource use that is permissible while still achieving a relevant target attribute state (*see* clauses 3.12 and 3.14)

**long-term vision** means a long-term vision developed under clause 3.3 and included as an objective in a regional policy statement

**Māori freshwater values** means the compulsory value of mahinga kai and any other value (whether or not identified in Appendix 1A or 1B) identified for a particular FMU or part of an FMU through collaboration between tangata whenua and the relevant regional council

**national bottom line** means an attribute state identified as such in Appendix 2A or 2B

**naturally occurring process** means a process that occurs, or would occur, in the absence of human activity

**natural inland wetland** has the meaning in clause 3.21

**National Objectives Framework**, or **NOF**, means the framework for managing freshwater as described in subpart 2 of Part 3

**outstanding water body** means a water body, or part of a water body, identified in a regional policy statement, a regional plan, or a water conservation order as having one or more outstanding values

**over-allocation**, in relation to both the quantity and quality of freshwater, is the situation where:

(a) resource use exceeds a limit; or

(b) if limits have not been set, an FMU or part of an FMU is degraded or degrading

**primary contact site** means a site identified by a regional council that it considers is regularly used, or would be regularly used but for existing freshwater quality, for recreational activities such as swimming, paddling, boating, or watersports, and particularly for activities where there is a high likelihood of water or water vapour being ingested or inhaled

**publish**, in relation to an obligation on a local authority to publish material, means to make the material freely available to the public on the local authority's internet website or another web-based platform

**receiving environment** includes, but is not limited to, any water body (such as a river, lake, wetland or aquifer) and the coastal marine area (including estuaries)

**take limit** means a limit on the amount of water that can be taken from an FMU or part of an FMU, as set under clause 3.17

**Te Mana o te Wai** has the meaning set out in clause 1.3

**threatened species** means any indigenous species of flora or fauna that:

(a) relies on water bodies for at least part of its life cycle; and

(b) meets the criteria for nationally critical, nationally endangered, or nationally vulnerable species in the *New Zealand Threat Classification System Manual*

(2) Terms defined in the Act and used in this National Policy Statement have the meanings in the Act, except as otherwise specified.

## 1.5 Application

(1) This National Policy Statement applies to all freshwater (including groundwater) and, to the extent they are affected by freshwater, to receiving environments (which may include estuaries and the wider coastal marine area).

## 1.6 Best information

(1) A requirement in this National Policy Statement to use the best information available at the time is a requirement to use, if practicable, complete and scientifically robust data.

(2) In the absence of complete and scientifically robust data, the best information may include information obtained from modelling, as well as partial data, local knowledge, and information obtained from other sources, but in this case local authorities must:

(a) prefer sources of information that provide the greatest level of certainty; and

(b) take all practicable steps to reduce uncertainty (such as through improvements to monitoring or the validation of models used).

(3) A person who is required to use the best information available at the time:

(a) must not delay making decisions solely because of uncertainty about the quality or quantity of the information available; and

(b) if the information is uncertain, must interpret it in the way that will best give effect to this National Policy Statement.

## 1.7 Application of section 55(2A) of Act

(1) The changes to regional policy statements and regional plans required by the following provisions of this National Policy Statement are amendments referred to in section 55(2) of the Act (which, because of section 55(2A) of the Act, means that the changes must be made without using a process in Schedule 1 of the Act):

(a) clause 3.22(1) (Natural inland wetlands)

(b) clause 3.24(1) (Rivers)

(c) clause 3.26(1) (Fish passage).

(2) *See* clause 4.3(3) about changes that merely update wording or terminology.

## 1.8 Incorporation by reference

(1) Clause 2(1) of Schedule 1AA of the Act does not apply to any material incorporated by reference in this National Policy Statement.

(2) All material incorporated by reference in this National Policy Statement is available at: www.mfe.govt.nz/fresh-water/npsfm/documents-incorporated-by-reference.

# Part 2: Objective and policies

## 2.1 Objective

(1) The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:

(a) first, the health and well-being of water bodies and freshwater ecosystems

(b) second, the health needs of people (such as drinking water)

(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

## 2.2 Policies

**Policy 1:** Freshwater is managed in a way that gives effect to Te Mana o te Wai.

**Policy 2:** Tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori freshwater values are identified and provided for.

**Policy 3:** Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments.

**Policy 4**: Freshwater is managed as part of New Zealand's integrated response to climate change.

**Policy 5:** Freshwater is managed through a National Objectives Framework to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved.

**Policy 6:** There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.

**Policy 7:** The loss of river extent and values is avoided to the extent practicable.

**Policy 8:** The significant values of outstanding water bodies are protected.

**Policy 9:** The habitats of indigenous freshwater species are protected.

**Policy 10**: The habitat of trout and salmon is protected, insofar as this is consistent with Policy 9.

**Policy 11:** Freshwater is allocated and used efficiently, all existing over-allocation is phased out, and future over-allocation is avoided.

**Policy 12:** The national target (as set out in Appendix 3) for water quality improvement is achieved.

**Policy 13:** The condition of water bodies and freshwater ecosystems is systematically monitored over time, and action is taken where freshwater is degraded, and to reverse deteriorating trends.

**Policy 14:** Information (including monitoring data) about the state of water bodies and freshwater ecosystems, and the challenges to their health and well-being, is regularly reported on and published.

**Policy 15:** Communities are enabled to provide for their social, economic, and cultural well-being in a way that is consistent with this National Policy Statement.

# Part 3: Implementation

## 3.1 Overview of Part

(1) This Part sets out a non-exhaustive list of things that local authorities must do to give effect to the objective and policies in Part 2 of this National Policy Statement, but nothing in Part 3 limits the general obligation under the Act to give effect to the objective and policies in Part 2 of this National Policy Statement.

(2) Nothing in this Part:

(a) prevents a local authority adopting more stringent measures than required by this National Policy Statement; or

(b) limits a local authority's functions and duties under the Act in relation to freshwater.

(3) In this Part:

(a) subpart 1 sets out how local authorities must implement this National Policy Statement, particularly in relation to giving effect to Te Mana o te Wai

(b) subpart 2 sets out the National Objectives Framework for managing freshwater

(c) subpart 3 set out additional requirements on regional councils relating to freshwater management.

# Subpart 1 Approaches to implementing the National Policy Statement

## 3.2 Te Mana o te Wai

(1) Every regional council must engage with communities and tangata whenua to determine how Te Mana o te Wai applies to water bodies and freshwater ecosystems in the region.

(2) Every regional council must give effect to Te Mana o te Wai, and in doing so must:

(a) actively involve tangata whenua in freshwater management (including decision-making processes), as required by clause 3.4; and

(b) engage with communities and tangata whenua to identify long-term visions, environmental outcomes, and other elements of the NOF; and

(c) apply the hierarchy of obligations, as set out in clause 1.3(5):

(i) when developing long-term visions under clause 3.3; and

(ii) when implementing the NOF under subpart 2; and

(iii) when developing objectives, policies, methods, and criteria for any purpose under subpart 3 relating to natural inland wetlands, rivers, fish passage, primary contact sites, and water allocation; and

(d) enable the application of a diversity of systems of values and knowledge, such as mātauranga Māori, to the management of freshwater; and

(e) adopt an integrated approach, ki uta ki tai, to the management of freshwater (*see* clause 3.5).

(3) Every regional council must include an objective in its regional policy statement that describes how the management of freshwater in the region will give effect to Te Mana o te Wai.

(4) In addition to subclauses (1) to (3), Te Mana o te Wai must inform the interpretation of:

(a) this National Policy Statement; and

(b) the provisions required by this National Policy Statement to be included in regional policy statements and regional and district plans.

## 3.3 Long-term visions for freshwater

(1) Every regional council must develop long-term visions for freshwater in its region and include those long-term visions as objectives in its regional policy statement.

(2) Long-term visions:

(a) may be set at FMU, part of an FMU, or catchment level; and

(b) must set goals that are ambitious but reasonable (that is, difficult to achieve but not impossible); and

(c) identify a timeframe to achieve those goals that is both ambitious and reasonable (for example, 30 years after the commencement date).

(3) Every long-term vision must:

(a) be developed through engagement with communities and tangata whenua about their long-term wishes for the water bodies and freshwater ecosystems in the region; and

(b) be informed by an understanding of the history of, and environmental pressures on, the FMU, part of the FMU, or catchment; and

(c) express what communities and tangata whenua want the FMU, part of the FMU, or catchment to be like in the future.

(4) Every regional council must assess whether each FMU, part of an FMU, or catchment (as relevant) can provide for its long-term vision, or whether improvement to the health and well-being of water bodies and freshwater ecosystems is required to achieve the vision.

## 3.4 Tangata whenua involvement

(1) Every local authority must actively involve tangata whenua (to the extent they wish to be involved) in freshwater management (including decision-making processes), including in all the following:

(a) identifying the local approach to giving effect to Te Mana o te Wai

(b) making or changing regional policy statements and regional and district plans so far as they relate to freshwater management

(c) implementing the NOF (see subclause (2))

(d) developing and implementing mātauranga Māori and other monitoring.

(2) In particular, and without limiting subclause (1), for the purpose of implementing the NOF, every regional council must work collaboratively with, and enable, tangata whenua to:

(a) identify any Māori freshwater values (in addition to mahinga kai) that apply to any FMU or part of an FMU in the region; and

(b) be actively involved (to the extent they wish to be involved) in decision-making processes relating to Māori freshwater values at each subsequent step of the NOF process.

(3) Every regional council must work with tangata whenua to investigate the use of mechanisms available under the Act, to involve tangata whenua in freshwater management, such as:

(a) transfers or delegations of power under section 33 of the Act

(b) joint management agreements under section 36B of the Act

(c) mana whakahono a rohe (iwi participation arrangements) under subpart 2 of Part 5 of the Act.

(4) To avoid doubt, nothing in this National Policy Statement permits or requires a local authority to act in a manner that is, or make decisions that are, inconsistent with any relevant iwi participation legislation or any directions or visions under that legislation.

## 3.5 Integrated management

(1) Adopting an integrated approach, ki uta ki tai, as required by Te Mana o te Wai, requires that local authorities must:

(a) recognise the interconnectedness of the whole environment, from the mountains and lakes, down the rivers to hāpua (lagoons), wahapū (estuaries) and to the sea; and

(b) recognise interactions between freshwater, land, water bodies, ecosystems, and receiving environments; and

(c) manage freshwater, and land use and development, in catchments in an integrated and sustainable way to avoid, remedy, or mitigate adverse effects, including cumulative effects, on the health and well-being of water bodies, freshwater ecosystems, and receiving environments; and

(d) encourage the co-ordination and sequencing of regional or urban growth.

(2) Every regional council must make or change its regional policy statement to the extent needed to provide for the integrated management of the effects of:

(a) the use and development of land on freshwater; and

(b) the use and development of land and freshwater on receiving environments.

(3) In order to give effect to this National Policy Statement, local authorities that share jurisdiction over a catchment must co-operate in the integrated management of the effects of land use and development on freshwater.

(4) Every territorial authority must include objectives, policies, and methods in its district plan to promote positive effects, and avoid, remedy, or mitigate adverse effects (including cumulative effects), of urban development on the health and well-being of water bodies, freshwater ecosystems, and receiving environments.

### 3.6 Transparent decision-making

(1) This clause applies to decisions by regional councils relating to:

(a) clause 3.4(3) (about mechanisms to involve tangata whenua in freshwater management); and

(b) clause 3.15 (about preparing action plans).

(2) Every regional council must make decisions, record matters considered and the reasons for decisions reached, and publish this as soon as practicable after a decision is reached, unless publication would be contrary to any other legal obligation.

(3) In this clause, **decision** includes a decision not to decide on, or to postpone deciding, any substantive issue and, in relation to decisions about mechanisms to involve tangata whenua in freshwater management, includes a decision to use or not use a mechanism.

## Subpart 2 National Objectives Framework

### 3.7 NOF process

(1) At each step of the NOF process, every regional council must:

(a) engage with communities and tangata whenua; and

(b) apply the hierarchy of obligations set out in clause 1.3(5), as required by clause 3.2(2)(c).

(2) By way of summary, the NOF process requires regional councils to undertake the following steps:

(a) identify FMUs in the region (clause 3.8)

(b) identify values for each FMU (clause 3.9)

(c) set environmental outcomes for each value and include them as objectives in regional plans (clause 3.9)

(d) identify attributes for each value and set baseline states for those attributes (clause 3.10)

(e) set target attribute states, environmental flows and levels, and other criteria to support the achievement of environmental outcomes (clauses 3.11, 3.13, 3.16)

(f) set limits as rules and prepare action plans (as appropriate) to achieve environmental outcomes (clauses 3.12, 3.15, 3.17).

(3) The NOF also requires that regional councils:

(a) monitor water bodies and freshwater ecosystems (clauses 3.18 and 3.19); and

(b) take action if degradation is detected (clause 3.20).

## 3.8 Identifying FMUs and special sites and features

(1) Every regional council must identify FMUs for its region.

(2) Every water body in the region must be located within at least one FMU.

(3) Every regional council must also identify the following (if present) within each FMU:

- (a) sites to be used for monitoring
- (b) primary contact sites
- (c) the location of habitats of threatened species
- (d) outstanding water bodies
- (e) natural inland wetlands.

(4) Monitoring sites for an FMU must be located at sites that are either or both of the following:

- (a) representative of the FMU or relevant part of the FMU
- (b) representative of one or more primary contact sites in the FMU.

(5) Monitoring sites relating to Māori freshwater values:

- (a) need not comply with subclause (4), but may instead reflect one or more Māori freshwater values; and
- (b) must be determined in collaboration with tangata whenua.

## 3.9 Identifying values and setting environmental outcomes as objectives

(1) The compulsory values listed in Appendix 1A apply to every FMU, and the requirements in this subpart relating to values apply to each of the 5 biophysical components of the value Ecosystem health.

(2) A regional council may identify other values applying to an FMU or part of an FMU, and must in every case consider whether the values listed in Appendix 1B apply.

(3) The regional council must identify an environmental outcome for every value that applies to an FMU or part of an FMU.

(4) The regional council must include the environmental outcomes as an objective, or multiple objectives, in its regional plan(s).

(5) The environmental outcomes must:

- (a) describe the environmental outcome sought for the value in a way that enables an assessment of the effectiveness of the regional policy statement and plans (including limits and methods) and action plans in achieving the environmental outcome; and
- (b) when achieved, fulfil the relevant long-term visions developed under clause 3.3 and the objective of this National Policy Statement.

## 3.10 Identifying attributes and their baseline states, or other criteria for assessing achievement of environmental outcomes

(1) For each value that applies to an FMU or part of an FMU, the regional council:

(a) must use all the relevant attributes identified in Appendix 2A and 2B for the compulsory values listed (except where specifically provided otherwise); and

(b) may identify other attributes for any compulsory value; and

(c) must identify, where practicable, attributes for all other applicable values; and

(d) if attributes cannot be identified for a value, or if attributes are insufficient to assess a value, must identify alternative criteria to assess whether the environmental outcome of the value is being achieved.

(2) Any attribute identified by a regional council under subclause (1)(b) or (c) must be specific and, where practicable, be able to be assessed in numeric terms.

(3) Every regional council must identify the baseline state of each attribute, using the best information available at the time.

(4) Attribute states and baseline states may be expressed in a way that accounts for natural variability and sampling error.

## 3.11 Setting target attribute states

(1) In order to achieve the environmental outcomes included as objectives under clause 3.9, every regional council must:

(a) set a target attribute state for every attribute identified for a value; and

(b) identify the site or sites to which the target attribute state applies.

(2) The target attribute state for every value with attributes (except the value human contact) must be set at or above the baseline state of that attribute.

(3) The target attribute state for the value human contact must be set above the baseline state of that attribute, unless the baseline state is already within the A band of Tables 9 or 10 in Appendix 2A, as applicable.

(4) Despite subclauses (2) and (3), if the baseline state of an attribute is below any national bottom line for that attribute, the target attribute state must be set at or above the national bottom line (*see* clauses 3.31, 3.32, and 3.33 for exceptions to this).

(5) Every target attribute state must:

(a) specify a timeframe for achieving the target attribute state or, if the target attribute state has already been achieved, state that it will be maintained as from a specified date; and

(b) for attributes identified in Appendix 2A or 2B, be set in the terms specified in that Appendix; and

(c) for any other attribute, be set in any way appropriate to the attribute.

(6) Timeframes for achieving target attribute states may be of any length or period but, if timeframes are long term:

(a) they must include interim target attribute states (set for intervals of not more than 10 years) to be used to assess progress towards achieving the target attribute state in the long term; and

(b) if interim target attribute states are set, references in this National Policy Statement to achieving a target attribute state can be taken as referring to achieving the next interim target attribute state.

(7) Every regional council must ensure that target attribute states are set in such a way that they will achieve the environmental outcomes for the relevant values, and the relevant long-term vision.

(8) When setting target attribute states, every regional council must:

(a) have regard to the following:

(i) the environmental outcomes and target attribute states of any receiving environments

(ii) the connections between water bodies

(iii) the connection of water bodies to receiving environments; and

(b) use the best information available at the time; and

(c) take into account results or information from freshwater accounting systems (*see* clause 3.29).

## 3.12 How to achieve target attribute states and environmental outcomes

(1) In order to achieve the target attribute states for the attributes in Appendix 2A, every regional council:

(a) must identify limits on resource use that will achieve the target attribute state, and any nitrogen and phosphorus exceedance criteria and instream concentrations set under clause 3.13, and include the limits as rules in its regional plan(s); and

(b) may prepare an action plan; and

(c) may impose conditions on resource consents to achieve target attribute states.

(2) In order to achieve the target attribute states for the attributes in Appendix 2B, every regional council:

(a) must prepare an action plan for achieving the target attribute state within a specified timeframe; and

(b) may identify limits on resource use, and any nitrogen and phosphorus exceedance criteria and instream concentrations set under clause 3.13, and include them as rules in its regional plan(s); and

(c) may impose conditions on resource consents to achieve target attribute states.

(3) In order to achieve any other target attribute state or otherwise support the achievement of environmental outcomes, a regional council must do at least one of the following:

(a) identify limits on resource use and include them as rules in its regional plan(s)

(b) prepare an action plan

(c) impose conditions on resource consents to achieve target attribute states.

(4) Where the same attribute provides for more than one value, it is the most stringent target attribute state applying to those values that must be achieved.

## 3.13 Special provisions for attributes affected by nutrients

(1) To achieve a target attribute state for periphyton, any other nutrient attribute, and any attribute that is affected by nutrients, every regional council must, at a minimum, set appropriate instream concentrations and exceedance criteria for dissolved inorganic nitrogen (**DIN**) and dissolved reactive phosphorus (**DRP**).

(2) Where there are nutrient-sensitive downstream receiving environments, instream concentrations and exceedance criteria for DIN and DRP must be set for the upstream contributing water bodies to achieve the environmental outcomes sought for the downstream receiving environments.

(3) In order to determine instream concentrations and exceedance criteria for DIN and DRP, for upstream contributing water bodies, every regional council must apply the following process, in the order given:

(a) either:

(i) if the FMU or part of an FMU supports, or could support, conspicuous periphyton, derive instream concentrations and exceedance criteria for DIN and DRP to achieve the periphyton target attribute state; or

(ii) if the FMU or part of an FMU does not support, or could not support, conspicuous periphyton, consider the instream concentrations (or instream loads) and exceedance criteria for nitrogen and phosphorus needed to achieve any other target attribute state

(b) if there are nutrient-sensitive receiving environments, derive the relevant instream concentrations (instream loads) and exceedance criteria for nitrogen and phosphorus needed to achieve the environmental outcomes sought for those receiving environments

(c) compare instream concentrations and exceedance criteria for nitrogen and phosphorus derived in steps (a) and (b) and adopt those necessary to achieve the relevant target attribute state and the environmental outcomes sought for the nutrient-sensitive receiving environments as instream concentrations and exceedance criteria for DIN and DRP for the upstream contributing water bodies.

(4) Examples of attributes affected by nutrients include dissolved oxygen (Appendix 2A, Table 7 and Appendix 2B, Tables 17, 18, and 19), submerged plants (invasive species) (Appendix 2B, Table 12), fish (rivers) (Appendix 2B, Table 13), macroinvertebrates (Appendix 2B, Tables 14 and 15), and ecosystem metabolism (Appendix 2B, Table 21).

## 3.14 Setting limits on resource use

(1) Limits on resource use may:

(a) apply to any activity or land use; and

(b) apply at any scale (such as to all or any part of an FMU, or to a specific water body or individual property); and

(c) be expressed as any of the following:

(i) a land-use control (such as a control on the extent of an activity)

(ii) an input control (such as an amount of fertiliser that may be applied)

(iii) an output control (such as a volume or rate of discharge); and

(d) describe the circumstances in which the limit applies.

(2) In setting limits on resource use, every regional council must:

(a) have regard to the following:

(i) the long-term vision set under clause 3.3

(ii) the foreseeable impacts of climate change; and

(b) use the best information available at the time; and

(c) take into account results or information from freshwater accounting systems.

(3) Limits on resource use must ensure that the instream concentrations and instream nitrogen and phosphorus exceedance criteria determined under clause 3.13 are achieved.

## 3.15 Preparing action plans

(1) Action plans prepared for the purpose of this National Policy Statement may:

(a) be prepared for whole FMUs, parts of FMUs, or multiple FMUs; and

(b) set out a phased approach to achieving environmental outcomes; and

(c) be 'prepared' by adding to, amending, or replacing an existing action plan.

(2) An action plan may describe both regulatory measures (such as proposals to amend regional policy statements and plans, and actions taken under the Biosecurity Act 1993 or other legislation) and non-regulatory measures (such as work plans and partnership arrangements with tangata whenua and community groups).

(3) If an action plan is prepared for the purpose of achieving a specific target attribute state or otherwise supporting the achievement of environmental outcomes it must:

(a) identify the environmental outcome that the target attribute state is aimed at achieving; and

(b) set out how the regional council will (or intends) to achieve the target attribute state.

(4) Action plans:

(a) must be published as soon as practicable; and

(b) may be published either by appending them to a regional plan or by publishing them separately.

(5) Before preparing an action plan, or amending an action plan other than in a minor way, the regional council must consult with communities and tangata whenua.

(6) Every action plan, or part of an action plan, prepared for the purpose of this National Policy Statement must be reviewed within 5 years after the action plan or part of the action plan is published.

## 3.16 Setting environmental flows and levels

(1) Every regional council must include rules in its regional plan(s) that set environmental flows and levels for each FMU, and may set different flows and levels for different parts of an FMU.

(2) Environmental flows and levels:

(a) must be set at a level that achieves the environmental outcomes for the values relating to the FMU or relevant part of the FMU and all relevant long-term visions; but

(b) may be set and adapted over time to take a phased approach to achieving those environmental outcomes and long-term visions.

(3) Environmental flows and levels must be expressed in terms of the water level and flow rate, and may include variability of flow (as appropriate to the water body) at which:

(a) for flows and levels in rivers, any taking, damming, diversion, or discharge of water meets the environmental outcomes for the river, any connected water body, and receiving environments

(b) for levels of lakes, any taking, damming, diversion or discharge of water meets the environmental outcomes for the lake, any connected water body, and receiving environments

(c) for levels of groundwater, any taking, damming, or diversion of water meets the environmental outcomes for the groundwater, any connected water body, and receiving environments.

(4) When setting environmental flows and levels, every regional council must:

(a) have regard to the foreseeable impacts of climate change; and

(b) use the best information available at the time; and

(c) take into account results or information from freshwater accounting systems.

## 3.17 Identifying take limits

(1) In order to meet environmental flows and levels, every regional council:

(a) must identify take limits for each FMU; and

(b) must include the take limits as rules in its regional plan(s); and

(c) must state in its regional plan(s) whether (and if so, when and which) existing water permits will be reviewed to comply with environmental flows and levels; and

(d) may impose conditions on resource consents.

(2) Take limits must be expressed as a total volume, a total rate, or both a total volume and a total rate, at which water may be:

(a) taken or diverted from an FMU or part of an FMU; or

(b) dammed in an FMU or part of an FMU.

(3) Where a regional plan or any resource consent allows the taking, damming, diversion or discharge of water, the plan or resource consent must identify the flows and levels at which:

(a) the allowed taking, damming, or diversion will be restricted or no longer allowed; or

(b) a discharge will be required.

(4) Take limits must be identified that:

(a) provide for flow or level variability that meets the needs of the relevant water body and connected water bodies, and their associated ecosystems; and

(b) safeguard ecosystem health from the effects of the take limit on the frequency and duration of lowered flows or levels; and

(c) provide for the life cycle needs of aquatic life; and

(d) take into account the environmental outcomes applying to relevant water bodies and any connected water bodies (such as aquifers and downstream surface water bodies), whether in the same or another region.

## 3.18 Monitoring

(1) Every regional council must establish methods for monitoring progress towards achieving target attributes states and environmental outcomes.

(2) The methods must include measures of:

(a) mātauranga Māori; and

(b) the health of indigenous flora and fauna.

(3) Monitoring methods must recognise the importance of long-term trends, and the relationship between results and their contribution to evaluating progress towards achieving long-term visions and environmental outcomes for FMUs and parts of FMUs.

## 3.19 Assessing trends

(1) In order to assess trends in attribute states (that is, whether improving or deteriorating), every regional council must:

(a) determine the appropriate period for assessment (which must be the period specified in the relevant attribute table in Appendix 2A or 2B, if given); and

(b) determine the minimum sampling frequency and distribution of sampling dates (which must be the frequency and distribution specified in the relevant attribute table in Appendix 2A or 2B, if given); and

(c) specify the likelihood of any trend.

(2) If a deteriorating trend is more likely than not, the regional council must:

(a) investigate the cause of the trend; and

(b) consider the likelihood of the deteriorating trend, the magnitude of the trend, and the risk of adverse effects on the environment.

(3) If a deteriorating trend that is the result of something other than a naturally occurring process is detected, any part of an FMU to which the attribute applies is degrading and clause 3.20 applies.

(4) If a trend assessment cannot identify a trend because of insufficient monitoring, the regional council must make any practicable changes to the monitoring regime that will or are likely to help detect trends in that attribute state.

### 3.20 Responding to degradation

(1) If a regional council detects that an FMU or part of an FMU is degraded or degrading, it must, as soon as practicable, take action to halt or reverse the degradation (for example, by making or changing a regional plan, or preparing an action plan).

(2) Any action taken in response to a deteriorating trend must be proportionate to the likelihood and magnitude of the trend, the risk of adverse effects on the environment, and the risk of not achieving target attribute states.

(3) Every action plan prepared under this clause must include actions to identify the causes of the deterioration, methods to address those causes, and an evaluation of the effectiveness of the methods.

## Subpart 3 Specific requirements

### 3.21 Definitions relating to wetlands and rivers

(1) In clauses 3.21 to 3.24:

**effects management hierarchy**, in relation to natural inland wetlands and rivers, means an approach to managing the adverse effects of an activity on the extent or values of a wetland or river (including cumulative effects and loss of potential value) that requires that:

(a) adverse effects are avoided where practicable; and

(b) where adverse effects cannot be avoided, they are minimised where practicable; and

(c) where adverse effects cannot be minimised, they are remedied where practicable; and

(d) where more than minor residual adverse effects cannot be avoided, minimised, or remedied, aquatic offsetting is provided where possible; and

(e) if aquatic offsetting of more than minor residual adverse effects is not possible, aquatic compensation is provided; and

(f) if aquatic compensation is not appropriate, the activity itself is avoided

**functional need** means the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment

**improved pasture** means an area of land where exotic pasture species have been deliberately sown or maintained for the purpose of pasture production, and species composition and growth has been modified and is being managed for livestock grazing

**loss of value**, in relation to a natural inland wetland or river, means the wetland or river is less able to provide for the following existing or potential values:

(a) any value identified for it under the NOF process; or

(b) any of the following, whether or not they are identified under the NOF process:

(i) ecosystem health

(ii) indigenous biodiversity

(iii) hydrological functioning

(iv) Māori freshwater values

(v) amenity

**natural wetland** means a wetland (as defined in the Act) that is not:

(a) a wetland constructed by artificial means (unless it was constructed to offset impacts on, or restore, an existing or former natural wetland); or

(b) a geothermal wetland; or

(c) any area of improved pasture that, at the commencement date, is dominated by (that is more than 50% of) exotic pasture species and is subject to temporary rain-derived water pooling

**natural inland wetland** means a natural wetland that is not in the coastal marine area

**specified infrastructure** means any of the following:

(a) infrastructure that delivers a service operated by a lifeline utility (as defined in the Civil Defence Emergency Management Act 2002)

(b) regionally significant infrastructure identified as such in a regional policy statement or regional plan

(c) any public flood control, flood protection, or drainage works carried out:

(i) by or on behalf of a local authority, including works carried out for the purposes set out in section 133 of the Soil Conservation and Rivers Control Act 1941; or

(ii) for the purpose of drainage by drainage districts under the Land Drainage Act 1908

**restoration**, in relation to a natural inland wetland, means active intervention and management, appropriate to the type and location of the wetland, aimed at restoring its ecosystem health, indigenous biodiversity, or hydrological functioning.

(2) For the purpose of the definition of **effects management hierarchy**:

**aquatic compensation** means a conservation outcome resulting from actions that are intended to compensate for any more than minor residual adverse effects on a wetland or river after all appropriate avoidance, minimisation, remediation, and aquatic offset measures have been sequentially applied

**aquatic offset** means a measurable conservation outcome resulting from actions that are intended to:

(a) redress any more than minor residual adverse effects on a wetland or river after all appropriate avoidance, minimisation, and remediation, measures have been sequentially applied; and

(b) achieve no net loss, and preferably a net gain, in the extent and values of the wetland or river, where:

(i) **no net loss** means that the measurable positive effects of actions match any loss of extent or values over space and time, taking into account the type and location of the wetland or river; and

(ii) **net gain** means that the measurable positive effects of actions exceed the point of no net loss

## 3.22 Natural inland wetlands

(1) Every regional council must include the following policy (or words to the same effect) in its regional plan(s):

"The loss of extent of natural inland wetlands is avoided, their values are protected, and their restoration is promoted, except where:

(a) the loss of extent or values arises from any of the following:

(i) the customary harvest of food or resources undertaken in accordance with tikanga Māori

(ii) restoration activities

(iii) scientific research

(iv) the sustainable harvest of sphagnum moss

(v) the construction or maintenance of wetland utility structures (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020)

(vi) the maintenance or operation of specified infrastructure, or other infrastructure (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020

(vii) natural hazard works (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020); or

(b) the regional council is satisfied that:

(i) the activity is necessary for the construction or upgrade of specified infrastructure; and

(ii) the specified infrastructure will provide significant national or regional benefits; and

(iii) there is a functional need for the specified infrastructure in that location; and

(iv) the effects of the activity are managed through applying the effects management hierarchy."

(2) Subclause (3) applies to an application for a consent for an activity:

(a) that falls within any exception referred to in paragraph (a)(ii) to (vii) or (b) of the policy in subclause (1); and

(b) would result (directly or indirectly) in the loss of extent or values of a natural inland wetland.

(3) Every regional council must make or change its regional plan(s) to ensure that an application referred to in subclause (2) is not granted unless:

(a) the council is satisfied that the applicant has demonstrated how each step of the effects management hierarchy will be applied to any loss of extent or values of the wetland (including cumulative effects and loss of potential value), particularly (without limitation) in relation to the values of: ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity value; and

(b) any consent is granted subject to:

(i) conditions that apply the effects management hierarchy; and

(ii) a condition requiring monitoring of the wetland at a scale commensurate with the risk of the loss of extent or values of the wetland.

(4) Every regional council must make or change its regional plan(s) to include objectives, policies, and methods that provide for and promote the restoration of natural inland wetlands in its region, with a particular focus on restoring the values of ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity value.

## 3.23 Mapping and monitoring natural inland wetlands

(1) Every regional council must identify and map every natural inland wetland in its region that is:

(a) 0.05 hectares or greater in extent; or

(b) of a type that is naturally less than 0.05 hectares in extent (such as an ephemeral wetland) and known to contain threatened species.

(2) However, a regional council need not identify and map natural inland wetlands located in public conservation lands or waters (as that term is defined in the Conservation General Policy 2005 issued under the Conservation Act 1987).

(3) In case of uncertainty or dispute about the existence or extent of a natural inland wetland, a regional council must have regard to the Wetland delineation protocols (*see* clause 1.8).

(4) The mapping of natural inland wetlands must be completed within 10 years of the commencement date, and the regional council must prioritise its mapping, for example by:

(a) first, mapping any wetland at risk of loss of extent or values; then

(b) mapping any wetland identified in a farm environment plan, or that may be affected by an application for, or review of, a resource consent; then

(c) mapping all other natural inland wetlands.

(5) Every regional council must establish and maintain an inventory of all natural inland wetlands mapped under this clause, and the inventory:

(a) must include, at a minimum, the following information about each wetland:

(i) identifier and location

(ii) area and GIS polygon

(iii) classification of wetland type

(iv) any existing monitoring information; and

(b) may include any other information (such as an assessment of the values applying to the wetland and any new information obtained from monitoring).

(6) Every regional council must:

(a) develop and undertake a monitoring plan that:

(i) monitors the condition of its natural inland wetlands (including, if the council chooses, wetlands referred to in subclause (2)); and

(ii) contains sufficient information to enable the council to assess whether its policies, rules, and methods are ensuring no loss of extent or values of those wetlands; and

(b) have methods to respond if loss of extent or values is detected.

## 3.24 Rivers

(1) Every regional council must include the following policy (or words to the same effect) in its regional plan(s):

"The loss of river extent and values is avoided, unless the council is satisfied:

(a) that there is a functional need for the activity in that location; and

(b) the effects of the activity are managed by applying the effects management hierarchy."

(2) Subclause (3) applies to an application for a consent for an activity:

(a) that falls within the exception to the policy described in subclause (1); and

(b) would result (directly or indirectly) in the loss of extent or values of a river.

(3) Every regional council must make or change its regional plan(s) to ensure that an application referred to in subclause (2) is not granted unless:

(a) the council is satisfied that the applicant has demonstrated how each step in the effects management hierarchy will be applied to any loss of extent or values of the river (including cumulative effects and loss of potential value), particularly (without limitation) in relation to the values of: ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity; and

(b) any consent granted is subject to conditions that apply the effects management hierarchy.

(4) Every regional council must:

(a) develop and undertake a monitoring plan that:

(i) monitors the condition of its rivers; and

(ii) contains sufficient information to enable the council to assess whether its policies, rules, and methods are ensuring no loss of extent or values of the rivers; and

(b) have methods to respond if loss of extent or values is detected.

## 3.25 Deposited sediment in rivers

(1) If a site to which a target attribute state for deposited fine sediment applies (*see* Table 16 in Appendix 2B) is soft-bottomed, the regional council must determine whether the site is naturally soft-bottomed or is naturally hard-bottomed.

(2) If a regional council determines that a site that is currently soft-bottomed is naturally hard-bottomed, the council must:

(a) monitor deposited sediment at the site using the SAM2 method at least once a year (instead of at the frequency required by Table 16 in Appendix 2B); and

(b) monitor freshwater habitat in a manner suitable to the current state of the site (that is, as soft-bottomed); and

(c) determine whether, having regard to the relevant long-term vision, it is appropriate to return the site to a hard-bottomed state; and

(d) if it is appropriate to return the site to a hard-bottomed state, prepare an action plan for how to do that.

(3) In this clause:

**soft-bottomed** means a site where the bed has a greater than 50% coverage of deposited fine sediment (grain size less than 2 mm in diameter) as determined using the SAM2 method

**hard-bottomed** means a site that is not soft-bottomed

**naturally**, in relation to a site, means its state before the arrival of humans in New Zealand

**SAM2 method** means the method described at p 17 – 20 of Clapcott JE, Young RG, Harding JS, Matthaei CD, Quinn JM, and Death RG. 2011. Sediment Assessment Methods: Protocols and guidelines for assessing the effects of deposited fine sediment on in-stream values. Cawthron Institute: Nelson, New Zealand (*see* clause 1.8).

## 3.26 Fish passage

(1) Every regional council must include the following fish passage objective (or words to the same effect) in its regional plan(s):

> "The passage of fish is maintained, or is improved, by instream structures, except where it is desirable to prevent the passage of some fish species in order to protect desired fish species, their life stages, or their habitats."

(2) Every regional council must make or change its regional plan(s) to include policies that:

(a) identify the desired fish species, and their relevant life stages, for which instream structures must provide passage; and

(b) identify the undesirable fish species whose passage can or should be prevented; and

(c) identify rivers and receiving environments where desired fish species have been identified; and

(d) identify rivers and receiving environments where fish passage for undesirable fish species is to be impeded in order to manage their adverse effects on fish populations upstream or downstream of any barrier.

(3) When developing the policies required by subclause (2) a regional council must:

(a) take into account any Freshwater Fisheries Management Plans and Sports Fish and Game Management Plans approved by the Minister of Conservation under the Conservation Act 1987; and

(b) seek advice from the Department of Conservation and statutory fisheries managers regarding fish habitat and population management.

(4) Every regional council must make or change its regional plan(s) to require that regard is had to at least the following when considering an application for a consent relating to an instream structure:

(a) the extent to which it provides, and will continue to provide for the foreseeable life of the structure, for the fish passage objective in subclause (1)

(b) the extent to which it does not cause a greater impediment to fish movements than occurs in adjoining river reaches and receiving environments

(c) the extent to which it provides efficient and safe passage for fish, other than undesirable fish species, at all their life stages

(d) the extent to which it provides the physical and hydraulic conditions necessary for the passage of fish

(e) any proposed monitoring and maintenance plan for ensuring that the structure meets the fish passage objective in subclause (1) for fish now and in the future.

(5) Every regional council must make or change its regional plan(s) to promote the remediation of existing structures and the provision of fish passage (other than for undesirable fish species) where practicable.

(6) Every regional council must prepare an action plan to support the achievement of the fish passage objective in subclause (1), and the action plan must, at a minimum:

(a) set out a work programme to improve the extent to which existing instream structures achieve the fish passage objective; and

(b) set targets for remediation of existing instream structures; and

(c) achieve any environmental outcomes and target attribute states relating to the abundance and diversity of fish.

(7) The work programme in an action plan must, at a minimum:

(a) identify instream structures in the region by recording, for each structure:

(i) all the information in Part 1 of Appendix 4; and

(ii) any other information about the structure, such as the information in Part 2 of Appendix 4; and

(b) evaluate the risks that instream structures present as an undesirable barrier to fish passage; and

(c) prioritise structures for remediation, applying the ecological criteria described in table 5.1, of the New Zealand Fish Passage Guidelines (*see* clause 1.8); and

(d) document the structures or locations that have been prioritised, the remediation that is required to achieve the desired outcome, and how and when this will be achieved; and

(e) identify the structures that have been remediated since the commencement date; and

(f) specify how the ongoing performance of remediated structures will be monitored and evaluated, including the effects of the structure on the abundance and diversity of desired fish species.

(8) An action plan for fish passage may be part of, or separate from, an action plan prepared for any purpose under this Part, but clause 3.15, about preparing action plans, applies in either case.

## 3.27 Primary contact sites

(1) Every regional council must monitor primary contact sites for:

(a) their risk to human health; and

(b) their suitability for the activities that take place in them (for example, by monitoring whether there is slippery or unpleasant weed growth, and the visual clarity of the water).

(2) For every primary contact site in an FMU, the regional council must identify one or more monitoring sites representative of the primary contact site or a number of primary contact sites.

(3) Every regional council must identify, for each primary contact site in its region, a time period (a **bathing season**) during the year when the regional council considers that the site is regularly used, or would be regularly used but for existing freshwater quality, for recreational activities.

(4) During the bathing season for primary contact sites, every regional council must undertake weekly sampling for *E. coli* at each relevant monitoring site.

(5) However, if a single sample taken during the bathing season from a monitoring site is greater than 260 *E. coli* per 100 mL, the regional council must (unless the council is satisfied that the elevated result is temporary or the cause is being addressed):

(a) increase sampling frequency to daily, where practicable; and

(b) take all practicable steps to identify potential causes of microbial contamination.

(6) If a single sample from a monitoring site is greater than 540 *E. coli* per 100 mL, the regional council must, as soon as practicable, take all practicable steps to notify the public and keep the public informed that the site is unsuitable for primary contact, until further sampling shows a result of 540 *E. coli* per 100 mL or less.

(7) A regional council may comply with subclause (6) by, for example, erecting signs and publicising the situation, or liaising with an environmental health officer or other relevant body or person to co-ordinate how to inform the public about the situation.

## 3.28 Water allocation

(1) Every regional council must make or change its regional plan(s) to include criteria for:

(a) deciding applications to approve transfers of water take permits; and

(b) deciding how to improve and maximise the efficient allocation of water (which includes economic, technical, and dynamic efficiency).

(2) Every regional council must include methods in its regional plan(s) to encourage the efficient use of water.

## 3.29 Freshwater accounting systems

(1) Every regional council must operate and maintain, for every FMU:

(a) a freshwater quality accounting system; and

(b) a freshwater quantity accounting system.

(2) The purpose of the accounting systems is to provide the baseline information required:

(a) for setting target attribute states, environmental flows and levels, and limits; and

(b) to assess whether an FMU is, or is expected to be, over-allocated; and

(c) to track over time the cumulative effects of activities (such as increases in discharges and changes in land use).

(3) The accounting systems must be maintained at a level of detail commensurate with the significance of the water quality or quantity issues applicable to each FMU or part of an FMU.

(4) Every regional council must publish information from those systems regularly and in a suitable form.

(5) The freshwater quality accounting system must (where practicable) record, aggregate, and regularly update, for each FMU, information on the measured, modelled, or estimated:

(a) loads and concentrations of relevant contaminants; and

(b) where a desired contaminant load has been set as part of a limit on resource use, or identified as necessary to achieve a target attribute state, the proportion of the contaminant load that has been allocated; and

(c) sources of relevant contaminants; and

(d) the amount of each contaminant attributable to each source.

(6) The freshwater quantity accounting system must record, aggregate, and regularly update, for each FMU, information on the measured, modelled, or estimated:

(a) amount of freshwater take; and

(b) the proportion of freshwater taken by each major category of use; and

(c) where a take limit has been set, the proportion of the take limit that has been allocated.

(7) In this clause, **freshwater take** refers to all takes and forms of water consumption, whether metered or not, whether subject to a consent or not, and whether authorised or not.

## 3.30 Assessing and reporting

(1) Every regional council must publish the following annually:

(a) actual data, or a link to those data, about each component of the value ecosystem health and the value human contact, as obtained from monitoring sites for the relevant attributes; and if no data has been collected in relation to any attribute, this must be identified

(b) actual data, or a link to those data, from any other monitoring done for the purpose of freshwater management

(c) a description of any uncertainties associated with the data.

(2) As part of each review required by section 35(2A) of the Act (which is required at least every 5 years), every regional council must prepare and publish the following:

(a) an assessment of the extent to which, in the region:

(i) the long-term visions, as identified under clause 3.3, are being achieved; and

(ii) this National Policy Statement is being given effect to

(b) a comparison of the current state of attributes as compared with target attribute states

(c) an assessment of whether the target attribute states and environmental outcomes for each FMU or part of an FMU in the region are being achieved and, if not, whether and when they are likely to be

(d) if monitoring shows that an FMU or part of an FMU is degraded or degrading, information on the known or likely causes

(e) a description of the environmental pressures on each FMU (such as water takes, sources of contaminants, or water body modification) as indicated by information from the freshwater accounting systems referred to in clause 3.29

(f) an assessment of the cumulative effect of changes across multiple sites within an FMU and multiple attributes during the period covered by the assessment

(g) predictions of changes, including the foreseeable effects of climate change, that are likely to affect water bodies and freshwater ecosystems in the region

(h) an assessment of the actions taken over the past 5 years in the region, whether regulatory or non-regulatory and whether by local authorities or others, that contribute to the implementation of this National Policy Statement.

(3) At the same time that a regional council publishes the review required by section 35(2A) of the Act, the regional council must publish an ecosystem health scorecard that:

(a) reports on and gives a score for the state of each component of the value ecosystem health (as described in Appendix 1A) in each FMU in the region; and

(b) identifies where any data or information is missing; and

(c) provides a single overall score for ecosystem health for each FMU in the region.

(4) The ecosystem health scorecard must:

(a) be written and presented in a way that members of the public are likely to understand easily; and

(b) include specific data, or a link to where those data may be viewed.

## 3.31 Large hydro-electric generation schemes

(1) This clause applies to the following 5 hydro-electricity generation schemes (referred to as **Schemes**):

(a) Waikato Scheme

(b) Tongariro Scheme

(c) Waitaki Scheme

(d) Manapouri Scheme

(e) Clutha Scheme.

(2) When implementing any part of this National Policy Statement as it applies to an FMU or part of an FMU affected by a Scheme, a regional council must have regard to the importance of the Scheme's:

(a) contribution to meeting New Zealand's greenhouse gas emission targets; and

(b) contribution to maintaining the security of New Zealand's electricity supply; and

(c) generation capacity, storage, and operational flexibility.

(3) Subclause (4) applies if:

(a) an FMU or part of an FMU is adversely affected by an existing structure that forms part of a Scheme; and

(b) the baseline state of an attribute in the FMU or part of the FMU is below the national bottom line for the attribute; and

(c) achieving the national bottom line for the attribute would have a significant adverse effect on the Scheme, having regard to the matters in subclause (2).

(4) When this subclause applies, the regional council:

(a) may set a target attribute state that is below the national bottom line for the attribute, despite clause 3.11(4); but

(b) must still, as required by clause 3.11(2) and (3), set the target attribute state to achieve an improved attribute state to the extent practicable without having a significant adverse effect on the Scheme having regard to the matters in subclause (2) of this clause.

(5) In this clause, **existing structure** means a structure that was operational on or before 1 August 2019, and includes any structure that replaces it, provided the effects of the replacement are the same or similar in character, intensity and scale, or have a lesser impact.

## 3.32 Naturally occurring processes

(1) If all or part of a water body is affected by naturally occurring processes that mean that the current state is below the national bottom line, and a target attribute state at or above the national bottom line cannot be achieved, the regional council:

(a) may set a target attribute state that is below the national bottom line for the attribute, despite clause 3.11(4); but

(b) must still, as required by clause 3.11(2) and (3), set the target attribute state to achieve an improved attribute state, to the extent practicable given the naturally occurring processes.

(2) In any dispute about whether this exception should apply, the onus is on the relevant regional council to demonstrate that it is naturally occurring processes that prevents the national bottom line being achieved.

## 3.33 Specified vegetable growing areas

(1) This clause applies only to the 2 **specified vegetable growing areas** identified in Part 1 of Appendix 5.

(2) When implementing any part of this National Policy Statement as it applies to an FMU or part of an FMU that is in, or includes, all or part of a specified vegetable growing area, a regional council must have regard to the importance of the contribution of the specified growing area to:

(a) the domestic supply of fresh vegetables; and

(b) maintaining food security for New Zealanders.

(3) Subclause (4) applies if:

(a) an FMU or part of an FMU is adversely affected by vegetable growing in a specified vegetable growing area; and

(b) the baseline state of an attribute specified in Part 2 of Appendix 5 in the FMU or part of the FMU where all or part of the specified vegetable growing area is located is below the national bottom line for the attribute; and

(c) achieving the national bottom line for the attribute would compromise the matters in subclause (2).

(4) When this subclause applies, the regional council:

(a) may set a target attribute state that is below the national bottom line for the attribute, despite clause 3.11(4); but

(b) must still, as required by clause 3.11(2) and (3), set the target attribute state to achieve an improved attribute state without compromising the matters in subclause (2) of this clause.

(5) When implementing clauses 3.12 to 3.14 in relation to FMUs that include all or part of a specified vegetable growing area, a regional council must ensure that vegetable growers in the area are not exempt from any requirements (such as in limits, action plans, and conditions on resource consents) aimed at achieving target attribute states.

(6) This clause ceases to apply to a specified vegetable growing area on the earlier of the following dates:

(a) 10 years after the commencement date; or

(b) the date National Environmental Standards (or other regulations under the Act) come into force that:

(i) apply to the specified vegetable growing area; and

(ii) are made for the purpose of avoiding, remedying, or mitigating the adverse effects of vegetable growing on freshwater.

# Part 4: Timing and transitionals

## 4.1 Timing

(1) Every local authority must give effect to this National Policy Statement as soon as reasonably practicable.

(2) Local authorities must publicly notify any changes to their regional policy statements, regional plans, and district plans that are necessary to give effect to this National Policy Statement as required under the Act.

## 4.2 Keeping policy statements and plans up to date

(1) Once a local authority has made the changes required by clause 4.1, it must continue to make whatever changes to its regional policy statement, regional plan, or district plan are necessary to respond to changes over time in the state of water bodies and freshwater ecosystems in its region or district.

## 4.3 Existing policy statements and plans

(1) To the extent that regional policy statements and regional and district plans already (at the commencement date) give effect to this National Policy Statement, local authorities are not obliged to make changes to wording or terminology merely for consistency with it.

(2) In case of dispute, the onus is on the local authority to show that, despite the different wording or terminology used, their policy statement or plan does implement this National Policy Statement.

(3) However, if a local authority chooses to amend an operative policy statement or plan by merely changing wording or terminology for consistency with this National Policy Statement, the amendment is to be treated as the correction of a minor error (and therefore, under clause 20A of Schedule 1 of the Act, the amendment can be made without using a process in that Schedule).

# Appendices

## Appendix 1A – Compulsory values

### 1 Ecosystem health

This refers to the extent to which an FMU or part of an FMU supports an ecosystem appropriate to the type of water body (for example, river, lake, wetland, or aquifer).

There are 5 biophysical components that contribute to freshwater ecosystem health, and it is necessary that all of them are managed. They are:

*Water quality* – the physical and chemical measures of the water, such as temperature, dissolved oxygen, pH, suspended sediment, nutrients and toxicants

*Water quantity* – the extent and variability in the level or flow of water

*Habitat* – the physical form, structure, and extent of the water body, its bed, banks and margins; its riparian vegetation; and its connections to the floodplain and to groundwater

*Aquatic life* – the abundance and diversity of biota including microbes, invertebrates, plants, fish and birds

*Ecological processes* – the interactions among biota and their physical and chemical environment such as primary production, decomposition, nutrient cycling and trophic connectivity.

In a healthy freshwater ecosystem, all 5 biophysical components are suitable to sustain the indigenous aquatic life expected in the absence of human disturbance or alteration (before providing for other values).

### 2 Human contact

This refers to the extent to which an FMU or part of an FMU supports people being able to connect with the water through a range of activities such as swimming, waka, boating, fishing, mahinga kai, and water skiing, in a range of different flows or levels.

Matters to take into account include pathogens, water clarity, deposited sediment, plant growth (from macrophytes to periphyton to phytoplankton), cyanobacteria, other toxicants, and litter.

### 3 Threatened species

This refers to the extent to which an FMU or part of an FMU that supports a population of threatened species has the critical habitats and conditions necessary to support the presence, abundance, survival, and recovery of the threatened species. All the components of ecosystem health must be managed, as well as (if appropriate) specialised habitat or conditions needed for only part of the life cycle of the threatened species.

## 4 Mahinga kai

Mahinga kai – kai is safe to harvest and eat.

Mahinga kai generally refers to freshwater species that have traditionally been used as food, tools, or other resources. It also refers to the places those species are found and to the act of catching or harvesting them. Mahinga kai provide food for the people of the rohe and these sites give an indication of the overall health of the water. For this value, kai would be safe to harvest and eat. Transfer of knowledge is able to occur about the preparation, storage and cooking of kai. In FMUs or parts of FMUs that are used for providing mahinga kai, the desired species are plentiful enough for long-term harvest and the range of desired species is present across all life stages.

Mahinga kai – Kei te ora te mauri (the mauri of the place is intact).

In FMUs or parts of FMUs that are valued for providing mahinga kai, customary resources are available for use, customary practices are able to be exercised to the extent desired, and tikanga and preferred methods are able to be practised.

# Appendix 1B – Other values that must be considered

## 1 Natural form and character

The FMU or part of the FMU has particular natural qualities that people value. Natural qualities may include exceptional, natural, or iconic aesthetic features.

Matters contributing to the natural form and character of an FMU are its biological, visual and physical characteristics that are valued by the community, including:

a) its biophysical, ecological, geological, geomorphological and morphological aspects

b) the natural movement of water and sediment including hydrological and fluvial processes

c) the natural location of a water body and course of a river

d) the relative dominance of indigenous flora and fauna

e) the presence of culturally significant species

f) the colour of the water

g) the clarity of the water.

## 2 Drinking water supply

The FMU or part of the FMU can meet people's drinking water needs. Water quality and quantity is sufficient for water to be taken and used for drinking water supply.

Matters affecting the suitability of water for drinking include:

a) physical, chemical, and microbiological contamination (for example, bacteria and cyanotoxins, viruses, protozoa and other pathogens)

b) any other contaminants identified in drinking water standards issued under the Health Act 1956 or any other legislation

c) the effects of contamination on drinking water treatment processes and the safety of drinking water, and its aesthetic value (that is, appearance, taste, and smell).

## 3 Wai tapu

Wai tapu represent the places in an FMU or part of an FMU where rituals and ceremonies are performed, or where there is special significance to tangata whenua.

Rituals and ceremonies include, but are not limited to, tohi (baptism), karakia (prayer), waerea (protective incantation), whakatapu (placing of rāhui), whakanoa (removal of rāhui), and tuku iho (gifting of knowledge and resources to future generations).

In providing for this value, the wai tapu are free from human and animal waste, contaminants and excess sediment, with valued features and unique properties of the wai protected. Other matters that may be important are that there is no artificial mixing of the wai tapu and identified taonga in the wai are protected.

## 4 Transport and tauranga waka

The FMU or part of the FMU is navigable for identified means of transport.

Transport and tauranga waka generally refers to places to launch waka and water craft, and appropriate places for waka to land (tauranga waka).

### 5 Fishing

The FMU or part of the FMU supports fisheries of species allowed to be caught and eaten.

For FMUs or parts of FMUs valued for fishing, the numbers of fish are sufficient and suitable for human consumption. In some areas, fish abundance and diversity provide a range in species and size of fish, and algal growth, water clarity and safety are satisfactory for fishers. Attributes will need to be specific to fish species such as salmon, trout, tuna, lamprey, or whitebait.

### 6 Hydro-electric power generation

The FMU or part of the FMU is suitable for hydro-electric power generation.

Water quality and quantity and the physical qualities of the FMU or part of the FMU, including hydraulic gradient and flow rate, can provide for hydro-electric power generation.

### 7 Animal drinking water

The FMU or part of the FMU meets the needs of farmed animals.

Water quality and quantity meets the needs of farmed animals, including whether it is palatable and safe.

### 8 Irrigation, cultivation, and production of food and beverages

The FMU or part of the FMU meets irrigation needs for any purpose.

Water quality and quantity is suitable for irrigation needs, including supporting the cultivation of food crops, the production of food from farmed animals, non-food crops such as fibre and timber, pasture, sports fields and recreational areas. Attributes will need to be specific to irrigation and food production requirements.

### 9 Commercial and industrial use

The FMU or part of the FMU provides economic opportunities for people, businesses and industries.

Water quality and quantity can provide for commercial and industrial activities. Attributes will need to be specific to commercial or industrial requirements.

# Appendix 2A – Attributes requiring limits on resource use

## Table 1 – Phytoplankton (trophic state)

| **Value (and component)** | Ecosystem health (Aquatic Life) | |
|---|---|---|
| **Freshwater body type** | Lakes | |
| **Attribute unit** | mg chl-*a*/ $m^3$ (milligrams chlorophyll-*a* per cubic metre) | |
| **Attribute band and description** | **Numeric attribute state** | |
| | **Annual median** | **Annual maximum** |
| **A**<br>Lake ecological communities are healthy and resilient, similar to natural reference conditions. | ≤2 | ≤10 |
| **B**<br>Lake ecological communities are slightly impacted by additional algal and/or plant growth arising from nutrient levels that are elevated above natural reference conditions. | >2 and ≤5 | >10 and ≤25 |
| **C**<br>Lake ecological communities are moderately impacted by additional algal and plant growth arising from nutrient levels that are elevated well above natural reference conditions. Reduced water clarity is likely to affect habitat available for native macrophytes. | >5 and ≤12 | >25 and ≤60 |
| **National bottom line** | **12** | **60** |
| **D**<br>Lake ecological communities have undergone or are at high risk of a regime shift to a persistent, degraded state (without native macrophyte/seagrass cover), due to impacts of elevated nutrients leading to excessive algal and/or plant growth, as well as from losing oxygen in bottom waters of deep lakes. | >12 | >60 |
| For lakes and lagoons that are intermittently open to the sea, monitoring data should be analysed separately for closed periods and open periods. | | |

## Table 2 – Periphyton (trophic state)

| **Value (and component)** | Ecosystem health (Aquatic Life) | |
|---|---|---|
| **Freshwater body type** | Rivers | |
| **Attribute unit** | mg chl-*a*/m$^2$ (milligrams chlorophyll-*a* per square metre) | |
| **Attribute band and description** | **Numeric attribute state (default class)** | **Numeric attribute state (productive class)** |
| | Exceeded no more than 8% of samples | Exceeded no more than 17% of samples |
| **A**<br>Rare blooms reflecting negligible nutrient enrichment and/or alteration of the natural flow regime or habitat. | ≤50 | ≤50 |
| **B**<br>Occasional blooms reflecting low nutrient enrichment and/or alteration of the natural flow regime or habitat. | >50 and ≤120 | >50 and ≤120 |
| **C**<br>Periodic short-duration nuisance blooms reflecting moderate nutrient enrichment and/or moderate alteration of the natural flow regime or habitat. | >120 and ≤200 | >120 and ≤200 |
| **National bottom line** | **200** | **200** |
| **D**<br>Regular and/or extended-duration nuisance blooms reflecting high nutrient enrichment and/or significant alteration of the natural flow regime or habitat. | >200 | >200 |

At low risk sites monitoring may be conducted using visual estimates of periphyton cover. Should monitoring based on visual cover estimates indicate that a site is approaching the relevant periphyton abundance threshold, monitoring should then be upgraded to include measurement of chlorophyll-*a*.

Classes are streams and rivers defined according to types in the River Environment Classification (REC). The Productive periphyton class is defined by the combination of REC "Dry" Climate categories (that is, Warm-Dry (WD) and Cool-Dry (CD)) and REC Geology categories that have naturally high levels of nutrient enrichment due to their catchment geology (that is, Soft-Sedimentary (SS), Volcanic Acidic (VA) and Volcanic Basic (VB)). Therefore the productive category is defined by the following REC defined types: WD/SS, WD/VB, WD/VA, CD/SS, CD/VB, CD/VA. The Default class includes all REC types not in the Productive class.

Based on a monthly monitoring regime. The minimum record length for grading a site based on periphyton (chlorophyll-*a*) is 3 years.

## Table 3 – Total nitrogen (trophic state)

| **Value (and component)** | Ecosystem health (Water quality) | |
|---|---|---|
| **Freshwater body type** | Lakes | |
| **Attribute unit** | mg/m$^3$ (milligrams per cubic metre) | |
| **Attribute band and description** | **Numeric attribute state** | |
| | **Annual median** | **Annual median** |
| | Seasonally stratified and brackish | Polymictic |
| **A**<br>Lake ecological communities are healthy and resilient, similar to natural reference conditions. | ≤160 | ≤300 |
| **B**<br>Lake ecological communities are slightly impacted by additional algal and/or plant growth arising from nutrient levels that are elevated above natural reference conditions. | >160 and ≤350 | >300 and ≤500 |
| **C**<br>Lake ecological communities are moderately impacted by additional algal and plant growth arising from nutrient levels that are elevated well above natural reference conditions. | >350 and ≤750 | >500 and ≤800 |
| **National bottom line** | **750** | **800** |
| **D**<br>Lake ecological communities have undergone or are at high risk of a regime shift to a persistent, degraded state (without native macrophyte/seagrass cover), due to impacts of elevated nutrients leading to excessive algal and/or plant growth, as well as from losing oxygen in bottom waters of deep lakes. | >750 | >800 |
| For lakes and lagoons that are intermittently open to the sea, monitoring data should be analysed separately for closed periods and open periods. | | |

## Table 4 – Total phosphorus (trophic state)

| **Value (and component)** | Ecosystem health (Water quality) |
|---|---|
| **Freshwater body type** | Lakes |
| **Attribute unit** | mg/m$^3$ (milligrams per cubic metre) |
| **Attribute band and description** | **Numeric attribute state** |
| | Annual median |
| **A**<br>Lake ecological communities are healthy and resilient, similar to natural reference conditions. | ≤10 |
| **B**<br>Lake ecological communities are slightly impacted by additional algal and plant growth arising from nutrient levels that are elevated above natural reference conditions. | >10 and ≤20 |
| **C**<br>Lake ecological communities are moderately impacted by additional algal and plant growth arising from nutrient levels that are elevated well above natural reference conditions. | >20 and ≤50 |
| **National bottom line** | **50** |
| **D**<br>Lake ecological communities have undergone or are at high risk of a regime shift to a persistent, degraded state (without native macrophyte/seagrass cover), due to impacts of elevated nutrients leading to excessive algal and/or plant growth, as well as from losing oxygen in bottom waters of deep lakes. | >50 |
| For lakes and lagoons that are intermittently open to the sea, monitoring data should be analysed separately for closed periods and open periods. | |

## Table 5 – Ammonia (toxicity)

| **Value (and component)** | Ecosystem health (Water quality) | |
|---|---|---|
| **Freshwater body type** | Rivers and lakes | |
| **Attribute unit** | mg $NH_4$-N/L (milligrams ammoniacal-nitrogen per litre) | |
| **Attribute band and description** | **Numeric attribute state** | |
| | Annual median | Annual maximum |
| **A**<br>99% species protection level: No observed effect on any species tested. | ≤0.03 | ≤0.05 |
| **B**<br>95% species protection level: Starts impacting occasionally on the 5% most sensitive species. | >0.03 and ≤0.24 | >0.05 and ≤0.40 |
| **National bottom line** | **0.24** | **0.40** |
| **C**<br>80% species protection level: Starts impacting regularly on the 20% most sensitive species (reduced survival of most sensitive species). | >0.24 and ≤1.30 | >0.40 and ≤2.20 |
| **D**<br>Starts approaching acute impact level (that is, risk of death) for sensitive species. | >1.30 | >2.20 |
| Numeric attribute state is based on pH 8 and temperature of 20°C. Compliance with the numeric attribute states should be undertaken after pH adjustment. | | |

## Table 6 – Nitrate (toxicity)

| **Value (and component)** | Ecosystem health (Water quality) | |
|---|---|---|
| **Freshwater body type** | Rivers | |
| **Attribute unit** | mg $NO_3$ – N/L (milligrams nitrate-nitrogen per litre) | |
| **Attribute band and description** | **Numeric attribute state** | |
| | Annual median | Annual 95th percentile |
| **A**<br>High conservation value system. Unlikely to be effects even on sensitive species. | ≤1.0 | ≤1.5 |
| **B**<br>Some growth effect on up to 5% of species. | >1.0 and ≤2.4 | >1.5 and ≤3.5 |
| **National bottom line** | **2.4** | **3.5** |
| **C**<br>Growth effects on up to 20% of species (mainly sensitive species such as fish). No acute effects. | >2.4 and ≤6.9 | >3.5 and ≤9.8 |
| **D**<br>Impacts on growth of multiple species, and starts approaching acute impact level (that is, risk of death) for sensitive species at higher concentrations (>20 mg/L). | >6.9 | >9.8 |
| This attribute measures the toxic effects of nitrate, not the trophic state. Where other attributes measure trophic state, for example periphyton, freshwater objectives, limits and/or methods for those attributes may be more stringent. | | |

## Table 7 – Dissolved oxygen

| **Value (and component)** | Ecosystem health (Water quality) | |
|---|---|---|
| **Freshwater body type** | Rivers (below point sources only) | |
| **Attribute unit** | mg/L (milligrams per litre) | |
| **Attribute band and description** | **Numeric attribute state** | |
| | 7-day mean minimum (summer period: 1 November to 30th April) | 1-day minimum (summer period: 1 November to 30th April) |
| **A**<br>No stress caused by low dissolved oxygen on any aquatic organisms that are present at matched reference (near-pristine) sites. | ≥8.0 | ≥7.5 |
| **B**<br>Occasional minor stress on sensitive organisms caused by short periods (a few hours each day) of lower dissolved oxygen. Risk of reduced abundance of sensitive fish and macroinvertebrate species. | ≥7.0 and <8.0 | ≥5.0 and <7.5 |
| **C**<br>Moderate stress on a number of aquatic organisms caused by dissolved oxygen levels exceeding preference levels for periods of several hours each day. Risk of sensitive fish and macroinvertebrate species being lost. | ≥5.0 and <7.0 | ≥4.0 and <5.0 |
| **National bottom line** | **5.0** | **4.0** |
| **D**<br>Significant, persistent stress on a range of aquatic organisms caused by dissolved oxygen exceeding tolerance levels. Likelihood of local extinctions of keystone species and loss of ecological integrity. | <5.0 | <4.0 |
| The 7-day mean minimum is the mean value of seven consecutive daily minimum values.<br>The 1-day minimum is the lowest daily minimum across the whole summer period. | | |

## Table 8 – Suspended fine sediment

| **Value (and component)** | Ecosystem health (Water quality) | | | |
|---|---|---|---|---|
| **Freshwater body type** | Rivers | | | |
| **Attribute unit** | Visual clarity (metres) | | | |
| **Attribute band and description** | **Numeric attribute state by suspended sediment class** | | | |
| | 1 | 2 | 3 | 4 |
| **A**<br>Minimal impact of suspended sediment on instream biota. Ecological communities are similar to those observed in natural reference conditions. | ≥1.78 | ≥0.93 | ≥2.95 | ≥1.38 |
| **B**<br>Low to moderate impact of suspended sediment on instream biota. Abundance of sensitive fish species may be reduced. | <1.78 and ≥1.55 | <0.93 and ≥0.76 | <2.95 and ≥2.57 | <1.38 and ≥1.17 |
| **C**<br>Moderate to high impact of suspended sediment on instream biota. Sensitive fish species may be lost. | <1.55 and >1.34 | <0.76 and >0.61 | <2.57 and >2.22 | <1.17 and >0.98 |
| **National bottom line** | **1.34** | **0.61** | **2.22** | **0.98** |
| **D**<br>High impact of suspended sediment on instream biota. Ecological communities are significantly altered and sensitive fish and macroinvertebrate species are lost or at high risk of being lost. | <1.34 | <0.61 | <2.22 | <0.98 |

The minimum record length for grading a site is the median of 5 years of at least monthly samples (at least 60 samples).

Councils may monitor turbidity and convert the measures to visual clarity.

See Appendix 2C Tables 23 and 26 for the definition of suspended sediment classes and their composition.

The following are examples of **naturally occurring processes** relevant for suspended sediment:

- naturally highly coloured brown-water streams
- glacial flour affected streams and rivers
- selected lake-fed REC classes (particularly warm climate classes) where low visual clarity may reflect autochthonous phytoplankton production.

## Table 9 – *Escherichia coli* (*E. coli*)

| **Value** | Human contact | | | |
|---|---|---|---|---|
| **Freshwater body type** | Lakes and rivers | | | |
| **Attribute unit** | *E. coli*/100 mL (number of *E. coli* per hundred millilitres) | | | |
| **Attribute band and description** | **Numeric attribute state** | | | |
| Description of risk of *Campylobacter* infection (based on *E. coli* indicator) | % exceedances over 540/100 mL | % exceedances over 260/100 mL | Median concentration /100 mL) | 95th percentile of *E. coli*/100 mL |
| **A (Blue)**<br>For at least half the time, the estimated risk is <1 in 1,000 (0.1% risk).<br>The predicted average infection risk is 1%. | <5% | <20% | ≤130 | ≤540 |
| **B (Green)**<br>For at least half the time, the estimated risk is <1 in 1,000 (0.1% risk).<br>The predicted average infection risk is 2%. | 5-10% | 20-30% | ≤130 | ≤1000 |
| **C (Yellow)**<br>For at least half the time, the estimated risk is <1 in 1,000 (0.1% risk).<br>The predicted average infection risk is 3%. | 10-20% | 20-34% | ≤130 | ≤1200 |
| **D (Orange)**<br>20-30% of the time the estimated risk is ≥50 in 1,000 (>5% risk).<br>The predicted average infection risk is >3%. | 20-30% | >34% | >130 | >1200 |
| **E (Red)**<br>For more than 30% of the time the estimated risk is ≥50 in 1,000 (>5% risk).<br>The predicted average infection risk is >7%. | >30% | >50% | >260 | >1200 |

Attribute state should be determined by using a minimum of 60 samples over a maximum of 5 years, collected on a regular basis regardless of weather and flow conditions. However, where a sample has been missed due to adverse weather or error, attribute state may be determined using samples over a longer timeframe.

Attribute state must be determined by satisfying all numeric attribute states.

The predicted average infection risk is the overall average infection to swimmers based on a random exposure on a random day, ignoring any possibility of not swimming during high flows or when a surveillance advisory is in place (assuming that the *E. coli* concentration follows a lognormal distribution). Actual risk will generally be less if a person does not swim during high flows.

## Table 10 – Cyanobacteria (planktonic)

| **Value** | Human contact |
|---|---|
| **Freshwater body type** | Lakes and lake fed rivers |
| **Attribute unit** | Biovolume $mm^3/L$ (cubic millimetres per litre) |
| **Attribute band and description** | **Numeric attribute state** |
| | 80th percentile |
| **A (Blue)**<br>Risk exposure from cyanobacteria is no different to that in natural conditions (from any contact with freshwater). | ≤0.5 $mm^3/L$ biovolume equivalent for the combined total of all cyanobacteria |
| **B (Green)**<br>Low risk of health effects from exposure to cyanobacteria (from any contact with freshwater). | >0.5 and ≤1.0 $mm^3/L$ biovolume equivalent for the combined total of all cyanobacteria |
| **C (Yellow)**<br>Moderate risk of health effects from exposure to cyanobacteria (from any contact with freshwater). | >1.0 and ≤1.8 $mm^3/L$ biovolume equivalent of potentially toxic cyanobacteria OR<br>>1.0 and ≤10 $mm^3/L$ total biovolume of all cyanobacteria |
| **National bottom line** | **1.8 $mm^3/L$ biovolume equivalent of potentially toxic cyanobacteria**<br>**OR**<br>**10 $mm^3/L$ total biovolume of all cyanobacteria** |
| **D (Orange/Red)**<br>High health risks (for example, respiratory, irritation and allergy symptoms) exist from exposure to cyanobacteria (from any contact with freshwater). | >1.8 $mm^3/L$ biovolume equivalent of potentially toxic cyanobacteria<br>OR<br>>10 $mm^3/L$ total biovolume of all cyanobacteria |
| The 80th percentile must be calculated using a minimum of 12 samples collected over 3 years. Thirty samples collected over 3 years is recommended. | |

# Appendix 2B – Attributes requiring action plans

## Table 11 – Submerged plants (natives)

| **Value (and component)** | Ecosystem health (Aquatic life) |
|---|---|
| **Freshwater body type** | Lakes |
| **Attribute unit** | Lake Submerged Plant (Native Condition Index) |
| **Attribute band and description** | **Numeric attribute state (% of maximum potential score)** |
| **A**<br>Excellent ecological condition. Native submerged plant communities are almost completely intact. | >75% |
| **B**<br>High ecological condition. Native submerged plant communities are largely intact. | >50 and ≤75% |
| **C**<br>Moderate ecological condition. Native submerged plant communities are moderately impacted. | ≥20 and ≤50% |
| **National bottom line** | **20%** |
| **D**<br>Poor ecological condition. Native submerged plant communities are largely degraded or absent. | <20% |
| Monitoring to be conducted at least once every three years, following the method described in Clayton J, and Edwards T. 2006. *LakeSPI: A method for monitoring ecological condition in New Zealand lakes. User Manual Version 2*. National Institute of Water & Atmospheric Research: Hamilton, New Zealand. (*see* clause 1.8)<br>Scores are reported as a percentage of maximum potential score (%) of the Native Condition Index, and lakes in a devegetated state receive scores of 0. | |

## Table 12 – Submerged plants (invasive species)

| | |
|---|---|
| **Value (and component)** | Ecosystem health (Aquatic life) |
| **Freshwater body type** | Lakes |
| **Attribute unit** | Lake Submerged Plant (Invasive Impact Index) |
| **Attribute band and description** | **Numeric attribute state (% of maximum potential score)** |
| **A**<br>No invasive plants present in the lake. Native plant communities remain intact. | 0% |
| **B**<br>Invasive plants having only a minor impact on native vegetation. Invasive plants will be patchy in nature co-existing with native vegetation. Often major weed species not present or in early stages of invasion. | >1 and ≤25% |
| **C**<br>Invasive plants having a moderate to high impact on native vegetation. Native plant communities likely displaced by invasive weed beds particularly in the 2 – 8 m depth range. | >25 and ≤90% |
| **National bottom line** | **90%** |
| **D**<br>Tall dense weed beds exclude native vegetation and dominate entire depth range of plant growth. The species concerned are likely hornwort and Egeria. | >90% |
| Numeric attribute state to be calculated annually following the method described in Clayton J, and Edwards T. 2006. *LakeSPI: A method for monitoring ecological condition in New Zealand lakes. User Manual Version 2*. National Institute of Water & Atmospheric Research: Hamilton, New Zealand. (*see* clause 1.8) | |

## Table 13 – Fish (rivers)

| **Value (and component)** | Ecosystem health (Aquatic life) |
|---|---|
| **Freshwater body type** | Wadeable rivers |
| **Attribute unit** | Fish Index of Biotic Integrity (F-IBI) |
| **Attribute band and description** | **Numeric attribute state (average)** |
| **A**<br>High integrity of fish community. Habitat and migratory access have minimal degradation. | ≥34 |
| **B**<br>Moderate integrity of fish community. Habitat and/or migratory access are reduced and show some signs of stress. | <34 and ≥28 |
| **C**<br>Low integrity of fish community. Habitat and/or migratory access is considerably impairing and stressing the community. | <28 and ≥18 |
| **D**<br>Severe loss of fish community integrity. There is substantial loss of habitat and/or migratory access, causing a high level of stress on the community. | <18 |
| Sampling is to occur at least annually between December and March (inclusive) following the protocols for at least one of the backpack electrofishing method, spotlighting method, or trapping method in Joy M, David B, and Lake M. 2013. *New Zealand Freshwater Fish Sampling Protocols (Part 1): Wadeable rivers and streams*. Massey University: Palmerston North, New Zealand. (*see* clause 1.8)<br><br>The F-IBI score is to be calculated using the general method defined by Joy, MK, and Death RG. 2004. Application of the Index of Biotic Integrity Methodology to New Zealand Freshwater Fish Communities. *Environmental Management*, 34(3), 415-428. (*see* clause 1.8) | |

## Table 14 – Macroinvertebrates (1 of 2)

| **Value (and component)** | Ecosystem health (Aquatic life) | |
|---|---|---|
| **Freshwater body type** | Wadeable rivers | |
| **Attribute unit** | Macroinvertebrate Community Index (MCI) score; Quantitative Macroinvertebrate Community Index (QMCI) score | |
| **Attribute band and description** | **Numeric attribute states** | |
| | QMCI | MCI |
| **A**<br>Macroinvertebrate community, indicative of pristine conditions with almost no organic pollution or nutrient enrichment. | ≥6.5 | ≥130 |
| **B**<br>Macroinvertebrate community indicative of mild organic pollution or nutrient enrichment. Largely composed of taxa sensitive to organic pollution/nutrient enrichment. | ≥5.5 and <6.5 | ≥110 and <130 |
| **C**<br>Macroinvertebrate community indicative of moderate organic pollution or nutrient enrichment. There is a mix of taxa sensitive and insensitive to organic pollution/nutrient enrichment. | ≥4.5 and <5.5 | ≥90 and <110 |
| **National bottom line** | **4.5** | **90** |
| **D**<br>Macroinvertebrate community indicative of severe organic pollution or nutrient enrichment. Communities are largely composed of taxa insensitive to inorganic pollution/nutrient enrichment. | <4.5 | <90 |

MCI and QMCI scores to be determined using annual samples taken between December and March (inclusive) with either fixed counts with at least 200 individuals, or full counts, and with current state calculated as the five-year median score. All sites for which the deposited sediment attribute does not apply, whether because they are in river environment classes shown in Table 25 in Appendix 2C or because they require alternate habitat monitoring under clause 3.25 are to use soft sediment sensitivity scores and taxonomic resolution as defined in table A1.1 in Clapcott et al. 2017 *Macroinvertebrate metrics for the National Policy Statement for Freshwater Management*. Cawthron Institute: Nelson, New Zealand. (*see* clause 1.8)

MCI and QMCI to be assessed using the method defined in Stark JD, and Maxted, JR. 2007 *A user guide for the Macroinvertebrate Community Index*. Cawthron Institute: Nelson, New Zealand (*See* Clause 1.8), except for sites for which the deposited sediment attribute does not apply, which require use of the soft-sediment sensitivity scores and taxonomic resolution defined in table A1.1 in Clapcott et al. 2017 *Macroinvertebrate metrics for the National Policy Statement for Freshwater Management*. Cawthron Institute: Nelson, New Zealand. (*see* clause 1.8)

## Table 15 – Macroinvertebrates (2 of 2)

| **Value (and component)** | Ecosystem health (Aquatic life) |
|---|---|
| **Freshwater body type** | Wadeable rivers |
| **Attribute unit** | Macroinvertebrate Average Score Per Metric (ASPM) |
| **Attribute band and description** | **Numeric attribute states ASPM score** |
| **A**<br>Macroinvertebrate communities have high ecological integrity, similar to that expected in reference conditions. | ≥0.6 |
| **B**<br>Macroinvertebrate communities have mild-to-moderate loss of ecological integrity. | <0.6 and ≥0.4 |
| **C**<br>Macroinvertebrate communities have moderate-to-severe loss of ecological integrity. | <0.4 and ≥0.3 |
| **National bottom line** | **0.3** |
| **D**<br>Macroinvertebrate communities have severe loss of ecological integrity. | <0.3 |

ASPM scores to be determined using annual samples taken between December and March (inclusive) with either fixed counts with at least 200 individuals, or full counts, and with current state calculated as the five-year median score. All sites for which the deposited sediment attribute does not apply, whether because they are in river environment classes shown in Table 25 in Appendix 2C or because they require alternate habitat monitoring under clause 3.25, are to use soft-sediment sensitivity scores and taxonomic resolution as defined in table A1.1 in Clapcott et al. 2017. *Macroinvertebrate metrics for the National Policy Statement for Freshwater Management*. Cawthron Institute: Nelson, New Zealand. (*see* clause 1.8)

When normalising scores for the ASPM, use the following minimums and maximums: %EPT-abundance (0-100), EPT-richness (0-29), MCI (0-200) using the method of Kevin J Collier (2008). Average score per metric: An alternative metric aggregation method for assessing wadeable stream health. *New Zealand Journal of Marine and Freshwater Research*, 42:4, 367-378, DOI: 10.1080/00288330809509965. (*see* clause 1.8)

## Table 16 – Deposited fine sediment

| **Value (and component)** | Ecosystem health (Physical habitat) | | | |
|---|---|---|---|---|
| **Freshwater body type** | Wadeable rivers | | | |
| **Attribute unit** | % fine sediment cover | | | |
| **Attribute band and description** | **Numeric attribute state by deposited sediment class** | | | |
| | 1 | 2 | 3 | 4 |
| **A**<br>Minimal impact of deposited fine sediment on instream biota. Ecological communities are similar to those observed in natural reference conditions. | ≤7 | ≤10 | ≤9 | ≤13 |
| **B**<br>Low to moderate impact of deposited fine sediment on instream biota. Abundance of sensitive macroinvertebrate species may be reduced. | >7 and ≤14 | >10 and ≤19 | >9 and ≤18 | >13 and ≤19 |
| **C**<br>Moderate to high impact of deposited fine sediment on instream biota. Sensitive macroinvertebrate species may be lost. | >14 and <21 | >19 and <29 | >18 and <27 | >19 and <27 |
| **National bottom line** | **21** | **29** | **27** | **27** |
| **D**<br>High impact of deposited fine sediment on instream biota. Ecological communities are significantly altered and sensitive fish and macroinvertebrate species are lost or at high risk of being lost. | >21 | >29 | >27 | >27 |

The indicator score is percentage cover of the streambed in a run habitat determined by the instream visual method, SAM2 as defined in p. 17-20 of Clapcott JE, Young RG, Harding JS., Matthaei CD, Quinn JM. and Death RG. 2011. *Sediment Assessment Methods: Protocols and guidelines for assessing the effects of deposited fine sediment on in-stream values*. Cawthron Institute: Nelson, New Zealand. (*see* clause 1.8)

The minimum record length for grading a site is the median of 60 samples taken over 5 years of monthly monitoring, or longer for sites where flow conditions only permit monthly monitoring seasonally.

See Tables 24 and 26 in Appendix 2C for deposited sediment classes and their composition.

This attribute does not apply in river environment classes shown in Table 25 in Appendix 2C, or where clause 3.25 requires freshwater habitat monitoring.

## Table 17 – Dissolved oxygen

| **Value (and component)** | Ecosystem health (Water quality) | |
|---|---|---|
| **Freshwater body type** | Rivers | |
| **Attribute unit** | mg/L (milligrams per litre) | |
| **Attribute description band and description** | **Numeric attribute state** | |
| | **7-day mean minimum** | **1-day minimum** |
| **A**<br>No stress caused by low dissolved oxygen on any aquatic organisms that are present at matched reference (near-pristine) sites. | ≥8.0 | ≥7.5 |
| **B**<br>Occasional minor stress on sensitive organisms caused by short periods (a few hours each day) of lower dissolved oxygen. Risk of reduced abundance of sensitive fish and macroinvertebrate species. | ≥7.0 and <8.0 | ≥5.0 and <7.5 |
| **C**<br>Moderate stress on a number of aquatic organisms caused by dissolved oxygen levels exceeding preference levels for periods of several hours each day. Risk of sensitive fish and macroinvertebrate species being lost. | ≥5.0 and <7.0 | ≥4.0 and <5.0 |
| **National bottom line** | **5.0** | **4.0** |
| **D**<br>Significant, persistent stress on a range of aquatic organisms caused by dissolved oxygen exceeding tolerance levels. Likelihood of local extinctions of keystone species and loss of ecological integrity. | <5.0 | <4.0 |
| The 7-day mean minimum is the mean value of 7 consecutive daily minimum values.<br>The 1-day minimum is the lowest daily minimum across the whole summer period. | | |

## Table 18 – Lake-bottom dissolved oxygen

| **Value (and component)** | Ecosystem health (Water quality) |
|---|---|
| **Freshwater body type** | Lakes |
| **Attribute unit** | mg/L (milligrams per litre) |
| **Attribute description band and description** | **Numeric attribute state** |
| | **Measured or estimated annual minimum** |
| **A**<br>No risk from lake-bottom dissolved oxygen of biogeochemical conditions causing nutrient release from sediments. | ≥7.5 |
| **B**<br>Minimal risk from lake-bottom dissolved oxygen of biogeochemical conditions causing nutrient release from sediments. | ≥2.0 and < 7.5 |
| **C**<br>Risk from lake-bottom dissolved oxygen of biogeochemical conditions causing nutrient release from sediments. | ≥0.5 and < 2.0 |
| **National bottom line** | **0.5** |
| **D**<br>Likelihood from lake-bottom dissolved oxygen of biogeochemical conditions resulting in nutrient release from sediments. | <0.5 |
| To be measured less than 1 metre above sediment surface at the deepest part of the lake using either continuous monitoring sensors or discrete dissolved oxygen profiles. | |

## Table 19 – Mid-hypolimnetic dissolved oxygen

| **Value (and component)** | Ecosystem health (Water quality) |
|---|---|
| **Freshwater body type** | Seasonally stratifying lakes |
| **Attribute unit** | mg/L (milligrams per litre) |
| **Attribute description band and description** | **Numeric attribute state** |
| | **Measured or estimated annual minimum** |
| **A**<br>No stress caused to any fish species by low dissolved oxygen. | ≥7.5 |
| **B**<br>Minor stress on sensitive fish seeking thermal refuge in the hypolimnion. Minor risk of reduced abundance of sensitive fish and macro-invertebrate species. | ≥ 5.0 and <7.5 |
| **C**<br>Moderate stress on sensitive fish seeking thermal refuge in the hypolimnion. Risk of sensitive fish species being lost. | ≥ 4.0 and <5 .0 |
| **National bottom line** | **4.0** |
| **D**<br>Significant stress on a range of fish species seeking thermal refuge in the hypolimnion. Likelihood of local extinctions of fish species and loss of ecological integrity. | < 4.0 |
| To be measured using either continuous monitoring sensors or discrete dissolved oxygen profiles. | |

## Table 20 – Dissolved reactive phosphorus

| **Value (and component)** | Ecosystem health (Water quality) | |
|---|---|---|
| **Freshwater body type** | Rivers | |
| **Attribute unit** | DRP mg/L (milligrams per litre) | |
| **Attribute band and description** | **Numeric attribute state** | |
| | Median | 95th percentile |
| **A**<br>Ecological communities and ecosystem processes are similar to those of natural reference conditions. No adverse effects attributable to dissolved reactive phosphorus (DRP) enrichment are expected. | ≤ 0.006 | ≤ 0.021 |
| **B**<br>Ecological communities are slightly impacted by minor DRP elevation above natural reference conditions. If other conditions also favour eutrophication, sensitive ecosystems may experience additional algal and plant growth, loss of sensitive macroinvertebrate taxa, and higher respiration and decay rates. | > 0.006 and ≤0.010 | > 0.021 and ≤0.030 |
| **C**<br>Ecological communities are impacted by moderate DRP elevation above natural reference conditions. If other conditions also favour eutrophication, DRP enrichment may cause increased algal and plant growth, loss of sensitive macro-invertebrate and fish taxa, and high rates of respiration and decay. | > 0.010 and ≤ 0.018 | > 0.030 and ≤ 0.054 |
| **D**<br>Ecological communities impacted by substantial DRP elevation above natural reference conditions. In combination with other conditions favouring eutrophication, DRP enrichment drives excessive primary production and significant changes in macroinvertebrate and fish communities, as taxa sensitive to hypoxia are lost. | >0.018 | >0.054 |
| Numeric attribute state must be derived from the median of monthly monitoring over 5 years. | | |

## Table 21 – Ecosystem metabolism (both gross primary production and ecosystem respiration)

| | |
|---|---|
| **Value (and component)** | Ecosystem health (Ecosystem processes) |
| **Freshwater body type** | Rivers |
| **Attribute unit** | g $O_2$ $m^{-2}$ $d^{-1}$ (grams of dissolved oxygen per square metre per day) |
| Derived from at least 7 days of continuous dissolved oxygen monitoring to be collected at least once during summer (December to March inclusive), using the method of Young RG, Clapcott JE, Simon K. 2016. Ecosystem functions and stream health. *Advances in New Zealand Freshwater Science*. NZ Freshwater Sciences Society, NZ Hydrological Society. (*see* clause 1.8) | |

## Table 22 – *Escherichia coli* (*E. coli*) (primary contact sites)

| **Value** | Human contact |
|---|---|
| **Freshwater body Type** | Primary contact sites in lakes and rivers (during the bathing season) |
| **Attribute unit** | 95th percentile of *E. coli*/100 mL (number of *E. coli* per hundred millilitres) |
| **Attribute band and description** | **Numeric attribute state** |
| **Excellent**<br>Estimated risk of *Campylobacter* infection has a < 0.1% occurrence, 95% of the time. | ≤ 130 |
| **Good**<br>Estimated risk of *Campylobacter* infection has a 0.1 – 1.0% occurrence, 95% of the time. | > 130 and ≤ 260 |
| **Fair**<br>Estimated risk of *Campylobacter* infection has a 1 – 5% occurrence, 95% of the time. | > 260 and ≤ 540 |
| **National bottom line** | **540** |
| **Poor**<br>Estimated risk of *Campylobacter* infection has a > 5% occurrence, at least 5% of the time. | > 540 |
| The narrative attribute state description assumes “% of time” equals “% of samples”. | |

# Appendix 2C – Sediment classification tables

In this Appendix, **REC groups** refers to the classes and categories described in the New Zealand River Environment Classification User Guide (*see* clause 1.8), except where those REC groups are further clustered according to table 26.

## Table 23 Suspended sediment class composition

| Suspended sediment class | Suspended sediment clustered River Environment Classification groups |
|---|---|
| 1 | CD_Low_HS; WW_Low_VA; WW_Hill_VA; CD_Low_Al; CW_Hill_SS; CW_Mount_SS; CW_Hill_VA; CD_Hill_SS; CD_Hill_VA; CD_Low_VA; CW_Low_VA; CW_Mount_VA; CW_Mount_HS; CD_Mount_Al; CW_Hill_Al; CW_Mount_Al; WD_Low_Al |
| 2 | CD_Low_SS; WW_Low_HS; WW_Low_SS; WW_Hill_HS; WW_Hill_SS; WW_Low_Al; WD_Low_SS; WD_Lake_Any; WD_Low_HS; WD_Low_VA |
| 3 | CW_Hill_HS; CW_Lake_Any; CD_Lake_Any; WW_Lake_Any; CW_Low_HS; CW_Low_Al; CD_Hill_HS; CD_Hill_Al; CD_Mount_HS; CD_Mount_SS; CD_Mount_VA |
| 4 | CW_Low_SS |

## Table 24 – Deposited sediment class composition

| Deposited sediment class | Deposited sediment clustered River Environment Classification groups |
|---|---|
| 1 | WD_Low_HS; WW_Lake_Any |
| 2 | CD_Hill_Al; CD_Low_HS; CD_Low_VA; WW_Low_HS; WW_Low_VA; CD_Hill_SS; CD_Lake_Any; CW_Lake_Any; CW_Low_Al; CD_Hill_HS; CW_Hill_VA; CW_Low_SS; CW_Low_VA |
| 3 | CD_Low_Al; CD_Low_SS; WW_Hill_SS; WW_Low_SS |
| 4 | CD_Hill_VA; CW_Mount_VA; WW_Hill_HS; CW_Mount_SS; CD_Mount_Al; CD_Mount_HS; CD_Mount_SS; CD_Mount_VA; CW_Hill_Al; CW_Hill_HS; CW_Hill_SS; CW_Low_HS; CW_Mount_Al; CW_Mount_HS; WW_Hill_VA |

## Table 25 – Clustered River Environment Classification groups that are naturally soft-bottomed

| |
|---|
| WD_Low_Al; WD_Low_VA; WD_Lake_Any; WD_Low_SS; WW_Low_Al |

## Table 26 – Further clustering of River Environment Classification groups specific to this appendix

| REC variable | REC groups | Clustered REC groups |
|---|---|---|
| Climate | Warm-Wet | Warm-Wet (WW) |
| | Warm-Extremely Wet | |
| | Warm-Dry | Warm-Dry (WD) |
| | Cold-Wet | Cold-Wet (CW) |
| | Cold-Extremely Wet | |
| | Cold-Dry | Cold-Dry (CD) |
| Topography (Source of flow) | Lowland | Lowland (Low) |
| | Lakefed | Lakefed (Lake) |
| | Hill | Hill (Hill) |
| | Mountain | Mountain (Mount) |
| | Glacial Mountain | |
| Geology | Soft Sedimentary | Soft Sedimentary (SS) |
| | Plutonic Volcanic | |
| | Miscellaneous | |
| | Hard Sedimentary | Hard Sedimentary (HS) |
| | Alluvium | Alluvium (Al) |
| | Volcanic Basic | Volcanic (VA) |
| | Volcanic Acidic | |

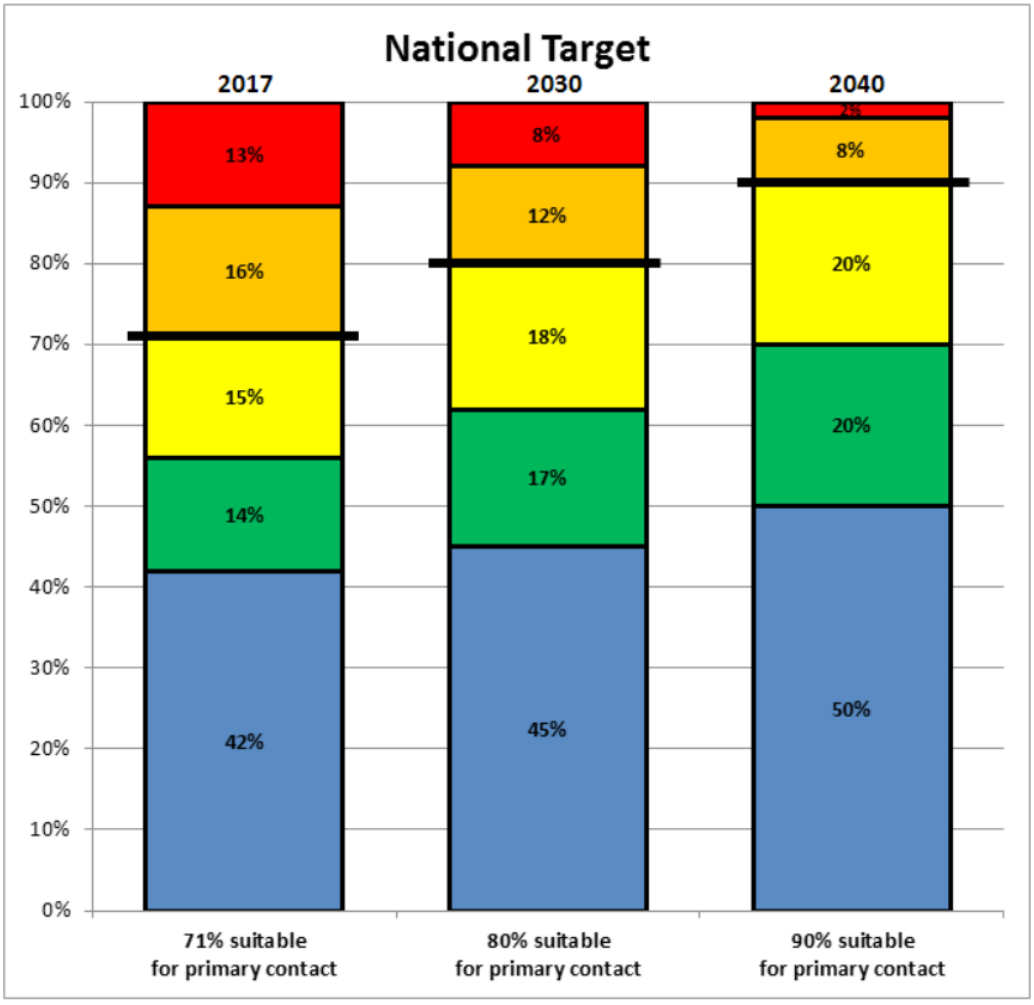
# Appendix 3 – National target for primary contact

The national target is to increase proportions of specified rivers and lakes that are suitable for primary contact (that is, that are in the blue, green and yellow categories) to at least 80% by 2030, and 90% no later than 2040, but also to improve water quality across all categories.

In this Appendix, **specified rivers and lakes** means:

a) rivers that are fourth order or greater, using the methods outlined in the River Environment Classification System, National Institute of Water and Atmospheric Research, Version 1 (*see* clause 1.8); and

b) lakes with a perimeter of 1.5 km or more.




The categories above represent combined improvements in all regions. For each region, this means reducing the length of specified rivers and lakes in the red and orange categories, and increasing the length of specified rivers and lakes in the yellow, green and blue categories.

The categories are based on water quality in terms of the 2 human contact attributes, *E. coli* and *cyanobacteria* (planktonic), in tables 9 and 10 in Appendix 2A.

For rivers and lakes, the target categories are same as the *E. coli* table attribute states. However, the categories do not include the 95th percentile of *E. coli*/100 mL numeric attribute state if there is insufficient monitoring data to establish the 95th percentile.

For lakes, the categories are also based on the cyanobacteria (planktonic) attribute states. However, to provide additional granularity for tracking improvements over time, the D band has been split into 2 categories (orange and red) as follows:

a) **orange** means the lake has between 1.8 and 3.0 $mm^3$/L biovolume of cyanobacteria (planktonic), using an 80th percentile

b) **red** means the lake has more than 3.0 $mm^3$/L biovolume of cyanobacteria (planktonic), using an 80th percentile.

For lakes, the lowest category for either *E. coli* or cyanobacteria (planktonic) applies.

# Appendix 4 – Details for instream structures

## Part 1: Required information

*For all structures*

a) geographical co-ordinates of the structure

b) date and time of survey

c) flow when survey was completed (no flow, low, normal, high, unknown)

d) whether the stream is tidal where structure is located (yes, no, unknown)

e) the width of the river at the water's surface and the width of the bed of the river

f) structure type

g) photos viewed upstream and downstream at both ends of the structure

*For all culverts*

a) number of culvert barrels

b) culvert shape, length, width and height or diameter

c) mean water velocity through the culvert

d) whether low velocity recirculation zones are present (yes, no, unknown)

e) culvert water depth

f) culvert substrate

g) whether wetted margins present in the culvert

h) structure outlet drop height

i) structure outlet undercut length (if applicable)

j) whether add-ons present and add-on type

*For all weirs*

a) weir type

b) weir crest shape

c) weir height

d) weir substrate

e) whether wetted margins present

f) weir slope (degrees)

g) whether add-ons present and add-on type

*For all fords*

a) ford drop height

b) ford substrate

c) whether add-ons present and add-on type

*For all dams*

a) dam height

b) whether spillway present

c) whether add-ons present and add-on type

*For all aprons*

a) apron drop height

b) apron water depth

c) apron substrate type

*For all ramps*

a) ramp surface

b) ramp length

c) ramp slope (degrees)

d) whether wetted margins present on the ramp

*For all flap gates*

a) gate type

b) number of flap gates on the structure

c) whether add-ons present and add-on type

## Part 2: Additional optional information

*For all structures*

a) owner of the structure (NZTA, KiwiRail, Department of Conservation, regional council, territorial authority, private, other, or unknown)

b) asset ID (if known)

c) any fish passage observations (for example, does the structure protect desired species or their habitats)

d) effectiveness of fish passage remediation if fish passage improvement present (for example, rock ramp, artificial ramp, fish passage)

e) risk of structure to fish passage class (if known) (very low, low, medium, high risk, very high risk, not assessed)

*For all culverts*

a) structure slope

b) structure alignment with the stream

c) structure material

d) number of flap gates (if present)

e) flap gate type and material

*For all weirs*

a) weir width

b) backwater distance

c) weir material

*For all fords*

a) ford width

b) ford length

c) ford material

*For all aprons*

a) apron material

b) apron length

c) apron water velocity

*For all flap gates*

a) gate height and width

b) gate material

# Appendix 5 – Specified vegetable growing areas

## Part 1 – Description of specified vegetable growing areas

### Pukekohe specified vegetable growing area:

*Western boundary*

From the point that the Waiuku River meets the Waiuku Stream at NZTM2000 1753472 5876259, up the Waiuku Stream to Waiuku Road to the boundary at NZTM2000 1755854 5875779.

*Southern boundary*

The north bank of the Waikato River, from the end of Crouch Road at NZTM2000 1756420 5868522 to the end of Bluff Road at NZTM2000 1778986 5871955.

*Eastern boundary*

From the arm of the Pahurehure inlet at NZTM2000 1771949 5896064, eastwards along Elliot Street until it becomes Broadway, along Clevedon Road which becomes Papakura-Clevedon Road until the point at which the national grid transmission lines cross the road at NZTM2000 1778853, 5900012. Following in a southward direction the transmission line to the Auckland Council and Waikato Regional Council regional boundary at NZTM2000 1788858, 5882363.

*Northern boundary*

From the mouth of the Waiuku river NZTM2000 1753472 5876259 to the north following the coastline of the Manukau Harbour to the eastern most arm of Pahurehure Inlet at NZTM2000 1771949 5896064.

### Horowhenua specified vegetable growing area:

*Lake Horowhenua (Hoki_1a) Water Management Subzone*

Whole lake catchment above Lake Horowhenua outlet (at approx. NZTM2000 1789400 5502450). From the lake outlet, crossing Moutere Road to the north-west, and as far west as the eastern edge of the Waitarere Forest, and as far north as Waitarere Beach Road. As far east as Gladstone Road, near Gladstone Reserve, crossing Roslyn Road, Denton Road. To the south as far as Tararua Road, and crossing Kimberley Road, Buller Road, Hokio Sand Road, then north to Lake Horowhenua outlet.

*Hoki (Hoki_1b) Water Management Subzone*

Hokio Stream catchment downstream of Lake Horowhenua outlet (approx. NZTM2000 1789400 5502450). Extending north to cross the Moutere Road, north of the bridge that crosses the Hokio Stream, and extending south to south of the landfill off Hokio Beach Road. Excluding the mainstem of the Hokio Stream from the cross-river Coastal Marine Area boundary at NZTM2000 1784949 5504086, at the western end of Muaupoko Street, and seawards.

## Part 2 – Attributes

Attributes for the purpose of clause 3.33:

(a) phytoplankton (Appendix 2A, Table 1)

(b) periphyton (Appendix 2A, Table 2)

(c) total nitrogen (trophic state) (Appendix 2A, Table 3)

(d) ammonia (toxicity) (Appendix 2A, Table 5)

(e) nitrate (toxicity) (Appendix 2A, Table 6)

(f) dissolved oxygen (Appendix 2A, Table 7, Appendix 2B, Tables 17, 18 and 19)

(g) cynobacteria (Appendix 2A, Table 10)

(h) macroinvertebrates (Appendix 2B, Tables 14 and 15)

CB463

Partially Operative

# Otago Regional Policy Statement 2019

**Mō tātou, ā, mō kā uri ā muri ake nei**

**For us and for the generations that come after us**

Amended March 15 2021

Otago Regional Council

ISBN 978-0-908324-52-1

# Partially Operative Otago Regional Policy Statement 2019

## Approval

The Otago Regional Council by resolution dated 24 February 2021, approved and made operative the Partially Operative Otago Regional Policy Statement 2019 contained herein*, pursuant to the powers and authorities vested in it by the First Schedule of the Resource Management Act 1991.

This Partially Operative
Regional Policy Statement
becomes operative
on 15 March 2021.

The common seal of the
Otago Regional Council was
hereto affixed in the presence of:


Andrew Noone
**Chairperson**

**Councillor**

**The following provisions are the subject of court proceedings and are not made operative. Note that some of the following were proposed during mediation, and were not part of the original decisions version of the Regional Policy Statement:*

- *Policy 4.3.7*
- *Method 3.1.6*
- *Method 3.1.10*
- *Method 3.1.18*
- *Method 4.1.3*
- *Method 4.1.22*
- *Method 5.1.2*

# Contents

**Abbreviations**

| | |
|---|---|
| AER | Anticipated Environmental Result |
| ORC | Otago Regional Council |
| RMA | Resource Management Act 1991 |
| RPS | Regional Policy Statement |
| Treaty | Te Tiriti o Waitangi |

# PART A Introduction

## Overview

Continued prosperity and wellbeing is essential to ensuring the community is equipped to face the environmental, economic, cultural and social changes of the 21st century, and to provide opportunities for all people to realise their aspirations. A thriving and healthy natural environment is vital to sustaining our wellbeing.

The RPS is a high level policy framework for the sustainable integrated management of resources, identifying regionally significant issues, the objectives and policies that direct how natural and physical resources are to be managed and setting out how this will be implemented by the region's local authorities.

The RPS gives effect to the RMA and higher order planning documents, and takes into account relevant iwi authority planning documents. Regional and district plans must give effect to the RPS, as illustrated in the Statutory Framework Diagram.

The RPS has been developed to identify the best of the distinct life-style Otago has to offer: outstanding and wild environments, prosperity, abundant recreational opportunities, a sense of rich local history, and community pride. It provides for the values of all resources, people and communities. The RPS guides how these values are to be balanced in the sustainable management of natural and physical resources.

## The Otago Region

Otago is 12% of New Zealand's land area and at about 32,000 $km^2$ is the second largest region in New Zealand. It stretches 480 km along the South Island's eastern coast, from the Waitaki River in the north to The Brothers Point in the south. It reaches inland to the alpine lakes Wakatipu, Wanaka and Hawea, encompassing the Clutha Mata-au, and Taieri catchments.

Otago covers a wide range of geography and ecosystems: tussock and tor covered block mountains and dry inland basins, glacial lakes and their mountain settings, broad grassy valleys fringed with beech forests extending well into the Southern Alps and dramatic coastlines around the Otago Peninsula and the Catlins. The vegetation is similarly diverse, from the lowland podocarp forests of the Catlins, through the dry grassland ecosystems of Central Otago to the high rainfall beech and alpine areas of Mount Aspiring/Tititea National Park.

Human activity has left its mark on the landscape. Māori archaeological sites, hydro lakes, tailings and bridges from the gold rush era, pastoral landscapes, and historical architecture all provide evidence of long, rich and varied human occupation.

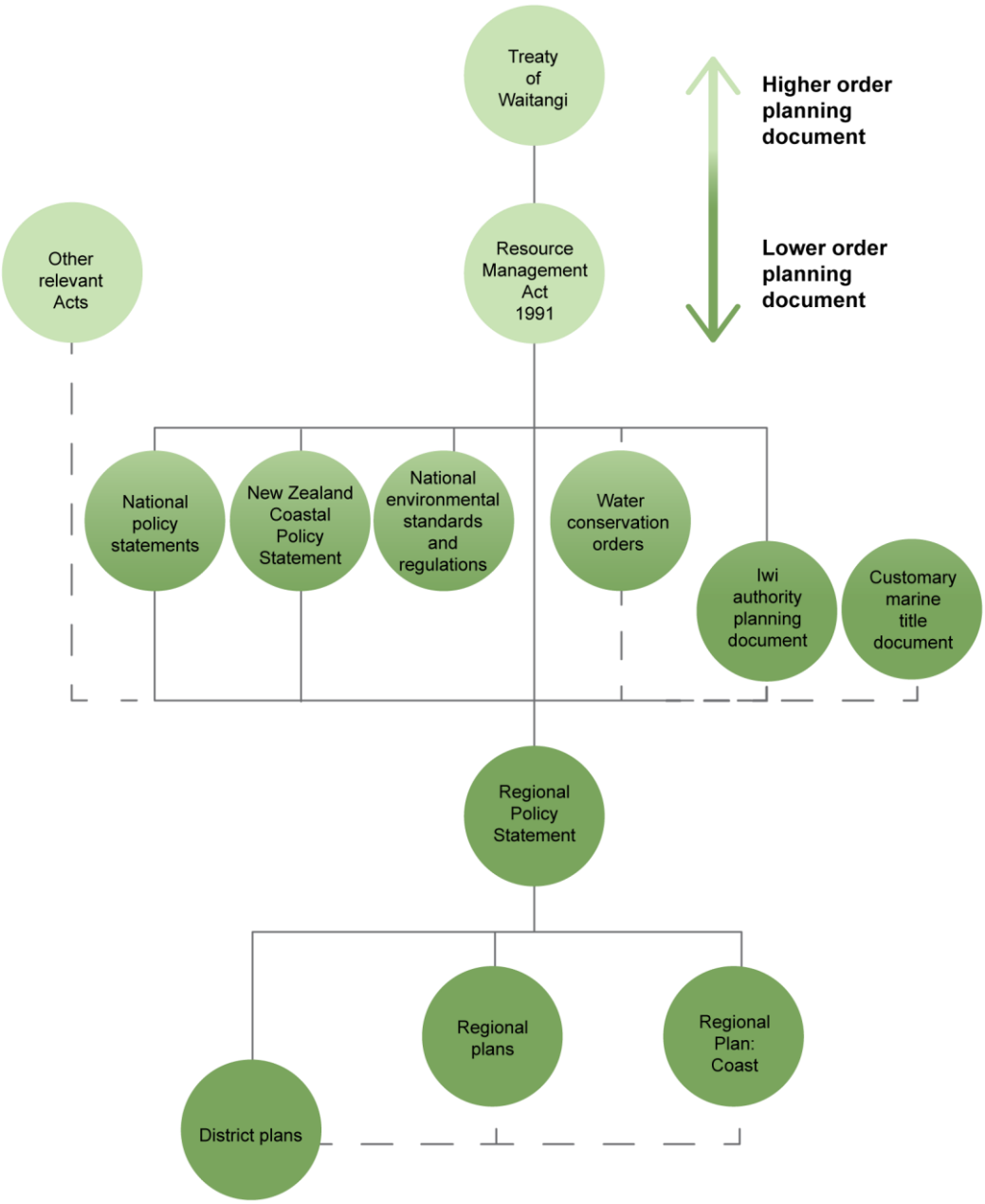
Introduced species have become a valued part of the environment in some cases, and troublesome pests in others.

Agriculture is the basis of Otago's economic development and continues to be a major source of revenue, as does mining for gold and other minerals and education. Tourism now provides more

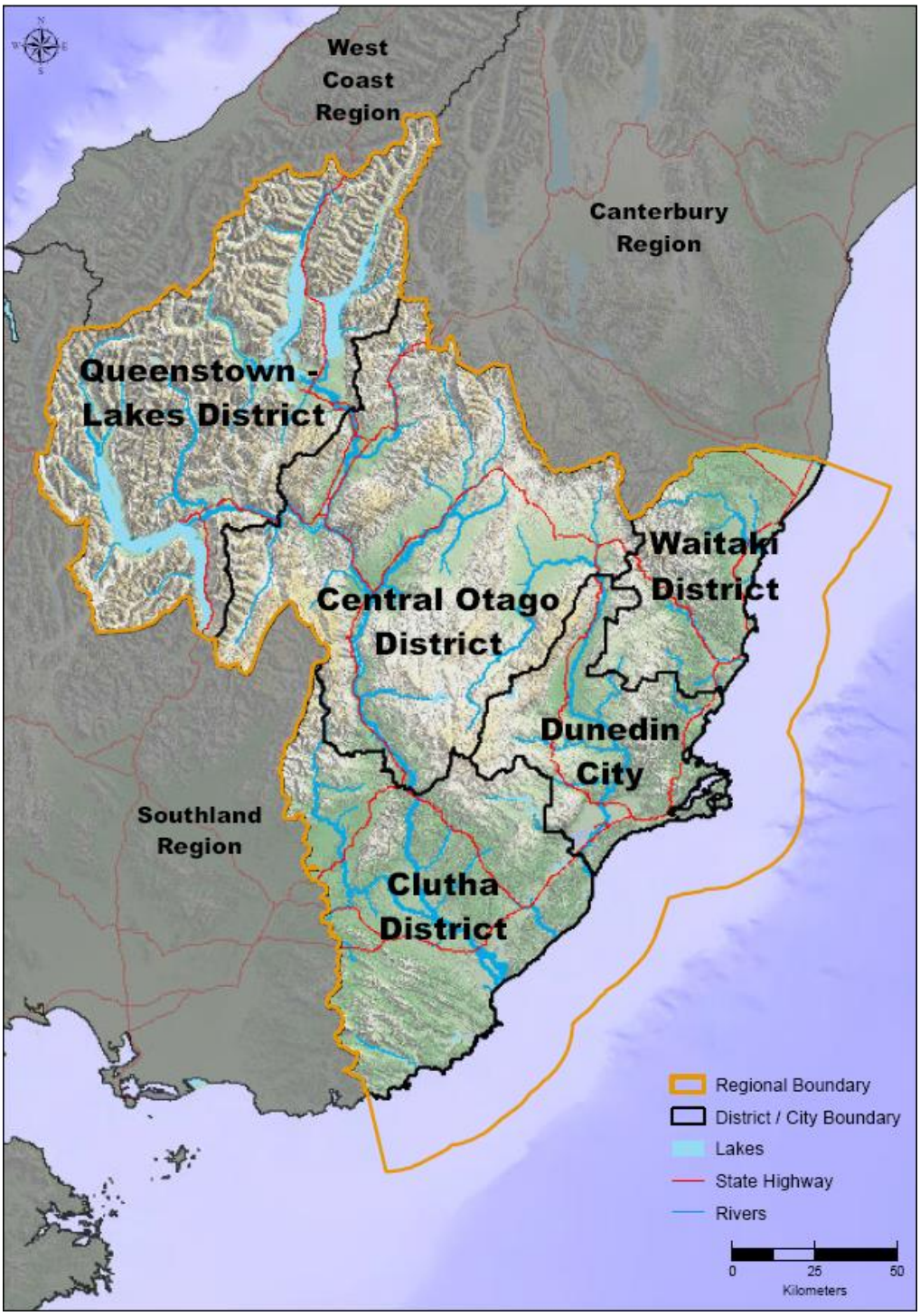
than a quarter of Otago's Gross Domestic Product which is the highest proportion for any region in New Zealand.

At the 2013 census, Otago's population of 202,467 was the seventh largest of New Zealand's 16 regions and is about 4.8% of New Zealand's total population. The Queenstown Lakes District was the second fastest growing territorial authority area in New Zealand.

## Statutory Framework Diagram



## Map of Otago




Otago comprises five territorial authorities: Dunedin City Council, and Clutha, Central Otago, Queenstown Lakes and Waitaki District Councils. Waitaki District straddles both the Otago and Canterbury regions. The region includes the coastal environment offshore to 12 nautical miles.

## Kāi Tahu[1] – The Treaty Partner

Te Tiriti o Waitangi, the Treaty of Waitangi, is the founding document for New Zealand, the basis upon which the partnership between Māori and the Crown was established. The Kāi Tahu rakatira Karetai and Korako signed the Treaty at Pukekura, Taiaroa Head, on 13 June 1840. The Treaty was also signed by Kāi Tahu at Akaroa, Ruapuke and Cloudy Bay. Kāi Tahu considered that the Treaty bound the tribe and the Crown irrevocably to a mutual agreement which imposed responsibilities on both signatories.

### Principles of the Treaty

In drafting legislation, Parliament has chosen to refer to the principles of the Treaty, rather than its explicit terms. The principles of the Treaty, as enunciated by the Waitangi Tribunal and the courts, include:

- The principle of tribal rakatirataka/self-regulation. Recognising the right of Kāi Tahu to manage resources and exercise kaitiakitaka over their ancestral lands, waters, and other taoka.
- The principle of partnership. Mutual obligations to act reasonably and in good faith.
- The principle of active participation in decision making.
- The principle of active protection of Kāi Tahu interests.
- The principle of development. The Treaty principles are not confined to customary uses or the state of knowledge as at 1840 but are to be adapted to modern, changing circumstances.

There are two versions of the Treaty of Waitangi, the English version and the Māori version. See Appendix 2. The Māori language text, as the version signed by the Kāi Tahu rakatira, should prevail if there is ambiguity.

### Partnership

The ORC has an established relationship with Kāi Tahu based on the Treaty partnership. Kāi Tahu values the relationship with the ORC and is committed to working with the wider community towards a positive future for all people. Partnership between the ORC and Kāi Tahu embodies the principles of the Treaty of Waitangi in decision making and local environmental management.

### Expression of Te Tiriti o Waitangi

The RPS has been developed in consultation with Kāi Tahu. It identifies the matters that have the potential to affect cultural values and wellbeing, and enables Kāi Tahu to participate in resource management processes.

Matters of particular interest to Kāi Tahu include:

[1] In the south of the South Island, the local Māori dialect uses a 'k' interchangeably with 'ng'. The preference is to use a ‘k’ so southern Māori are known as Kāi Tahu, rather than Ngāi Tahu. In this document, the “ng” is used for the iwi in general, and the “k” for southern Māori in particular. See the glossary for a complete definition.

- Recognising the rights and interests of Kāi Tahu to be involved in natural and resource management processes.
- Identifying and protecting important natural and physical resources, including the coast, waterways, lakes, wetlands and indigenous flora and fauna.
- Protecting traditional food gathering sites from any use or development which may threaten the values of these areas.
- Protecting mahika kai and restoring access to mahika kai areas;
- Protecting wāhi tūpuna and urupā.
- Enabling development of land and resources within native reserves, including papakāika housing.

## Kāi Tahu

Kāi Tahu are takata whenua of the Otago region. Waitaha were the first people of Te Waipounamu, the South Island. Led by Rākaihautū, they explored and settled Te Waipounamu, and their exploits are reflected in enduring place names and histories across the motu. Waitaha were followed by the arrival of Kāti Māmoe and finally Kāi Tahu. Through warfare, intermarriage and political alliances a common allegiance to Kāi Tahu was forged. Kāi Tahu means the 'people of Tahu', linking them by name to their common ancestor Tahu Pōtiki.

The Kāi Tahu tribal area extends from the sub Antarctic islands in the south to Te Parinuiowhiti (White Cliffs, Blenheim) in the north and to Kahurangi Point on Te Tai o Poutini (the West Coast).

Te Rūnanga o Ngāi Tahu (the iwi authority) is made up of 18 papatipu rūnaka, of which four are in Otago.

Located predominantly in traditional coastal settlements, papatipu rūnaka are a focus for whānau and hapū (extended family groups) who have takata whenua status within their area. Takata whenua hold traditional customary authority and maintain contemporary relationships within an area determined by whakapapa (genealogical ties), resource use and ahi-kā-roa (the long burning fires of occupation).

Te Rūnanga o Ngāi Tahu encourages consultation with the papatipu rūnaka and takes into account the views of nga rūnaka when determining its own position. The four Otago rūnaka are Te Rūnanga o Moeraki, Kati Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Otakou, and Hokonui Rūnanga.

The interests of these rūnaka are given in more detail in Schedule 1B. They share an interest in South Otago and the inland lakes and mountains with the Southland papatipu rimaka.

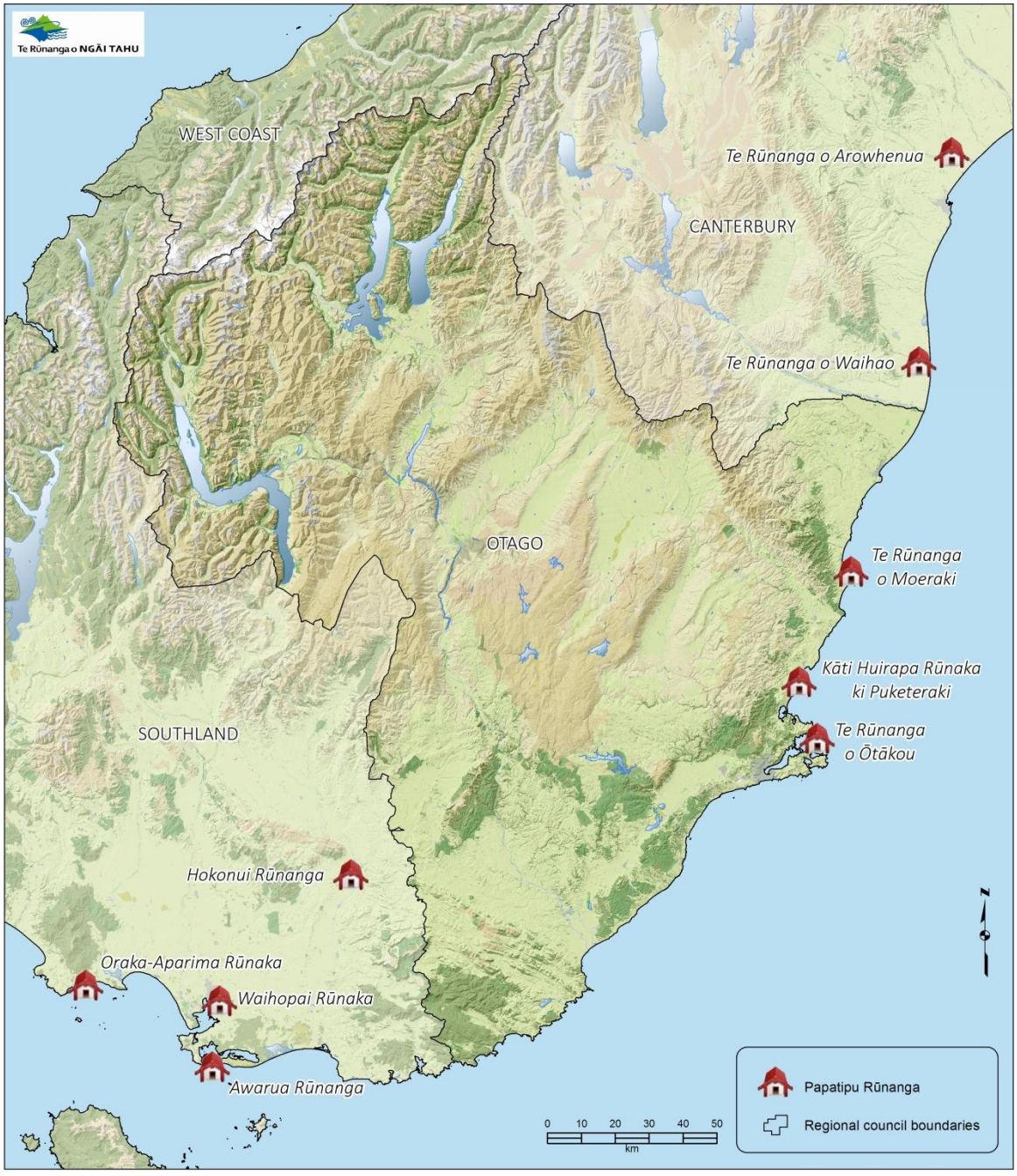
The areas of shared interest originate from the seasonal hunting and gathering economy that was a distinctive feature of the southern Kāi Tahu lifestyle. Seasonal mobility was an important means by which hāpu and whānau maintained customary rights to the resources of the interior and ahi kā.

Otago is also home to Māori from other iwi, hapū, and mātāwaka. The Araiteuru marae in Dunedin and Te Whare Koa in Oamaru are important pan-tribal cultural centres for mātāwaka and sit within the manaakitanga of takata whenua.

In 1998, the Ngāi Tahu Claims Settlement Act 1998 was enacted to settle historical Ngāi Tahu claims against the Crown. This Act identifies some taoka species, establishes tōpuni, statutory acknowledgements, dual place names and nohoaka sites. These recognise the special association of Ngāi Tahu with these areas and resources and assist with Ngāi Tahu participation in processes under the Resource Management Act 1991 and the Local Government Act 2002.

The papatipu rūnaka consultancy services, Kāi Tahu Ki Otago Ltd, representing the Otago rūnaka, and Te Ao Marama Inc, representing the Southland rūnaka, provide a first point of contact and facilitate Kāi Tahu engagement in resource management processes.

## Mana whenua in Otago

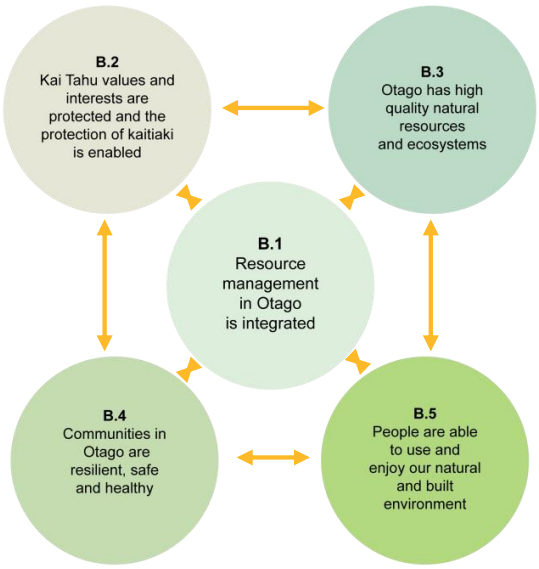


## RPS Framework

### Part A: Introduction

- Overview
- The Otago Region
- Kāi Tahu – The Treaty Partner
- RPS Framework

### Part B: Objectives and Policies




Each chapter is ordered as follows:

- Introduction
  - Objective
    - Related issue
    - Policies
    - Methods
    - Principal Reasons and Explanations

### Part C: Implementation

- Roles and responsibilities
- Methods
- Anticipated Environmental Results

### Part D: Schedules and Appendices

- Schedules 1 – 6
- Appendix
- Glossary
- User Index

Five outcomes are sought in managing the region's natural and physical resources.

All provisions of the RPS must be considered together. The outcomes inter-relate, and no hierarchy exists between them.

These outcomes provide the framework for sustainable, integrated management of resource use for us and for the generations that come after us - *Mō tātou, ā, mō kā uri ā muri ake nei.*

These outcomes form the chapters of Part B, which contain the inter-related objectives and policies. The focus of each chapter is outlined below.

## Part A: Introduction

This explains the RPS context and purpose.

## Part B: Objectives and Policies

The five outcomes form the chapter headings of Part B: Objectives and Policies.

Objectives and policies are set out under each chapter, together with the relevant regionally significant issues being addressed and general implementation methods. Schedules provide further detail for specific policies.

The five outcomes are:

1. Resource management in Otago is integrated
2. Kāi Tahu values, and interests are recognised and kaitiakitaka is expressed
3. Otago has high quality natural resources and ecosystems
4. Communities in Otago are resilient, safe and healthy
5. People are able to use and enjoy our natural and built environment

## Part C: Implementation

Part C: Implementation details the methods and procedures that will be used by local authorities to give effect to the objectives and policies of the RPS. This includes identifying the division of roles and responsibilities under the RMA, as well as monitoring, reporting and other methods to achieve the objectives of the RPS.

This section also contains the anticipated environmental results from implementing the RPS policies and methods.

## Part D: Schedules and Appendices

The schedules provide additional detail supporting RPS policies. The Appendix provides the wording of Te Tiriti o Waitangi in Te Reo and English. A glossary and user index are provided for ease of use.

# PART B Chapter 1 Resource management in Otago is integrated

This first chapter recognises that the different parts of the natural and physical environment are interconnected. The integrated management of natural and physical resources and human values is essential to safeguard the life-supporting capacity of the environment and enable the social, cultural, and economic wellbeing of all people and communities.

## Chapter overview:

## Objective 1.1 Otago's resources are used sustainably to promote economic, social, and cultural wellbeing for its people and communities

## Issue

The social and economic wellbeing of Otago's communities depends on use and development of natural and physical resources.

Loss or degradation of resources can diminish their intrinsic values and constrains opportunities for use and development now and into the future.

Some of Otago's resources are nationally or regionally important for their natural values and economic potential and so warrant careful management.

**Policy 1.1.1 Economic wellbeing**

Provide for the economic wellbeing of Otago's people and communities by enabling the resilient and sustainable use and development of natural and physical resources.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Policy 1.1.2 Social and cultural wellbeing and health and safety**

Provide for the social and cultural wellbeing and health and safety of Otago's people and communities when undertaking the subdivision, use, development and protection of natural and physical resources by all of the following:

a) Recognising and providing for Kāi Tahu values;
b) Taking into account the values of other cultures;
c) Taking into account the diverse needs of Otago's people and communities;
d) Avoiding significant adverse effects of activities on human health;
e) Promoting community resilience and the need to secure resources for the reasonable needs for human wellbeing;
f) Promoting good quality and accessible infrastructure and public services.

**Method 1:** **Kāi Tahu Relationships**
Method 1.1, Method 1.2

**Method 2:** **Regional, City and District Council Relationships**

Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2 g

## Principal Reasons and Explanation

Sustainable management under the RMA includes enabling social, economic and cultural wellbeing for present and future generations. Resource management decisions need to recognise that individual and community wellbeing depends on use, development and protection of natural and physical resources.

## Objective 1.2 Recognise and provide for the integrated management of natural and physical resources to support the wellbeing of people and communities in Otago

### Issue:

Natural and physical resources are interconnected, complex and should be managed in an integrated, sustainable, consistent and effective way because the use of one resource may adversely affect another. Inefficient and ineffective responses or unexpected adverse effects can occur when activities affecting a resource are undertaken by different resource users, governed by different legislation, or administered by different local authorities. Plans need to address diverse and conflicting interests.

**Policy 1.2.1 Integrated resource management**

Achieve integrated management of Otago's natural and physical resources, by all of the following:

a) Coordinating the management of interconnected natural and physical resources;
b) Taking into account the impacts of management of one natural or physical resource on the values of another, or on the environment;
c) Recognising that the value and function of a natural or physical resource may extend beyond the immediate, or directly adjacent, area of interest;
d) Ensuring that resource management approaches across administrative boundaries are consistent and complementary;
e) Ensuring that effects of activities on the whole of a natural or physical resource are considered when that resource is managed as subunits.
f) Managing adverse effects of activities to give effect to the objectives and policies of the Regional Policy Statement.
g) Promoting healthy ecosystems and ecosystem services;
h) Promoting methods that reduce or negate the risk of exceeding sustainable resource limits.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Method 9:** **Advocacy and Facilitation**
Method 9.2

## Principal Reasons and Explanation:

The RMA requires that resources are managed in an integrated way.

The management of natural and physical resources needs to be integrated to ensure that resource management decisions are consistent, take account of the linkages between all parts of the environment and recognise and provide for the diversity of different interests and values associated with resources.

# PART B Chapter 2 Kāi Tahu values and interests are recognised and kaitiakitaka is expressed

*He taura whiri kotahi mai anō te kopunga tai nō ī te pu au*

"From the source to the mouth of the sea, all things are joined together as one".

Te Tiriti o Waitangi establishes a partnership between Kāi Tahu and the Crown. The RMA requires that the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taonga, is recognised and provided for and that the principles of the Treaty of Waitangi are taken into account. In the spirit of this partnership, and the Treaty principles, the RPS seeks to create the terms for engaging with Kāi Tahu closely in resource management.

This chapter incorporates the principles of Te Tiriti o Waitangi and sets out general considerations for the incorporation of Kāi Tahu values and interests into resource management planning, consenting, and implementation processes. Kāi Tahu themes are integrated throughout this document, and this chapter serves to tie these strands together. It reflects the Kāi Tahu philosophy of holistic resource management, ki uta ki tai – "from the mountains to the sea".

## Chapter overview:

# Objective 2.1 The principles of Te Tiriti o Waitangi are taken into account in resource management processes and decisions

## Issue:

The principles of Te Tiriti o Waitangi are broad concepts that need further exploration when applied to specific circumstances.

Effective planning tools and processes are required to give effect to the Treaty relationship between Kāi Tahu and local authorities in accordance with Part 2 of the RMA

### Policy 2.1.1 Treaty obligations

Promote awareness and understanding of the obligations of local authorities in regard to the principles of Te Tiriti o Waitangi, tikaka Māori and kaupapa Māori.

**Method 1:** **Kāi Tahu Relationships**
Method 1.1, Method 1.2, Method 1.3, Method 1.4

### Policy 2.1.2 Treaty principles

Ensure that local authorities exercise their functions and powers, by:

a) Recognising Kāi Tahu's status as a Treaty partner; and
b) Involving Kāi Tahu in resource management processes implementation;
c) Taking into account Kāi Tahu values in resource management decision-making processes and implementation;
d) Recognising and providing for the relationship of Kāi Tahu's culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taoka;
e) Ensuring Kāi Tahu have the ability to:
    i. Identify their relationship with their ancestral lands, water, sites, wāhi tapu, and other taoka;
    ii. Determine how best to express that relationship;
f) Having particular regard to the exercise of kaitiakitaka;
g) Ensuring that district and regional plans:
    i. Give effect to the Ngāi Tahu Claims Settlement Act 1998;
    ii. Recognise and provide for statutory acknowledgement areas in Schedule 2;
    iii. Provide for other areas in Otago that are recognised as significant to Kāi Tahu;
h) Taking into account iwi management plans.

**Method 1:** **Kāi Tahu Relationships**
Method 1.1, Method 1.2, Method 1.3, Method 1.4

**Method 2:** **Regional, City and District Council Relationships**
Method 2.2.4

**Method 3:** **Regional Plans**
Method 3.1.1, Method 3.1.2

**Method 4:** **City and District Plans**
Method 4.1.11, Method 4.1.12, Method 4.1.14, Method 4.2.3, Method 4.2.5, Method 4.2.9

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.4

**Method 8:** **Funding**
Method 8.1

## Principal Reasons and Explanation:

Te Tiriti o Waitangi creates a special relationship between takata whenua and the Crown. The RMA requires local authorities to take the principles of Te Tiriti o Waitangi into account, with particular regard to kaitiakitaka.

Local authorities need to incorporate these principles into their decision making to ensure they are properly applied, and to account for the effects of resource management decisions on Kāi Tahu values, including those described in iwi resource management plans.

Section 8 of the RMA requires local authorities to take into account the principles of Te Tiriti o Waitangi. Deliberate measures need to be taken to ensure the principles are properly understood and taken into account. The principles are broadly expressed, so a measure of flexibility is needed.

In particular exercising kaitiakitaka requires the ability to participate in resource management processes and implementation.

A partnership approach which involves Kāi Tahu and considers their values and interests in decision making processes, enables the principles, including kaitiakitaka, to be taken into account in an appropriately flexible way.

# Objective 2.2 Kāi Tahu values, interests and customary resources are recognised and provided for

## Issue:

The mauri and wairua of some places, sites, resources and the values of cultural, spiritual or historic significance to Kāi Tahu have often been destroyed or degraded.

In some instances it has been difficult for Kāi Tahu to use and develop Māori land for the purposes for which it was originally granted.

### Policy 2.2.1 Kāi Tahu wellbeing

Manage the natural environment to support Kāi Tahu wellbeing by all of the following:

a) Recognising and providing for their customary uses and cultural values in Schedules 1A and B; and,

b) Safeguarding the life-supporting capacity of natural resources.

**Method 1:** **Kāi Tahu Relationships**
Method 1.1, Method 1.2, Method 1.3, Method 1.4

**Method 2:** **Regional, City and District Council Relationships**
Method 2.2.4

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1, Method 4.2

### Policy 2.2.2 Recognising sites of cultural significance

Recognise and provide for the protection of wāhi tūpuna, by all of the following:

a) Avoiding significant adverse effects on those values that contribute to the identified wāhi tūpuna being significant;

b) Avoiding, remedying, or mitigating other adverse effects on the identified wāhi tūpuna;

c) Managing the identified wāhi tūpuna sites in a culturally appropriate manner.

**Method 1:** **Kāi Tahu Relationships**
Method 1.1, Method 1.2, Method 1.2.1, Method 1.3, Method 1.4

**Method 2:** **Regional, City and District Council Relationships**
Method 2.2.4, Method 2.2.2

**Method 3:** **Regional Plans**

Method 3.1

**Method 4:** **City and District Plans**
Method 4.1, Method 4.2

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.4

**Policy 2.2.3 Wāhi tūpuna and associated sites**

Enable Kāi Tahu relationships with wāhi tūpuna by all of the following:

a) Recognising that relationships between sites of cultural significance are an important element of wāhi tūpuna;
b) Recognising and using traditional place names.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.2.4

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1, Method 4.2

**Method 9:** **Advocacy and Facilitation**
Method 9.2.8 b.

**Policy 2.2.4 Sustainable use of Māori land**

Enable Kāi Tahu to protect, develop and use land and resources within native reserves in a way consistent with their culture and traditions and economic, cultural and social aspirations, including for papakāika, marae and marae related activities, while:

a) Avoiding adverse effects on the health and safety of people; and
b) Avoiding significant adverse effects on matters of national importance; and
c) Avoiding, remedying or mitigating other adverse effects.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.12

## Principal Reasons and Explanation:

In managing natural and physical resources, local authorities need to recognise Kāi Tahu values, take into account Kāi Tahu plans, and the exercise of their customary rights.

Kāi Tahu's traditions, culture and practices are intricately linked with their ancestral lands, water, sites, wāhi tapu, and other taoka. The RMA requires that these values are recognised and provided for as a matter of national importance.

The exercise of kaitiakitaka requires a healthy, functioning natural environment, and recognition of values and sites of significance.

# PART B Chapter 3 Otago has high quality natural resources and ecosystems

People and communities need to sustainably manage the environment. Safeguarding the life-supporting capacity of natural resources and recognising the intrinsic values of ecosystems are essential to provide for the current and future wellbeing of people and communities.

The economy, particularly primary production, tourism, and mineral and petroleum exploration and extraction, strongly relies on the quantity and quality of natural resources and the ecosystem services they provide.

This chapter begins with the recognition and maintenance of all natural resources. The second part focuses on the identification, protection, and enhancement of natural resources that are nationally or regionally important. This chapter is not concerned with sustaining mineral resources for future generations.

## Chapter overview:

# Objective 3.1 The values (including intrinsic values) of ecosystems and natural resources are recognised and maintained, or enhanced where degraded

## Issue:

Degradation of natural values and natural systems compromises the life-supporting capacity of the environment, the intrinsic values of ecosystems and the ecosystem services they provide.

Knowledge of these systems and their interdependencies is often imperfect.

Cumulative effects of human activities on the natural environment may be difficult to pinpoint initially but over time can result in serious damage.

### Policy 3.1.1 Fresh water

Safeguard the life-supporting capacity of fresh water and manage fresh water to:

a) Maintain good quality water and enhance water quality where it is degraded, including for:
   i. Important recreation values, including contact recreation; and,
   ii. Existing drinking and stock water supplies;

b) Maintain or enhance aquatic:
   i. Ecosystem health;
   ii. Indigenous habitats; and,
   iii. Indigenous species and their migratory patterns.

c) Avoid aquifer compaction and seawater intrusion;

d) Maintain or enhance, as far as practicable:
   i. Natural functioning of rivers, lakes, and wetlands, their riparian margins, and aquifers;
   ii. Coastal values supported by fresh water;
   iii. The habitat of trout and salmon unless detrimental to indigenous biological diversity; and
   iv. Amenity and landscape values of rivers, lakes, and wetlands;

e) Control the adverse effects of pest species, prevent their introduction and reduce their spread;

f) Avoid, remedy or mitigate the adverse effects of natural hazards, including flooding and erosion; and,

g) Avoid, remedy or mitigate adverse effects on existing infrastructure that is reliant on fresh water.

**Method 3:** **Regional Plans**
Method 3.1.3

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.1

**Method 6: Non RMA Strategies and Plans**
Method 6.7

**Policy 3.1.2 Beds of rivers, lakes, wetlands, and their margins**

Manage the beds of rivers, lakes, wetlands, their margins, and riparian vegetation to:

a) Safeguard the life supporting capacity of fresh water;
b) Maintain good quality water, or enhance it where it has been degraded;
c) Maintain or enhance bank stability;
d) Maintain or enhance ecosystem health and indigenous biological diversity;
e) Maintain or enhance, as far as practicable:
    i. Their natural functioning and character; and
    ii. Amenity values;
f) Control the adverse effects of pest species, prevent their introduction and reduce their spread; and,
g) Avoid, remedy or mitigate the adverse effects of natural hazards, including flooding and erosion.

**Method 3: Regional Plans**
Method 3.1.3, Method 3.1.14

**Method 4: City and District Plans**
Method 4.1.4, Method 4.1.15

**Method 6: Non RMA Strategies and Plans**
Method 6.7

**Policy 3.1.3 Water allocation and use**

Manage the allocation and use of fresh water by undertaking all of the following:

a) Recognising and providing for the social and economic benefits of sustainable water use;
b) Avoiding over-allocation, and phasing out existing over-allocation, resulting from takes and discharges;
c) Ensuring the efficient allocation and use of water by:
    i. Requiring that the water allocated does not exceed what is necessary for its efficient use;
    ii. Encouraging the development or upgrade of infrastructure that increases efficiency;
    iii. Providing for temporary dewatering activities necessary for construction or maintenance.

**Method 3: Regional Plans**
Method 3.1

**Method 9: Advocacy and Facilitation**
Method 9.2.8

**Policy 3.1.4 Water shortage**

Manage for water shortage by undertaking all of the following:

a) Encouraging land management that improves moisture capture, infiltration, and soil moisture holding capacity.

b Encouraging collective coordination and rationing of the take and use of water when river flows or aquifer levels are lowering, to avoid breaching any minimum flow or aquifer level restriction to optimise use of water available for taking;

c Providing for water harvesting and storage, subject to allocation limits and flow management, to reduce demand on water bodies during periods of low flows.

**Method 3: Regional Plans**
Method 3.1

**Method 9: Advocacy and Facilitation**
Method 9.2.7

**Policy 3.1.5 Coastal water**

Manage coastal water to:

a) Maintain coastal water quality or enhance it where it has been degraded;

b) Maintain healthy coastal ecosystems, the range of indigenous habitats provided by the coastal marine area, and the migratory patterns of indigenous coastal water species or enhance these values where they have been degraded;

c) Maintain or enhance important recreation values;

d) Maintain or enhance, as far as practicable:
   i. Coastal values; and
   ii. The habitats provided by the coastal marine area for trout and salmon unless detrimental to indigenous biological diversity.

e) Control the adverse effects of pest species, prevent their introduction and reduce their spread.

**Method 3: Regional Plans**
Method 3.1.3

**Method 5: Research, Monitoring and Reporting**
Method 5.2.1, Method 5.2.2

**Method 9: Advocacy and Facilitation**
Method 9.2.3, Method 9.2.5

**Policy 3.1.6 Air quality**

Manage air quality to achieve the following:

a) Maintain good ambient air quality that supports human health, or enhance air quality where it has been degraded;

b) Maintain or enhance amenity values.

**Method 3: Regional Plans**
Method 3.1.9

**Method 5: Research, Monitoring and Reporting**
Method 5.2.1c, Method 5.2.3b.

**Method 6: Non RMA Strategies and Plans**
Method 6.2

**Method 7: Education and Information**
Method 7.1.2 g.

**Policy 3.1.7 Soil values**

Safeguard the life-supporting capacity of soil and manage soil to:

a) Maintain or enhance as far as practicable
   i. Soil biological diversity;
   ii. Biological activity in soils;
   iii. Soil function in the storage and cycling of water, nutrients, and other elements through the biosphere;
   iv. Soil function as a buffer or filter for contaminants resulting from human activities, including aquifers at risk of leachate contamination;
   v. Soil fertility where soil is used for primary production;

b) Where a) is not practicable, minimise adverse effects;

c) Recognise that urban and infrastructure development may result in loss of soil values.

d) Control the adverse effects of pest species, prevent their introduction and reduce their spread;

e) Retain the soil mantle where it acts as a repository of historic heritage objects unless an archaeological authority has been obtained.

**Method 3: Regional Plans**
Method 3.1.4

**Method 4: City and District Plans**
Method 4.1.5, Method 4.1.6

**Method 5: Research, Monitoring and Reporting**
Method 5.2.1

**Method 7: Education and Information**
Method 7.1.2f.

**Policy 3.1.8 Soil erosion**

Minimise soil erosion resulting from activities, by undertaking all of the following:

a) Using appropriate erosion controls and soil conservation methods;
b) Maintaining vegetative cover on erosion prone land;
c) Remediating land where significant soil erosion has occurred;
d) Encouraging activities that enhance soil retention.

**Method 4: City and District Plans**
Method 4.1.5

**Method 5: Research, Monitoring and Reporting**
Method 5.2.1, Method 5.2.2

**Method 7: Education and Information**
Method 7.1.2

**Method 9: Advocacy and Facilitation**
Method 9.2.2

**Policy 3.1.9 Ecosystems and indigenous biological diversity**

Manage ecosystems and indigenous biological diversity in terrestrial, freshwater and marine environments to:

a) Maintain or enhance:
   i. Ecosystem health and indigenous biological diversity including habitats of indigenous fauna;
   ii. Biological diversity where the presence of exotic flora and fauna supports indigenous biological diversity;
b) Maintain or enhance as far as practicable:
   i. Areas of predominantly indigenous vegetation;
   ii. Habitats of trout and salmon unless detrimental to indigenous biological diversity;
   iii. Areas buffering or linking ecosystems;
c) Recognise and provide for:
   i. Hydrological services, including the services provided by tall tussock grassland;
   ii. Natural resources and processes that support indigenous biological diversity;
d) Control the adverse effects of pest species, prevent their introduction and reduce their spread.

**Method 3: Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.4

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.1

**Method 6:** **Non RMA Strategies and Plans**
Method 6.4

**Method 7:** **Education and Information**
Method 7.1

**Method 9:** **Advocacy and Facilitation**
Method 9.2

**Policy 3.1.10 Biodiversity in the coastal environment**

Avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on:

a) Areas of predominantly indigenous vegetation in the coastal environment;
b) Habitats in the coastal environment that are important during the vulnerable life stages of indigenous species;
c) Indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass and saltmarsh;
d) Habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes;
e) Habitats, including areas and routes, important to migratory species; and
f) Ecological corridors, and areas important for linking or maintaining biological values identified under this policy.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.4

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.1

**Method 6:** **Non RMA Strategies and Plans**
Method 6.4

**Method 7:** **Education and Information**
Method 7.1

**Method 9: Advocacy and Facilitation**
Method 9.2

### Policy 3.1.11 Natural features, landscapes, and seascapes

Recognise the values of natural features, landscapes and seascapes are derived from the biophysical, sensory and associative attributes in Schedule 3.

**Method 1: Kāi Tahu Relationships**
Method 1.2

**Method 3: Regional Plans**
Method 3.1

**Method 4: City and District Plans**
Method 4.2.2

**Method 5: Research, Monitoring and Reporting**
Method 5.1.2

### Policy 3.1.12 Natural character in the coastal environment

Recognise the values of natural character in the coastal environment are derived from one or more of the following attributes:

a) Natural elements, processes and patterns;
b) Biophysical, ecological, geological and geomorphological aspects;
c) Natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, estuaries, reefs, freshwater springs and surf breaks;
d) The natural movement of water and sediment;
e) The natural darkness of the night sky;
f) Places or areas that are wild or scenic;
g) A range of natural character from pristine to modified;
h) Experiential attributes, including the sounds and smell of the sea; and their context or setting.

**Method 3: Regional Plans**
Method 3.1.6

**Method 4: City and District Plans**
Method 4.1

**Method 5: Research, Monitoring and Reporting**
Method 5.1.2

**Policy 3.1.13 Environmental enhancement**

Encourage, facilitate and support activities that contribute to the resilience and enhancement of the natural environment, by where applicable:

a) Improving water quality and quantity;
b) Protecting or restoring habitat for indigenous species;
c) Regenerating indigenous species;
d) Mitigating natural hazards;
e) Protecting or restoring wetlands;
f) Improving the health and resilience of:
    i. Ecosystems supporting indigenous biological diversity;
    ii. Important ecosystem services, including pollination;
g) Improving access to rivers, lakes, wetlands and their margins, and the coast;
h) Buffering or linking ecosystems, habitats and areas of significance that contribute to ecological corridors;
i) Controlling pest species.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Method 6:** **Non RMA Strategies and Plans**
Method 6.1 – Method 6.9

**Method 7:** **Education and Information**
Method 7.1

**Method 8:** **Funding**
Method 8.1

**Method 9:** **Advocacy and Facilitation**
Method 9.1, Method 9.2

## Principal Reasons and Explanation:

Understanding the many values and characteristics of natural resources and their ecosystem services is essential, in adequately managing the adverse effects of human activities on the environment's life supporting capacity.

There is often conflict between the many values of natural resources and human use of those resources.

These policies address the values attached to natural resources, and how all natural resources should be managed.

# Objective 3.2 Otago's significant and highly-valued natural resources are identified and protected, or enhanced where degraded

## Issue:

Otago has significant and highly-valued natural resources. These include outstanding natural features, landscapes, seascapes, indigenous biological diversity, water bodies and soil, which all have intrinsic value and help to create the region's identity and support the region's wellbeing.

These highly valued resources can become degraded if they are not adequately protected from inappropriate subdivision, use and development, and so deserve a greater degree of recognition.

Resource degradation can adversely affect the social, cultural and economic wellbeing of people and communities.

### Policy 3.2.1 Identifying significant indigenous vegetation and habitats

Identify areas and values of significant indigenous vegetation and significant habitats of indigenous fauna, using the attributes detailed in Schedule 4.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.2.2

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.2

### Policy 3.2.2 Managing significant indigenous vegetation and habitats

Protect and enhance areas of significant indigenous vegetation and significant habitats of indigenous fauna, by all of the following:

a) In the coastal environment, avoiding adverse effects on:
   i. The values that contribute to the area or habitat being significant;
   ii. Indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification System lists;
   iii. Taxa that are listed by the International Union for Conservation of Nature and Natural Resources as threatened;
   iv. Indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare;
   v. Habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare;
   vi. Areas containing nationally significant examples of indigenous community types; and

vii. Areas set aside for full or partial protection of indigenous biological diversity under other legislation;

b) Beyond the coastal environment, and in the coastal environment in significant areas not captured by a) above, maintaining those values that contribute to the area or habitat being significant;
c) Avoiding significant adverse effects on other values of the area or habitat;
d) Remedying when other adverse effects cannot be avoided;
e) Mitigating when other adverse effects cannot be avoided or remedied;
f) Encouraging enhancement of those areas and values that contribute to the area or habitat being significant;
g) Controlling the adverse effects of pest species, preventing their introduction and reducing their spread.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.4

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.2

**Method 6:** **Non RMA Strategies and Plans**
Method 6.4, Method 6.5

### Policy 3.2.3 Identifying outstanding natural features, landscapes and seascapes

Identify areas and values of outstanding natural features, landscapes and seascapes, using the attributes in Schedule 3.

**Method 1:** **Kāi Tahu Relationships**
Method 1.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.2.2

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.2 c.

**Policy 3.2.4 Managing outstanding natural features, landscapes and seascapes**

Protect, enhance or restore outstanding natural features, landscapes and seascapes, by all of the following:

a) In the coastal environment, avoiding adverse effects on the values (even if those values are not themselves outstanding) that contribute to the natural feature, landscape or seascape being outstanding;
b) Beyond the coastal environment, maintaining the values (even if those values are not themselves outstanding) that contribute to the natural feature, landscape or seascape being outstanding;
c) Avoiding, remedying or mitigating other adverse effects;
d) Encouraging enhancement of those areas and values that contribute to the significance of the natural feature, landscape or seascape.

**Method 1:** **Kāi Tahu Relationships**
Method 1.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.2 c.

**Policy 3.2.5 Identifying highly valued natural features, landscapes and seascapes**

Identify natural features, landscapes and seascapes, which are highly valued for their contribution to the amenity or quality of the environment but which are not outstanding, using the attributes in Schedule 3.

**Method 1:** **Kāi Tahu Relationships**
Method 1.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1, 4.2.2

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.2 d.

**Policy 3.2.6 Managing highly valued natural features, landscapes and seascapes**

Maintain or enhance highly valued natural features, landscapes and seascapes by all of the following:

a) Avoiding significant adverse effects on those values that contribute to the high value of the natural feature, landscape or seascape;
b) Avoiding, remedying or mitigating other adverse effects;
c) Encouraging enhancement of those values that contribute to the high value of the natural feature, landscape or seascape.

**Method 1: Kāi Tahu Relationships**
Method 1.2

**Method 3: Regional Plans**
Method 3.1

**Method 4: City and District Plans**
Method 4.1

**Method 5: Research, Monitoring and Reporting**
Method 5.1.2 d.

**Policy 3.2.7 Landward extent of the coastal environment**

Identify the landward extent of the coastal environment, recognising that the coastal environment includes:

a) The coastal marine area;
b) Islands within the coastal marine area;
c) Areas where coastal processes, influences or qualities are significant, including coastal lakes, lagoons, tidal estuaries, saltmarshes, coastal wetlands, and the margins of these;
d) Areas at risk from coastal hazards;
e) Coastal vegetation and the habitat of indigenous coastal species including migratory birds;
f) Elements and features that contribute to the natural character, landscape, visual qualities or amenity values;
g) Items of cultural and historic heritage in the coastal marine area or on the coast;
h) Inter-related coastal marine and terrestrial systems, including the intertidal zone; and
i) Physical resources and built facilities, including infrastructure, that have modified the coastal environment.

**Method 1: Kāi Tahu Relationships**
Method 1.2

**Method 2: Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 5: Research, Monitoring and Reporting**
Method 5.1.1

### Policy 3.2.8 Identifying high and outstanding natural character in the coastal environment

Identify areas and values of high and outstanding natural character in the coastal environment, which may include matters such as:

a) Natural elements, processes and patterns;
b) Biophysical, ecological, geological and geomorphological aspects;
c) Natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, estuaries, reefs, freshwater springs and surf breaks;
d) The natural movement of water and sediment;
e) The natural darkness of the night sky;
f) Places or areas that are wild or scenic;
g) A range of natural character from pristine to modified;
h) Experiential attributes, including the sounds and smell of the sea; and their context or setting.

**Method 2: Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3: Regional Plans**
Method 3.1.6

**Method 4: City and District Plans**
Method 4.1.3, Method 4.2.2

**Method 5: Research, Monitoring and Reporting**
Method 5.1.2 b.

### Policy 3.2.9 Managing the outstanding natural character of the coastal environment

Preserve or enhance the outstanding natural character of the coastal environment, by all of the following:

a) Avoiding adverse effects on those values that contribute to the outstanding natural character of an area;
b) Avoiding, remedying or mitigating other adverse effects;
c) Recognising and providing for the contribution of existing introduced species to the natural character of the coastal environment;
d) Encouraging enhancement of those values that contribute to the outstanding natural character of an area;
e) Controlling the adverse effects of pest species, prevent their introduction and reduce their spread.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1.6

**Method 4:** **City and District Plans**
Method 4.1.3

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.2 b., Method 5.2.2

**Method 9:** **Advocacy and Facilitation**
Method 9.2.3

**Policy 3.2.10 Managing the high natural character of the coastal environment**

Preserve or enhance the high natural character of the coastal environment, by all of the following:

a) Avoiding significant adverse effects on those values that contribute to the high natural character of an area;
b) Avoiding, remedying or mitigating other adverse effects;
c) Recognising and providing for the contribution of existing introduced species to the natural character of the coastal environment;
d) Encouraging enhancement of those values that contribute to the high natural character of an area;
e) Controlling the adverse effects of pest species, preventing their introduction and reducing their spread.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1.6

**Method 4:** **City and District Plans**
Method 4.1.3

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.2

**Method 9:** **Advocacy and Facilitation**
Method 9.2.3

**Policy 3.2.11 Identifying surf breaks of national importance**

Recognise the surf breaks of national importance at:

a) Karitane;
b) Papatowai;
c) The Spit;
d) Whareakeake.

**Method 3: Regional Plans**
Method 3.1.7

**Policy 3.2.12 Managing surf breaks of national importance**

Protect surf breaks of national importance, by all of the following:

a) Avoiding adverse effects on the natural and physical processes contributing to their existence;
b) Avoiding adverse effects of other activities on access to, and use and enjoyment of, those surf breaks.

**Method 3: Regional Plans**
Method 3.1.7

**Method 4: City and District Plans**
Method 4.1.8

**Method 5: Research, Monitoring and Reporting**
Method 5.1.3 d.

**Policy 3.2.13 Identifying outstanding freshwater bodies**

Identify freshwater bodies where any one or more of the following significant values are outstanding:

a) Naturalness;
b) Amenity or landscape values;
c) Kāi Tahu cultural values;
d) Recreational values;
e) Ecological values;
f) Hydrological values.

**Method 3: Regional Plans**
Method 3.1.8

**Method 5: Research, Monitoring and Reporting**
Method 5.1.2 e.

**Policy 3.2.14 Managing outstanding freshwater bodies**

Protect outstanding freshwater bodies by all of the following:

a) Maintaining the values that contribute to the water body being outstanding;
b) Avoiding, remedying or mitigating other adverse effects on the water body;
c) Controlling the adverse effects of pest species, preventing their introduction and reducing their spread;
d) Encouraging enhancement of those values that contribute to the water body being outstanding.

**Method 3:** **Regional Plans**
Method 3.1.8

**Method 4:** **City and District Plans**
Method 4.1

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.2

**Method 9:** **Advocacy and Facilitation**
Method 9.2.2, Method 9.2.5

**Policy 3.2.15 Identifying the significant values of wetlands**

Identify the significant values of wetlands, having regard to all of the following:

a) Degree of naturalness;
b) Amenity or landscape values;
c) Kāi Tahu cultural values;
d) Recreational values;
e) Ecological function and values;
f) Hydrological function and values;
g) Geomorphological features and values.

**Method 3:** **Regional Plans**
Method 3.1.8

**Method 4:** **City and District Plans**
Method 4.1

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.2 g, 5.2.2

**Method 9:** **Advocacy and Facilitation**
Method 9.2.1, Method 9.2.2, Method 9.2.3, Method 9.2.5

**Policy 3.2.16 Managing the values of wetlands**

Protect the function and values of wetlands by all of the following:

a) Maintaining the significant values of wetlands;
b) Avoiding, remedying or mitigating other adverse effects;
c) Controlling the adverse effects of pest species, preventing their introduction and reducing their spread;
d) Encouraging enhancement that contributes to the values of the wetland;
e) Encouraging the rehabilitation of degraded wetlands.

**Method 3: Regional Plans**
Method 3.1. 8

**Method 4: City and District Plans**
Method 4.1

**Method 5: Research, Monitoring and Reporting**
Method 5.1.2 g, 5.2.2

**Method 9: Advocacy and Facilitation**
Method 9.2.1, Method 9.2.2, Method 9.2.3, Method 9.2.5

**Policy 3.2.17 Identifying significant soil**

Identify areas of soil that are significant using the following criteria:
a) Land classified as land use capability I, II and IIIe in accordance with the New Zealand Land Resource Inventory;
b) Degree of significance for primary production;
c) Significance for providing contaminant buffering or filtering services;
d) Significance for providing water storage or flow retention services;
e) Degree of rarity.

**Method 2: Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 5: Research, Monitoring and Reporting**
Method 5.1.3 c, Method 5.2.1 d.

**Policy 3.2.18 Managing significant soil**

Manage areas of significant soil, by all of the following:
a) Maintaining those values that make the soil significant;
b) Recognising that loss of significant soil to urban development may occur in accordance with any future development strategy;
c) Controlling the adverse effects of pest species, preventing their introduction and reducing their spread.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1.4

**Method 4:** **City and District Plans**
Method 4.1.6

**Method 7:** **Education and Information**
Method 7.1.2 f.

## Principal Reasons and Explanation:

Otago has many significant and highly valued landscapes, natural features and areas of indigenous biological diversity which are nationally or regionally important. These policies guide the identification, protection and enhancement of these resources. This higher level of protection recognises the importance of these resources to the cultural, environmental, social and economic wellbeing of people and communities.

# PART B Chapter 4 Communities in Otago are resilient, safe and healthy

Otago is at risk of expected and unexpected shocks and changes, from natural hazards, climate change and reliance on energy, imported goods and fossil fuels. These disruptions have the potential to affect economic, social, cultural, and environmental wellbeing.

Ensuring communities develop in a way which helps to prepare for, respond, recover, and adapt to disruptions will help make communities resilient. The sustainable management of renewable energy sources, the use of hazardous substances, and management of waste materials will, in the long term, also help ensure communities' resilience.

This chapter deals with the response and ability to be resilient to resource limitations or constraints, shock events, system disruptions, natural hazards, and climate change.

## Chapter overview:

# Objective 4.1 Risks that natural hazards pose to Otago's communities are minimised

## Issue:

Natural hazard events, such as flooding and earthquakes, have the potential to injure people and damage property. Natural hazards may be exacerbated by the effects of climate change, which include sea level rise, and greater frequency and intensity of extreme weather events.

It is sometimes difficult and costly for a community to recover from a hazard event.

### Policy 4.1.1 Identifying natural hazards

Identify natural hazards that may adversely affect Otago's communities, including hazards of low likelihood and high consequence by considering all of the following:

a) Hazard type and characteristics;
b) Multiple and cascading hazards;
c) Cumulative effects, including from multiple hazards with different risks;
d) Effects of climate change;
e) Using the best available information for calculating likelihood;
f) Exacerbating factors.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2, Method 2.3

**Method 4:** **City and District Plans**
Method 4.1.2, Method 4.2.8

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.1, Method 5.2.2

**Method 7:** **Education and Information**
Method 7.1.1, Method 7.1.2, Method 7.1.3

### Policy 4.1.2 Natural hazard likelihood

Using the best available information, assess the likelihood of natural hazard events occurring, over no less than 100 years.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2, Method 2.3

**Method 3:** **Regional Plans**
Method 3.1.13, Method 3.2.1

**Method 4:** **City and District Plans**
Method 4.1.2, Method 4.2.1, Method 4.2.8

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.1, Method 5.2.2

**Policy 4.1.3 Natural hazard consequence**

Assess the consequences of natural hazard events, by considering all of the following:
a) The nature of activities in the area;
b) Individual and community vulnerability;
c) Impacts on individual and community health and safety;
d) Impacts on social, cultural and economic wellbeing;
e) Impacts on infrastructure and property, including access and services;
f) Risk reduction and hazard mitigation measures;
g) Lifeline utilities, essential and emergency services, and their co-dependence;
h) Implications for civil defence agencies and emergency services;
i) Cumulative effects;
j) Factors that may exacerbate a hazard event.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2, Method 2.3

**Method 3:** **Regional Plans**
Method 3.1.13, Method 3.2.1

**Method 4:** **City and District Plans**
Method 4.1.2, Method 4.2.1, Method 4.2.8

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.1, Method 5.2.2

**Policy 4.1.4 Assessing activities for natural hazard risk**

Assess activities for natural hazard risk to people, property and communities, by considering all of the following:
a) The natural hazard risk identified, including residual risk;
b) Any measures to avoid, remedy or mitigate those risks, including relocation and recovery methods;
c) The long-term viability and affordability of those measures;
d) Flow-on effects of the risk to other activities, individuals and communities;
e) The availability of, and ability to provide, lifeline utilities, and essential and emergency services, during and after a natural hazard event.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2, Method 2.3

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.2, Method 4.2.8

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.1, Method 5.2.2

**Method 6:** **Non RMA Strategies and Plans**
Method 6.1.1

**Method 7:** **Education and Information**
Method 7.1.1, Method 7.1.2, Method 7.1.3

**Policy 4.1.5 Natural hazard risk**

Manage natural hazard risk to people, property and communities, with particular regard to all of the following:

a) The risk posed, considering the likelihood and consequences of natural hazard events;
b) The implications of residual risk;
c) The community's tolerance of that risk, now and in the future, including the community's ability and willingness to prepare for and adapt to that risk, and respond to an event;
d) Sensitivity of activities to risk;
e) The need to encourage system resilience;
f) The social costs of recovery.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2, Method 2.3

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.2, Method 4.2.8

**Method 6:** **Non RMA Strategies and Plans**
Method 6.1.1

**Method 7:** **Education and Information**
Method 7.1.1, Method 7.1.2, Method 7.1.3

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2, Method 9.1.3, Method 9.2.1

**Policy 4.1.6 Minimising increase in natural hazard risk**

Minimise natural hazard risk to people, communities, property and other aspects of the environment by:

a) Avoiding activities that result in significant risk from natural hazard;
b) Enabling activities that result in no or low residual risk from natural hazard;
c) Avoiding activities that increase risk in areas potentially affected by coastal hazards over at least the next 100 years;
d) Encouraging the location of infrastructure away from areas of hazard risk where practicable;
e) Minimising any other risk from natural hazard.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2, Method 2.3

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.2, Method 4.2.8

**Method 6:** **Non RMA Strategies and Plans**
Method 6.1.1

**Method 7:** **Education and Information**
Method 7.1.1, Method 7.1.2, Method 7.1.3

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2, Method 9.1.3, Method 9.2.1

**Policy 4.1.7 Reducing existing natural hazard risk**

Reduce existing natural hazard risk to people and communities, including by all of the following:

a) Encouraging activities that:
    i. Reduce risk; or
    ii. Reduce community vulnerability;
b) Discouraging activities that:
    i. Increase risk; or
    ii. Increase community vulnerability;
c) Considering the use of exit strategies for areas of significant risk to people and communities;
d) Encouraging design that facilitates:
    i. Recovery from natural hazard events; or
    ii. Relocation to areas of lower risk; or
    iii. Mitigation of risk;
e) Relocating lifeline utilities, and facilities for essential and emergency service, to areas of reduced risk, where appropriate and practicable;

f) Enabling development, upgrade, maintenance and operation of lifeline utilities and facilities for essential and emergency services;
g) Reassessing natural hazard risk to people and communities, and community tolerance of that risk, following significant natural hazard events.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.2

**Method 6:** **Non RMA Strategies and Plans**
Method 6.1.1

**Method 7:** **Education and Information**
Method 7.1.1, Method 7.1.2, Method 7.1.3

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2, Method 9.1.3, Method 9.2.1

**Policy 4.1.8 Precautionary approach to natural hazard risk**

Where natural hazard risk to people and communities is uncertain or unknown, but potentially significant or irreversible, apply a precautionary approach to identifying, assessing and managing that risk.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.2

**Policy 4.1.9 Protecting features and systems that provide hazard mitigation**

Avoid, remedy or mitigate adverse effects on natural or modified features and systems, that contribute to mitigating the effects of both natural hazards and climate change.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.2

**Policy 4.1.10 Mitigating natural hazards**

Give preference to risk management approaches that reduce the need for hard protection structures or similar engineering interventions, and provide for hard protection structures only when all of the following apply:

a) Those measures are essential to reduce risk to a level the community is able to tolerate;
b) There are no reasonable alternatives that result in reducing the risk exposure;
c) It would not result in an increase in risk to people and communities, including displacement of risk off-site;
d) The adverse effects can be adequately managed;
e) The mitigation is viable in the reasonably foreseeable long term.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.2

**Method 7:** **Education and Information**
Method 7.1.1, Method 7.1.2

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2, Method 9.1.3, Method 9.2.1

**Policy 4.1.11 Hard protection structures**

Enable the location of hard protection structures or similar engineering interventions on public land only when either or both of the following apply:

a) There is significant public or environmental benefit in doing so;
b) The work relates to the functioning ability of a lifeline utility, or a facility for essential or emergency services.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.2

**Method 7:** **Education and Information**
Method 7.1.1, Method 7.1.2

**Policy 4.1.12 Lifeline utilities and facilities for essential or emergency services**

Locate and design lifeline utilities and facilities for essential or emergency services to:

a) Maintain their ability to function to the fullest extent possible, during and after natural hazard events; and

b) Take into account their operational co-dependence with other lifeline utilities and essential services to ensure their effective operation.

**Method 9: Advocacy and Facilitation**
Method 9.2.3, Method 9.2.4

**Policy 4.1.13 Hazard mitigation measures, lifeline utilities, and essential and emergency services**

Protect the functional needs of hazard mitigation measures, lifeline utilities, and essential or emergency services, including by all of the following:

a) Restricting the establishment of other activities that may result in reverse sensitivity effects on those measures, utilities or services;

b) Avoiding significant adverse effects on those measures, utilities or services;

c) Avoiding, remedying or mitigating other adverse effects on those measures, utilities or services;

d) Maintaining access to those measures, utilities or services for maintenance and operational purposes;

e) Managing other activities in a way that does not restrict the ability of those mitigation measures, utilities or services to continue functioning.

**Method 2: Regional, City and District Council Relationships**
Method 2.1, Method 2.2, Method 2.3

**Method 3: Regional Plans**
Method 3.1

**Method 4: City and District Plans**
Method 4.1.2, Method 4.2.8

**Method 6: Non RMA Strategies and Plans**
Method 6.1.1

**Method 9: Advocacy and Facilitation**
Method 9.2.3, Method 9.2.4

## Principal Reasons and Explanation:

While many of these events are beyond the control of people and communities, there is a need to reduce their potential impacts on people's safety, health and wellbeing.

Natural hazards can injure or kill people, damage property, create stress and fear, affect the operation of infrastructure and impact on the economy.

Natural hazard risks can also be exacerbated by inappropriate subdivision, use and development. Natural hazards should be identified and managed appropriately, so the risk of avoidable social and economic harm to communities is reduced as much as possible.

# Objective 4.2 Otago's communities are prepared for and able to adapt to the effects of climate change

## Issue:

Climate change is creating environmental and economic outcomes that negatively affect the sustainability of natural and physical resources. These include higher sea levels, increased frequency of natural hazard events, and changing distribution of plants and animals. There is significant uncertainty over the rate and scale of change.

National and international policy frameworks have set objectives and guidance for New Zealand to proactively work toward reducing the rate of global warming.

### Policy 4.2.1 Sea level rise

Ensure Otago's people and communities are able to adapt to, or mitigate the effects of sea level rise, over no less than 100 years, by using:

a) A sea level rise of at least 1 metre by 2115, relative to 1990 mean sea level (Otago Metric Datum); and

b) Adding an additional 10mm per year beyond 2115, or the most up-to-date national or regional guidance on likely sea level rise.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

### Policy 4.2.2 Climate change

Ensure Otago's people and communities are able to mitigate and adapt to the effects of climate change, over no less than 100 years, by all of the following:

a) Taking into account the effects of climate change, including by using the best relevant climate change data;

b) Applying a precautionary approach when assessing and managing the effects of climate change where there is scientific uncertainty and potentially significant or irreversible effects;

c) Encouraging activities that assist to reduce or mitigate the effects of climate change.

d) Encouraging system resilience.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.1 g. and j.

**Method 6:** **Non RMA Strategies and Plans**
Method 6.1.1

**Method 7:** **Education and Information**
Method 7.1.1, Method 7.1.2

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2, Method 9.1.3

## Principal Reasons and Explanation:

Communities need consistent guidance on sea level rise, extreme weather events, and all other adverse effects of climate change to manage those effects.

Climate change is bringing higher sea levels and is increasing the frequency and severity of climate related natural hazards including flooding, landslips, erosion and drought. Stormwater systems may not be able to cope with heavier rainfall. Other effects of climate change include changing distributions of plants and animals, and consequential effects, such as the risk of saltwater intrusion into groundwater as a result of rising sea levels. There may be other adverse effects from climate change that are not yet known. A precautionary approach is required where there is scientific uncertainty.

The effects of climate change will result in social, environmental and economic costs, and in some circumstances benefits. It is prudent that these changes be planned for now, so that the impacts can be reduced.

# Objective 4.3 Infrastructure is managed and developed in a sustainable way

## Issue:

Social and economic wellbeing depends on having adequate infrastructure. Failing to provide for its functional needs can result in adverse effects.

Aging and sub-standard infrastructure can present a risk to the community by threatening community resilience and can constrain new infrastructure solutions.

Activities locating in proximity to infrastructure may lead to reverse sensitivity effects on that infrastructure.

Infrastructure may adversely affect other lawfully established activities.

Infrastructure of regional and national significance may result in localised adverse environmental impacts, or adversely affect other nationally important values.

Some infrastructure can only locate in particular areas, and it may not always be possible to avoid significant adverse effects.

### Policy 4.3.1 Managing infrastructure activities

Recognise and provide for infrastructure by all of the following:

a) Protecting and providing for the functional needs of lifeline utilities and essential or emergency services;
b) Increasing the ability of communities to respond and adapt to emergencies, and disruptive or natural hazard events;
c) Improving efficiency of natural and physical resource use;
d) Minimising adverse effects on existing land uses, and natural and physical resources;
e) Managing other activities to ensure the functional needs of infrastructure are not compromised.

Policies 4.3.2 – 4.3.6 regarding infrastructure that has regional or national significance prevail where there is a conflict with policy 4.3.1.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

### Policy 4.3.2 Nationally and regionally significant infrastructure

Recognise the national and regional significance of all of the following infrastructure:

a) Renewable electricity generation activities, where they supply the National Grid or local distribution network;
b) National Grid;
c) Electricity sub-transmission infrastructure;

d) Telecommunication and radiocommunication facilities;
e) Roads classified as being of national or regional importance;
f) Ports and airports and associated navigation infrastructure;
g) Defence facilities;
h) Rail infrastructure;
i) Municipal infrastructure.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1, Method 4.1.17, 4.1.18

**Method 6:** **Non RMA Strategies and Plans**
Method 6.3.1

### Policy 4.3.3 Functional needs of infrastructure that has national or regional significance

Provide for the functional needs of infrastructure that has regional or national significance, including safety.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

### Policy 4.3.4 Adverse effects of nationally and regionally significant infrastructure

Manage adverse effects of infrastructure that has national or regional significance, by:
a) Giving preference to avoiding its location in all of the following:
    i. Areas of significant indigenous vegetation and significant habitats of indigenous fauna in the coastal environment;
    ii. Outstanding natural character in the coastal environment;
    iii. Outstanding natural features and natural landscapes, including seascapes, in the coastal environment;
    iv. Areas of significant indigenous vegetation and significant habitats of indigenous fauna beyond the coastal environment;
    v. Outstanding natural character in areas beyond the coastal environment;
    vi. Outstanding natural features and landscapes beyond the coastal environment;
    vii. Outstanding water bodies or wetlands;
    viii. Places or areas containing historic heritage of regional or national significance;

b) Where it is not practicable to avoid locating in the areas listed in a) above because of the functional needs of that infrastructure:
   i. Avoid adverse effects on the values that contribute to the significant or outstanding nature of a) i-iii;
   ii. Avoid significant adverse effects on natural character and natural landscapes in all other areas of the coastal environment
   iii. Avoid, remedy or mitigate, as necessary, adverse effects in order to maintain the outstanding or significant nature of a) iv-viii;
c) Avoid, remedy or mitigate, as necessary, adverse effects on highly valued natural features, landscapes and seascapes. in order to maintain their high values;
d) Avoiding, remedying or mitigating other adverse effects;
e) Considering offsetting for residual adverse effects on indigenous biological diversity.

Where there is a conflict, Policy 4.3.4 prevails over the policies under Objectives 3.2 (except for policy 3.2.12), 5.2 and Policy 4.3.1.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Method 6:** **Non RMA Strategies and Plans**
Method 6.3.1

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2

**Policy 4.3.5** **Protecting infrastructure with national or regional significance**

Protect infrastructure with national or regional significance, by all of the following:
a) Restricting the establishment of activities that may result in reverse sensitivity effects;
b) Avoiding significant adverse effects on the functional needs of such infrastructure;
c) Avoiding, remedying or mitigating other adverse effects on the functional needs of such infrastructure;
d) Protecting infrastructure corridors from activities that are incompatible with the anticipated effects of that infrastructure, now and for the future.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1, Method 4.1.18

**Policy 4.3.6 The National Grid**

Provide for the National Grid by:

a) Managing activities to the extent reasonably possible to avoid reverse sensitivity effects on the National Grid; and

b) Identifying corridors for the existing National Grid within which activities and development will be managed to the extent reasonably possible to ensure that the functional needs of the National Grid are not compromised; and

c) Not allowing existing activities in the identified corridors to intensify in a way that increases their incompatibility with existing National Grid infrastructure.

d) Manage the adverse effects of new National Grid infrastructure by all of the following:
   i. recognising there may be some areas in the coastal environment where avoidance of adverse effects is required to protect the identified special values of those areas.
   ii. seeking to avoid adverse effects on the values of the following:
      a. Areas of significant indigenous vegetation and significant habitats of indigenous fauna;
      b. Outstanding natural features, landscapes and seascapes;
      c. Areas of outstanding natural character;
      d. Outstanding water bodies or wetlands;
      e. Places or areas containing historic heritage of regional or national significance.
   iii. Where it is not practicable to avoid adverse effects on the values of the areas listed in d) ii. above because of the functional needs of the National Grid, remedy or mitigate adverse effects on those values;
   iv. Avoiding, remedying or mitigating other adverse effects;
   v. Consider offsetting for residual adverse effects on indigenous biological diversity.

Where there is a conflict, Policy 4.3.6 prevails over the policies under Objectives 3.1, 3.2, 4.3 and 5.2, and over policy 5.4.9.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

## Principal Reasons and Explanation:

It is essential for the economy and the wellbeing and health and safety of communities, that people are serviced by the right infrastructure at the right time and that infrastructure operates efficiently and effectively.

Some infrastructure such as roads, water supply, waste water and storm water is provided by local authorities. Other infrastructure such as energy generation and network utility operation is managed by state owned enterprises, requiring authorities and private companies.

Infrastructure of national and regional significance, including roads, rail, electricity generation and transmission, radiocommunication and telecommunication, are part of a national network, and contribute to the economic and social wellbeing of the region and nation.

It is important to recognise the benefits of this infrastructure to the economy and to community resilience, in addition to managing any adverse effects on natural resources.

Local authorities have a role to play, to ensure that local, regional and national infrastructure needs are being met now and for the future.

# Objective 4.4 Energy resources and supplies are secure, reliable and sustainable

## Issue:

Although Otago is rich in renewable energy sources it is also an importer of fossil fuels. Any constraints on energy and fuel supply could affect the way we live and are able to respond to disruptive events.

### Policy 4.4.1 Renewable electricity generation

Provide for renewable electricity generation activities, by all of the following:

a) Recognising the benefits associated with those activities;
b) Recognising the functional needs of those activities;
c) Recognising the importance of the resource needs of those activities;
d) Promoting the efficient use of existing structures or facilities; and
e) Providing for activities associated with the investigation, identification, and development of potential renewable electricity generation sites and sources.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Method 7:** **Education and Information**
Method 7.1.4

**Method 9:** **Advocacy and Facilitation**
Method 9.2.3

### Policy 4.4.2 Small and community scale renewable electricity generation

Promote small and community scale renewable electricity generation activities that both:

a) Increase the local community's resilience and security of energy supply; and
b) Avoid, remedy or mitigate adverse effects from that activity.

**Method 7:** **Education and Information**
Method 7.1.4

**Method 9:** **Advocacy and Facilitation**
Method 9.2.3

**Policy 4.4.3 Protecting existing renewable electricity generation**

Protect the generation output of existing nationally or regionally significant renewable electricity generation activities, by all of the following:

a) Recognising their functional needs, including resource needs;
b) Avoiding, to the extent reasonably practicable, reverse sensitivity effects on their functional needs;
c) Avoiding, remedying or mitigating adverse effects from other activities on them; except when sub-clause d) applies;
d) Having particular regard to avoiding, remedying or mitigating adverse effects from new water takes on those which do not have a specified water allocation volume.

**Method 3: Regional Plans**
Method 3.1

**Method 4: City and District Plans**
Method 4.1

**Policy 4.4.4 Efficient transport of electricity**

Enable electricity transmission and distribution infrastructure activities that achieve all of the following:

a) Maintenance or improvement of the security and reliability of electricity supply;
b) Enhancement of the safety, efficiency and effectiveness of the infrastructure; and
c) Avoidance, remediation or mitigation of adverse effects from that activity.

**Method 3: Regional Plans**
Method 3.1

**Method 4: City and District Plans**
Method 4.1

**Policy 4.4.5 Electricity distribution infrastructure**

Recognise and provide for electricity distribution infrastructure, by all of the following:

a) Recognising the functional needs of electricity distribution activities;
b) Restricting the establishment of activities that may result in reverse sensitivity effects;
c) Avoiding, remedying or mitigating adverse effects from other activities on the functional needs of that infrastructure;
d) Minimising adverse effects of new and upgraded electricity distribution infrastructure on existing land uses;
e) Identifying significant electricity distribution infrastructure and managing effects of potentially incompatible activities through methods such as corridors.

**Method 3: Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1, 4.1.19

**Method 9:** **Advocacy and Facilitation**
Method 9.1

**Policy 4.4.6 Energy efficient transport**

Enable energy efficient and sustainable transport for Otago's communities, by all of the following:

a) Encouraging the development of compact and well integrated urban areas, to reduce travel needs within those areas;
b) Ensuring that transport infrastructure in urban areas has good connectivity, both within new urban areas and between new and existing urban areas, by all of the following:
    i. Placing a high priority on walking, cycling, and public transport, where appropriate;
    ii. Maximising pedestrian and cycling networks connectivity, and integration with public transport;
    iii. Having high design standards for pedestrian and cyclist safety and amenity;
c) Enabling the development or upgrade of transport infrastructure and associated facilities that both:
    i. Increase freight efficiency; and
    ii. Foster the uptake of new technologies for more efficient energy uses, and renewable or lower emission transport fuels.
d) Fostering uptake of public transportation through provision of safe, reliable and well sheltered alternatives to private transport.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Method 6:** **Non RMA Strategies and Plans**
Method 6.3

**Method 9:** **Advocacy and Facilitation**
Method 9.1, Method 9.2.2

**Policy 4.4.7 Fuels**

Recognise and provide for reliable and resilient fuel supply chain infrastructure to meet community fuel needs, including facilities for the transition to a lower-carbon future.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

## Principal Reasons and Explanation:

There is a need to encourage renewable energy generation, encourage sustainable energy use and improve energy resilience.

People's social and economic wellbeing, and their health and safety, is dependent on their energy needs being met by a sustainable, reliable and secure supply of energy. Communities rely on a range of renewable energy sources such as hydro, wind and solar generation and non-renewable sources such as oil, gas and coal.

More efficient energy uses, and a greater diversity of energy sources have the potential to increase community resilience while increasing the ability to sustain economic development.

In particular, more efficient or alternative transport fuels, in addition to better planning for access and public transport will provide for a more sustainable and resilient transport system.

# Objective 4.5 Urban growth and development is well designed, occurs in a strategic and coordinated way, and integrates effectively with adjoining urban and rural environments

## Issue:

Unplanned urban growth and development risks exceeding the carrying capacity of existing infrastructure and services, adversely affecting community resilience.

Unanticipated growth places pressure on adjoining productive land, and risks losing connectivity with adjoining urban areas.

Urban development has not always had regard for the local environment or the needs of the community.

### Policy 4.5.1 Providing for urban growth and development

Provide for urban growth and development in a strategic and co-ordinated way, including by:

a) Ensuring future urban growth areas are in accordance with any future development strategy for that district.
b) Monitoring supply and demand of residential, commercial and industrial zoned land;
c) Ensuring that there is sufficient housing and business land development capacity available in Otago;
d) Setting minimum targets for sufficient, feasible capacity for housing in high growth urban areas in Schedule 6
e) Coordinating the development and the extension of urban areas with infrastructure development programmes, to provide infrastructure in an efficient and effective way.
f) Having particular regard to:
    i. Providing for rural production activities by minimising adverse effects on significant soils and activities which sustain food production;
    ii. Minimising competing demands for natural resources;
    iii. Maintaining high and outstanding natural character in the coastal environment; outstanding natural features, landscapes, and seascapes; and areas of significant indigenous vegetation and significant habitats of indigenous fauna;
    iv. Maintaining important cultural or historic heritage values;
    v. Avoiding land with significant risk from natural hazards;
g) Ensuring efficient use of land;
h) Restricting urban growth and development to areas that avoid reverse sensitivity effects unless those effects can be adequately managed;
i) Requiring the use of low or no emission heating systems where ambient air quality is:
    i. Below standards for human health; or
    ii. Vulnerable to degradation given the local climatic and geographical context;
j) Consolidating existing coastal settlements and coastal urban areas where this will contribute to avoiding or mitigating sprawling or sporadic patterns of settlement and urban growth.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 4:** **City and District Plans**
Method 4.1.6, Method 4.1.13, Method 4.2.4, Method 4.2.7, Method 4.2.10

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.3

**Method 6:** **Non RMA Strategies and Plans**
Method 6.2

**Policy 4.5.2 Integrating infrastructure with land use**

Achieve the strategic integration of infrastructure with land use, by undertaking all of the following:

a) Recognising and providing for the functional needs of infrastructure;
b) Locating and designing infrastructure to take into account all of the following:
   i. Actual and reasonably foreseeable land use change;
   ii. The current population and projected demographic changes;
   iii. Actual and reasonably foreseeable change in supply of, and demand for, infrastructure services;
   iv. Natural and physical resource constraints;
   v. Effects on the values of natural and physical resources;
   vi. Co-dependence with other infrastructure;
   vii. The effects of climate change on the long-term viability of that infrastructure;
   viii. Natural hazard risk.
c) Coordinating the design and development of infrastructure with land use change in growth and redevelopment planning.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1, Method 4.2.4

**Method 6:** **Non RMA Strategies and Plans**
Method 6.3.1

**Method 7:** **Education and Information**
Method 7.1.4

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2

**Policy 4.5.3 Urban design**

Design new urban development with regard to:

a) A resilient, safe and healthy community;
b) A built form that relates well to its surrounding environment;
c) Reducing risk from natural hazards;
d) Good access and connectivity within and between communities;
e) A sense of cohesion and recognition of community values;
f) Recognition and celebration of physical and cultural identity, and the historic heritage values of a place;
g) Areas where people can live, work and play;
h) A diverse range of housing, commercial, industrial and service activities;
i) A diverse range of social and cultural opportunities.

**Method 4** **City and District Plans**
Method 4.1

**Policy 4.5.4 Low impact design**

Encourage the use of low impact design techniques in subdivision and development to reduce demand on stormwater, water and wastewater infrastructure and reduce potential adverse environmental effects.

**Method 4:** **City and District Plans**
Method 4.1

**Method 7:** **Education and Information**
Method 7.1.4

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2, Method 9.1.5

**Policy 4.5.5 Warmer buildings**

Encourage the design of subdivision and development to reduce the adverse effects of the region's colder climate, and higher demand and costs for energy, including maximising passive solar gain.

**Method 4:** **City and District Plans**
Method 4.1

**Method 7:** **Education and Information**
Method 7.1.4

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2, Method 9.1.5 c.

**Policy 4.5.6 Designing for public access**

Design and maintain public spaces, including streets and open spaces, to meet the reasonable access and mobility needs of all sectors.

**Method 4: City and District Plans**
Method 4.1.7

## Principal Reasons and Explanation:

Well-designed and integrated urban growth, achieves effective and affordable infrastructure, and improves resilience. The best use of the natural and physical resources will reduce the effects of unanticipated growth.

Well planned urban growth and development can achieve multiple benefits, including economic, social and environmental benefits. Concentrating activities in urban areas creates economies of scale for the development and maintenance of infrastructure and supports community facilities such as health care and educational facilities. This can also reduce pressure on the surrounding productive and natural environment.

Urban areas that are well designed will improve quality of life, resilience and create more attractive opportunities for business investment.

The quality of the urban environment can affect quality of life and community viability. Built environments that relate well to their surroundings, have easy connectivity access to key services and reflect the distinctive character of their locality make a positive contribution to the community. Poor quality or badly co-ordinated development presents social, environmental, and economic risks.

Integrating the natural environment into urban areas has been shown to achieve multiple benefits. Urban design choices can allow natural processes to continue through and around everyday activities with minimal adverse impact to either.

# Objective 4.6 Hazardous substances, contaminated land and waste materials do not harm human health or the quality of the environment in Otago

## Issue:

Waste materials, hazardous substances and contaminated land may adversely affect the environment and community health and safety.

### Policy 4.6.1 Hazardous substances

Promote an integrated approach to the management of hazardous substances in Otago.

**Method 6:** **Non RMA Strategies and Plans**
Method 6.9

**Method 7:** **Education and Information**
Method 7.1.6

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2, Method 9.1.4

### Policy 4.6.2 Use, storage and disposal of hazardous substances

Manage the use, storage and disposal of hazardous substances, by all of the following:

a) Providing secure containment for the storage of hazardous substances;
b) Minimising risk associated with natural hazard events;
c) Ensuring the health and safety of people;
d) Avoiding, remedying or mitigating adverse effects on the environment;
e) Providing for the development of facilities to safely store, transfer, process, handle and dispose of hazardous substances;
f) Ensuring hazardous substances are treated or disposed of in accordance with the relevant regulatory requirements;
g) Restricting the location and intensification of activities that may result in reverse sensitivity effects near authorised facilities for hazardous substance bulk storage, treatment or disposal;
h) Encouraging the use of best management practices.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.9

**Method 6:** **Non RMA Strategies and Plans**
Method 6.9

**Method 7:** **Education and Information**
Method 7.1.6

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2, Method 9.1.4

**Policy 4.6.3 Hazardous substance collection, disposal and recycling**

Promote and facilitate the establishment of hazardous substance collection, disposal and recycling services across the region.

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2

**Policy 4.6.4 Identifying contaminated land**

Identify sites of known or potentially contaminated land in Otago.

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.1 e, Method 5.2.1 k.

**Method 7:** **Education and Information**
Method 7.1.3 b.

**Policy 4.6.5 Managing contaminated land**

Ensure contaminated or potentially contaminated land does not pose an unacceptable risk to people and the environment, by:

a) Assessing and, if required, monitoring contaminant levels and environmental risks;
b) Protecting human health in accordance with regulatory requirements;
c) Minimising adverse effects of the contaminants on the environment.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1.11

**Method 4:** **City and District Plans**
Method 4.2.6

**Policy 4.6.6 Waste management**

Promote an integrated approach to the management of the use, storage and disposal of waste materials.

**Method 6:** **Non RMA Strategies and Plans**
Method 6.9

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2 c.

**Policy 4.6.7 Waste minimisation responses**

Encourage activities to give effect to the waste minimisation hierarchy of responses, by:
a) Giving preference to reducing waste generated; then
b) Reusing waste; then
c) Recycling waste; then
d) Recovering resources from waste; then
e) Treatment; then
f) Disposing residual waste to a disposal facility.

**Method 6:** **Non RMA Strategies and Plans**
Method 6.8

**Method 9:** **Advocacy and Facilitation**
Method 9.1.2 c.

**Policy 4.6.8 Waste storage, recycling, recovery, treatment and disposal**

Manage the storage, recycling, recovery, treatment and disposal of waste materials by undertaking all of the following:
a) Providing for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of waste materials;
b) Ensuring the health and safety of people;
c) Minimising adverse effects on the environment;
d) Minimising risk associated with natural hazard events;
e) Restricting the location of activities that may result in reverse sensitivity effects near waste management facilities and services.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1.12

**Method 4:** **City and District Plans**
Method 4.1.10

**Method 5:** **Research, Monitoring and Reporting**
Method 5.2.1 f.

**Method 6:** **Non RMA Strategies and Plans**
Method 6.8, Method 6.9

**Method 7:** **Education and Information**
Method 7.1.5

**Method 9:** **Advocacy and Facilitation**
Method 9.1.5

**Policy 4.6.9 New Contaminated land**

Avoid the creation of new contaminated land or, where this is not practicable, minimise adverse effects on the environment.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

## Principal Reasons and Explanation:

Resources need to be carefully used to minimise the material disposed of as waste.

Waste materials and hazardous substances need to be carefully managed to avoid creating environmental problems or adversely affecting human health.

Hazardous substances can be dangerous when not managed appropriately but are essential components of some activities. Hazardous substances and their waste should also be managed to avoid creating environmental problems or adversely affecting human health, in accordance with regulatory requirements.

# PART B Chapter 5 People are able to use and enjoy Otago's natural and built environment

The use of natural and physical resources underpins community, cultural, and economic wellbeing. Due to the importance of natural resources to wellbeing and the dynamic and interconnected nature of the environment, the sustainable management of resources requires consideration of the adverse effects of resource use on the environment and on other resource users.

This fifth chapter builds on the previous ones by enabling the use of the natural and physical environment for enjoyment and making a living, while ensuring that resources are sustainably managed for conflicting or incompatible uses.

## Chapter overview:

# Objective 5.1 Public access to areas of value to the community is maintained or enhanced

## Issue:

Public access to areas of value to the community is sometimes limited or inappropriate.

### Policy 5.1.1 Public access

Maintain or enhance public access to the natural environment, including to the coast, lakes, rivers and their margins and where possible areas of cultural or historic significance, unless restricting access is necessary for one or more of the following:

a) Protecting public health and safety;
b) Protecting the natural heritage and ecosystem values of sensitive natural areas or habitats;
c) Protecting identified sites and values associated with historic heritage or cultural significance to Kāi Tahu;
d) Ensuring a level of security consistent with the operational requirements of a lawfully established activity.

**Method 1:** **Kāi Tahu Relationships**
Method 1.2

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.14, Method 4.2.9

**Method 8:** **Funding**
Method 8.1.1

**Method 9:** **Advocacy and Facilitation**
Method 9.2.2 e, 9.2.8 b.

## Principal Reasons and Explanation:

Access to the natural environment and areas of cultural and historic significance is highly valued by residents and visitors.

The opportunities subdivision and development create to improve access to the natural environment or to limit access to more sensitive places should be utilised.

The ability to access the natural environment and areas of cultural and historic significance is highly valued by the community and contributes significantly to the tourism economy. The RMA identifies the maintenance or enhancement of public access to and along the coastal marine area, lakes, and rivers as a matter of national importance.

Improving access to the natural environment or sites of cultural and historic significance can contribute to recreational, cultural, spiritual and economic wellbeing and should be maintained or enhanced unless it would be detrimental to the protection of the values of these areas, or the health and safety of the community.

# Objective 5.2 Historic heritage resources are recognised and contribute to the region's character and sense of identity

## Issue:

Subdivision, use, and development may risk damage to Otago's rich historic heritage.

### Policy 5.2.1 Recognising historic heritage

Recognise all the following elements as characteristic or important to Otago's historic heritage:

a) Residential and commercial buildings;
b) Māori cultural and historic heritage values;
c) 19th and early 20th century pastoral sites;
d) Early surveying, communications and transport, including roads, bridges and routes;
e) Early industrial historic heritage, including mills and brickworks;
f) Gold and other mining systems and settlements;
g) Dredge and ship wrecks;
h) Coastal historic heritage, particularly Kāi Tahu occupation sites and those associated with early European activity such as whaling;
i) Memorials;
j) Trees and vegetation.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

### Policy 5.2.2 Identifying historic heritage

Identify historic heritage places and areas of regional or national significance, using the attributes in Schedule 5.

**Method 3:** **Regional Plans**
Method 3.1.10

**Method 4:** **City and District Plans**
Method 4.1.11

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.4

**Method 9:** **Advocacy and Facilitation**
Method 9.1.3 e.

**Policy 5.2.3 Managing historic heritage**

Protect and enhance places and areas of historic heritage, by all of the following:

a) Recognising that some places or areas are known or may contain archaeological sites, wāhi tapu or wāhi taoka which could be of significant historic or cultural value;
b) Applying these provisions immediately upon discovery of such previously unidentified archaeological sites or areas, wāhi tapu or wāhi taoka;
c) Avoiding adverse effects on those values that contribute to the area or place being of regional or national significance;
d) Minimising significant adverse effects on other values of areas and places of historic heritage;
e) Remedying when adverse effects on other values cannot be avoided;
f) Mitigating when adverse effects on other values cannot be avoided or remedied;
g) Encouraging the integration of historic heritage values into new activities;
h) Enabling adaptive reuse or upgrade of historic heritage places and areas where historic heritage values can be maintained.

**Method 1:** **Kāi Tahu Relationships**
Method 1.2

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1.10

**Method 4:** **City and District Plans**
Method 4.1.11, Method 4.2.3, Method 4.2.5

**Method 8:** **Funding**
Method 8.1.1

**Method 9:** **Advocacy and Facilitation**
Method 9.1.5 b

## Principal Reasons and Explanation:

In the RMA, protection of historic heritage from inappropriate activities is a matter of national importance.

Otago is a region rich in historic heritage which includes historic heritage places and areas that are recognised as nationally, regionally and locally important. Historic heritage resources make significant contributions to the regional identity and tourism economy.

The use of common criteria identifying historic heritage provides a more efficient and consistent approach across the region, while allowing local variation.

# Objective 5.3 Sufficient land is managed and protected for economic production

## Issue:

Providing for economic production can create adverse effects. Existing economic activities are susceptible to reverse sensitivity effects, particularly when adjoining land use changes.

### Policy 5.3.1 Rural activities

Manage activities in rural areas, to support the region's economy and communities, by:

a) Enabling primary production and other rural activities that support that production;
b) Providing for mineral exploration, extraction and processing;
c) Minimising the loss of significant soils;
d) Restricting the establishment of incompatible activities in rural areas that are likely to lead to reverse sensitivity effects;
e) Minimising the subdivision of productive rural land into smaller lots that may result in a loss of its productive capacity or productive efficiency;
f) Providing for other activities that have a functional need to locate in rural areas.

**Method 4:** **City and District Plans**
Method 4.1.6, Method 4.2.4

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.3 c, Method 5.2.1 d

**Method 7:** **Education and Information**
Method 7.1.2 f

### Policy 5.3.2 Distribution of commercial activities

Manage the distribution of commercial activities by:

a) Enabling a wide variety of commercial, social and cultural activities in central business districts, and town and commercial centres;
b) Enabling smaller commercial centres to service local community needs;
c) Restricting commercial activities outside of a) and b) when such activities are likely to undermine the vibrancy and viability of those centres;
d) Encouraging the adaptive reuse of existing buildings.

**Method 4:** **City and District Plans**
Method 4.1

**Method 9:** **Advocacy and Facilitation**
Method 9.1.5

**Policy 5.3.3 Industrial land**

Manage the finite nature of land suitable and available for industrial activities, by all of the following:

a) Providing specific areas to accommodate the effects of industrial activities;
b) Providing a range of land suitable for different industrial activities, including land-extensive activities;
c) Restricting the establishment of activities in industrial areas that are likely to result in:
   i. Reverse sensitivity effects; or
   ii. Inefficient use of industrial land or infrastructure.

**Method 4: City and District Plans**
Method 4.1

**Policy 5.3.4 Mineral and petroleum exploration, extraction and processing**

Recognise the functional needs of mineral exploration, extraction and processing activities to locate where the resource exists.

**Method 3: Regional Plans**
Method 3.1

**Method 4: City and District Plans**
Method 4.1

**Policy 5.3.5 Tourism and outdoor recreation**

Recognise the social and economic value of some forms of outdoor recreation and tourism having access to, and being located within, outstanding natural features and landscapes.

**Method 3: Regional Plans**
Method 3.1

**Method 4: City and District Plans**
Method 4.1

## Principal Reasons and Explanation:

Some degree of spatial separation of incompatible activities and control over land use change is needed to ensure efficient use of land and continuing economic viability.

The use of land for productive activity underpins the economy of the region. Opportunities for economic growth and development need to be provided for by recognising and managing the effects of activities. Managing the efficient use of land may also require the management of other land use activities where significant historical investment or future productive potential may be adversely affected by competing or conflicting activities.

# Objective 5.4 Adverse effects of using and enjoying Otago's natural and physical resources are minimised

## Issue:

Resource use can create adverse effects on other resources, their values and for other resource users and the wider community.

Ecosystems, significant areas of biological diversity and outstanding landscapes are under pressure from the direct effects of human activities, as well as indirect effects, including the spread of multiple pest species.

### Policy 5.4.1 Offensive or objectionable discharges

Manage offensive or objectionable discharges to land, water and air by:

a) Avoiding significant adverse effects of those discharges;

b) Avoiding significant adverse effects of discharges of human or animal waste directly, or in close proximity, to water or mahika kai sites;

c) Avoiding, remedying or mitigating other adverse effects of those discharges.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1.5

**Method 7:** **Education and Information**
Method 7.1.2

### Policy 5.4.2 Adaptive management approach

Apply an adaptive management approach, to avoid, remedy or mitigate actual and potential adverse effects that might arise and that can be remedied before they become irreversible, by both:

a) Setting appropriate indicators for effective monitoring of those adverse effects; and

b) Setting thresholds to trigger remedial action before the effects result in irreversible damage.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Policy 5.4.3 Precautionary approach to adverse effects**

Apply a precautionary approach to activities where adverse effects may be uncertain, not able to be determined, or poorly understood but are potentially significant or irreversible.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Policy 5.4.4 Emission standards**

Apply emission standards within airsheds, to achieve ambient air quality that supports good human health.

**Method 3:** **Regional Plans**
Method 3.1.9

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.3 a

**Method 6:** **Non RMA Strategies and Plans**
Method 6.2

**Policy 5.4.5 Pest plants and animals**

Control the adverse effects of pest species, prevent their introduction, reduce their spread and enable the removal and destruction of material for biosecurity purposes, to safeguard all of the following:

a) The viability of indigenous species and habitats for indigenous species;
b) Ecosystem services that support economic activities;
c) Water quality and water quantity;
d) Soil quality;
e) Human and animal health;
f) Recreation values;
g) Landscapes, seascapes and natural character;
h) Primary production.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Method 6:** **Non RMA Strategies and Plans**
Method 6.5, Method 6.6

**Method 7:** **Education and Information**
Method 7.1.1 e

**Method 8:** **Funding**
Method 8.1

**Method 9:** **Advocacy and Facilitation**
Method 9.2.6

### Policy 5.4.6 Offsetting for indigenous biological diversity

Consider indigenous biological diversity offsetting, when:

a) Residual adverse effects of activities cannot be avoided, remedied or mitigated;
b) The offset achieves no net loss and preferably a net gain in indigenous biological diversity;
c) The offset ensures there is no loss of individuals of Threatened taxa other than kānuka (Kunzea robusta and Kunzea serotina), and no reasonably measurable loss within the ecological district to an At Risk-Declining taxon, other than mānuka (Leptospermum scoparium), under the New Zealand Threat Classification System ("NZTCS");
d) The offset is undertaken where it will result in the best ecological outcome, preferably;
    i. Close to the location of development; or
    ii. Within the same ecological district or coastal marine biogeographic region;
e) The offset is applied so that the ecological values being achieved are the same or similar to those being lost;
f) The positive ecological outcomes of the offset last at least as long as the impact of the activity, preferably in perpetuity;
g) The offset will achieve biological diversity outcomes beyond results that would have occurred if the offset was not proposed;
h) The delay between the loss of biological diversity through the proposal and the gain or maturation of the offset's biological diversity outcomes is minimised.

**Method 3:** **Regional Plans**
Method 3.1.15

**Method 4:** **City and District Plans**
Method 4.1.20

**Policy 5.4.6A Biological Diversity Compensation**

Consider the use of biological diversity compensation:

a) When:
   i. Adverse effects of activities cannot be avoided, remedied, mitigated or offset; and
   ii. The residual adverse effects will not result in
      1. The loss of an indigenous taxon (excluding freshwater fauna and flora) or of any ecosystem type from an ecological district or coastal marine biogeographic region;
      2. Removal or loss of viability of habitat of a threatened or at risk indigenous species of fauna or flora under the New Zealand Threat Classification System ("NZTCS");
      3. Removal or loss of viability of an originally rare or uncommon ecosystem type that is associated with indigenous vegetation or habitat of indigenous fauna;
      4. Worsening of the NZTCS conservation status of any threatened or at risk indigenous freshwater fauna.

b) By applying the following criteria:
   i. The compensation is proportionate to the adverse effect;
   ii. The compensation is undertaken where it will result in the best practicable ecological outcome, preferably;
      1. Close to the location of development;
      2. Within the same ecological district or coastal marine biogeographic region;
   iii. The compensation will achieve positive biological diversity outcomes that would not have occurred without that compensation;
   iv. The positive ecological outcomes of the compensation last for at least as long as the adverse effects of the activity; and
   v. The delay between the loss of biological diversity through the proposal and the gain or maturation of the compensation's biological diversity outcomes is minimised.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

**Policy 5.4.7 Offsetting for air quality**

Provide for the offsetting of adverse effects of discharges to air on ambient air quality, only when all of the following are met:

a) The ambient air quality of the relevant airshed breaches air quality standards for human health;
b) Offsetting will reduce the cumulative effect of discharges to air in the relevant airshed by the same, or greater amount, than the proposed discharge;
c) Offsetting improves access to reliable and affordable domestic heating in the relevant airshed.

**Method 3: Regional Plans**
Method 3.1

**Method 6: Non RMA Strategies and Plans**
Method 6.2

### Policy 5.4.8 Adverse effects from mineral and petroleum exploration, extraction and processing

Manage adverse effects from the exploration, extraction and processing of minerals and petroleum, by:

a) Giving preference to avoiding their location in all of the following:
   i. Areas of significant indigenous vegetation and significant habitats of indigenous fauna in the coastal environment;
   ii. Outstanding natural character in the coastal environment;
   iii. Outstanding natural features and natural landscapes, including seascapes, in the coastal environment;
   iv. Areas of significant indigenous vegetation and significant habitats of indigenous fauna beyond the coastal environment;
   v. Outstanding natural character in areas beyond the coastal environment;
   vi. Outstanding natural features and landscapes beyond the coastal environment;
   vii. Outstanding water bodies or wetlands;
   viii. Places or areas containing historic heritage of regional or national significance;
   ix. Areas subject to significant natural hazard risk;

b) Where it is not practicable to avoid locating in the areas listed in a) above because of the functional needs of that activity:
   i. Avoid adverse effects on the values that contribute to the significant or outstanding nature of a) i-iii;
   ii. Avoid, remedy or mitigate, as necessary, adverse effects on values in order to maintain the outstanding or significant nature of a)iv-viii;
   iii. Consider first biological diversity offsetting, and then biological diversity compensation, if adverse effects described in b)ii. on indigenous biological diversity cannot be practicably remedied or mitigated;
   iv. Minimise any increase in natural hazard risk through mitigation measures;
   v. Consider environmental compensation if adverse effects described in b) ii, other than on indigenous biological diversity, cannot practically be avoided, remedied or mitigated;

ba) Avoid significant adverse effects on natural character in all other areas of the coastal environment;

c) Avoiding adverse effects on the health and safety of the community;

d) Avoiding, remedying, or mitigating adverse effects on other values including highly valued natural features, landscapes and seascapes in order to maintain their high values;

e) Considering biological diversity offsetting or compensating for residual adverse effects on other values;

f) Reducing unavoidable adverse effects by:
   i. Staging development for longer term activities; and
   ii. Progressively rehabilitating the site, where possible;

g) Applying a precautionary approach (including adaptive management where appropriate) to assessing the effects of the activity, where there is scientific uncertainty, and potentially significant or irreversible adverse effects.

Where there is a conflict, Policy 5.4.8 prevails over policies under Objective 3.2, (except for policy 3.2.12) Policy 4.3.1 and Policy 5.2.3.

**Method 3:** **Regional Plans**
Method 3.1

**Method 4:** **City and District Plans**
Method 4.1

### Policy 5.4.9 Activities in the Coastal Marine Area

In the coastal marine area minimise adverse effects from activities by all of the following:

a) Avoiding activities that do not have a functional need to locate in the coastal marine area;
b) When an activity has a functional need to locate in the coastal marine area, giving preference to avoiding its location in:
    i. Areas of significant indigenous vegetation and significant habitats of indigenous fauna;
    ii. Outstanding natural features, landscapes and seascapes;
    iii. Areas of outstanding natural character;
    iv. Places or areas containing historic heritage of regional or national significance;
    v. Areas subject to significant natural hazard risk;
c) Where it is not practicable to avoid locating in the areas listed in b) above, because of the functional needs of that activity:
    i. Avoid adverse effects on the values that contribute to the significant or outstanding nature of b)i.-iii;
    ii. Avoid significant adverse effects on natural character in all other areas of the coastal environment;
    iii. Avoid, remedy or mitigate adverse effects on values as necessary to preserve historic heritage of regional or national significance;
    iv. Minimise any increase in natural hazard risk through mitigation measures;
    v. Avoiding, remedying, or mitigating adverse effects on other values;
d) Providing for the efficient use of space by requiring structures be made available for public or multiple use wherever reasonable and practicable;
e) Applying a precautionary approach to assessing the effects of the activity, where there is scientific uncertainty, and potentially significant or irreversible adverse effects;

**Method 3:** **Regional Plans**
Method 3.1

**Policy 5.4.10 Managing land use change in dry catchments**

Manage land use change in dry catchments, to avoid any significant reduction in water yield, by:

a) Controlling any extension of forestry activities within those catchments that would result in a significant reduction in water yield, including cumulative reductions; and

b) Minimising the conversion of tall tussock grasslands to species which are less able to capture and hold precipitation.

**Method 2:** **Regional, City and District Council Relationships**
Method 2.1, Method 2.2

**Method 3:** **Regional Plans**
Method 3.1.16

**Method 5:** **Research, Monitoring and Reporting**
Method 5.1.3 b

## Principal Reasons and Explanation:

Any use of natural or physical resources has the potential to generate adverse effects. Resource use significantly contributes to the economic and wider wellbeing of communities. It is important to manage activities to avoid, remedy or mitigate individual or cumulative adverse effects on the quality of the natural environment. This requires the proactive management of natural resources, and can only be achieved through the integrated management of natural resources, and by giving due consideration to both managing adverse effects and maintaining and enhancing environmental values. Resource use can also have adverse effects on other uses or prevent the normal operation of existing uses.

Resource management decisions often involve balancing values or uses. Section 3.2 of this document identifies resources which are so significant that adverse effects on their values should be avoided. Some activities, such as mineral extraction or infrastructure development, may have to locate in areas with significant values. To provide for those activities, it is important to outline how their adverse effects should be managed.

# PART C Implementation

## Roles and Responsibilities

Sections 62(1)(h) and (i) of the RMA requires the RPS identify the regional, city and district councils' responsibilities for the control of land use in regard to natural hazards, hazardous substances and the maintenance of indigenous biological diversity. These roles and responsibilities are provided for as follows:

**Regional council will:**

Specify objectives, policies and methods in regional plans for the control of the use of land for:

a. The management of natural hazards in the beds of rivers, lakes and wetlands, and the coastal marine area;
b. The management of hazardous substances to:
    i. Avoid, remedy, or mitigate the actual or potential adverse effects of discharges of hazardous substances to water, land and air;
    ii. Control the use, storage, disposal or transportation of hazardous substances in the beds of rivers, lakes and wetlands and the coastal marine area;
c. The maintenance of indigenous biological diversity in the coastal marine area, in beds of rivers and lakes, and wetlands.

**City and district councils will:**

Specify objectives, policies and methods in district plans for the control of the use of land for:

a. The management of natural hazards outside of the beds of rivers, lakes and wetlands or the coastal marine area;
b. Avoiding, remedying or mitigating the adverse effects of the storage, use, transport or disposal of hazardous substances on the environment outside of the beds of rivers, lakes and wetlands or the coastal marine area;
c. The maintenance of indigenous biological diversity on all land outside of the coastal marine area and the beds of rivers, wetlands and lakes.

**Regional, city and district councils will:**

Share responsibility for specifying objectives, policies and methods for the purpose of the maintenance of indigenous biological diversity through the management of the margins of the coastal marine area, beds of rivers and lakes, and wetlands.

# Methods

**Method 1: Kāi Tahu Relationships**

1.1 Regional, city and district councils will develop processes to:

- 1.1.1 Establish and maintain effective resource management relationships with Kāi Tahu based on a mutual obligation to act reasonably and in good faith;
- 1.1.2 Take Iwi Management Plans into account;
- 1.1.3 Consult Kāi Tahu at an early stage in resource management processes and implementation.
- 1.1.4 Facilitate efficient and effective processes for applicants to consult Kāi Tahu on resource consent applications and private plan change requests.

1.2 Regional, city and district councils will collaborate with Kāi Tahu to:

- 1.2.1 Identify and protect places, areas or landscapes of cultural, spiritual or traditional significance to them, in accordance with Policy 2.2.2, 3.1.11, 3.2.3 and Schedule 3;
- 1.2.2 Identify and protect the values that contribute to their significance;
- 1.2.3 Identify areas or values that may contribute to the importance of outstanding natural features, landscapes and seascapes, and highly valued natural features, landscapes and seascapes;
- 1.2.4 Determine appropriate naming for places of significance in Otago.
- 1.2.5 Share information relevant to Kāi Tahu interests.

1.3 Regional, city and district councils will:

- 1.3.1 Promote awareness and improve knowledge of tikaka and the principles of Te Tiriti o Waitangi among staff and stakeholders.
- 1.3.2 Include statutory acknowledgement areas in district and regional plans.

1.4 Regional, city and district councils may:

- 1.4.1 Delegate and transfer any one or more of their functions, powers or duties to an iwi authority in accordance with section 33 of the RMA and where this provides an effective service.

**Method 2: Regional, City and District Council Relationships**

2.1 Regional, city and district councils together will:

- 2.1.1 Share information on matters of common interest;
- 2.1.2 Work together to ensure RMA plan provisions are complementary for overlapping or abutting responsibilities.
- 2.1.3 Apply an integrated management approach to address the relationship between land use and both fresh and coastal water.
- 2.1.4 Policy 4.5.1, by applying an integrated management approach to achieving air quality standards, including through advising district plan users on regional rules and building consent requirements.

2.2 Regional, city and district councils may:

2.2.1 Establish processes for working together on common resource management matters or cross boundary issues, such as:

a. Committees;
b. Working groups;
c. Project management;
d. Combined hearings;

2.2.2 Prepare combined regional and district documents;

2.2.3 Delegate or transfer any one or more of their functions, powers or duties from one local authority to another in accordance with section 33 of the RMA and where this provides an effective service;

2.2.4 Establish management agreements with another statutory body;

2.2.5 Establish protocols and processes for resolving cross boundary issues through the Local Government Act 2002 triennial agreement.

2.3 Regional council may, at the request of city or district councils:

2.3.1 Make a regional rule for the purpose of extinguishing existing use rights under Section 10 of the RMA to address natural hazard risk;

2.3.2 Delegate the administration of that regional rule to the city or district council.

**Method 3: Regional Plans**

3.1 Regional Plans will set objectives, policies and methods to implement policies in the RPS as they relate to Regional Council areas of responsibility. All objectives and policies of the RPS must be considered and given effect to when preparing Regional Plans. Matters in the methods can also be taken into account when considering resource consent applications.

More specific direction is provided in the following areas.

Objectives, policies and methods to implement the following policies:

3.1.1 Policy 2.2.2: by including in regional plans encompassing wāhi tupuna sites:

a) provisions to recognise wāhi tupuna and to protect the values that contribute to wāhi tupuna being significant;
b) the location on plans of the wāhi tupuna to be protected and the values that contribute to their significance, using the guide in schedule 1C to assist;

3.1.2 Policy 2.1.2: by having regard to the Te Rūnunga o Ngāi Tahu, Hazardous Substances and New Organisms Policy Statement 2008 when developing objectives, policies and methods for the management of hazardous substances and new organisms;

3.1.3 Policies 3.1.1 to 3.1.5, and Policies 4.3.3, 4.4.1 and 4.4.3:

a. Manage land use and vegetation removal within the beds of lakes and rivers, wetlands, riparian areas, and in the coastal environment;
b. In appropriate circumstances, provide for activities that have a functional need to be located in the beds of rivers, lakes, wetlands, and their margins.

c. Manage change in river morphology;
d. Encourage restoration of water margins;
e. Managing noise in the coastal marine area;
f. Identify freshwater management units that include all freshwater bodies in Otago in accordance with the National Policy Statement for Freshwater Management 2014;
g. Maintain good water quality and improve it where it is degraded.
h. Provide for resource users, people and communities that rely on fresh water within environmental limits;
i. Set limits and targets to give effect to the National Policy Statement for Freshwater Management 2014;

3.1.4 Policies 3.1.7 and 3.2.18: by including provisions to manage adverse effects of land use on soil and protect significant soil.

3.1.5 Policy 4.3.1: by providing controls adjacent to infrastructure, where necessary to ensure the functional needs of infrastructure are not compromised.

3.1.7 Policies 3.2.11 and 3.2.12: by protecting surf breaks of national importance.

3.1.8 Policies 3.2.13 – 3.2.16: by protecting the values of wetlands and outstanding freshwater bodies.

3.1.9 Policy 3.1.6 and 5.4.4: by applying emission standards within airsheds to achieve ambient air quality that supports good human health;

3.1.11 Policy 4.6.5: by managing the effects of the use of contaminated land:
a. On the quality of air, water or land;
b. In the coastal marine area, and the beds of rivers, lakes and other waterbodies;

3.1.12 Policy 4.6.8: by requiring waste disposal facilities to monitor, record and report on the quantity and composition of waste being deposited to landfill;

3.1.13 Policy 4.1.3: by using the criteria when undertaking natural hazard assessments;

3.1.14 Policy 3.1.2: by developing river management strategies, including:
a. The management of riparian margins along rivers and lakes;
b. The management of bed alterations.

3.1.15 Policy 5.4.6: by providing for offsetting for indigenous biological diversity.

3.1.16 Policy 5.4.10: by including provisions managing land use change in dry catchments where this will impact on water yield.

3.1.17 Policy 5.4.5: by including provisions managing removal and disposal of material for biosecurity purposes.

3.2 Implementing Regional Plans:

3.2.1 Regional council will implement Policies 4.1.2 and 4.1.3 when undertaking natural hazard assessments;

3.3 Monitoring and reviewing Regional Plans:

3.3.1 Regional Council will monitor and review regional plans to give effect to theirresponsibilities under the RMA.

**Method 4: City and District Plans**

4.1 City and district plans will set objectives, policies and methods to implement policies in the RPS as they relate to the City or District Council areas of responsibility. All objectives and policies of the RPS must be considered and given effect to when preparing city and district plans. Matters in the methods can also be taken into account when considering resource consent applications.

More specific direction is provided in the following areas.

Objectives, policies and methods to implement the following policies:

4.1.1 Policy 2.2.2 by:

a. including provisions to recognise the wahi tupuna and to protect the values that contribute to wahi tupuna being significant;
b. Identifying the location on plans of the wahi tapuna to be protected and the values that contribute to their significance, using the guide in Schedule 1C to assist.

4.1.2 Policies 4.1.1 to 4.1.11 by determining the appropriate level of regulatory response to natural hazard risk by:

a. Identifying areas subject to natural hazards in plans and/or natural hazard registers and databases;
b. Applying the plan principles to the management of natural hazards;
c. Considering the use of adaptive management techniques;

4.1.4 Policies 3.1.2, 3.1.9 and 3.2.2: by including provisions to:

a. Maintain or enhance ecosystems and biological diversity;
b. Protect significant indigenous vegetation and significant habitats of indigenous fauna;
c. Control the clearance or modification of indigenous vegetation and habitats of indigenous fauna;

4.1.5 Policies 3.1.7, 3.1.8 and 5.4.1: by including provisions to manage the discharge of dust, and silt and sediment associated with earthworks and land use;

4.1.6 Policies 3.1.7, 3.2.18, 4.5.1, and 5.3.1: by managing urban growth and development and the subdivision of land to protect significant soils

4.1.7 Policy 4.5.6: include subdivision and infrastructure design standards to recognise the access needs of different sections of the community, including the mobility impaired, the elderly and children;

4.1.8 Policy 3.2.12: by maintaining and where possible enhancing access to surf breaks of national importance;

4.1.9 Policy 4.6.2: including by managing the actual or potential adverse effects of the use or storage of hazardous substances, including on:

a. Other land use activities;
b. The health and safety of the community;
c. Groundwater , or community water supplies;
d. Amenity values, and community and takata whenua resources, cultural and spiritual values;
e. Other activities or environmental values as a result of location in hazard prone areas;

4.1.10 Policy 4.6.8: by providing for and managing adverse effects associated with the establishment of waste management activities and facilities including but not limited to;

a. Providing for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of waste so that adverse effects on health and safety are avoided and adverse effects on the environment are avoided, remedied or mitigated;
b. Minimising risk associated with natural hazard events; and
c. Restricting the location of activities that may result in reverse sensitivity effects.

4.1.11 Policy 5.2.2 and 5.2.3 by:

a. Including accidental discovery protocols as advice notes on consents for earthworks or other activities that may unearth archaeological features
b. Providing for activities that contribute to the retention of historic heritage places, areas or landscapes, including maintenance and seismic strengthening;
c. Providing for the recording of information culturally sensitive to Kāi Tahu and the protection of culturally sensitive areas through the use of silent files, heritage alert layers or other methods satisfactory to them;
d. Identifying and protecting significant historic heritage resources located within the authority's district;
e. Including heritage alert layers in plans to inform the public about areas where there is a high probability of the presence of heritage values, particularly archaeological values.

4.1.12 Policy 2.2.4: by making allowance for native reserves to be used in the manner intended by the Crown at the time of their establishment, including Papakāika and marae related activities;

4.1.13 Policy 4.5.1 and 4.5.2 by:

a. Establishing urban growth boundaries where required to manage pressure for urban development;
b. Ensuring urban growth boundaries contain sufficient capacity, when measured district wide, to accommodate 20 years urban growth based on demographic growth projections;

4.1.14 Policy 5.1.1: by providing for the maintenance and enhancement of public access to the natural environment, including the coast, lakes, rivers and their margins, and where possible areas of cultural and historic significance.

4.1.15 Policy 3.1.2, 4.3.3, 4.4.1 and 4.4.3: by providing, in appropriate circumstances, for activities that have a functional need to be located in the beds of rivers, lakes, wetlands, and their margins.

4.1.16 Policy 4.3.1: by providing controls adjacent to infrastructure where necessary to ensure the functional needs of infrastructure are not compromised.

4.1.17 Policy 4.3.6: by:

a. Identifying National Grid transmission lines and corridors on planning maps for managing sensitive and non-sensitive activities and development that can compromise the Grid;

b. Providing controls to avoid reverse sensitivity effects on the National Grid;
c. Providing controls on activities as necessary to ensure that the functional needs of the National Grid are not compromised.

4.1.18 Policies 4.3.2 and 4.3.5: by:
a. Identifying nationally or regionally significant infrastructure on planning maps, including corridors where appropriate;
b. Including provisions managing land use activities within or adjacent to this regionally or nationally significant infrastructure to address potential reverse sensitivity issues;
c. When considering provisions to manage activities within or adjacent to electricity infrastructure, having regard to NZECP34:2001 Electrical Code of Practice for Electrical Safe Distances and the Electricity (Hazards from Trees) Regulations 2003 (prepared under the Electricity Act 1992).

4.1.19 Policy 4.4.5: by:
a. Where necessary, providing controls for buildings, structures and other activities adjacent to electricity infrastructure, to ensure the functional needs of that infrastructure are not compromised based on NZECP34:2001 Electrical Code of Practice for Electrical Safe Distances and the Electricity (Hazards from Trees) Regulations 2003 (prepared under the Electricity Act 1992);
b. Identifying significant electricity distribution infrastructure on planning maps;
c. Where necessary, providing controls on activities to ensure that the functional needs of the significant electricity distribution infrastructure are not compromised.

4.1.20 Policies 4.3.6 and 5.4.6: by providing for offsetting for indigenous biological diversity.

4.1.21 Policy 5.4.5: by including provisions managing removal and disposal of material for biosecurity purposes.

4.2 Implementing district plans.

City and District Councils will implement the following policies:

4.2.1 Policies 4.1.2 and 4.1.3: when undertaking natural hazard assessments;

4.2.2 Policies 3.1.11, 3.2.1, 3.2.3, 3.2.5 and 3.2.8: to assess the values of places of potential significance to inform the decision making process;

4.2.3 Policy 5.2.3: by including accidental discovery protocols as advice notes on consents for earthworks or other activities that may unearth archaeological features;

4.2.4 Policies 4.5.1, 4.5.2, and 5.3.1: by preparing or requiring structure plans for large scale land use changes, including subdivision;

4.2.5 Policies 2.2.2 and 5.2.3: by ensuring methods for protecting culturally important sites are culturally appropriate;

4.2.6 Policy 4.6.5 by managing adverse effects from the subdivision, development or use of contaminated land, in accordance with that policy and giving effect to the NES for Assessing and Managing Contaminants in Soil to Protect Human Health

4.2.7 Policy 4.5.1: For high growth areas, as defined under the NPS Urban Development Capacity, by developing a future development strategy.

City and District Councils may implement the following policies by:

4.2.8 Policies 4.1.1 to 4.1.6, and 4.1.13:

a. Requiring site specific investigation where there is limited information available on natural hazard or climate change risk or effects;

b. Requesting the regional council develop a regional rule for the purpose of extinguishing existing use rights under Section 10 of the RMA to address specific natural hazard risk;

4.2.9 Policy 5.1.1: by including conditions to maintain or enhance access to the natural environment or sites of cultural significance.

4.2.10 Policy 4.5.1: For medium growth areas, as defined under the NPS Urban Development Capacity, by developing a future development strategy.

4.3 Monitoring and reviewing city and district plans:

4.3.1 City and district councils will monitor and review district plans to give effect to their responsibilities under the RMA.

**Method 5 Research, Monitoring and Reporting**

5.1 Identification of important resources

5.1.1 Regional, city and district councils will:

a. Work collaboratively to identify the landward extent of the coastal environment

5.1.3 Regional council will:

a. Identify airsheds based on geographical and physical boundaries, for the management of air quality;

b. Identify dry catchments where rules are required by regional council to manage water quantity;

c. Identify significant soils;

d. Identify the spatial extent of the nationally important surf breaks.

5.1.4 Regional council will engage with Kāi Tahu to identify the cultural values of resources and requirements for customary uses.

5.2 Research

5.2.1 The regional council will:

a. Undertake investigation for the identification of catchment values and the resources and processes those values depend on, including:

i. The interconnections between water bodies, including coastal water;

ii. The role of river and catchment morphology and natural functioning in supporting those values;

iii. The maintenance and enhancement of indigenous biological diversity and ecosystem health;

iv. Erosion risk mitigation;

v. Providing for the natural functioning of rivers and lakes;

b. Identify the values of the coast, and the processes and resources those values are dependent on;
c. Identify airsheds based on geographical and physical boundaries, for the management of air quality;
d. Investigate and provide guidance on:
    i. The inventory and mapping of soil resources;
    ii. The location and extent of significant soil;
    iii. Identification of threats to the life-supporting capacity of soil resources;
e. Develop, maintain and monitor a register of sites of known or potentially contaminated land in Otago. Share information regarding Otago's soil resources and contaminated land with city and district councils;
f. Provide city and district councils with regional data on the quantity and composition of waste being deposited to landfill for waste assessments;
g. Undertake research in collaboration with local authorities and other stakeholders as appropriate, into natural hazards and climate change in Otago;
h. Supply city and district councils with information on natural hazards for:
    i. The preparation of district plan reviews or changes;
    ii. Inclusion in Land and Project Information Memoranda;
i. Collect and share information on erosion-prone land;
j. Collect and make available information on the expected effects of climate change.
k. Investigate land for the purpose of identifying contaminated or potentially contaminated sites.

5.2.2 Regional, city and district councils together will:

a. Research and share information relevant to the effects of land use on water, including:
    i. The values supported by the catchment;
    ii. Riparian vegetation cover or any land cover that contributes to supporting freshwater values, such as tussock grasslands;
    iii. Land use changes which might have significant effects on freshwater values;
    iv. Areas particularly sensitive to land use changes, such as sensitive aquifers and water short catchments;
    v. The effects of land use on erosion;
b. Research and share information relevant to the effects of land use on:
    i. Coastal network infrastructure;
    ii. Coastal values;
    iii. Coastal hazards;
    iv. Riparian vegetation cover or any land cover that contributes to supporting coastal values, or mitigating coastal hazards;
    v. Areas particularly sensitive to land use changes.

5.2.3 City and district councils will:

a. Research demographic changes including the relationship between housing demand and population growth and residential capacity within existing urban areas.
b. When considering land use, development or subdivision by consent, share information with the regional council on any identified breaches to relevant regional rules, including:
    i. Discharges to water, or to land, in circumstances which may result in contaminant entering water;
    ii. Discharges to air;
    iii. Discharges to land.

5.3 State of Environment reporting

5.3.1 Regional, city and district councils will:

a. Carry out state of the environment reporting in accordance with s35 of the RMA.

5.4 RMA plan effectiveness reporting

5.4.1 Regional council will develop appropriate indicators and measures for the RPS within 12 months, report on the efficiency and effectiveness of the RPS based on those indicators and measures, and review those indicators and measures every five years.

5.4.2 Regional, city and district councils will:

a. Include indicators for determining plan effectiveness in all plans developed under the RMA;
b. Report on the efficiency and effectiveness of plans based on those indicators.

5.5 Plan implementation reporting

5.5.1 Regional, city and district councils will:

a. Monitor and report publicly on the achievement of regional and district plan objectives, policies and methods.

**Method 6 Non-RMA Strategies and Plans**

6.1 Natural hazard strategies

6.1.1 Regional, city and district councils may:

a. Prepare strategies or other similar documents to assist in the management and reduction of natural hazard risk and adaptation to, and mitigation of, climate change;
b. Develop community relevant responses to the impacts of natural hazards and climate change, in collaboration with the relevant local authority, key stakeholders and affected community.

6.2 Air strategy

6.2.1 Regional, city and district councils may develop and implement, in collaboration with other key stakeholders, a strategy for:

a. The upgrading of housing stock and their thermal envelopment;

b. The reduction of domestic emissions to air.

6.3 Regional Land Transport Plan

6.3.1 Regional council will set objectives, policies and activities to assist in the implementation of policy 4.4.6, 4.5.2, 4.3.1, 4.3.2, with a particular focus on:

a. Enhancing road safety;

b. Ensuring travel needs in Otago are met;

c. Enabling increased freight efficiency;

d. Managing Otago's public transport services;

e. Ensuring transport networks are resilient, efficient and sustainably managed.

6.4 Regional Biological Diversity Strategy

6.4.1 The regional council will develop and implement, with other key stakeholders, a Biological Diversity Strategy.

6.5 Pest management strategy

6.5.1 The regional council will:

a. Develop and implement a Pest Management Strategy for the control of pest species including those which:

i. Have adverse effects on the natural character of the coastal environment;

ii. Have adverse effects on significant indigenous biological diversity;

iii. Have significant adverse effects on indigenous biological diversity;

iv. Have adverse effects on outstanding natural features, landscapes, seascapes and highly valued natural features, landscapes and seascapes;

v. Have propensity for spread, including wilding trees;

b. Have regard to indigenous biological diversity when preparing any Regional Pest Management Strategy and prioritising pest management activities, including:

i. Any areas of significant indigenous vegetation and significant habitats of indigenous fauna;

ii. Any local indigenous biological diversity strategies.

6.6 Pan-regional pest management strategy

6.6.1 The regional council may develop a pest management strategy with neighbouring regions.

6.7 Urban stream plans

6.7.1 District and city councils may develop and implement urban stream restoration plans, for the restoration of the natural character and natural functioning of urban streams.

6.8 Waste Management and Minimisation Plans

6.8.1 City and District Councils will develop Waste Management and Minimisation Plans in accordance with the Waste Minimisation Act 2008 and any regional strategy.

6.9 Waste and hazardous substances:

6.9.1 Regional, city and district councils may develop strategies or similar documents to:

a. Provide an integrated approach to waste management under the NZ Waste Strategy 2010, the RMA, the Waste Minimisation Act 2008; the Hazardous Substances and New Organisms Act 1996, the Climate Change Response Act 2002 and the Local Government Act 2002;

b. Provide an integrated approach to hazardous substances management under the RMA, the Hazardous Substances and New Organisms Act 1996, the Climate Change Response Act 2002 and the Local Government Act 2002.

**Method 7 Education and Information**

7.1 Providing public information

7.1.1 Regional, district and city councils may provide information and guidance on:

a. The maintenance, restoration and enhancement of indigenous ecosystems and habitats;

b. Natural hazard risk responses;

c. Ways to adapt to and mitigate the effects of climate change;

d. The benefits of natural features and systems in mitigating natural hazards;

e. The control of pest species.

7.1.2 Regional council will provide information and guidance on:

a. Natural hazards;

b. Rainfall and river flow;

c. Climate change;

d. Measures to mitigate erosion risks resulting from land uses;

e. Riparian margin management, especially on flooding and erosion risks;

f. Measures to maintain or enhance soil quality;

g. Discharge management, including on reducing domestic discharges to air;

h. The management of diffuse discharges to water;

i. The ecosystem services derived from indigenous biological diversity;

j. On the benefits of riparian margin management, especially on flooding and erosion risks.

7.1.3 City and district councils will:

a. Provide available natural hazard information through the Land (LIM) and Property Information Memorandum (PIM) process;

b. Provide available information on known or potentially contaminated sites through the LIM and PIM process;

7.1.4 City and district councils may provide information and guidance on:

a. Crime prevention through environmental design and urban design principles to inform local development proposals;

b. Urban design techniques to respond to the different access requirements or needs of the community;

c. Design techniques to enable adaptive reuse of buildings;

d. Water conservation and the efficient domestic use of water;

e. Measures for increased energy efficiency and energy conservation;

f. Opportunities for the development of small-scale renewable electricity generation.

g. The projected demographic changes to local communities.

7.1.5 Regional, city and district councils will provide information and guidance on waste minimisation and management.

7.1.6 Regional Council may facilitate and support a regional response to hazardous substances collection, disposal and recycling services.

**Method 8: Funding**

8.1 Providing financial support

8.1.1 Regional, city and district councils may:

a. Establish and administer funds to provide public access or services to sites of significance on privately owned land;

b. Fund community groups and projects with aims that complement RPS objectives and policies.

**Method 9: Advocacy and Facilitation**

9.1 Promotion

9.1.1 Regional, city and district councils will work with stakeholders, including central government agencies and other interested parties, on resource management matters;

9.1.2 Regional, city and district councils may advocate for:

a. Initiatives and proposals which support or complement the goals of the RMA, RPS and supporting documents;

b. Subdivision and building design that increases passive solar gain and uses higher levels of insulation in buildings to improve energy efficiency;

c. The implementation of the waste hierarchy throughout the region;

d. National guidance on managing natural hazards, and mitigating and adapting to climate change;

e. Legislative change to improve resilience and reduce the risk of natural hazards and climate change to individuals and communities;
f. The development of infrastructure and services to provide for hazardous substance collection, disposal and recycling services across the region;
g. The development, upgrade or maintenance of infrastructure, when it will enhance Otago's communities' well-being or health and safety;

9.1.3 Enhance individual and community resilience by encouraging activities and actions that:

a. Promote interactions and partnerships within and between communities, businesses and organisations;
b. Support self-sufficiency;
c. Improve disaster readiness, response and recovery;
d. Enable opportunities for improvements to be made following a disaster event;
e. Contribute to the retention of historic heritage places, areas or landscapes, including maintenance and seismic strengthening;
f. Encourage an approach to resource management that assists in reducing individual and community natural hazard risk and in reducing the effects of climate change.

9.1.4 Regional, city and district councils may promote:

a. Subdivision and urban development that responds to and anticipates the changing demographic needs of the local community;
b. The development and adoption of best practice guidelines for the use and management of hazardous substances, and a reduction in hazardous substance use.

9.1.5 City and district councils will:

a. Promote the integration of new development with existing areas through the use of elements that reflect local character;
b. Encourage the adaptive reuse of buildings;
c. Ensure consideration of orientation and design for solar gain in subdivision and building design;
d. Advocate for the establishment of solid waste management and disposal facilities.

9.2 Facilitation

9.2.1 Regional, city and district councils may facilitate the restoration of natural wetlands or construction of artificial wetlands, particularly when it contributes to the:

a. Management of diffuse discharges to water;
b. Protection or restoration of indigenous species;
c. Mitigation of natural hazards;
d. Restoration of the natural character of wetlands.

9.2.2 Regional, city and district councils may facilitate the restoration or enhancement of riparian margins, particularly when they:

a. Improve the health and resilience of ecosystems supporting indigenous biological diversity;
b. Restore or rehabilitate indigenous biological diversity and natural character;
c. Encourage the natural regeneration of habitats, including habitats for indigenous species.
d. Contribute to a safe network of active transport infrastructure;
e. Improve access to rivers, lakes, wetlands and their margins;
f. Mitigate risks of erosion.

9.2.3 Regional, city and district councils may facilitate initiatives that support:
a. Community-based development of strategies and plans to maximise community, ecosystem and natural resource resilience at a scale sufficient for those natural and physical resources;
b. The conservation of indigenous vegetation;
c. Conservation of biological diversity;
d. Maintenance or enhancement of coastal values, including restoration or rehabilitation of the natural character;
e. The protection or restoration of the significant values of wetlands;
f. Co-ordination of the services provided by operators of lifeline utilities, essential and emergency services across and beyond Otago;
g. Energy conservation and efficiency, at a community or individual scale;
h. Small scale renewable electricity generation;

9.2.4 Regional, city and district councils may facilitate coordination between lifeline utilities for emergency management, including by:
a. Recognising the interconnections between lifeline utilities;
b. Encouraging any development or upgrade of infrastructure which would resolve potential weaknesses in emergency management.

9.2.5 Regional council will facilitate the restoration, rehabilitation or creation of freshwater and coastal habitats, particularly when it:
a. Encourages the natural regeneration of indigenous species;
b. Buffers or links ecosystems, habitats and areas of significance that contribute to ecological corridors;
c. Maintains or enhances the provision of indigenous ecosystem services.

9.2.6 Regional council will facilitate the control of pest species, including wilding pines, particularly when it contributes to the protection or restoration of:
a. Outstanding or highly valued landscapes;
b. Indigenous species.

9.2.7 Regional council will facilitate the establishment of:
a. Water management groups that co-ordinate the exercise of water-related consents;
b. Water allocation committees for the management of water allocation in case of drought.

9.2.8 Regional, city and district councils may facilitate:

a. The planning for community infrastructure, when it would increase the efficiency of water use;

b. Negotiations with landowners for public or Kāi Tahu access to sites of significance that do not have suitable access.

# Monitoring Procedures and Anticipated Environmental Results

## Monitoring Procedures

This section describes the procedures that will be used to monitor the efficiency and effectiveness of PRPS provisions, as required by the section 62(1)(j) of the RMA.

Within 12 months of the PRPS becoming operative, the Regional Council will develop specific indicators and measures to monitor the RPS against its anticipated environmental results.

The Regional Council will report on the efficiency and effectiveness of the PRPS based on those indicators and measures, and review those indicators and measures every five years. This work will be in accordance with Section 35 of the RMA, and integrated with the other significant monitoring work that the ORC carries out, such as state of the environment reporting and compliance with resource consents.

These procedures are set out in Method 5 Research, Monitoring and Reporting.

The following section identifies environmental results anticipated from implementing the policies and methods of the PRPS.

## Anticipated Environmental Results

### 1. Resource management in Otago is integrated

| | |
|---|---|
| **Objective 1.1** | **AER 1.1** |
| Otago's resources are used sustainably to promote economic, social, and cultural wellbeing for its people and communities | The economic, social, and cultural wellbeing of Otago's people and communities is enabled through sustainable use, development and protection of natural and physical resources |
| **Objective 1.2** | **AER 1.2** |
| Recognise and provide for the integrated management of natural and physical resources to support the wellbeing of people and communities in Otago | Natural and physical resources are managed in an integrated way |

### 2. Kāi Tahu values and interests are recognised and kaitiakitaka is expressed.

| | |
|---|---|
| **Objective 2.1** | **AER 2.1** |
| The principles of Te Tiriti o Waitangi are taken into account in resource management processes and decisions | Te Tiriti o Waitangi principles are adhered to |

| | |
|---|---|
| **Objective 2.2**<br>Kāi Tahu values, interests and customary resources are recognised and provided for | **AER 2.2**<br>Kāi Tahu values and culture are respected and able to be expressed |

## 3. Otago has high quality natural resources and ecosystems

| | |
|---|---|
| **Objective 3.1**<br>The values (including intrinsic values) of ecosystems and natural resources are recognised and maintained, or enhanced where degraded | **AER 3.1**<br>Water bodies support healthy ecosystems, are safe for swimming, and maintain their natural form and character<br><br>**AER 3.2**<br>The quality of coastal environment is maintained or enhanced<br><br>**AER 3.3**<br>The quality of soils is maintained or enhanced<br><br>**AER 3.4**<br>The health and diversity of ecosystems is maintained or enhanced<br><br>**AER 3.5**<br>Ambient air quality is maintained or enhanced |
| **Objective 3.2**<br>Otago's significant and highly-valued natural resources are identified and protected, or enhanced where degraded | **AER 3.6**<br>The extent of, and values of, significant and highly valued natural resources and are protected or enhanced |

## 4. Communities in Otago are resilient, safe and healthy

| | |
|---|---|
| **Objective 4.1**<br>Risk that natural hazards pose to Otago's communities are minimised | **AER 4.1**<br>The location and design of new developments and natural resource uses reduce community exposure to the adverse effects of multiple, large, and diverse shock events and processes. |
| **Objective 4.2**<br>Otago's communities are prepared for and able to adapt to the effects of climate change | **AER 4.2**<br>The impact on life, property, lifeline utilities, and essential services from climate change is reduced |
| **Objective 4.3**<br>Infrastructure is managed and developed in a sustainable way | **AER 4.3**<br>Infrastructure is safe, and efficient and the adverse effects of infrastructure on outstanding and highly-valued natural and physical resource values are avoided, remedied or mitigated. |

| | |
|---|---|
| **Objective 4.4**<br>Energy supplies to Otago's communities are secure and sustainable | **AER 4.4**<br>The use of local renewable energy sources increases and reliance on fossil fuels decreases |
| **Objective 4.5**<br>Urban growth and development is well designed, reflects local character and integrates effectively with adjoining urban and rural environments | **AER 4.5**<br>Urban areas are compact, maximise the use of existing services and infrastructure and are able to adapt to evolving standards and to the changing requirements of its inhabitants and surrounding natural and physical environment |
| **Objective 4.6**<br>Hazardous substances, contaminated land and waste materials do not harm human health or the quality of the environment in Otago | **AER 4.6**<br>Hazardous substances, contaminants and waste materials are not harmful to the environment, people and communities.<br><br>**AER 4.7**<br>The waste hierarchy is implemented, resulting in less waste requiring disposal and a reduction of the environmental effects generated from waste. |

## 5. People are able to use and enjoy Otago's natural and built environment

| | |
|---|---|
| **Objective 5.1**<br>Public access to areas of value to the community is maintained or enhanced | **AER 5.1**<br>The coast, lakes and rivers can be accessed by the public |
| **Objective 5.2**<br>Historic heritage resources are recognised and contribute to the region's character and sense of identity | **AER 5.2**<br>Significant historic heritage is identified, protected, and integrated into current and future uses |
| **Objective 5.3**<br>Sufficient land is managed and protected for economic production | **AER 5.3**<br>The effects of land management do not preclude future economic uses of land |
| **Objective 5.4**<br>Adverse effects of using and enjoying Otago's natural and physical resources are minimised | **AER 5.4**<br>The number and severity of environmental issues is reduced |

# PART D Schedules and Appendices

## Schedule 1 Kāi Tahu values & interests

The following Kāi Tahu values and interests must be considered in planning and consenting decisions. Some interests are specific to particular papatipu rūnaka, and others are more generally applicable.

## Schedule 1A Kāi Tahu values

This schedule is a guide to assist in identifying Kāi Tahu values. It is not a complete list of all values Kāi Tahu have.

Kāi Tahu do not see their existence as separate from Te Ao Tūroa, the natural world, but as an integral part of it. Through whakapapa, genealogy, all people and life forms descend from a common source. Whakapapa binds Kāi Tahu to the mountains, forests and waters and the life supported by them, and this is reflected in traditional attitudes towards the natural world and resource management.

Whakawhanaukataka, the process of maintaining relationships, embraces whakapapa, through the relationship between people, and between people and the environment. The nature of these relationships defines people's rights and responsibilities in relation to the use and management of resources in.

All things have the qualities of wairua, spiritual dimension, and mauri, life force or life supporting capacity, and have a genealogical relationship with each other.

Mauri provides the common centre between the natural resources, taoka, the people or guardians who care for the taoka, the kaitiaki, and the management framework, tikaka, of how taoka are to be managed by the kaitiaki. It is through kawa, protocol, that the relationship between taoka, tikaka and kaitiakitaka is realised.

Each papatipu rūnaka has its own takiwā determined by natural boundaries such as headlands, mountain ranges and rivers, see Schedule 1B. This political and operational authority over an area is undertaken by takata whenua and encompasses kaitiakitaka and rakatirataka. An integral element of the concepts of kaitiakitaka and rakatirataka is the recognition that Kāi Tahu have their own traditional means of managing and maintaining resources and the environment. This system of rights and responsibilities is inherited from previous generations and has evolved over time.

The resources in any given area are a point of prestige for the people who reside there and are a statement of identity. Traditionally, the abundance or lack of resources directly determines the welfare of every tribal group, and so affects their mana.

**Ki Uta Ki Tai**

Ki uta ki tai is a Kāi Tahu term that has become synonymous with the way Kāi Tahu think about natural resource management. Ki uta ki tai, from the mountains to the sea, is the concept used to describe holistic natural resource management.

Ki uta ki tai is the Kāi Tahu way of understanding the natural environment, including how it functions, how people relate to it and how it can be looked after appropriately.

**Rakatirataka**

Rakatirataka is about having the mana or authority to give effect to Kāi Tahu culture and traditions in the management of the natural world. Recognition of the relationship of Kāi Tahu and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taoka are embedded in the RMA and the Treaty.

**Kaitiakitaka**

Kaitiakitaka means the exercise of guardianship by Kāi Tahu of an area in accordance with tikaka Māori in relation to natural and physical resources and includes the ethic of stewardship. This statutory definition of kaitiakitaka is, however, a starting point only for Kāi Tahu, as kaitiakitaka is a much wider cultural concept than guardianship. Kaitiakitaka entails the active protection and responsibility for natural and physical resources by Kāi Tahu.

Kaitiakitaka is fundamental to the relationship between Kāi Tahu and the environment. The objectives of kaitiakitaka are to protect the life supporting capacity of the environment and to pass the environment on to future generations in an enhanced state. For Kāi Tahu, kaitiakitaka is not passive custodianship, nor is it simply the exercise of traditional property rights, but it entails an active exercise of responsibility in a manner beneficial to the resource.

**Tikaka**

Tikaka Māori encompasses the beliefs, values, practices and procedures that guide appropriate codes of conduct, or ways of behaving. In the context of natural resource management, observing tikaka is part of the ethic and exercise of kaitiakitaka. It is underpinned by a body of Mātauraka Māori, Māori knowledge, and is based on a general understanding that people belong to the land and have a responsibility to care for and manage the land. It incorporates forms of social control to manage the relationship of people and the environment, including concepts such as tapu, noa and rāhui.

Tikaka is based on traditional practices, but is dynamic and continues to evolve in response to different situations.

**Taoka**

All natural resources, air, land, water, and indigenous biological diversity, are taoka. Taoka are treasured resources that are highly valued by Kāi Tahu, derived from the atua, gods, and left by the tūpuna, ancestors, to provide and sustain life. In the management of natural resources, it is important that the habitats and wider needs of taoka species are sustainably managed and enhanced.

**Mahika Kai**

Mahika kai is one of the cornerstones of Kāi Tahu cultural identity. Mahika kai is a term that literally means "food workings" and refers to the customary gathering of food and natural materials and the

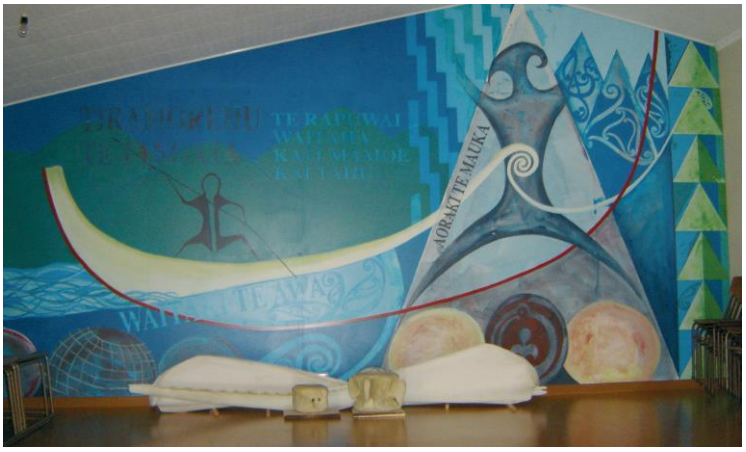
places where those resources are gathered or produced. The term also embodies the traditions, customs and collection methods, and the gathering of natural resources for cultural use, including raraka, weaving, and rokoā, traditional medicines. Maintaining mahika kai sites, gathering resources, and continuing to practice the tikaka that governs each resource, is an important means of passing on cultural values and mātauraka Māori, traditional knowledge, to the next generation.

# Schedule 1B Interests specific to particular papatipu rūnaka

This schedule is a guide to assist in identifying Kāi Tahu interests. It is not a complete list of all interests Kāi Tahu have.

**Te Rūnanga o Moeraki**

The takiwā of Te Rūnanga o Moeraki is centred on Moeraki and extends from the Waitaki River to the Waihemo, Shag, River and inland to the Main Divide. The coastal interests of Te Rūnanga o Moeraki are concentrated in the Moeraki Peninsula area and surrounds, including Te Raka-a-Hine-atea Pā, Koekohe, Hampden Beach, and Te Kai Hinaki, the Boulders Beach, with its boulders.




**Te Rūnanga o Moeraki Marae, Moeraki**

**Kāti Huirapa Rūnaka ki Puketeraki**

The takiwā of Kāti Huirapa Rūnaka ki Puketeraki centres on Karitāne and extends from the Waihemo, Shag, River to Purehurehu, Heyward Point, and includes an interest in Ōtepoti and the greater harbour of Ōtākou. The takiwā extends inland to the Main Divide sharing an interest in the lakes and mountains to Wakatipu Waitai with rūnaka to the south. The kaimoana resources of the coast from Karitāne to Okahau/Blueskin Bay and Pūrākaunui, and the kai awa of the Waikouaiti River and estuary are treasured and well-utilised mahika kai for Kāti Huirapa Rūnaka ki Puketeraki.

**Puketeraki Marae**

**Te Rūnanga o Ōtākou**

The takiwā of Te Rūnanga o Ōtākou centres on Muaūpoko, Otago Peninsula, and extends from Purehurehu, Heyward Point, to Te Mata-Au, Clutha River, and inland, sharing an interest in the lakes and mountains to the western coast with rūnaka to the north and south. The Otago Harbour has a pivotal role in the well-being of Ōtākou people. The harbour is a source of identity, a bountiful provider of kaimoana, and it is the pathway to the fishing grounds beyond. Traditionally it was the mode for other hapū to visit, and in today's world it is the lifeline to the international trade that benefits the region. The ebb and flow of the harbour tides is a valued certainty in a world of change, a taoka to be treasured and protected for the benefit of current and future generations.

**Ōtākou Marae, Otago Peninsula**

**Hokonui Rūnanga**

The takiwā of Hokonui Rūnaka centres on the Hokonui region and includes a shared interest in the lakes and mountains between Whakatipu-Waitai and Tawhitarere with other Murihiku Rūnanga and those located from Waihemo southwards. Although Hokonui Rūnanga is based in Gore, their interests in the Otago area, especially South Otago, are significant. They hold this in common with other Otago Rūnaka through whakapapa, history and tradition.

**Hokonui Marae**

**Whānau Rōpū**

Moturata Taieri Whānau and Waikoau Ngāi Tahu Rūnaka, South Otago, are whānau rōpū that have an interest in the coastal area from the Catlins south to Bruces Rocks.

Whānau rōpū are located in areas that hold a strong tradition of Kāi Tahu presence close to the Papatipu lands reserved from the 1840s land sales. The whānau rōpū are associated with the Papatipu Rūnaka.

## Schedule 1C Wāhi tupuna

This schedule is a guide to assist in identifying wāhi tūpuna. It is not a complete list of all wāhi tūpuna in Otago.

Kāi Tahu use the term 'wāhi tūpuna' to describe landscapes that embody the customary and contemporary relationship of Kāi Tahu and their culture and traditions with Otago. It is important to understand this concept in the context of the distinctive seasonal lifestyle that Kāi Tahu evolved in the south. The sites and resources used by Kāi Tahu are spread throughout Otago. These places did not function in isolation from one another but were part of a wider cultural setting and pattern of seasonal resource use. The different elements of these sites of significance include:

| Site of Significance | Explanation |
|---|---|
| Ara Tawhito | Ancient trails. A network of trails crossed the region linking the permanent villages with seasonal inland campsites and along the coast, providing access to a range of mahika kai resources and inland stone resources, including pounamu and silcrete. |
| Kāika | Permanent settlements or occupation sites. These occurred throughout Otago, particularly in coastal areas. |
| Nohoaka | These were a network of seasonal settlements. Kāi Tahu were based largely on the coast in permanent settlements, and ranged inland on a seasonal basis. Iwi history shows, through place names and whakapapa, continuous occupation of a network of seasonal settlements, which were distributed along the main river systems from the source lakes to the sea. |
| Wāhi Mahika kai | The places where the customary gathering of food or natural materials occurs. Mahika kai is one of the cornerstones of Kāi Tahu culture. |
| Mauka | Important mountains. Mountains are of great cultural importance to Kāi Tahu. Many are places of spiritual presence, and prominent peaks in the district are linked to Kāi Tahu creation stories, identity and mana. |
| Marae | The marae atea and the buildings around it, including the wharenui, wharekai, church and urupā. The sheltering havens of Kāi Tahu cultural expression, a place to gather, kōrero and to welcome visitors. Marae are expressions of Kāi Tahu past and present. |

| | |
|---|---|
| Repo raupo | Wetlands or swamps. These provide valued habitat for taoka species and mahika kai resources. |
| Tauraka waka | Canoe mooring sites. These were important for transport and gathering kai. |
| Tūāhu | Places of importance to Māori identity. These are generally sacred ground and marked by an object, or a place used for purposes of divination. |
| Taumanu | Fishing sites. These are traditional fishing easements which have been gazetted by the South Island Māori Land Court. |
| Umu, Umu-tī | Earth ovens. Used for cooking tī-kōuka (cabbage tree), are found in a diversity of areas, including old stream banks and ancient river terraces, on low spurs or ridges, and in association with other features, such as kāika nohoaka. |
| Urupā | Human burial sites. These include historic burial sites associated with kāika, and contemporary sites, such as the urupā at Ōtākou and Puketeraki marae. |
| Wāhi kōhatu | Rock outcrops. Rocky outcrops provided excellent shelters and were intensively occupied by Māori from the moa-hunter period into early European settlement during seasonal hikoi. Tuhituhi neherā (rock art) may be present due to the occupation of such places by the tūpuna. |
| Wāhi pakaka | Battle sites. Historic battle sites occur throughout Otago, such as that at Ohinepouwera (Waikouaiti sandspit) where Taoka's warriors camped for six months while they laid siege on Te Wera on the Huriawa Peninsula. |
| Wāhi paripari | Cliff areas. |
| Wāhi taoka | Resources, places and sites treasured by manawhenua. These valued places reflect the long history and association of Kāi Tahu with Otago. |
| Wāhi tapu | Places sacred to Kāi Tahu. These occur throughout Otago and include urupā (human burial sites). |
| Wāhi tohu | Features used as location markers within the landscape. Prominent landforms formed part of the network of trails along the coast and inland. |

| | |
|---|---|
| | These acted as fixed point locators in the landscape for travellers and are imbued with history. |
| Wai Māori | Freshwater areas important to Māori, including wai puna (springs), roto (lakes) and awa (rivers). |

# Schedule 1D Māori land reserves

A Native Reserve is any property or site that is a:

- Native Reserve excluded from the Ōtākou Land Purchases (1844)
- Native Reserve excluded from the Kemps Land Purchases (1848)
- Reserve granted by the Native Land Court (1868)
- Half Caste Reserve (1881)
- Landless Native Reserve (1896)
- Other reserve (1890 and 1900)

A number of Māori reserves exist that were excluded from the land sales of the 1840s. These reserves are steeped in history and association and are places of belonging. Remaining reserves are located at Moeraki, Waikouaiti, Ōtākou, Onumia, Taieri Mouth, and Te Karoro, Kaka Point. Other categories of Māori land exist at Koputai, Port Chalmers, and Ōtepoti, Dunedin, where tauraka waka, landing sites, were recognised. In addition, land was held at Manuhaea, Lake Hawea, Aramoana, Clarendon, Taieri Mouth, Tautuku-Waikawa and Glenomaru amongst others. Landing reserves were allocated at Matainaka, Waikouaiti, and the former Lake Tatawai on the Taieri Plains.

The following table lists the reserves in Otago. Many of the sections within these Native Reserves now have the status of general land. While some of this general land is still in Māori ownership, many of the general titled sections have been sold to non-Māori or taken under various pieces of legislation such as the Public Works Act. Although these sections are no longer in whānau ownership, descendants of the original owners retain an ancestral relationship with these lands.

**Native Reserves located within the Otago region**

| Location | Comments | Reserve Type |
|---|---|---|
| Tautuku | Southern block of Tautuku sections | South Island Landless Natives Act |
| | Northern sections are Reserved lands | Native Reserve |
| Glenomaru | Located south of Kaka Point | South Island Landless Natives Act |
| Maranuku | Granted in 1844 as part of the Otakou Purchase. Originally called Te Karoro, split into two reserves | Native Reserve |
| Clarendon | Located inland from Taieri Mouth | Clarendon Half Caste Reserve |
| Taieri | Granted in 1844 as part of the Otakou Purchase Deed. Split into three reserves; A, B and C | Native Reserve |

| | | |
|---|---|---|
| Lake Tatawai | Located on the Taieri Plain, south of the Dunedin City Airport | Native Reserve |
| Lake Tatawai | Lake that is now drained | Landing Reserve |
| Otago Heads Native Reserve | Granted in 1844 as part of the Otakou Purchase Deed. Split into four reserves | Native Reserve |
| Port Chalmers | Granted in 1848 as part of the Otakou Purchase Deed. A further grant adjacent to the Reserve was made in approximately 1888 | Native Reserve |
| Aramoana | This reserve resulted from the Purakaunui Half Caste grant | Half Caste Reserve |
| Purakaunui | Granted in 1848 as part of Kemp's Purchase Deed. Further allocations were made in 1868 at Wharauwerawera | Native Reserve |
| Brinns Point | Granted in the latter part of the nineteenth century | Half Caste Reserve |
| Karitane (Waikouaiti Native Reserve) | Granted in 1848 as part of Kemp's Purchase Deed | Native Reserve |
| Matainaka and Hawksbury Fishing Easement | Two fishing easements fall under this reserve, Matainaka, located at Hawksbury Lagoon at Waikouaiti and the Forks Reserve located inland from Karitane. The legal description for the latter reserve is Section 1N Town of Hawksbury | Fishing Easement |
| Hawksbury | Located north of Waikouaiti, in the vicinity of Goodwood | Hawksbury Half Caste Reserve |
| Moeraki | Granted in 1848 as part of Kemp's Purchase Deed. Further awards were made in 1868 | Native Reserve |
| Kuri Bush | 10 acre reserve of timber | Native Reserve |
| Kakanui | Granted in 1848 as part of Kemp's Purchase Deed. By 1853, this Reserve was noted as being abandoned and the 75 acre allocation was added | Native Reserve |

| | | |
|---|---|---|
| | to the southern edge of the Moeraki Native Reserve. | |
| Korotuaheka | Located south of the Waitaki River mouth. Now Reserved as an urupa. It appears this originated as an occupational reserve and Fishing Easement | Partitioned in 1895. Possibly awarded as part of the 1868 awards. |
| Punaomaru | 376 acre reserve located approximately 14 miles from the Waitaki River mouth on the south bank of the river | Native Reserve |
| Lake Hawea | Reserve of 100 acres situated in the western extremity of the middle arm of Lake Hawea near a Lagoon. Part of the Reserve was taken for power development in 1962 and the balance of the land was alienated by the Māori Trustee in 1970 | Fishing Easement |


Native reserves in Otago

**Applicable legislation:**
In 2019, all Māori land is governed by Te Ture Whenua Māori Act 1993. Some lands, such as those at Port Chalmers also fall under the Māori Reserve Land Act 1955.

**Explanatory notes:**
Since approximately the mid 1890's, ancillary claim blocks have been awarded for various reasons. Ancillary claim blocks are Māori freehold land granted under the South Island Landless Natives Act 1906 to those who were left landless when the original reserves were granted. There are a number located throughout Otago. The ownership lists for these blocks are incomplete and information for these blocks is not readily available. As ancillary claim blocks do not form part of the original reservations, they are not included in the RPS. Māori Reservations that have been created in recent times and fall outside the boundaries of the Native Reserves are not included, such as land at Arai te Uru Marae in Shetland Street, Wakari, Dunedin and Whare Koa, located in Oamaru.

# Schedule 2 Statutory acknowledgement areas

Statutory acknowledgements are recorded in the Ngāi Tahu Claims Settlement Act 1998 for several water bodies, mountains and coastal features in the Otago Region.

These acknowledgements comprise a statement made by Te Rūnanga o Ngāi Tahu of the particular cultural, spiritual, historic and traditional association of Kāi Tahu with these areas.

Part 12 of the Ngāi Tahu Claims Settlement Act 1998 provides details of statutory acknowledgements, and the responsibilities relating to them. Section 208 of the NTSCA requires that local authorities have regard to these statutory acknowledgements in resource consent processing under Sections 95 of the RMA in deciding whether Te Rūnanga o Ngāi Tahu is a person who may be adversely affected by the granting of a resource consent for activities within, adjacent to or impacting directly on the statutory area.

The statutory acknowledgements provide a prototype for the approach to mapping wāhi tūpuna.

| Statutory Acknowledgement areas | Ngāi Tahu Claims Settlement Act 1998 Schedule Number |
|---|---|
| Ka Moana Haehae (Lake Roxburgh) | 22 |
| Kakaunui River | 23 |
| Kuramea (Lake Catlins) | 28 |
| Lake Hawea | 30 |
| Lake Wanaka | 36 |
| Mata-Au (Clutha River) | 40 |
| Matakaea (Shag Point) | 41 |
| Pikirakatahi (Mount Earnslaw) | 51 |
| Pomahaka River | 52 |
| Te Tauraka Poti (Merton Tidal Arm) | 60 |
| Te Wairere (Lake Dunstan) | 61 |
| Tititea (Mount Aspiring) | 62 |
| Tokatā (The Nuggets) | 64 |
| Waihola/Waipori Wetland | 70 |
| Whakatipu Wai Māori (Lake Wakatipu) | 75 |
| Te Tai O Arai Te Uru (Otago Coastal Marine Area) | 103 |

# Schedule 3 Criteria for the identification of outstanding natural features, landscapes and seascapes, and highly valued natural features, landscapes and seascapes

The identification of natural features, landscapes and seascapes will have regard to the following criteria:

| | | |
|---|---|---|
| 1. | Biophysical attributes | a. Natural science factors, including geological, topographical, ecological and dynamic components<br>b. The presence of water including in seas, lakes, rivers and streams<br>c. Vegetation (native and exotic) |
| 2. | Sensory attributes | a. Legibility or expressiveness—how obviously the feature or landscape demonstrates its formative processes<br>b. Aesthetic values including memorability and naturalness<br>c. Transient values including presence of wildlife or other values at certain times of the day or year<br>d. Wild or scenic values |
| 3. | Associative attributes | a. Whether the values are shared and recognised<br>b. Cultural and spiritual values for Kāi Tahu, identified by working, as far as practicable, in accordance with tikanga Māori; including their expression as cultural landscapes and features<br>c. Historical and heritage associations |

# Schedule 4 Criteria for the identification of areas of significant indigenous vegetation and habitat of indigenous fauna

The identification of areas of significant indigenous vegetation and habitat of indigenous fauna are assessed against all of the following criteria. Areas will be considered significant where they meet one or more of the following criteria.

| | | |
|---|---|---|
| 1. | Representativeness | An area that is an example of an indigenous vegetation type or habitat that is typical or characteristic of the natural diversity of the relevant ecological district or coastal marine biogeographic region. This may include degraded examples of their type or represent all that remains of indigenous vegetation and habitats of indigenous fauna in some areas. |
| 2. | Rarity | An area that supports:<br>a. An indigenous species that is threatened, at risk, or uncommon, nationally or within an ecological district or coastal marine biogeographic region;<br>b. Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent nationally, regionally or within a relevant land environment, ecological district, coastal marine biogeographic region or freshwater environment including wetlands;<br>c. Indigenous vegetation and habitats within originally rare ecosystems. |
| 3. | Diversity | An area that supports a high diversity of indigenous ecosystem types, indigenous taxa or has changes in species composition reflecting the existence of diverse natural features or gradients. |
| 4. | Distinctiveness | An area that supports or provides habitat for:<br>a. Indigenous species at their distributional limit within Otago or nationally;<br>b. Indigenous species that are endemic to the Otago region;<br>c. Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, or has developed as a result of an unusual environmental factor or combinations of factors. |
| 5. | Ecological Context | The relationship of the area with its surroundings, including:<br>a. An area that has important connectivity value allowing dispersal of indigenous vegetation and fauna between different areas;<br>b. An important buffering function that helps to protect the values of an adjacent area or feature;<br>c. An area that is important for indigenous fauna during some part of their life cycle, either regularly or on an irregular basis, e.g. for feeding, nesting, breeding, or refuges from predation. |
| 6. | Coastal Environment | An area identified in accordance with Policy 11 of the NZCPS. |

This schedule applies to indigenous vegetation and habitat of indigenous fauna in the terrestrial, coastal and marine environments.

The Regional Council holds additional information to inform decision making on these criteria including the rationale for criteria and examples of areas representing these criteria.

# Schedule 5 Criteria for the identification of historic heritage values

The identification of items, places and areas of historic heritage value will be based on but not limited to the following criteria:

| | |
|---|---|
| 1. | The extent to which the item, place or area reflects important or representative aspects of Otago or New Zealand history. |
| 2. | The association of the item, place or area with events, persons, or ideas of importance in Otago or New Zealand history. |
| 3. | The potential of the item, place or area to provide knowledge of Otago or New Zealand history. |
| 4. | The importance of the item, place or area to tangata whenua. |
| 5. | The community association with, or public esteem for, the item, place or area. |
| 6. | The potential of the item, place or area for public education. |
| 7. | The technical accomplishment, value or design of the item, place or area. |
| 8. | The symbolic or commemorative value of the item, place or area. |
| 9. | The importance of identifying historic items, places or areas known to date from an early period of New Zealand settlement: |

10. The importance of identifying rare types of historic items, places or areas:

11. The extent to which the item, place, or area forms part of a wider historical and cultural item, place or area.

# Schedule 6: Housing capacity

This schedule will be amended in accordance with NPS Urban Development Capacity requirements. Refer to Policy 4.5.1(c) Providing for urban growth and development.

# Appendix 1: Te Tiriti o Waitangi

Two versions of Te Tiriti o Waitangi, the Treaty of Waitangi, exist, an English version and a version in Te Reo. Under international law, where there is a conflict between the versions the Te Reo version should be given precedence.

The Te Reo version was signed by 512 Chiefs and the English text version was signed by 30 Chiefs. Both were signed on behalf of the Crown by William Hobson, Consul and Lieutenant Governor.

## Te Reo version of the Treaty

**Ko te tuatahi**

Ko nga Rangatira o te Wakaminenga me nga Rangatira katoa hoki ki hai i uru ki taua Wakaminenga ka tuku rawa atu ki te Kuini o Ingarani ake tonu atu te Kawanatanga katoa o o ratou wenua.

**Ko te tuarua**

Ko te Kuini o Ingarani ka wakarite ka wakaae ki nga Rangatira ki nga Hapu ki nga tangata katoa o Nui Tirani te tino rangatiratanga o o ratou wenua o ratou kainga me o ratou taonga katoa. Otiia ko nga Rangatira o te Wakaminenga me nga Rangatira katoa atu ka tuku ki te Kuini te hokonga o era waahi wenua e pai ai te tangata nona te wenua ki te ritenga o te utu e wakaritea ai e ratou ko te kai hoko e meatia nei e te Kuini hei kai hoko mona.

**Ko te tuatoru**

Hei wakaritenga mai hoki tenei mo te wakaaetanga ki te Kawanatanga o te Kuini. Ka tiakina e te Kuini o Ingarani nga tangata māori katoa o Nui Tirani ka tukua ki a ratou nga tikanga katoa rite tahi ki ana mea ki nga tangata o Ingarani.

## A Literal English Translation of the Māori Text

(NZ Court of Appeal, 29 June 1987, credited to Professor I H Kawharu)

**The First**

The Chiefs of the Confederation and all the chiefs who have not joined that Confederation give absolutely to the Queen of England for ever the complete government over their land.

**The Second**

The Queen of England agrees to protect the chiefs, subtribes and all the people of New Zealand in the unqualified exercise of their chieftainship over their lands, villages and all their treasures. But on the other hand the Chiefs of the Confederation and all the chiefs will sell land to the Queen at a price agreed to by the person owning it and by the person buying it (the latter being) appointed by the Queen as her purchase agent.

**The Third**

For this agreed arrangement therefore concerning the Government of the Queen, the Queen of England will protect all the ordinary people of New Zealand and will give them the same rights and duties of citizenship as the people of England.

## English version

**Article The First**

The chiefs of the Confederation of the United Tribes of New Zealand and the separate and independent Chiefs who have not become members of the Confederation cede to Her Majesty the Queen of England absolutely and without reservation all the rights and powers of Sovereignty which the said Confederation or Individual Chiefs respectively exercise or possess or may be supposed to exercise or to possess over their respective Territories as the sole sovereigns thereof.

**Article The Second**

Her Majesty the Queen of England confirms and guarantees to the Chiefs and Tribes of New Zealand and to the respective families and individuals thereof the full exclusive and undisturbed possession of their Lands and Estates Forests Fisheries and other properties which they may collectively or individually possess so long as it is their wish and desire to retain the same in their possession: but the Chiefs of the United Tribes and the individual Chiefs yield to her Majesty the exclusive right of Pre-emption over such lands as the proprietors thereof may be disposed to alienate at such prices as may be agreed upon between the respective Proprietors and persons appointed by Her Majesty to treat with them in that behalf.

**Article The Third**

In consideration thereof Her Majesty the Queen of England extends to the Natives of New Zealand Her Royal protection and imparts to them all the rights and Privileges of British Subjects.

# Glossary

If a word or phrase is not defined then the meaning should be taken to be the same as found in Section 2 of the RMA, or relevant National Policy Statement or National Environmental Standard. Terms not defined in either the glossary or the above documents should be interpreted in keeping with their common usage.

Where used in this regional policy statement, these terms have the following definitions.

| | |
|---|---|
| **1990 mean sea level (Otago Datum)** | The fixed level for basing subsequent level measurements on, in this case Otago Metric Datum is the Dunedin Vertical Datum (DVD 1958) plus 100 metres. |
| **Ahi kā** | Continued occupation according to traditional law of Māori tenure "keeping the fires burning". |
| **Ara Tawhito** | Ancient Trails. |
| **Atua** | God, supernatural being. |
| **Biodiversity Offsets** | Measurable conservation outcomes resulting from actions designed to compensate for residual adverse biodiversity impacts arising from project development after appropriate avoidance, minimisation, remediation and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground. |
| **Cascading hazards** | Where the occurrence of one natural hazard is likely to trigger another natural hazard event e.g. an earthquake triggering a landslide which dams a river causing flooding. |
| **Climate change** | A change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods. |
| **Coastal water** | Coastal water means seawater within the outer limits of the territorial sea and includes:<br>(a) Seawater with a substantial fresh water component; and<br>(b) Seawater in estuaries, fiords, inlets, harbours, or embayments. |
| **Contaminant** | Includes any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat: |

| | |
|---|---|
| | (a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition of water; or<br><br>(b) when discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged |
| **Contaminated Land** | Means land that has a hazardous substance in or on it that:<br><br>(a) has significant adverse effects on the environment; or<br><br>(b) is reasonably likely to have significant adverse effects on the environment |
| **Crime prevention through environmental design** | A set of principles that can be applied to the design and development of buildings and other public areas. It seeks to use effective design to reduce the incidence and fear of crime. |
| **Cumulative effects** | In regard to assessing natural hazard consequence, cumulative effects include:<br><br>a) The repeat of the same type of event, or different types of events, on the same area and/or people; and<br>b) The effects of an event on many areas and/or people. |
| **Customary** | In accordance with custom or habitual practice; usual; habitual. Customs, or customary uses, may include those involving uninterrupted use and occupation. The word 'customary' in this policy statement is used in accordance with its dictionary definition, and is not limited to its legal definition. |
| **Ecosystem** | A system of interacting terrestrial or aquatic living organisms within their natural and physical environment. |
| **Ecosystem services** | Are the resources and processes the environment provides that people benefit from e.g. purification of water and air, pollination of plants and decomposition of waste. |
| **Electricity distribution infrastructure** | Lines and associated equipment used for the conveyance of electricity on lines other than the National Grid or electricity sub-transmission infrastructure. |

| | |
|---|---|
| **Electricity sub-transmission Infrastructure** | Means electricity infrastructure which conveys electricity between the National Grid and renewable energy generation sources to zone substations and between zone substations. |
| **Electricity transmission infrastructure** | The National Grid of transmission lines and cables (aerial, underground and undersea, including the high-voltage direct current link), stations and sub-stations and other works used to connect grid injection points and grid exit points to convey electricity throughout the North and South Islands of New Zealand. |
| **Emergency services** | Has the meaning set out in section 4 of the Civil Defence Emergency Management Act 2002. |
| **Endemic** | Species that are naturally restricted to within a certain area. |
| **Essential services** | Include hospitals and health services, schools, public transport and essential commercial activities for civil defence purposes. |
| **Exit strategy** | A means of leaving a current situation that is likely to become difficult, e.g. as a result of natural hazards or climate change e.g. managed retreat or relocating dwellings. |
| **Fresh water** | Fresh water means all water except coastal water and geothermal water. |
| **Functional needs** | The locational, operational, practical or technical needs of an activity, including development and upgrades. |
| **Future development strategy** | In accordance with the NPS Urban Development Capacity |
| **Hapū** | Sub-tribe, extended whānau. |
| **Hazardous substance** | Has the meaning set out in section 2 of the Hazardous Substances and New Organisms Act 1996, but including non-toxic environmentally damaging substances, medicines in dosage form, hazardous biological substances and radioactive substances. |
| **Highly valued natural features, landscapes and seascapes** | Highly valued natural features, landscapes and seascapes are those which have values that are of significance under Sections 6(a), 6(c), 7(c) and 7(f), but are not 'outstanding natural features and landscapes' under Section 6(b) of the RMA. |
| **Indigenous species** | A species or genetic variant found naturally in New Zealand, including migrant species visiting New Zealand on a regular or irregular basis. |
| **Infrastructure** | a) Pipelines that distribute or transmit natural or manufactured gas, petroleum, biofuel, or geothermal energy; |

b) A network for the purpose of telecommunication as defined in section 5 of the Telecommunications Act 2001;
c) A network for the purpose of radiocommunication as defined in section 2(1) of the Radiocommunications Act 1989;
d) Facilities for the generation of electricity, lines used or intended to be used to convey electricity, and support structures for lines used or intended to be used to convey electricity, excluding facilities, lines, and support structures if a person—
    i. uses them in connection with the generation of electricity for the person's use; and
    ii. does not use them to generate any electricity for supply to any other person;
e) A water supply distribution system, including a system for irrigation;
f) A drainage or sewerage system;
g) structures for transport on land by cycleways, rail, roads, walkways, or any other means;
h) Facilities for the loading or unloading of cargo or passengers transported on land by any means;
i) An airport as defined in section 2 of the Airport Authorities Act 1966;
j) A navigation installation as defined in section 2 of the Civil Aviation Act 1990;
k) Facilities for the loading or unloading of cargo or passengers carried by sea, including a port related commercial undertaking as defined in section 2(1) of the Port Companies Act 1988;
l) Anything described as a network utility operation in regulations made for the purposes of the definition of “network utility operator” in section 166 of the Resource Management Act 1991.

**Iwi** Tribe.

**Iwi authority** The authority which represents an iwi and which is recognised by that iwi as having the authority to do so. Te Rūnanga o Ngāi Tahu is the iwi authority in Otago.

**Kāi Tahu** The collective of individuals who descend from Kāi Tahu, Kāti Māmoe and Waitaha, and who have mana whenua in Otago.

Note: In the south of the South Island, the local Māori dialect uses a 'k' interchangeably with 'ng'. The preference is to use a ‘k’ so southern Māori are known as Kāi Tahu, rather than Ngāi Tahu. In this document, the “ng” is used for the iwi in general, and the “k” for southern Māori in particular.

| | |
|---|---|
| **Kāi Tahu ki Otago** | The four Papatipu Rūnaka and associated whānau and rōpū of the Otago Region. |
| **Kāika** | Settlement. |
| **Kaimoana** | Food obtained from the sea. |
| **Kaitiaki** | Guardian. |
| **Kaitiakitaka** | The exercise of customary custodianship, in a manner that incorporates spiritual matters, by Kāi Tahu who hold manawhenua status for particular area or resource. |
| **Ki Uta Ki Tai** | Mountains to the sea. |
| **Lifeline utilities** | Utilities provided by those entities listed in Schedule 1 of the Civil Defence Emergency Management Act, 2002. |
| **Mahika Kai** | The customary gathering of food and natural materials and the places where those resources are gathered. |
| **Mana Whenua** | Customary authority or rakatirataka exercised by an iwi or hapū in an identified area. |
| **Manawhenua** | Those who exercise customary authority or rakatirataka in an identified area. |
| **Marae** | The marae atea and the complex of buildings around it, including the wharenui, wharekai, church and urupa. |
| **Marae atea** | Courtyard or meeting place in front of the wharenui. |
| **Marae related activity** | Māori cultural activities and provision of services primarily aimed at the health and wellbeing of the Māori population, by or for Kāi Tahu, undertaken on a marae that has the approval of rūnaka, including:<br>a) Hui;<br>b) Wānaka;<br>c) Tangi;<br>d) Overnight accommodation for visitors;<br>e) Events and gatherings;<br>f) Health services; and<br>g) Cultural tourism. |
| **Mauka** | Mountain. |

| | |
|---|---|
| **Mauri** | Life supporting capacity. This definition, while not replicating the term 'Mauri', achieves the essence of this concept. |
| **Multiple hazards** | Where two or more unrelated natural hazard events may occur. |
| **Municipal infrastructure** | Infrastructure for:<br>a) Conveyance of untreated water from source to, and including, the point of its treatment to potable standard for an urban environment (see below), but excluding its distribution within that urban environment;<br>b) Treatment of wastewater from a reticulated system in an urban environment (see below) and conveyance for its disposal, but excluding its pre-treatment collection within that urban environment;<br>c) Treatment of stormwater from a reticulated system in an urban environment (see below) and conveyance for its disposal, but excluding its pre-treatment collection within that urban environment.<br><br>Urban Environment means:<br>a) Dunedin, Queenstown, Oamaru and any other urban area within Otago that qualifies as an urban environment as defined by the National Policy Statement on Urban Development Capacity 2016.<br>b) An area of land containing, or intended to contain, a concentrated settlement of 10,000 people or more and any associated business land, irrespective of local authority or statistical boundaries). |
| **Native Reserve** | Any property or site that is a: Native Reserve excluded from the Ōtākou Land purchases (1844), Native Reserves excluded from the Kemps Land Purchases (1848), Reserves granted by the Native Land Court (1868), Half Caste Reserves (1881), Landless Native Reserve (1896), Other reserves (1890 and 1900). |
| **Natural hazard** | Includes any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment. |
| **No net loss** | In the context of biodiversity offsets, means no net loss with respect to:<br>a) Species abundance, population structure, and composition (e.g. individual species or species groups) |

| | |
|---|---|
| | b) Habitat structure (e.g. vegetation tiers, vegetation pattern)<br>c) Ecosystem function (e.g. nutrient cycling rates)<br>d) People's use of and cultural values associated with biodiversity (e.g. particularly valued habitats or species). |
| **Nohoaka/Nohoanga** | Seasonal settlements. |
| **Originally rare** | In relation to terrestrial ecosystems, "originally" means the ecosystem type was present when Māori arrived, and still exists today. "Rare" means the total extent of each originally rare ecosystem type is less than 0.5 percent of New Zealand's total area – that is, less than 134,000 hectares. A published list of originally rare terrestrial ecosystem types has been compiled by Landcare Research and is available from that organisation. |
| **Papakāika** | Traditional settlement or settlement on traditional land. |
| **Papatipu Rūnaka/Rūnanga** | Local manawhenua representative group or community system of representation. |
| **Pounamu** | Nephrite, greenstone, jade. |
| **Primary Production** | The use of land and auxiliary buildings for the production (but not processing) of primary products (including agricultural, pastoral, horticultural, and forestry products). Primary production does not include land or auxiliary buildings used or associated with prospecting, exploration, or mining for minerals. |
| **Rāhui** | Restriction on access to a specific resource for a particular time. |
| **Rakātira** | Chief. |
| **Rakātirataka** | Chieftainship, decision-making rights. |
| **Renewable electricity generation** | The generation of electricity from solar, wind, hydro electricity, geothermal, biomass, tidal, wave, or ocean current energy sources. |
| **Residual risk** | The risk remaining after the implementation or undertaking of risk management measures. |
| **Resilient / Resilience** | The capacity and ability to withstand or recover quickly from difficult conditions. |
| **Reverse sensitivity** | The potential for the operation of an existing lawfully established activity to be constrained or curtailed by the more recent establishment or |

| | |
|---|---|
| | intensification of other activities which are sensitive to the established activity. |
| **Risk** | In the context of natural hazards means a combination of the likelihood of occurrence and consequences of a natural hazard event, and incorporates the concept of probabilities and impacts included in the definition of "effect" in Section 3 of the RMA. |
| **Rohe** | Boundary. |
| **Rōpū** | Grouping. |
| **Significant electricity distribution infrastructure** | Means electricity infrastructure which supplies:<br>a) Essential public services (such as hospitals and lifeline facilities);<br>b) Other regionally significant infrastructure or individual consumers requiring supply of 1MW or more;<br>c) 700 or more consumers; or<br>d) Communities that are isolated and which do not have an alternative supply in the event the line or cable is compromised and where the assets are difficult to replace in the event of failure. |
| **Statutory acknowledgement** | An acknowledgement by the Crown of Ngāi Tahu's special relationship with identifiable areas, namely Ngāi Tahu's particular cultural, spiritual, historical, and traditional association with those areas (known as statutory areas). |
| **Surf break** | A natural feature that is comprised of swell, currents, water levels, seabed morphology, and wind. The hydrodynamic character of the ocean (swell, currents and water levels) combines with seabed morphology and winds to give rise to a 'surfable wave'. A surf break includes the 'swell corridor' through which the swell travels, and the morphology of the seabed of that wave corridor, through to the point where waves created by the swell dissipate and become non-surfable. 'Swell corridor' means the region offshore of a surf break where ocean swell travels and transforms to a 'surfable wave'. 'Surfable wave' means a wave that can be caught and ridden by a surfer. Surfable waves have a wave breaking point that peels along the unbroken wave crest so that the surfer is propelled laterally along the wave crest. |
| **System** | A set of discrete components interconnected and working together to function as a complex whole. |

| | |
|---|---|
| **Takata whenua** | The iwi or hapū that holds mana whenua in a particular area. |
| **Takiwā** | Area, region, district. |
| **Te Ao Tūroa** | The natural environment. |
| **Te Tai o Arai Te Uru** | Otago Coastal Marine Area. |
| **Te Wai Pounamu** | The South Island. |
| **Tikaka** | Lore and custom, customary values and practices. |
| **Tino Rangatirataka** | Full chiefly authority. |
| **Tōpuni** | Named for the Tōpuni cloak worn by Ngāi Tahu rakatira, Tōpuni in this sense provides a public symbol of Ngāi Tahu manawhenua and rakatirataka over some of the most prominent landscape features and conservation areas in Te Wai Pounamu. Under the Ngāi Tahu Claims Settlement Act 1998 Tōpuni has been laid over 14 areas of public conservation land of significance to Ngāi Tahu. |
| **Tuhituhi neherā** | Rock art. |
| **Tūpuna/tīpuna** | Ancestor. |
| **Umu-tī** | Earth oven used for cooking tī. |
| **Urban growth boundary** | Boundary mapped in district plans to identify areas of existing urban development and where further urban development can take place over the next 10 years and beyond. |
| **Urupā** | Burial place. |
| **Wāhi Taoka** | Resources, places and sites treasured by Kāi Tahu. |
| **Wāhi Tapu** | Places sacred to Kāi Tahu. |
| **Wāhi Tūpuna** | Landscapes and places that embody the relationship of manawhenua and their culture and traditions with their ancestral lands, water, sites, wāhi tapu, and other taoka. |
| **Wairua** | Life principle, spirit. |
| **Waka** | Canoe. |

| | |
|---|---|
| **Wānaka/Wānanga** | Customary learning method. |
| **Waste** | Has the meaning set out in section 5 of the Waste Minimisation Act 2008. |
| **Water body** | Fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area. |
| **Wetland** | Wetland includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions.<br><br>In this Regional Policy Statement, 'wetland' excludes any wetland constructed for the purpose of water quality management |
| **Whakapapa** | Genealogy. |
| **Whānau** | Family. |
| **Whānau Rōpū** | Whānau grouping. |
| **Whare Kai** | Dining hall. |
| **Wharenui** | Ancestral meeting house. |
| **Whenua** | Land. |

# User Index

This index assists users of the Regional Policy Statement for Otago in identifying the most relevant objectives and policies that relate to a specific topic. Topics are presented in this index in alphabetical order. The index is a guide only and other policies may be relevant.

Chapter One 'Resource Management in Otago is Integrated' and Chapter Two 'Kāi Tahu Values and Interests are Recognised and Kaitiakitaka is Expressed' should be considered in every instance.

Otago Regional Council

# Proposed Otago Regional Policy Statement June 2021

## Integrating the management of Otago's natural and physical resources

978-0-908324-70-5 Print version
978-0-908324-71-2 Web version

# PART 1 – INTRODUCTION AND GENERAL PROVISIONS

## Foreword or mihi

Regional policy statements are significant planning tools; overarching documents that identifyour most pressing environmental issues and provide direction to district plans and other resource management plans on how we will manage them. Developing this new Regional Policy Statement has provided an opportunity for renewed partnership between Kāi Tahu inOtago and Southland, and the ORC. We present this foreword to the notified version together, in recognition of that partnership and in anticipation of the work to come.

ORC didn't expect to find itself writing another Regional Policy Statement so soon. The ink ishardly dry on the 2019 Partially Operative Regional Policy Statement (in fact, as the name suggests, all the ink isn't even there yet), and here is the notification for the next. Nonetheless, a 2019 review of ORC's water management framework and a slew of new national regulation meant a new RPS was needed to set the scene for work on a new Land and Water RegionalPlan.

Having this new RPS developed so soon after the last has allowed it to build directly on the previous process. With issues and concerns still fresh, more refinement has been possible, building better processes and driving rapid progress on significant issues facing the region, including resilience to climate change and natural hazards, managing urban development, improving freshwater and coastal environmental management, and supporting biodiversity. Mana whenua and ORC have faced this planning challenge together. We have placed the environment at the centre of all we do in our long-term vision:

> *The management of natural and physical resources in Otago, by and for the people of Otago, including Kāi Tahu, and as expressed in all resource management plans and decision-making, achieves healthy, resilient, and safeguarded natural systems, and the ecosystem services they offer, and supports the well-being of present and future generations, mō tātou, ā, mō kā uri ā muri ake nei.*

This statement reflects that a healthy, flourishing environment is fundamental to our well-being. Integration is the central tenet, seeing the environment as a single connected system, ki uta ki tai, and weaving this in to the RPS fabric.

Our long-term vision takes its cue from the holistic perspective of Te Mana o te Wai in the National Policy Statement for Freshwater Management 2020. Guided by the need to give effect to Te Mana o te Wai we have worked with mana whenua and the wider community to develop long-term visions for Otago's water bodies. The purpose of these visions is to protect the mauri of water bodies in Otago, a responsibility shared by all. The aim is to achieve positive outcomes for water and habitat that also address the community's needs and interests.

A broad section of people from all walks of life have contributed to developing the Regional Policy Statement. Through a variety of means, including in-person public workshops, community reference groups, online surveys, and reports, people have helped shape policy development in its earliest stages and fed into the long-term freshwater visions for their own parts of Otago.

Thank you to all who have been involved in bringing this RPS to notification: mana whenua; staff from ORC, Aukaha, and Te Ao Marama Inc; councillors; stakeholders; and community members.

The objectives and policies in this RPS signal a significant step change in Otago, mindful of the need to consider the environment that will be inherited by future generations. We are asking our communities to join us in that change, to create a future of opportunity and security for all of us.

# Contents

# Purpose

As a community, we in Otago are moving into an age that requires solutions to both entrenched legacy issues and significant emerging issues in order to promote positive sustainable change while also enabling the Otago community to flourish, and to enjoy all that the region has to offer.

The Otago Regional Policy Statement (ORPS) provides a policy framework that aims to achieve long-term environmental sustainability by integrating the protection, restoration, enhancement, and use of Otago's natural and physical resources.

The ORPS responds to identified significant regional values and resource management issues relating to Otago's *environment*, historic heritage, economy, recreational opportunities and communities. The ORPS sets out objectives, policies, and methods to resolve, over time, the identified issues as effectively and efficiently as possible. The ORPS gives effect to the statutory requirements set out in the Resource Management Act 1991 (RMA 1991), as well as relevant national direction instruments and iwi authority planning documents. *Regional* and *district plans* must give effect to the ORPS.

# Description of the Region

At 32,000 km$^2$, the Otago region is the second largest region in New Zealand, making up 12% of New Zealand's land mass.

The region's eastern edge is entirely marine, extending 12 nautical miles out to sea from a scenic and varied coastline. Otago meets Canterbury at the southern bank of the Waitaki River, its northern border following the river upstream then branching off along Awamoko Stream, following the north branch of the Kakanui River before heading inland once again along the Hawkdun Range, following catchment boundaries and ridgelines into the Southern Alps at Otago's westernmost border. In the south, beginning at Brother's Point in the scenic Catlins, the border with Southland tends northeasterly, taking in the Pomohaka River catchment, and Umbrella and Kopuwai Ranges to encompass the headwaters of the glacial alpine lakes, Whakatipu-wai-māori (Lake Wakatipu), Wanaka, and Hāwea.

Otago is made up of five *territorial authorities*: Dunedin City Council, and Queenstown Lakes, Waitaki, Central Otago, and Clutha District Councils.

Otago's population at the 2018 Census was 225,186[1]. Dunedin City has the largest population of the Otago *territorial authorities* at 126,255, followed by Queenstown Lakes District at 39,153, Waitaki District at 22,308, Central Otago District at 21,558, and Clutha District at 17,667. Growth is not evenly distributed across the region, with the fastest growing district being Queenstown Lakes.

Otago's economy centres around agriculture, tourism, *mineral* mining, and education. The University of Otago enrols approximately 20,000 students each year from around New Zealand and internationally, contributing to annual population spikes in Dunedin and significantly boosting the economy. Tourism has also had a significant impact on the regional economy, contributing about a quarter of the region's total gross domestic product. This is the highest of any region in New Zealand, and primarily concentrated in the Queenstown Lakes District.

Renewable energy generation facilities[2] meet a large portion of regional and national energy requirements. Significant hydroelectric generation facilities in Otago are located in the Central Otago, Clutha, and Queenstown Lakes Districts. Additionally, Otago has two wind farms, located in the Clutha District.

## Climate

The Otago region experiences two distinct climates due to the geographic variety between the temperate coastal areas, and the almost continental inland areas. The coastal settlements experience a cyclic weather pattern that alternates frequently between a warmer and drier climate, and a cooler, damper climate. Central Otago's climate is characterised by hot, dry summers and contrastingly cold, frosty winters.

General temperature ranges for the region fall between 18°C and 24°C on summer afternoons, and -2°C and 3°C during winter nights.[3] The mean daily temperatures in summer in Central Otago range

[1] 2018 Census place summaries: Stats NZ. (n.d.). https://www.stats.govt.nz/tools/2018-census-place-summaries/otago-region (accessed 26 May 2021)
[2] Fitzgerald, W. (2019). *Dunedin Energy Study 2017-2018*. University of Otago.
[3] Macara, G. R. (2015). The Climate and Weather of Otago, Second Edition. *NIWA SCIENCE AND TECHNOLOGY SERIES,* 67th ser.

between approximately 10°C and 25°C, while the mean daily temperatures in winter range between approximately -1°C and 10°C.[4] Central Otago has held national records for both the hottest and coldest temperature readings in New Zealand. Ophir, a small settlement in Central Otago, has recorded temperatures of 35.2°C in 1959 and -21.6°C in 1995. Significant rises in the use of heating sources occur during the drastically colder winter periods. The highest regional rainfalls, averaging 2000mm per year, occur typically over western areas of Otago such as around the Lakes District and Southern Alps. In contrast, the average rainfall in Central Otago is the lowest in New Zealand averaging around 400-500mm per year.

## Coast

The Otago coastline stretches for 480 km and is extremely diverse, encompassing pebble and sandy beaches, basalt formations, dune systems, eelgrass and saltmarshes, estuaries, rolling downlands, and striking cliff heads. Significant coastal settlements include Dunedin and Oamaru, with the Otago port based in Port Chalmers. Otago Harbor is the region's only commercial freight handling harbor, however commercial fishing ramps are present in Oamaru, Moeraki, Karitane, and Taieri Mouth. Coastal erosion and the decline of the regional coastline is well documented, posing a long-term threat to residential and commercial coastal developments.

Otago's benthic and marine ecosystems are varied and diverse including rocky reef systems, sponge gardens, bryozoan and horse mussel beds, biogenic reefs, kelp forests and submarine canyons within 12 nautical miles of the shore. More than thirty species of seabird are regularly found off the coast of Otago. Rare sea birds such as the Royal Albatross and hoiho (Yellow-eyed penguin) can be found along the landward coastal environment. Surfing is a significant recreational activity, in Dunedin particularly, and there are four *surf breaks* of national significance along the Otago coastline.

## Water bodies

The Otago region has significant *freshwater* resources in the form of surface water, natural and artificial *lakes*, *groundwater*, and *wetlands*. Otago's communities are reliant on the use of these *water* resources for their social, cultural and economic well-being. *Rivers* and *lakes* make up most of the regional surface *water*. The big *lakes*, such as Wanaka, Whakatipu-wai-māori (Lake Wakatipu) and Hāwea and including artificial *lakes* Dunstan, Roxburgh and Onslow, constitute about 23% of New Zealand's total *lake* surface area. The primary catchments are Lakes Wanaka, Whakatipu-wai-māori (Lake Wakatipu) and Hāwea, which feed into Otago's largest *river*, the Clutha River/Mata-Au. Otago also has many *groundwater* sources. *Wetlands* make up many significant landscape and ecosystem elements in Otago, including blanket and string bogs, saline areas, swamp forest remnants, shallow *lake* complexes, estuarine saltmarshes, and valley floor swamps.

## Natural character and landscapes

Otago's landscapes are diverse. Moving inland from Otago's diverse and varied coastline, the landscapes change dramatically. Rolling plains separated by mountain ranges, steep hillsides of tussock, and deep gorges make up a lot of South and Central Otago. This *land* is dissected by flowing bodies of water, towering mountainscapes, and fascinating geological formations. Modified

[4] Central Otago Climate. (n.d.). https://centralotagonz.com/opportunities/working-here (accessed 26 May 2021)

landscapes encompassing farmland and remnants of the region's early gold mining activity are ever-present, creating a rich sense of heritage and regional identity.

## Urban form

Urbanised areas in Otago occupy only about 1% of total *land* area, however 87% of people live in urban settlements. Dunedin is Otago's largest urban area, surrounded by hills and harbor, and has a large suburban area and commuter catchment especially to the south, with more recent expansion moving out to connect with an expanding Mosgiel. The Queenstown Lakes District population is approximately 91% urban. Its outstanding landscape has historically determined, and will continue to determine, how urban form develops.

In the remainder of the region, smaller urban settlements are geographically scattered, maintaining clear distinctions between rural and urban forms, and with significant variability in growth pressures and infrastructure capacity. Growth in overall numbers of people is not the only driver of urban change pressures in Otago; many areas face low or no growth, and all areas are expected to have an aging population.

# How the policy statement works

## Statutory context

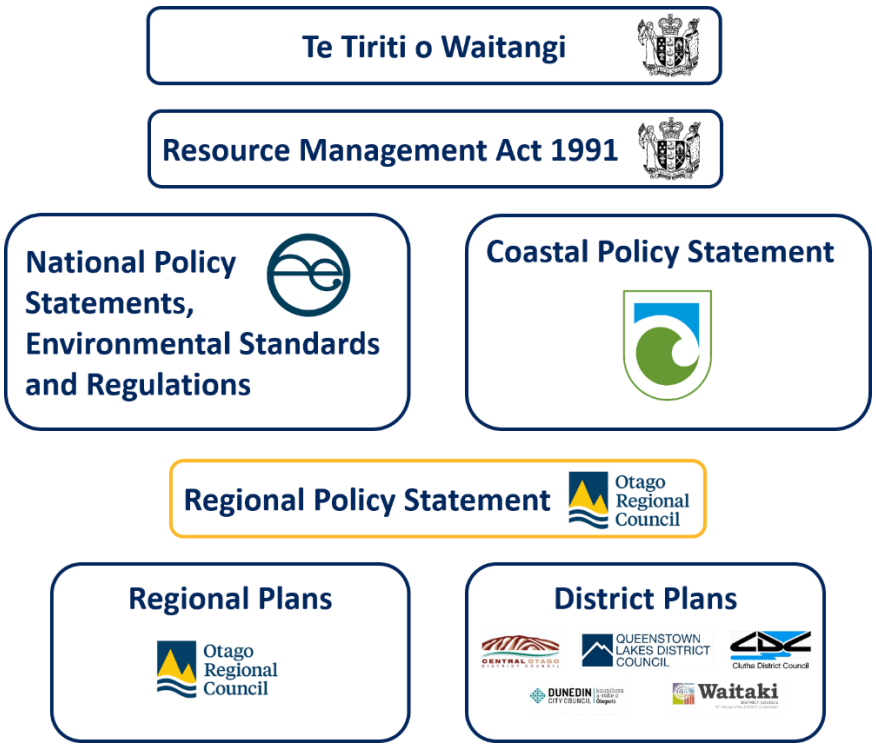
### Resource Management Act 1991

The Resource Management Act 1991 (RMA 1991) is the primary resource management statute in New Zealand and sets out the related responsibilities and powers of national, regional, and city/district government.

The RMA 1991 requires regional councils to have a regional policy statement (RPS) under Section 60, prepared in accordance with the process set out in Schedule 1. The purpose of the RPS, as set out in Section 59 of the RMA, is to provide an overview of the specific resource management issues for the region and establish policies and methods to achieve the integrated management of both the *natural and physical resources* of the region. The RPS must be prepared in accordance with and contain the matters set out in Sections 30, 60, 61, and 62 of the RMA 1991.

The regional policy statement must give effect to higher order national direction instruments, including National Environmental Standards (NES), National Policy Statements (NPS), the New Zealand Coastal Policy Statement (NZCPS) and be written to comply with the National Planning Standards. The RPS sets out requirements that *regional plans, district plans*, and regional coastal plans must give effect to. More information about the relevant national direction instruments can be found in the 'national direction instruments' section of this Regional Policy Statement.

*Figure 1 - Statutory framework*



### Partnership, Te Tiriti o Waitangi and Kāi Tahu[5]

The Otago Regional Policy Statement has been developed in partnership with Kāi Tahu, the iwi and *tangata whenua* of Otago. The partnership between the Otago Regional Council and Kāi Tahu is an important and valuable relationship, evident throughout the ORPS and woven into its provisions. The RMA 1991 requires Regional and Local Councils to address matters of National Importance, including matters associated with Te Tiriti o Waitangi (The Treaty of Waitangi) and key issues and concerns of iwi.[6]

The ORC has also considered the Kāi Tahu ki Otago 2005 Resource Management Plan and Te Tangi a Tauira: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008. ORPS chapters on Significant Resource Management Issues for Iwi and on *Mana Whenua* provide an in-depth discussion of iwi issues and set a basis for the remaining policy framework.

The key issues identified by Kāi Tahu include:

- recognising the rights and interests of Kāi Tahu in natural and resource management processes;
- recognising the important role of mātauraka in natural resource management;
- recognising the integral relationship of Kāi Tahu with *natural and physical resources*, including the coast, waterways, *lakes*, *wetlands* and indigenous flora and fauna, protecting these resources from degradation, improving them where they have been degraded, and sustaining them for future generations;
- protecting and restoring the abundance of mahika kai and restoring access to mahika kai areas;
- protecting the values of *wāhi tūpuna* and the ability for Kāi Tahu to maintain their relationship with these areas;
- enabling development of *land* and resources within native reserves, including *papakāika* housing; and
- the need for integrated management that recognises the interconnections between resources and across different parts of the environment.

## Cross-boundary matters

Ecosystems and human activities cross jurisdictional boundaries. When different jurisdictions manage similar activities or resources in different ways there is potential for inconsistent outcomes, resulting in inefficient and ineffective management.

To achieve integration, those involved in resource management need to coordinate their policies, plans and actions. This is encompassed by the philosophy “ki uta ki tai” – from the mountains to the sea. Accordingly, section 62 of the RMA 1991 requires regional councils to include in the RPS the

[5] In the South Island, the local Māori dialect uses a ‘k’ interchangeably with ‘ng’. The preference in Otago is to use a ‘k’ so southern Māori are known as Kāi Tahu, rather than Ngāi Tahu. In this RPS, the ‘ng’ is used for iwi in general or where there is reference to Ngāi Tahu ki Murihiku (Southland).

[6] These matters are addressed throughout the Resource Management Act 1991, see in particular sections 6, 8 and 62.

processes to be used to deal with issues that cross *local authority* boundaries, and issues between *territorial authorities* or between regions.

Cross-boundary issues can arise in several ways, and generally manifest in issues for either plan preparation and review, or plan administration and the processing of applications for *resource consents*. Otago's cross-boundary matters include:

- adverse *effects* in one jurisdiction due to the activities in another, particularly where *territorial authority* boundaries do not match catchment boundaries, as with the Clutha Mata-au, or the Waitaki River catchment over which Otago and Canterbury Regional Councils share jurisdiction, or Otago's coastal environment, which covers three *territorial authorities'* jurisdictions, and may be affected by *land uses* in the other two (through sediment flowing down the Clutha Mata-au, for instance);
- Kāi Tahu interests, which span Otago as a whole, across *local authority* boundaries;
- resources that cross local authority boundaries which must be managed in a uniform manner, such as outstanding natural features, outstanding natural landscapes and significant natural areas;
- differences in policies or methods across plans, particularly where *district* and *regional plans* are at different planning stages and may be out of step with current regulation;
- local, *regionally* or *nationally significant infrastructure* operating across *local authority* boundaries, as with transport and electricity supply networks, and potentially shared services such as waste disposal; and
- duplicated effort for *local authorities* and increased cost for people seeking consents for activities that occur across *local authority* boundaries or require *resource consent* from two or more consent authorities.

Processes that will be used to address these matters are described in the sections below.

### Clear direction in the ORPS

The ORPS provides a vision and broad policy framework for all resource management in Otago, including various methods that require *local authorities* to work together to achieve good outcomes and, in some cases, set implementation timeframes. *Regional* and *district plans* as they develop over the next 10 years and beyond, are required to give effect to the ORPS. In doing so one result should be consistency between them. The ORPS has been drafted using direct language and clarity of outcomes sought.

ORPS methods also indicate actions that fall outside the RMA 1991 framework. This recognises that only *district* and *regional plans* are required to give effect to a regional policy statement, and non-regulatory methods may sometimes be useful to help address cross-boundary matters and achieve desired outcomes.

### Cooperation and partnerships with stakeholders

Stakeholders, from industry representatives to community-based volunteer groups, provide valuable strategic input to planning and decision-making. Inter-agency groups, such as Te Roopu Taiao, can assist with managing cross-boundary issues and issues affecting people across Otago strategically and collaboratively.

ORC will seek to establish and build upon working relationships with other resource management stakeholders. This will help ensure that the processes it undertakes are efficient and, wherever possible, reduce duplication of effort. As new issues emerge in the region and work on existing issues continues, they are best managed through collaboration, which will improve effectiveness and deliver better outcomes. This is particularly important for enhancing and managing *regionally significant infrastructure* and *significant natural areas*.

### Cooperation and partnerships with other *local authorities*

There are many opportunities to work more closely with other *local authorities* to achieve a consistent and integrated approach to managing *natural and physical resources*.

*Local authorities* together can:

- share information, for instance to understand the long-term growth and economic development opportunities and threats and the spatial pattern of *land use* and development, or to ensure natural resources are not artificially fragmented;
- hold joint processes for processing *resource consents* and associated hearings where activities or *effects* cross jurisdictional boundaries. This allows all *effects* of new activities to be considered holistically at the same time, including any cumulative *effects*. Joint processes could also reduce the processing cost (in both money and time) for the applicant;
- work collaboratively on plan changes and develop combined planning documents for shared areas of responsibility;
- clearly define their resource management roles and responsibilities to reduce duplication of effort and streamline processes for Otago's communities; and
- cooperate and budget for joint processes and major projects through Annual and Long-term Planning processes under the Local Government Act 2002 (LGA 2002). This allows pooling resources, reducing inefficiency and integrating management approaches through time, to ensure that cooperation between agencies is budgeted for, including setting up structures and processes for joint management.

These approaches are more likely to properly address cross-boundary issues and *effects* than *local authorities* working alone.

### Triennial agreement

Triennial agreements under the LGA 2002 are an opportunity for *local authorities* within a region to set out processes for consultation, protocols and processes for resolving cross-boundary issues.

### Cooperation at a national level

Cross-boundary issues may arise that are significant at a national level. This is particularly likely when addressing nationally important infrastructure such as the electricity transmission grid or *land* transport infrastructure.

In such cases, ORC will advise and work with the Minister for the Environment, the Minister of Conservation in the *coastal marine area* and any other relevant agency to identify and resolve cross boundary issues or proposals, to ensure that consideration of the matter occurs in a transparent and timely manner. ORC will endeavor to represent its communities' interests in such situations.

### Transferring and delegating functions, powers and duties to other authorities

The RMA 1991 enables ORC to transfer or delegate its powers to another public authority, community boards, commissioners or employees. ORC can also enter joint management agreements with other statutory bodies (such as Te Rūnanga o Ngāi Tahu).

These tools can be used to achieve integrated management and to reduce duplication of effort by local and public authorities. Joint management agreements enable important stakeholders to have an active role in the management of specific resources, and for specific purposes. They can also be used to build community capacity and share understanding in resource management.

### Helping to build capacity for, and improve, *takata whenua* involvement

*Takata whenua* have the prerogative to express and explain how their tikaka and mātauraka should be realised in resource management. Councils have a vital role in assisting this process through finding ways to partner, resource, and upskill rūnaka so they can be fully involved in the resource management partnership.

# Interpretation

## Definitions

| Term | Definition |
|---|---|
| **1990 mean sea level (Otago Metric Datum)** | means the fixed level for basing subsequent level measurements on. In this case Otago Metric Datum is the Dunedin Vertical Datum (DVD 1958) plus 100 metres. |
| **Active transport** | has the same meaning as in clause 1.3 of the National Policy Statement on Urban Development 2020 (as set out in the box below)<br>means forms of transport that involve physical exercise, such as walking or cycling, and includes transport that may use a mobility aid such as a wheelchair |
| **Additional infrastructure** | has the same meaning as in clause 1.3 of the National Policy Statement on Urban Development 2020 (as set out in the box below)<br>means:<br>(a) public open space<br>(b) community infrastructure as defined in section 197 of the Local Government Act 2002<br>(c) land transport (as defined in the Land Transport Management Act 2003) that is not controlled by local authorities<br>(d) social infrastructure, such as schools and healthcare facilities<br>(e) a network operated for the purpose of telecommunications (as defined in section 5 of the Telecommunications Act 2001)<br>(f) a network operated for the purpose of transmitting or distributing electricity or gas |
| **Airshed** | has the same meaning as in regulation 3 of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (as set out in the box below)<br>airshed means—<br>(a) the region of a regional council excluding any area specified in a notice under paragraph (b):<br>(b) a part of the region of a regional council specified by the Minister by notice in the Gazette to be a separate airshed |
| **Afforestation** | has the same meaning as in regulation 3 of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017 (as set out in the box below)<br>(a) means planting and growing plantation forestry trees on land where there is no plantation forestry and where plantation forestry harvesting has not occurred within the last 5 years; but<br>(b) does not include vegetation clearance from the land before planting |

| Term | Definition |
|---|---|
| **Ambient air quality standards** | has the same meaning as in regulation 3 of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (as set out in the box below)<br>means the standard prescribed by regulation 13(1) |
| **Amenity values** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes |
| **Ancillary activity** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means an activity that supports and is subsidiary to a primary activity |
| **Aquaculture activities** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>(a) means any activity described in section 12 done for the purpose of the breeding, hatching, cultivating, rearing, or ongrowing of fish, aquatic life, or seaweed for harvest if the breeding, hatching, cultivating, rearing, or ongrowing involves the occupation of a coastal marine area; and<br>(b) includes the taking of harvestable spat if the taking involves the occupation of a coastal marine area; but<br>(c) does not include an activity specified in paragraph (a) if the fish, aquatic life, or seaweed—<br>(i) are not in the exclusive and continuous possession or control of the person undertaking the activity; or<br>(ii) cannot be distinguished or kept separate from naturally occurring fish, aquatic life, or seaweed; and<br>(d) does not include an activity specified in paragraph (a) or (b) if the activity is carried out solely for the purpose of monitoring the environment |
| **Aquatic compensation** | has the same meaning as in clause 3.21(1) of the National Policy Statement for Freshwater Management 2020 (as set out in the box below)<br>means a conservation outcome resulting from actions that are intended to compensate for any more than minor residual adverse effects on a wetland or river after all appropriate avoidance, minimisation, remediation, and aquatic offset measures have been sequentially applied |
| **Aquatic offset** | has the same meaning as in clause 3.21(1) of the National Policy Statement for Freshwater Management 2020 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means a measurable conservation outcome resulting from actions that are intended to:<br>(a) redress any more than minor residual adverse effects on a wetland or river after all appropriate avoidance, minimisation, and remediation, measures have been sequentially applied; and<br>(b) achieve no net loss, and preferably a net gain, in the extent and values of the wetland or river, where:<br>(i) **no net loss** means that the measurable positive effects of actions match any loss of extent or values over space and time, taking into account the type and location of the wetland or river, and<br>(ii) **net gain** means that the measurable positive effects of actions exceed the point of no net loss |
| **Attribute** | has the same meaning as in clause 1.4 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below)<br>means a measurable characteristic (numeric, narrative, or both) that can be used to assess the extent to which a particular value is provided for |
| **Bed** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means,—<br>(a) in relation to any river—<br>(i) for the purposes of esplanade reserves, esplanade strips, and subdivision, the space of land which the waters of the river cover at its annual fullest flow without overtopping its banks:<br>(ii) in all other cases, the space of land which the waters of the river cover at its fullest flow without overtopping its banks; and<br>(b) in relation to any lake, except a lake controlled by artificial means,—<br>(i) for the purposes of esplanade reserves, esplanade strips, and subdivision, the space of land which the waters of the lake cover at its annual highest level without exceeding its margin:<br>(ii) in all other cases, the space of land which the waters of the lake cover at its highest level without exceeding its margin; and<br>(c) in relation to any lake controlled by artificial means, the space of land which the waters of the lake cover at its maximum permitted operating level; and<br>(d) in relation to the sea, the submarine areas covered by the internal waters and the territorial sea |
| **Biodiversity** | see *biological diversity* |

| Term | Definition |
|---|---|
| **Biological diversity** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means the variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems |
| **Building** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means a temporary or permanent movable or immovable physical construction that is:<br>(a) partially or fully roofed; and<br>(b) fixed or located on or in land;<br>but excludes any motorised vehicle or other mode of transport that could be moved under its own power |
| **Business land** | has the same meaning as in clause 1.3 of the National Policy Statement on Urban Development 2020 (as set out in the box below)<br>means land that is zoned, or identified in an FDS or similar strategy or plan, for business uses in urban environments, including but not limited to land in the following:<br>(a) any industrial zone<br>(b) the commercial zone<br>(c) the large format retail zone<br>(d) any centre zone, to the extent it allows business uses<br>(e) the mixed use zone, to the extent it allows business uses<br>(f) any special purpose zone, to the extent it allows business uses |
| **Cascading hazards** | means where the occurrence of one natural hazard is likely to trigger another natural hazard event e.g. an earthquake triggering a landslide which dams a river causing flooding. |
| **Certified freshwater farm plan** | has the same meaning as section 217B of the Resource Management Act 1991 (as set out in the box below)<br>means a freshwater farm plan certified under section 217G, as amended from time to time in accordance with section 217E(2) or (3) |
| **Climate change** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods |
| **Coastal marine area** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means the foreshore, seabed, and coastal water, and the air space above the water—<br>(a) of which the seaward boundary is the outer limits of the territorial sea:<br>(b) of which the landward boundary is the line of mean high water springs, except that where that line crosses a river, the landward boundary at that point shall be whichever is the lesser of—<br>(i) 1 kilometre upstream from the mouth of the river; or<br>(ii) the point upstream that is calculated by multiplying the width of the river mouth by 5 |
| **Coastal water** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means seawater within the outer limits of the territorial sea and includes—<br>(a) seawater with a substantial fresh water component; and<br>(b) seawater in estuaries, fiords, inlets, harbours, or embayments |
| **Commercial activity** | has the same meaning as in the Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means any activity trading in goods, equipment or services. It includes any ancillary activity to the commercial activity (for example administrative or head offices) |
| **Commercial port activity** | means commercial shipping operations associated with the Otago Harbor and the activities carried out at the ports at Port Chalmers and Dunedin, which include:<br>(a) Operation of commercial ships in Otago Harbor;<br>(b) Loading and unloading of goods and passengers carried by sea;<br>(c) Facilities for the storage of goods carried by sea;<br>(d) Buildings, installations, other structures or equipment at or adjacent to a port and used in connection with the ports' operation or administration;<br>(e) Structures, facilities and pipelines for fuel storage, and refuelling of ships;<br>(f) Provision, maintenance and development of shipping channels and swing basins;<br>(g) Disposal of dredged materials at AO, Heyward Point, Aramoana and Shelly Beach;<br>(h) Installation and maintenance of beacons and markers for navigation safety; and<br>(i) Provision and maintenance of the mole at Aramoana. |
| **Competitiveness margin** | has the same meaning as in clause 3.22 of the National Policy Statement on Urban Development 2020 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means a margin of development capacity, over and above the expected demand that tier 1 and tier 2 local authorities are required to provide, that is required in order to support choice and competitiveness in housing and business land markets |
| **Contaminant** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>includes any substance (including gases, odorous compounds, liquids, solids, and micro-organisms) or energy (excluding noise) or heat, that either by itself or in combination with the same, similar, or other substances, energy, or heat—<br>(a) when discharged into water, changes or is likely to change the physical, chemical, or biological condition of water; or<br>(b) when discharged onto or into land or into air, changes or is likely to change the physical, chemical, or biological condition of the land or air onto or into which it is discharged |
| **Contaminated land** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means land that has a hazardous substance in or on it that—<br>(a) has significant adverse effects on the environment; or<br>(b) is reasonably likely to have significant adverse effects on the environment |
| **Critical buildings** | for the purposes of the consequence table within APP6, these are buildings which have a post-disaster function. These include:<br>(a) Buildings and facilities designed as essential facilities;<br>(b) Buildings and facilities with special post-disaster function;<br>(c) Medical emergency or surgical facilities;<br>(d) Emergency service facilities such as fire and police stations;<br>(e) Designated emergency shelters;<br>(f) Designated emergency centres and ancillary facilities; and<br>(g) Buildings and facilities containing hazardous materials capable of causing hazardous conditions that extends beyond the property boundaries. |
| **Degraded** | where it is used in the *LF – Land and freshwater* chapter, has the same meaning as in clause 1.4 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below) |

| Term | Definition |
|---|---|
| | in relation to an FMU or part of an FMU, means that as a result of something other than a naturally occurring process:<br>(a) a site or sites in the FMU or part of the FMU to which a target attribute state applies:<br>(i) is below a national bottom line; or<br>(ii) is not achieving or is not likely to achieve a target attribute state; or<br>(b) the FMU or part of the FMU is not achieving or is not likely to achieve an environmental flow and level set for it; or<br>(c) the FMU or part of the FMU is less able (when compared to 7 September 2017) to provide for any value identified for it under the NOF |
| **Development capacity** | has the same meaning as in clause 1.4 of the National Policy Statement for Urban Development 2020 (as set out in the box below)<br>means the capacity of the land to be developed for housing or for business use, based on:<br>(a) the zoning, objectives, policies, rules, and overlays that apply in the relevant proposed and operative RMA planning documents; and<br>(b) the provision of adequate development infrastructure to support the development of land for housing or business use |
| **Development infrastructure** | has the same meaning as in clause 1.4 of the National Policy Statement for Urban Development 2020 (as set out in the box below)<br>means the following, to the extent that they are controlled by a local authority or council controlled organisation (as defined in section 6 of the Local Government Act 2002):<br>(a) network infrastructure for water supply, wastewater, or stormwater<br>(b) land transport (as defined in section 5 of the Land Transport Management Act 2003) |
| **Discharge** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>includes emit, deposit, and allow to escape |
| **Distribution network** | has the same meaning as in regulation 3 of the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (as set out in the box below)<br>(a) means lines and associated equipment that are used for conveying electricity and are operated by a business engaged in the distribution of electricity; but<br>(b) does not include lines and associated equipment that are part of the national grid |
| **District plan** | has the same meaning as in section 43AA of the Resource Management Act 1991 (as set out in the box below) |

| Term | Definition |
|---|---|
| | (a) means an operative plan approved by a territorial authority under Schedule 1; and<br>(b) includes all operative changes to the plan (whether arising from a review or otherwise) |
| **Drinking water** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means water intended to be used for human consumption; and includes water intended to be used for food preparation, utensil washing, and oral or other personal hygiene |
| **Dwelling** | has the same meaning as that given for dwellinghouse in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means any building, whether permanent or temporary, that is occupied, in whole or in part, as a residence; and includes any structure or outdoor living area that is accessory to, and used wholly or principally for the purposes of, the residence; but does not include the land upon which the residence is sited |
| **Earthworks** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means the alteration or disturbance of land, including by moving, removing, placing, blading, cutting, contouring, filling or excavation of earth (or any matter constituting the land including soil, clay, sand and rock); but excludes gardening, cultivation, and disturbance of land for the installation of fence posts |
| **Effect** | has the same meaning as in section 3 of the Resource Management Act 1991 (as set out in the box below)<br>In this Act, unless the context otherwise requires, the term effect includes—<br>(a) any positive or adverse effect; and<br>(b) any temporary or permanent effect; and<br>(c) any past, present, or future effect; and<br>(d) any cumulative effect which arises over time or in combination with other effects—<br>regardless of the scale, intensity, duration, or frequency of the effect, and also includes—<br>(e) any potential effect of high probability; and<br>(f) any potential effect of low probability which has a high potential impact |
| **Effects management hierarchy** | has the same meaning as in clause 3.21 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below) and in this RPS also applies to natural wetlands |

| Term | Definition |
|---|---|
| | in relation to natural inland wetlands and rivers, means an approach to managing the adverse effects of an activity on the extent or values of a wetland or river (including cumulative effects and loss of potential value) that requires that:<br>(a) adverse effects are avoided where practicable,<br>(b) where adverse effects cannot be avoided, they are minimised where practicable,<br>(c) where adverse effects cannot be minimised, they are remedied where practicable,<br>(d) where more than minor residual adverse effects cannot be avoided, minimised, or remedied, aquatic offsetting is provided, and<br>(e) if aquatic compensation is not appropriate, the activity itself is avoided |
| **Electricity sub-transmission infrastructure** | means electricity infrastructure which conveys electricity between energy generation sources, the National Grid and zone substations and between zone substations. |
| **Environment** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>includes—<br>(a) ecosystems and their constituent parts, including people and communities; and<br>(b) all natural and physical resources; and<br>(c) amenity values; and<br>(d) the social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) or which are affected by those matters |
| **Environmental outcome** | has the same meaning as in clause 1.4 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below)<br>means, in relation to a value that applies to an FMU or part of an FMU, a desired outcome that a regional council identifies and then includes as an objective in its regional plan(s) |
| **Esplanade reserve** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means a reserve within the meaning of the Reserves Act 1977—<br>(a) which is either—<br>(i) a local purpose reserve within the meaning of section 23 of that Act, if vested in the territorial authority under section 239; or<br>(ii) a reserve vested in the Crown or a regional council under section 237D; and<br>(b) which is vested in the territorial authority, regional council, or the Crown for a purpose or purposes set out in section 229 |
| **Esplanade strip** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means a strip of land created by the registration of an instrument in accordance with section 232 for a purpose or purposes set out in section 229 |
| **Exceedance** | has the same meaning as in regulation 13 of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (as set out in the box below)<br>for a contaminant, means an instance where the contaminant exceeds its threshold concentration in an airshed |
| **Freshwater or fresh water** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means all water except coastal water and geothermal water |
| **Freshwater management unit or FMU** | has the same meaning as in clause 1.4 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below)<br>means all or any part of a water body or water bodies, and their related catchments, that a regional council determines under clause 3.8 is an appropriate unit for freshwater management and accounting purposes; and part of an FMU means any part of an FMU including, but not limited to, a specific site, river reach, water body, or part of a water body |
| **Functional need** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment |
| **Future development strategy** | has the same meaning as in the National Policy Statement for Urban Development 2020 (as set out in the box below)<br>means the Future Development Strategy required by subpart 4 of Part 3 |
| **Greenhouse gas** | has the same meaning as in section 4(1) of the Climate Change Response Act 2002 (as set in in the box below) |

| Term | Definition |
|---|---|
| | means—<br>(a) carbon dioxide (CO2):<br>(b) methane (CH4):<br>(c) nitrous oxide (N2O):<br>(d) any hydrofluorocarbon:<br>(e) any perfluorocarbon:<br>(f) sulphur hexafluoride (SF6) |
| **Groundwater** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means water occupying openings, cavities, or spaces in soils or rocks beneath the surface of the ground |
| **Hard protection structure** | within the coastal environment, has the same meaning as in the Glossary of the New Zealand Coastal Policy Statement 2010 (as set out in the box below)<br>includes a seawall, rock revetment, groyne, breakwater, stop bank, retaining wall or comparable structure or modification to the seabed, foreshore or coastal land that has the primary purpose or effect of protecting an activity from a coastal hazard, including erosion<br>and<br>outside the coastal environment, means any dam, weir, stopbank, carriageway, groyne, or reservoir, and any structure or appliance of any kind which is specifically established for the purpose of natural hazard risk mitigation. |
| **Highly valued natural features and landscapes** | highly valued natural features, landscapes and seascapes are areas which contain attributes and values of significance under Sections 7(c) and 7(f) of the RMA 1991, which have been identified in accordance with APP9. |
| **Historic heritage** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below) |

| Term | Definition |
|---|---|
| | (a) means those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures, deriving from any of the following qualities:<br>(i) archaeological:<br>(ii) architectural:<br>(iii) cultural:<br>(iv) historic:<br>(v) scientific:<br>(vi) technological; and<br>(b) includes—<br>(i) historic sites, structures, places, and areas; and<br>(ii) archaeological sites; and<br>(iii) sites of significance to Māori, including wāhi tapu; and<br>(iv) surroundings associated with the natural and physical resources |
| **Housing and Business Development Capacity Assessment** | has the same meaning as in the National Policy Statement for Urban Development Capacity 2020 (as set out in the box below)<br>means the Housing and Business Development Capacity Assessment (HBA) required by subpart 5 of Part 3 |
| **Indigenous vegetation** | means vascular and non-vascular plants that, in relation to a particular area, are native to the ecological district in which that area is located. |
| **Industrial activities** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means an activity that manufactures, fabricates, processes, packages, distributes, repairs, stores, or disposes of materials (including raw, processed, or partly processed materials) or goods. It includes any ancillary activity to the industrial activity |
| **Infrastructure** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means—<br>(a) pipelines that distribute or transmit natural or manufactured gas, petroleum, biofuel, or geothermal energy:<br>(b) a network for the purpose of telecommunication as defined in section 5 of the Telecommunications Act 2001:<br>(c) a network for the purpose of radiocommunication as defined in section 2(1) of the Radiocommunications Act 1989:<br>(d) facilities for the generation of electricity, lines used or intended to be used to convey electricity, and support structures for lines used or intended to be used to convey electricity, excluding facilities, lines, and support structures if a person—<br>(i) uses them in connection with the generation of electricity for the person's use; and<br>(ii) does not use them to generate any electricity for supply to any other person:<br>(e) a water supply distribution system, including a system for irrigation:<br>(f) a drainage or sewerage system:<br>(g) structures for transport on land by cycleways, rail, roads, walkways, or any other means:<br>(h) facilities for the loading or unloading of cargo or passengers transported on land by any means:<br>(i) an airport as defined in section 2 of the Airport Authorities Act 1966:<br>(j) a navigation installation as defined in section 2 of the Civil Aviation Act 1990:<br>(k) facilities for the loading or unloading of cargo or passengers carried by sea, including a port related commercial undertaking as defined in section 2(1) of the Port Companies Act 1988:<br>(l) anything described as a network utility operation in regulations made for the purposes of the definition of network utility operator in section 166 |
| **Intrinsic values** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>In relation to ecosystems, means those aspects of ecosystems and their constituent parts which have value in their own right, including –<br>(a) their biological and genetic diversity; and<br>(b) the essential characteristics that determine an ecosystem's integrity, form, functioning and resilience |
| **Kāika** | means a settlement of Kāi Tahu or their tūpuna. |
| **Kaitiakitanga or kaitiakitaka** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means the exercise of guardianship by the tangata whenua of an area in accordance with tikanga Māori in relation to natural and physical resources; and includes the ethic of stewardship |
| **Key civic public spaces** | are publicly owned and accessible public spaces identified by local authorities where the public use and enjoyment of the space is strongly influenced by sun and daylight access to the extent that loss of sun and daylight may diminish this use and enjoyment. |
| **Lake** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means a body of fresh water which is entirely or nearly surrounded by land |
| **Land** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>(a) includes land covered by water and the airspace above land; and<br>(b) in a national environmental standard dealing with a regional council function under section 30 or a regional rule, does not include the bed of a lake or river; and<br>(c) in a national environmental standard dealing with a territorial authority function under section 31 or a district rule, includes the surface of water in a lake or river |
| **Landfill** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means an area used for, or previously used for, the disposal of solid waste. It excludes cleanfill areas |
| **Lifeline utilities** | means utilities provided by those entities listed in Schedule 1 of the Civil Defence Emergency Management Act 2002 |
| **Local authority** | has the same meaning as in section 5 of the Local Government Act 2002 (as set out in the box below)<br>means a regional council or territorial authority |
| **Loss of values** | has the same meaning as in clause 3.21(1) of the National Policy Statement for Freshwater Management 2020 (as set out in the box below) and in this RPS also refers to *natural wetlands* |

| Term | Definition |
|---|---|
| | in relation to a natural inland *wetland* or *river*, means the *wetland* or *river* is less able to provide for the following existing or potential values:<br>(a) any value identified for it under the NOF process; or<br>(b) any of the following, whether or not they are identified under the NOF process:<br>(i) ecosystem health<br>(ii) indigenous biodiversity<br>(iii) hydrological functioning<br>(iv) Māori freshwater values<br>(v) amenity |
| **Mana whenua** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below) and in this RPS also refers to the people who hold customary authority<br>means customary authority exercised by an iwi or hapu in an identified area |
| **Mineral** | has the same meaning as in section 2(1) of the Crown Minerals Act 1991 (as set out in the box below)<br>means a naturally occurring inorganic substance beneath or at the surface of the earth, whether or not under water; and includes all metallic minerals, non-metallic minerals, fuel minerals, precious stones, industrial rocks and building stones, and a prescribed substance within the meaning of the Atomic Energy Act 1945 |
| **Mixing zone** | has the same meaning as in the Glossary of the New Zealand Coastal Policy Statement 2010 (as set out in the box below)<br>the area within which 'reasonable mixing' of contaminants from discharges occurs in receiving waters and within which the relevant water quality standards do not apply |
| **Multiple hazards** | means where two or more unrelated natural hazard events may occur. |
| **National grid** | has the same meaning as in the Interpretation section of the National Policy Statement for Renewable Electricity Generation 2011 (as set out in the box below)<br>means the lines and associated equipment used or owned by Transpower to convey electricity |
| **National Objectives Framework** | has the same meaning as in clause 1.4 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below)<br>means the framework for managing freshwater as described in subpart 2 of Part 3 |
| **Nationally significant infrastructure** | has, to the extent applicable to the Otago Region, the same meaning as in clause 1.4(1) of the National Policy Statement for Urban Development 2020 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means all of the following:<br>(a) State highways<br>(b) the national grid electricity transmission network<br>(c) renewable electricity generation facilities that connect with the national grid<br>(d) the high-pressure gas transmission pipeline network operating in the North Island<br>(e) the refinery pipeline between Marsden Point and Wiri<br>(f) the New Zealand rail network (including light rail)<br>(g) rapid transit services (as defined in this clause)<br>(h) any airport (but not its ancillary commercial activities) used for regular air transport services by aeroplanes capable of carrying more than 30 passengers<br>(j) the port facilities (but not the facilities of any ancillary commercial activities) of each port company referred to in item 6 of Part A of Schedule 1 of the Civil Defence Emergency Management Act 2002 |
| **Natural and physical resources** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>includes land, water, air, soil, minerals, and energy, all forms of plants and animals (whether native to New Zealand or introduced), and all structures |
| **Natural hazard** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment |
| **Natural hazard works** | has the same meaning as in regulation 51(1) of the National Environmental Standard for Freshwater 2020 (as set out in the box below)<br>means works for the purpose of removing material, such as trees, debris, and sediment, that—<br>(a) is deposited as the result of a natural hazard, and<br>(b) is causing, or is likely to cause, an immediate hazard to people or property |
| **Naturally rare** | has the same meaning as in the Glossary of the New Zealand Coastal Policy Statement 2010 (as set out in the box below)<br>originally rare: Rare before the arrival of humans in New Zealand |
| **Natural wetland** | has the same meaning as in clause 3.21 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means a wetland (as defined in the Act) that is not:<br>(a) a wetland constructed by artificial means (unless it was constructed to offset impacts on, or restore, an existing or former natural wetland); or<br>(b) a geothermal wetland; or<br>(c) any area of improved pasture that, at the commencement date, is dominated by (that is more than 50% of) exotic pasture species and is subject to temporary rain-derived water pooling |
| **Nohoaka or nohoanga** | means a site occupied by Kāi Tahu on a seasonal and temporary basis for mahika kai or other customary purposes. |
| **Operational need** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means the need for a proposal or activity to traverse, locate or operate in a particular environment because of technical, logistical or operational characteristics or constraints |
| **Other infrastructure** | has the same meaning as in regulation 3 of the National Environmental Standard for Freshwater 2020 (as set out in the box below)<br>means infrastructure, other than specified infrastructure, that was lawfully established before, and in place at, the close of 2 September 2020 |
| **Outstanding water body** | has the same meaning as in clause 1.4 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below)<br>means a water body, or part of a water body, identified in a regional policy statement, a regional plan, or a water conservation order as having one or more outstanding values |
| **Over-allocation** | has the same meaning as in clause 1.4 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below)<br>in relation to both the quantity and quality of freshwater, is the situation where:<br>(a) resource use exceeds a limit; or<br>(b) if limits have not been set, an FMU or part of an FMU is degraded or degrading |
| **Papakāika or papakāinga** | means use and development by *mana whenua* of ancestral or tribal lands to sustain themselves in accordance with tikanga Māori, which may include residential activities and non-residential activities for cultural, social, recreational, environmental or limited commercial purposes. |
| **Plantation forestry** | has the same meaning as in regulation 3 of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means a forest deliberately established for commercial purposes, being—<br>(a) at least 1 ha of continuous forest cover of forest species that has been planted and has or will be harvested or replanted; and<br>(b) includes all associated forestry infrastructure; but<br>(c) does not include—<br>(i) a shelter belt of forest species, where the tree crown cover has, or is likely to have, an average width of less than 30 m; or<br>(ii) forest species in urban areas; or<br>(iii) nurseries and seed orchards; or<br>(iv) trees grown for fruit or nuts; or<br>(v) long-term ecological restoration planting of forest species; or<br>(vi) willows and poplars space planted for soil conservation purposes |
| **$PM_{10}$** | has the same meaning as in regulation 3 of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (as set out in the box below)<br>means particulate matter that is—<br>(a) less than 10 micrometres in aerodynamic diameter; and<br>(b) measured in accordance with the United States Code of Federal Regulations, Title 40—Protection of Environment, Volume 2, Part 50, Appendix J — Reference method for the determination of particulate matter as $PM_{10}$ in the atmosphere |
| **$PM_{2.5}$** | means particulate matter that is less than 2.5 micrometres in aerodynamic diameter. |
| **Polluted airshed** | has the same meaning as in regulation 17(4) of the National Environmental Standards for Air Quality 2004 (as set out in the box below)<br>(a) an airshed becomes a polluted airshed on and from 1 September 2012 or any later day if, for the immediately prior 5-year period—<br>(i) the airshed has meaningful PM10 data for at least a 12-month period; and<br>(ii) the airshed's average exceedances of PM10 (as calculated under regulation 16D) was more than 1 per year; and<br>(b) an airshed stops being a polluted airshed on and from any day if the PM10 standard was not breached in the airshed in the immediately prior 5-year period |
| **Primary contact site** | has the same meaning as in clause 1.4 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below) |

| Term | Definition |
|---|---|
| | in relation to both the quantity and quality of freshwater, is the means a site identified by a regional council that it considers is regularly used, or would be regularly used but for existing freshwater quality, for recreational activities such as swimming, paddling, boating, or watersports, and particularly for activities where there is a high likelihood of water or water vapour being ingested or inhaled |
| **Primary production** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means:<br>(a) an aquaculture, agricultural, pastoral, horticultural, mining, quarrying or forestry activities; and<br>(b) includes initial processing, as an ancillary activity, of commodities that result from the listed activities in a);<br>(c) includes any land and buildings used for the production of the commodities from a) and used for the initial processing of the commodities in b); but<br>(d) excludes further processing of those commodities into a different product |
| **Public transport** | has the same meaning as in clause 1.4 of the National Policy Statement for Urban Development 2020 (as set out in the box below)<br>means any existing or planned service for the carriage of passengers (other than an aeroplane) that is available to the public generally by means of:<br>(a) a vehicle designed or adapted to carry more than 12 persons (including the driver), or<br>(b) a rail vehicle, or<br>(c) a ferry |
| **Receiving environment** | has the same meaning as in in clause 1.4 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below)<br>includes, but is not limited to, any water body (such as a river, lake, wetland or aquifer) and the coastal marine area (including estuaries) |
| **Reclamation** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means the manmade formation of permanent dry land by the positioning of material into or onto any part of a waterbody, bed of a lake or river or the coastal marine area, and:<br>(a) includes the construction of any causeway; but<br>(b) excludes the construction of natural hazard protection structures such as seawalls, breakwaters or groynes except where the purpose of those structures is to form dry land |

| Term | Definition |
|---|---|
| **Regional plan** | has the same meaning as in section 43AA of the Resource Management Act 1991 (as set out in the box below)<br>(a) means an operative plan approved by a regional council under Schedule 1 (including all operative changes to the plan (whether arising from a review or otherwise)); and<br>(b) includes a regional coastal plan |
| **Regionally significant infrastructure** | means:<br>(1) roads classified as being of regional importance in accordance with the One Network Road Classification,[7]<br>(2) electricity sub-transmission infrastructure,<br>(3) renewable electricity generation facilities that connect with the local distribution network but not including renewable electricity generation facilities designed and operated principally for supplying a single premise or facility,<br>(4) telecommunication and radiocommunication facilities,<br>(5) facilities for public transport, including terminals and stations,<br>(6) the following airports: Dunedin, Queenstown, Wanaka, Alexandra, Balclutha, Cromwell, Oamaru, Taieri.<br>(7) navigation infrastructure associated with airports and commercial ports which are nationally or regionally significant,<br>(8) defence facilities,<br>(9) community drinking water abstraction, supply treatment and distribution infrastructure that provides no fewer than 25 households with drinking water for not less than 90 days each calendar year, and community water supply abstraction, treatment and distribution infrastructure (excluding delivery systems or infrastructure primarily deployed for the delivery of water for irrigation of land or rural agricultural drinking-water supplies)<br>(10) community stormwater infrastructure,<br>(11) wastewater and sewage collection, treatment and disposal infrastructure serving no fewer than 25 households, and<br>(12) Otago Regional Council's hazard mitigation works including flood protection infrastructure and drainage schemes. |
| **Renewable electricity generation** | has the same meaning as in the Interpretation section of the National Policy Statement for Renewable Electricity Generation 2011 (as set out in the box below)<br>means generation of electricity from solar, wind, hydroelectricity, geothermal, biomass, tidal, wave, or ocean current energy sources |
| **Renewable electricity generation activities** | has the same meaning as in the Interpretation section of the National Policy Statement for Renewable Electricity Generation 2011 (as set out in the box below) |

[7] https://www.nzta.govt.nz/roads-and-rail/road-efficiency-group/projects/onrc (accessed 26 May 2021)

| Term | Definition |
|---|---|
| | means the construction, operation and maintenance of structures associated with renewable electricity generation. This includes small and community-scale distributed renewable generation activities and the system of electricity conveyance required to convey electricity to the distribution network and/or the national grid and electricity storage technologies associated with renewable electricity |
| **Replanting** | has the same meaning as in regulation 3 of the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017 (as set out in the box below)<br>means the planting and growing of plantation forestry trees on land less than 5 years after plantation forestry harvesting has occurred |
| **Residual risk** | means the risk remaining after the implementation or undertaking of all available and practicable risk management measures. |
| **Resilient or resilience** | means the capacity and ability to withstand or recover quickly from adverse conditions. |
| **Resource consent** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>has the meaning set out in section 87; and includes all conditions to which the consent is subject |
| **Risk** | has the same meaning as in the Glossary in the New Zealand Coastal Policy Statement 2010 (as set out in the box below)<br>Risk is often expressed in terms of a combination of the consequences of an event (including changes in circumstances) and the associated likelihood of occurrence (AS/NZS ISO 31000:2009 *Risk management – Principles and guidelines*, November 2009) |
| **River** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means a continually or intermittently flowing body of fresh water; and includes a stream and modified watercourse; but does not include any artificial watercourse (including an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal) |
| **Road** | has the same meaning as in section 315 of the Local Government Act 1974; and includes a motorway as defined in section 2(1) of the Government Roading Powers Act 1989 (as set out in the boxes below) |

| Term | Definition |
|---|---|
| | road means the whole of any land which is within a district, and which—<br>(a) immediately before the commencement of this Part was a road or street or public highway; or<br>(b) immediately before the inclusion of any area in the district was a public highway within that area; or<br>(c) is laid out by the council as a road or street after the commencement of this Part; or<br>(d) is vested in the council for the purpose of a road as shown on a deposited survey plan; or<br>(e) is vested in the council as a road or street pursuant to any other enactment;—<br>and includes—<br>(f) except where elsewhere provided in this Part, any access way or service lane which before the commencement of this Part was under the control of any council or is laid out or constructed by or vested in any council as an access way or service lane or is declared by the Minister of Works and Development as an access way or service lane after the commencement of this Part or is declared by the Minister of Lands as an access way or service lane on or after 1 April 1988:<br>(g) every square or place intended for use of the public generally, and every bridge, culvert, drain, ford, gate, building, or other thing belonging thereto or lying upon the line or within the limits thereof;—<br>but, except as provided in the Public Works Act 1981 or in any regulations under that Act, does not include a motorway within the meaning of that Act or the Government Roading Powers Act 1989 |
| | motorway—<br>(a) means a motorway declared as such by the Governor-General in Council under section 138 of the Public Works Act 1981 or under section 71 of this Act; and<br>(b) includes all bridges, drains, culverts, or other structures or works forming part of any motorway so declared; but<br>(c) does not include any local road, access way, or service lane (or the supports of any such road, way, or lane) that crosses over or under a motorway on a different level |
| **Rural area** | means any area of land that is not an *urban area* |
| **Sensitive activities** | has the same meaning as in the Interpretation section of the National Policy Statement on Electricity Transmission 2008 (as set out in the box below)<br>includes schools, residential buildings and hospitals |
| **Specified infrastructure** | has the same meaning as in clause 3.21 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means any of the following:<br>(a) infrastructure that delivers a service operated by a lifeline utility (as defined in the Civil Defence Emergency Management Act 2002),<br>(b) regionally significant infrastructure identified as such in a regional policy statement or regional plan,<br>(c) any public flood control, flood protection, or drainage works carried out:<br>(i) by or on behalf of a local authority, including works carried out for the purposes set out in section 133 of the Soil Conservation and Rivers Control Act 1951, or<br>(ii) for the purpose of drainage by drainage districts under the Land Drainage Act 1908 |
| **Sewage** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means human excrement and urine |
| **Ship** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>has the same meaning as in section 2(1) of the Maritime Transport Act 1994 |
| **Significant natural area** | means areas of significant indigenous vegetation and significant habitats of indigenous fauna that are located outside the coastal environment. |
| **Small and community scale distributed electricity generation** | has the same meaning as in the Interpretation section of the National Policy Statement for Renewable Electricity Generation 2011 (as set out in the box below)<br>means renewable electricity generation for the purpose of using electricity on a particular site, or supplying an immediate community, or connecting into the distribution network |
| **Social and cultural buildings** | For the purposes of the consequence table within APP6, these are buildings that are of social and cultural importance. These include:<br>(a) Places of worship;<br>(b) Museums;<br>(c) Art galleries;<br>(d) Marae; and<br>(e) Educational facilities |
| **Solid fuel** | has the same meaning as in regulation 3 of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (as set out in the box below)<br>means a solid substance that releases useable energy when burnt (for example, wood and coal) |
| **Specified rivers and lakes** | has the same meaning as in Appendix 3 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below) |

| Term | Definition |
|---|---|
| | means:<br>(a) rivers that are fourth order or greater, using the methods outlined in the River Environment Classification System, National Institute of Water and Atmospheric Research, Version 1, and<br>(b) lakes with a perimeter of 1.5km or more |
| **Stormwater** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means run-off that has been intercepted, channelled, diverted, intensified or accelerated by human modification of a land surface, or run-off from the surface of any structure, as a result of precipitation and includes any contaminants contained within |
| **Structure** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means any building, equipment, device, or other facility made by people and which is fixed to land; and includes any raft |
| **Structure plan** | means a framework to prescribe development of an area, including land use patterns, infrastructure, linkages and other key features and constraints that affect the development. |
| **Subdivision** | has the same meaning as "subdivision of land" in section 218 of the Resource Management Act 1991 (as set out in the box below)<br>(1) In this Act, the term subdivision of land means—<br>(a) the division of an allotment—<br>(i) by an application to the Registrar-General of Land for the issue of a separate record of title for any part of the allotment; or<br>(ii) by the disposition by way of sale or offer for sale of the fee simple to part of the allotment; or<br>(iii) by a lease of part of the allotment which, including renewals, is or could be for a term of more than 35 years; or<br>(iv) by the grant of a company lease or cross lease in respect of any part of the allotment; or<br>(v) by the deposit of a unit plan, or an application to the Registrar-General of Land for the issue of a separate record of title for any part of a unit on a unit plan; or<br>(b) an application to the Registrar-General of Land for the issue of a separate record of title in circumstances where the issue of that record of title is prohibited by section 226,—<br>and the term subdivide land has a corresponding meaning |
| **Surf break** | has the same meaning as in the Glossary in the New Zealand Coastal Policy Statement 2010 (as set out in the box below) |

| Term | Definition |
|---|---|
| | A natural feature that is comprised of swell, currents, water levels, seabed morphology, and wind. The hydrodynamic character of the ocean (swell, currents and water levels) combines with seabed morphology and winds to give rise to a 'surfable wave'. A surf break includes the 'swell corridor' through which the swell travels, and the morphology of the seabed of that wave corridor, through to the point where waves created by the swell dissipate and become non-surfable. 'Swell corridor' means the region offshore of a surf break where ocean swell travels and transforms to a 'surfable wave'. 'Surfable wave' means a wave that can be caught and ridden by a surfer. Surfable waves have a wave breaking point that peels along the unbroken wave crest so that the surfer is propelled laterally along the wave crest |
| **Takata whenua or tangata whenua** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>in relation to a particular area, means the iwi, or hapu, that holds mana whenua over that area |
| **Taxa** | has the same meaning as in the Glossary of the New Zealand Coastal Policy Statement 2010 (as set out in the box below)<br>Named biological classification units assigned to individuals or sets of species (eg species, subspecies, genus, order, variety) |
| **Te Mana o te Wai** | has the same meaning as in clause 1.3 of the National Policy Statement for Freshwater Management 2020 (as set out in the box below) |

| Term | Definition |
|---|---|
| | *Concept*<br>(1) Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.<br>(2) Te Mana o te Wai is relevant to all freshwater management and not just to the specific aspects of freshwater management referred to in this National Policy Statement.<br>*Framework*<br>(3) Te Mana o te Wai encompasses 6 principles relating to the roles of tangata whenua and other New Zealanders in the management of freshwater, and these principles inform this National Policy Statement and its implementation.<br>(4) The 6 principles are:<br>(a) *Mana whakahaere*: the power, authority, and obligations of tangata whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater<br>(b) *Kaitiakitanga*: the obligation of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations<br>(c) *Manaakitanga*: the process by which tangata whenua show respect, generosity, and care for freshwater and for others<br>(d) *Governance*: the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future<br>(e) *Stewardship:* the obligation of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations<br>(f) *Care and respect*: the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.<br>(5) There is a hierarchy of obligations in Te Mana o te Wai that prioritises:<br>(a) first, the health and well-being of water bodies and freshwater ecosystems<br>(b) second, the health needs of people (such as drinking water)<br>(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future |
| **Territorial authority** | has the same meaning as in section 5 of the Local Government Act 2002 (as set out in the box below)<br>means a city council or a district council named in Part 2 of Schedule 2 |

| Term | Definition |
|---|---|
| **Te Ture Whenua Maori land** | means land with the following status:<br>(a) Māori communal land gazetted as Māori reservation under s338 Te Ture Whenua Maori Act 1993; and<br>(b) Māori customary land and Māori freehold land as defined in s4 and s129 Te Ture Whenua Maori Act 1993. |
| **Threatened species** | means any indigenous species of flora or fauna that meets the criteria for nationally critical, nationally endangered, or nationally vulnerable species in the New Zealand Threat Classification System Manual (Townsend et al, 2008). |
| **Urban area** | means any area of land (regardless of size, and irrespective of local authority or statistical boundaries) that is, or is intended to be, predominantly urban in character. This includes but is not limited to any land identified in District Plans as being within any urban growth boundary or equivalent however described, any residential zone, commercial and mixed use zone, industrial zone and future urban zone as listed in the National Planning Standards or its present District Plan zone equivalent. *Urban environments* are a subset of *urban areas.* |
| **Urban environment** | has the same meaning as in clause 1.4 of the National Policy Statement on Urban Development 2020 (as set out in the box below)<br>means any area of land (regardless of size, and irrespective of local authority or statistical boundaries) that:<br>(a) is, or is intended to be, predominantly urban in character; and<br>(b) is, or is intended to be, part of a housing and labour market of at least 10,000 people |
| **Vulnerability** | means the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards. |
| **Wāhi tūpuna** | means landscapes and places that embody the relationship of manawhenua and their culture and traditions with their ancestral lands, water, sites. wāhi tapu and other taoka. |
| **Waste** | has the same meaning as in regulation 3 of the Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (as set out in the box below)<br>means substances or objects that are disposed of or intended to be disposed of |
| **Wastewater** | has the same meaning as in Standard 14 of the National Planning Standards 2019 (as set out in the box below)<br>means any combination of two or more the following wastes: sewage, greywater or industrial and trade waste |
| **Water** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below) |

| Term | Definition |
|---|---|
| | (a) means water in all its physical forms whether flowing or not and whether over or under the ground:<br>(b) includes fresh water, coastal water, and geothermal water:<br>(c) does not include water in any form while in any pipe, tank, or cistern |
| **Water body** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>means fresh water or geothermal water in a river, lake, stream, pond, wetland, or aquifer, or any part thereof, that is not located within the coastal marine area |
| **Well-functioning urban environments** | has the same meaning as in Policy 1 of the National Policy Statement on Urban Development 2020 (as set out in the box below)<br>well-functioning urban environments are urban environments that, as a minimum:<br>(a) Have or enable a variety of homes that:<br>(i) meet the needs, in terms of type, price, and location, of different households; and<br>(ii) enable Māori to express their cultural traditions and norms; and<br>(b) have or enable a variety of sites that are suitable for different business sectors in terms of location and site size; and<br>(c) have good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, including by way of public or active transport; and<br>(d) support, and limit as much as possible adverse impacts on, the competitive operation of land and development markets; and<br>(e) support reductions in greenhouse gas emissions; and<br>(f) are resilient to the likely current and future effects of climate change |
| **Wetland** | has the same meaning as in section 2 of the Resource Management Act 1991 (as set out in the box below)<br>includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions |
| **Wetland utility structure** | has the same meaning as in regulation 3 of the National Environmental Standard for Freshwater 2020 (as set out in the box below) |

| Term | Definition |
|---|---|
| | (a) means a structure placed in or adjacent to a wetland whose purpose, in relation to the wetland, is recreation, education, conservation, restoration, or monitoring, and<br>(b) for example, includes the following structures that are placed in or adjacent to a wetland for a purpose described in paragraph (a):<br>(i) jetties<br>(ii) boardwalks and bridges connecting them,<br>(iii) walking tracks and bridges connecting them,<br>(iv) signs,<br>(v) bird-watching hides,<br>(vi) monitoring devices,<br>(vii) maimai |
| **Wilding conifer** | has the same meaning as in regulation 3 of the National Environmental Standard for Plantation Forestry 2017 (as set out in the box below)<br>means a self-established conifer species tree resulting from seed spread from plantation forestry, shelter belts, amenity planting, or an already established wilding conifer species tree population |

## Abbreviations

| Abbreviation | Full Terms |
|---|---|
| CDC | Clutha District Council |
| CODC | Central Otago District Council |
| DCC | Dunedin City Council |
| FMU | Freshwater Management Unit |
| HAIL | Hazardous Activities and Industries List |
| LGA | Local Government Act 2002 |
| NES | National Environmental Standard |
| NESAQ | National Environmental Standards for Air Quality 2004 |
| NESCS | National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health 2011 |
| NESETA | National Environmental Standard for Electricity Transmission Activities 2009 |
| NESF | National Environmental Standards for Freshwater 2020 |
| NESMA | National Environmental Standards for Marine Aquaculture 2020 |
| NESPF | National Environmental Standards for Plantation Forestry 2017 |
| NESHDW | National Environmental Standard for Sources of Human Drinking Water 2007 |
| NESTF | National Environmental Standards for Telecommunication Facilities 2016 |
| NOF | National Objectives Framework |
| NPS | National Policy Statement |
| NPSET | National Policy Statement on Electricity Transmission 2008 |
| NPSFM | National Policy Statement for Freshwater Management 2020 |
| NPSREG | National Policy Statement for Renewable Electricity Generation 2011 |
| NPSUD | National Policy Statement on Urban Development 2020 |
| NTCSA | Ngāi Tahu Claims Settlement Act 1998 |
| NZCPS | New Zealand Coastal Policy Statement 2010 |
| OCCRA | Otago Climate Change Risk Assessment Phase 1 report |
| ORC | Otago Regional Council |
| PORPS 2016 | Proposed Otago Regional Policy Statement 2016 – Decisions version |
| PORPS 2019 | Partially Operative Regional Policy Statement 2019 |
| PORPS 2021 | Proposed Otago Regional Policy Statement 2021 |
| QLDC | Queenstown Lakes District Council |

| Abbreviation | Full Terms |
|---|---|
| RPS | Regional Policy Statement |
| RPS 1998 | Regional Policy Statement for Otago 1998 |
| RMA | Resource Management Act 1991 |
| RMS | Regional Monitoring Strategy |
| TAs | Territorial authorities: Central Otago District Council, Clutha District Council, Dunedin City Council, Queenstown-Lakes District Council and Waitaki District Council |
| Waste Plan | Regional Plan: Waste for Otago |
| Water Plan | Regional Plan: Water for Otago |
| WDC | Waitaki District Council |

# National direction instruments

## National policy statements and New Zealand Coastal Policy Statement

| National Policy Statements | |
|---|---|
| National policy statements (NPSs) and the New Zealand Coastal Policy Statement (NZCPS) form part of the Resource Management Act's policy framework and are prepared by central government. NPSs and the NZCPS contain objectives, polices and methods that must be given effect to by policy statements and plans. NPSs and the NZCPS must also be given regard to by consent authorities when making decisions on *resource consent* applications, alongside other considerations.<br><br>The following table provides an overview of whether any relevant review/s of the Otago Regional Policy Statement has been undertaken in relation to NPSs and the NZCPS. | |
| National Policy Statement on Electricity Transmission 2008 | The policy statement has been reviewed in May 2021 |
| New Zealand Coastal Policy Statement 2010 | The policy statement has been reviewed in May 2021 |
| National Policy Statement for Renewable Electricity Generation 2011 | The policy statement has been reviewed in May 2021 |
| National Policy Statement for Freshwater Management 2020 | The policy statement has been reviewed in May 2021 |
| National Policy Statement on Urban Development (2020) | The policy statement has been reviewed in May 2021 |

## National environmental standards

| National Environmental Standards |
|---|
| National environmental standards (NESs) are prepared by central government and can prescribe technical standards, methods (including rules) and/or other requirements for environmental matters throughout the whole country or specific areas. If an activity doesn't comply with an NES, it is likely to require a *resource consent*. NESs must be observed and enforced by *local authorities*. The following relevant NESs are currently in force:<br><br>• Resource Management (National Environmental Standards for Air Quality) Regulations 2004 (amended 2011)<br>• Resource Management (National Environmental Standards for Sources of Human Drinking Water) Regulations 2007<br>• Resource Management (National Environmental Standards for Electricity Transmission Activities) Regulations 2009<br>• Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011<br>• Resource Management (National Environmental Standards for Telecommunications Facilities) Regulations 2016 |

- Resource Management (National Environmental Standard for Plantation Forestry) Regulations 2017
- Resource Management (National Environmental Standards for Freshwater) Regulations 2020
- Resource Management (National Environmental Standards for Marine Aquaculture) Regulations 2020

## Regulations

| Regulations |
|---|
| The regulations included in this chapter come under the Resource Management Act 1991 (excluding the national environmental standards listed above). These regulations are:<br>• Resource Management (Transitional, Fees, Rents, and Royalties) Regulations 1991<br>• Resource Management (Exemption) Regulations 1996<br>• Resource Management (Marine Pollution) Regulations 1998<br>• Resource Management (Infringement Offences) Regulations 1999<br>• Resource Management (Forms, Fees, and Procedure) Regulations 2003<br>• Resource Management (Discount on Administrative Charges) Regulations 2010<br>• Resource Management (Measurement and Reporting of Water Takes) Regulations 2010<br>• Resource Management (Network Utility Operations) Regulations 2016<br>• Resource Management (Exemption) Regulations 2017.<br>• Resource Management (Stock Exclusion) Regulations 2020 |

## Water conservation orders

| *Water Conservation Orders* | |
|---|---|
| Regional policy statements, *regional plans* and *district plans* cannot be inconsistent with the provisions of a water conservation order. A water conservation order can prohibit or restrict a regional council issuing new water and discharge permits, although it cannot affect existing permits.<br>The following table provides an overview of whether any relevant review/s of the Otago Regional Policy Statement have been undertaken in relation to relevant water conservation orders. | |
| Water Conservation (Kawarau) Order 1997 | The policy statement has been reviewed in May 2021 |

# MW – *Mana whenua*

## Recognition of hapū and iwi

### Kāi Tahu[8]

Kāi Tahu are *takata whenua* of the Otago region. Waitaha were the first people of Te Waipounamu, the South Island. Led by Rākaihautū, they explored and settled Te Waipounamu, and their exploits are reflected in enduring place names and histories across the motu. Waitaha were followed by the arrival of Kāti Māmoe and finally Kāi Tahu. Through warfare, intermarriage and political alliances a common allegiance to Kāi Tahu was forged. Kāi Tahu means the 'people of Tahu', linking them by name to their common ancestor Tahu Pōtiki.

The Kāi Tahu tribal area extends from the sub Antarctic islands in the south to Te Parinuiowhiti (White Cliffs, Blenheim) in the north and to Kahurangi Point on Te Tai o Poutini (the West Coast).

### Relationship of Kāi Tahu with their rohe

Te Rūnanga o Ngāi Tahu (the iwi authority) is made up of 18 Papatipu Rūnaka, of which seven have interests in the Otago region. Papatipu Rūnaka are a focus for whānau and hapū (extended family groups) who have *mana whenua* status within their area. *Mana whenua* hold traditional customary authority and maintain contemporary relationships within an area determined by whakapapa (genealogical ties), resource use and ahikāroa (the long burning fires of occupation). Te Rūnaka o Ngāi Tahu encourages consultation with the Papatipu Rūnaka and takes into account the views of kā Rūnaka when determining its own position.

Four Kāi Tahu ki Otago Papatipu Rūnaka are based in Otago. These are Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou, and Hokonui Rūnanga. Three Ngāi Tahu ki Murihiku Rūnaka – Awarua Rūnanga, Waihopai Rūnanga and Ōraka-Aparima Rūnanga – are based in Southland but also share interests with Kāi Tahu ki Otago in South Otago, the Mata-au Clutha River, and the inland *lakes* and mountains. The areas of shared interest originate from the seasonal hunting and gathering economy that was a distinctive feature of the southern Kāi Tahu lifestyle. Seasonal mobility was an important means by which hāpu and whānau maintained customary rights to the resources of the interior and ahi kā.

#### Te Rūnanga o Moeraki

The takiwā of Te Rūnanga o Moeraki is centred on Moeraki and extends from the Waitaki River to the Waihemo Shag River and inland to the Main Divide. The coastal interests of Te Rūnanga o Moeraki are concentrated in the Moeraki Peninsula area and surrounds, including Te Raka-a-Hineatea Pā, Koekohe Hampden Beach, and Te Kai Hinaki with its famed boulders.

https://www.terunangaomoeraki.org/

[8] In the south of the South Island, the local Māori dialect uses a 'k' interchangeably with 'ng'. The preference of Kāi Tahu ki Otago is to use a 'k' so southern Māori are known as Kāi Tahu, rather than Ngāi Tahu. In this document, the "ng" is used for the iwi in general, and the "k" for southern Māori in particular.


*Te Rūnanga o Moeraki Marae, Moeraki*

### Kāti Huirapa ki Puketeraki

The takiwā of Kāti Huirapa ki Puketeraki centres on Karitāne and extends from the Waihemo, Shag River to Purehurehu Heyward Point, and includes an interest in Ōtepoti and the greater harbor of Ōtākou. The takiwā extends inland to the Main Divide sharing an interest in the *lakes* and mountains to Whakatipu-Waitai with kā Rūnaka to the south. The kaimoana resources of the coast from Karitāne to Okahau Blueskin Bay and Pūrākaunui, and the kai awa of the Waikouaiti River and estuary are treasured and well utilised mahika kai for Kāti Huirapa ki Puketeraki.

http://www.puketeraki.nz/

*Puketeraki Marae*

### Te Rūnanga o Ōtākou

The takiwā of Te Rūnaka o Ōtākou centres on Muaūpoko Otago Peninsula, and extends from Purehurehu Heyward Point, to Te Mata-au Clutha River, and inland, sharing an interest in the *lakes* and mountains to the western coast with kā Rūnaka to the north and south. The Otago Harbor has a pivotal role in the well-being of Ōtākou people. The harbor is a source of identity, a bountiful provider of kaimoana, and it is the pathway to the fishing grounds beyond. Traditionally it was the mode for other hapū to visit, and in today's world it is the lifeline to the international trade that benefits the

region. The ebb and flow of the harbor tides is a valued certainty in a world of change, a taoka to be treasured and protected for the benefit of current and future generations.

http://www.otakourunaka.co.nz/

*Ōtākou Marae, Otago Peninsula*

### Hokonui Rūnanga

The takiwā of Hokonui Rūnaka centres on the Hokonui region and includes a shared interest in the *lakes* and mountains between Whakatipu-Waitai and Tawhitarere with other Murihiku Rūnanga and those located from Waihemo southwards. Although Hokonui Rūnanga is based in Gore, their interests in the Otago area, especially South Otago, are significant. They hold this in common with other Otago Rūnaka through whakapapa, history and tradition.

https://www.hokonuirunanga.org.nz/

*Hokonui Marae*

### Te Rūnanga o Awarua

The takiwa of Te Rūnanga o Awarua centres on Awarua and extends to the coasts and estuaries adjoining Waihopai sharing an interest in the *lakes* and mountains between Whakatipu-Waitai and Tawhititarere with other Murihiku Rūnanga and those located from Waihemo southwards.

### Waihopai Rūnaka

The takiwa of Waihopai Rūnaka centres on Waihopai and extends northwards to Te Mata-au Clutha River, sharing an interest in the *lakes* and mountains to the western coast with other Murihiku Rūnaka and those located from Waihemo southwards.

### Te Rūnanga o Ōraka Aparima

The takiwa of Te Rūnanga o Ōraka Aparima centres on Ōraka and extends from Waimatuku to Tawhititarere sharing an interest in the *lakes* and mountains from Whakatipu-Waitai to Tawhititarere with other Murihiku Rūnaka and those located from Waihemo southwards.

## Environmental management perspectives and values of Kāi Tahu

*He taura whiri kotahi mai anō te kōpunga tai nō ī te pū au*

*"From the source to the mouth of the sea, all things are joined together as one"*

Te Tiriti o Waitangi establishes a partnership between Kāi Tahu and the Crown. The RMA 1991 requires that the relationship of Māori and their culture and traditions with their ancestral *lands*, *water*, sites, wāhi tapu, and other taoka, is recognised and provided for[9] and that the principles of the Treaty of Waitangi are taken into account.[10] In the spirit of this partnership and the Treaty principles the ORPS seeks to facilitate Kāi Tahu engagement in resource management in Otago.

This chapter acknowledges the principles of Te Tiriti o Waitangi and sets out general considerations for the incorporation of Kāi Tahu values and interests into resource management planning, consenting, and implementation processes. These are integrated throughout this document, and this chapter serves to tie the strands together. It reflects the philosophy embraced by Kāi Tahu of holistic resource management, ki uta ki tai – often described as "from the mountains to the sea".

### Kāi Tahu values

The following description is a guide to assist in understanding Kāi Tahu values. It is not a complete list of all the values held by Kāi Tahu.

Kāi Tahu do not see their existence as separate from Te Ao Tūroa, the natural world, but as an integral part of it through whakapapa (genealogy). Whakapapa is central to Te Ao Māori world view, connecting the origins of everything, past and present. It is the foundation upon which all things are built, the web that connects all things together, the anchor which holds all things in place and the means by which all things link back to the beginning of time. It is through whakapapa that all things are intricately linked, as well as having their individual place in the world. Whakapapa binds Kāi Tahu to the mountains, forests and waters and the life supported by them, and this is reflected in attitudes towards the natural world and resource management.

Whakawhanaukataka, the process of maintaining relationships, embraces whakapapa through the relationship between people, and between people and the *environment*. The nature of these

[9] Section 6 of the Resource Management Act (1991).
[10] Section 8 of the Resource Management Act (1991).

relationships defines people's rights and responsibilities in relation to the use and management of resources.

All things have the qualities of wairua (spiritual dimension) and mauri (life force), and have a genealogical relationship with each other. Mauri is found in all things organic and inorganic. The nurturing of all taoka and protection of their mauri is a prime concern and a kaitiakitaka obligation for Kāi Tahu.

Each Papatipu Rūnaka has its own takiwā determined by whakapapa and its ahi-kā-roa (historical use and occupation). Takiwā are often defined by natural boundaries such as heads, mountain ranges and *rivers*. This political and operational authority over an area is undertaken by *mana whenua* and encompasses *kaitiakitaka* and rakatirataka. An integral element of the concepts of *kaitiakitaka* and rakatirataka is the recognition that Kāi Tahu have their own traditional means of managing and maintaining resources and the *environment*. This system of rights and responsibilities (encompassing tikaka and kawa) is inherited from previous generations and has evolved over time.

The resources in any given area are a source of prestige for *mana whenua* of that area and are a statement of their identity. Traditionally, the abundance or lack of resources directly determines the welfare of every hapū, and so affects their mana.

### Ki uta ki tai

Ki uta ki tai is a philosophy that has become synonymous with the way Kāi Tahu think about natural resource management. Ki uta ki tai is the concept used to describe holistic natural resource management, recognising all environmental elements are interconnected and must be managed as a whole. It is a way of understanding the natural environment, including how it functions, how people relate to it and how it can be looked after appropriately.

### Rakatirataka

Rakatirataka is about having the mana or authority to give effect to Kāi Tahu culture and traditions in the management of the natural world. Recognition of the relationship of Kāi Tahu and their culture and traditions with their ancestral lands, *water*, sites, wāhi tapu, and other taoka are embedded in the RMA 1991 and the Treaty of Waitangi.

### Kaitiakitaka

*Kaitiakitaka* means the exercise of guardianship over *natural and physical resources* and includes the ethic of stewardship. This statutory definition of *kaitiakitaka* is only a starting point for Kāi Tahu, as *kaitiakitaka* is a much wider cultural concept than guardianship.

*Kaitiakitaka* is fundamental to the relationship between Kāi Tahu and the *environment*. The objectives of *kaitiakitaka* are to protect the mauri and life supporting capacity of the *environment* and to pass the *environment* on to future generations in an enhanced state. For Kāi Tahu, *kaitiakitaka* is not passive custodianship, nor is it simply the exercise of traditional property rights, but it entails an active exercise of responsibility in a manner beneficial to the resource.

### Tikaka

Tikaka Māori encompasses the beliefs, values, practices, and procedures that guide appropriate codes of conduct, or ways of behaving. In the context of natural resource management, observing tikaka is part of the ethic and exercise of *kaitiakitaka*. It is underpinned by a body of mātauraka (traditional

knowledge) and is based on a general understanding that people belong to the land and have a responsibility to care for and manage the land. It incorporates forms of social control to manage the relationship of people and the *environment*, including concepts such as tapu, noa and rāhui.

Tikaka is based on traditional practices but is dynamic and continues to evolve in response to different situations.

### Taoka

All natural resources - air, *land*, *water*, and indigenous *biological diversity* - are taoka. Taoka are treasured resources that are highly valued by Kāi Tahu, derived from the atua (gods), and left by the tūpuna (ancestors) to provide and sustain life. In the management of natural resources, it is important that the habitats and wider needs of taoka species are sustainably managed and enhanced.

### Mahika kai

Mahika kai is one of the cornerstones of Kāi Tahu cultural identity. Mahika kai is a term that literally means "food workings" and refers to the customary gathering of food and natural materials and the places where those resources are gathered or produced. The term also embodies the traditions, customs and collection methods, and the gathering of natural resources for cultural use, including raraka (weaving) and rokoā (traditional medicines). Maintaining mahika kai sites, gathering resources, and continuing to practice the tikaka that governs each resource, is an important means of passing on cultural values and mātauraka to the next generation.

## Resources of significance to Kāi Tahu

### Wai Maori

Like all things, *water* has a whakapapa. All *water* is seen to have originated from the separation of Rakinui and Papatūānuku and their continuing tears for one another. Rain is Rakinui's tears for his beloved Papatūānuku and mist is regarded as Papatūānuku's tears for Rakinui.

From Rakinui and Papatūānuku came the offspring who were responsible for creating the elements that constitute our total world today, both animate and inanimate - the mountains, *rivers*, forests and seas, and all fish, bird and animal life. The realm of atua such as Rakinui and his many wives and offspring overarches and informs the Kāi Tahu whānui world view, values and beliefs.

*Water* plays a significant role in Kāi Tahu spiritual beliefs and cultural traditions. Kāi Tahu have an obligation through whakapapa to protect wai and all the life it supports, as *ko te wai te ora o kā mea katoa (water is the life giver of all things)*. The condition of *water* is seen as a reflection of the condition of the people. *Toitū te Marae o Tane, toitū te Marae o Takaroa, toitū te Iwi (Protect and strengthen the realms of the land and sea, and they will protect and strengthen the people).* When the natural environment is strong and healthy, the people are strong and healthy and so too is their mana.

### Taoka species and habitats

Taoka species and habitats are those that are treasured by Kāi Tahu, and Kāi Tahu regard all indigenous species as taoka. In many cases taoka species are also mahika kai, treasured for their use as a resource. The Ngāi Tahu Claims Settlement Act 1998 (NTCSA 1998) recognises the relationship Kāi Tahu has with some of these species through the Statutory Acknowledgement for Taonga Species. However, Kāi

Tahu do not consider this list to be comprehensive as important taoka species such as tuna are not included.

### *Wāhi tūpuna*

The value Kāi Tahu attached to land is evident from the fact that every part of the landscape is known and named. *Wāhi tūpuna* (ancestral landscapes) are made up of interconnected sites and areas reflecting the history and traditions associated with the long settlement of Kāi Tahu in Otago. The landscape of Otago includes many *wāhi tūpuna* and areas of significance, reflecting the relationship of Kāi Tahu with the land across the region. These places should not be seen in isolation from one another but are part of a wider cultural setting. For example, an archaeological site adjacent to a *wetland* is likely to be associated with mahika kai resources in the *wetland*. The character of *wāhi tūpuna* in past times is retained in tribal memory, for example through songs, place names and proverbs. When these references to the character of the *wāhi tūpuna* become incorrect due to modification of the *environment*, it negatively affects the Kāi Tahu relationship with that landscape. For example, a waterway named Kaituna would be expected to contain many tuna. A waterway with this name used to exist in central Dunedin, but no longer exists because there is now a city where the waterway once was.

## Air and atmosphere (kōhauhau)

In Kāi Tahu traditions, air and atmosphere emerged through the creation traditions and the movement from Te Kore through Te Pō to Te Ao Marama. Following the separation of Raki and Papatūānuku, one of their many children, Tāwhirimātea, fled with Raki into the sky. From there he controls the wind and weather. The air and atmosphere are integral parts of the *environment* that must be valued, used with respect, and passed on intact to the next generation. Pollution of the air and atmosphere adversely affects the mauri of this taoka and other taoka such as plants and animals.

## Coastal environment (taku tai moana me te wai māori)

The tūpuna of Kāi Tahu were great ocean travellers. Like many other Pacific peoples, Kāi Tahu are connected by whakapapa to those people who spread across Te-Moana-Nui-a-Kiwa, the Pacific Ocean. Takaroa is the atua who is central to these beliefs, which influence the way Kāi Tahu relate to and manage marine resources. The marine environment is a moving force, a reminder of the power of Takaroa. The coastal environment is particularly significant for Kāi Tahu in the southern South Island. Most of the permanent settlements were established on the coast due, in part, to the moderating influence of the sea on temperature, making the winters less bitter. The coast also had a bounty of kaimoana resources to support coastal settlements.

The *coastal waters* and processes were integral to the way of life tūpuna enjoyed, and the coastal environment continues to support significant mahika kai resources. The *coastal waters* are a *receiving environment* for fresh *water*, gravels and sediment from the terrestrial landscape, which are important to maintaining natural processes and the domain of Takaroa. Recognising the interconnection of the *land* and sea environments is consistent with the ki uta ki tai philosophy.

### Pounamu

Kāi Tahu customs are intricately linked to this special taoka. The practice of gathering, using and trading pounamu bind Kāi Tahu identity to the landscape. Pounamu conveys mana and mauri from ages past, and is reflected in its exalted whakapapa lineage, an uri (descendant) of Takaroa.

As an interim measure, until a Regional Pounamu Management Plan is developed for Otago and Murihiku, a rāhui pounamu has been in place in the Otago region since the passing of the Ngāi Tahu (Pounamu Vesting) Act 1997. This is subject to review by the collective Kaitiaki Rūnaka who will determine appropriate protection, access and use policies applicable to their membership and Ngāi Tahu whānui.

## Ngāi Tahu Claims Settlement Act 1998 (NTCSA 1998)

The NTCSA 1998 was enacted to settle historical Ngāi Tahu claims against the Crown. The NTCSA 1998 provides redress for breaches of Te Tiriti o Waitangi and to signal a new age of co-operation of the Crown and its agencies with Kāi Tahu. The Crown apology recorded in section 4 of the NTCSA 1998 explicitly recognises the rakatirataka of Kāi Tahu within its takiwā, and the Act includes specific provisions that provide for exercise of rakatirataka and *kaitiakitaka* by *mana whenua* in respect to mahika kai, taoka species and other resource management matters. These include rights in relation to the management of specified significant areas (statutory acknowledgement areas, tōpuni and *nohoaka*) and customary fisheries.

### Statutory acknowledgement areas

Statutory acknowledgements are recorded in the NTCSA 1998 for several *water bodies*, mountains and coastal features in the Otago Region. These acknowledgements are statements by Te Rūnanga o Ngāi Tahu of the particular cultural, spiritual, historic and traditional association of Kāi Tahu with these areas.

Part 12 of the NTCSA 1998 provides details of statutory acknowledgements, and the responsibilities relating to them. Section 208 of the NTCSA 1998 requires that *local authorities* have regard to these statutory acknowledgements in *resource consent* processing under Section 95 of the RMA in deciding whether Te Rūnanga o Ngāi Tahu may be adversely affected by the granting of a *resource consent* for activities within, adjacent to or impacting directly on the area.

Statutory acknowledgements were intended as a measure to improve opportunities for *mana whenua* engagement in resource management processes, pending broader provision for areas of significance to Kāi Tahu being incorporated into resource management plans in order to protect and restore associated rights, interests and values. The statutory acknowledgements are *wāhi tūpuna,* but *wāhi tūpuna* are not confined to these areas.

The following statutory acknowledgement areas in Otago are recognised in the NTCSA 1998, and their values are described in Schedules to that Act:

- Ka Moana Haehae (Lake Roxburgh) - Schedule 22
- Kakaunui River - Schedule 23
- Kuramea (Lake Catlins) - Schedule 28
- Lake Hāwea - Schedule 30
- Lake Wānaka - Schedule 36

- Mata-Au (Clutha River) - Schedule 40
- Matakaea (Shag Point) - Schedule 41
- Pikirakatahi (Mount Earnslaw) - Schedule 51
- Pomahaka River - Schedule 52
- Te Tauraka Poti (Merton Tidal Arm) - Schedule 60
- Te Wairere (Lake Dunstan) - Schedule 61
- Tititea (Mount Aspiring) - Schedule 62
- Tokatā (The Nuggets) - Schedule 64
- Waihola/Waipori Wetland - Schedule 70
- Waitaki River – Schedule 72[11]
- Whakatipu Wai Māori (Lake Wakatipu) - Schedule 75
- Te Tai O Arai Te Uru (Otago Coastal Marine Area) - Schedule 103.

### Tōpuni

The concept of tōpuni derives from the traditional Kāi Tahu custom of persons of rakatira status extending their mana and protection over a person or area by placing their cloak over them or it. A number of areas on public conservation land that have significant values to Kāi Tahu because of their cultural, spiritual, historic and traditional associations are recognised in the NTCSA 1998 as tōpuni. Sections 240 to 246 of the NTCSA 1998 provide for Kāi Tahu consultation on management of these areas, to protect their values. Although the specific provisions in the NTCSA 1998 relate only to management of conservation land, the interests of Kāi Tahu should be recognised and provided for when considering activities in nearby areas that may impact on the values of tōpuni or *waters* flowing from them.

Tōpuni recognised in Otago are:

- Matakaea (Shag Point) – Schedule 83
- Maukaatua Scenic Reserve – Schedule 84
- Pikirakatahi (Mount Earnslaw) – Schedule 87
- Te Koroka (Dart/Slipstream) – Schedule 91
- Tititea (Mount Aspiring) – Schedule 92.

### *Nohoaka*

*Nohoanga* (or *nohoaka*) entitlements provide a right of seasonal occupation and use for Kāi Tahu whānui on specified areas of Crown-owned land near *water bodies* for harvest of natural resources (sections 255 to 268 of the NTCSA 1998). These rights are intended as partial redress for the loss of mahika kai through alienation of land.

Kāi Tahu interests in these areas should be recognised and provided for when considering management of associated *water bodies* or activities on nearby land. The ability of Kāi Tahu whānui to access and use *nohoaka* as intended is reliant upon protection and restoration of mahika kai values associated with them.

[11] The Waitaki River lies within both the Otago and Canterbury regions.

*Nohoaka* entitlements are listed in Schedule 95 of the NTCSA 1998. In Otago, sites are identified adjacent to the following *water bodies*:

- Waitaki River (two sites)
- Waianakarua River
- Taieri River (three sites)
- Lake Hāwea (three sites)
- Hāwea River
- Lake Wānaka (two sites)
- Lake Wakatipu
- Shotover River (two sites)
- Mata-au Clutha River (four sites).

### Customary fisheries

Sections 297 to 311 of the NTCSA 1998 include provisions recognising Kāi Tahu rights and interests in customary fisheries, and provide for involvement in management of these resources through the Conservation Act 1987 and the Fisheries Acts 1983 and 1996.

The interests of Kāi Tahu should be recognised and provided for when considering activities under the RMA 1991 that may impact on customary fisheries, to enable protection and restoration of fisheries habitat. Mātaitai and taiāpure are mechanisms under the Fisheries Act that provide for management of customary fisheries areas and are applicable to both coastal and *freshwater* fisheries environments.

The East Otago Taiāpure is constituted by the Fisheries (East Otago Taiāpure) Order 1999. It includes the estuarine and inshore marine waters between Cornish Head and Potato Point.

There are also four mātaitai in Otago:

- Moeraki Mātaitai Reserve includes areas of *coastal waters* at Moeraki and Katiki (https://www.mpi.govt.nz/dmsdocument/15220-Moeraki-North-Otago-Mataitai-Reserve)
- Waikouaiti Mātaitai Reserve includes *freshwater* and estuarine waters of the Waikouati River (https://www.mpi.govt.nz/dmsdocument/12954-Waikouaiti-South-Canterbury-Mataitai-Reserve-)
- Ōtākou Mātaitai Reserve includes most of the Otago Harbor north of a line from Harwood to Pulling Point (https://www.mpi.govt.nz/dmsdocument/14077-Otakou-mataitai-reserve)
- Puna-wai-Tōriki (Hays Gap) Mātaitai Reserve includes an area of *coastal waters* north of Nugget Point (https://www.mpi.govt.nz/dmsdocument/15223-Puna-wai-Toriki-Hays-Gap-South-Otago-Mataitai-Reserve)

## Māori land reserves

A Native Reserve is any property or site that is a:

- Native Reserve excluded from the Ōtākou Land Purchases (1844)
- Native Reserve excluded from the Kemps Land Purchases (1848)
- Reserve granted by the Native Land Court (1868)
- Half Caste Reserve (1881)

- Landless Native Reserve (1896)
- Other reserve (1890 and 1900)

A number of Māori reserves exist that were excluded from the land sales of the 1840s. These reserves are steeped in history and association and are places of belonging. Remaining reserves are located at Moeraki, Waikouaiti, Ōtākou, Onumia, Taieri Mouth, and Te Karoro, Kaka Point. Other categories of Māori land exist at Koputai, Port Chalmers, and Ōtepoti, Dunedin, where tauraka waka,landing sites, were recognised. In addition, land was held at Manuhaea, Lake Hāwea, Aramoana, Clarendon, Taieri Mouth, Tautuku-Waikawa and Glenomaru amongst others. Landing reserves were allocated at Matainaka, Waikouaiti, and the former Lake Tatawai on the Taieri Plains.

The following table lists the reserves in Otago. Many of the sections within these Native Reserves now have the status of general land. While some of this general land is still in Māori ownership, many of the general titled sections have been sold to non-Māori or taken under various pieces of legislation such as the Public Works Act 1981. Although these sections are no longer in whānau ownership, descendants of the original owners retain an ancestral relationship with these lands.

*Table 1: Native reserves located within the Otago region*

| Location | Comments | Reserve Type |
|---|---|---|
| Tautuku | Southern block of Tautuku sections | South Island Landless Natives Act |
| | Northern sections are Reserved lands | Native Reserve |
| Glenomaru | Located south of Kaka Point | South Island Landless Natives Act |
| Maranuku | Granted in 1844 as part of the Otakou Purchase. Originally called Te Karoro, split into two reserves | Native Reserve |
| Clarendon | Located inland from Taieri Mouth | Clarendon Half Caste Reserve |
| Taieri | Granted in 1844 as part of the Otakou Purchase Deed. Split into three reserves; A, B and C | Native Reserve |
| Lake Tatawai | Located on the Taieri Plain, south of the Dunedin | Native Reserve |
| Lake Tatawai | Lake that is now drained | Landing Reserve |
| Otago Heads Native Reserve | Granted in 1844 as part of the Ōtākou Purchase Deed. Split into four reserves | Native Reserve |
| Port Chalmers | Granted in 1848 as part of the Ōtākou Purchase Deed. A further grant adjacent to the Reserve was made in approximately 1888 | Native Reserve |
| Aramoana | This reserve resulted from the Purakaunui Half Caste grant | Half Caste Reserve |
| Purakanui | Granted in 1848 as part of Kemp's Purchase Deed. Further allocations were made in 1868 at Wharauwerawera | Native Reserve |
| Brinns Point | Granted in the latter part of the nineteenth century | Half Caste Reserve |
| Karitane (Waikouaiti Native Reserve) | Granted in 1848 as part of Kemp's Purchase Deed | Native Reserve |

| | | |
|---|---|---|
| Matainaka and Hawksbury Fishing Easement | Two fishing easements fall under this reserve, Matainaka, located at Hawkesbury Lagoon at Waikouaiti and the Forks Reserve located inland from Karitane. The legal description for the latter reserve is Section 1N Town of Hawksbury | Fishing Easement |
| Hawksbury | Located north of Waikouaiti, in the vicinity of Goodwood | Hawksbury Half Caste Reserve |
| Moeraki | Granted in 1848 as part of Kemp's Purchase Deed. Further awards were made in 1868 | Native Reserve |
| Kuri Bush | 10 acre reserve of timber | Native Reserve |
| Kakanui | Granted in 1848 as part of Kemp's Purchase Deed. By 1853, this Reserve was noted as being abandoned and the 75 acre allocation was added to the southern edge of the Moeraki Native Reserve | Native Reserve |
| Korotuaheka | Located south of the Waitaki River mouth. Now Reserved as an urupa. It appears this originated as an occupational reserve and Fishing Easement | Partitioned in 1895 Possibly awarded as part of the 1868 awards |
| Punaomaru | 376 acre reserve located approximately 14 miles from the Waitaki River mouth on the south bank of the river | Native Reserve |
| Lake Hāwea | Reserve of 100 acres situated in the western extremity of the middle arm of Lake Hāwea near a Lagoon. Part of the Reserve was taken for power development in 1962 and the balance of the land was alienated by the Māori Trustee in 1970 | Fishing Easement |

## Mana whenua – local authority relationships

### Kāi Tahu relationships with local authorities

There are a number of relationship agreements between Kāi Tahu Ki Otago and *local authorities* in Otago. These include:

- Memorandum of Understanding and Protocol between Otago Regional Council, Te Rūnanga Ngāi Tahu and Kāi Tahu ki Otago for Effective Consultation and Liaison (2003)
- Te Roopū Taiao Otago Charter and Hui (ORC, QLDC, DCC, WDC, CDC, CODC)
- Charter of Understanding signed with Te Ao Marama Inc. and Southland Rūnanga (2016)

Kāi Tahu and Otago Regional Council use the Mana to Mana forum as a means to build a strengthened relationship between the two entities.

He Huarahi mō Ngā Uri Whakatupu[12] is the Charter of Understanding between Ngāi Tahu ki Murihiku (Awarua Rūnanga, Waihopai Rūnanga, Ōraka-Aparima Rūnanga and Hokonui Rūnanga) and the *local*

[12] Available from https://www.es.govt.nz/repository/libraries/id:26gi9ayo517q9stt81sd/hierarchy/about-us/plans-and-strategies/regional-plans/iwi-management-plan/documents/The%20Charter%20of%20Understanding.pdf (accessed 26 May 2021)

*authorities*. Otago Regional Council and Queenstown Lakes District Council are signatories to He Huarahi mō Ngā Uri Whakatupu as it applies to their areas of jurisdiction.

### Hapu and iwi planning documents

There are four iwi planning documents lodged with the *local authorities* in the Otago Region:

- Te Rūnanga o Ngāi Tahu Freshwater Policy 1999
- Kāi Tahu ki Otago Natural Resources Management Plan 2005
- Te Tangi a Tauira: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008
- Waitaki Iwi Management Plan 2019

#### How the iwi planning documents have been taken into account in this Regional Policy Statement

Objectives and policies of the iwi management plans are reflected in the Resource Management Issues of Significance to Kāi Tahu and have been taken into account in the development of provisions across the whole of this Regional Policy Statement.

### How iwi planning documents are used in Otago

The iwi management plans are used to provide cultural context and guidance as to the natural resource values, concerns and issues of Kāi Tahu ki Otago and Ngāi Tahu ki Murihiku.

The iwi planning documents are to be used in the development of planning policy and assist decision-makers to make informed decisions, recognising the local knowledge of the *environment* held by Papatipu Rūnaka and the significance of the natural resource values to Kāi Tahu.

The iwi planning documents are also used to guide consultation with Rūnaka and set out the expectations for consultation. The iwi management plans are not a substitute for direct communication with Papatipu Rūnaka.

## Involvement and participation with *mana whenua*

ORC and the *local authorities* will establish and maintain effective resource management relationships with Kāi Tahu based on a mutual obligation to act reasonably and in good faith. The *local authorities* and Otago Regional Council will consult Kāi Tahu at an early stage in resource management processes and implementation, and facilitate efficient and effective processes for applicants to consult Kāi Tahu on *resource consent* applications and private plan change requests.

*Local authorities* may also delegate and transfer any one or more of their functions, powers or duties to an iwi authority in accordance with section 33 of the RMA, and where this provides an effective service.

### *Mana whenua* consultancy services

The Papatipu Rūnaka consultancy services, Aukaha, representing Kāi Tahu ki Otago, and Te Ao Marama Inc, representing Ngāi Tahu ki Murihiku, facilitate Kāi Tahu engagement in resource management processes and provide a first point of contact for the public seeking to engage with Papatipu Rūnaka.

## Other iwi, hapū and mātāwaka

Otago is also home to Māori from other iwi, hapū, and mātāwaka. The Araiteuru marae in Dunedin and Te Whare Koa in Oamaru are important pan-tribal cultural centres for mātāwaka and sit within the manaakitaka of *takata whenua*.

## Provisions

### Objectives

#### MW–O1 – Principles of Te Tiriti o Waitangi

The principles of Te Tiriti o Waitangi are given effect in resource management processes and decisions, utilising a partnership approach between councils and Papatipu Rūnaka to ensure that what is valued by *mana whenua* is actively protected in the region.

### Policies

#### MW–P1 – Treaty obligations

Promote awareness and understanding of the obligations of *local authorities* in regard to the principles of Te Tiriti o Waitangi, tikaka Māori and kaupapa Māori.

#### MW–P2 – Treaty principles

*Local authorities* exercise their functions and powers in accordance with Treaty principles, by:

(1) recognising the status of Kāi Tahu and facilitating Kāi Tahu involvement in decision-making as a Treaty partner,

(2) including Kāi Tahu in resource management processes and implementation to the extent desired by mana whenua,

(3) recognising and providing for Kāi Tahu values and resource management issues, as identified by *mana whenua*, in resource management decision-making processes and plan implementation,

(4) recognising and providing for the relationship of Kāi Tahu culture and traditions with their ancestral lands, *water*, sites, wāhi tapu, and other taoka by ensuring that Kāi Tahu have the ability to identify these relationships and determine how best to express them,

(5) ensuring that *regional* and *district plans* recognise and provide for Kāi Tahu relationships with Statutory Acknowledgement Areas, tōpuni, *nohoaka* and customary fisheries identified in the NTCSA 1998, including by actively protecting the mauri of these areas,

(6) having particular regard to the ability of Kāi Tahu to exercise kaitiakitaka,

(7) actively pursuing opportunities for:

  (a) delegation or transfer of functions to Kāi Tahu, and

  (b) partnership or joint management arrangements, and

(8) taking into account iwi management plans when making resource management decisions.

### MW–P3 – Supporting Kāi Tahu well-being

The natural environment is managed to support Kāi Tahu well-being by:

(1) protecting customary uses, Kāi Tahu values and relationships of Kāi Tahu to resources and areas of significance, and restoring these uses and values where they have been degraded by human activities,

(2) safeguarding the mauri and life-supporting capacity of natural resources, and

(3) working with Kāi Tahu to incorporate mātauraka in resource management.

### MW–P4 – Sustainable use of Māori land

Kāi Tahu are able to protect, develop and use *land* and resources within native reserves and *land* held under Te Ture Whenua Māori Act 1993 in a way consistent with their culture and traditions and economic, cultural and social aspirations, including for *papakāika*, marae and marae related activities, while:

(1) avoiding adverse *effects* on the health and safety of people,

(2) avoiding significant adverse *effects* on matters of national importance, and

(3) avoiding, remedying, or mitigating other adverse *effects*.

## Methods

### MW–M1 – Collaboration with Kāi Tahu

*Local authorities* must collaborate with Kāi Tahu to:

(1) identify and map places, areas or landscapes of cultural, spiritual or traditional significance to them,

(2) protect such places, areas, or landscapes, and the values that contribute to their significance,

(3) identify indigenous species and ecosystems that are taoka in accordance with ECO–M3, and

(4) identify and map outstanding natural features, landscapes and seascapes, and highly valued natural features, landscapes and seascapes and record their values.

### MW–M2 – Work with Kāi Tahu

*Local authorities* must consult with Kāi Tahu to:

(1) determine appropriate naming for places of significance in Otago,

(2) share information relevant to Kāi Tahu interests, and

(3) develop research and monitoring programmes that incorporate mātauraka and are led by *mana whenua*.

### MW–M3 – Kāi Tahu relationships

*Local authorities* must develop processes to:

(1) establish and maintain effective resource management relationships with Kāi Tahu based on a mutual obligation to act reasonably and in good faith,

(2) involve Kāi Tahu at an early stage and throughout resource management processes and implementation, and

(3) facilitate efficient and effective processes for applicants to consult Kāi Tahu on *resource consent* applications, private plan change requests, notices of requirement, and notices of requirement for heritage orders.

### MW–M4 – Kāi Tahu involvement in resource management

*Local authorities* must facilitate Kāi Tahu involvement in resource management (including decision making) by:

(1) including accredited Kāi Tahu commissioners on hearing panels for *resource consent* applications, notices of requirements, plan changes or plans where Kāi Tahu values may be affected,

(2) resourcing Kāi Tahu participation in resource management decision making, including funding,

(3) joint management agreements and full or partial transfers of functions, duties or powers from *local authorities* to iwi authorities in accordance with section 33 of the RMA 1991, and

(4) entering into a Mana Whakahono ā Rohe with one or more iwi authorities.

### MW–M5 – *Regional* and *district plans*

*Local authorities* must amend their *regional* and *district plans* to:

(1) take Iwi Management Plans and resource management issues of significance to Kāi Tahu (RMIA) into account,

(2) provide for the use of native reserves and *land* held under Te Ture Whenua Māori Act 1993 in accordance with MW–P4, and

(3) incorporate active protection of areas and resources recognised in the NTCSA 1998.

### MW–M6 – Incentives and education

*Local authorities* are encouraged to use other mechanisms or incentives to assist in achieving Policies MW–P1 to MW–P4, promoting awareness and improving knowledge of tikaka and the principles of Te Tiriti o Waitangi among staff and stakeholders, including through hiring practices, induction programmes, key performance indicators and training activities.

### MW–M7 – Advocacy and facilitation

*Local authorities* may facilitate negotiations with landowners to provide Kāi Tahu access to sites of significance to Kāi Tahu that do not have suitable access.

## Explanation

### MW–E1 – Explanation

The policies in this section are designed to achieve MW–O1 by setting out the actions that must be undertaken by *local authorities* to ensure the principles of Te Tiriti o Waitangi are given effect in resource management processes and decisions. The policies also require the development and implementation of planning tools which recognise the role of Kāi Tahu in resource management and ensure their engagement with and participation in resource management.

## Principal reasons

### MW–PR1 – Principal reasons

Te Tiriti o Waitangi creates a special relationship between *takata whenua* and the Crown. Section 8 of the RMA 1991 requires *local authorities* to take the principles of Te Tiriti o Waitangi into account. These principles include kāwanataka, rakatirataka, partnership, participatory decision making and active protection of Kāi Tahu resources. Section 7(a) of the RMA 1991 requires decision makers to have particular regard to *kaitiakitaka*. Effective *kaitiakitaka* is dependent upon the extent to which Kāi Tahu can exercise rakatirataka, which requires the authority and ability to make decisions relating to management of resources.

*Local authorities* need to incorporate Treaty principles into their decision making and ensure they are properly applied, to account for the *effects* of resource management decisions on Kāi Tahu values, including those described in iwi resource management plans. Deliberate measures need to be taken to ensure the principles are well understood. The principles are broadly expressed, so a measure of flexibility is needed in applying them.

The provisions in this chapter assist in implementing sections 6(e), 7(a) and 8 of the RMA 1991 by requiring a partnership approach which involves Kāi Tahu and considers *mana whenua* rights, interests and values in decision making processes, and enables Treaty principles to be taken into account in an appropriate way.

Implementation of the provisions in this chapter will occur primarily through *regional* and *district plan* provisions. However *local authorities* may also adopt additional non-regulatory methods to implement the policies and support achievement of the objective.

## Anticipated environmental results

**MW–AER1** Resource management processes and decisions reflect the principles of Te Tiriti o Waitangi.

**MW–AER2** Strong relationships between Kāi Tahu and *local authorities* facilitate the exercise of rakatirataka and *kaitiakitaka* by *mana whenua* in relation to their taoka tuku iho.

# PART 2 – RESOURCE MANAGEMENT OVERVIEW

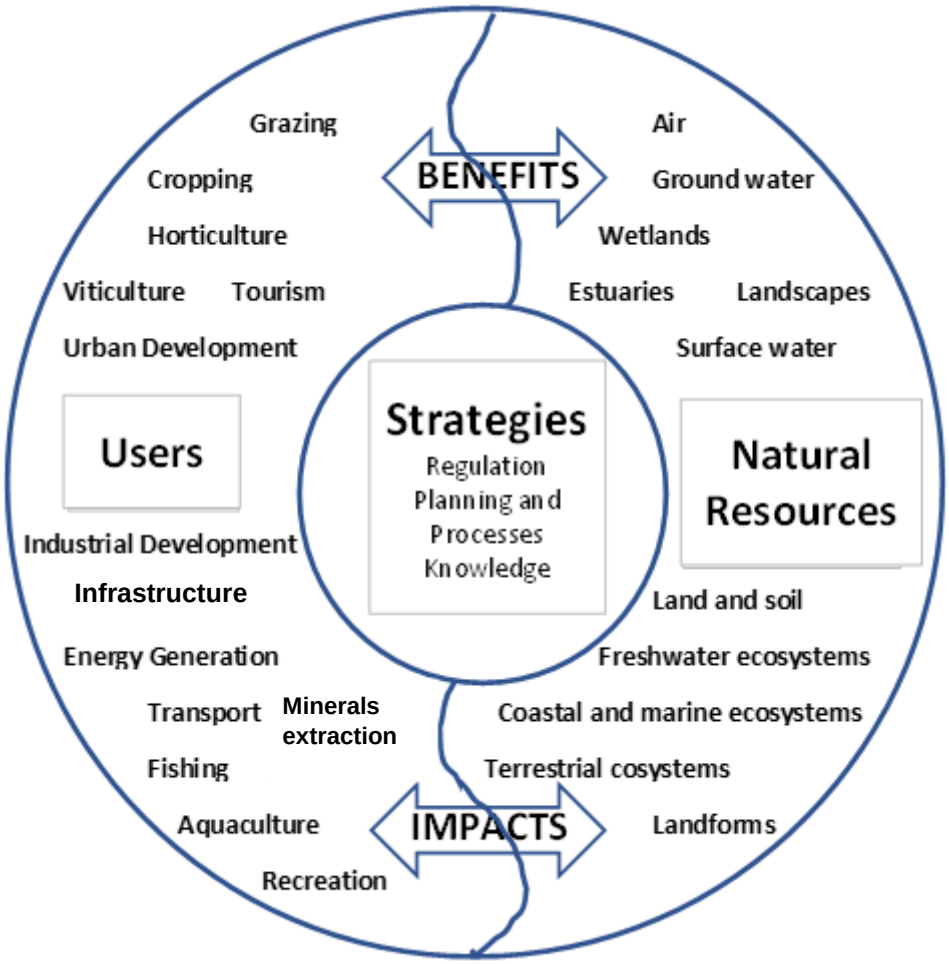
## SRMR – Significant resource management issues for the region

### Introduction

Otago's people and communities rely on the natural resources that Otago's *environment* provides to enable their social, economic, and cultural well-being. Natural resources include *freshwater* (i.e. surface and *groundwater*, *wetlands*, estuaries), *land*, terrestrial and *freshwater* ecosystems, coastal and marine ecosystems, and air, landscapes, vegetation and natural landforms.

From an economic perspective natural resources support, and are impacted by, agricultural industries (e.g. grazing, cropping, horticulture, viticulture), urban development, industrial development, *infrastructure*, energy generation, transport, marine industries (fishing and aquaculture), tourism and mineral extraction. From a social and cultural perspective natural resources support and are impacted by recreation, housing, and cultural activities (Refer Figure 2).

*Figure 2 - Relationships between natural resources, resource use and strategies*



This RPS identifies the eleven most significant issues impacting the Otago region. Issues firstly considered include *natural hazards*, *climate change*, pest species, *water* quantity and quality, and biodiversity loss, collectively the "natural asset-based issues". Two "place-based issues" of regional significance are then addressed - being Otago's coast and Otago's *lake* areas. Finally, issues of economic and domestic pressures, cumulative impacts and *resilience* are considered.

While the issues in this section are considered individually, this RPS considers and responds to them in a joined-up manner as part of a complex system with biophysical limits, inherent uncertainty, potentially irreversible and sometimes catastrophic impacts, and interdependent behaviours.

Each issue is considered in the following manner:

- an issue statement
- context
- impacts on the *environment*, economy, and society

## SRMR–I1 – *Natural hazards* pose a *risk* to many Otago communities

### Statement

An earthquake on the Alpine Fault would cause potentially catastrophic impacts on the entire region. Particular areas in Otago are prone to flooding. A major hazard event could isolate all or parts of Otago for an extended time.

### Context

The Otago region is exposed to a wide variety of *natural hazards* that impact on people, property, *infrastructure*, historic heritage and the wider *environment*. When a *natural hazard* event occurs, it is usually difficult and costly for a community to recover. The *natural hazard* threats range from coastal erosion and flooding in lowland coastal areas to alluvial fan deposition, landslip, rock fall, seismic events (earthquake and tsunami), wind, snow, drought and riverbank breaches.

Frequent heavy rainstorms, the steep gradients of many *river* catchments and human occupation of floodplains combine to make flooding the most frequently occurring *natural hazard* event in the Otago region. For example, flooding can affect Otago's main urban centres causing damage to housing and business disruption, and agriculture can be disrupted in Otago's floodplains (lower Clutha and Taieri).

Seismic *risks* are widespread in Otago as evidenced by the region's active faults, being the Cardrona, Dunstan, Rough Ridge, Hyde, Taieri Ridge, Waihemo and Akatore faults. The Alpine Fault in the Queenstown Lakes District has an estimated 75% probability of causing a major earthquake in the next 50 years with associated large-scale destruction.

Otago's coastline is exposed to tsunamis, from local offshore faults and nearby subduction zones, such as the Puysegur Trench (south of the South Island). The stretch of the Otago coastline north of the Otago Peninsula has a greater level of exposure to tsunamis generated from South America.

*Natural hazards* may be exacerbated by the *effects* of *climate change*, which include sea level rise, and greater frequency and intensity of extreme weather events. Elevated sea levels resulting in flooding can occur as a result of a combination of tides, storm surge, and waves. There are several low-lying areas in relatively close proximity to the coast that have been identified as being at *risk*, such as South Dunedin.

Parts of the Otago coastline (which is a soft coast formed by material such as sand or gravel) are also prone to significant coastal erosion. Coastal erosion is a *risk* in Waitaki District, Dunedin City and along the Clutha River Delta, potentially affecting communities and *infrastructure* near the coast.

## Impact snapshot

### Environmental

Ecosystems (from the mountains to the coast), *water bodies* and *water* quality (*rivers, lakes, wetlands* and *ground water*) are variously at *risk* of increased frequency and intensity of flooding and landslides. Seismic events result in liquefaction of land and associated soil disturbance, elevated sea levels and associated flooding, potential permanent inundation and coast erosion. While *effects* are localised, *natural hazard* impacts can be significant where threatened ecosystems or species are involved.

### Economic

Otago's primary industries, *infrastructure*, energy and transport systems, and urban areas are exposed to the full range of hazards noted above, with potential for major-to-catastrophic economic consequences, including damage to production, *infrastructure* such as transport routes (highways, bridges), the built environment and communications, and often resulting in supply chain disruptions. Natural hazards could also impact on renewable electricity generation in the region with subsequent impact on electricity generation capacity.

For individuals and households this can result in changes to employment, income, assets and consumption patterns, disruption to social protection, services, social safety net mechanisms and institutions.

For industry, hazards can damage production assets and *infrastructure* with associated costs, disrupt service delivery and limit availability and access to goods and services, and cause decline in sales and increased costs. Loss or changes in production flows can be either temporary or permanent depending on financial *resilience* of businesses, which is a function of their existing loan commitments, credit worthiness and insurance cover. Food security can also be affected.

### Social

Social impacts can be direct (e.g. physical destruction of housing or transport route, human physical harm) but equally important are indirect and secondary impacts of disasters, including the destruction of communities and the negative impacts on people. Physical impacts and community dislocation can also cause long term psychological stresses affecting people’s coping mechanisms, recovery sources and capacity which can test the *resilience* of a community.

Social impacts of events can result in immediate impacts on livelihoods for individuals and families, particularly for lower socio-economic groups. Health services disruptions can occur, including access to and changes in demand for services. Similarly, there can be disruptions to education service delivery. Housing impacts may require urgent provision for basic human needs including replacement shelter and housing, and food and *water* immediately following an event.

Damage to *infrastructure* and assets may have varying impacts on different groups, for example those with less resources may have less capacity to respond to hazard events and be more impacted as a result. The relationship between affected people and their cultural assets may also be affected, for example customs and traditions related to housing, health, livelihoods, and nutrition.

## SRMR–I2 – *Climate change* is likely to impact our economy and *environment*

### Statement

Otago's climate is changing, and these changes will continue for the foreseeable future. Central Otago is likely to see more varied precipitation, leading to increased flooding and reduced *water* reliability. This will be compounded by stronger winds, increased temperatures and longer dry periods, which may affect the number and types of crops and animals that the land can sustain. On the coast, low lying areas like South Dunedin are at *risk* of inundation from rising sea levels. This will also exacerbate coastal erosion, which could damage coastal *infrastructure* (including *roads*), damage historic heritage, particularly *wāhi tūpuna*, and expose old waste dumps (e.g. at Middle Beach). *Climate change* will also affect native animals and plants, compounding the impacts of existing pests and stresses and providing opportunities for new pests to establish themselves due to changed conditions. The impact of other *climate change* threats is unpredictable.

### Context

The rate of future *climate change* depends on how fast *greenhouse gas* concentrations increase. These changes are expected to result in higher temperatures, changes in precipitation, drought, fire weather, extreme weather events, inland and coastal flooding, landslides and soil erosion, salinity, sea level rise, erosion, reduced snow and ice, and marine heatwaves.

It is expected temperatures will increase across Otago, and by 2090, Otago is projected to have from 4 to 25 extra days per year where maximum temperatures exceed 25˚C, with around 13 to 45 fewer frosts per year (and consequently less snow). Precipitation overall will increase slightly (by up to 10%), more so in the western part of the region, with less precipitation in central and eastern Otago. There will be an increase in average annual flows across the region, apart from the Taieri and North Otago, and flooding will be more severe – there will be an increase in the mean annual flood by 100% in some locations by the end of the century.

### Impact snapshot

*Climate change* impacts arising from changes in temperature, rainfall, *river* flows and flooding have been assessed in the Otago Regional Council's commissioned report: Otago Climate Change Risk Assessment Phase 1 report (OCCRA report).[13] The following discussion is based on potential *climate change* impacts at 2050.

#### Environment

For terrestrial native ecosystems and species, higher frequency of severe events (e.g. high/low temperatures, intense rainfall, drought, fire weather) could reduce *resilience* of native terrestrial ecosystems and species over time with adverse impacts on biodiversity. Native species (including *threatened species*) and ecosystems are also likely to be affected by increased competition with invasive species/pests favoured by warmer temperatures, particularly with milder winters. This could be a contributory *risk* factor (but not sole cause) for native species that are threatened or close to extinction.

For marine and coastal ecosystems and species, potential climate impacts include lower ocean productivity and impacts on feeding grounds (e.g. decreasing the population of yellow-eyed

[13] Tonkin+Taylor, 2020, Otago Climate Change Risk Assessment (Commissioned by the Otago Regional Council)

penguins); ocean acidification; and changes in species diversity/distribution (e.g. reducing kelp forests). Increased intensity of flooding would result in an increase in sediment which will change the physical composition of *freshwater* and marine waters and, for example, may reduce light availability, smother fragile habitats, or impact on the foraging ability of some species, particular those that rely on vision (e.g. yellow-eyed penguins). New pests and disease threats may arise from marine heatwaves/warmer ocean temperatures. Warmer temperatures could also reduce oxygen and cause stratification in shallow bays (resulting in *water* quality impacts). Sea level rise will also affect coastal habitats and ecosystems (inter-tidal zones, sand dunes). *Groundwater* impacts will include coastal aquifers being affected by salinisation, and reduced rainfall in some areas will affect *groundwater* recharge, flow and surface *water discharges*, with potential adverse impacts on ecosystems and species dependent on *groundwater*.

By 2090, the time spent in drought ranges from minimal change through to more than double, depending on the climate model and emissions scenario considered. More frequent droughts are likely to lead to *water* shortages, increased demand for irrigation and increased *risk* of wildfires. Reduced snowfalls may affect *water* availability since snow acts as a storage mechanism until the *water* is required in summer.[14] As a result, *river* ecosystems could be altered through reduced flows during drought periods with associated declining *water* quality, reduced food resources, and availability of habitats. This would affect ecosystems for key species, such as *river* nesting birds and endemic *freshwater* fish species.

*Lakes* could be subject to temperature increases. This can impact on the health of *lake* ecosystems, for example algal blooms. *Wetland* plant species and *wetland* habitats, and other species reliant on *wetlands* (including threatened bird species) are at *risk* of being negatively impacted. There are also likely to be cascading impacts on surrounding *environments* and ecosystems from hydrological changes (e.g. increased flood *risk*/changing *water* flows due to *wetland* loss). Coastal *wetlands* are particularly at *risk* due to salinisation from sea level rise and coastal flooding.

## Economy

### Regional industry

*Climate change* impacts will result in both impacts and opportunities for regional industry in terms of jobs, business income and profitability. Key industries likely to be impacted include sheep, beef, dairy and deer farming, cropping and viticulture, forestry, fisheries and aquaculture, as well as tourism. For example, agriculture may benefit from warmer temperatures, longer growing seasons and elevated carbon dioxide concentrations leading to better pasture and crop growth. *Climate change* may also result in shifting land-use activities to adapt to altered climate conditions, which will incur costs, and potentially enable resources previously unviable to come into production.

However, these benefits may be limited by negative *effects* of *climate change* such as prolonged drought and increased flood *risk*. Some of these impacts can be mitigated by adaptation, for example, planting new crops that are better suited to new climatic conditions or through changes in crop intensification, or *water* harvesting practices. Pests and diseases could spread in range and severity, and pasture composition is likely to change with uncertain impacts on animal productivity and nutrient balances.

For tourism, there will be negative impacts on skiing where the number of snow days experienced annually could decrease by as much as 30-40 days in some parts of the region. The duration of snow

[14] https://www.mfe.govt.nz/climate-change/likely-impacts-of-climate-change/how-could-climate-change-affect-my-region/otago (Accessed 26 May 2021)

cover is also likely to decrease, particularly at lower elevations. This will also lead to reduced summer waterflows.

### Built environment

For Otago, by 2050, the built environment will experience high to extreme impact *risks* to *wastewater* and *stormwater infrastructure*, *roads* and bridges, airports, stop banks and flood management schemes, and rural drainage. Medium to extreme impact *risks* are expected to affect urban and rural housing, *water* supply, *landfill* areas; and medium level *risks* are likely for commercial and public *buildings*, open space, rail, and ports.

The main threat to the *urban environment* comes from possible increases in heavy rainfall, which would put pressure on drainage and *stormwater* systems and increase the *risk* of flooding in some areas. Erosion could also increase *road* maintenance costs. There is greater risk of wastewater network overflows, and wastewater treatment plants being compromised.

Warmer conditions will substantially reduce home heating costs, leading to reduced electricity demand during the peak winter season, but possibly increase demand for air conditioning during summer. A reduced winter demand for electricity, combined with an increased availability of *water* in hydroelectric storage *lakes* from projected rainfall increases over the Main Divide, would provide the opportunity for a more balanced annual cycle in electricity supply and demand.[15]

Areas of particular concern include inland areas of flooding *risk* including South Dunedin, Mosgiel, and Milton; coastal erosion *risk* areas including St Kilda, St Clair, Clutha Delta, Moeraki, and Oamaru; sea level rise and salinity *risk* areas including South Dunedin, Harbor Basin, Aramoana, and Kaka Point.

#### Social

Changes to the economy generally and in relation to local shift in economic activity because of *climate change* may impact on community cohesion and *resilience*, and mental well-being and health. Higher temperatures could reduce illness in winter but can increase heat stress in summer. Higher levels and duration of ultraviolet radiation could increase skin cancer *risks*. Insect pests could increase, adversely impacting outdoor recreation experiences.

Differentiation may occur between highly *resilient* (high social capital, high income and politically empowered) and non-*resilient* communities (especially those with low adaptive capacity, such as low-income and marginalised groups) which has the potential to increase socio-economic and intergeneration and intrageneration inequality.

## SRMR–I3 – Pest species pose an ongoing threat to indigenous biodiversity, economic activities and landscapes

### Statement

Pest species can be found throughout Otago, from alpine to marine environments. Rabbits are changing Central Otago's landscape, eroding soils and affecting agriculture. *Wilding conifers* threaten high country and tussock grassland, changing the landscape and impacting on recreational, hydrological and conservation values. Aquatic pests and weeds such as didymo, lake snow and *lagarosiphon* affect our *lakes* and *rivers.* Invasive marine species affect our marine waters. Native

[15] https://environment.govt.nz/assets/Publications/Files/impacts-report-jun01.pdf (Accessed 28 May 2021)

aquatic plants are displaced, impacting ecosystem and indigenous biodiversity health and recreation activities.

## Context

Otago's landscape and climate support many plants and animals considered to be pests. This includes weeds, vertebrate pests (e.g. rabbits), invertebrate pests (e.g. pathogenic pest diseases (e.g. foot and mouth disease, pine needle diseases)), and *freshwater* and marine pests which are all biosecurity threats in the Otago region.

There are 35 listed weed species in Otago, and 11 listed animal pests. Pest management approaches include exclusion and surveillance (e.g. African feather grass), attempted eradication (e.g. wallabies and rooks), containment (e.g. *bomarea*) and sustained control (e.g. rabbits, gorse and broom). The approach deployed depends on the degree to which species are entrenched.

The Otago Pest Management Plan 2019-2029[16] seeks to meet ORC's responsibilities under Part 2 of the Biosecurity Act 1992 to provide regional leadership through activities that prevent, reduce, or eliminate adverse *effects* resulting from harmful species that are present in the region. That plan details which approaches are to be used for which pest species, and the methods to be used for control.

In conjunction with that Plan, ORC has also established a Biosecurity Strategy (the Strategy) which sets out ORC's objectives for biosecurity management in the region using the full range of statutory and non-statutory tools available. Strategy priorities provide for protection of indigenous biodiversity, protection of landscape, recreation, cultural and *amenity values* and minimising the impact on agricultural production. The Strategy also supports pest management and seeks to integrate the regulatory and non-regulatory programmes. Collaborative partnership models of pest management are increasingly being developed and adopted in conjunction with community groups and land holders.

## Impact snapshot

### Environmental

Otago is one of the most biodiverse regions in New Zealand, with high levels of endemism. It is also one of the most modified regions in New Zealand. Both plant and animal species pests have significant impacts on biodiversity. Pests can also adversely impact natural features and landscapes.

Vertebrate browsing pests such as rabbits and wallabies cause erosion and damage to land in both introduced pastures and native tussock communities. Severe erosion can have adverse *effects* on *water* quality. Rats and stoats predate on native birds, while deer destroy native vegetation, and possums compete with native birds for hollows and have also been known to predate on chicks. Possums spread viruses and diseases such as bovine tuberculosis, which can have severe impacts on stock.

Weeds smother and compete with native vegetation, taking up available nutrients, *water*, space and sunlight. They reduce natural diversity and prevent native plants growing back after clearing, fire and other disturbance. Nationally, weeds will potentially affect 7% of the conservation estate within a decade, corresponding to a loss of native biodiversity equivalent to $1.3 billion.[17] For example, wilding

[16] https://www.orc.govt.nz/media/8029/orc-pest-management-plan-2019_final_digital.pdf (accessed 26 May 2021)
[17] https://www.royalsociety.org.nz/news/pests-costing-economy-and-environment-billions (accessed 26 May 2021)

pines are a significant issue for the Otago region as well as nationally, where they threaten high country and tussock grassland, increase fire *risk*, and reduce *water* yield in *water* short catchments, change the landscape and negatively impact recreational, hydrological and conservation values.

Pest species destabilise aquatic habitats and negatively modify *water* flow with consequences for drainage, irrigation, power generation and recreational activities. The introduction of the *freshwater* diatom didymo (*Didymosphenia geminata*) in South Island streams is an example.[18]

### Economic

Pests can cause economic losses because of reduction in production, quality, efficiency and or functionality. This can include lost crop production, higher *water* requirements and reductions in animal health. Weeds can affect wool quality, taint meat and milk, damage the feet of stock and, in some instances, be toxic.

Costs to agriculture, business and government to control pests and mitigate impacts are considerable, as are biosecurity costs to prevent pest incursion which are reflected in biosecurity fees and taxes. Biosecurity failure can have serious economic impacts on existing industries e.g. through the importation of fruit infected with fruitfly in a traveller's bag. Pests also adversely affect tourism through loss of landscape values (e.g. wilding pines) and *amenity values* (e.g. didymo compromising fishing) which lead to reduced visitor experiences.

Weeds, for example, are conservatively estimated to cost the New Zealand economy $1.6 billion per annum[19] in terms of loss of economic production, management and control costs. They also affect landscape amenity value and tourism experiences relied upon by the tourism sector. Weeds can also adversely impact *infrastructure*, for example, *water* systems including irrigation, dams, and levies; power systems (e.g. generation penstock, gates, valves, surge tanks, transmission lines); and transportation systems (e.g. *road* beds, *lake* and *river* transportation, airstrips).

### Social

Recreation values can be impacted through loss of amenity, access or landscape values. Pests can also cause human health problems. For example, some weed pollens can induce asthma and cause allergies (e.g. hay fever).[20] Zoonoses (bacterium, viruses, parasites, prions) can result in diseases being transferred from animals to humans and include, for example, leptospirosis and campylobacter.

## SRMR–I4 – Poorly managed urban and residential growth affects productive *land*, treasured natural assets, *infrastructure* and community well-being

### Statement

Natural resources used for urban development are permanently transformed – with the opportunity cost of removing urban activity being too high for land to revert to productive uses. Frequently, places that are attractive for urban growth also have landscape and productive values all of which must be balanced and where possible protected. The growth of Wanaka and Queenstown is changing the natural landscape. Mosgiel's growth is occurring on some of Otago's most highly productive soil, which

[18] SL Goldson, GW Bourdôt, EG Brockerhoff, AE Byrom, MN Clout, MS McGlone, WA Nelson, AJ Popay, DM Suckling & MD Templeton (2015) New Zealand pest management: current and future challenges, Journal of the Royal Society of New Zealand, 45:1, 31-58, DOI: 10.1080/03036758.2014.1000343

[19] https://www.tandfonline.com/doi/abs/10.1080/14735903.2017.1334179?journalCode=tags20 (accessed 26 May 2021)

[20] http://www.allergy.org.nz/site/allergynz/files/Annual%20Pollen%20Calendar.pdf (accessed 26 May 2021)

removes the option for agriculture. Towns like Arrowtown, Clyde and Milton experience poor air quality in winter, while experiencing pressure to grow.

## Context

How urban areas function and grow now and in the future can directly impact on a significant proportion of the current and future urban population and correspondingly future environmental, economic, social and cultural outcomes and well-being. Most of Otago's population (87% or 225,186[21] in 2018) live in urban areas, while non-urban areas comprise 99% of the region.[22] Otago's total population under a medium scenario is projected to increase by 20% between 2018 and 2048, with Queenstown-Lakes population projected to grow by 60%, Central Otago by 42%, Dunedin and Waitaki by 8%, and Clutha by 4% over the same period.[23]

Otago's urban areas, like its people and landscapes, are also diverse. The attraction of urban areas results from the benefits of proximity and access to a variety of other people, experiences, goods, services (e.g. shopping, education, specialist service providers, recreation and leisure facilities and *infrastructure* (usually described as agglomeration effect)). These are generally considered to exceed the inconveniences such as congestion, pollution, and noise. Growth in some urban areas and demand for living in and visiting Otago can also be driven by proximity and access to highly valued natural features, such as the coast, mountains, *lakes,* and *rivers*. The open space and landscapes provided in rural areas also drives demand for rural residential living, particularly in areas with these qualities that are also in relative proximity to urban services.

Well-functioning urban places need to be dynamic and efficient, enable human social interactions and provide a wide variety of housing, employment, service and recreational opportunities that meet changing needs and preferences, in a way that maximises the well-being of all its present and future inhabitants, and respects its history and historic heritage, its setting and the *environment*. This requires well located development, supported by the necessary infrastructure.

Urban growth, especially if it exceeds *infrastructure* capacity (either through sheer pace and scale or by lack of planning) or if it occurs in a way or at a rate that mean that appropriate *infrastructure* is not provided, is lagging or is inefficient, can result in adverse impacts on the *environment*, existing residents, business and wider society. Quality urban environments are those that maximise the positive aspects of urban areas and minimise the negative.

## Impact snapshot

### Environmental

Urban areas and associated concentration of human activity result in adverse impacts on the natural environment, as a result of land consumption, landscape, waterway and vegetation modification for housing, industry, transport of goods and people and recreation areas, the diversion and use of *water*, and waste disposal and effluent and pollution *discharges* to air, *land* and *water*. All of these can also impact *mana whenua* values. These impacts can also result in loss or impediment of access to important resources including significant biodiversity or natural features and landscapes.

[21] 2018 Census place summaries: Stats NZ. (n.d.). Retrieved June 29, 2020, from https://www.stats.govt.nz/tools/2018-census-place-summaries/otago-region (accessed 26 May 2021)
[22] The rural/urban area definitions in this paragraph are taken from Statistics New Zealand Urban/Rural Classification at the SA2 geographic level using usually resident population data from the 2018 Census
[23] Statistics New Zealand Subnational Population Projections, 2018 base, published 31 March 2021 . (accessed 26 May 2021)

Urban development can also lead to reverse-sensitivity *effects* whereby traditional methods of pest management or the undertaking of rural production activities cannot be deployed due the proximity of urban populations and the potential for adverse impacts on those populations. Urban growth can also impact air quality, through increased vehicle use, but also particularly where *solid fuel* burners are used, noting they are the heating of choice in Otago. Urban areas such as Arrowtown, Cromwell, Alexandra, Clyde, Milton, and Mosgiel already do not meet National Environment Standards for Air Quality (NESAQ), for example. Emissions from existing domestic fuel burners account for more than 95% of winter $PM_{10}$ emissions in all of these towns but Milton.[24] Air quality in urban areas in Otago therefore needs to be addressed from two perspectives, dealing with existing problems and, in areas where further development is planned, addressing the additional impact that development may have.

### Economic

While potentially providing short term commercial returns, poorly managed urban growth and development may result in long term impacts including:

- the loss of productive land (either directly though building on it, or indirectly though reverse sensitivity effects);
- the consequences of previous decisions (low density development, including rural residential, in the short term can preclude higher density development in the medium to longer term);
- increased capital and operational costs for *infrastructure* which can foreclose other more suitable investments or spending, increased costs from less efficient spatial arrangements (such as increased transportation and *infrastructure* costs to both users and operators), and loss of valued natural capital and future opportunities; and
- housing affordability can be negatively affected by urban growth where demand outpaces supply.

In Otago, housing has been more affordable for homeowners than the NZ average in recent years, however house value growth has been higher in Otago (12.6% per annum) than the NZ average (7%) since 2017.

The costs and negative impacts from 'over planning' for growth are much lower than the direct and wider costs and risks of under-planning, and largely relate to the provision of infrastructure ahead of demand. While this can cause financial and operational issues for infrastructure providers, undersized or delayed infrastructure also generates impacts for those providers, and the wider economy, through delayed, foregone, or less appropriate or efficient development, and contributes to rising housing and land costs.

### Social

Adverse impacts from inefficient or poorly planned urban development affect the well-being of both individuals and communities. This shows up as health risks as a result of increased air pollution and *water* pollution, decreased social capital and mental health in fragmented, disconnected and dispersed communities and inequality impacts arising from less-competitive land and house markets and reduced housing choice and access to affordable housing.

Changes in the overall number of people and changes in preferences can alter the relative balance between supply and demand for housing and where supply is unable to respond in a timely way to demand, this can impact on prices for housing, including rent. These impacts can disproportionately

[24] "Alexandra, Arrowtown, Mosgiel and Milton Air Emission Inventory – 2016" & "Wanaka, Cromwell and Clyde Air Emission Inventory - 2019", prepared by Emily Wilton, Environet Ltd, for Otago Regional Council.

affect people on lower incomes who may already face affordability issues, and accordingly have less options. While Otago has traditionally been relatively affordable, house prices have risen rapidly across almost all districts, at a rate higher than the national average.

Transportation of goods and people between and within urban areas can also generate impacts on humans. For example, increased traffic congestion and lack of safe and attractive alternatives within urban areas impacts people and businesses living near to high volume traffic routes, resulting in lost time for family and other activities for those who use them, and *road* fatalities on rural highways.

Urban growth has the potential, through good development planning and provision of appropriate infrastructure, to improve well-being by providing an increased range of housing types in more locations, resulting in greater range of prices. Well planned subdivisions provide opportunities to increase public access to natural environments, including to the coast (e.g. via esplanades, *lakes*, *rivers* and their margins), to protect areas of cultural or historic significance and to provide means or other measures for their protection, such as through restrictive covenants. Poorly managed growth can compromise both access to and protection of natural and cultural environments, and as subdivision and development is effectively permanent and irreversible, it is important that it is done well with an eye to the longer term.

## SRMR–I5 – *Freshwater* demand exceeds capacity in some places

### Statement

In *water*-short catchments, *freshwater* availability may not be able to meet competing demands from the health and well-being needs of the *environment*, the health and well-being needs of people, and the ability of people and communities to provide for their social, economic and cultural well-being. Many of these catchments are also experiencing urban growth, changes in rural *land* uses, and increased demand for hydro-electric generation. Individually and cumulatively these can alter demand including further increases in demand on *freshwater* supply. Some catchments are complex, making it challenging to identify or mitigate these *effects*.

### Context

*Freshwater*, including *rivers* and streams, *lakes, groundwater* systems, and *wetlands*, is a finite resource, critical to the environment, society and the economy. In Otago, access to, allocation, and *use* of *freshwater* reflects current demands and historical development associated with "deemed permits" (water permits under the RMA 1991) and a permissive water resource management regime. The deemed permits originated from mining licences issued under historic mining legislation and which enable water to continue to be used for a range of uses until October 2021.

Population growth and land-use intensification in urban and rural environments can create increased demand for *freshwater* for human consumption, irrigation and other economic uses. *Freshwater* resources in some places are reaching, or are beyond, their sustainable abstraction limits. However, there continues to be debate in the community about how historical *freshwater* allocations can be adjusted to achieve a balance of economic, environmental, social and cultural needs.

On 3 September 2020, new National Environmental Standards for Freshwater (NESF) and a new National Policy Statement for Freshwater Management (NPSFM)[25]came into force. They have a goal

[25] https://www.mfe.govt.nz/fresh-water/freshwater-acts-and-regulations/national-policy-statement-freshwater-management (accessed 26 May 2021)

of improving *freshwater* quality within five years, reversing past damage and bringing New Zealand's *freshwater* resources, waterways and ecosystems to a healthy state within a generation. The NPS-FM also clarified the need to provide first for the health and well-being of *water bodies* and *freshwater* ecosystems; then health and needs of people (such as *drinking water*); and finally the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

### Impact snapshot

#### Environmental

*Freshwater* abstraction can reduce *water* level or flow and connections between different *water bodies*. This can negatively impact ecosystems by affecting[26] *freshwater* habitat size and the shape and condition of the *water body*, including *bed*, banks, margin, riparian vegetation, connections to *groundwater*, *water* chemistry (for example by increasing concentrations of pollutants), and interaction between species and their habitat. How much an ecosystem is affected by taking *freshwater* is determined by departure from natural flow regimes, taking into account magnitude, frequency, timing, duration and rate of change, and ecosystem capacity to recover.

#### Economic

*Freshwater* in the Otago region is a factor of production that directly contributes to human needs (urban *water* supply), agriculture (including irrigation), hydro-electric power supply, and mineral extraction. *Freshwater* also indirectly contributes to the tourism industry through maintenance of *freshwater* assets for aesthetic and commercial recreational purposes. Lack of *freshwater* can negatively impact economic output of those industries that rely on *water* in the production process. To varying degrees these impacts can be mitigated through *water* efficiency measures and innovation. At the same time other industries, such as tourism that rely on the aesthetic characteristic of *rivers* and *lakes,* do not have such opportunities available to them and instead rely on management regimes that sustain flows and *water* levels suitable for their activities.

#### Social

Ensuring appropriate *freshwater* supply for human *use* is available as part of planned urban growth is essential. It is possible this may require consideration of additional *freshwater* storage in the future. The region's *freshwater* assets also support a range of recreation uses, for example camping, fishing, *water* sports, and swimming. These values are strongly linked to environmental values and as such, reduced environmental flows have a corresponding negative impact on social and cultural values.

## SRMR–I6 – Declining *water* quality has adverse *effects* on the *environment*, our communities, and the economy

### Statement

While the pristine areas of Otago generally maintain good *water* quality, some areas of Otago demonstrate poorer quality and declining trends in *water* quality which can be attributed to *discharges* from *land use* intensification (both rural and urban) and *land* management practices.

[26] Clapcott, 2018, Our Freshwater 2020

Erosion, run-off and soil loss can lead to sediment and nutrients being deposited into *freshwater* bodies resulting in declining *water* quality.

## Context

The health of *water* is vital for the health of the *environment*, people and the economy. It is at the heart of culture and identity. Nationally, and in parts of Otago, *freshwater* is facing significant pressure. Population growth and land-use intensification in urban and rural environments has impacted the quality of *water*, increasing contamination from nutrients and sediment.

*Water* quality affects a wide range of environmental health factors, human survival needs, and cultural, social, recreational, and economic uses. Some of the biggest impacts on *water* quality in Otago are considered to come from agriculture and urbanisation, through diffuse *discharges* and point source *discharges*.

On 3 September 2020, new National Environmental Standards (NESF) and a new National Policy Statement (NPSFM)[27] came into force to improve *water* quality within five years; and reverse past damage and bring New Zealand's *freshwater* resources, waterways and ecosystems to a healthy state within a generation.

## Impact snapshot

### Environmental

Despite the region's *lakes* and *rivers* being highly valued by Otago communities, reports indicate there are reasons for concern about *water* quality and its trends with consequent potential impact on ecosystems and people.

*Water* quality across Otago is variable. *River water* quality is best at *river* and stream reaches located at high or mountainous elevations under predominantly native vegetation cover, and mostly good in the upper areas of large river catchment and outlets from large *lakes*. *Water* quality is generally poorer in smaller low-elevation streams and coastal shallow lakes where they receive water from upstream pastoral areas or urban catchments. For example, catchments such as the Waiareka Creek, Kaikorai Stream, and the lower Clutha catchment, have some of the worst *water* quality in the region; Otago's central lakes are impacted by increased population, urban development and tourism demand; other areas, such as urban streams in Dunedin, intensified catchments in North Otago and some tributaries, also have poor *water* quality.[28] Between 2006 and 2017, trends in a number of *water* quality parameters were worsening.[29]

For *E. coli,* for example, 30% of sites had a probable or significant worsening trend compared to 7% of sites that had either stable or improving trends. In urban streams in Dunedin, intensified catchments in North Otago and some tributaries of the Pomahaka, *E. coli* was the worst performing variable[30]. In many cases, the specific source of contamination is unknown.

[27] https://www.mfe.govt.nz/fresh-water/freshwater-acts-and-regulations/national-policy-statement-freshwater-management (accessed 26 May 2021)

[28] Rachel Ozanne and Adam Uytendaal (2017) *State of the Environment Surface Water Quality in Otago 2006 to 2017*: Otago Regional Council p ii

[29] Ibid.

[30] Ibid.

There are many different types and sizes of *lakes* in Otago. ORC monitors *water* quality in *lakes*, of which eight have generally shown good *water* quality. There have been concerns within the community about the quality of *water* in Lakes Wānaka, Wakatipu and Hayes.

*Groundwater* quality also varies across the region, with some areas having elevated *E. coli* and nitrate concentrations above the NZ Drinking Water Standards. The main areas with elevated nitrate concentrations are North Otago and the Lower Clutha. Some bores across the region have exceeded the drinking water standards for *E. coli*; highlighting localized problems, likely due to inadequate bore head security. In addition to human sources of poorer groundwater quality, low groundwater quality from natural or geologic sources may also affect the potability of bore water throughout Otago (e.g. naturally occurring arsenic or boron concentrations found in bores associated with particularly geologies).

Stock entering *water bodies* can lead to pugging and destruction of riparian soils and *beds* that play an important role in filtering *contaminants*, as well as excreting directly in waterways. The growing practice of wintering cattle in Otago can exacerbate leaching *effects*, which may not connect to surface *water* until spring, creating spikes in nutrient loads.[31]

Sediment is a key issue for *freshwater* quality throughout Otago, including coastal estuaries where it can significantly impact the life supporting capacity of waterways. Urban development is a key generator of sediment input to *lakes* and *rivers* in Central Otago, from *building* platforms and from *stormwater* contamination. Activities such as agricultural intensification, mining, and forestry also contribute.

Agricultural intensification also contributes to nutrients (nitrogen and phosphorus) leaching into underlying *groundwater* or running off into surface *water bodies*, and can also increase the risk of *E.coli* contamination from animal waste.

Urban environmental *contaminants* include hydrocarbons, and metals from *roads* and *structures*. They often wash into urban *stormwater* systems and pass unfiltered into *water bodies*, or the *coastal marine area*. *Stormwater effects,* particularly in urban areas, are poorly understood. *Wastewater* and *stormwater* systems may not be adequate in some places due to aging *infrastructure*, rapid growth pressure, or insufficient investment in replacement or upgrades. Overflows of *wastewater* (*sewage* and waste products) create significant *risks* for *water* quality. These can enter the *environment* either directly or through *stormwater* systems, particularly in flood events.

### Economic

*Water* pollution (from nutrients, chemicals, pathogens and sediment) can have far-reaching *effects* potentially impacting tourism, property values, commercial fishing, recreational businesses, and many other sectors that depend on clean *water*.[32]

These impacts can be direct (varying the quality of primary production outputs such as fish); increasing costs of production through mitigation or remediation costs (*drinking water* treatment cost, riparian restoration); loss of enjoyment and benefit from tourism uses, and indirect such as cost to human health and associated medical costs, or reduction in brand value (e.g. Brand New Zealand).

[31] Science Staff Survey, June 2020.
[32] https://www.epa.gov/nutrientpollution/effects-economy (accessed 26 May 2021)

### Social

For the wider community, *water* is a source of kai and of recreation, including swimming, fishing and *water* sports. Otago's *rivers, lakes*, estuaries and bays are important destinations for recreational *use* including swimming, fishing and *water* sports. Eighty-two per cent of Otago's *rivers* and *lakes* are swimmable.[33] Where *water* quality cannot support these activities, the lifestyle of those living in Otago is impacted.

Degraded *water* quality reduces the mauri of the *water* and the habitats and species it supports, therefore also negatively affecting mahika kai and taoka species and places. This constitutes a loss of Kāi Tahu culture, affecting the intergenerational transfer of knowledge handed down from tūpuna over hundreds of years; and it culminates in a loss of rakatirataka and mana.

## SRMR–I7 – Rich and varied *biodiversity* has been lost or degraded due to human activities and the presence of pests and predators

### Statement

Fragmentation, loss and isolation of populations and communities of indigenous species has been ongoing across New Zealand, and Otago is no exception. *Biodiversity* mapping indicates Otago is one of the most modified regions in New Zealand. This can be attributed to habitat loss, land use changes, vegetation clearance and the presence of pests and predators. Further, many of these *effects* are a result of the cumulative changes of past and current development. These cumulative *effects* have often not been identified, managed or measured. Leadership and coordination of the various initiatives to address *biodiversity* loss has also been lacking.

### Context

Otago is notable for the diversity of its landscapes, ecosystems, and climatic conditions. With that comes a diverse range of important *biodiversity* values which are at *risk*. These include rare ecosystems such as inland saline habitats, nationally rare *lake* and *river* systems, endemic and threatened lizard and fish species and important and diverse marine and coastal habitats.

Ecosystems are an interacting system of living and non-living parts such as sunlight, air, *water*, *minerals* and nutrients. *Biological diversity* (hereafter called *biodiversity*) describes the variety of all living things, including the range of species living in our *environments*, their genetics, and the ecosystems where they live. New Zealand's high level of indigenous *biodiversity* makes a unique contribution to the world's *biodiversity*. Otago is a good example of the enormous diversity in New Zealand's natural environment from toroa (albatross) and hoiho (yellow-eyed penguins) on the Otago Peninsula to the endangered species (for example, skinks) of Central Otago, the kea of the Southern Alps, galaxias species as well as the internationally significant braided *rivers* and their ecosystems.

The health of New Zealand's *biodiversity* has declined significantly since the arrival of humans. Environment Aotearoa 2019[34] found that our indigenous *biodiversity* is under significant pressure from introduced species, pollution, physical changes to our *environment* and harvesting of wild species.

[33] This estimate applies to larger rivers and lakes, defined as "rivers that are fourth order in the River Environment Classification system and lakes with a perimeter of 1.5km or more" – ORC Policy Committee Report – 29 Nov 2018 - PPRM1843

[34] https://environment.govt.nz/assets/Publications/Files/environment-aotearoa-2019.pdf (accessed 26 May 2021)

Almost 4,000 native species are currently threatened with, or at *risk* of, extinction. The information available indicates Otago's *biodiversity* faces the same challenges.

## Impact snapshot

### Environmental

Threats to *biodiversity* in Otago include invasive species (weeds and predators), vegetation clearing, land fragmentation and grassland "improvement", poor *water* quality (nutrients and sediments), dredging and overfishing.

There are 62 ecosystems in the Otago region.[35] Whilst the average ecosystem extent compared to pre-European settlement is 62%, over 17 communities have been reduced to less than 40% extent. Forest communities have declined substantially, for example kahikatea forests have been reduced to 3.9% of pre-European extent. Matai, totara, broadleaved forest (6.5%) and Kirk's scurvy grass herbfield/loamfield (7.1%) have also been significantly reduced. There are six ecosystems with less than 10 hectares remaining.

Impacts of human activities are evident both in terms of species and ecosystems. Some 44% of Otago's bird species are threatened or at *risk*; 88% of lizard species; and 72% of indigenous fish species. Inland Otago has degraded native fish communities, due to the presence of the Clutha dams and their *effects* on eel populations and trout predation on native galaxiids. This is illustrated by the low scores for Otago's *rivers* in the *freshwater* fish index of biotic integrity.

The extent of impacts on marine species and environments is not well understood. Sedimentation is known to have contributed to the loss of kelp forests.[36] In addition to sedimentation, other human impacts on kelp forests include rising sea surface temperatures associated with climate change and trophic cascades from fishing pressure; together with downward trends in fish and crayfish catches. There has been a 70% decline in the abundance of hoiho (yellow-eyed penguin) on the Otago coast since 2008[37] and downward trends in ngohi (fish) and koura (crayfish) catches. The effects of *climate change* will add significantly to *risks* of continuing *biodiversity* decline.

### Economic

*Biodiversity* and ecosystem services underpin agriculture (ecosystem services such as *water*, soil *biodiversity*, pest protection, pollination) and tourism (the "clean green" image of "pure New Zealand" is related to a public perception of Otago's healthy *environment* and biodiversity).

Short-term impacts of loss of productivity or increased costs of pest management occur and longer-term impacts of net loss of natural capital in the region over time are also of concern. The economic costs of lost productivity due to pests, erosion and damage to land, are likely to be significant and there is potential for loss of *biodiversity* to adversely impact on the economy.

### Social

*Biodiversity* is a significant contributor to the community's recreational experiences and intrinsic values. *Biodiversity* loss will adversely impact those values and experiences. Some introduced species

[35] Wildlands (2020). Unpublished Consultancy Report to Otago Regional Council R5015a. Mapping of potential natural ecosystems and current ecosystems in Otago region.
[36] Schiel et al. 2006, Sediment on rocky intertidal reefs: Effects on early post-settlement stages of habitat-forming seaweeds, Journal of Experimental Marine Biology and Ecology 331(2):158-172 (reference provided by Department of Conservation)
[37] Department of Conservation, 2008, Unpublished data.

such as trout, deer and pigs have social and recreation values but may also have impacts on native ecosystems and species.

## SRMR–I8 – Otago's coast is a rich natural, cultural and economic resource that is under threat from a range of terrestrial and marine activities

### Statement

Otago's coast provides habitat for rare species (including toroa and hoiho), comprises some of the region's outstanding landscapes, is a rich food source, provides many recreation opportunities, is the location for some industries, and has potential for further economic use (aquaculture). Threats to it are not always well understood and not always well managed. From the sedimentation *effects* of inland development to waste disposal, human activity puts stress on the marine and coastal environment. Some of those activities, like port activities and tourism, are also vital to the region's economic well-being.

### Context

Otago's coastal environment is generally considered to extend from the land that forms the first significant ridgeline out to the twelve nautical mile seaward limit. The coastal environment is a finite resource which is sensitive to change. Recent rapid expansion of some types of coastal development is a significant issue for the sustainable management of the coastal environment of Otago.

Activities occurring within or affecting the coastal environment include urban development, recreational activities, transport *infrastructure*, energy generation and transmission, land and marine based (e.g. aquaculture) food production industries and other rural industry activities, *plantation forestry*, fishing, tourism, and *mineral* extraction. Such activities can be important contributors to the existing and future health and well-being of communities, when they are located and managed appropriately. A number of these activities provide a significant contribution to the regional economy.

Dunedin is a major coastal city with increasing urban development. It also hosts *infrastructure* of national significance such as Port Otago and associated *road* transport networks servicing the Otago region and beyond which contribute to and facilitate regional economic and social development.

The community values the coast for its landscapes, natural character, recreational uses and associated habitat for biodiversity. Recreational activities such as boating, fishing, swimming and general beach access are interconnected with coastal values. Conserving coastal biodiversity and marine reserves are associated with coastal values.[38] A key challenge is the protection of the coast's natural and cultural assets while enabling economic and social development opportunities to be realised.

### Impact snapshot

Impacts of hazards, climate change, pests, water, and biodiversity loss, which have been discussed above, all impact the coast. Urban development and population pressure can amplify these effects.

#### Environmental

[38] ORC Committee Report, *RPS Consultation Summary*, ORC Agenda 27 May 2020

These impacts can affect natural processes. For example, poor water quality can result in degradation of estuarine and ocean chemistry with adverse impacts on ecosystems, including coastal *wetlands* and marshes, benthic muds, subtidal and inter-tidal area muds/sands, reefs, and marine vegetation areas (e.g. sea grasses, kelp). Ecosystems and indigenous biodiversity, and their flora and fauna (from zooplankton to whales) can be impacted by urban and industrial development, pests, and climate change leading to biodiversity loss.

Natural features, landscapes, seascapes, and *surf breaks* of national significance can be affected by human activity, climate change, and natural hazards. Vulnerability to these impacts is determined by susceptibility, spatial scale, frequency, functional impact/consequence, recovery capacity/time, and likelihood of the impact's occurrence. Around Dunedin, for example, impacts include nutrients and contaminants from Dunedin stormwater which impact on coastal waters and estuaries; declining hoiho (yellow-eyed penguins) numbers due to introduced predators and domestic pets; whilst recovering seal and sealion numbers can create conflict with recreational *uses* on the coast; and beach erosion at St. Clair in Dunedin can impact social values and beach recreation *use*.

#### Economic

Deterioration of coastal assets and values causes loss of production and income, increases *infrastructure* costs and costs of production, and loss of property values. There are also costs associated with mitigation, for example in the case of coastal erosion. Other economic impacts include recreation and tourism industries being adversely impacted by degraded coastal environments; marine industry production suffering because of poor *water* quality; dredging of sedimentation; and costs of mitigating adverse impacts, e.g. combatting invasive pests.

#### Social

Impacts on the coastal environment and its associated unique values include those on its landscapes and landforms, those on it as a place to live and work and for recreation activities, those on access, and those which give rise to coastal deterioration and which compromise general enjoyment and amenity for communities.

## SRMR–I9 – Otago lakes are subject to pressures from tourism and population growth

### Statement

The beauty, recreational opportunities and regional climate of Lakes Wanaka, Wakatipu, Hāwea and Dunstan and their environs attract visitors and residents from around the region, the country and the world. This influx brings economic opportunity, but the activities and services created to take advantage of it can degrade the *environment* and undermine the experience that underpins their attractiveness.

### Context

Healthy *lakes* are one of Otago's most valued natural resources and for the most part *water* quality is good. The values assigned to *lakes* include the natural features and landscapes, the quality and quantity of *water* accessible to the Otago communities, the accessibility of these resources for recreation, the health of native flora and fauna associated with Otago's *rivers* and *lakes*, and renewable energy production.

Urban growth is adversely affecting the natural features and landscapes around the lakes. The amount of growth is demonstrated in the Queenstown Lakes District, including Queenstown and Wanaka, where the population tripled in the last 20 years from 16,750 in 1999 to 47,400 in 2020.[39] Continued growth is projected over the 30 years from 2020 to 2050 (by 63% )[40].

This desire of New Zealanders and international visitors to enjoy the outstanding natural environments of the Otago *lakes* has placed significant pressures on the *environment*, transport, energy and other *infrastructure*, health services and social structures. At the same time the economy of the Otago lakes area is heavily dependent on tourism. For example in 2020, tourism employment accounted for an estimated 56% (or 17,758) of the jobs in the Queenstown-Lakes district; tourism GDP accounted for 43.7% (or NZ $1.7 billion) of the district's GDP and international tourism contributed 64% (or NZ $1.89 billion).[41] The Otago-Lakes area also supplies significant renewable energy for *use* in Otago and beyond.

## Impact snapshot

### Environmental

Population pressures arising from urban development, and tourism population pressures are impacting on the *environment*. Lake Wanaka, Lake Hāwea, and Lake Wakatipu, as well as the Kawarau River and upper reaches of the Clutha Mata-au and Taieri Rivers all have good *water* quality which equates to the "A" band (being top/best level) for the *National Objectives Framework*.[42]

However, *water* quality is being adversely impacted by increased population, urban development and tourism demand which is straining existing waste management infrastructure. In addition, localised degradation of some areas is occurring due to overuse and unregulated use (e.g. freedom camping). The amenity of these areas is being compromised in some places by over-crowding.

Recreation *use* impacts on the *environment* can be a *risk*, for example the distribution of pest species can be accelerated as has occurred for lake snow and *Lagarosiphon* weeds being spread by recreation boating movements. Natural features and landscape values are also adversely impacted by tourism and urban growth, and energy production.

### Economic

The economic benefits of urban development, tourism, agriculture, energy production and *water* supply can be positive for the Otago-Lakes' communities and visitors. It also impacts on the region's natural assets with a growing cost to the region that puts at *risk* the *environment* highly prized by residents and visitors. There are also impacts between industry sectors.

For example, the clean green image of New Zealand, of which the Otago Lakes area is symbolic, is at *risk* of being compromised because of over-crowding in peak tourism seasons. This has the potential to adversely affect the existing regional economy and future economic development; and the tourism industry's social licence to operate. At the same time tourism can negatively impact on how agriculture can operate, potentially limiting its contribution to the regional economy.

[39] Infometrics online database (February 2021)
[40] Queenstown-Lakes District Council demand projections by Utility
[41] Infometrics online database; (February 2021)
[42] Land, Air, Water, Aotearoa: https://www.lawa.org.nz/explore-data/otago-region/ (accessed 26 May 2021).

Urban development brings economic development and improved opportunities and standards of living to the Otago lakes area but can adversely impact on both the *environment* and how agriculture can operate.

#### Social

Over-crowding impacts adversely affect recreation experiences of both tourists and residents, such as fishing and *water* sports, and urban amenity. *Infrastructure* capacity limits can, for example, result in an increased number of wastewater overflows to the environment when demand on the network exceeds capacity. These can have significant adverse impacts on human health as well as recreational amenity.

## SRMR–I10 – Economic and domestic activities in Otago use natural resources but do not always properly account for the environmental stresses or the future impacts they cause

### Statement

Sediment from development and forestry activities flow into streams and builds up in the coastal environment, smothering kelp forests and affecting rich underwater habitats. *Water* abstraction and wastewater and stormwater discharges adversely affect the natural environment, cultural and amenity values, and recreation. Agriculture, fishing and minerals extraction support employment and economic well-being but also change landscapes and habitats. Otago's port moves freight to and from Otago and Southland, but operates alongside sensitive environments, including the Aramoana saltmarsh. Tourism, which relies on the environment, can also put pressure on natural environments.

### Context

The Otago regional economy GDP totals $13.2 billion and supports a population of 236,200 residents (over half of which are in Dunedin). A significant part of the economy relies on the region's natural resources (air, vegetation, biodiversity, *water, land*, marine and *minerals*). This supports agriculture, forestry, fishing (6.9% of GDP), mining (4.5% of GDP), electricity, gas, *water* and waste services (4.4% of GDP), as well as conservation activities and hunting. Tourism (18.1% of GDP) also partially relies on the natural values of the region.[43]

However, economic activity needs to more effectively account for and manage its impacts on the region's natural resources.[44] Where business and social activity does not account for its impacts on natural resources in the long term, not only is the sustainability of the region's natural resources threatened, but equally the associated long term economic, social and cultural values are also threatened.

### Impact snapshot

#### Environmental

[43] Infometrics, August 2020.
[44] https://www.orc.govt.nz/media/8882/community-consultation-summary-report-draft.pdf (accessed 26 May 2021)

Economic activities can lead to, for example, biodiversity loss, poor *water* quality, coastal and marine degradation, and loss of natural features and landscapes. These and other matters are considered in further detail elsewhere in this chapter.

Negative impacts on the *environment* can also compromise the ecosystems and the services economic activities depend on (ecosystem services), for example loss of *wetlands* which provide flood attenuation services, loss of biodiversity which provide pest control and pollination services, and loss of soil biodiversity. Economic activity also has the potential to compromise or destroy natural features and landscapes. Such impacts are both immediate and cumulative. Cumulative impacts that are not addressed have the potential to lead to tipping points beyond which systems can no longer properly function.

#### Economic

The costs of production can rise because of poor quality natural resources, for example, through higher input costs (e.g. fertiliser, weed and pest control); and remediation requirements (e.g. riverbank restoration, erosion control). Some land management practices can compromise productive capacity of agricultural land, for example, loss of soil through erosion or soil structure through compaction. Marine industries (e.g. fishing and aquaculture) can also be adversely affected.

Business environmental performance is becoming increasingly important in terms of providing access to investment. Poor business environmental performance can also lead to increased regulatory requirements and associated higher costs of doing business.

#### Social

Damage to or loss of natural features and landscapes compromises *amenity values.* Failure of business to sustainably manage natural resources compromises the social licence of a business sector to operate. This adversely impacts social capital (trust) and can create community division. In extreme cases it can lead to calls for reduced access to resources.

## SRMR–I11 – Cumulative impacts and *resilience* – the environmental costs of our activities in Otago are adding up with tipping points potentially being reached

### Statement

How and where we currently live is likely to change significantly in coming years. To respond to all the issues identified in this RPS, it is essential to consider changes to how we travel, the industries our economy relies on, the use we currently make of the *natural and physical resources* of the region, and how we provide for personal and community well-being, all while protecting our natural environment.

### Context

The long term environmental, economic, and social well-being of the Otago region requires anticipating and minimising cumulative environmental impacts before they reach a tipping point, beyond which systems can no longer properly function. This requires *resilient* frameworks that take account of the dynamic relationship between the *environment*, economy and people while acknowledging that the future is always uncertain, and knowledge is imperfect. Should a tipping point

be reached a *resilient* Otago society will have the ability to absorb, respond to, adapt to, and recover from disruptive events.[45]

## Impact snapshot

### Environmental

While many ecosystems have a degree of *resilience*, increasing pressures on the *environment*, typically as a result of human activities (for example economic development), can have an adverse cumulative *effect*. *Climate change* also has the potential to seriously challenge ecosystem adaptive capacity. Much work is being undertaken to address this challenge, but it is still possible that permanent changes may occur (tipping point).

The first and best response is to ensure sustainable management of our natural resources and avoid immediate and long-term cumulative *effects* that degrade the *environment*. At the same time a *resilience* approach is needed that identifies thresholds and sets limits on the use of natural resources to avoid permanent and potentially catastrophic changes occurring, as would occur if a tipping point is reached.

Indicators and tools for measuring *resilience* and tipping points remain in the early stages of understanding and development. Even though regulatory agencies and proponents for natural resource development and environmental rehabilitation projects have difficulties interpreting and verifying the potential for environmental recovery and *resilience* (particularly in relation to the regulatory context of impact assessment in order to provide consenting decisions for regulated activities)[46] that should not be taken as a reason to delay acting.

### Social and economic

The well-being of Otago's people and communities in the long term will be sustained by the enduring ecological health and *resilience* of the *environment* and by human activity providing for the *environment* in equal or greater measure than is taken from it (in other words, net impact determines net well-being). It will also be sustained through community *resilience* so that it can adapt and nimbly respond to future challenges.

[45] https://www.civildefence.govt.nz/cdem-sector/plans-and-strategies/national-disaster-resilience-strategy/national-disaster-resilience-strategy-summary-version/ (accessed 26 May 2021)
[46] https://par.nsf.gov/servlets/purl/10047476 (accessed 26 May 2021)

# RMIA – Resource management issues of significance to iwi authorities in the region

### Introduction

The MW – *Mana Whenua* chapter describes the integral relationship between Kāi Tahu and the natural world, including the relationship with particular resources, and the values that influence the Kāi Tahu approach to resource management. The issues and concerns described in this chapter should be read and understood in the context of the explanations in the MW – *Mana Whenua* chapter.

## RMIA–WAI – Wai Māori

### Context

*Water* plays a significant role in Kāi Tahu spiritual beliefs and cultural traditions. Kāi Tahu have an obligation through whakapapa to protect wai and all the life it supports. Whānau have observed the health of *water* degrade through time and consider it is crucial that this degradation is reversed.

### RMIA–WAI–I1 – The loss and degradation of *water* resources through drainage, abstraction, pollution, and damming has resulted in material and cultural deprivation for Kāi Tahu ki Otago

The drainage of *wetlands*, *water* abstraction, degraded *water* quality, barriers to fish passage and changes to flow regimes as a result of damming have had significant negative impacts on Kāi Tahu. These activities degrade the mauri of the *water* and the habitats and species it supports, therefore also degrading mahika kai and taoka species and places.

These changes to the *environment* have meant that Kāi Tahu have had to adapt and change their *use* of the *environment*. As traditional mahika kai places and species have declined, mahika kai must now be carried out in artificial habitats such as reservoirs, and whānau have had to switch to exotic species such as trout and salmon. The mātauraka associated with traditional mahika kai species and places cannot be passed on, and the intergenerational transfer of knowledge that has occurred for over 800 years is broken. Place names that carry tribal history are no longer reflective of their places – for example no one would now claim that the Waiareka is ‘sweet water’ to drink.

### RMIA–WAI–I2 – Current *water* management does not adequately address Kāi Tahu cultural values and interests

Kāi Tahu values and interests are not properly considered in current *land* and *water* resource management. The well-being of mahika kai and taoka and protection of other cultural values is rarely given effect to in environmental policy or decision-making processes and these considerations are often compromised in favour of other values, including economic values. The mana of *mana whenua* and of the *water* is not recognised because *water* quality and quantity have been allowed to be degraded. Resource management in Otago has failed to meet its obligation to recognise Kāi Tahu values and provide for the relationship of Kāi Tahu with the *water bodies* within their rohe. The understanding of cultural values by many is still developing and, as a result, Kāi Tahu values and interests are often not well represented in plans and decision-making.

### RMIA–WAI–I3 – The *effects* of *land* and *water use* activities on *freshwater* habitats have resulted in adverse *effects* on the diversity and abundance of mahika kai resources and harvesting activity

Mahika kai is the gathering of foods and other resources, the places where they are gathered, and the practices used in doing so. Mahika kai is an intrinsic part of Kāi Tahu identity and economic well-being. Kāi Tahu fishing rights were explicitly protected by the Treaty of Waitangi. Not only was the right to engage in mahika kai activity confirmed, so too was the expectation that such activity will continue to be successful as measured by reference to past practice. However, as described in evidence provided to the Waitangi Tribunal in the Ngāi Tahu claim, there has been a dramatic loss of mahika kai resources and places of procurement since the Treaty was signed. This loss is greater than the loss of kai. It is a loss of Kāi Tahu culture, as it affects the intergenerational transfer of mātauraka handed down from tūpuna over hundreds of years. It represents a loss of rakatirataka and of mana. Mahika kai continues to be degraded through the *effects* of *land* and *water use* activities on *freshwater* habitats. Activities such as the construction of barriers to fish passage, drainage, altered flow regimes, reduced *water* quality and removal of riparian vegetation all impact on access to and use of resources.

### RMIA–WAI–I4 – Effective participation of Kāi Tahu in *freshwater* management is hampered by poor recognition of mātauraka

The term 'mātauraka Māori' includes all branches of Māori knowledge, past, present, and still developing. It involves observing, experiencing, studying, and understanding the world from an indigenous cultural perspective. It is a tool for thinking, organising information, considering the ethics of knowledge, and informing us about our world and our place in it. Incorporation of mātauraka in resource management decision-making is important to ensure that cultural interests are appropriately recognised and provided for. Resource managers do not always appreciate the depth and value of mātauraka held by members of Kāi Tahu Whānui. Even where mātauraka is valued there may be difficulty in determining how best to apply the knowledge.

### RMIA–WAI–I5 – Poor integration of *water* management, across agencies and across a catchment, hinders effective and holistic *freshwater* management

Kāi Tahu place emphasis on the holistic management of resources. Cultural values such as whakapapa and concepts such as ki uta ki tai recognise the interconnectedness of all things, and that *effects* on one part of the whole will be felt throughout the whole. Management of *water* in Otago is not holistic. Catchments are often managed by multiple councils, and the Waitaki (a most significant *river* to Kāi Tahu) is managed by two regional councils with policies and management approaches that include some significant differences. Regional councils are responsible for managing *land use effects* on *land* and at sea up to 12 nautical miles offshore, but beyond that the Environmental Protection Authority manages *effects* through a separate piece of legislation. District councils, although not specifically responsible for managing *freshwater*, are responsible for managing activities that affect *freshwater*.

In Otago there are separate plans for *freshwater* and the coastal area, and they are not consistent with each other. These divisions in the management of the *environment* fail to recognise that all *water*, in *rivers*, underground, in the air and in the ocean is connected, and what occurs in the headwaters and on *land* will have an impact in the ocean. This lack of holistic *freshwater* management also makes it difficult to understand and address the cumulative *effects* of different activities and decisions on cultural values.

Specific concerns related to RMIA-WAI-I1 to RMIA-WAI-I5 are interrelated, and include:

- *Water* quality concerns:

- Deterioration in *water* quality resulting from poor *land* management practices.
- The cultural and *water* quality impacts of point and non-point source *discharge* of human waste and other *contaminants* to *water*. Whānau cannot gather kai from places where human waste (whether treated or not) has been *discharged*, or where herbicides and pesticides have been used. Reliance on dilution rates to mitigate the *effects* of *discharges* is culturally inappropriate.
- The *water* quality impacts of *discharges* from mining activities.

- *Water* allocation concerns:
  - Kāi Tahu consider that many of the waterways in the region are over-allocated from a cultural perspective.
  - Abstractions of greater volumes of *water* than are required, lack of *water* harvesting and continuation of inefficient methods of *water* use.
  - The implications of increased *water* demand for domestic use which will put additional pressure on the already scarce *water* resource.
  - The *effects* of long durations for *water* take consents which lock in a pattern of resource *use* for a long time, limiting the ability for Kāi Tahu to exercise kaitiakitaka responsibilities.
  - The impact of cross mixing of *water* from different catchments on the distinctive mauri of the *water bodies*.
  - The lack of understanding of the interactions between *groundwater* and surface *water*.
- Concerns about channel modification and *river* works:
  - The *effects* of damming on disruption of natural flow patterns, loss of *freshwater* habitats and migration of indigenous fish species.
  - The *effects* on the mauri of the water body from diversion of watercourses upstream and downstream of mines.
  - Impacts of activities such as channel maintenance and channel cleaning on *water* quality and on disruption of species living in the channel and their habitat.
  - Impacts of channel reshaping, in particular straightening, on *river* flow and habitats, and the mauri of the *water body*.
  - The *effects* of *bed* disturbance, including suction dredging and gravel extraction, on stream morphology and habitats.
  - Impacts of willow removal on *water* quality, *water* temperature and mahika kai habitat.
  - Introduction of exotic weeds through poorly cleaned machinery, and the subsequent impact on bank habitat and *water* ecosystems.
  - The *effects* of changes in vegetation cover, including clearance of *indigenous vegetation* and exotic *afforestation,* on the *water* retention capacity of *land* and consequent flow patterns, which can negatively affect mahika kai and taoka species through a reduction in their habitat.

## RMIA–MKB – Mahika kai and biodiversity

### Context

The cold climate in southern Te Waipounamu, and the consequent difficulty of growing crops, made it difficult for tūpuna to establish permanent settlements and as a result Kāi Tahu in this area traditionally had a hunter-gatherer lifestyle, and went where the mahika kai was abundant and in season. This lifestyle was unique to southern Kāi Tahu and mahika kai retains a central place in Kāi Tahu cultural identity. All indigenous species and habitats are treasured by Kāi Tahu as taoka in their own right, as well as for the mahika kai values associated with some species.

### RMIA–MKB–I1 – The diversity and abundance of terrestrial and aquatic indigenous species has been reduced due to adverse *effects* of resource *use* and development

Resource *use* and development in Otago has led to degradation of taoka and mahika kai places. This has occurred in a myriad of ways, contributing to a significant negative cumulative *effect* on many species and habitats. The decrease in diversity and abundance of indigenous species causes a negative impact on the mauri and health of the natural environment.

The Kāi Tahu perspective recognises that species within ecosystems are connected, and effects on one species will be felt throughout the rest of the system. Effects on mahika kai and taoka species diversity and abundance affect the relationship of Kāi Tahu with these species. Whānau are unable to access traditional mahika kai and taoka species and places because in many cases they no longer exist, or no longer provide resources that were once abundant there.

Specific concerns include:

- Degradation of mahika kai due to the impacts of *contaminants* from both point and non-point source *discharges*, including human waste disposal to mahika kai areas.
- The effects of soil contamination from poorly managed landfills, industrial sites and waste disposal sites.
- Continued urban spread encroaching on mahika kai sites.
- Genetic modification of indigenous flora and fauna, which represents deliberate alteration of whakapapa.
- The impact on mahika kai and indigenous *biodiversity* from weed and pest invasion.
- Loss of indigenous fish species, many of which are taoka and mahika kai, through displacement and predation.
- Loss of indigenous flora and fauna remnants and lack of co-ordinated management of habitat corridors.
- Impacts on mahika kai and aquatic ecosystems from a lack of effective catchment-wide riparian management.
- Loss of recruitment of indigenous flora in remnant bush areas due to continuous stock grazing.
- The impact of inappropriate forestry developments, conversion of tussock lands and other intensification of farming on indigenous flora and fauna values, including ecological disturbance and displacement of species.

### RMIA–MKB–I2 – Regulatory and physical barriers have impeded the ability of Kāi Tahu to access mahika kai and to undertake customary harvest

The ability for Kāi Tahu to exercise customary rights to mahika kai has been impeded by obstacles to accessing mahika kai sites. Obstacles include lack of physical access and the sites no longer being safe to access due to the site becoming polluted, or a change in the flow velocity and/or depth.

### RMIA–MKB–I3 – Impacts of *climate change* on both species/habitat viability and increasing pest (flora/fauna) encroachments

*Climate change* is now affecting and will continue to affect habitat availability and suitability for species in Otago. In some cases, this will mean that species will be able to increase their distribution, which will encourage spread of pest/weed species. *Climate change* will also reduce habitat and distributions for some species and affect habitat quality. These *effects* may also accumulate; for example, a native species may have worse and less habitat and its pest/predator's distribution and

population may increase due to *climate change effects*. Where possible, these *effects* should be planned for in environmental management.

### RMIA–MKB–I4 – Shortage of protected and secure areas for biodiversity

Currently there are not enough protected and secure areas for biodiversity in Otago. To ensure the long-term survival of our region's most *threatened species*, a series of protected areas must be established, ideally in a network connected by corridors so that each individual population is more *resilient* as well as the species' overall population.

### RMIA–MKB–I5 – Inconsistent approaches to biodiversity protection amongst regulatory authorities

Biodiversity is managed by several entities who have different approaches and powers through their separate governing legislation. For example, regional and district councils have obligations under the Resource Management Act and the Department of Conservation has obligations under the Conservation Act. Different pieces of legislation are not always consistent with each other. There can also be confusion about who is responsible for different aspects of biodiversity management as it is not managed by one entity.

### RMIA–MKB–I6 – Lack of information on species health and viability

In many instances there is a lack of information on species. This absence of information on matters such as life histories, current and previous distributions and habitat preferences makes it difficult to make decisions about how best to manage these species.

## RMIA–WTU – *Wāhi tūpuna*

### Context

*Wāhi tūpuna* (ancestral landscapes) across Otago are made up of interconnected sites and areas reflecting the history and traditions associated with the long settlement of Kāi Tahu in Otago. Areas of significance that form part of *wāhi tūpuna* include, but are not limited to:

- Wāhi tapu
- Kāika *nohoaka* (settlements)
- Wāhi kohātu and wāhi mahi kohātu (quarry sites)
- Wāhi ikoa (place names)
- Ara tawhito (traditional travel routes)
- Mauka (mountains)

It is important that resource management recognises the wider cultural setting by considering effects of activities on the broader *wāhi tūpuna* rather than just on discrete sites.

### RMIA–WTU–I1 – The values of *wāhi tūpuna* are poorly recognised in resource management in Otago

Land management regimes have failed to adequately provide for Kāi Tahu interests in *wāhi tūpuna*. Attention has been too narrowly focused on the cultural redress components of the Ngāi Tahu Claims Settlement Act 1998 (statutory acknowledgements, place names, tōpuni areas and *nohoaka* sites),

whereas *wāhi tūpuna* are considerably broader than the areas described in the legislation. The values of these areas can be adversely affected by inappropriate *land* use and development.

Specific concerns include:

- Changes to the recognisable character of *wāhi tūpuna* resulting from intensified *land use*, spread of exotic wilding trees and other woody weeds, forestry, subdivision, development of *buildings* and *structures*.
- Impacts on the integrity of *wāhi tūpuna* from extension and maintenance of *infrastructure* such as transport, telecommunications and other utility networks.
- Modification of landforms by *earthworks*, particularly on ridgelines and upper slopes and near waterways.
- Impacts on wāhi tapu and archaeological sites from *earthworks*.
- Sedimentation of *water bodies* within *wāhi tupuna* from *earthworks.*
- Poor land management and inappropriate *land use* degrades the whenua itself.
- Failure to recognise Kāi Tahu connections to the land through use of traditional names for landscape features and sites.

## RMIA–WTA – Wāhi tapu and wāhi taoka

### Context

Tribal land was not just the source of economic well-being. For Māori it was also the burial ground of the placenta and of the bones of ancestors, the abode of tribal atua and a storybook through place names and traditions. This is reflected in Te Reo Māori, as the word 'whenua' means both 'placenta' and 'land'. Ancestral lands were therefore regarded with deep veneration. For Kāi Tahu, wāhi tapu and wāhi taoka refers to the places that hold the respect of the people in accordance with tikaka or history including:

- Mauka (mountains)
- Urupā (burial places)
- Tuhituhi neherā (rock art)
- Umu (ovens)
- *Nohoaka* (seasonal camp sites)

### RMIA–WTA–I1 – *Land use* activities have resulted in disturbance and degradation of wāhi tapu and wāhi taoka sites and the cultural and spiritual values associated with these areas

Wāhi tapu and wāhi taoka sites are vulnerable to disturbance or destruction from the direct *effects* of resource *use* and development. This is through activities that require *earthworks* as well as from natural or human-induced changes to biophysical processes such as coastal erosion. Wāhi tapu and wāhi taoka values can also be adversely affected by the encroachment of culturally offensive activities e.g. it is inappropriate to have a *wastewater* treatment plant at or near a wāhi tapu or wāhi taoka.

Specific concerns include:

- Disturbance, modification or destruction of wāhi tapu or wāhi taoka by *earthworks*.
- Degradation of the cultural value and integrity of wāhi tapu or wāhi taoka through contamination by *discharges*, inappropriate development, and culturally inappropriate activities such as mining/quarrying, *landfills* or *wastewater* disposal.

- The resurfacing of kōiwi takata (human remains) through natural and human-induced processes and ensuring that these are kept safe and returned to Kāi Tahu so that they can be reinterred in accordance with tikaka.
- Ineffective management of *effects* due to inappropriate and inaccurate recording of wāhi tapu and wāhi taoka, and misinterpretation of the status and importance of sites.

### RMIA–WTA–I2 – Access to wāhi tapu and wāhi taoka and the ability to undertake customary activities on these sites has been impeded

Access to culturally important sites has been impeded in many ways, affecting the ability of *mana whenua* to carry out customary activities. Many sites are privately owned and cannot be accessed. Some sites no longer exist, or the customary activities associated cannot be undertaken – for example, *nohoaka* sites associated with mahika kai gathering cannot be used if the mahika kai is no longer there.

A limited number of *nohoaka* sites were granted to Kāi Tahu through the Ngāi Tahu Claims Settlement Act 1998 as redress for loss of traditional sites. Some of these were traditional sites, but others were in new locations. Some *nohoaka* have also become dissociated from their customary use due to *land* use change and hazard management. For example, if the *river* channel has moved and the *nohoaka* has not, whānau visiting the *nohoaka* are not able to fish there.

## RMIA–AA – Air and atmosphere

### Context

As discussed in Part 1, the air and atmosphere are resources of significance to Kāi Tahu. In Kāi Tahu traditions, air and atmosphere emerged through the creation traditions and Te Ao Marama. The air is an integral part of the environment that must be valued, used with respect, and passed on intact to the next generation. Pollution of the atmosphere adversely affects the mauri of this taoka and other taoka such as plants and animals.

### RMIA–AA–I1 –The cultural impacts of *discharges* to air are poorly recognised in resource management

The cultural impacts of air pollution and *discharges* to air are poorly understood and seldom recognised. *Discharges* to air can adversely affect health and can be culturally offensive. Clean air is important to the health of mahika kai and people, and odour and other emissions impact on the tapu of wāhi tapu sites. Air emissions can also reduce the visibility of cultural landscape features and of the moon, stars and rainbows.

Specific concerns include:

- Potential impacts of *climate change* which could potentially negatively affect wai Māori, mahika kai and biodiversity, *wāhi tūpuna*, wāhi tapu, the coastal environment and the well-being of all people.
- Insufficient data has been collected and distributed about the *effects* of *discharges* to air.
- The *effects* of *discharges* to air on the health of people and mahika kai, including *discharges* from industrial or trade premises, agrichemical spray drift, vehicle emissions and emissions from domestic fires in built up areas prone to inversion layers.
- Culturally offensive *discharges* from crematoriums, if located in close proximity to mahika kai and wāhi taoka.
- Adverse *effects* of vegetation burning on the integrity and the tapu of wāhi tapu sites.

- Impacts of odour on wāhi tapu, mahika kai sites and *nohoaka*.
- Impacts of urban settlement and *discharges* to air on the visibility of the sky and *wāhi tūpuna* features.
- The impact of dust on the integrity of rock art sites.

### RMIA–CE – Coastal environment (Taku tai moana me te wai Māori)

#### Context

The coastal environment is particularly significant for Kāi Tahu in the southern South Island. The spiritual and cultural significance of taku tai moana me te wai māori (saltwater and *freshwater*) and the interconnection between *land* and sea environments are not always well recognised in management of the coastal environment.

#### RMIA–CE–I1 – Mahika kai and coastal systems are adversely affected by lack of integrated management across the land-water interface

Management of mahika kai species and their habitats varies and is not holistic. Many important indigenous mahika kai fish species are diadromous and move between *freshwater* and the ocean during different parts of their life cycle. The interconnection between *land* and marine environments needs to be carefully considered in order to manage *effects* that cross the *coastal marine area* boundary.

Specific concerns include:

- *Effects* on the coastal environment and natural systems resulting from modifications to waterways, such as damming and artificial openings of *river* mouths, estuary and lagoon systems.
- The *effects* of reductions in *river* flows on ingress of saltwater to *river* systems and conditions for inaka spawning.
- Barriers to species migration, and hence lifecycles, created by changes to *river* mouths from reductions in *river* flow.
- Impacts of changes in sediment transport on coastal ecosystems.
- The *effects* of *land reclamation* on *water* quality and flow in enclosed harbors and estuarine ecosystems.
- *Effects* of *land use* activities and poor management of coastal margins on *coastal water* quality.
- *Climate change effects* occur across the land-water interface and the *freshwater*-saltwater interface, and cause changes to mahika kai species distribution and the quality and locations of mahika kai habitat.

#### RMIA–CE–I2 – *Discharges* into *coastal waters* and marine dumping of waste degrade mahika kai and the mauri of the *waters*

The practice of using the marine environment as a sink for disposal of waste from both *land* development and marine vessels is culturally offensive and has resulted in degradation of kaimoana resources. Leaching and overland runoff of *contaminants* from activities occurring near the coast have also contributed to the adverse *effects* on the marine area.

Specific concerns include:

- Point source industrial *discharges* to the coastal environment.

- Contamination of *coastal waters* by leachate from inappropriately sited *landfills* and other waste disposal sites and runoff from coastal subdivisions.
- *Discharges* of *sewage* from marine outfalls, poorly designed or inadequate coastal sewerage *infrastructure* and freedom camping.
- The *effects* of *contaminants* such as oil and carbon particles in *discharges* of *stormwater* from urban *roads*.
- *Discharges* of *sewage* and contaminated bilge and ballast *water* from *ships*.
- Proliferation of rubbish in the coastal environment, including materials such as lengths of rope from boats and moorings, plastic packaging strips, discarded and lost fishing gear, glass and plastic bottles as well as other dumped material.
- *Discharge* or disposal of waste products from the processing of marine species.
- Oil and chemical spills negatively affecting the natural environment
- Indiscriminate *discharge* of human ashes in sensitive areas such as kaimoana areas, or without the knowledge of *takata whenua*.

### RMIA–CE–I3 – The ability for Kāi Tahu ki Otago to access and harvest kaimoana has been impeded by the *effects* of activities in the coastal and marine environment

Parts of the coastal environment in Otago have been heavily modified since the arrival of settlers. Many parts of the coast around Dunedin have been reclaimed to establish the city, and the harbor has been dredged to enable the growth of the port. This has limited the ability for whānau to carry out customary harvest of kaimoana resources and to access sites of significance for customary fishing. Whānau are often unable to physically access the foreshore and seabed for the collection of kaimoana, or find that kai is no longer safe to eat due to pollution.

Specific concerns include:

- Impacts on kaimoana and associated habitats from the *effects* of waterway modifications on estuarine systems and the *freshwater*/saltwater interface.
- Modification or loss of marine habitats as a result of *reclamation*, dredging and dumping.
- Disturbance of intertidal habitats by vehicle access along beaches.
- Potential for modification and displacement of habitats by *aquaculture activities*.
- The negative *effects* of point and non-point source *discharges* on *water* quality.
- The introduction and spread of exotic species, such as the invasive seaweed *undaria*, through ballast, hull cleaning, and other shipping activities.
- Loss of access due to development of coastal *land*.

### RMIA–CE–I4 – Habitat disturbance and modification has contributed to decline in populations of indigenous marine species, including marine mammals

Indigenous marine species, including marine mammals, are regarded as taoka by Kāi Tahu, and in many cases these are recognised through the NTCSA 1998. The health and abundance of marine species populations are threatened by modification and loss of natural habitat as a result of the impacts identified in RMIA–CE–I2 and RMIA–CE–I3.

### RMIA–CE–I5 – Wāhi tapu and *wāhi tūpuna* values in the coastal environment are poorly recognised and protected

The coastal environment is the domain of Takaroa and includes the *coastal waters* of Te Tai o Arai Te Uru as well as the adjoining land. Tauraka waka (waka landing places) occur up and down the coast in their hundreds and wherever a tauraka waka is located there is also likely to be a *nohoaka*, fishing

ground, kaimoana resource, or rimurapa (seaweed) with the sea trail linked to a land trail or mahika kai resource. Burial sites and other wāhi tapu are also associated with these *wāhi tūpuna*. Seascapes such as reef systems also form part of *wāhi tūpuna*.

Wāhi tapu and the broader *wāhi tūpuna* can be adversely affected by inappropriate activities and developments on coastal land and in the *coastal marine areas*.

Specific concerns include:

- Damage to and disturbance of wāhi tapu resulting from coastal erosion, earthworks associated with *subdivisions*, and development of coastal walkways.
- The *effects* of *land* fragmentation on access to sites of significance.
- Loss of the integrity of cultural landscapes by *reclamation* and the inappropriate location of *structures* and activities associated with aquaculture, tourism activities, *infrastructure,* and vessel moorings.
- Disturbance from mining of the seabed and foreshore.
- Restriction of access to tauraka waka and associated trails due to *land* development.
- The cumulative *effect* of incremental, uncoordinated *subdivisions, land use* change and building within the coastal environment.
- Failure to recognise and provide for the *effects* of changing sea levels on coastal landscapes.

## RMIA–PO – Pounamu

### Context

Kāi Tahu customs are intricately linked to this special taoka.  There is currently no Regional Pounamu Plan for Otago. Management of this taoka is currently dependent on the provisions of the Ngāi Tahu (Pounamu Vesting) Act 1997 and a rāhui pounamu is in place in the Otago region.

### RMIA–PO–I1 – Pounamu resources need protection from the *effects* of *land use* activities

Pounamu is a taoka for Kāi Tahu, but lack of recognition and protection of pounamu resources may lead to these resources being unknowingly degraded, for example by extraction of material for *road* aggregate.

# IM – Integrated management

## Objectives

### IM–O1 – Long term vision

The management of *natural and physical resources* in Otago, by and for the people of Otago, including Kāi Tahu, and as expressed in all resource management plans and decision making, achieves healthy, resilient, and safeguarded natural systems, and the ecosystem services they offer, and supports the well-being of present and future generations, mō tātou, ā, mō kā uri ā muri ake nei.

### IM–O2 – Ki uta ki tai

*Natural and physical resource* management and decision making in Otago embraces ki uta ki tai, recognising that the *environment* is an interconnected system, which depends on its connections to flourish, and must be considered as an interdependent whole.

### IM–O3 – Environmentally sustainable impact

Otago's communities carry out their activities in a way that preserves environmental integrity, form, function, and *resilience*, so that the life-supporting capacities of air, *water*, soil, ecosystems, and indigenous *biodiversity* endure for future generations.

### IM–O4 – *Climate change*

Otago's communities, including Kāi Tahu, understand what *climate change* means for their future, and *climate change* responses in the region, including adaptation and mitigation actions, are aligned with national level *climate change* responses and are recognised as integral to achieving the outcomes sought by this RPS.

## Policies

### IM–P1 – Integrated approach

The objectives and policies in this RPS form an integrated package, in which:

(1) all activities are carried out within the environmental constraints of this RPS,

(2) all provisions relevant to an issue or decision must be considered,

(3) if multiple provisions are relevant, they must be considered together and applied according to the terms in which they are expressed, and

(4) notwithstanding the above, all provisions must be interpreted and applied to achieve the integrated management objectives IM–O1 to IM–O4.

### IM–P2 – Decision priorities

Unless expressly stated otherwise, all decision making under this RPS shall:

(1) firstly, secure the long-term life-supporting capacity and mauri of the natural environment,

(2) secondly, promote the health needs of people, and

(3) thirdly, safeguard the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

### IM–P3 – Providing for *mana whenua* cultural values in achieving integrated management

Recognise and provide for Kāi Tahu's relationship with natural resources by:

(1) enabling *mana whenua* to exercise rakatirataka and *kaitiakitaka*,

(2) facilitating active participation of *mana whenua* in resource management decision making,

(3) incorporating mātauraka Māori in decision making, and

(4) ensuring resource management provides for the connections of Kāi Tahu to *wāhi tūpuna*, *water* and *water bodies*, the coastal environment, mahika kai and habitats of taoka species.

### IM–P4 – Setting a strategic approach to ecosystem health

Healthy ecosystems and ecosystem services are achieved through a planning framework that:

(1) protects their *intrinsic values*,

(2) takes a long-term strategic approach that recognises changing *environments*,

(3) recognises and provides for ecosystem complexity and interconnections, and

(4) anticipates, or responds swiftly to, changes in activities, pressures, and trends.

### IM–P5 – Managing environmental interconnections

Coordinate the management of interconnected *natural and physical resources* by recognising and providing for:

(1) situations where the value and function of a *natural or physical resource* extends beyond the immediate, or directly adjacent, area of interest,

(2) the effects of activities on a *natural or physical resource* as a whole when that resource is managed as sub-units, and

(3) the impacts of management of one *natural or physical resource* on the values of another, or on the *environment*.

### IM–P6 – Acting on best available information

Avoid unreasonable delays in decision-making processes by using the best information available at the time, including but not limited to mātauraka Māori, local knowledge, and reliable partial data.

### IM–P7 – Cross boundary management

Coordinate the management of Otago's *natural and physical resources* across jurisdictional boundaries and, whenever possible, between overlapping or related agency responsibilities.

### IM–P8 – *Climate change* impacts

Recognise and provide for *climate change* processes and *risks* by identifying *climate change* impacts in Otago, including impacts from a te ao Māori perspective, assessing how the impacts are likely to change over time and anticipating those changes in resource management processes and decisions.

### IM–P9 – Community response to c*limate change* impacts

By 2030 Otago's communities have established responses for adapting to the impacts of *climate change*, are adjusting their lifestyles to follow them, and are reducing their *greenhouse gas* emissions to achieve net-zero carbon emissions by 2050.

### IM–P10 – *Climate change* adaptation and mitigation

Identify and implement *climate change* adaptation and mitigation methods for Otago that:

(1) minimise the *effects* of *climate change* processes or *risks* to existing activities,

(2) prioritise avoiding the establishment of new activities in areas subject to *risk* from the *effects* of *climate change*, unless those activities reduce, or are resilient to, those *risks*, and

(3) provide Otago's communities, including Kāi Tahu, with the best chance to thrive, even under the most extreme *climate change* scenarios.

### IM–P11 – Enhancing environmental *resilience* to *effects* of *climate change*

Enhance environmental *resilience* to the adverse *effects* of *climate change* by facilitating activities that reduce human impacts on the *environment*.

### IM–P12 – Contravening environmental bottom lines for *climate change* mitigation

Where a proposed activity provides or will provide enduring regionally or nationally significant mitigation of *climate change* impacts, with commensurate benefits for the well-being of people and communities and the wider *environment*, decision makers may, at their discretion, allow non-compliance with an environmental bottom line set in any policy or method of this RPS only if they are satisfied that:

(1) the activity is designed and carried out to have the smallest possible environmental impact consistent with its purpose and *functional needs*,

(2) the activity is consistent and coordinated with other regional and national *climate change* mitigation activities,

(3) adverse *effects* on the *environment* that cannot be avoided, remedied, or mitigated are offset, or compensated for if an offset is not possible, in accordance with any specific criteria for using offsets or compensation, and ensuring that any offset is:

    (a) undertaken where it will result in the best ecological outcome,

(b) close to the location of the activity, and

(c) within the same ecological district or coastal marine biogeographic region,

(4) the activity will not impede either the achievement of the objectives of this RPS or the objectives of regional policy statements in neighbouring regions, and

(5) the activity will not contravene a bottom line set in a national policy statement or national environmental standard.

### IM–P13 – Managing cumulative *effects*

Otago's environmental integrity, form, function, and *resilience*, and opportunities for future generations, are protected by recognising and specifically managing the cumulative *effects* of activities on *natural and physical resources* in plans and explicitly accounting for these *effects* in other resource management decisions.

### IM–P14 – Human impact

Preserve opportunities for future generations by:

(1) identifying limits to both growth and adverse *effects* of human activities beyond which the *environment* will be degraded,

(2) requiring that activities are established in places, and carried out in ways, that are within those limits and are compatible with the natural capabilities and capacities of the resources they rely on, and

(3) regularly assessing and adjusting limits and thresholds for activities over time in light of the actual and potential environmental impacts.

### IM–P15 – Precautionary approach

Adopt a precautionary approach towards proposed activities whose *effects* are uncertain, unknown or little understood, but could be significantly adverse, particularly where the areas and values within Otago have not been identified in plans as required by this RPS.

## Methods

### IM–M1 – *Regional* and *district plans*

*Local authorities* must prepare or amend and maintain their *regional* and *district plans* to:

(1) establish, by December 2030, policy frameworks designed to achieve the objectives for Otago set out in IM–O1 to IM–O4,

(2) give effect to any response to *climate change* developed under this RPS, if applicable,

(3) provide for activities that seek to mitigate or adapt to the effects of *climate change* or reduce greenhouse gas emissions,

(4) ensure cumulative *effects* of activities on *natural and physical resources* are accounted for in resource management decisions by recognising and managing such *effects*, including:

(a) the same *effect* occurring multiple times,

(b) different *effects* occurring at the same time,

(c) different *effects* occurring multiple times,

(d) one *effect* leading to different *effects* occurring over time,

(e) different *effects* occurring sequentially over time,

(f) *effects* occurring in the same place,

(g) *effects* occurring in different places,

(h) *effects* that are spatially or temporally distant from their cause or causes, and,

(i) more than minor cumulative *effects* resulting from minor or transitory *effects*,

(5) adopt a ki uta ki tai approach to resource management by establishing policy and implementation frameworks that treat Otago's *environments* as an integrated system, including collaboration between local authorities to achieve consistent management of resources or *effects* that cross jurisdictional boundaries, and

(6) establish clear thresholds for, and limits on, activities that have the potential to adversely affect healthy ecosystem services and *intrinsic values*.

### IM–M2 – Relationships

Starting immediately*, local authorities* must:

(1) partner with Kāi Tahu to ensure *mana whenua* involvement in resource management,

(2) work together and with other agencies to ensure consistent implementation of the objectives, policies and methods of this RPS, and

(3) consult with Otago's communities to ensure policy frameworks adequately respond to the diverse facets of environmental, social, cultural, and economic well-being.

### IM–M3 – Identification of *climate change* impacts and community guidance

By December 2025, Otago Regional Council must:

(1) identify the specific types and locations of *climate change* impacts in Otago by undertaking a *climate change risk* assessment, including an assessment that incorporates a Kāi Tahu approach to *climate change risk* identification and evaluation, and

(2) develop guidance to support communities to be prepared and *resilient*.

### IM–M4 – *Climate change* response

By January 2027, *local authorities* (led by Otago Regional Council) must together, in partnership with Kāi Tahu and in consultation with Otago's communities, develop *climate change* responses for the region that achieve *climate change* adaptation and mitigation, and that include:

(1) identifying natural and built resources vital to environmental and community *resilience* and well-being,

(2) identifying vulnerable resources and communities and developing adaptation pathways for them where possible, and

(3) developing plans and agreements for implementation.

### IM–M5 – Other methods

*Local authorities* should:

(1) at their next plan review or by December 2030, whichever is sooner, align (to the extent possible) all strategies and management plans prepared under other legislation to contribute to the attainment of the long-term vision for Otago, and

(2) facilitate community involvement in realising the long-term vision for Otago stated in IM–O1 through non-regulatory means,

(3) encourage changes to business practice that will enable businesses to function in a net-zero carbon economy, and

(4) advocate for and incentivise activities that reduce, mitigate, or eliminate risk of environmental degradation.

## Explanation

### IM–E1 – Explanation

The policies in this chapter provide direction on integrated management across the region, to achieve the revitalisation, *resilience* and safeguarding of Otago's environment and ensure that it supports ka takata and the community's cultural, social, and economic well-being. The policies seek to apply a ki uta ki tai approach and ensure that the *effects* of *climate change* are understood and responded to across the region. Further, they are designed to ensure that environmental integrity, form, function, and *resilience* are at the centre of all resource management decision making and that changes are made where necessary to ensure the environment's life-supporting capacity continues to support people's health and well-being both now and into the future.

The policies in this chapter include direction for resolving issues when multiple Regional Policy Statement provisions need to be applied simultaneously. This direction reinforces the primacy of national legislation and regulation, as some provisions of National Policy Statements and National Environmental Standards are prescriptive enough that they do not need a regional interpretation and are only referred to in the RPS when necessary. Further, some direction in the New Zealand Coastal Policy Statement 2010, such as in Policy 3, is considered appropriate to apply to the management of resources throughout Otago, rather than solely within the coastal environment.

## Principal reasons

### IM–PR1 – Principal reasons

Integrated management is at the core of the RMA 1991. The provisions in this chapter set out core facets of integration - the interconnections and interdependencies within the environment, involvement of *mana whenua* in resource management, the fundamental importance of

environmental health to human well-being, and holistic assessment of human *effects* on the *environment*. They also address the *effects* of *climate change* as the key threat to environmental stability.

The provisions seek to enshrine an explicit recognition and implementation of these facets into plan making and resource consenting processes. They set an expectation of integrated resource management that flows through to all other provisions of the RPS, and informs the limits and thresholds we set on human activities for protecting environmental health. It sets explicit expectations that local authorities will work with each other and with other agencies to ensure management approaches are clear, coordinated, and able to support Otago's communities into the future.

## Anticipated environmental results

**IM–AER1** Monitoring shows the limits and thresholds set for human activities are adhered to and are resulting in environmental well-being and resilience.

**IM-AER2** Environmental well-being and resilience is resulting in sustainable social, cultural, and economic well-being.

**IM–AER3** Communities are aware of the potential impacts of *climate change* and there are observable changes in community behaviour towards more sustainable lifestyles.

**IM–AER4** Plan development and decision-making processes demonstrate improved awareness of the interdependencies and interconnectedness of *natural and physical resources* within the region.

# PART 3 – DOMAINS AND TOPICS

# DOMAINS

# AIR – Air

## Objectives

### AIR–O1 – Ambient air quality

Ambient air quality provides for the health and well-being of the people of Otago, *amenity* and *mana whenua values*, and the life-supporting capacity of ecosystems.

### AIR–O2 – Discharges to air

Human health, *amenity* and *mana whenua* values and the life-supporting capacity of ecosystems are protected from the adverse effects of discharges to air.

## Policies

### AIR–P1 – Maintain good ambient air quality

Good ambient air quality is maintained across Otago by:

(1) ensuring *discharges* to air comply with ambient air quality limits where those limits have been set, and

(2) where limits have not been set, only allowing *discharges* to air if the adverse *effects* on ambient air quality are no more than minor.

### AIR–P2 – Improve poor ambient air quality

Poor ambient air quality is improved across Otago by:

(1) establishing, maintaining and enforcing plan provisions that set limits and timeframes for improving ambient air quality, including by managing the spatial distribution of activities and transport, and

(2) prioritising actions to reduce $PM_{10}$ and $PM_{2.5}$ concentrations in *polluted airsheds*, including phasing out existing domestic *solid fuel* burning appliances and preventing any *discharges* from new domestic *solid fuel* burning appliances that do not comply with the standards set in the NESAQ.

### AIR–P3 – Providing for discharges to air

Allow discharges to air provided they do not adversely affect human health, amenity and *mana whenua* values and the life supporting capacity of ecosystems.

### AIR–P4 – Avoiding certain discharges

Avoid discharges to air that cause offensive, objectionable, noxious or dangerous effects.

### AIR–P5 – Managing certain discharges

Manage the *effects* of *discharges* to air beyond the boundary of the property of origin from activities that include but are not limited to:

(1) outdoor burning of organic material,

(2) agrichemical and fertiliser spraying,

(3) farming activities,

(4) activities that produce dust, and

(5) industrial and trade activities.

### AIR–P6 – Impacts on *mana whenua* values

Avoid *discharges* to air that adversely affect *mana whenua* values by having particular regard to values and areas of significance to *mana whenua*.

## Methods

### AIR–M1 – Review *airshed* boundaries

Prior to implementing AIR–M2, and no later than 31 December 2022, the Otago Regional Council must review existing *airshed* boundaries and apply to the Ministry for the Environment to gazette amended boundaries where *airsheds* do not account for:

(1) current or anticipated areas of development,

(2) weather patterns and geography, or

(3) existing areas of poor air quality.

### AIR–M2 – *Regional plans*

No later than 31 December 2024, Otago Regional Council must prepare or amend and maintain its *regional plans* to:

(1) avoid offensive, objectionable, noxious or dangerous *discharges* to air,

(2) include provisions to mitigate the adverse *effects* from *discharges* to air beyond the boundary of the property of origin,

(3) implement the prioritisation of actions set out in AIR–P2,

(4) mitigate the adverse *effects* of *discharges* to air in areas adjacent to *polluted airsheds* where the *discharge* will adversely affect air quality in the *polluted airshed*, and

(5) give effect to the Air Quality Strategy for Otago and any subsequent amendments or updates.

### AIR–M3 – *Territorial authorities*

No later than 31 December 2029, *territorial authorities* must prepare or amend and maintain their *district plans* to include provisions that direct an urban form that assists in achieving good air quality by:

(1) reducing reliance on private motor vehicles and enabling the adoption of *active transport*, shared transport and *public transport* options to assist in achieving good air quality, and

(2) managing the spatial distribution of activities.

### AIR–M4 – Monitoring and reporting

Otago Regional Council must monitor and report no less frequently than annually on:

(1) air quality in accordance with the NESAQ to identify changes in ambient air quality within *airsheds*, and

(2) progress towards attainment of the *ambient air quality standards*.

### AIR–M5 – Incentives and other mechanisms

In collaboration with *territorial authorities*, iwi authorities, key stakeholders and industry, Otago Regional Council must, on an on-going basis, use other mechanisms or incentives to assist with achieving the air quality objectives, including:

(1) improving community awareness of air quality issues in Otago associated with home heating,

(2) educating communities and promoting the use of alternative methods for home heating including the use of new technology (including low emission or ultra-low emission home heating appliances) and cleaner fuels or energy sources,

(3) advocating, promoting and supporting upgrading Otago's housing stock and changes to the Building Act 2004 and Building Code to require houses to create and maintain warmth more efficiently and reduce reliance on non-compliant domestic *solid fuel* burning appliances as described in AIR-P2,

(4) advocating to energy providers to improve the *resilience* of electricity infrastructure so alternative sources of heating are available and reliable,

(5) measures to encourage the use of *active transport,* shared transport and *public transport* over the use of private motor vehicles, and

(6) providing financial incentives (such as funding schemes, subsidies or rates relief) and support to improve home heating efficiency and assist with the transition towards cleaner heating, improved energy efficiency and home insulation, including the replacement of *solid fuel* burners that do not comply with the NESAQ standards.

## Explanation

### AIR–E1 – Explanation

The policies in this chapter are designed to achieve and maintain good air quality for Otago by requiring improvements where air quality is poor, maintaining it where it is good. Managing air quality does not include emissions from ships which are managed under separate national regulation. The policies in this chapter focus on preventing further decline in air quality by preventing use of new domestic *solid fuel* burning appliances that do not comply with the NESAQ, and phasing out the use of existing domestic *solid fuel* burning appliances that are non-compliant. The policies also require the boundaries of *airsheds* be amended to accurately reflect current and anticipated areas of urban growth. This is required to ensure monitoring of ambient air quality is accurate and that all activities that contribute to poor ambient air quality within an *airshed* are subject to the same measures to improve ambient air quality. This policy framework also directs future reviews of the Regional Plan: Air to manage the adverse effects of discharges to air.

In addition to the objectives and policies in this chapter, the air quality outcomes are also provided for in the objectives and policies listed within the following chapters of the RPS where they provide direction on the management of *environments* and activities that may affect air quality:

- IM – Integrated management
- EIT – Energy, *infrastructure* and transport
- UFD – Urban form and development

## Principal reasons

### AIR–PR1

Clean air is vital for supporting a healthy population and *environment*. Air quality monitoring shows that for most of the year air quality in the Otago Region is very good. During winter months however, temperatures drop and emissions from home heating increase. This, coupled with the topography of some areas and cold, calm conditions, leads to poor winter air quality in many towns and cities across the region. At times, parts of Otago have some of the poorest air quality in New Zealand. This is intensifying through urban growth.

The provisions in this chapter set out the framework for a review of the Air Plan and supports ORC's obligation to both observe and enforce the NESAQ. Implementation of the provisions in this chapter will occur primarily through regional and *district plan* provisions, however a collaborative approach with central government, other *local authorities*, stakeholders and industry will support the achievement of the objectives over time.

## Anticipated environmental results

**AIR–AER1** Where air quality is poor, there is a decreasing trend in concentrations of $PM_{10}$ and $PM_{2.5}$.

**AIR–AER2** Otago has an urban form that takes into account the *effects* of activities, and any *discharges* to air they create, on Otago's air quality.

| | |
|---|---|
| **AIR–AER3** | Homes have cleaner forms of heating and non-compliant burners are no longer in use. |
| **AIR–AER4** | There is a decrease in the number of complaints regarding offensive, objectionable, noxious or dangerous *discharges* into air. |
| **AIR–AER5** | Where air quality is good it is maintained. |
| **AIR–AER6** | Otago is compliant with NESAQ requirements. |

# CE – Coastal environment

## Objectives

### CE–O1 – Safeguarding the coastal environment

The integrity, form, functioning and resilience of Otago's coastal environment is safeguarded so that:

(1) the mauri of *coastal water* is protected, and restored where it has *degraded*,

(2) *coastal water* quality supports healthy ecosystems, natural habitats, water-based recreational activities, existing activities, and customary uses, including practices associated with mahika kai and kaimoana,

(3) the dynamic and interdependent natural biological and physical processes in the coastal environment are maintained or enhanced,

(4) representative or significant areas of biodiversity are protected, and

(5) *surf breaks* of national significance are protected.

### CE–O2 – Maintaining or enhancing highly valued areas of the coastal environment

Public access, recreation opportunities, and *highly valued natural features and landscapes* in the coastal environment are maintained or enhanced.

### CE–O3 – Natural character, features and landscapes

Areas of natural character, natural features, landscapes and seascapes within the coastal environment are protected from inappropriate activities, and restoration is encouraged where the values of these areas have been compromised.

### CE–O4 – Kāi Tahu associations with Otago's coastal environment

The enduring cultural association of Kāi Tahu with Otago's coastal environment is recognised and provided for, and *mana whenua* are able to exercise their kaitiaki role within the coastal environment.

### CE–O5 – Activities in the coastal environment

Activities in the coastal environment:

(1) make efficient use of space occupied in the *coastal marine area*,

(2) are of a scale, density and design compatible with their location,

(3) are only provided for within appropriate locations and limits, and

(4) maintain or enhance public access to and along the *coastal marine area,* including for customary uses.

## Policies

### CE–P1 – Links with other chapters

Recognise that:

(1) coastal hazards must be identified in accordance with CE–P2(4) and managed in accordance with the HAZ–NH – Natural hazards section of this RPS;

(2) port activities must be managed in accordance with the TRAN – Transport section of this RPS; and

(3) *historic heritage* must be managed in accordance with the HCV – Historical and cultural values section of this RPS.

### CE–P2 – Identification

Identify the following in the coastal environment:

(1) the landward extent of the coastal environment, recognising that the coastal environment includes:

  (a) the *coastal marine area*,

  (b) islands within the *coastal marine area*,

  (c) areas where coastal processes, influences or qualities are significant, including coastal lakes, lagoons, tidal estuaries, saltmarshes, coastal wetlands, and the margins of these,

  (d) areas at risk from coastal hazards as identified in CE–P2(4),

  (e) coastal vegetation and the habitat of indigenous coastal species including migratory birds,

  (f) elements and features that contribute to the natural character, landscape, visual qualities or *amenity values*,

  (g) items of cultural and *historic heritage* in the *coastal marine area* or on the coast,

  (h) inter-related coastal marine and terrestrial systems, including the intertidal zone, and

  (i) physical resources and built facilities, including *infrastructure*, that have modified the coastal environment,

(2) areas of *water* quality in the *coastal marine area* that are considered to have deteriorated so that it is having a significant adverse *effect* on ecosystems, natural habitats, or water-based recreational activities, or is restricting existing uses, such as aquaculture, shellfish gathering, and cultural activities such as mahika kai and harvesting of kaimoana,

(3) areas of *coastal water* where *takata whenua* have a particular interest,

(4) areas that are potentially affected by coastal hazards (including tsunami), giving priority to the identification of areas at high *risk* of being affected, and

(5) the nationally significant *surf breaks* at Karitane, Papatowai, The Spit, and Whareakeake and any regionally significant *surf breaks.*

### CE–P3 – *Coastal water* quality

*Coastal water* quality is improved where it is considered to have deteriorated to the extent described within CE-P1(2), and otherwise managed, so that:

(1) healthy coastal ecosystems, indigenous habitats provided by the coastal environment, and the migratory patterns of indigenous *coastal water* species are maintained or enhanced,

(2) Kāi Tahu relationships with and customary uses of *coastal water* are sustained,

(3) recreation opportunities and existing uses of *coastal water* are maintained or enhanced, and

(4) within identified areas where *takata whenua* have a particular interest, adverse *effects* on these areas and values are remedied or where remediation is not practicable, are mitigated.

### CE–P4 – Natural character

Identify, preserve and restore the natural character of the coastal environment by:

(1) identifying areas and values of high and outstanding natural character which may include matters such as:

  (a) natural elements, processes and patterns,

  (b) biophysical, ecological, geological and geomorphological aspects,

  (c) natural landforms such as headlands, peninsulas, cliffs, dunes, *wetlands*, estuaries, reefs, *freshwater* springs and *surf breaks*,

  (d) the natural movement of *water* and sediment,

  (e) the natural darkness of the night sky,

  (f) places or areas that are wild or scenic,

  (g) a range of natural character from pristine to modified,

  (h) experiential attributes, including the sounds and smell of the sea, and their context or setting,

(2) avoiding adverse *effects* on natural character in areas identified as having outstanding natural character,

(3) avoiding significant adverse *effects* and avoiding, remedying or mitigating other adverse *effects* on natural character outside the areas in (2) above,

(4) encouraging de-reclamation of redundant reclaimed *land* where it would restore the natural character and resources of the *coastal marine area* and provide for more public open space, and

(5) promoting *activities* and restoration projects that will restore natural character in the coastal environment where it has been reduced or lost.

### CE–P5 – Coastal indigenous *biodiversity*

Protect indigenous *biodiversity* in the coastal environment by:

(1) identifying and avoiding adverse effects on the following ecosystems, vegetation types and areas:

(a) indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification System lists,

(b) taxa that are listed by the International Union for Conservation of Nature and Natural Resources as threatened,

(c) indigenous ecosystems and vegetation types in the coastal environment that are threatened or are naturally rare,

(d) habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare,

(e) areas containing nationally significant examples of indigenous community types, and

(f) areas set aside for full or partial protection of indigenous *biodiversity* under other legislation, and

(2) identifying and avoiding significant adverse *effects* and avoiding, remedying or mitigating other adverse *effects* on the following ecosystems, vegetation types and areas:

(a) areas of predominantly indigenous vegetation in the coastal environment,

(b) habitats in the coastal environment that are important during the vulnerable life stages of indigenous species,

(c) indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable,

(d) areas sensitive to modification, including estuaries, lagoons, coastal *wetlands*, dunelands, intertidal zones, rocky reef systems, eelgrass and saltmarsh,

(e) habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes,

(f) habitats, including areas and routes, important to migratory species, and

(g) ecological corridors, and areas important for linking or maintaining biological values identified under this policy.

### CE–P6 – Natural features, landscapes and seascapes

Protect natural features, landscapes and seascapes in the coastal environment by:

(1) identifying their areas and values in accordance with APP9,

(2) avoiding adverse *effects* of activities on outstanding natural features, landscapes or seascapes,

(3) avoiding significant adverse *effects* and avoiding, remedying, or mitigating other adverse *effects* of activities on other natural features and natural landscapes or seascapes, and

(4) promoting restoration or enhancement of natural features, landscapes and seascapes where they have been reduced or lost.

### CE–P7 – *Surf breaks*

Manage Otago's nationally and regionally significant *surf breaks* so that:

(1) nationally significant *surf breaks* are protected by avoiding adverse *effects* on the *surf breaks*, including on access to and use and enjoyment of them, and

(2) the values of and access to regionally significant *surf breaks* are maintained.

### CE–P8 – Public access

Maintain or enhance public access to and along the *coastal marine area,* unless restricting public access is necessary:

(1) to protect public health and safety,

(2) to protect areas of significant indigenous vegetation and significant habitats of indigenous fauna,

(3) to protect dunes, estuaries and other sensitive natural areas or habitats,

(4) to protect places or areas containing *historic heritage* of regional or national significance,

(5) to protect places or areas of significance to *takata whenua*, including wāhi tapu and *wāhi tūpuna*,

(6) for defence purposes in accordance with the Defence Act 1990,

(7) for temporary activities or special events, or

(8) to ensure a level of security consistent with the operational requirements of a lawfully established activity.

### CE–P9 – Activities on *land* within the coastal environment

The strategic and co-ordinated use of *land* within the coastal environment is achieved by:

(1) avoiding sprawling or sporadic patterns of *subdivision*, use and development,

(2) considering the rate at which built development should be enabled to provide for the reasonably foreseeable needs of population growth without compromising the values of the coastal environment,

(3) recognising the importance of the provision of *infrastructure* to the social, economic and cultural well-being of people and communities,

(3) maintaining or enhancing public access to the coastal environment, and

(4) considering where activities that maintain the character of the existing built environment should be encouraged, and where activities resulting in a change in character would be acceptable.

### CE–P10 – Activities within the *coastal marine area*

Use and development in the *coastal marine area* must:

(1) enable multiple uses of the *coastal marine area* wherever reasonable and practicable,

(2) maintain or improve the integrity, form, function and *resilience* of the *coastal marine area*, and

(3) have a *functional* or *operational need* to be located in the *coastal marine area*, or

(4) have a public benefit or opportunity for public recreation that cannot practicably be located outside the *coastal marine area*.

### CE–P11 – Aquaculture

Provide for the development and operation of *aquaculture activities* within appropriate locations and limits, taking into account:

(1) the need for high quality *water* required for an *aquaculture activity*,

(2) the need for *land*-based facilities and infrastructure required to support the operation of *aquaculture activities,* and

(3) the potential social, economic and cultural benefits associated with the operation and development of *aquaculture activities*.

### CE–P12 – Reclamation

Avoid reclamation in the *coastal marine area*, unless:

(1) *land* outside the *coastal marine area* is not available for the proposed activity,

(2) the activity to be established on the reclamation can only occur immediately adjacent to the *coastal marine area*,

(3) there are no practicable alternative methods of providing for the activity, and

(4) the reclamation will provide significant regional or national benefit.

### CE–P13 – Kaitiakitaka

Recognise and provide for the role of Kāi Tahu as kaitiaki of the coastal environment by:

(1) involving *mana whenua* in decision making and management processes in respect of the coast,

(2) identifying, protecting, and improving where degraded, sites, areas and values of importance to Kāi Tahu within the coastal environment, and managing these in accordance with tikaka,

(3) providing for customary uses, including mahika kai and the harvesting of kaimoana,

(4) incorporating the impact of activities on customary fisheries in decision making, and

(5) incorporating mātauraka Maōri in the management and monitoring of activities in the coastal environment.

## Methods

### CE–M1 – Identifying the coastal environment

*Local authorities* must:

(1) no later than 31 May 2023, work collaboratively to:

(a) identify the landward extent of the coastal environment, in accordance with CE-P2(1),

(b) map the landward extent of the coastal environment area in the relevant *regional* and *district plans*.

### CE–M2 – Identifying other areas

*Local authorities* must work collaboratively together to:

(1) identify areas and values of high and outstanding natural character within their jurisdictions in accordance with CE–P4(1), map the areas and describe their values in the relevant *regional* and *district plans*, and identify their capacity to accommodate change through use or development while protecting the values that contribute to the natural character of the area being considered high or outstanding,

(2) identify areas and values of outstanding natural features, landscapes, and seascapes (in the coastal environment) within their jurisdictions in accordance with CE–P6(1), map the areas and describe their values in the relevant *regional* and *district plans*, and identify their capacity to accommodate change through use or development while protecting the values that contribute to the natural features, landscapes, and seascapes being considered outstanding,

(3) identify areas and values of indigenous *biodiversity* within their jurisdictions in accordance with CE–P5, map the areas and describe their values in the relevant *regional* and *district plans*, and

(4) prioritise identification under (1) – (3) in areas that are:

(a) likely to face development or growth pressure over the life of this RPS, or

(b) likely to contain outstanding natural character areas, outstanding natural features or landscapes, and areas of significant indigenous *biodiversity*, including the areas in the table below.

*Table 2: Areas likely to contain significant values*

| | |
|---|---|
| Oamaru Harbour Breakwater | Te Whakarekaiwi |
| Moeraki Beach | Papanui Inlet |
| Moeraki Peninsula | Hoopers Inlet |
| Shag Point & Shag River Estuary | Kaikorai Estuary |
| Stony Creek Estuary | Brighton |
| Pleasant River Estuary | Akatore Creek Estuary |
| Hawksbury Inlet | Tokomairiro Estuary |
| Waikouaiti River Estuary | Wangaloa |
| Karitane Headland | Clutha River Mata-au, Matau Branch |
| Puketeraki | Nugget Point |
| Blueskin Bay | Surat Bay |
| Orokonui Inlet | Catlins Lake Estuary |
| Mapoutahi | Jacks Bay |
| Purakanui Inlet | Waiheke Beach |
| Aramoana | Tahakopa Estuary |
| Otago Harbour Historic Walls | Oyster Bay |
| Otakou & Taiaroa Head | Tautuku Estuary |
| Pipikaretu Point | Waipati Estuary & Kinakina Island |

### CE–M3 – *Regional plans*

Otago Regional Council must prepare or amend and maintain its *regional plans* no later than 31 December 2028 to:

(1) map areas of deteriorated *water* quality in the coastal environment*,* in accordance with CE–P2(2) and CE–P2(3),

(2) map the areas and characteristics of, and access to, nationally and regionally significant *surf breaks*,

(3) require development to be set back from the *coastal marine area* where practicable to protect the natural character, open space, public access and *amenity values* of the coastal environment,

(4) manage the *discharge* of *contaminants* into *coastal water* by:

  (a) only enabling the use of small *mixing zones* before the *water* quality standards need to be met in the *receiving environment* and minimising adverse *effects* on the life-supporting capacity of *water* within any mixing zone,

  (b) prohibiting the *discharge* of untreated human *sewage* directly to water in the coastal environment,

  (c) prohibiting the *discharge* of treated human *sewage* directly to water in the coastal environment unless:

    (i) there has been adequate consideration of alternative methods, sites and routes for undertaking the *discharge*, and

    (ii) it can be demonstrated that the proposal has been informed by consultation with *tangata whenua* and the affected community, and

  (d) reducing the *discharge* of sediment by:

    (i) requiring that *subdivision*, use, or development will not increase sedimentation of the *coastal marine area* or other *coastal water*,

    (ii) controlling the impacts of vegetation removal on sedimentation including the impacts of harvesting *plantation forestry*, and

    (iii) reducing sediment loadings in runoff and in *stormwater* systems through controls on *land* use activities, and

  (e) avoiding cross-contamination between *sewage* and *stormwater* systems where new systems are proposed and remedy cross-contamination where they currently exist in established systems, and

  (f) having particular regard to:

    (i) the sensitivity of the receiving environment,

    (ii) the nature of the *contaminants* to be *discharged*, the *contaminant* concentration thresholds not to be exceeded to achieve the required *water* quality in the receiving environment, and the risks if that concentration of *contaminants* is exceeded,

    (iii) the capacity of the receiving environment to assimilate the *contaminants*, and

(iv) avoiding significant adverse *effects* on ecosystems and habitats after reasonable mixing,

(5) control the use and development of the *coastal marine area*, in order to:

(a) preserve the natural character; natural landscapes, features, and seascapes; and indigenous *biodiversity* of the *coastal marine area* in accordance with CE–P4, CE–P5 and CE–P6, and

(b) manage Otago's nationally and regionally significant *surf breaks* in accordance with CE–P7,

(6) include provisions requiring the adoption of a precautionary approach to assessing the *effects* of activities in the coastal environment in accordance with IM–P15 where:

(a) there is scientific uncertainty, or

(b) there are potentially significant or irreversible adverse *effects*,

(7) identify areas appropriate for aquaculture and the forms and limits associated with providing for aquaculture that will enable achievement of objectives CE–O1 to CE–O5,

(8) provide for walking access to and along the *coastal marine area* in accordance with Policy 19 of the NZCPS,

(9) control vehicle access to and along the *coastal marine area* in accordance with Policy 20 of the NZCPS,

(10) manage reclamation activities in accordance with CE–P12, and when *reclamation* is considered suitable in accordance with CE–P12, have particular regard to the matters listed in Policy 10(2) and (3) of the NZCPS,

(11) require stock to be excluded from the *coastal marine area,* adjoining intertidal areas and other *water bodies* and riparian margins in the coastal environment, and

(12) provide for and encourage activities undertaken for the primary purpose of restoring natural character, features, landscapes, or seascapes in accordance with CE–P4 and CE–P6.

### CE–M4 – *District plans*

*Territorial authorities* must prepare or amend and maintain their *district plans* to:

(1) control the location, density and form of *subdivision* in the coastal environment (outside the *coastal marine area*),

(2) control the location, scale and form of *buildings* and *structures* in the coastal environment (outside the *coastal marine area*),

(3) control the location and scale of *earthworks* and vegetation planting, modification and removal in the coastal environment (outside the *coastal marine area*),

(4) require *resource consent* for uses of *land* on reclamations that have occurred after the date this RPS becomes operative,

(5) provide for the establishment of *esplanade reserves* and *esplanade strips*,

(6) include provisions requiring the adoption of a precautionary approach to assessing the *effects* of activities in the coastal environment in accordance with IM–P15 where:

(a) there is scientific uncertainty, or

(b) there are potentially significant or irreversible adverse *effects*,

(7) provide for walking access to the *coastal marine area* in accordance with Policy 19 of the NZCPS,

(8) control vehicle access to the *coastal marine area* in accordance with Policy 20 of the NZCPS,

(9) recognise *takata whenua* needs for *papakāika*, marae and associated developments within the coastal environment and make appropriate provision for them,

(10) provide access to nationally and regionally significant *surf breaks*, and

(11) provide for and encourage activities undertaken for the primary purpose of restoring natural character, features, or landscapes in accordance with CE–P4 and CE–P6.

### CE–M5 – Other incentives and mechanisms

*Local authorities* are encouraged to consider the use of other mechanisms or incentives to assist in achieving Policies CE–P2 to CE–P12, including:

(1) identifying areas and opportunities within the coastal environment for restoration or rehabilitation,

(2) identifying opportunities to enhance or restore public walking access in accordance with Policy 19(c) of the NZCPS,

(3) promoting the removal of abandoned or redundant structures that have no heritage, amenity or reuse value,

(4) funding assistance for restoration projects (for example, through Otago Regional Council's ECO Fund),

(5) development or design guidelines (for example, colour palettes for *structures* in the coastal environment),

(6) rating differentials for *land* that is protected due to its status as a high or outstanding natural character area,

(7) education and advice,

(8) research relevant to the *effects* of activities on:

(a) coastal network *infrastructure*,

(b) coastal values,

(c) coastal hazards,

(d) riparian vegetation cover or any *land* cover that contributes to supporting coastal values or mitigating coastal hazards, or

(e) areas particularly sensitive to *land* use changes,

(9) facilitating the restoration, rehabilitation or creation of coastal habitats, particularly when it:

(a) encourages the natural regeneration of indigenous species,

(b) buffers or links ecosystems, habitats and areas of significance that contribute to ecological corridors, or

(c) maintains or enhances the provision of indigenous ecosystem services, and

(10) bylaws controlling vehicle access to and along the *coastal marine area* in accordance with Policy 20 of the NZCPS.

## Explanation

### CE–E1 – Explanation

The provisions in this chapter recognise that the coastal environment is a finite resource with a range of values that need to be preserved. The policies within the chapter are designed to protect the coastal environment from inappropriate activities. The coastal environment is also recognised as dynamic and the policies, in association with others in the ORPS, seek to prevent increasing *risks* to life, *infrastructure* and property.

The policies in this chapter require the identification and management of a range of values within the coastal environment. They also set out a number of environmental bottom lines that give effect to the requirements of the NZCPS. Provided these environmental bottom lines are achieved, the chapter also acknowledges that there are a range of activities including port activities, aquaculture, and appropriately designed and located *subdivision*, use and development that can be undertaken within the coastal environment. The policies also provide specific direction on how activities in the coastal environment are to be undertaken. The balance of protective and enabling policies within this chapter are designed to implement the objectives by requiring that activities in the coastal environment are undertaken in a manner that preserves or restores the values of the coastal environment.

Kāi Tahu tūpuna had an extensive knowledge of the coastal environment and weather patterns, passed from generation to generation. This knowledge continues to be held by whānau and hapū and is regarded as a taoka. The seasonal lifestyle of Kāi Tahu led to their dependence on the resources of the coast. This enduring relationship with the coastal environment, arising from long whakapapa associations and the use of tikaka to guide resource management practices, is manifested in the rakatirataka and *kaitiakitaka* responsibilities that Kāi Tahu hold as *mana whenua*.

Some of the policies in the NZCPS are highly prescriptive and will be most effectively implemented through *regional* and *district plans.* In those cases, the policies in this RPS have included additional region-specific context where that is possible, but have not sought to restate the content of NZCPS policies with the expectation that those policies will be implemented by the *regional* and *district plans*.

In addition to the policies in this chapter, the values of the coastal environment are recognised and provided for in the following chapters of the ORPS where they provide direction on the management of the coastal environment or activities within the coastal environment:

- ECO – Ecosystems and indigenous biodiversity
- LF – Land and freshwater
- EIT – Energy, infrastructure and transport
- HCV – Historical and cultural values
- NFL – Natural features and landscapes
- HAZ – Hazards and risks

## Principal reasons

### CE–PR1 – Principal reasons

The coastal environment includes the *coastal marine area*, islands within the *coastal marine area* and the area landward of the line of mean high-water springs. The landward extent of the coastal environment is determined by the natural and physical elements, features and processes set out in Policy 1(2) of the NZCPS. The importance of the coastal environment is reflected in the statutory resource management framework, particularly as identified in sections 6 and 7 of the RMA 1991 and as set out in the NZCPS.

A number of activities occur within or affect the coastal environment including urban development, recreational activities, transport infrastructure, port activities, *infrastructure,* energy generation and transmission, food production and other farming activities, *plantation forestry*, rural industry and *mineral* extraction. These activities can be important contributors to the existing and future health and well-being of communities. However, poorly located or managed activities can have adverse *effects* that compromise the values of the coastal environment such as natural character, biophysical processes, *water* quality, *surf breaks*, indigenous *biodiversity* and natural landscapes.

The coastal environment is highly valued by Kāi Tahu *mana whenua*, with a number of areas in the coastal environment recognised in statutory acknowledgments in the NTCSA 1998. The marine environment is a moving force, a reminder of the power of Takaroa. The *coastal waters* and processes were integral to the way of life tūpuna enjoyed, and the coastal environment supports significant mahika kai/kaimoana resources and *wāhi tūpuna*. This environment was traditionally important for settlement and travel and continues to provide for settlement and mahika kai and fisheries resources. Kaimoana is essential to coastal iwi and hapū relationships with the *environment* and in particular as part of the tikaka of food gathering and as indicators of the health of coastal environments.

The *coastal waters* are a *receiving environment* for *freshwater*, gravels, sediment and *contaminants* from the terrestrial landscape - of particular concern are the significant *discharges* of sediments, transported by *rivers* and waterways, that have a smothering effect on the benthic systems of the coastal area, including the important kelp beds. The interconnection of the *land* and sea environments is central to the ki uta ki tai (‘mountains to the sea’) philosophy. This interconnection requires careful consideration in managing the *effects* of *land* use activities.

Other chapters of the Regional Policy Statement are also relevant for managing the coastal environment as land-based activities can have a significant *effect* on the health of the marine environment. Sediment, *contaminants* and litter that are carried by waterways or pipes into the sea affect *water* quality and the ecological health of the coastal environment.

Implementation of the provisions in this chapter will occur primarily through *regional* and *district plan* provisions, however *local authorities* may also choose to adopt additional non-regulatory methods to support the achievement of the objectives.

## Anticipated environmental results

| | |
|---|---|
| **CE–AER1** | The values of the coastal environment are not adversely affected or lost because of inappropriate uses of the *natural and physical resources* in the coastal environment. |
| **CE–AER2** | There is no reduction in the extent of identified areas of high and outstanding natural character in the coastal environment. |

| | |
|---|---|
| **CE–AER3** | Areas where natural character has been reduced or lost are restored. |
| **CE–AER4** | There is an improvement in the quality of *water* in areas identified as having deteriorated *water* quality. |
| **CE–AER5** | The quality of *coastal water* supports healthy coastal ecosystems and provides for contact recreation and customary uses. |
| **CE–AER6** | New building and development in the coastal environment is consistent with the character of the area and avoids or minimises *risks* from *natural hazards* to people and communities. |
| **CE–AER7** | The public have improved access to, along, and adjacent to the *coastal marine area.* |

# LF – *Land* and *freshwater*

## LF–WAI – *Te Mana o te Wai*

### Objectives

#### LF–WAI–O1 – *Te Mana o te Wai*

The mauri of Otago's *water bodies* and their health and well-being is protected, and restored where it is *degraded*, and the management of *land* and *water* recognises and reflects that:

(1) *water* is the foundation and source of all life – na te wai ko te hauora o ngā mea katoa,

(2) there is an integral kinship relationship between water and Kāi Tahu whānui, and this relationship endures through time, connecting past, present and future,

(3) each *water body* has a unique whakapapa and characteristics,

(4) *water* and *land* have a connectedness that supports and perpetuates life, and

(5) Kāi Tahu exercise rakatirataka, manaakitaka and their *kaitiakitaka* duty of care and attention over wai and all the life it supports.

### Policies

#### LF–WAI–P1 – Prioritisation

In all management of *fresh water* in Otago, prioritise:

(1) first, the health and well-being of *water bodies* and *freshwater* ecosystems, te hauora o te wai and te hauora o te taiao, and the exercise of *mana whenua* to uphold these,[47]

(2) second, the health and well-being needs of people, te hauora o te tangata; interacting with *water* through ingestion (such as *drinking water* and consuming harvested resources) and immersive activities (such as harvesting resources and bathing), and

(3) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

#### LF–WAI–P2 – Mana whakahaere

Recognise and give practical effect to Kāi Tahu rakatirataka in respect of *fresh water* by:

(1) facilitating partnership with, and the active involvement of, *mana whenua* in *freshwater* management and decision-making processes,

(2) sustaining the environmental, social, cultural and economic relationships of Kāi Tahu with *water bodies*,

[47] In matters of mana, the associated spiritual and cultural responsibilities connect natural resources and *mana whenua* in a kinship relationship that is reciprocal and stems from the time of creation.

(3) providing for a range of customary uses, including mahika kai, specific to each *water body*, and

(4) incorporating mātauraka into decision making, management and monitoring processes.

#### LF–WAI–P3 – Integrated management/ki uta ki tai

Manage the use of *fresh water* and *land* in accordance with tikaka and kawa, using an integrated approach that:

(1) recognises and sustains the connections and interactions between *water bodies* (large and small, surface and ground, fresh and coastal, permanently flowing, intermittent and ephemeral),

(2) sustains and, wherever possible, restores the connections and interactions between *land* and *water,* from the mountains to the sea,

(3) sustains and, wherever possible, restores the habitats of mahika kai and indigenous species, including taoka species associated with the *water body*,

(4) manages the *effects* of the use and development of *land* to maintain or enhance the health and well-being of *fresh water* and *coastal water*,

(5) encourages the coordination and sequencing of regional or urban growth to ensure it is sustainable,

(6) has regard to foreseeable *climate change risks*, and

(7) has regard to cumulative *effects* and the need to apply a precautionary approach where there is limited available information or uncertainty about potential adverse *effects*.

#### LF–WAI–P4 – Giving effect to *Te Mana o te Wai*

All persons exercising functions and powers under this RPS and all persons who use, develop or protect resources to which thisRPS applies must recognise that LF-WAI-O1, LF-WAI-P1, LF-WAI-P2 and LF-WAI-P3 are fundamental to upholding *Te Mana o te Wai*, and must be given effect to when making decisions affecting *fresh water,* including when interpreting and applying the provisions of the LF chapter.

### Methods

#### LF–WAI–M1 – *Mana whenua* involvement

Otago Regional Council must partner with Kāi Tahu in *freshwater* management by:

(1) implementing the actions in MW–M3 and MW–M4,

(2) actively identifying and pursuing opportunities for *mana whenua* to be involved in *freshwater* governance, including through use of available mechanisms such as transfers of functions (under section 33 of the RMA 1991) and supporting the establishment of *freshwater* mātaitai,

(3) implementing actions to foster the development of *mana whenua* capacity to contribute to the Council's decision-making processes, including resourcing,

(4) supporting *mana whenua* initiatives that contribute to maintaining or improving the health and well-being of *water bodies*, and

(5) providing relevant information to *mana whenua* for the purposes of (1), (2), (3) and (4).

#### LF–WAI–M2 – Other methods

In addition to method LF–WAI–M1, the methods in the LF–VM, LF–FW, and LF–LS sections are also applicable.

## Explanation

### LF–WAI–E1 – Explanation

Water is a central element in Kāi Tahu creation traditions. It was present very early in the whakapapa of the world: in the beginning there was total darkness, followed by the emergence of light and a great void of nothingness. In time Maku mated with Mahoronuiatea which resulted in great expanses of water, then Papatūanuku and Takaroa met and had children after which Takaroa took a long absence. Papatūanuku met Rakinui and they had many children who conspired to force their parents' coupled bodies apart to let the light in. They were also responsible for creating many of the elements that constitute our world today - the mountains, rivers, forests and seas, and all fish, bird and animal life. The whakapapa and spiritual source of *water* and *land* are connected, and *water bodies* are the central unifying feature that connects our landscapes together. The spiritual essence of *water* derives from the atua and the life it exudes is a reflection of the atua.

The whakapapa of *mana whenua* and water are also integrally connected. There is a close kinship relationship, and *mana whenua* and the wai cannot be separated. The tūpuna relationship with *water*, and the different uses made of the *water*, provide a daily reminder of greater powers – of both the atua and tūpuna. This relationship continues into the present and future and is central to the identity of Kāi Tahu. The mana of wai is sourced from the time of creation and the work of kā Atua, invoking a reciprocal relationship with *mana whenua* based in kawa, tikaka and respect for *water's* life-giving powers and its sanctity.

The kinship connection engenders a range of rights and responsibilities for *mana whenua*, including rakatirataka rights and the responsibility of *kaitiakitaka*. *Kaitiakitaka* encompasses a high duty to uphold and maintain the mauri of the wai. If the mauri is degraded it has an impact not only on the mana of the wai but also on the kinship relationship and on *mana whenua*. The mauri expresses mana and connection, which can only be defined by *mana whenua*. Recognising rakatirataka enables *mana whenua* to enjoy their rights over *water bodies* and fulfil their responsibilities to care for the wai and the communities it sustains.

The condition of *water* is seen as a reflection of the condition of the people - when the wai is healthy, so are the people. Kawa and tikaka have been developed over the generations, based on customs and values associated with the Māori world view that span the generations, recognising and honouring *Te Mana o te Wai* and upholding the mauri of the wai is consistent with this value base.

Each *water body* is unique. This is a reflection of its unique whakapapa and characteristics, and it means that each *water body* has different needs. Management and use must recognise and reflect this.

## Principal reasons

### LF–WAI–PR1 – Principal reasons

In accordance with the NPSFM, councils are required to implement a framework for managing *freshwater* that gives effect to *Te Mana o te Wai*. This places the mauri (life-force) of the *water* at the forefront of decision making, recognising te hauora o te wai (the health of the *water*) is the first priority, and supports te hauora o te taiao (the health of the environment) and te hauora o te takata (the health of the people). It is only after the health of the *water* is sustained that *water* can be used for economic purposes. Giving

effect to *Te Mana o te Wai* requires actively involving *takata whenua* in *freshwater* planning and management.

The NZCPS also recognises the interconnectedness of *land* and *water*. It notes inland activities can have a significant impact on *coastal water* quality which, in many areas around New Zealand, is in decline. This is a consequence of point and diffuse sources of contamination which can have environmental, social, cultural and economic implications. For example, poor *water* quality adversely effects aquatic life and opportunities for mahika kai gathering and recreational uses such as swimming and kayaking.

### Anticipated environmental results

**LF–WAI–AER1** Kāi Tahu are actively involved in the management of *fresh water* and able to effectively exercise their rakatirataka, manaakitaka and *kaitiakitaka*.

**LF–WAI–AER2** The mauri of Otago's *water bodies* and their health and well-being is protected.

## LF-VM – Visions and management

### Objectives

#### LF–VM–O2 – Clutha Mata-au *FMU* vision

In the Clutha Mata-au *FMU*:

(1) management of the *FMU* recognises that:

  (a) the Clutha Mata-au is a single connected system ki uta ki tai, and

  (b) the source of the wai is pure, coming directly from Tawhirimatea to the top of the mauka and into the awa,

(2) *fresh water* is managed in accordance with the LF–WAI objectives and policies,

(3) the ongoing relationship of Kāi Tahu with *wāhi tūpuna* is sustained,

(4) *water bodies* support thriving mahika kai and Kāi Tahu whānui have access to mahika kai,

(5) indigenous species migrate easily and as naturally as possible along and within the *river* system,

(6) the national significance of the Clutha hydro-electricity generation scheme is recognised,

(7) in addition to (1) to (6) above:

  (a) in the Upper Lakes rohe, the high quality *waters* of the *lakes* and their tributaries are protected, recognising the significance of the purity of these *waters* to Kāi Tahu and to the wider community,

  (b) in the Dunstan, Manuherekia and Roxburgh rohe:

    (i) flows in *water bodies* sustain and, wherever possible, restore the natural form and function of main stems and tributaries to support Kāi Tahu values and practices, and

    (ii) innovative and sustainable *land* and *water* management practices support food production in the area and reduce discharges of nutrients and other *contaminants* to *water bodies* so that they are safe for human contact, and

(iii) sustainable abstraction occurs from main stems or *groundwater* in preference to tributaries,

(c) in the Lower Clutha rohe:

(i) there is no further modification of the shape and behaviour of the *water bodies* and opportunities to restore the natural form and function of *water bodies* are promoted wherever possible,

(ii) the ecosystem connections between *freshwater*, *wetlands* and the coastal environment are preserved and, wherever possible, restored,

(iii) *land* management practices reduce discharges of nutrients and other *contaminants* to *water bodies* so that they are safe for human contact, and

(iv) there are no direct *discharges* of *wastewater* to *water bodies*, and

(8) the outcomes sought in (7) are to be achieved within the following timeframes:

(a) by 2030 in the Upper Lakes rohe,

(b) by 2045 in the Dunstan, Roxburgh and Lower Clutha rohe, and

(c) by 2050 in the Manuherekia rohe.

**LF–VM–O3 – North Otago *FMU* vision**

By 2050 in the North Otago *FMU*:

(1) *fresh water* is managed in accordance with the LF–WAI objectives and policies, while recognising that the Waitaki River is influenced in part by catchment areas within the Canterbury region,

(2) the ongoing relationship of Kāi Tahu with *wāhi tūpuna* is sustained and Kāi Tahu maintain their connection with and use of the *water bodies*,

(3) healthy riparian margins, *wetlands*, estuaries and lagoons support thriving mahika kai, indigenous habitats and downstream coastal ecosystems,

(4) indigenous species can migrate easily and as naturally as possible to and from the coastal environment,

(5) *land* management practices reduce *discharges* of nutrients and other *contaminants* to *water bodies* so that they are safe for human contact, and

(6) innovative and sustainable *land* and *water* management practices support food production in the area and improve resilience to the *effects* of *climate change*.

**LF–VM–O4 – Taieri *FMU* vision**

By 2050 in the Taieri *FMU*:

(1) *fresh water* is managed in accordance with the LF–WAI objectives and policies,

(2) the ongoing relationship of Kāi Tahu with *wāhi tūpuna* is sustained,

(3) healthy *wetlands* are restored in the upper and lower catchment *wetland* complexes, including the Waipori/Waihola Wetlands, Tunaheketaka/Lake Taieri, scroll plain, and tussock areas,

(4) the gravel *bed* of the lower Taieri is restored and sedimentation of the Waipori/Waihola complex is reduced,

(5) creative ecological approaches contribute to reduced occurrence of didymo,

(6) *water bodies* support healthy populations of *galaxiid* species,

(7) there are no direct *discharges* of *wastewater* to *water bodies*, and

(8) innovative and sustainable *land* and *water* management practices support food production in the area and improve resilience to the *effects* of *climate change*.

**LF–VM–O5 – Dunedin & Coast *FMU* vision**

By 2040 in the Dunedin & Coast *FMU*:

(1) *fresh water* is managed in accordance with the LF-WAI objectives and policies,

(2) the ongoing relationship of Kāi Tahu with *wāhi tūpuna* is sustained,

(3) healthy estuaries, lagoons and *coastal waters* support thriving mahika kai and downstream coastal ecosystems, and indigenous species can migrate easily and as naturally as possible to and from these areas,

(4) there is no further modification of the shape and behaviour of the *water bodies* and opportunities to restore the natural form and function of *water bodies* are promoted wherever possible, and

(5) *discharges* of *contaminants* from urban environments are reduced so that *water bodies* are safe for human contact.

**LF–VM–O6 – Catlins *FMU* vision**

By 2030 in the Catlins *FMU*:

(1) *fresh water* is managed in accordance with the LF-WAI objectives and policies,

(2) the ongoing relationship of Kāi Tahu with *wāhi tūpuna* is sustained,

(3) *water bodies* support thriving mahika kai and access of Kāi Tahu whānui to mahika kai,

(4) the high degree of naturalness and ecosystem connections between the forests, *freshwater* and coastal environment are preserved,

(5) *water bodies* and their catchment areas support the health and well-being of *coastal water*, ecosystems and indigenous species, including downstream kaimoana, and

(6) healthy, clear and clean *water* supports opportunities for recreation and sustainable food production for future generations.

**LF–VM–O7 – Integrated management**

*Land* and *water* management apply the ethic of ki uta ki tai and are managed as integrated natural resources, recognising the connections and interactions between *fresh water*, *land* and the coastal environment, and between surface water, *groundwater* and *coastal water*.

## Policies

### LF–VM–P5 – *Freshwater Management Units* (*FMU*s) and rohe

Otago's *fresh water* resources are managed through the following *freshwater management units* or rohe which are shown on MAP1:

*Table 3 – Freshwater Management Units and rohe*

| ***Freshwater Management Unit*** | **Rohe** |
|---|---|
| Clutha Mata-au | Upper Lakes<br>Dunstan<br>Manuherekia<br>Roxburgh<br>Lower Clutha |
| Taieri | n/a |
| North Otago | n/a |
| Dunedin & Coast | n/a |
| Catlins | n/a |

### LF–VM–P6 – Relationship between *FMUs* and rohe

Where rohe have been defined within *FMUs*:

(1) *environmental outcomes* must be developed for the *FMU* within which the rohe is located,

(2) if additional *environmental outcomes* are included for rohe, those *environmental outcomes*:

  (a) set target *attribute* states that are no less stringent than the parent *FMU environmental outcomes* if the same *attributes* are adopted in both the rohe and the *FMU*, and

  (b) may include additional *attributes* and target *attribute* states provided that any additional *environmental outcomes* give effect to the *environmental outcomes* for the *FMU*,

(3) *limits* and action plans to achieve *environmental outcomes* may be developed for the *FMU* or the rohe or a combination of both,

(4) any *limit* or action plan developed to apply within a rohe:

  (a) prevails over any *limit* or action plan developed for the *FMU* for the same *attribute*, unless explicitly stated to the contrary, and

  (b) must be no less stringent than any *limit* set for the parent *FMU* for the same *attribute*, and

  (c) must not conflict with any *limit* set for the underlying *FMU* for *attributes* that are not the same, and

(5) the term "no less stringent" in this policy applies to *attribute states* (numeric and narrative) and any other metrics and timeframes (if applicable).

## Methods

### LF–VM–M3 – Community involvement

Otago Regional Council must work with communities to achieve the objectives and policies in this chapter, including by:

(1) engaging with communities to identify *environmental outcomes* for Otago's *FMUs* and rohe and the methods to achieve those outcomes,

(2) encouraging community stewardship of *water* resources and programmes to address *freshwater* issues at a local catchment level,

(3) supporting community initiatives that contribute to maintaining or improving the health and well-being of *water bodies*, and

(4) supporting industry-led guidelines, codes of practice and environmental accords where these would contribute to achieving the objectives of this RPS.

#### LF–VM–M4 – Other methods

In addition to method LF–VM–M3, the methods in the LF–WAI, LF–FW, and LF–LS sections are also applicable.

## Explanation

#### LF–VM–E2 – Explanation

Implementing the NPSFM requires Council to identify *Freshwater Management Units* (*FMUs*) that include all *freshwater bodies* within the region. Policy LF–VM–P5 identifies Otago's five *FMUs*: Clutha Mata-au *FMU*, Taieri *FMU*, North Otago *FMU*, Dunedin & Coast *FMU* and Catlins *FMU*. The Clutha Mata-au *FMU* is divided into five sub-*FMUs* known as 'rohe'. Policy LF–VM–P6 sets out the relationship between *FMUs* and rohe which, broadly, requires rohe provisions to be no less stringent than the parent *FMU* provisions. This is to avoid any potential for rohe to set lower standards than others which would affect the ability of the *FMU* to achieve its stated outcomes.

## Principal reasons

#### LF–VM–PR2 – Principal reasons

To support the implementation of the NPSFM, the Council is required to develop long-term visions for *fresh water* across the Otago region. *Fresh water* visions for each *FMU* and rohe have been developed through engagement with Kāi Tahu and communities. They set out the long-term goals for the *water bodies* (including *groundwater*) and *fresh water* ecosystems in the region that reflect the history of, and environmental pressures on, the *FMU* or rohe. They also establish ambitious but reasonable timeframes for achieving these goals. The Council must assess whether each *FMU* or rohe can provide for its long-term vision, or whether improvement to the health and well-being of *water bodies* (including *groundwater*) and *fresh water* ecosystems is required to achieve the visions. The result of that assessment will then inform the development of *regional plan* provisions in the *FMU*, including *environmental outcomes, attribute* states, target *attribute* states and *limits.*

## Anticipated environmental outcomes

**LF–VM–AER3** The *fresh water* visions in this section underpin Otago's planning framework and the outcomes they seek are achieved within the timeframes specified.

# LF–FW – *Fresh water*

## Objectives

### LF–FW–O8 – *Fresh water*

In Otago's *water bodies* and their catchments:

(1) the health of the wai supports the health of the people and thriving mahika kai,

(2) *water* flow is continuous throughout the whole system,

(3) the interconnection of *fresh water* (including *groundwater*) and *coastal waters* is recognised,

(4) native fish can migrate easily and as naturally as possible and taoka species and their habitats are protected, and

(5) the significant and outstanding values of Otago's *outstanding water bodies* are identified and protected.

### LF–FW–O9 – *Natural wetlands*

Otago's *natural wetlands* are protected or restored so that:

(1) mahika kai and other *mana whenua* values are sustained and enhanced now and for future generations,

(2) there is no decrease in the range and diversity of indigenous ecosystem types and habitats in *natural wetlands*,

(3) there is no reduction in their ecosystem health, hydrological functioning, *amenity values*, extent or *water* quality, and if degraded they are improved, and

(4) their flood attenuation capacity is maintained.

### LF–FW–O10 – Natural character

The natural character of *wetlands, lakes* and *rivers* and their margins is preserved and protected from inappropriate subdivision, use and development.

## Policies

### LF–FW–P7 – *Fresh water*

*Environmental outcomes, attribute* states (including target *attribute* states) and limits ensure that:

(1) the health and well-being of *water bodies* is maintained or, if *degraded,* improved,

(2) the habitats of indigenous species associated with *water bodies* are protected, including by providing for fish passage,

(3) *specified rivers and lakes* are suitable for primary contact within the following timeframes:

  (a) by 2030, 90% of *rivers* and 98% of *lakes*, and

  (b) by 2040, 95% of *rivers* and 100% of *lakes*, and

(4) mahika kai and *drinking water* are safe for human consumption,

(5) existing *over-allocation* is phased out and future *over-allocation* is avoided, and

(6) *fresh water* is allocated within environmental limits and used efficiently.

**LF–FW–P8 – Identifying *natural wetlands***

Identify and map *natural wetlands* that are:

(1) 0.05 hectares or greater in extent, or

(2) of a type that is naturally less than 0.05 hectares in extent (such as an ephemeral *wetland*) and known to contain threatened species.

**LF–FW–P9 – Protecting *natural wetlands***

Protect *natural wetlands* by:

(1) avoiding a reduction in their values or extent unless:

  (a) the *loss of values* or extent arises from:

    (i) the customary harvest of food or resources undertaken in accordance with tikaka Māori,

    (ii) restoration activities,

    (iii) scientific research,

    (iv) the sustainable harvest of sphagnum moss,

    (v) the construction or maintenance of *wetland utility structures*,

    (vi) the maintenance of operation of *specific infrastructure*, or *other infrastructure*,

    (vii) *natural hazard works*, or

  (b) the Regional Council is satisfied that:

    (i) the activity is necessary for the construction or upgrade of *specified infrastructure*,

    (ii) the *specified infrastructure* will provide significant national or regional benefits,

    (iii) there is a *functional need* for the *specified infrastructure* in that location,

    (iv) the *effects* of the activity on indigenous *biodiversity* are managed by applying either ECO–P3 or ECO–P6 (whichever is applicable), and

    (v) the other *effects* of the activity (excluding those managed under (1)(b)(iv)) are managed by applying the *effects management hierarchy,* and

(2) not granting resource consents for activities under (1)(b) unless the Regional Council is satisfied that:

  (a) the application demonstrates how each step of the *effects management hierarchies* in (1)(b)(iv) and (1)(b)(v) will be applied to the *loss of values* or extent of the *natural wetland*, and

(b) any consent is granted subject to conditions that apply the *effects management hierarchies* in (1)(b)(iv) and (1)(b)(v).

### LF–FW–P10 – Restoring *natural wetlands*

Improve the ecosystem health, hydrological functioning, *water* quality and extent of *natural wetlands* that have been degraded or lost by requiring, where possible:

(1) an increase in the extent and quality of habitat for indigenous species,

(2) the restoration of hydrological processes,

(3) control of pest species and vegetation clearance, and

(4) the exclusion of stock.

### LF–FW–P11 – Identifying *outstanding water bodies*

Otago's *outstanding water bodies* are:

(1) the Kawarau River and tributaries described in the Water Conservation (Kawarau) Order 1997,

(2) Lake Wanaka and the outflow and tributaries described in the Lake Wanaka Preservation Act 1973,

(3) any *water bodies* identified as being wholly or partly within an outstanding natural feature or landscape in accordance with NFL–P1, and

(4) any other *water bodies* identified in accordance with APP1.

### LF–FW–P12 – Protecting *outstanding water bodies*

The significant and outstanding values of *outstanding water bodies* are:

(1) identified in the relevant *regional* and *district plans*, and

(2) protected by avoiding adverse *effects* on those values.

### LF–FW–P13 – Preserving natural character

Preserve the natural character of *lakes* and *rivers* and their *beds* and margins by:

(1) avoiding the *loss of values* or extent of a *river*, unless:

(a) there is a *functional need* for the activity in that location, and

(b) the *effects* of the activity are managed by applying:

(i) for *effects* on indigenous *biodiversity*, either ECO-P3 or ECO-P6 (whichever is applicable), and

(ii) for other *effects*, the *effects management hierarchy,*

(2) not granting resource consent for activities in (1) unless Otago Regional Council is satisfied that:

(a) the application demonstrates how each step of the *effects management hierarchies* in (1)(b) will be applied to the *loss of values* or extent of the *river*, and

(b) any consent is granted subject to conditions that apply the *effects management hierarchies* in (1)(b),

(3) establishing environmental flow and level regimes and *water* quality standards that support the health and well-being of the *water body,*

(4) wherever possible, sustaining the form and function of a *water body* that reflects its natural behaviours,

(5) recognising and implementing the restrictions in Water Conservation Orders,

(6) preventing the impounding or control of the level of Lake Wanaka,

(7) preventing modification that would reduce the braided character of a *river*, and

(8) controlling the use of *water* and *land* that would adversely affect the natural character of the *water body.*

**LF–FW–P14 – Restoring natural character**

Where the natural character of *lakes* and *rivers* and their margins has been reduced or lost, promote actions that:

(1) restore a form and function that reflect the natural behaviours of the *water body*,

(2) improve *water* quality or quantity where it is *degraded*,

(3) increase the presence, *resilience* and abundance of indigenous flora and fauna, including by providing for fish passage within *river* systems,

(4) improve *water body* margins by naturalising bank contours and establishing indigenous vegetation and habitat, and

(5) restore *water* pathways and natural connectivity between *water* systems.

**LF–FW–P15 – *Stormwater* and *wastewater discharges***

Minimise the adverse *effects* of direct and indirect *discharges* of *stormwater* and *wastewater* to *fresh water* by:

(1) except as required by LF–VM–O2 and LF–VM–O4, preferring *discharges* of *wastewater* to *land* over *discharges* to *water,* unless adverse *effects* associated with a *discharge* to *land* are greater than a *discharge* to *water*, and

(2) requiring:

  (a) all sewage, industrial or trade waste to be *discharged* into a reticulated *wastewater* system, where one is available,

  (b) all *stormwater* to be *discharged* into a reticulated system, where one is available,

  (c) implementation of methods to progressively reduce the frequency and volume of wet weather overflows and minimise the likelihood of dry weather overflows occurring for reticulated *stormwater* and *wastewater* systems,

  (d) on-site *wastewater* systems to be designed and operated in accordance with best practice standards,

  (e) *stormwater* and *wastewater discharges* to meet any applicable water quality standards set for *FMUs* and/or rohe, and

(f) the use of water sensitive urban design techniques to avoid or mitigate the potential adverse *effects* of *contaminants* on receiving *water bodies* from the *subdivision,* use or development of *land,* wherever practicable, and

(3) promoting the reticulation of *stormwater* and *wastewater* in urban areas.

## Methods

### LF–FW–M5 – *Outstanding water bodies*

No later than 31 December 2023, Otago Regional Council must:

(1) in partnership with Kāi Tahu, undertake a review based on existing information and develop a list of *water bodies* likely to contain outstanding values, including those *water bodies* listed in LF-VM-P6,

(2) identify the outstanding values of those *water bodies* (if any) in accordance with APP1,

(3) consult with the public during the identification process,

(4) map *outstanding water bodies* and identify their outstanding and significant values in the relevant *regional plan(s),* and

(5) include provisions in *regional plans* to avoid the adverse *effects* of activities on the significant and outstanding values of *outstanding water bodies*.

### LF–FW–M6 – *Regional plans*

Otago Regional Council must publicly notify a Land and Water *Regional Plan* no later than 31 December 2023 and, after it is made operative, maintain that *regional plan* to:

(1) identify the compulsory and, if relevant, other values for each *Freshwater Management Unit*,

(2) state *environmental outcomes* as objectives in accordance with clause 3.9 of the NPSFM,

(3) identify *water bodies* that are *over-allocated* in terms of either their *water* quality or quantity,

(4) include environmental flow and level regimes for *water bodies* (including *groundwater*) that give effect to *Te Mana o te Wai* and provide for:

(a) the behaviours of the *water body* including a base flow or level that provides for variability,

(b) healthy and resilient mahika kai,

(c) the needs of indigenous fauna, including taoka species, and aquatic species associated with the *water body*,

(d) the hydrological connection with other *water bodies*, estuaries and coastal margins,

(e) the traditional and contemporary relationship of Kāi Tahu to the *water body*, and

(f) community *drinking water* supplies, and

(5) include limits on resource use that:

(a) differentiate between types of uses, including *drinking water*, and social, cultural and economic uses, in order to provide long-term certainty in relation to those uses of available *water*,

(b) for *water bodies* that have been identified as *over-allocated*, provide methods and timeframes for phasing out that *over-allocation*,

(c) control the *effects* of existing and potential future development on the ability of the *water body* to meet, or continue to meet, *environmental outcomes*,

(d) manage the adverse *effects* on *water bodies* that can arise from the use and development of *land*, and

(6) provide for the off-stream storage of surface *water* where storage will:

(a) support *Te Mana o te Wai*,

(b) give effect to the objectives and policies of the LF chapter of this RPS, and

(c) not prevent a surface *water body* from achieving identified *environmental outcomes* and remaining within any limits on resource use, and

(7) identify and manage *natural wetlands* in accordance with LF–FW–P7, LF–FW–P8 and LF–FW–P9 while recognising that some activities in and around *natural wetlands* are managed under the NESF, and

(8) manage the adverse *effects* of *stormwater* and *wastewater* in accordance with LF–FW–P15.

**LF–FW–M7 – *District plans***

*Territorial authorities* must prepare or amend and maintain their *district plans* no later than 31 December 2026 to:

(1) map *outstanding water bodies* and identify their outstanding and significant values using the information gathered by Otago Regional Council in LF–FW–M5, and

(2) include provisions to avoid the adverse *effects* of activities on the significant and outstanding values of *outstanding water bodies*,

(3) require, wherever practicable, the adoption of water sensitive urban design techniques when managing the *subdivision,* use or development of *land*, and

(4) reduce the adverse *effects* of *stormwater discharges* by managing the *subdivision,* use and development of *land* to:

(a) minimise the peak volume of *stormwater* needing off-site disposal and the load of *contaminants* carried by it,

(b) minimise adverse *effects* on *fresh water* and *coastal water* as the ultimate receiving environments, and the capacity of the *stormwater* network,

(c) encourage on-site storage of rainfall to detain peak *stormwater* flows, and

(d) promote the use of permeable surfaces.

**LF–FW–M8 – Action plans**

Otago Regional Council:

(1) must prepare an action plan for achieving any target *attribute* states for *attributes* described in Appendix 2B of the NPSFM,

(2) may prepare an action plan for achieving any target *attribute* states for *attributes* described in Appendix 2A of the NPSFM, and

(3) must prepare any action plan in accordance with clause 3.15 of the NPSFM.

#### LF–FW–M9 – Monitoring

Otago Regional Council, for every *FMU*, must:

(1) establish a long-term monitoring programme that incorporates cultural health monitoring,

(2) record information (including monitoring data) about the state of *water bodies* and *freshwater* ecosystems and the challenges to their health and well-being, and

(3) regularly prepare reports on the matters in (1) and (2) and publish those reports.

#### LF–FW–M10 – Other methods

In addition to methods LF–FW–M5 to LF–FW–M9, the methods in the LF–WAI, LF–VM and LF–LS sections are also applicable.

### Explanation

#### LF–FW–E3 – Explanation

This section of the LF chapter outlines how the Council will manage *fresh water* within the region. To give effect to *Te Mana o te Wai*, the *freshwater* visions, and the policies set out the actions required in the development of *regional plan* provisions to implement the NPSFM.

The outcomes sought for *natural wetlands* are implemented by requiring identification, protection and restoration. The first two policies reflect the requirements of the NPSFM for identification and protection but apply that direction to all *natural wetlands*, rather than only inland natural wetlands (those outside the *coastal marine area*) as the NPSFM directs. This reflects the views of *takata whenua* and the community that *fresh* and *coastal water*, including *wetlands*, should be managed holistically and in a consistent way. While the NPSFM requires promotion of the restoration of natural inland wetlands, the policies in this section take a stronger stance, requiring improvement where *natural wetlands* have been *degraded* or lost. This is because of the importance of restoration to Kāi Tahu and in recognition of the historic loss of *wetlands* in Otago.

The policies respond to the NPSFM by identifying a number of *outstanding water bodies* in Otago that have previously been identified for their significance through other processes. Additional *water bodies* can be identified if they are wholly or partly within an outstanding natural feature or landscape or if they meet the criteria in APP1 which lists the types of values which may be considered outstanding: cultural and spiritual, ecology, landscape, natural character, recreation and physical. The significant values of *outstanding water bodies* are to be identified and protected from adverse *effects*.

Preserving the natural character of *lakes* and *rivers*, and their *beds* and margins, is a matter of national importance under section 6 of the RMA 1991. The policies in this section set out how this is to occur in Otago, reflecting the relevant direction from the NPSFM but also a range of additional matters that are important in Otago, such as recognising existing Water Conservation Orders, the Lake Wanaka Act 1973 and the particular character of braided *rivers*. Natural character has been reduced or lost in some *lakes* or *rivers*, so the policies require promoting actions that will restore or otherwise improve natural character.

The impact of *discharges* of *stormwater* and *wastewater* on *freshwater bodies* is a significant issue for *mana whenua* and has contributed to *water* quality issues in some *water bodies*. The policies set out a range of actions to be implemented in order to improve the quality of these *discharges* and reduce their adverse *effects* on receiving environments.

## Principal reasons

### LF–FW–PR3 – Principal reasons

Otago's *water bodies* are significant features of the region and play an important role in Kāi Tahu beliefs and traditions. A growing population combined with increased *land* use intensification has heightened demand for *water,* and increasing nutrient and sediment contamination impacts *water* quality. The legacy of Otago's historical mining privileges, coupled with contemporary *land* uses, contribute to ongoing *water* quality and quantity issues in some *water bodies*, with significant cultural effects.

This section of the LF chapter contains more specific direction on managing *fresh water* to give effect to *Te Mana o te Wai* and contributes to achieving the long-term *freshwater* visions for each *FMU* and rohe. It also reflects key direction in the NPSFM for managing the health and well-being of *fresh water*, including *wetlands* and *rivers* in particular, and matters of national importance under section 6 of the RMA 1991. The provisions in this section will underpin the development of the Council's *regional plans* and provide a foundation for implementing the requirements of the NPSFM, including the development of *environmental outcomes*, *attribute* states, target *attribute* states and limits.

## Anticipated environmental results

**LF–FW–AER4** *Fresh water* is allocated within limits that contribute to achieving specified *environmental outcomes* for *water bodies* within timeframes set out in *regional plans* that are no less stringent than the timeframes in the LF–VM section of this chapter.

**LF–FW–AER5** *Specified rivers* and *lakes* are suitable for primary contact within the timeframes set out in LF–FW–P7.

**LF–FW–AER6** *Degraded water* quality is improved so that it meets specified *environmental outcomes* within timeframes set out in *regional plans* that are no less stringent than the timeframes in the LF–VM section of this chapter.

**LF–FW–AER7** *Water* in Otago's aquifers is suitable for human consumption, unless that *water* is naturally unsuitable for consumption.

**LF–FW–AER8** Where *water* is not *degraded*, there is no reduction in *water* quality.

**LF–FW–AER9** The frequency of *wastewater* overflows is reduced.

**LF–FW–AER10** The quality of *stormwater discharges* from existing *urban areas* is improved.

**LF–FW–AER11** There is no reduction in the extent or quality of Otago's *natural wetlands*.

# LF–LS – *Land* and soil

## Objectives

### LF–LS–O11 – *Land* and soil

The life-supporting capacity of Otago's soil resources is safeguarded and the availability and productive capacity of highly productive land for *primary production* is maintained now and for future generations.

### LF–LS–O12 – Use of *land*

The use of *land* in Otago maintains soil quality and contributes to achieving *environmental outcomes* for *fresh water*.

## Policies

### LF–LS–P16 – Integrated management

Recognise that maintaining soil quality requires the integrated management of *land* and *freshwater* resources including the interconnections between soil health, vegetative cover and *water* quality and quantity.

### LF–LS–P17 – Soil values

Maintain the mauri, health and productive potential of soils by managing the use and development of *land* in a way that is suited to the natural soil characteristics and that sustains healthy:

(1) soil biological activity and *biodiversity*,

(2) soil structure, and

(3) soil fertility.

### LF–LS–P18 – Soil erosion

Minimise soil erosion, and the associated risk of sedimentation in water bodies, resulting from *land* use activities by:

(1) implementing effective management practices to retain topsoil in-situ and minimise the potential for soil to be *discharged* to *water bodies*, including by controlling the timing, duration, scale and location of soil exposure,

(2) maintaining vegetative cover on erosion-prone *land*, and

(3) promoting activities that enhance soil retention.

### LF–LS–P19 – Highly productive *land*

Maintain the availability and productive capacity of highly productive *land* by:

(1) identifying highly productive *land* based on the following criteria:

  (a) the capability and versatility of the *land* to support primary production based on the Land Use Capability classification system,

  (b) the suitability of the climate for primary production, particularly crop production, and

(c) the size and cohesiveness of the area of *land* for use for primary production, and

(2) prioritising the use of highly productive *land* for primary production ahead of other *land* uses, and

(3) managing urban development in rural areas, including rural lifestyle and rural residential areas, in accordance with UFD–P4, UFD–P7 and UFD–P8.

#### LF–LS–P20 – *Land* use change

Promote changes in *land* use or *land* management practices that improve:

(1) the sustainability and efficiency of *water* use,

(2) resilience to the impacts of *climate change,* or

(3) the health and quality of soil.

#### LF–LS–P21 – *Land* use and *fresh water*

Achieve the improvement or maintenance of *fresh water* quantity or quality to meet *environmental outcomes* set for *Freshwater Management Units* and/or rohe by:

(1) reducing direct and indirect *discharges* of *contaminants* to *water* from the use and development of *land*, and

(2) managing *land* uses that may have adverse *effects* on the flow of *water* in surface *water bodies* or the recharge of *groundwater.*

#### LF–LS–P22 – Public access

Provide for public access to and along *lakes* and *rivers* by:

(1) maintaining existing public access,

(2) seeking opportunities to enhance public access, including by *mana whenua* in their role as kaitiaki and for gathering of mahika kai, and

(3) encouraging landowners to only restrict access where it is necessary to protect:

(a) public health and safety,

(b) *significant natural areas*,

(c) areas of outstanding natural character,

(d) outstanding natural features and landscapes,

(e) places or areas with special or outstanding *historic heritage* values, or

(f) places or areas of significance to *takata whenua*, including wāhi tapu and wāhi tūpuna.

### Methods

#### LF–LS–M11 – *Regional plans*

Otago Regional Council must publicly notify a Land and Water *Regional Plan* no later than 31 December 2023 and then, when it is made operative, maintain that *regional plan* to:

(1) manage *land* uses that may affect the ability of *environmental outcomes* for *water* quality to be achieved by requiring:

(a) the development and implementation of *certified freshwater farm plans* as required by the RMA and any regulations,

(b) the adoption of practices that reduce the *risk* of sediment and nutrient loss to *water*, including by minimising the area and duration of exposed soil, using buffers, and actively managing critical source areas,

(c) effective management of effluent storage and applications systems, and

(d) *earthworks* activities to implement effective sediment and erosion control practices and setbacks from *water bodies* to reduce the *risk* of sediment loss to *water*, and

(2) provide for changes in *land* use that improve the sustainable and efficient allocation and use of *fresh water*, and

(3) implement policies LF–LS–P16 to LF–LF–P22.

**LF–LS–M12 – *District plans***

*Territorial authorities* must prepare or amend and maintain their *district plans* no later than 31 December 2026 to:

(1) manage *land* use change by:

(a) controlling the establishment of new or any spatial extension of existing *plantation forestry activities* where necessary to give effect to an objective developed under the NPSFM, and

(b) minimising the removal of tall tussock grasslands, and

(2) provide for and encourage the creation and enhancement of vegetated riparian margins and constructed *wetlands*, and maintain these where they already exist, and

(3) facilitate public access to *lakes* and *rivers* by:

(a) requiring the establishment of *esplanade reserves* and *esplanade strips*, and

(b) promoting the use of legal *roads*, including paper *roads*, that connect with *esplanade reserves* and *esplanade strips*.

**LF–LS–M13 – Management of *beds* and riparian margins**

*Local authorities* must prepare or amend and maintain their *regional* and *district plans* to manage the condition of the *bed* and banks of *water bodies*, riparian margins and associated *lands*, including vegetative cover, to:

(1) maintain existing *biodiversity* values,

(2) increase the presence, resilience and abundance of indigenous flora and fauna, particularly taoka species, including by providing for *biodiversity* corridors within *river* systems, and requiring riparian buffers that are sufficient to maintain indigenous *biodiversity*,

(3) support improvement in the functioning of catchment processes where these have been adversely affected by changes in margins and connected *lands* over time, and

(4) reduce unnatural sedimentation of *water bodies*.

#### LF–LS–M14 – Other methods

In addition to methods LF–LS–M11 to LF–LS–M13, the methods in the LF–WAI, LF–VM and LF–FW sections are also applicable.

## Explanation

#### LF–LS–E4 – Explanation

The policies in this section of the LF chapter seek to maintain the health of Otago's soils and manage *land* uses as part of an integrated approach to sustaining soil and *water* health. The connections and interactions between these resources require a holistic approach to management.

Managing soil resources, in particular, cannot be undertaken in isolation. The policies require managing the use and development of *land* and *fresh water* to maintain soil values, recognising that soil can be valued for more than its productive use and those values should be maintained. Soil erosion is problematic for both soil and *water* health. The policies provide direction on managing erosion resulting from *land* use activities to, primarily, retain soil and prevent its *discharge* to *water*.

Highly productive *land* is *land* used for primary production that provides economic and employment benefits. Providing for and managing such *land* types is essential to ensure its sustainability. The policies seek to identify and prioritise *land* used for productive purposes managing urban encroachment into rural environments where appropriate.

Responding to *climate change* and achieving *freshwater* visions is likely to require changes in *land* uses and land management practices in parts of Otago. This is recognised in the policies which seek to promote changes in *land* use or management that improve efficient use of *water*, *resilience* to *climate change* and the health and quality of soil. The policies also require reducing *discharges* to *water* from the use and development of *land* and managing *land* uses that are unsupportive of *environmental outcomes* for *fresh water* as identified by each *FMU*.

Maintaining public access to and along *lakes* and *rivers* is a matter of national importance under section 6 of the RMA 1991. The policies in this section seek to maintain existing and where appropriate promote public access to and along *lakes* and *rivers*. Circumstances which restrict public access are set out where, for example, public health and safety is at *risk* or valued parts of the *environment* may be compromised.

## Principal reasons

#### LF–LS – PR4 – Principal reasons

Population growth and *land* use intensification in urban and rural environments has increased demand for *land* and soil resources. It has also impacted on the quality of our *water*, increasing contamination such as by nutrients and sediment and harming ecosystems. In Otago, historical and contemporary *land* uses have *degraded* some *water bodies*, both in terms of their quantity and quality, leading to adverse effects on the mauri of *water* and the diversity and abundance of mahika kai resources.

Soil health is vital to wider ecological health, human health, and economic *resilience*. Otago has a rich and long history of varied forms of primary production on a wide range of soil types and in variable climatic conditions. Otago's highest quality soils (in terms of suitability for primary production) are mainly on the Taieri Plain, North Otago downlands, South Otago lowlands, parts of Central Otago and the Strath Taieri,

and along some *river* margins. Their extent is limited and use of these soils can be constrained by external factors such as economics, erosion, natural and human induced hazards, animal, and plant pests.

Managing *land* uses is a critical component of implementing the NPSFM due to the effects of *land* use on the health and well-being of *water*. This chapter assists the Council to recognise and provide for the connections and interactions between Otago's *land* and *fresh water*, while managing the use and development of this *land*, and its effects on *fresh water*.

## Anticipated environmental results

**LF–LS–AER12** The life-supporting capacity of soil is maintained or improved throughout Otago.

**LF–LS–AER13** The availability and capability of Otago's highly productive land is maintained.

**LF–LS–AER14** The use of *land* supports the achievement of *environmental outcomes* and objectives in Otago's *FMUs* and rohe.

# TOPICS

# ECO – Ecosystems and indigenous *biodiversity*

## Objectives

### ECO–O1 – Indigenous *biodiversity*

Otago's indigenous *biodiversity* is healthy and thriving and any decline in quality, quantity and diversity is halted.

### ECO–O2 – Restoring or enhancing

A net increase in the extent and occupancy of Otago's indigenous *biodiversity* results from restoration or enhancement.

### ECO–O3 – *Kaitiakiaka* and stewardship

*Mana whenua* are recognised as kaitiaki of Otago's indigenous *biodiversity*, and Otago's communities are recognised as stewards, who are responsible for:

(1) te hauora o te koiora (the health of indigenous *biodiversity*), te hauora o te taoka (the health of species and ecosystems that are taoka), and te hauora o te taiao (the health of the wider *environment*), while

(2) providing for te hauora o te takata (the health of the people).

## Policies

### ECO–P1 – *Kaitiakitaka*

Recognise the role of Kāi Tahu as kaitiaki of Otago's indigenous *biodiversity* by:

(1) involving Kāi Tahu in the management of indigenous *biodiversity* and the identification of indigenous species and ecosystems that are taoka,

(2) incorporating the use of mātauraka Māori in the management and monitoring of indigenous *biodiversity*, and

(3) providing for access to and use of indigenous *biodiversity* by Kāi Tahu, including mahika kai, according to tikaka.

### ECO–P2 – Identifying *significant natural areas* and taoka

Identify:

(1) the areas and values of *significant natural areas* in accordance with APP2, and

(2) indigenous species and ecosystems that are taoka in accordance with ECO–M3.

### ECO–P3 – Protecting *significant natural areas* and taoka

Except as provided for by ECO–P4 and ECO–P5, protect *significant natural areas* and indigenous species and ecosystems that are taoka by:

(1) avoiding adverse *effects* that result in:

  (a) any reduction of the area or values (even if those values are not themselves significant) identified under ECO–P2(1), or

  (b) any loss of Kāi Tahu values, and

(2) after (1), applying the *biodiversity effects management hierarchy* in ECO–P6, and

(3) prior to *significant natural areas* and indigenous species and ecosystems that are taoka being identified in accordance with ECO–P2, adopt a precautionary approach towards activities in accordance with IM–P15.

### ECO–P4 – Provision for new activities

Maintain Otago's indigenous *biodiversity* by following the sequential steps in the effects management hierarchy set out in ECO–P6 when making decisions on plans, applications for resource consent or notices of requirement for the following activities in *significant natural areas*, or where they may adversely affect indigenous species and ecosystems that are taoka:

(1) the development or upgrade of *nationally* and *regionally significant infrastructure* that has a *functional* or *operational need* to locate within the relevant *significant natural area(s)* or where they may adversely affect indigenous species or ecosystems that are taoka,

(2) the development of *papakāika*, marae and ancillary facilities associated with customary activities on Māori land,

(3) the use of Māori land in a way that will make a significant contribution to enhancing the social, cultural or economic well-being of *takata whenua*,

(4) activities that are for the purpose of protecting, restoring or enhancing a *significant natural area* or indigenous species or ecosystems that are taoka, or

(5) activities that are for the purpose of addressing a severe and immediate *risk* to public health or safety.

### ECO–P5 – Existing activities in *significant natural areas*

Except as provided for by ECO–P4, provide for existing activities within *significant natural areas* and that may adversely affect indigenous species and ecosystems that are taoka, if:

(1) the continuation of an existing activity will not lead to the loss (including through cumulative loss) of extent or *degradation* of the ecological integrity of any *significant natural area* or indigenous species or ecosystems that are taoka, and

(2) the adverse *effects* of an existing activity are no greater in character, spatial extent, intensity or scale than they were before this RPS became operative.

### ECO–P6 – Maintaining indigenous *biodiversity*

Maintain Otago's indigenous *biodiversity* (excluding the coastal environment and areas managed under ECO–P3) by applying the following *biodiversity* effects management hierarchy in decision-making on applications for *resource consent* and notices of requirement:

(1) avoid adverse *effects* as the first priority,

(2) where adverse *effects* demonstrably cannot be completely avoided, they are remedied,

(3) where adverse *effects* demonstrably cannot be completely avoided or remedied, they are mitigated,

(4) where there are residual adverse *effects* after avoidance, remediation, and mitigation, then the residual adverse *effects* are offset in accordance with APP3, and

(5) if *biodiversity* offsetting of residual adverse *effects* is not possible, then:

  (a) the residual adverse *effects* are compensated for in accordance with APP4, and

  (b) if the residual adverse *effects* cannot be compensated for in accordance with APP4, the activity is avoided.

### ECO–P7 – Coastal indigenous *biodiversity*

Coastal indigenous *biodiversity* is managed by CE–P5, and implementation of CE–P5 also contributes to achieving ECO–O1.

### ECO–P8 – Enhancement

The extent, occupancy and condition of Otago's indigenous *biodiversity* is increased by:

(1) restoring and enhancing habitat for indigenous species, including taoka and mahika kai species,

(2) improving the health and *resilience* of indigenous *biodiversity*, including ecosystems, species, important ecosystem function, and *intrinsic values*, and

(3) buffering or linking ecosystems, habitats and ecological corridors.

### ECO–P9 – *Wilding conifers*

Reduce the impact of *wilding conifers* on indigenous *biodiversity* by:

(1) avoiding *afforestation* and *replanting* of *plantation forests* with *wilding conifer* species listed in APP5 within:

  (a) areas identified as *significant natural areas,* and

  (b) buffer zones adjacent to *significant natural areas* where it is necessary to protect the *significant natural area*, and

(2) supporting initiatives to control existing *wilding conifers* and limit their further spread.

### ECO–P10 – Integrated management

Implement an integrated and co-ordinated approach to managing Otago's ecosystems and indigenous *biodiversity* that:

(1) ensures any permitted or controlled activity in a *regional* or *district plan* rule does not compromise the achievement of ECO–O1,

(2) recognises the interactions ki uta ki tai (from the mountains to the sea) between the terrestrial *environment*, *fresh water*, and the *coastal marine area*, including the migration of fish species between *fresh* and *coastal waters*,

(3) promotes collaboration between individuals and agencies with *biodiversity* responsibilities,

(4) supports the various statutory and non-statutory approaches adopted to manage indigenous *biodiversity*,

(5) recognises the critical role of people and communities in actively managing the remaining indigenous *biodiversity* occurring on private *land,* and

(6) adopts regulatory and non-regulatory regional pest management programmes.

## Methods

### ECO–M1 – Statement of responsibilities

In accordance with section 62(1)(i)(iii) of the RMA 1991, the *local authorities* responsible for the control of *land* use to maintain indigenous *biological diversity* are:

(1) the Regional Council and *territorial authorities* are responsible for specifying objectives, policies and methods in *regional* and *district plans* for managing the margins of *wetlands*, *rivers* and *lakes*,

(2) the Regional Council is responsible for specifying objectives, policies and methods in *regional plans*:

  (a) in the *coastal marine area*,

  (b) in *wetlands*, *lakes* and *rivers*, and

  (c) in, on or under the *beds* of *rivers* and *lakes*,

(3) in addition to (1), *territorial authorities* are responsible for specifying objectives, policies and methods in *district plans* outside of the areas listed in (2) above if they are not managed by the Regional Council under (4), and

(4) the Regional Council may be responsible for specifying objectives, policies and methods in *regional plans* outside of the areas listed (1) above if:

  (a) the Regional Council reaches agreement with the relevant *territorial authority* or *territorial authorities*, and

  (b) if applicable, a transfer of powers in accordance with section 33 of the RMA 1991 occurs from the relevant *territorial authority* or *territorial authorities* to the Regional Council.

### ECO–M2 – Identification of *significant natural areas*

*Local authorities* must:

(1) in accordance with the statement of responsibilities in ECO–M1, identify the areas and values of *significant natural areas* as required by ECO–P2, and

(2) map the areas and include the values identified under (1) in the relevant *regional* and *district plans*,

(3) recognise that indigenous *biodiversity* spans jurisdictional boundaries by:

(a) working collaboratively to ensure the areas identified by different *local authorities* are not artificially fragmented when identifying *significant natural areas* that span jurisdictional boundaries, and

(b) ensuring that indigenous *biodiversity* is managed in accordance with this RPS,

(4) require ecological assessments to be provided with applications for resource consent and notices of requirement that identify whether affected areas are *significant natural areas* in accordance with APP2,

(5) in the following areas, prioritise identification under (1) no later than 31 December 2025:

(a) intermontane basins that contain indigenous vegetation and habitats,

(b) areas of dryland shrubs,

(c) braided *rivers*, including the Makarora, Mātukituki and Lower Waitaki Rivers,

(d) areas of montane tall tussock grasslands, and

(e) limestone habitats.

### ECO–M3 – Identification of taoka

*Local authorities* must:

(1) work together with *mana whenua* to agree a process for:

(a) identifying indigenous species and ecosystems that are taoka,

(b) describing the taoka identified in (1)(a),

(c) mapping or describing the location of the taoka identified in (1)(a), and

(d) describing the values of each taoka identified in (1)(a), and

(2) notwithstanding (1), recognise that *mana whenua* have the right to choose not to identify taoka and to choose the level of detail at which identified taoka, or their location or values, are described, and

(3) to the extent agreed by *mana whenua*, amend their *regional* and *district plans* to include matters (1)(b) to (1)(d) above.

### ECO–M4 – *Regional plans*

Otago Regional Council must prepare or amend and maintain its *regional plans* to:

(1) if the requirements of ECO–P3 and ECO–P6 can be met, provide for the use of *lakes* and *rivers* and their *beds,* including:

(a) activities undertaken for the purposes of pest control or maintaining or enhancing the habitats of indigenous fauna, and

(b) the maintenance and use of existing *structures* (including *infrastructure*), and

(c) *infrastructure* that has a *functional* or *operational need* to be sited or operated in a particular location,

(2) require:

(a) resource consent applications to include information that demonstrates that the sequential steps in the effects management hierarchy in ECO–P6 have been followed, and

(b) that consents are not granted if the sequential steps in the effects management hierarchy in ECO–P6 have not been followed, and

(3) provide for activities undertaken for the purpose of restoring or enhancing the habitats of indigenous fauna.

### ECO–M5 – *District plans*

*Territorial authorities* must prepare or amend and maintain their *district plans* to:

(1) if the requirements of ECO–P3 and ECO–P6 are met, provide for the use of *land* and the surface of *water bodies* including:

(a) activities undertaken for the purposes of pest control or maintaining or enhancing the habitats of indigenous fauna, and

(b) the maintenance and use of existing *structures* (including *infrastructure*), and

(c) *infrastructure* that has a *functional* or *operational need* to be sited or operated in a particular location,

(2) control the clearance or modification of indigenous vegetation,

(3) promote the establishment of *esplanade reserves* and *esplanade strips*, particularly where they would support ecological corridors, buffering or connectivity between *significant natural areas*,

(4) require:

(a) resource consent applications to include information that demonstrates that the sequential steps in the effects management hierarchy in ECO–P6 have been followed, and

(b) that consents are not granted if the sequential steps in the effects management hierarchy in ECO–P6 have not been followed, and

(5) provide for activities undertaken for the purpose of restoring or enhancing the habitats of indigenous fauna, and

(6) prohibit the planting of *wilding conifer* species listed in APP5 within areas identified as *significant natural areas*.

### ECO–M6 – Engagement

*Local authorities*, when implementing the policies in this chapter, will:

(1) work collaboratively with other *local authorities* to adopt an integrated approach to managing Otago's *biodiversity* across administrative boundaries,

(2) engage with individuals (including landowners and *land* occupiers), community groups, government agencies and other organisations with a role or an interest in *biodiversity* management, and

(3) consult directly with landowners and *land* occupiers whose properties potentially contain or are part of *significant natural areas*.

### ECO–M7 – Monitoring

*Local authorities* will:

(1) establish long-term monitoring programmes for areas identified under ECO–P1 that measure the net loss and gain of indigenous *biodiversity*,

(2) record information (including data) about the state of species, vegetation types and ecosystems,

(3) to the extent possible, use mātauraka Māori and tikaka Māori monitoring methods, as well as scientific monitoring methods, and

(4) regularly report on matters in (1) and (2) and publish these reports.

### ECO–M8 – Other incentives and mechanisms

*Local authorities* are encouraged to consider the use of other mechanisms or incentives to assist in achieving Policies ECO–P1 to ECO–P10, including:

(1) providing information and guidance on the maintenance, restoration and enhancement of indigenous ecosystems and habitats,

(2) funding assistance for restoration projects (for example, through Otago Regional Council's ECO Fund),

(3) supporting the control of pest plants and animals, including through the provision of advice and education and implementing regulatory programmes such as the Regional Pest Management Plan,

(4) financial incentives,

(5) covenants to protect areas of *land*, including through the QEII National Trust,

(6) advocating for a collaborative approach between central and local government to fund indigenous *biodiversity* maintenance and enhancement, and

(7) gathering information on indigenous ecosystems and habitats, including outside *significant natural areas*.

## Explanation

### ECO–E1 – Explanation

The first policy in this chapter outlines how the kaitiaki role of Kāi Tahu will be recognised in Otago. The policies which follow then set out a management regime for identifying *significant natural areas* and indigenous species and ecosystems that are taoka and protecting them by avoiding particular adverse *effects* on them. The policies recognise that these restrictions may be unduly restrictive for some activities within *significant natural areas*, including existing activities already established. To maintain ecosystems

and indigenous *biodiversity*, the policies set out mandatory and sequential steps in an effects management hierarchy to be implemented through decision making, including providing for *biodiversity* offsetting and compensation if certain criteria are met.

Although the objectives of this chapter apply within the coastal environment, the specific management approach for *biodiversity* is contained in the CE – Coastal environment chapter. Given the *biodiversity* loss that has occurred in Otago historically, restoration or enhancement will play a part in achieving the objectives of this chapter and these activities are promoted.

*Wilding conifers* are a particular issue for *biodiversity* in Otago. Although *plantation forestry* is managed under the NESPF, the NESPF allows plan rules to be more stringent if they recognise and provide for the protection of *significant natural areas*. The policies adopt this direction by requiring *district* and *regional plans* to prevent *afforestation* within *significant natural areas* and establish buffer zones where they are necessary to protect *significant natural areas*.

The policies recognise that managing ecosystems and indigenous *biodiversity* requires co-ordination across different areas and types of resources, as well as across organisations, communities and individual landowners. This articulates the stewardship role of all people and communities in Otago in respect of indigenous *biodiversity*.

## Principal reasons

### ECO–PR1 – Principal reasons

The health of New Zealand's *biodiversity* has declined significantly since the arrival of humans and remains under significant pressure. Mahika kai and taoka species, including their abundance, have been damaged or lost through resource use, *land* use change and development in Otago. The provisions in this chapter seek to address this loss and pressure through providing direction on how indigenous *biodiversity* is to be managed.

The provisions in this chapter assist in maintaining, protecting and restoring indigenous *biodiversity* by:

- stating the outcomes sought for ecosystems and indigenous *biodiversity* in Otago,
- requiring identification and protection of *significant natural areas* and indigenous species and ecosystems that are taoka, and
- directing how indigenous *biodiversity* is to be maintained.

This chapter will assist with achieving the outcomes sought by *Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020.* Implementation of the provisions in this chapter will occur primarily through *regional* and *district plan* provisions, however *local authorities* may also choose to adopt additional non-regulatory methods to support the achievement of the objectives.

## Anticipated environmental results

**ECO–AER1** There is no further decline in the quality, quantity or diversity of Otago's indigenous *biodiversity*.

**ECO–AER2** The quality, quantity and diversity of indigenous *biodiversity* within Otago improves over the life of this Regional Policy Statement.

| | |
|---|---|
| **ECO–AER3** | Kāi Tahu are involved in the management of indigenous *biodiversity* and able to effectively exercise their *kaitiakitaka*. |
| **ECO–AER4** | Within *significant natural areas*, the area of *land* vegetated by *wilding conifers* is reduced. |

# EIT – Energy, infrastructure and transport

## EIT–EN – Energy

### Objectives

#### EIT–EN–O1 – Energy and social and economic well-being

Otago's communities and economy are supported by *renewable energy generation* within the region that is safe, secure, and *resilient*.

#### EIT–EN–O2 – *Renewable electricity generation*

The generation capacity of *renewable electricity generation activities* in Otago:

(1) is maintained and, if practicable maximised, within environmental limits, and

(2) contributes to meeting New Zealand's national target for *renewable electricity generation*.

#### EIT–EN–O3 – Energy use

Development is located and designed to facilitate the efficient use of energy and to reduce demand if possible, minimising the contribution that Otago makes to total *greenhouse gas* emissions.

### Policies

#### EIT–EN–P1 – Operation and maintenance

The operation and maintenance of existing *renewable electricity generation activities* is provided for while minimising its adverse *effects*.

#### EIT–EN–P2 – Recognising *renewable electricity generation activities* in decision making

Decisions on the allocation and use of *natural and physical resources,* including the use of *fresh water* and development of *land*:

(1) recognise the national, regional and local benefits of existing *renewable electricity generation activities*,

(2) take into account the need to at least maintain current *renewable electricity generation* capacity, and

(3) recognise that the attainment of increases in *renewable electricity generation* capacity will require significant development of *renewable electricity generation activities.*

#### EIT–EN–P3 – Development and upgrade of *renewable electricity generation activities*

The security of renewable electricity supply is maintained or improved in Otago through appropriate provision for the development or upgrading of *renewable electricity generation activities* and diversification of the type or location of *electricity generation activities*.

#### EIT–EN–P4 – Identifying new sites or resources

Provide for activities associated with the investigation, identification and assessment of potential sites and energy sources for *renewable electricity generation* and, when selecting a site for new *renewable electricity generation,* prioritise those where adverse *effects* on highly valued *natural and physical resources* and *mana whenua* values can be avoided or, at the very least, minimised.

#### EIT–EN–P5 – Non-renewable energy generation

Avoid the development of non-renewable energy generation activities in Otago and facilitate the replacement of non-renewable energy sources, including the use of fossil fuels, in energy generation.

#### EIT–EN–P6 – Managing *effects*

Manage the adverse *effects* of *renewable electricity generation activities* by:

(1) applying EIT–INF–P13,

(2) having regard to:

  (a) the *functional need* to locate *renewable electricity generation activities* where resources are available,

  (b) the *operational need* to locate where it is possible to connect to the *National Grid* or *electricity sub-transmission infrastructure*, and

  (c) the extent and magnitude of adverse *effects* on the *environment* and the degree to which unavoidable adverse *effects* can be remedied or mitigated, or residual adverse *effects* are offset or compensated for; and

(3) requiring consideration of alternative sites, methods and designs, and offsetting or compensation measures (in accordance with any specific requirements for their use in this RPS), where adverse *effects* are potentially significant or irreversible.

#### EIT–EN–P7 – Reverse sensitivity

Activities that may result in reverse sensitivity *effects* or compromise the operation or maintenance of *renewable electricity generation activities* are, as the first priority, prevented from establishing and only if that is not reasonably practicable, managed so that reverse sensitivity *effects* are minimised.

#### EIT–EN–P8 – *Small and community scale distributed electricity generation*

Provide for *small and community scale distributed electricity generation* activities that increase the local community's *resilience* and security of energy supply.

#### EIT–EN–P9 – Energy conservation and efficiency

Development is designed, including through roading, lot size, dimensions, layout, and orientation so that energy use is efficient, energy waste is minimised, and solar gain is optimised.

### Methods

#### EIT–EN–M1 – *Regional plans*

Otago Regional Council must prepare or amend and maintain its *regional plans* to:

(1) provide for activities associated with the investigation, identification and assessment of potential sites and energy sources for *renewable electricity generation*,

(2) require the prioritisation of sites for new *renewable electricity generation activities* where adverse *effects* on highly valued *natural and physical resources* and *mana whenua* values can be avoided or, at the very least, minimised,

(3) manage the adverse *effects* of developing or upgrading *renewable electricity generation activities* that:

  (a) are within the *beds* of *lakes* and *rivers* and the *coastal marine area*, or

  (b) involve the taking, use, damming or diversion of *water* and *discharge* of *water* or *contaminants*,

(4) provide for the operation and maintenance of existing *renewable electricity generation activities*, including their *natural and physical resource* requirements, within the environmental limits, and

(5) restrict the establishment of activities that may adversely affect the efficient functioning of *renewable electricity generation infrastructure* (including impacts on generation capacity).

**EIT–EN–M2 – *District plans***

*Territorial authorities* must prepare or amend and maintain their *district plans* to:

(1) provide for activities associated with the investigation, identification and assessment of potential sites and energy sources for *renewable electricity generation*,

(2) require the prioritisation of sites for new *renewable electricity generation activities* where adverse *effects* on highly valued *natural and physical resources* and *mana whenua* values can be avoided or, at the very least, minimised,

(3) manage the adverse *effects* of developing or upgrading *renewable electricity generation activities* that:

  (a) are on the surface of *rivers* and *lakes* and on *land* outside the *coastal marine area*, or

  (b) the *beds* of *lakes* and *rivers*,

(4) provide for the continued operation and maintenance of *renewable electricity generation activities* on the surface of *rivers* and *lakes* and on *land* outside the *coastal marine area* and the *beds* of *lakes* and *rivers*,

(5) restrict the establishment or occurrence of activities that may adversely affect the efficient functioning of *renewable electricity generation infrastructure,*

(6) require the design of *subdivision* development to optimise solar gain, including through roading, lot size, dimensions, layout and orientation, and

(7) require design of transport *infrastructure* that provides for multi-modal transport options in urban and rural residential locations.

**EIT–EN–M3 – Education and information**

(1) *Local authorities* must provide education and information to improve energy efficiency and provide for the adoption of renewable energy sources, including:

(a) measures for increased energy efficiency and energy conservation, and

(b) opportunities for *small and community scale distributed electricity generation*.

(2) *Territorial authorities* must provide information on design techniques to optimise solar gain, including through roading, lot size, dimensions, layout, and orientation.

## Explanation

### EIT–EN–E1 – Explanation

The policies in this section are designed to set a clear preference for *renewable electricity generation activities* contributing to meeting New Zealand's national target for *renewable electricity generation*. *Renewable electricity generation activities* are promoted by providing for the investigation, operation and maintenance of these sites and ensuring that decisions on allocating natural resources and the use of *land*, for example, recognise the benefits of *renewable electricity generation activities* arising from maintaining or increasing generation capacity. It is noted that *renewable electricity generation activities* will come within the definition of *infrastructure*, and that provisions relating to *infrastructure* also apply.

The potential magnitude of adverse *effects* and *functional* and *operational needs* associated with *renewable electricity generation activities* is recognised by requiring consideration of those needs, and the extent to which unavoidable *effects* can be remedied or mitigated. Where residual adverse *effects* remain, consideration is given to proposals to offset these, or compensate for them. Increasing energy security will assist with ensuring that communities have options for clean heat.

To ensure the on-going functionality of assets and to maximise their benefits, reverse sensitivity *effects* or activities that may compromise the operation or maintenance of *renewable electricity generation activities* are to be avoided or their impacts minimised.

The policies also seek that energy use is efficient and energy waste is reduced, which will have consequential *effects* on minimising Otago's contribution to the nation's *greenhouse gas* emissions.

## Principal reasons

### EIT–EN–PR1 – Principal reasons

Energy is a basic requirement of life in Otago. It enables communities to provide for their well-being, and health and safety, and is essential to the regional economy. Everyday life is significantly affected when energy supply is disrupted. Therefore, ensuring the security of energy supplies that meet demand is crucial. The ability of existing energy generation activities to continue operating is dependent on access to resources such as *water* in hydro *lakes* and the operator's ability to maintain existing *infrastructure*.

Otago is fortunate to have several existing *renewable electricity generation* sites and potential to increase *renewable electricity generation*. The benefits of *renewable electricity generation* include reducing *greenhouse gas* emissions, dependence on imported energy and greater supply security. These benefits are afforded to Otago communities and nationally as exported energy is significant for other regions. Because of this, providing for new *renewable electricity generation* opportunities to meet increasing energy demand is necessary. Additionally, addressing inefficiencies in energy use can ensure that existing *infrastructure* is better utilised to reduce the need for new generation sites.

*Renewable electricity generation* facilities can cause significant adverse *effects* on the environment because of their *functional need* to locate in particular areas. These areas are where resources are available, for example *water* for hydro-electricity generation, but they may also contain other significant

values such as outstanding natural features or landscapes, significant *indigenous vegetation* or sites of significance to *mana whenua* values. In some situations, it may not be possible to avoid adverse *effects* on these significant values after considering alternative sites or design options. In these circumstances the *effects* should be remedied or mitigated, and consideration should be given to whether those *effects* that cannot be avoided are offset or compensated.

The provisions in this chapter assist in giving effect to the NPSREG and NPSFM and implementing section 7(j) of the RMA 1991. Implementation of the provisions will occur primarily through *regional* and *district plan* provisions but regional, city and district councils also have a role in providing education and information to the community.

## Anticipated environmental results

| | |
|---|---|
| **EIT–EN–AER1** | The proportion of electricity generated by *renewable energy generation activities* (including small and community scale electricity generation) in Otago increases over time. |
| **EIT–EN–AER2** | Energy use in Otago becomes more efficient over time and security of supply is maintained. |
| **EIT–EN–AER3** | The adverse *effects* associated with *renewable energy generation activities* are minimised. |
| **EIT–EN–AER4** | The proportion of *greenhouse gas* emissions per capita from energy generation reduces over time. |

# INF – Infrastructure

## Objectives

### EIT–INF–O4 – Provision of *infrastructure*

Effective, efficient and resilient *infrastructure* enables the people and communities of Otago to provide for their social and cultural well-being, their health and safety, and supports sustainable economic development and growth within the region within environmental limits.

### EIT–INF–O5 – Integration

Development of *nationally* and *regionally significant infrastructure,* as well as *land* use change, occurs in a co-ordinated manner to minimise adverse *effects* on the *environment* and increase efficiency in the delivery, operation and use of the *infrastructure*.

### EIT–INF–O6 – Long-term planning for electricity transmission infrastructure

Long-term investment in, and planning for, electricity transmission *infrastructure*, and its integration with *land* use, is sustained.

## Policies

### EIT–INF–P10 – Recognising resource requirements

Decision making on the allocation or use of *natural and physical resources* must take into account the needs of *nationally* and *regionally significant infrastructure.*

### EIT–INF–P11 – Operation and maintenance

Except as provided for by ECO–P4, allow for the operation and maintenance of existing *nationally* and *regionally significant infrastructure* while:

(1) avoiding, as the first priority, significant adverse *effects* on the *environment*, and

(2) if avoidance is not practicable, and for other adverse *effects,* minimising adverse *effects*.

### EIT–INF–P12 – Upgrades and development

Provide for upgrades to, and development of, *nationally* or *regionally significant infrastructure* while ensuring that:

(1) *infrastructure* is designed and located, as far as practicable, to maintain functionality during and after *natural hazard* events,

(2) it is, as far as practicable, co-ordinated with long-term *land* use planning, and

(3) increases efficiency in the delivery, operation or use of the *infrastructure*.

### EIT–INF–P13 – Locating and managing *effects* of *infrastructure*

When providing for new *infrastructure* outside the coastal environment:

(1) avoid, as the first priority, locating *infrastructure* in all of the following:

(a) *significant natural areas,*

(b) outstanding natural features and landscapes,

(c) *natural wetlands,*

(d) *outstanding water bodies*,

(e) areas of high or outstanding natural character,

(f) areas or places of significant or outstanding *historic heritage*,

(g wāhi tapu, wāhi taoka, and areas with protected customary rights, and

(h) areas of high recreational and high amenity value, and

(2) if it is not possible to avoid locating in the areas listed in (1) above because of the *functional* or *operational needs* of the *infrastructure* manage adverse *effects* as follows:

(a) for *nationally* or *regionally significant infrastructure*:

(i) in *significant natural areas,* in accordance with ECO–P4,

(ii) in *natural wetlands,* in accordance with the relevant provisions in the NESF,

(iii) in *outstanding water bodies,* in accordance with LF–P12,

(iv) in other areas listed in EIT–INF–P13 (1) above, minimise the adverse *effects* of the *infrastructure* on the values that contribute to the area's importance, and

(b) for all *infrastructure* that is not *nationally* or *regionally significant*, avoid adverse *effects* on the values that contribute to the area's outstanding nature or significance.

**EIT–INF–P14 – Decision making considerations**

When considering proposals to develop or upgrade *infrastructure*:

(1) require consideration of alternative sites, methods and designs if adverse *effects* are potentially significant or irreversible, and

(2) utilise the opportunity of substantial upgrades of *infrastructure* to reduce adverse *effects* that result from the existing *infrastructure*, including on *sensitive activities*.

**EIT–INF–P15 – Protecting *nationally* or *regionally significant infrastructure***

Seek to avoid the establishment of activities that may result in reverse sensitivity *effects* on *nationally* or *regionally significant infrastructure*, and/or where they may compromise *t*he *functional* or *operational needs* of *nationally* or *regionally significant infrastructure.*

**EIT–INF–P16 – Providing for electricity transmission and the *National Grid***

Maintain a secure and sustainable electricity supply in Otago by:

(1) providing for development of, and upgrades to, the electricity transmission network and requiring, as far as practicable, its integration with *land* use,

(2) considering the requirements of and constraints on the *functional* or *operational needs* of the electricity transmission network,

(3) providing for the efficient and effective development, operation, maintenance, and upgrading of the *National Grid*,

(4) enabling the reasonable operation, maintenance and minor upgrade requirements of established electricity transmission assets, and

(5) minimising the adverse *effects* of the electricity transmission network on urban amenity, and avoiding adverse *effects* on town centres, areas of high amenity or recreational value and existing *sensitive activities*.

#### EIT–INF–P17 – Urban growth and *infrastructure*

Provide for *development infrastructure* and *additional infrastructure* required to service existing, planned and expected urban growth demands in the short, medium and long term, taking in account UFD–P1 to UFD–P10.

### Methods

#### EIT–INF–M4 – *Regional plans*

Otago Regional Council must prepare or amend and maintain its *regional plans* to:

(1) manage the adverse *effects* of *infrastructure* activities that:

  (a) are in the *beds* of *lakes* and *rivers*, or

  (b) are in the *coastal marine area*, or

  (c) involve the taking, use, damming or diversion of *water* or,

  (d) involve the *discharge* of *water* or *contaminants*, and

(2) require the prioritisation of sites for *infrastructure* where adverse *effects* on highly valued *natural and physical resources* and *mana whenua* values can be avoided or, at the very least, minimised.

#### EIT–INF–M5 – *District plans*

*Territorial authorities* must prepare or amend and maintain their *district plans* to:

(1) require a strategic approach to the integration of *land* use and *nationally* or *regionally significant infrastructure*,

(2) enable planning for the electricity transmission network and *National Grid* to achieve efficient distribution of electricity,

(3) map the electricity transmission network, and in relation to the *National Grid*, identify a buffer corridor within which *sensitive activities* shall generally not be allowed, and

(4) manage the *subdivision*, use and development of *land* to ensure *nationally* or *regionally significant infrastructure* can develop to meet increased demand,

(5) manage the adverse *effects* of developing, operating, maintaining, or upgrading *nationally* or *regionally significant infrastructure* that are on:

  (a) the surface of *rivers* and *lakes* and on *land* outside the *coastal marine area*, and

  (b) the *beds* of *lakes* and *rivers*,

(6) ensure that development is avoided where:

  (a) it cannot be adequately served with *infrastructure*,

(b) it utilises *infrastructure* capacity for other planned development, or

(c) the required upgrading of *infrastructure* is not funded, and

(7) require the prioritisation of sites where adverse *effects* on highly valued *natural and physical resources* and *mana whenua* values can be avoided or, at the very least, minimised.

#### EIT–INF–M6 – Advocacy

*Local authorities* must:

(1) advocate for the upgrading or replacement of existing *nationally* or *regionally significant infrastructure* if the operation of *infrastructure* results in significant adverse *effects*, and

(2) work proactively with *infrastructure* providers to co-ordinate the upgrading or development of *nationally* or *regionally significant infrastructure* to support co-location or concurrent construction to reduce adverse *effects.*

## Explanation

#### EIT–INF–E2 – Explanation

The policies in this section recognise the critical importance of *infrastructure* to communities and provide for the continued operation of existing *infrastructure* and the development of upgraded or new *infrastructure* where adverse *effects* are managed. As many assets rely on particular resource requirements or specific locations, decisions on allocating *natural and physical resources* shall make provision for the *functional* or *operational needs* of *nationally* and *regionally significant infrastructure*. For *infrastructure* in the coastal environment, the provisions of the CE – Coastal environment chapter are also applicable to ensure the NZCPS is given effect.

Given the potential magnitude of adverse *effects* associated with this *infrastructure*, consideration is required of the ability to remedy or mitigate unavoidable adverse *effects*, alternative options and offsetting or compensation.

To ensure *infrastructure* is planned for, and used efficiently, the provisions require that the benefits of existing *nationally* and *regionally significant infrastructure* are maximised, and *infrastructure* provision is undertaken in a co-ordinated manner. The policies also seek to manage the potential adverse *effects* of other activities on *nationally* and *regionally significant infrastructure* to ensure the ability to operate these assets is not compromised.

## Principal reasons

#### EIT–INF–PR2 – Principal reasons

*Infrastructure* is fundamental to the health and safety of communities, and their social and economic well-being and functioning. The nature of *infrastructure* means there are typically operational and functional constraints which dictate where and how these activities operate to properly serve local communities. These types of assets also tend to require significant investment, although some have at times been subject to under-investment.

The scale and type of activities involved in the development, operation, maintenance, and upgrading of *infrastructure* are such that adverse *effects* on the *environment* are likely and, at times, significant. Efforts are required to reduce impacts from *infrastructure*, by avoiding its location in areas that are important to Otago, particularly where alternatives are available. If it is necessary to locate in those areas, then it is

necessary that the values that make those areas important are protected. There are instances however, when residual *effects* cannot be avoided, in which case *effects* should be remedied or mitigated and offsetting or compensation may be necessary if it meets any criteria set. Given the potential for adverse *effects*, it is important that *local authorities* monitor and enforce the standards set in plans and on *resource consents* and designations.

The policies in this chapter give effect to the NPSREG, NPSET, NPSFM and NPSUD and recognise *infrastructure* that has benefits for the wider Otago region and nationally. Implementation of the provisions will occur through the *regional* and *district plan* provisions.

## Anticipated environmental results

**EIT–INF–AER5** *Infrastructure* provides safe, effective and efficient services to the Otago community.

**EIT–INF–AER6** The provision of *infrastructure* is co-ordinated and integrated to service growth efficiently.

**EIT–INF–AER7** *Nationally* and *regionally significant infrastructure* is protected from reverse sensitivity *effects* caused by incompatible activities.

**EIT–INF–AER8** The adverse *effects* associated with *nationally* and *regionally significant infrastructure* are minimised.

# TRAN – Transport

## Objectives

### EIT–TRAN–O7 – Effective, efficient, and safe transport

Otago has an integrated air, *land* and sea transport network that:

(1) is effective, efficient and safe,

(2) connects communities and their activities within Otago, with other regions, and internationally, and

(3) is *resilient* to *natural hazards*.

### EIT–TRAN–O8 – Transport system

The transport system within Otago supports the movement of people, goods and services, is integrated with *land* use, provides a choice of transport modes and is adaptable to changes in demand.

### EIT–TRAN–O9 – *Effects* of the transport system

The contribution of transport to Otago's *greenhouse gas* emissions is reduced and communities are less reliant on fossil fuels for transportation.

### EIT–TRAN–O10 – *Commercial port activities*

*Commercial port activities* operate safely and efficiently, and within environmental limits.

## Policies

### EIT–TRAN–P18 – Integration of the transport system

The transport system contributes to the social, cultural and economic well-being of the people of Otago through:

(1) integration with *land* use activities and across transport modes, and

(2) provision of transport *infrastructure* that enables service delivery as demand requires.

### EIT–TRAN–P19 – Transport system design

*Resilience* and adaptability of the transport system supports efficient networks for the transport of people and goods that are sustained and improved by:

(1) promoting a consolidated urban form that integrates *land* use activities with the transport system,

(2) placing a high priority on *active transport* and *public transport* and their integration into the design of development and transport networks, and

(3) encouraging improved access to public spaces, including the *coastal marine area*, *lakes* and *rivers*.

### EIT–TRAN–P20 – Public transport

Plans and proposals for maintenance and development of the transport system enhance the uptake of *public transport* by:

(1) providing safe and reliable alternatives to private vehicle transport,

(2) including measures to ensure pedestrian and cyclist safety and amenity, and

(3) taking into consideration the accessibility needs of the community.

#### EIT–TRAN–P21 – Operation of the transport system

The efficient and effective operation of the transport system is maintained by:

(1) avoiding adverse *effects* of activities on the functioning of the transport system,

(2) avoiding the impacts of incompatible activities, including those that may result in reverse sensitivity *effects*,

(3) avoiding development that forecloses an opportunity to adapt, upgrade or develop the transport system to meet future transport demand,

(4) promoting the development and use of transport hubs that enable an efficient transfer of goods for transport and distribution across different freight and people transport modes,

(5) promoting methods that provide more efficient use of, or reduce reliance on, private motor vehicles, including ridesharing, park and ride facilities, demand management and alternative transport modes, and

(6) encouraging a shift to using renewable energy sources.

#### EIT–TRAN–P22 – Sustainable transportation

Sustainable transport networks that enhance the uptake of new technologies and reduce reliance on fossil fuels are developed throughout Otago.

#### EIT–TRAN–P23 – *Commercial port activities*

Recognise the national and regional significance of the *commercial port activities* associated with the ports at Port Chalmers and Dunedin (respectively) by:

(1) within environmental limits as set out in Policies CE–P3 to CE–P12, providing for the efficient and safe operation of these ports and efficient connections with other transport modes,

(2) within the environmental limits set out in Policies CE–P3 to CE–P12, providing for the development of the ports' capacity for national and international shipping in and adjacent to existing port activities, and

(3) ensuring that development in the coastal environment does not adversely affect the efficient and safe operation of these ports, or their connections with other transport modes.

### Methods

#### EIT–TRAN–M7 – *Regional plans*

Otago Regional Council must prepare or amend and maintain its *regional plans* to:

(1) provide for the development, operation, maintenance, or upgrade of the transport system that:

  (a) is within the *beds* of *lakes* and *rivers* or the *coastal marine area*, or

  (b) involves the taking, use, damming or diversion of *water* and *discharge* of *water* and *contaminants*,

(2) manage the adverse *effects* of *infrastructure* activities that:

(a) provide for the establishment of transport *infrastructure* that supports modes of transport that are not reliant on fossil fuels, and

(b) include policies and methods that provide for the *commercial port activities* associated with the operations at Otago Harbour and the ports at Port Chalmers and Dunedin, and

(3) within environmental limits, facilitate the safe and efficient operation and development of *commercial port activities* at Port Chalmers and Dunedin. This includes previously approved *resource consents* for the following activities in the coastal development area mapped in MAP2:

(a) dredging of Otago lower harbor (to 17.5m for entrance channel, and 14.5m through to Port Chalmers),

(b) dredging of Otago upper harbour to 10.5m,

(c) management of upper and lower harbour navigation beacons,

(d) *discharge* of dredging spoil to the disposal grounds at Heyward Point, Aramoana, Shelley Beach, and AO, and

(e) placement and use of scientific buoys.

#### EIT–TRAN–M8 – *District plans*

*Territorial authorities* must prepare or amend and maintain their *district plans* to:

(1) require a strategic approach to the integration of the transport system with *land* uses and between modes,

(2) require high trip generating activities to be integrated with public transport services and provide for safe pedestrian and cycling access,

(3) include *subdivision* and *infrastructure* design standards to minimise private vehicle use, enable public transport networks to operate and recognise the accessibility needs of the community, including the mobility impaired, the elderly and children,

(4) restrict or prevent the establishment or expansion of activities adjacent to transport *infrastructure* that may compromise the operation or safety of the transport system,

(5) provide for the establishment of transport *infrastructure* that supports modes of transport that are not reliant on fossil fuels, and

(6) include policies and methods that provide for *commercial port activities* associated with the operations at Otago Harbour and the ports at Port Chalmers and Dunedin.

#### EIT–TRAN–M9 – Regional Land Transport Plan

Otago Regional Council will take into account the objectives, provisions and methods of this chapter in preparing its Regional Land Transport Plan and Regional Public Transport Plan.

### Explanation

#### EIT–TRAN–E3 – Explanation

The policies in this section seek to ensure that transport *infrastructure* is well designed and functions effectively, including providing for accessibility for different modes and purposes. This includes managing

potential *effects* of other activities on the transport system and ensuring strategic decision making in the provision of transport *infrastructure* to best provide for connectivity. The policies also recognise the contribution of the transport system to emissions and provide for networks that seek to adopt technologies which reduce the adverse *effects* on the *environment* arising from fuel usage. In relation to *commercial port activities* taking place within the coastal environment, the provisions of the CE – Coastal Environment chapter also apply.

## Principal reasons

### EIT–TRAN–PR3 – Principal reasons

The transport system is critical for connecting people and communities and transporting goods, the effective functioning of Otago's economy and the well-being of Otago's community. The transport network can, however, have adverse *effects* on the *environment* and impact on community well-being. If there is sufficient demand, integration and the necessary *infrastructure*, modal choices can be provided and by giving preference to modes with lower environmental *effects*, the adverse impacts of the transport system can be reduced. However, as large parts of the Otago region are rural, reliance on private vehicles will remain the preferred, or the only practical, transport option for many people. This should not exclude the potential for improvements in modal choice or accessibility for a range of abilities and sectors of the community. Planning for transport *infrastructure* should be co-ordinated with urban and commercial growth and development to enable the transport system to effectively serve local communities and avoid reducing the efficiency of existing *infrastructure*.

### Anticipated environmental results

**EIT–TRAN–AER9** Structure planning and *district plans* make explicit provision for all modes of transport.

**EIT–TRAN–AER10** The number of people participating in active transport increases.

**EIT–TRAN–AER11** The number of dwellings per hectare in areas accessible to *public transport* increases over the life of this RPS.

**EIT–TRAN–AER12** *Public transport* patronage increases and congestion levels decrease over the life of this RPS.

**EIT–TRAN–AER13** *Greenhouse gas* emissions arising from the transport system reduce over time from increased active transport, shared travel and *public transport* patronage and reduced reliance on fossil fuels.

**EIT–TRAN–AER14** The transport of people, goods and services within Otago is achieved in a timely manner and at costs comparable to other regions.

# HAZ – Hazards and *risks*

## HAZ–NH – *Natural hazards*

### Objective

#### HAZ–NH–O1 – *Natural hazards*

Levels of *risk* to people, communities and property from *natural hazards* within Otago do not exceed a tolerable level.

#### HAZ–NH–O2 – Adaption

Otago's people, property and communities are prepared for and able to adapt to the *effects* of *natural hazards*, including *climate change*.

### Policies

#### HAZ–NH–P1 – Identifying areas subject to *natural hazards*

Identify areas where *natural hazards* may adversely affect Otago's people, communities and property by assessing:

(1) the hazard type and characteristics,

(2) *multiple* and *cascading hazards,* where present,

(3) any cumulative *effects*,

(4) any *effects* of *climate change*,

(5) likelihood, using the best available information, and

(6) any other exacerbating factors.

#### HAZ–NH–P2 – *Risk* assessments

Assess the level of *natural hazard risk* by determining a range of *natural hazard* event scenarios and their potential consequences in accordance with the criteria set out within APP6.

#### HAZ–NH–P3 – New activities

Once the level of *natural hazard risk* associated with an activity has been determined in accordance with HAZ–NH–P2, manage new activities to achieve the following outcomes:

(1) when the *natural hazard risk* is significant, the activity is avoided,

(2) when the *natural hazard risk* is tolerable, manage the level of *risk* so that it does not become significant, and

(3) when the *natural hazard risk* is acceptable, maintain the level of *risk*.

#### HAZ–NH–P4 – Existing activities

Reduce existing *natural hazard risk* by:

(1) encouraging activities that reduce *risk*, or reduce community vulnerability,

(2) restricting activities that increase *risk*, or increase community vulnerability,

(3) managing existing *land* uses within areas of significant *risk* to people and communities,

(4) encouraging design that facilitates:

  (a) recovery from *natural hazard* events, or

  (b) relocation to areas of acceptable *risk*, or

  (c) reduction of *risk*,

(5) relocating *lifeline utilities*, and facilities for essential and emergency services, away from areas of significant *risk*, where appropriate and practicable, and

(6) enabling development, upgrade, maintenance and operation of *lifeline utilities* and facilities for essential and emergency services.

**HAZ–NH–P5 – Precautionary approach to *natural hazard risk***

Where the *natural hazard risk,* either individually or cumulatively, is uncertain or unknown, but potentially significant or irreversible, apply a precautionary approach to identifying, assessing and managing that *risk* by adopting an avoidance or adaptive management response to diminish the *risk* and uncertainty.

**HAZ–NH–P6 – Protecting features and systems that provide hazard mitigation**

Protect natural or modified features and systems that contribute to mitigating the *effects* of *natural hazards* and *climate change.*

**HAZ–NH–P7 – Mitigating *natural hazards***

Prioritise *risk* management approaches that reduce the need for *hard protection structures* or similar engineering interventions, and provide for *hard protection structures* only when:

(1) *hard protection structures* are essential to manage *risk* to a level the community is able to tolerate,

(2) there are no reasonable alternatives that result in reducing the *risk* exposure,

(3) *hard protection structures* would not result in an increase in *risk* to people, communities and property, including displacement of *risk* off-site,

(4) the adverse *effects* of the *hard protection structures* can be adequately managed, and

(5) the mitigation is viable in the reasonably foreseeable long term or provides time for future adaptation methods to be implemented, or

(6) the *hard protection structure* protects a *lifeline utility*, or a facility for essential or emergency services.

**HAZ–NH–P8 – *Lifeline utilities* and facilities for essential or emergency services**

Locate, relocate, and design *lifeline utilities* and facilities for essential or emergency services to:

(1) maintain their ability to function to the fullest extent possible, during and after *natural hazard* events, and

(2) take into account their operational co-dependence with other *lifeline utilities* and essential services to ensure their effective operation.

#### HAZ–NH–P9 – Protection of hazard mitigation measures

Protect the *functional needs* of hazard mitigation measures, *lifeline utilities*, and essential or emergency services, including by:

(1) avoiding significant adverse *effects* on those measures, utilities or services,

(2) avoiding, and only where avoidance is not practicable, remedying or mitigating other adverse *effects* on those measures, utilities or services,

(3) maintaining access to those measures, utilities or services for maintenance and operational purposes, and

(4) restricting the establishment of other activities that may result in reverse sensitivity *effects* on those measures, utilities or services.

#### HAZ–NH–P10 – Coastal hazards

In addition to HAZ–NH–P1 to HAZ–NH–P9 above, on any *land* that is potentially affected by coastal hazards over at least the next 100 years:

(1) avoid increasing the *risk* of social, environmental and economic harm from coastal hazards,

(2) ensure no *land* use change or redevelopment occurs that would increase the *risk* to people and communities from that coastal hazard,

(3) encourage *land* use change or redevelopment that reduces the *risk* from that coastal hazard, and

(4) ensure decision making about the nature, scale and location of activities considers the ability of Otago's people and communities to adapt to, or mitigate the *effects* of, sea level rise and *climate change*.

#### HAZ–NH–P11 – Kaitiaki decision making

Recognise and provide for the role of Kāi Tahu as kaitiaki over *wāhi tūpuna*, Māori reserves and freehold land that is susceptible to *natural hazards* by involving *mana whenua* in decision making and management processes.

### Methods

#### HAZ–NH–M1 – Statement of responsibilities

In accordance with section 62(1)(i)(i) of the RMA 1991, the responsibilities for the control of *land* use to avoid or mitigate *natural hazards* or any group of hazards are as follows:

(1) the Regional Council and *territorial authorities* are both responsible for specifying objectives, policies and methods in *regional* and *district plans* for managing *land* subject to *natural hazard risk*,

(2) the Regional Council is responsible for:

  (a) specifying objectives, policies and methods in *regional plans*:

    (i) in the *coastal marine area*,

    (ii) in *wetlands*, *lakes* and *rivers*, and

(iii) in, on or under the *beds* of *rivers* and *lakes*,

(b) identifying areas in the region subject to *natural hazards* and describing their characteristics as required by Policy HAZ–NH–P1, mapping the extent of those areas in the relevant *regional plan(s)* and including those maps on a *natural hazard* register or database,

(c) in the coastal environment, identifying the coastal hazards as required by CE–P2(3) in accordance with Policy 24 of the NZCPS, mapping the extent of those areas in the relevant *regional plan(s)* and including those maps on a *natural hazard* register or database, and

(3) *territorial authorities* are responsible for

(a) specifying objectives, policies and methods in *district plans* for *land* outside of the areas listed in (2)(a), and

(b) mapping or identifying via the *natural hazard* register or database, areas identified in 2(a), (b) and (c) above subject to natural hazards and describing the characteristics and the extent of those areas in the relevant *district plan(s)*.

### HAZ–NH–M2 – *Local authorities*

*Local authorities* must:

(1) assess the level of *natural hazard risk* in their region or district in accordance with HAZ–NH–P2 and APP6, including by:

(a) consulting with communities, stakeholders and partners regarding *risk* levels thresholds, and

(b) developing a Risk Table in accordance with Step 3 of APP6 at a district or community scale,

(2) continue to undertake research on the identification of *natural hazard risk* and amend *natural hazard* registers, databases, *regional* and/or *district plans* as required,

(3) investigate options for reducing the level of *natural hazard risk* within areas of existing development to a tolerable or lower level, including by managing existing use rights under Sections 10 and 20A of the RMA,

(4) prepare or amend and maintain their *regional* or *district plans* to take into account the *effects* of *climate change* by:

(a) using the best relevant *climate change* data and projections to 2115,

(b) taking a precautionary approach when assessing and managing the *effects* of *climate change* where there is scientific uncertainty and potentially significant or irreversible *effects*,

(c) providing for activities that assist to reduce or mitigate the *effects* of *climate change*, and

(d) encouraging system *resilience*.

### HAZ–NH–M3 – *Regional plans*

Otago Regional Council must prepare or amend and maintain its *regional plans* to:

(1) manage activities in the *coastal marine area*, *beds* of *lakes* and *rivers*, and *wetlands* to achieve policies HAZ–NH–P2 to HAZ–NH–P6 and APP6,

(2) include *natural hazard* reduction measures, such as removing or restricting existing *land* uses, where there is significant *risk* to people or property,

(3) protect natural or modified features and systems that provide mitigation from the adverse *effects* of *natural hazards* in accordance with HAZ–NH–P6,

(4) provide for *hard protection structures* in accordance with HAZ–NH–P7,

(5) provide for the *functional needs* of hazard mitigation measures, *lifeline utilities*, and essential or emergency services in accordance with HAZ–NH–P8 and HAZ–NH–P9,

(6) include provisions that require decision makers to apply the precautionary approach set out in HAZ–NH–P5 when considering applications for *resource consent* for activities that will change the use of *land* and thereby increase the *risk* from *natural hazards* within areas subject to *natural hazard risk* that is uncertain or unknown, but potentially significant or irreversible, and

(7) require a *natural hazard risk* assessment be undertaken where an activity requires a *resource consent* to change the use of *land* which will increase the *risk* from *natural hazards* within areas subject to *natural hazards,* and where the *resource consent* is lodged prior to the *natural hazard risk* assessment required by HAZ–NH–M2(1) being completed, the *natural hazard risk* assessment must include:

(a) an assessment of the level of *natural hazard risk* associated with the proposal in accordance with APP6, and

(b) an assessment demonstrating how the proposal will achieve the outcomes set out in Policies HAZ–NH–P3 and HAZ–NH–P4.

**HAZ–NH–M4 – *District plans***

*Territorial authorities* must prepare or amend and maintain their *district plans* to:

(1) achieve policies HAZ–NH–P2 to HAZ–NH–P6 and APP6 on *land* outside the *coastal marine area*, *beds* of *lakes* and *rivers*, and *wetlands* by managing the location, scale and density of activities that may be subject to *natural hazard risk,*

(2) require implementation of *natural hazard risk* reduction measures, including to existing activities in accordance with HAZ–NH–P4,

(3) protect the role of natural or modified features and systems that provide mitigation from the adverse *effects* of *natural hazards* in accordance with HAZ–NH–P6,

(4) provide for *hard protection structures* in accordance with HAZ–NH–P7,

(5) provide for the *functional needs* of hazard mitigation measures, *lifeline utilities*, and essential or emergency services in accordance with HAZ–NH–P8 and HAZ–NH–P9,

(6) include provisions that require decision makers to apply the precautionary approach set out in HAZ–NH–P5 when considering applications for *resource consent* for activities that will change the use of *land* and which may increase the *risk* from *natural hazards* within areas subject to *natural hazard risk* that is uncertain or unknown, but potentially significant or irreversible, and

(7) require a *natural hazard risk* assessment be undertaken where an activity requires a plan change or *resource consent* to change the use of *land* which will increase the *risk* from *natural hazards* within areas subject to *natural hazards*, and where the application is lodged prior to the *natural hazard risk* assessment required by HAZ–NH–M2(1) being completed, the *natural hazard risk* assessment must include:

(a) an assessment of the level of *natural hazard risk* associated with the proposal in accordance with APP6, and

(b) an assessment demonstrating how the proposal will achieve the outcomes set out in Policies HAZ–NH–P3 and HAZ–NH–P4.

#### HAZ–NH–M5 – Other incentives and mechanisms

*Local authorities* are encouraged to consider the use of other mechanisms or incentives to assist in achieving Policies HAZ–NH–P1 to HAZ–NH–P11, including:

(1) preparing *natural hazard* strategies or other similar documents to assist in the management and reduction of *natural hazard risk* and adaptation to, and mitigation of, the *effects* of *climate change*,

(2) developing community relevant responses to the impacts of *natural hazards* and *climate change*, in collaboration with key stakeholders and affected community,

(3) undertaking research in collaboration with other *local authorities* and other stakeholders as appropriate, into *natural hazards* and *climate change* in Otago, and

(4) providing information and guidance on:

(a) management approaches to the avoidance or mitigation of *natural hazards*,

(b) ways to adapt to and mitigate the *effects* of *climate change*, and

(c) the benefits of natural features and systems in mitigating *natural hazards*.

### Explanation

#### HAZ–NH–E1 – Explanation

The policies in this chapter are designed to reduce the level of *natural hazard risk* within the region through sound preparation, investigation and planning. These provisions take a risk-based approach, taking into consideration the likelihood of the hazard and the vulnerability of people, communities, and the *environment*. The approach ensures consistent planning by applying the same framework irrespective of the type of *natural hazard* that may exist. It allows for the full range of *risk* mitigation measures (regulatory and non-regulatory) to be taken into account in determining the level of *risk* that exists at a particular locality.

Once the level of *risk* has been established, the provisions direct that *district* and *regional plans* require activities to be undertaken in a manner that results in the *natural hazard risk* to people, the community and property being tolerable or lower. Where a *natural hazard risk* to people, the community and property cannot be reduced to a tolerable level, the activity must be avoided. The provisions require that the same risk-based approach is taken when considering the management of existing development, by ensuring that the *risk* associated with existing development is tolerable or lower.

The provisions also set direction on *natural hazard* management methods such as use of the precautionary approach, protecting natural features and systems that provide hazard mitigation, the use of *hard protection structures*, and the location and design of *lifeline utilities* and facilities for essential or emergency services. These provisions are designed to reduce the level of *natural hazard risk* within the region.

#### HAZ–NH–PR1 – Principal reasons

The Otago region is exposed to a wide variety of *natural hazards* that impact on people, property, *infrastructure* and the wider *environment*. Given the wide variety of landscapes that make up the Otago

region, the *natural hazards* threats range from coastal erosion and flooding in the lowland coastal areas of the region to alluvial fan deposition, landslip, fire, earthquakes, rock fall, and *river* breaches in the alpine areas of the region. The *effects* of *natural hazards* vary in terms of both their likelihood and consequence. Some *natural hazards,* such as flooding, may occur relatively frequently and may damage property and disrupt people's lives and economic, social and cultural activities, whereas *natural hazards* such as tsunami occur infrequently, but when they do occur, they pose serious *risk* to life.

The negative *effects* of *natural hazards* are generally best managed by avoiding development in areas that are known to be subject to *natural hazards*. However, the majority of the region is subject to some form of hazards *risk*, to a greater or lesser extent. While avoidance may be the preferred option in many cases, in other situations mitigating the *effects* of *natural hazards* to tolerable levels will be a feasible option to ensure the health, safety and well-being of the community. The changing nature of *natural hazards risk* due to *climate change* means that planning provisions need to be able to adapt to a future *natural hazards environment*.

Communities need consistent guidance on sea level rise, extreme weather events, and all other adverse *effects* of *climate change* if they are to appropriately manage those *effects*. *Climate change* is resulting in rising sea levels and is increasing the frequency and severity of climate related *natural hazards* including flooding, wind events, fires, landslips, erosion and drought. *Stormwater* systems may not be able to cope with heavier rainfall. Other *effects* of *climate change* include changing distributions of plants and animals, and consequential *effects*, such as the *risk* of saltwater intrusion into *groundwater* as a result of sea level rise in combination with increased *groundwater* abstraction, and *groundwater* ponding. There may be other adverse *effects* from *climate change* that are not yet known. A precautionary approach is required where there is scientific uncertainty. The *effects* of *climate change* will result in social, environmental and economic costs. It is prudent that these changes are planned for now, so that the impacts can be reduced.

In addition to the objectives and policies in this chapter, the management of *natural hazards* are also recognised and provided for in the following chapters of this RPS:

- IM – Integrated management
- CE – Coastal environment
- EIT – Energy, infrastructure and transport
- UFD – Urban form and development

### Anticipated environmental results

**HAZ–NH–AER1** The location and design of new developments and natural resource use reduces community exposure to the adverse *effects* of *natural hazards* events and processes.

**HAZ–NH–AER2** No developments proceed that have a significant level of *risk*.

**HAZ–NH–AER3** The level of *risk* associated with new development does not exceed a tolerable level.

**HAZ–NH–AER4** Where existing development is subject to *risks* from *natural hazards*, the level of *risk* is reduced to a tolerable level.

**HAZ–NH–AER5** The impact on life, property, *lifeline utilities*, and essential services from *natural hazards* and *climate change* is managed.

# HAZ–CL – *Contaminated land*

## Objectives

### HAZ–CL–O3 – Contaminated land

*Contaminated land* and *waste* materials are managed to protect human health, *mana whenua* values and the *environment* in Otago.

## Policies

### HAZ–CL–P13 – Identifying *contaminated land*

Identify sites of known or potentially *contaminated land* in Otago using the Ministry for the Environment's *Hazardous Activities and Industries List*.

### HAZ–CL–P14 – Managing *contaminated land*

Actively manage contaminated or potentially *contaminated land* so that it does not pose an unacceptable *risk* to people and the *environment*, by:

(1) assessing and monitoring *contaminant* levels and environmental *risks*,

(2) protecting human health in accordance with regulatory requirements,

(3) avoiding, as the first priority, and only where avoidance is not practicable, mitigating or remediating, adverse *effects* of the *contaminants* on the *environment,* and

(4) requiring closed *landfills* to be managed in accordance with a closure plan that sets out monitoring requirements and, where necessary, any remedial actions required to address ongoing *risks*.

### HAZ–CL–P15 – New *contaminated land*

Avoid the creation of new *contaminated land* or, where this is not practicable, minimise adverse *effects* on the *environment* and *mana whenua* values.

### HAZ–CL–P16 – *Waste* minimisation responses

Apply the principles of the *waste* management hierarchy (reduce, reuse, recycle, recover, residual *waste* management) to the management of all *waste* streams.

### HAZ–CL–P17 – Disposal of *waste* materials

Provide for the development and operation of facilities and services for the storage, recycling, recovery and treatment of *waste* materials but only for the disposal of *waste* materials if those materials cannot be recycled, recovered or treated for re-use.

### HAZ–CL–P18 – *Waste* facilities and services

When providing for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of *waste* materials:

(1) avoid adverse *effects* on the health and safety of people,

(2) minimise the potential for adverse *effects* on the *environment* to occur,

(3) minimise *risk* associated with *natural hazard* events, and

(4) restrict the establishment of activities that may result in reverse sensitivity *effects* near *waste* management facilities and services.

## Methods

### HAZ–CL–M6 – *Regional plans*

Otago Regional Council must:

(1) maintain a register or database of sites where hazardous activities and industries are or have been located in Otago,

(2) prepare or amend and maintain its *regional plans* to:

(a) in accordance with HAZ–CL–P14 and HAZ–CL–P15 manage the *effects* of the use of *contaminated land* on:

(i) the quality of air, *water* and *land*; and

(ii) the *coastal marine area*, and the *beds* of *rivers*, *lakes* and other *water bodies*,

(b) require *waste* disposal facilities to be designed, constructed and operated in accordance with best industry practice, and

(c) require *waste* disposal facilities to monitor, record and report on the quantity and composition of *waste* being deposited to *landfill*.

### HAZ–CL–M7 – *District plans*

*Territorial authorities* must prepare or amend and maintain their *district plans* to provide for the development of facilities and services for the storage, recycling, recovery, treatment and disposal of *waste* while achieving the outcomes listed in HAZ–CL–P14 to HAZ–CL–P16.

### HAZ–CL–M8 – *Waste* management and minimisation plans

*Local authorities* must develop *waste* management and minimisation plans in accordance with the Waste Minimisation Act 2008.

### HAZ–CL–M9 – Other incentives and mechanisms

*Local authorities* may:

(1) encourage the application of the *waste* management hierarchy by:

(a) giving preference to reducing waste generated,

(b) reusing *waste*,

(c) recycling *waste*,

(d) recovering resources from *waste*, and

(e) only disposing residual *waste* to a disposal facility,

(2) provide information and guidance on *waste* minimisation and management, and

(3) advocate for:

(a) the implementation of the *waste* hierarchy throughout the region, and

(b) the development of *infrastructure* and services to provide for recycling and disposal services across the region.

## Explanation

### HAZ–CL–E2 – Explanation

The policies in this chapter are designed to ensure that *contaminated land* and *waste* materials do not harm human health or the *environment*. To achieve this, areas of known or potentially *contaminated land* are to be identified. Once sites are identified, the protection of human health is managed by the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2012 (NESCS). It is the role of *regional plans* to minimise the adverse *effects* of the *contaminants* on the *environment* by avoiding the creation of new *contaminated land* and minimising the adverse *effects* of *waste* material on the *environment*. The provisions within this chapter also encourage the application of the *waste* management hierarchy.

## Principal reasons

### HAZ–CL–PR2 – Principal reasons

Resources need to be carefully used to minimise the material disposed of as *waste*. Waste materials and hazardous substances need to be carefully managed to avoid creating environmental problems or adversely affecting human health.

In order to protect people and the *environment* from the adverse *effects* of *contaminated land*, the first task is to identify *land* that could be contaminated. The Ministry for the Environment's Hazardous Activities and Industries List (HAIL) is a list of activities and industries that may have involved the use of hazardous substances. Such use of hazardous substances may have resulted in *land* becoming contaminated. Once known or potentially *contaminated land* has been identified, assessments can be made to determine the nature or existence of contamination.

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health 2012 (NESCS) sets out a nationally consistent set of planning controls and soil *contaminant* values. It applies to assessing and managing the actual or potential adverse *effects* of *contaminants* in soil on human health when undertaking *subdivision, land* use change, *earthworks*, soil sampling or removing the underground portions of any fuel storage or dispensing systems. The NESCS does not apply to assessing and managing the actual or potential adverse *effects* of *contaminants* on other receptors, including ecology, *water* quality or *amenity values*. Therefore, it is the role of the *regional plans* to manage these adverse *effects*.

The *waste* management hierarchy is an internationally recognised management model for the reduction of residual *waste*. The *waste* management hierarchy can be applied to all *waste* streams. When making decisions about a *land* use or activity, it is possible to include methods that will reduce *waste* over the lifetime of that *land* use or activity.

## Anticipated environmental results

| | |
|---|---|
| **HAZ–CL–AER6** | The environment, people and communities are not harmed by *waste* materials. |
| **HAZ–CL–AER7** | The waste hierarchy is implemented, resulting in less *waste* requiring disposal and a reduction of the environmental *effects* generated from *waste*. |

# HCV – Historical and cultural values

## HCV–WT – *Wāhi tūpuna*

### Objectives

#### HCV–WT–O1 – Kāi Tahu cultural landscapes

*Wāhi tūpuna* and their associated cultural values are identified and protected.

#### HCV–WT–O2 – Rakatirataka

The rakatirataka of *mana whenua* over *wāhi tūpuna* is recognised, and *mana whenua* are able to exercise *kaitiakitaka* within these areas.

### Policies

#### HCV–WT–P1 – Recognise and identify *wāhi tūpuna*

Kāi Tahu relationships with *wāhi tūpuna* are sustained, including by:

(1) identifying as *wāhi tūpuna* any sites and areas of significance to *mana whenua*, along with the cultural values that contribute to each *wāhi tūpuna* being significant,

(2) recognising the rakatirataka of *mana whenua* over *wāhi tūpuna* and providing for their ability to exercise *kaitiakitaka* within these areas,

(3) recognising and providing for connections and associations between different *wāhi tūpuna*, and

(4) recognising and using traditional place names.

#### HCV–WT–P2 – Management of *wāhi tūpuna*

*Wāhi tūpuna* are protected by:

(1) avoiding significant adverse *effects* on the cultural values associated with identified *wāhi tūpuna*,

(2) where adverse *effects* demonstrably cannot be completely avoided, remedying or mitigating adverse *effects* in a manner that maintains the values of the *wāhi tūpuna*,

(3) managing identified *wāhi tūpuna* in accordance with tikaka Māori,

(4) avoiding any activities that may be considered inappropriate in *wāhi tūpuna* as identified by Kāi Tahu, and

(5) encouraging the enhancement of access to *wāhi tūpuna* to the extent compatible with the particular *wāhi tūpuna*.

### Methods

#### HCV–WT–M1 – Identification

*Local authorities* must:

(1) enable Kāi Tahu to identify *wāhi tūpuna* sites, areas and values,

(2) identify *wāhi tūpuna* using the guide set out in APP7,

(3) recognise that *wāhi tūpuna* span jurisdictional boundaries and work together to ensure the identification process under (1) enables *wāhi tūpuna* sites, areas and values to be treated uniformly across district boundaries, and

(4) identify, map, describe and protect the areas and values identified under (1) in the relevant *regional* and *district plans* or, if a site is a sensitive cultural site, use alert layers to advise of sensitive cultural sites without disclosure in plans.

#### HCV–WT–M2 – *Regional* and *district plans*

*Local authorities* must prepare or amend and maintain their *regional* and *district plans* to include methods that are in accordance with tikaka to:

(1) control activities in, or adjacent to, *wāhi tūpuna* sites and areas,

(2) require cultural impact assessments where activities have the potential to adversely affect *wāhi tūpuna*,

(3) require including conditions on *resource consents* or designations to provide buffers or setbacks between *wāhi tūpuna* and incompatible activities,

(4) require including accidental discovery protocols as conditions on *resource consents* or designations for activities that may unearth archaeological sites, and

(5) maintain existing access to identified *wāhi tūpuna* sites and areas and promote improved access where practicable.

#### HCV–WT–M3 – Collaboration with Kāi Tahu

*Local authorities* must include Kāi Tahu in all decision making concerning protection of the values of *wāhi tūpuna* sites and areas and collaborate with Kāi Tahu to:

(1) identify and protect places, areas or landscapes of cultural, spiritual or traditional significance to them,

(2) identify and protect the values that contribute to their significance, and

(3) share information relevant to Kāi Tahu interests.

### Explanation

#### HCV–WT–E1 – Explanation

The policies in this chapter are designed to achieve protection of *wāhi tūpuna* from inappropriate *subdivision*, use and development. The policies recognise the significance of *wāhi tūpuna* to Kāi Tahu, and enable the relationship of Kāi Tahu with their culture and traditions by acknowledging that the identification of *wāhi tūpuna* and the associated values can only be undertaken by Kāi Tahu, then protecting or managing those sites or areas to ensure that activities do not have any significant adverse *effects* on the values associated with the identified *wāhi tūpuna*. The policies also direct that the management of activities within or adjacent to *wāhi tūpuna* must occur in a culturally appropriate manner.

## Principal reasons

### HCV–WT–PR1 – Principal reasons

*Wāhi tūpuna* are landscapes that embody the customary and contemporary relationship of Kāi Tahu and their culture and traditions with Otago. The sites and resources used by Kāi Tahu are spread throughout Otago, reflecting the relationship of Kāi Tahu with the *land, coastal waters* and wai Māori. *Wāhi tūpuna* have significant cultural value to Kāi Tahu.

The provisions in this chapter assist in implementing section 6(e) of the RMA 1991 and the NZCPS by requiring:

- the identification of *wāhi tūpuna* in consultation with Kāi Tahu,
- the protection of *wāhi tūpuna* from inappropriate *subdivision*, use and development, and
- specified actions on the part of Otago's *local authorities* in managing activities that may impact *wāhi tūpuna*.

Implementation of the provisions in this chapter will occur primarily through *regional* and *district plan* provisions, however *local authorities* may also choose to adopt additional non-regulatory methods to support the achievement of the objectives.

## Anticipated environmental results

**HCV–WT–AER1** The areas and places of *wāhi tūpuna* are identified in the relevant *regional* and *district plans.*

**HCV–WT–AER2** *Wāhi tūpuna* and their values are maintained.

# HCV–HH – *Historic heritage*

## Objective

### HCV–HH–O3 – *Historic heritage* resources

Otago's unique *historic heritage* contributes to the region's character, sense of identity, and social, cultural and economic well-being, and is preserved for future generations.

## Policies

### HCV–HH–P3 – Recognising *historic heritage*

Recognise that Otago's *historic heritage* includes:

(1) Māori cultural and *historic heritage* values,

(2) archaeological sites,

(3) residential and commercial *buildings*,

(4) pastoral sites,

(5) surveying equipment, communications and transport, including *roads*, bridges and routes,

(6) industrial *historic heritage,* including mills and brickworks,

(7) gold and other mining systems and settlements,

(8) dredge and ship wrecks,

(9) ruins,

(10) coastal *historic heritage*, particularly Kāi Tahu occupation sites and those associated with early European activities such as whaling,

(11) memorials, and

(12) trees and vegetation.

### HCV–HH–P4 – Identifying *historic heritage*

Identify the places and areas of *historic heritage* in Otago in accordance with APP8 and categorise them as:

(1) places and areas with special or outstanding *historic heritage* values or qualities, or

(2) places and areas with *historic heritage* values or qualities.

### HCV–HH–P5 – Managing *historic heritage*

Protect *historic heritage* by:

(1) requiring the use of accidental discovery protocols,

(2) avoiding adverse *effects* on areas or places with special or outstanding *historic heritage* values or qualities,

(3) avoiding significant adverse *effects* on areas or places with *historic heritage* values or qualities,

(4) avoiding, as the first priority, other adverse *effects* on areas or places with *historic heritage* values or qualities,

(5) where adverse *effects* demonstrably cannot be completely avoided, remedying or mitigating them, and

(6) recognising that for *infrastructure*, EIT–INF–P13 applies instead of HCV–HH–P5(1) to (5).

#### HCV–HH–P6 – Enhancing *historic heritage*

Enhance places and areas of *historic heritage* wherever possible through the implementation of plan provisions, decisions on applications for *resource consent* and notices of requirement and non-regulatory methods.

#### HCV–HH–P7 – Integration of *historic heritage*

Maintain *historic heritage* values through the integration of *historic heritage* values into new activities and the adaptive reuse or upgrade of *historic heritage* places and areas.

### Methods

#### HCV–HH–M4 – *Regional plans*

Otago Regional Council must prepare or amend and maintain its *regional plans* to:

(1) identify places and areas with *historic heritage* in accordance with HCV–HH–P4 that are located in the *beds* of *lakes* and *rivers*, *wetlands* and the *coastal marine area,*

(2) control the following where they may adversely affect *historic heritage*:

  (a) the character, location, scale and form of *structures* in the *beds* of *lakes* and *rivers, wetlands* and in the *coastal marine area*,

  (b) indigenous vegetation removal in the *beds* of *lakes* and *rivers*, *wetlands* and the *coastal marine area,*

  (c) *earthworks*, deposition and disturbance to and in the *beds* of *lakes* and *rivers* and in the *coastal marine area*,

  (d) *discharges* to air,

  (e) taking, use, damming and diversion of, and *discharges* to, *water*, and

  (f) the disturbance, demolition or alteration of physical elements or *structures* of *historic heritage* in the *beds* of *lakes* and *rivers* and in the *coastal marine area*,

(3) include implementation methods to protect *historic heritage* that are in accordance with HCV–HH–P5 and may also include:

  (a) assessment criteria, development standards or thresholds to control the scale, intensity, form and location of activities (including for the purposes of controlling cumulative adverse *effects*), and

  (b) conditions on *resource consents* to provide buffers or setbacks between *historic heritage* places or areas and other incompatible activity, and

(4) require the use of accidental discovery protocols as conditions on *resource consents* for *earthworks* or other activities that may encounter archaeological features.

### HCV–HH–M5 – *District Plans*

*Territorial authorities* must prepare or amend and maintain their *district plans* to the extent necessary to:

(1) identify places and areas with *historic heritage* in accordance with HCV-HH-P4 that are located outside the *beds* of *lakes* and *rivers*, *wetlands* and the *coastal marine area,*

(2) control the following where they may adversely affect *historic heritage*:

  (a) the location, intensity and form of *subdivision*,

  (b) the character, location, scale and form of activities (including *structures*) outside the *beds* of *lakes* and *rivers* and the *coastal marine area*,

  (c) the location and scale of *earthworks* and indigenous vegetation removal outside the *beds* of *lakes* and *rivers* and the *coastal marine area,*

  (d) the disturbance, demolition or alteration of physical elements or *structures* with special or outstanding *historic heritage* value or qualities outside the *coastal marine area*, *beds* of *lakes* and *rivers*,

(3) include implementation methods to protect *historic heritage* places and areas required by HCV–HH–P5, and may also include:

  (a) assessment criteria, development standards or thresholds to control the scale, intensity, form and location of activities (including for the purposes of controlling cumulative adverse *effects*),

  (b) conditions on *resource consents* and designations to provide buffers or setbacks between *historic heritage* places or areas and other incompatible activity,

  (c) accidental discovery protocols as conditions on *resource consents* for *earthworks* or other activities that may unearth archaeological features,

  (d) providing for activities seeking to retain *historic heritage* places, areas or landscapes, including adaptive reuse, maintenance and seismic strengthening,

  (e) including heritage alert layers in plans to inform the public about areas where there is a high probability of the presence of heritage values, particularly archaeological values, and

(4) require the use of accidental discovery protocols as conditions on *resource consents* and designations for *earthworks* or other activities that may unearth archaeological features.

### HCV–HH–M6 – Incentives and education

*Local authorities* are encouraged to use other mechanisms or incentives to assist in achieving Policies HCV–HH–P3 to HCV–HH–P7, including:

(1) promoting public awareness of *historic heritage* values through providing information and education, and

(2) rates differentials and *resource consent* fee waivers for activities that involve the retention of historic places or areas.

## Explanation

### HCV–HH–E2 – Explanation

The policies in this section are designed to ensure that Otago's unique *historic heritage* continues to contribute to the region's character, sense of identity, and social and economic well-being by requiring places and areas of significant *historic heritage* to be identified using regionally consistent methodology, then protecting or managing those sites or areas in particular ways to ensure that other activities do not detract from the region's special character and sense of identity. This also includes enhancing places and areas of *historic heritage* by encouraging the integration of *historic heritage* values into new activities and enabling the adaptive reuse or upgrade of *historic heritage* places in certain circumstances.

## Principal reasons

### HCV–HH–PR2 – Principal reasons

Otago is a region rich in *historic heritage*, with a diversity of significant cultural and *historic heritage* places and areas that contribute to its special character and identity. *Historic heritage* encompasses historic sites, *structures*, places, and areas; archaeological sites; sites of significance to Māori (including wāhi tapu and wāhi taoka) and the broader surroundings and landscape in which they are situated. The heritage resources in Otago are reflective of the history that helped to shape the region, and is representative of the different cultures, industries and institutions that contributed to its development. Historic landscapes in the coastal *environment* are specifically recognised in Policy 17 of the NZCPS.

The provisions in this chapter assist in implementing section 6(f) of the RMA 1991 and the NZCPS by requiring:

- the identification of places and areas with *historic heritage* values and qualities and places and areas with special or outstanding *historic heritage* values and qualities using clear criteria and methodology that is regionally consistent,
- the protection of *historic heritage* from inappropriate *subdivision*, use and development,
- the enhancement of *historic heritage* through the integration of *historic heritage* values into new activities and enabling the adaptive reuse or upgrade of *historic heritage* places and areas in certain circumstances, and
- specified actions on the part of Otago's *local authorities* in managing *historic heritage*.

Implementation of the provisions in this chapter will occur primarily through *regional* and *district plan* provisions, however *local authorities* may also choose to adopt additional non-regulatory methods to support the achievement of the objectives.

## Anticipated environmental results

| | |
|---|---|
| **HCV–HH–AER3** | Heritage resources that make a significant contribution towards Otago's *historic heritage* are identified and protected. |
| **HCV–HH–AER4** | The number, type, extent and distribution of *historic heritage* sites and places with special or outstanding values or qualities are maintained. |
| **HCV–HH–AER5** | Otago's existing built *historic heritage* is maintained, enhanced and integrated through efficient use, or adaptive reuse, where appropriate. |

# NFL – Natural features and landscapes

## Objectives

### NFL–O1 – Outstanding and *highly valued natural features and landscapes*

The areas and values of Otago's outstanding and *highly valued natural features and landscapes* are identified, and the use and development of Otago's *natural and physical resources* results in:

(1) the protection of outstanding natural features and landscapes, and

(2) the maintenance or enhancement of *highly valued natural features and landscapes*.

## Policies

### NFL–P1 – Identification

In order to manage outstanding and *highly valued natural features and landscapes*, identify:

(1) the areas and values of outstanding and *highly valued natural features and landscapes* in accordance with APP9, and

(2) the capacity of those natural features and landscapes to accommodate use or development while protecting the values that contribute to the natural feature and landscape being considered outstanding or highly valued.

### NFL–P2 – Protection of outstanding natural features and landscapes

Protect outstanding natural features and landscapes by:

(1) avoiding adverse *effects* on the values that contribute to the natural feature or landscape being considered outstanding, even if those values are not themselves outstanding, and

(2) avoiding, remedying or mitigating other adverse *effects*.

### NFL–P3 – Maintenance of *highly valued natural features and landscapes*

Maintain or enhance *highly valued natural features and landscapes* by:

(1) avoiding significant adverse *effects* on the values of the natural feature or landscape, and

(2) avoiding, remedying or mitigating other adverse *effects*.

### NFL–P4 – Restoration

Promote restoration of the areas and values of outstanding and *highly valued natural features and landscapes* where those areas or values have been reduced or lost.

### NFL–P5 – *Wilding conifers*

Reduce the impact of *wilding conifers* on outstanding and *highly valued natural features and landscapes* by:

(1) avoiding *afforestation* and *replanting* of *plantation forests* with *wilding conifer* species listed in APP5 within:

  (a) areas identified as outstanding natural features or landscapes, and

  (b) buffer zones adjacent to outstanding natural features and landscapes where it is necessary to protect the outstanding natural feature or landscape, and

(2) supporting initiatives to control existing *wilding conifers* and limit their further spread.

### NFL–P6 – Coastal features and landscapes

Natural features and landscapes located within the coastal environment are managed by CE–P6 and implementation of CE–P6 also contributes to achieving NFL–O1.

## Methods

### NFL–M1 – Identification

*Territorial authorities* must:

(1) include in their *district plans* a map or maps and a statement of the values of the areas of outstanding and *highly valued natural features and landscapes* in accordance with NFL–P1,

(2) include in their *district plans* a statement of the capacity of outstanding and *highly valued natural features and landscapes* to accommodate change in use and development without their values being materially compromised or lost, in accordance with NFL–P1,

(3) recognise that natural features and landscapes may span jurisdictional boundaries and work together, including with the Regional Council, to identify areas under (1) to ensure that the identification of natural features and landscapes are treated uniformly across district boundaries, and

(4) prioritise identification under (1) in areas that are likely to contain outstanding natural features or landscapes and are likely to face development or growth pressure over the life of this RPS.

### NFL–M2 – *Regional plans*

Otago Regional Council must prepare or amend and maintain its *regional plans* to:

(1) control the use and development of *water bodies,* the *beds* of *rivers* and *lakes*, and *wetlands* in order to protect outstanding natural features and landscapes in accordance with NFL–P2, and maintain and enhance *highly valued natural features or landscapes* in accordance with NFL–P3, and

(2) provide for and encourage activities undertaken for the primary purpose of restoring *highly valued natural features or landscapes* in accordance with NFL–P4.

### NFL–M3 – *District plans*

*Territorial authorities* must prepare or amend and maintain their *district plans* to:

(1) control the *subdivision*, use and development of *land* and the use of the surface of *water bodies* in order to protect outstanding natural features or landscapes in accordance with NFL–P2, and maintain and enhance *highly valued natural features or landscapes* in accordance with NFL–P3,

(2) provide for and encourage activities undertaken for the primary purpose of restoring *highly valued natural features or landscapes* in accordance with NFL–P4, and

(3) manage *wilding conifer* spread in accordance with NFL–P5.

### NFL–M4 – Other incentives and mechanisms

*Local authorities* are encouraged to consider the use of other mechanisms or incentives to assist in achieving the outcomes sought by the policies in this chapter, including:

(1) funding assistance for restoration projects (for example, through the Regional Council's ECO Fund),

(2) purchase of *land* that forms part of a natural feature or landscape,

(3) development or design guidelines (for example, colour palettes for *structures* in or on natural features or landscapes),

(4) rates relief for *land* that is protected due to its status as an outstanding natural feature or landscape,

(5) education and advice,

(6) waiver or reduction of processing fees for activities where the primary purpose is to enhance the values of *highly valued natural features or landscapes*, and

(7) advocating for a collaborative approach between central and local government to fund and carry out *wilding conifer* control.

## Explanation

### NFL–E1 – Explanation

The policies in this chapter are designed to require outstanding and *highly valued natural features and landscapes* to be identified using regionally consistent attributes, then managing activities to either protect outstanding natural features and landscapes in accordance with section 6(b) of the RMA 1991 or maintain *highly valued natural features or landscapes* in accordance with section 7 of the RMA 1991. This distinction recognises that these areas have values with differing degrees of significance and that, generally, those classified as 'highly valued' will have greater capacity to accommodate *land* use change and development without values being adversely affected. The policies seek to control the impact of *wilding conifers* which are a particular threat to Otago's natural features and landscapes, in a way that recognises the regulations in the NESPF.

## Principal reasons

### NFL–PR1 – Principal reasons

Natural features include resources that are the result of natural processes, particularly those reflecting a particular geology, topography, geomorphology, hydrology, ecology, or other physical attribute that creates a natural feature or combination of natural features. Landscapes include the natural and physical attributes of *land* together with air and *water*, which change over time and which is made known by people's evolving perceptions and associations. Natural features and landscapes also have significant

cultural value to Kāi Tahu. There are many sites of significance across Otago, reflecting the relationship of Kāi Tahu with the *land, water* and sea.

The provisions in this chapter assist in protecting Otago's outstanding and *highly valued natural features and landscapes* by requiring:

- the identification of outstanding and *highly valued natural features and landscapes* using regionally consistent criteria,
- the protection of outstanding natural features and landscapes and maintenance of *highly valued natural features and landscapes*,
- an ongoing reduction in the impact of *wilding conifers* on natural features and landscapes, and
- specified actions on the part of Otago's *local authorities* in managing natural features and landscapes.

Implementation of the provisions in this chapter will occur primarily through *regional* and *district plan* provisions, however *local authorities* may also choose to adopt additional non-regulatory methods to support the achievement of the objectives.

## Anticipated environmental results

**NFL–AER1** The number, type, extent and distribution of identified outstanding and *highly valued natural features and landscapes* are maintained over the life of this RPS.

**NFL–AER2** The values of outstanding and *highly valued natural features and landscapes* are not reduced or lost.

**NFL–AER3** Within areas identified as outstanding or *highly valued natural features or landscapes*, the area of *land* vegetated by *wilding conifers* is reduced over the life of this RPS.

# UFD – Urban form and development

## Objectives

### UFD–O1 – Form and function of *urban areas*

The form and functioning of Otago's *urban areas*:

(1) reflects the diverse and changing needs and preferences of Otago's people and communities, now and in the future, and

(2) maintains or enhances the significant values and features identified in this RPS, and the character and resources of each *urban area*.

### UFD–O2 – Development of *urban areas*

The development and change of Otago's *urban areas:*

(1) improves housing choice, quality, and affordability,

(2) allows business and other non-residential activities to meet the needs of communities in appropriate locations,

(3) respects and wherever possible enhances the area's history, setting, and natural and built environment,

(4) delivers good urban design outcomes, and improves liveability,

(5) improves connectivity within urban areas, particularly by *active transport* and *public transport*,

(6) minimises conflict between incompatible activities,

(7) manages the exposure of *risk* from *natural hazards* in accordance with the HAZ–NH – Natural hazards section of this RPS,

(8) results in sustainable and efficient use of *water*, energy, *land*, and *infrastructure*,

(9) achieves integration of *land* use with existing and planned *development infrastructure* and *additional infrastructure* and facilitates the safe and efficient ongoing use of *regionally significant infrastructure*,

(10) achieves consolidated, well designed and located, and sustainable development in and around existing *urban areas* as the primary focus for accommodating the region's urban growth and change, and

(11) is guided by the input and involvement of *mana whenua*.

### UFD–O3 – Strategic planning

Strategic planning is undertaken in advance of significant development, expansion or redevelopment of *urban areas* to ensure that

(1) there is sufficient *development capacity* supported by integrated *infrastructure* provision for Otago's housing and business needs in the short, medium and long term,

(2) development is located, designed and delivered in a way and at a rate that recognises and provides for locationally relevant regionally significant features and values identified by this RPS, and

(3) the involvement of *mana whenua* is facilitated, and their values and aspirations are provided for.

### UFD–O4 – Development in *rural areas*

Development in Otago's *rural areas* occurs in a way that:

(1) avoids impacts on significant values and features identified in this RPS,

(2) avoids as the first priority, land and soils identified as highly productive by LF–LS–P19 unless there is an *operational need* for the development to be located in *rural areas*,

(3) only provides for urban expansion, rural lifestyle and rural residential development and the establishment of *sensitive activities*, in locations identified through strategic planning or zoned within *district plans* as suitable for such development; and

(4) outside of areas identified in (3), maintains and enhances the *natural and physical resources* that support the productive capacity, rural character, and long-term viability of the rural sector and rural communities.

### UFD–O5 – Urban development and *climate change*

The impacts of *climate change* are responded to in the development and change of Otago's *urban areas* so that:

(1) the contributions of current communities and future generations to *climate change* impacts are reduced,

(2) community resilience increases,

(3) adaptation to the effects of *climate change* is facilitated,

(4) energy use is minimised, and energy efficiency improves, and

(5) establishment and use of *small and community-scale distributed electricity generation* is enabled.

## Policies

### UFD–P1 – Strategic planning

Strategic planning processes, undertaken at an appropriate scale and detail, precede urban growth and development and:

(1) ensure integration of *land* use and *infrastructure*, including how, where and when necessary *development infrastructure* and *additional infrastructure* will be provided, and by whom,

(2) demonstrate at least sufficient *development capacity* supported by integrated *infrastructure* provision for Otago's housing and business needs in the short, medium and long term,

(3) maximise current and future opportunities for increasing resilience, and facilitating adaptation to changing demand, needs, preferences and *climate change*,

(4) minimise *risks* from and improve resilience to *natural hazards*, including those exacerbated by *climate change,* while not increasing *risk* for other development,

(5) indicate how connectivity will be improved and connections will be provided within *urban areas*,

(6) provide opportunities for iwi, hapū and whānau involvement in planning processes, including in decision making, to ensure provision is made for their needs and aspirations, and cultural practices and values,

(7) facilitate involvement of the current community and respond to the reasonably foreseeable needs of future communities, and

(8) identify, maintain and where possible, enhance important features and values identified by this RPS.

### UFD–P2 – Sufficiency of *development capacity*

Sufficient urban area housing and business *development capacity* in *urban areas,* including any required competitiveness margin, is provided in the short, medium and long term by:

(1) undertaking strategic planning in accordance with UFD–P1

(2) identifying areas for urban intensification in accordance with UFD–P3,

(3) identifying areas for urban expansion in accordance with UFD–P4,

(4) providing for commercial and industrial activities in accordance with UFD–P5 and UFD–P6

(5) responding to any demonstrated insufficiency in housing or business *development capacity* by increasing *development capacity* or providing more *development infrastructure* as required, as soon as practicable, and

(6) requiring Tier 2 *urban environments* to meet, at least, the relevant housing bottom lines in APP10.

### UFD–P3 – Urban intensification

Within *urban areas* intensification is enabled where it:

(1) contributes to establishing or maintaining the qualities of a *well-functioning urban environment*,

(2) is well-served by existing or planned *development infrastructure* and *additional infrastructure*,

(3) meets the greater of demonstrated demand for housing and/or business use or the level of accessibility provided for by existing or planned *active transport* or *public transport*,

(4) addresses an identified shortfall for housing or business space, in accordance with UFD–P2,

(5) addresses issues of concern to iwi and hapū, including those identified in any relevant iwi planning documents, and

(6) manages adverse *effects* on values or resources identified by this RPS that require specific management or protection.

### UFD–P4 – Urban expansion

Expansion of existing *urban areas* is facilitated where the expansion:

(1) contributes to establishing or maintaining the qualities of a *well-functioning urban environment,*

(2) will not result in inefficient or sporadic patterns of settlement and residential growth,

(3) is integrated efficiently and effectively with *development infrastructure* and *additional infrastructure* in a strategic, timely and co-ordinated way,

(4) addresses issues of concern to iwi and hapū, including those identified in any relevant iwi planning documents,

(5) manages adverse *effects* on other values or resources identified by this RPS that require specific management or protection,

(6) avoids, as the first priority, highly productive land identified in accordance with LF–LS–P19,

(7) locates the new urban/rural zone boundary interface by considering:

(a) adverse *effects*, particularly reverse sensitivity, on *rural areas* and existing or potential productive rural activities beyond the new boundary, and

(b) key natural or built barriers or physical features, significant values or features identified in this RPS, or cadastral boundaries that will result in a permanent, logical and defendable long-term limit beyond which further urban expansion is demonstrably inappropriate and unlikely, such that provision for future development infrastructure expansion and connectivity beyond the new boundary does not need to be provided for, or

(c) reflects a short or medium term, intermediate or temporary zoning or infrastructure servicing boundary where provision for future *development infrastructure* expansion and connectivity should not be foreclosed, even if further expansion is not currently anticipated.

### UFD–P5 – *Commercial activities*

Provide for *commercial activities* in *urban areas* by:

(1) enabling a wide variety and scale of *commercial activities*, social activities and cultural activities in central business districts, town centres and commercial areas, especially if they are highly accessible by *public transport* and *active transport,*

(2) enabling smaller local and neighbourhood centres and rural settlements to accommodate a variety of *commercial activities*, social activities and cultural activities of a scale appropriate to service local community needs,

(3) providing for the expansion of existing areas or establishment of new areas identified in (1) and (2) by first applying UFD–P1 and UFD–P2, and

(4) outside the areas described in (1) and (2), allow for small scale retail and service activities, home occupations and *community services* to establish within or close to the communities they serve.

### UFD–P6 – *Industrial activities*

Provide for *industrial activities* in *urban areas* by:

(1) identifying specific locations and applying zoning suitable for accommodating *industrial activities* and their reasonable needs and *effects* including supporting or *ancillary activities*,

(2) identifying a range of *land* sizes and locations suitable for different *industrial activities*, and their *operational needs* including land-extensive activities,

(3) managing the establishment of non-industrial activities, in industrial zones, by avoiding activities likely to result in reverse sensitivity *effects* on *industrial activities*, or likely to result in an inefficient use of industrial zoned *land* or *infrastructure*, particularly where:

(a) the area provides for a significant *operational need* for a particular *industrial activity* or grouping of *industrial activities* that are unlikely or are less efficiently able to be met in alternative locations, or

(b) the area contains *nationally* or *regionally significant infrastructure* and the requirements of EIT–INF–P15 apply, and

(4) in areas that are experiencing or expected to experience high demand from other urban activities, and the criteria in (3)(a) or (3)(b) do not apply, managing the establishment of non-industrial activities and the transition of industrial zoned areas to other purposes, by first applying (1) and (2).

### UFD–P7 –Rural Areas

The management of *rural areas*:

(1) provides for the maintenance and, wherever possible, enhancement of important features and values identified by this RPS,

(2) outside areas identified in (1), maintains the productive capacity, amenity and character of *rural areas*,

(3) enables *primary production* particularly on land or soils identified as highly productive in accordance with LF–LS–P19,

(4) facilitates *rural industry* and supporting activities,

(5) directs rural residential and rural lifestyle development to areas zoned for that purpose in accordance with UFD–P8,

(6) restricts the establishment of residential activities, *sensitive activities*, and non-rural businesses which could adversely affect, including by way of reverse sensitivity, the productive capacity of highly productive *land*, *primary production* and *rural industry* activities, and

(7) otherwise limits the establishment of residential activities, *sensitive activities*, and non-rural businesses to those that can demonstrate an *operational need* to be located in *rural areas.*

### UFD–P8 – Rural lifestyle and rural residential zones

The establishment, development or expansion of rural lifestyle and rural residential zones only occurs where:

(1) the *land* is adjacent to existing or planned *urban areas* and ready access to employment and services is available,

(2) despite the direction in (1), also avoids *land* identified for future urban development in a relevant plan or *land* reasonably likely to be required for its future urban development potential, where the rural lifestyle or rural residential development would foreclose or reduce efficient realisation of that urban development potential,

(3) minimises impacts on rural production potential, *amenity values* and the potential for reverse sensitivity *effects* to arise,

(4) avoids, as the first priority, highly productive land identified in accordance with LF–LS–P16,

(5) the suitability of the area to accommodate the proposed development is demonstrated, including

(a) capacity for servicing by existing or planned *development infrastructure* (including self-servicing requirements),

(b) particular regard is given to the individual and cumulative impacts of domestic *water* supply, *wastewater* disposal, and *stormwater* management including self-servicing, on the receiving or supplying environment and impacts on capacity of *development infrastructure*, if provided, to meet other planned urban area demand, and

(c) likely future demands or implications for publicly funded services and *additional infrastructure*, and

(6) provides for the maintenance and wherever possible, enhancement, of important features and values identified by this RPS.

### UFD–P9 – Iwi, hapū and whānau

Facilitate the development of Native Reserves and *Te Ture Whenua Maori land,* for *papakāika, kāika, nohoaka,* and *marae*, where existing or planned *development infrastructure* of sufficient capacity is or can be provided (including allowance for self-servicing systems).

### UFD–P10 – Criteria for significant development capacity

'Significant development capacity' is provided for where a proposed plan change affecting an *urban environment* meets all of the following criteria:

(1) the location, design and layout of the proposal will positively contribute to achieving a *well-functioning urban environment*,

(2) the proposal is well-connected to the existing or planned urban area, particularly if it is located along existing or planned transport corridors,

(3) required *development infrastructure* can be provided effectively and efficiently for the proposal, and without material impact on planned *development infrastructure* provision to, or reduction in *development infrastructure* capacity available for, other feasible, likely to be realised developments, in the short-medium term,

(4) the proposal makes a significant contribution to meeting a need identified in a *Housing and Business Development Capacity Assessment*, or a shortage identified in monitoring for:

(a) housing of a particular price range or typology, particularly more affordable housing,

(b) business space or *land* of a particular size or locational type, or

(c) community or educational facilities, and

(5) when considering the significance of the proposal's contribution to a matter in (4), this means that the proposal's contribution:

(a) is of high yield relative to either the forecast demand or the identified shortfall,

(b) will be realised in a timely (i.e. rapid) manner,

(c) is likely to be taken up, and

(d) will facilitate a net increase in district-wide up-take in the short to medium term.

## Methods

### UFD–M1 – Strategic planning

Otago Regional Council and *territorial authorities*:

(1) must, where they are Tier 2 local authorities, jointly determine housing *development capacity* that is feasible and likely to be taken up in the medium and long terms through *Housing and Business Development Capacity Assessments*,

(2) should, for other districts, jointly determine demand and potential supply responses through similar, but appropriately scaled strategic planning approaches,

(3) must, where they are Tier 2 and Tier 3 local authorities, monitor and regularly assess and report on the supply of, and demand for, residential, commercial and industrial zoned *land development capacity* available at the regional, district and *urban environment* scales, and other local authorities are encouraged to do so,

(4) must coordinate the redevelopment and intensification of urban areas and the development of extensions to urban areas with *infrastructure* planning and development programmes, to provide the required *development infrastructure* and *additional infrastructure* in an integrated, timely, efficient and effective way, and to identify and manage impacts on key values and resources identified by this RPS, and for Tier 2 local authorities to achieve this through jointly developed *Future Development Strategies* and/or strategic planning, and for all other *local authorities* through strategic planning in accordance with UFD–P1,

(5) must, where they are Tier 2 local authorities, develop housing bottom lines for *urban environments* and include those bottom lines in APP10 and in the relevant *district plans*,

(6) must individually or jointly develop further regulatory or non-regulatory methods and actions to implement strategic and spatial plans, including to guide the detail of how, when and where development occurs, including matters of urban design, requirements around the timing, provision, and responsibilities for open space, connections and infrastructure, including by third parties, and the ongoing management of effects of urban development on matters of local importance, and

(7) must involve *mana whenua,* and provide opportunities for iwi, hapū and whānau involvement in planning processes, including in decision making, to ensure provision is made for their needs and aspirations, and cultural practices and values and to ensure the requirements of the MW chapter are met, and the issues and values identified in RMIA are recognised and provided for.

### UFD–M2 – *District plans*

*Territorial authorities* must prepare or amend their *district plans* as soon as practicable, and maintain thereafter, to:

(1) identify and provide for urban expansion and intensification, to occur in accordance with:

  (a) any adopted *future development strategy* for the relevant district or region, which must be completed in time to inform the 2024 Long Term Plan, or

  (b) where there is no *future development strategy,* a *local authority* adopted strategic plan developed in accordance with UFD-P1, for the relevant area, district or region,

(2) in accordance with any required *Housing and Business Development Capacity Assessments* or monitoring, including any *competitiveness margin*, ensure there is always sufficient *development capacity* that is feasible and likely to be taken up and, for Tier 2 urban environments, at a minimum

meets the bottom lines for housing in APP-10, and meets the identified *land* size and locational needs of the commercial and industrial sectors,

(3) ensure that urban development is designed to:

(a) achieve a built form that relates well to its surrounding *environment*, including by identifying and managing impacts of urban development on values and resources identified in this RPS,

(b) provide for a diverse range of housing, *commercial activities*, industrial and service activities, social and cultural opportunities,

(c) achieve an efficient use of *land*, energy, *water* and *infrastructure*,

(d) promote the use of water sensitive design wherever practicable,

(e) minimise the potential for reverse sensitivity *effects* to arise, by managing the location of incompatible activities, and

(f) reduce the adverse *effects* of Otago's cooler winter climate through designing new subdivision and development to maximise passive winter solar gain and winter heat retention, including through roading, lot size, dimensions, layout and orientation,

(4) identify and provide for locations that are suitable for urban intensification in accordance with UFD–P2,

(5) identify and provide for locations that are suitable for urban expansion, if any, in accordance with UFD–P3,

(6) identify and provide for *commercial activities* in accordance with UFD–P5,

(7) identify and provide for *industrial activities* in accordance with UFD–P6,

(8) manage development in *rural areas* in accordance with UFD–P7,

(9) manage rural residential and rural lifestyle activities in *rural areas* in accordance with UFD–P8,

(10) provide for *papakāika, kāika, nohoaka,* and *marae*, in accordance with UFD–P9, and

(11) must involve *mana whenua* and provide opportunities for iwi, hapū and whānau involvement in planning processes, including in decision making, to ensure provision is made for their needs and aspirations, and cultural practices and values and ensure the requirements of the MW chapter are met, and the issues and values identified in RMIA are recognised and provided for at the local level.

### UFD–M3 – Design of public spaces and surrounds

*Territorial authorities* must design and maintain public places and spaces, including streets, open spaces, public *buildings* and publicly accessible spaces so that they are safe, attractive, accessible and usable by everyone in the community.

## Explanation

### UFD–E1 – Explanation

The policies in this chapter are designed to facilitate the provision of sufficient housing and business capacity and ensure all of the region's *urban areas* demonstrate the features of *well-functioning urban*

*environments* and meet the needs of current and future communities. Urban intensification must be enabled, and urban expansion should be facilitated, however these important decisions should be preceded and guided by strategic planning processes that consider how best this can be achieved, while also maintaining and, wherever possible, enhancing the important values and features identified in other chapters of this RPS, and in consideration of local context, values and pressures. The strategic planning process will also consider and demonstrate where, when, how and by whom the necessary *development infrastructure* and *additional infrastructure* will be provided in order to both facilitate development and change and minimise environmental impacts from it, including avoiding impacts on the operation of *regionally and nationally significant infrastructure*.

In addition, this chapter seeks to maintain the character and *amenity values* of Otago's rural areas, including by facilitating the use of the *natural and physical resources* that support the viability of the rural sector. Otago's rural and urban areas also contain significant natural, cultural and historic values and features as identified by other parts of this RPS. In all cases while facilitating urban development and managing rural productive activities these values must also be identified, maintained and, wherever possible, enhanced. This approach includes direction on different types of development within rural areas, managing the expansion and location of *urban areas*, and rural lifestyle and rural residential development, and directing that growth be enabled in *urban areas* to minimise the need for development to occur within rural areas, other than what is needed to facilitate rural community and rural productive activities.

The policies in this chapter are primarily focused on directing where development is and is not appropriate and under what circumstances, but provides discretion for *local authorities* to determine the detail of how that development is managed, its ultimate density, height, bulk and location, timing and sequencing, the detail of any required *development infrastructure* and *additional infrastructure* that may be needed, and allows for the consideration of particular locally significant features values and needs that contribute to the attractiveness or uniqueness of the diverse communities, landscapes, and environments of the region.

This more detailed determination must, however, be informed by evidence and information collated through appropriately scaled *strategic planning* processes and will be implemented by a range of regulatory and non-regulatory methods, including joint development of *Housing and Business Assessments* and *Future Development Strategies* for Tier 2 local authorities, and similar but appropriately scaled processes undertaken in and for other areas, including regular regional, district and *urban environment* scale monitoring, analysis and evaluation.

In delivering on the objectives and policies in this chapter, which relate largely to human activities and settlements, the natural, physical, and built values and features of importance to the region must be recognised and provided for.

The following chapters of this Regional Policy Statement have particular relevance to the achievement of the objectives of this chapter by identifying particular aspects of Domains or Topics to be managed, and where there is an apparent conflict, must be balanced in accordance with the directions outlined in the Integrated Management chapter:

- *MW – Mana Whenua*
- AIR – Air
- CE – Coastal environment
- LF – *Land* and *freshwater*
- ECO – Ecosystems and indigenous *biodiversity*
- EIT – Energy, *infrastructure* and transport
- HAZ – Hazards and *risks*

- HCV – Historical and cultural values
- NFL – Natural features and landscapes

## Principal reasons

### UFD–PR1 – Principal reasons

The provisions in this chapter assist in fulfilling the functions of the regional council under section 30(ba) and *territorial authorities* under section 31(aa) of the RMA 1991 to ensure sufficient *development capacity* in relation to housing and *business land* to meet the expected demands of the region and districts respectively. They also assist in giving effect to the similar but more detailed requirements of the *NPSUD*.

Urban areas are important for community well-being and are a reflection the inherently social nature of humans. Well-functioning urban areas enable social interactions and provide a wide variety (across type, location and price) of housing, employment and recreational opportunities to meet the varied and variable needs and preferences of communities, in a way that maximises the well-being of its present and future inhabitants, and respects its history, its setting and the *environment*. The combination of population growth and demographic change will result in changes in the quantity and qualities demanded of housing, employment, business, *infrastructure*, social facilities and services across the region. Upgrade and replacement of the existing development and infrastructure will also continue to be required even where growth is limited, resulting in changes in the built environment. Some of these changes will also be driven by changes in the *natural environment*, including the impacts of climate change. Urban areas are highly dynamic by nature, so the provisions in this chapter seek to manage, rather than limit, the form, function, growth and development of urban areas in a way that best provides for the community's well-being both now and into the future.

The pace and scale of growth and change, and the scale and nature of urban environments and areas in the region is variable, meaning no single response at a regional level is appropriate in all cases. Accordingly, the process identified in this RPS remains flexible and responsive (outside of Tier 2 urban environments, which have specific requirements under the NPSUD). Key requirements of strategic planning include considering and providing for reasonably expected changes in overall quantum of demand and supply as well as changes in needs and preferences that may drive or add to these changes in demand, designing to maximise the efficient use of energy, land and infrastructure (including transport infrastructure). This can best be achieved by prioritising development in and around the region's existing urban areas as the primary focus of the region's growth and change, by enabling development within and adjacent to those urban areas, where it generally is most suitable and most efficient to do so.

These strategic planning processes provide the mechanism by which longer term issues can be considered, integration between land use and infrastructure can be achieved, and various constraints, opportunities and key trade-offs can be identified and appropriately resolved, while identifying and managing the values and resources identified in this RPS. These processes, and others should always involve *mana whenua,* at all levels of the process to ensure their views and values can be incorporated and celebrated, and their needs and aspirations appropriately provided for.

All development should seek to maximise efficient use of water consumption (through water efficient design) and disposal (reduced consumption reduces sewerage loads, and the water sensitive design reduces impacts on both supplying and receiving natural systems and can reduce flooding from stormwater), and maximise the winter capture and retention of the suns energy, which will also assist with reducing the energy needed to heat homes in winter and can also help reduce air pollution from solid fuel burning for home heating. Development in more central parts of the region also need to be

designed to be cognisant of minimising excess sun capture in the summer months. Enabling the establishment and use of small-scale renewable energy generation also facilitates local energy resilience, contributes to national renewable energy generation targets with associated climate change benefits, and may reduce the need for additional large-scale generation and transmission infrastructure and associated impacts.

Rural areas are attractive as residential living areas, and for other non-rural activities. However, they contain areas, activities and resources critical for rural production that can be impacted by sensitive activities. Non-urban areas also contain a wide range of other values that can be negatively impacted by the impacts of rural-residential and other activities, that do not have a functional need to be in rural areas. The provisions in this chapter focus on managing where rural living opportunities and other non-rural activities are provided for, so that the potential *effects* on the rural character, productive potential and the wide range of environmental values, features and resources that rural areas also contain are appropriately managed. The supply of rural lifestyle opportunities to meet demand should be directed to suitably located and zoned areas to minimise impacts on values in rural areas. In designing and planning for rural residential and rural lifestyle development, local authorities will need to be aware of the potential future constraints on future urban expansion and development, including the cumulative impacts of infrastructure servicing irrespective of whether this is onsite, community or through connections to urban reticulated schemes.

Implementation of the provisions in this chapter will occur partially through *regional plans* but primarily *district plan* provisions, as well as through preparation of *future development strategies* and *structure plans*. To appropriately and efficiently achieve the objectives and policies, other non-regulatory spatial planning exercises and associated action plans, agreements and infrastructure delivery programs will be needed to complement regulatory approaches, including setting aside the necessary funding for delivery, and partnering with *mana whenua,* central government, communities and developers to deliver the quality and quantity of urban development needed to meet demand and provide for change, improve land and development market competitiveness, and achieve resilient, efficient and attractive urban places.

## Anticipated environmental results

**UFD–AER1** Appropriately scaled strategic planning occurs in advance of regulatory planning, and regulatory plans are changed in a timely manner to facilitate the outcomes identified in these processes.

**UFD–AER2** Urban expansion only occurs when suitable and sufficient *development infrastructure* is in place or will be provided at the time of expansion and provision is made for the needs of *additional infrastructure*.

**UFD–AER3** *Development infrastructure* is in place in time to facilitate reasonably expected urban intensification or planned expansion.

**UFD–AER4** New developments including redevelopments are designed to maximise energy and transport efficiency and minimise impacts on *water* quality and quantity.

**UFD–AER5** The majority of new development is located close to services, jobs, and other urban amenities and can access those amenities by a range of transport modes including *active transport* and, where available, *public transport*.

**UFD–AER6** The mode share and use of *active transport* and *public transport* increases.

| | |
|---|---|
| **UFD–AER7** | New developments are at minimal *risk* from *natural hazards* including changes to *risk* due to the impacts of *climate change*, and do not increase *risk* to existing or planned developments. |
| **UFD–AER8** | In existing urban areas at *risk* from *natural hazards*, including changes to *risk* due to the impacts of *climate change*, communities are informed, *resilient* and prepared for the *effects* of known *natural hazard risks*. |
| **UFD–AER9** | There is an increased range of housing types and locations and an increased number of *dwellings*, particularly more affordable housing in existing and planned *urban areas*. |
| **UFD–AER10** | The current and future needs of business are met by the availability of a range of opportunities for *land* and space that meets their requirements. |
| **UFD–AER11** | All new rural residential or rural lifestyle development occurs within areas zoned for this use. |

# PART 4 – EVALUATION AND MONITORING

## Monitoring the efficiency and effectiveness of the policy statement

ORC must monitor the efficiency and effectiveness of its RPS provisions and publish the results every five years.[48] The RPS needs to include the procedures for monitoring its methods and policies.[49]

### Existing monitoring procedure

ORC has policies and procedures in place to gather information and to monitor and report on how well Otago's *natural and physical resources* are managed. These include State of the Environment reporting, *resource consent* monitoring, and annual reporting against objectives in the Council's Long-Term Plan. These policies and procedures will be reviewed and updated to reflect ORPS environmental goals (objectives) and ensure the right information is being gathered to monitor the environmental results anticipated.

The ORPS is relevant to all decision making under the RMA 1991 and must be given effect through *regional* and *district plans*. As the ORPS is given effect through *regional* and *district plans*, much of the data needed for monitoring will be gathered for the purpose of, or will be relevant to, the monitoring of *regional* and *district plans.* ORC will undertake a work programme to identify data the *territorial authorities* collect in the course of their normal monitoring regimes and make arrangements for collection and sharing of data, including information that the regional council collects that may be of benefit to *territorial authorities*.

Specific environmental indicators will be developed to monitor the impact that ORPS policies and methods are having on Otago's social, economic, cultural and environmental well-being, and whether they remain the most appropriate for achieving the RMA 1991's purpose. These environmental indicators will be developed outside of the ORPS. This approach enables the frequency or type of indicators to be amended, in order to respond to emerging issues, improved technology and best practice, changes in the local *environment*, or societal expectations. It forms part of a continuous review and reporting cycle, resulting in policy changes and adjustments as necessary.

The ORPS needs to reflect the needs and aspirations of *tangata whenua* and the wider community, so *tangata whenua* and stakeholders will be encouraged to be involved with monitoring the provisions of the ORPS.

### Regional Monitoring Strategy

To address the undertakings described above, ORC must develop a comprehensive integrated Regional Monitoring Strategy (RMS). This strategy will link ORC's various monitoring procedures together to reduce double handling, identify connections, and improve interrelationships, both between ORC functions and

[48] Section 35 of the Resource Management Act 1991
[49] Section 62(1)(j) of the Resource Management Act 1991

with other agencies. The strategy will help monitor the effectiveness and efficiency of the ORPS, using both quantitative and qualitative assessments, and sit alongside it as a non-statutory document.

The RMS will assist ORC with expanding its monitoring activities to respond to ORPS provisions and ensure the things measured accurately reflect policy success, including natural, social, economic, cultural and *historic heritage* values. It will increase transparency by stating what is monitored and why.

This goes hand in hand with increasing the ORC's leadership and facilitation role in several areas, including *climate change*.

# PART 5 – APPENDICES AND MAPS

# Appendices

## APP1 – Criteria for identifying *outstanding water bodies*

*Outstanding water bodies* include any *water body* with one or more of the following outstanding values, noting that sub-values are not all-inclusive:

*Table 4: Values of outstanding water bodies*

| Values | Description | Example sub-values |
|---|---|---|
| Cultural and spiritual | A *water body* which has outstanding cultural and spiritual values. | Wāhi tapu, wāhi taoka, wai tapu, rohe boundary, battle sites, pa, kāika, tauraka waka, mahika kai, pa tuna; and acknowledged in korero tuku iho, pepeha, whakatauki or waiata |
| Ecology | A *water body* which has outstanding ecological value as a habitat for:<br>• Native birds<br>• Native fish<br>• Salmonid fish<br>• Other aquatic species | Native birds, native fish, native plants, aquatic macroinvertebrates |
| Landscape | A *water body* which forms a key component of a landscape that is "conspicuous, eminent, remarkable or iconic" within the region, or is critical to an outstanding natural feature. | Scenic, association, natural characteristics (includes hydrological, ecological and geological features) |
| Natural character | A *water body* with high naturalness that exhibits an exceptional combination of natural processes, natural patterns and natural elements with low levels of modification to its form, ecosystems and the surrounding landscape. | Natural characteristics (includes hydrological, ecological and geological features) |
| Recreation | A *water body* which is recognised as providing an outstanding recreational experience for an activity which is directly related to the *water*. | Angling, fishing, kayaking, rafting, jetboating |
| Physical | A *water body* which has an outstanding geomorphological, geological or hydrological feature which is dependent on the *water body's* condition and functioning. | Science |

## APP2 – Significance criteria for indigenous *biodiversity*

An area is considered to be a *significant natural area* if it meets any one or more of the criteria below:

**Representativeness**

(a) An area that is an example of an indigenous vegetation type or habitat that is typical or characteristic of the original natural diversity of the relevant ecological district or coastal marine biogeographic region. This may include *degraded* examples of their type or represent all that remains of indigenous vegetation and habitats of indigenous fauna in some areas.

(b) An indigenous marine ecosystem (including both intertidal and sub-tidal habitats, and including both faunal and floral assemblages) that makes up part of at least 10% of the natural extent of each of Otago's original marine ecosystem types and reflecting the environmental gradients of the region.

(c) An indigenous marine ecosystem, or habitat of indigenous marine fauna (including both intertidal and sub-tidal habitats, and including both faunal and floral components), that is characteristic or typical of the natural marine ecosystem diversity of Otago.

**Rarity**

(d) An area that supports:

(i) An indigenous species that is threatened, at *risk*, or uncommon, nationally or within an ecological district or coastal marine biogeographic region, or

(ii) Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent nationally, regionally or within a relevant *land environment*, ecological district, coastal marine biogeographic region or *freshwater environment* including *wetlands*, or

(iii) Indigenous vegetation and habitats within originally rare ecosystems, or

(iv) The site contains indigenous vegetation or an indigenous species that is endemic to Otago or that are at distributional limits within Otago.

**Diversity**

(e) An area that supports a high diversity of indigenous ecosystem types, indigenous *taxa* or has changes in species composition reflecting the existence of diverse natural features or gradients.

**Distinctiveness**

(f) An area that supports or provides habitat for:

(i) Indigenous species at their distributional limit within Otago or nationally, or

(ii) Indigenous species that are endemic to the Otago region, or

(iii) Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, or has developed as a result of an

unusual environmental factor or combinations of factors.

**Ecological context**

(g) The relationship of the area with its surroundings (both within Otago and between Otago and the adjoining regions), including:

(i) An area that has important connectivity value allowing dispersal of indigenous flora and fauna between different areas, or

(ii) An area that has an important buffering function that helps to protect the values of an adjacent area or feature, or

(iii) An area that is important for indigenous fauna during some part of their life cycle, either regularly or on an irregular basis, e.g. for feeding, resting, nesting, breeding, spawning or refuges from predation, or

(iv) A *wetland* which plays an important hydrological, biological or ecological role in the natural functioning of a *river* or coastal ecosystem.

## APP3 – Criteria for *biodiversity* offsetting

(1) *Biodiversity* offsetting is not available if the activity will result in:

(a) the loss of any individuals of Threatened *taxa*, other than kānuka (*Kunzea robusta* and *Kunzea serotina*), under the New Zealand Threat Classification System (Townsend et al, 2008), or

(b) reasonably measurable loss within the ecological district to an At Risk-Declining *taxon*, other than manuka (*Leptospermum scoparium*), under the New Zealand Threat Classification System (Townsend et al, 2008).

(2) *Biodiversity* offsetting is available if the following criteria are met:

(a) the offset addresses residual adverse *effects* that remain after implementing the sequential steps required by ECO–P6(1) to (3),

(b) the offset achieves no net loss and preferably a net gain in indigenous *biodiversity*, as measured by type, amount and condition at both the impact and offset sites using an explicit loss and gain calculation,

(c) the offset is undertaken where it will result in the best ecological outcome, and as the first priority be:

(i) close to the location of the activity, and

(ii) within the same ecological district or coastal marine biogeographic region,

(d) the offset is applied so that the ecological values being achieved are the same or similar to those being lost,

(e) the positive ecological outcomes of the offset endure at least as long as the impact of the activity and preferably in perpetuity,

(f) the offset achieves *biodiversity* outcomes beyond results that would have occurred if the offset was not proposed,

(g) the time delay between the loss of *biodiversity* and the realisation of the offset is the least necessary to achieve the best possible outcome,

(h) the outcome of the offset is achieved within the duration of the *resource consent*, and

(i) any offset developed in advance of an application for *resource consent* must be shown to have been created or commenced in anticipation of the specific *effect* of the proposed activity and would not have occurred if that *effect* was not anticipated.

## APP4 – Criteria for *biodiversity* compensation

(1) *Biodiversity* compensation is not available if the activity will result in:

(a) the loss of an indigenous *taxon* (excluding *freshwater* fauna and flora) or of any ecosystem type from an ecological district or coastal marine biogeographic region,

(b) removal or loss of viability of habitat of a Threatened or At Risk indigenous species of fauna or flora under the New Zealand Threat Classification System (Townsend et al, 2008),

(c) removal or loss of viability of a *naturally rare* or uncommon ecosystem type that is associated with indigenous vegetation or habitat of indigenous fauna, or

(d) worsening of the New Zealand Threat Classification System (Townsend et al, 2008) conservation status of any Threatened or At Risk indigenous fauna.

(2) *Biodiversity* compensation is available if the following criteria are met:

(a) compensation addresses only residual adverse effects that remain after implementing the sequential steps required by ECO–P5(1) to (4),

(b) compensation is undertaken where it will result in the best practicable outcome and preferably:

(i) close to the location of the activity, and

(ii) within the same ecological district or coastal marine biogeographic region,

(c) compensation achieves positive *biodiversity* outcomes that would not have occurred without that compensation,

(d) the positive *biodiversity* outcomes of the compensation are enduring,

(e) the time delay between the loss of *biodiversity* through the proposal and the gain or maturation of the compensation's *biodiversity* outcomes is the least necessary to achieve the best possible outcome,

(f) the outcome of the compensation is achieved within the duration of the *resource consent*,

(g) *biodiversity* compensation developed in advance of an application for *resource consent* must be shown to have been created or commenced in anticipation of the specific *effect* of the proposed activity and would not have occurred if that *effect* was not anticipated, and

(h) the *biodiversity* compensation is demonstrably achievable.

## APP5 – Species prone to *wilding conifer* spread

*Table 5: Species prone to wilding conifer spread*

| Common name | Botanical name |
|---|---|
| Big cone pine | *Pinus coulteri* |
| Bishops pine | *Pinus muricata* |
| Contorta (lodgepole) pine | *Pinus contorta* |
| Corsican pine, Black pine | *Pinus nigra* |
| Douglas fir | *Pseudotsuga menziesii* |
| Dwarf mountain pine | *Pinus uncinata* |
| Japanese cedar | *Cryptomeria japonica* |
| Japanese larch | *Larix kaempferi* |
| Larch | *Larix decidua* |
| Lawson's cypress | *Chamaecyparis lawsoniana* |
| Macrocarpa | *Cupressus macrocarpa* |
| Maritime pine | *Pinus pinaster* |
| Mountain pine | *Pinus mugo* |
| Norfolk Island pine | *Araucaria heterophylla* |
| Norway spruce | *Picea abies* |
| Patula pine | *Pinus patula* |
| Pine | *Pinus sp./Pine* |
| Ponderosa pine | *Pinus ponderosa* |
| Radiata pine | *Pinus radiata* |
| Scots pine | *Pinus sylvestris* |
| Sitka spruce | *Picea sylvestris* |
| Slash pine | *Pinus elliottii* |
| Spruce | *Picea sp.* |
| Strobus pine | *Pinus strobus* |
| Western red cedar | *Thuja plicata* |
| Western white pine | *Pinus monticola* |

## APP6 – Methodology for *natural hazard risk* assessment

Undertake the following four step process to determine the *natural hazard risk*.

**Step 1 – Determine the likelihood**

Using Table 6, assess the likelihood of three *natural hazard* scenarios occurring, representing a high likelihood, median likelihood, and the maximum credible event, using the best available information:

*Table 6: Likelihood scale*

| Likelihood | Indicative frequency |
|---|---|
| Almost certain | Up to once every 50 years (2% AEP) |
| Likely | Once every 51 – 100 years (2 – 1% AEP) |
| Possible | Once every 101 – 1,000 years (1 – 0.11% AEP) |
| Unlikely | Once every 1,001 – 2,500 years (0.1 – 0.04% AEP) |
| Rare | 2,501 years plus (<0.04% AEP) |

**Step 2 – *Natural hazard* consequence**

Using Table 7 and the matters listed in (1) to (10) below, assess the consequence (catastrophic, major, moderate, minor, or insignificant) of the *natural hazard* scenarios identified in step 1 considering:

(1) the nature of activities in the area,

(2) individual and community vulnerability,

(3) impacts on individual and community health and safety,

(4) impacts on social, cultural and economic well-being,

(5) impacts on *infrastructure* and property, including access and services,

(6) available and viable *risk* reduction and hazard mitigation measures,

(7) *lifeline utilities*, essential and emergency services, and their co-dependence,

(8) implications for civil defence agencies and emergency services,

(9) the changing *natural hazard* environment,

(10) cumulative *effects* including *multiple* and *cascading hazards,* where present, and

(11) factors that may exacerbate a *natural hazard* event including the *effects* of *climate change*.

*Table 7: Consequence table*

| Severity of Impact | Built | | | | Health & Safety |
|---|---|---|---|---|---|
| | Social/Cultural | *Buildings* | Critical *Buildings* | Lifelines | |
| **Catastrophic (V)** | ≥25% of *buildings* of social/cultural significance within hazard zone have functionality compromised | ≥50% of affected *buildings* within hazard zone have functionality compromised | ≥25% of critical facilities within hazard zone have functionality compromised | Out of service for > 1 month (affecting ≥20% of the town/city population) OR suburbs out of service for > 6 months (affecting < 20% of the town/city population) | > 101 dead and/or > 1001 injured |
| **Major (IV)** | 11-24% of *buildings* of social/cultural significance within hazard zone have functionality compromised | 21-49% of *buildings* within hazard zone have functionality compromised | 11-24% of *buildings* within hazard zone have functionality compromised | Out of service for 1 week – 1 month (affecting ≥20% of the town/city population) OR suburbs out of service for 6 weeks to 6 months (affecting < 20% of the town/city population) | 11 – 100 dead and/or 101 – 1000 injured |
| **Moderate (III)** | 6-10% of *buildings* of social/cultural significance within hazard zone have functionality compromised | 11-20% of *buildings* within hazard zone have functionality compromised | 6-10% of *buildings* within hazard zone have functionality compromised | Out of service for 1 day to 1 week (affecting ≥20% of the town/city population) OR suburbs out of service for 1 week to 6 weeks (affecting < 20% of the town/city population) | 2 – 20 dead and/or 11 – 100 injured |
| **Minor (II)** | 1-5% of *buildings* of social/cultural significance within hazard zone have functionality compromised | 2-10% of *buildings* within hazard zone have functionality compromised | 1-5% of *buildings* within hazard zone have functionality compromised | Out of service for 2 hours to 1 day (affecting ≥20% of the town/city population) OR suburbs out of service for 1 day to 1 week (affecting < 20% of the town/city population | 1 dead and/or 1 – 10 injured |
| **Insignificant (I)** | No *buildings* of social/cultural significance within hazard zone have functionality compromised | < 1% of affected *buildings* within hazard zone have functionality compromised | No damage within hazard zone, fully functional | Out of service for up to 2 hours (affecting ≥20% of the town/city population) OR suburbs out of service for up to 1 day (affecting < 20% of the town/city population | No dead No injured |

When assessing consequences within this matrix, the final level of impact is assessed on the 'first past the post' principle, in that the consequence with the highest severity of impact applies. For example, if a *natural hazard* event resulted in moderate severity of impact across all of the categories, with the exception of critical *buildings* which had a 'major' severity of impact, the major impact is what the proposal would be assessed on. If a *natural hazard* event resulted in all of the consequences being at the same level (for example, all of the consequences are rated moderate), then the level of consequence is considered to be moderate.

When this assessment is being undertaken in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a) the text within Step 2 shall guide the assessment of *natural hazard* consequence.

**Step 3 – Assessing activities for *natural hazard risk***

Using the information within steps 1 and 2 above, and Table 8, assess whether the *natural hazard* scenarios will have an acceptable, tolerable, or significant *risk* to people, property and communities, by considering:

(1) the *natural hazard risk* identified, including *residual risk*,

(2) any measures to avoid, remedy or mitigate those *risks*, including relocation and recovery methods,

(3) the long-term viability and affordability of those measures,

(4) flow on *effects* of the *risk* to other activities, individuals and communities, and

(5) the availability of, and ability to provide, *lifeline utilities*, and essential and emergency services, during and after a *natural hazard* event.

*Table 8: Risk table*

| **Likelihood** | **Consequences** | | | | |
|---|---|---|---|---|---|
| | Insignificant | Minor | Moderate | Major | Catastrophic |
| Almost certain | | | | | |
| Likely | | | | | |
| Possible | | | | | |
| Unlikely | | | | | |
| Rare | | | | | |
| Green, Acceptable *Risk*: Yellow, Tolerable *Risk*: Red, Significant *Risk* | | | | | |

Notes:

Table 8 above has been included as a region-wide baseline. As set out in HAZ–NH–M2(1) *local authorities* are required to undertake a consultation process with communities, stakeholders and partners regarding *risk* levels thresholds and develop a *risk* table at a district or community scale. This region-wide baseline is to be used in the absence of a district or community scale *risk* table being developed.

When this assessment is being undertaken in accordance with HAZ-NH-M3(7)(a) or HAZ-NH-M4(7)(a) the text within Step 3 shall guide the assessment of *natural hazard risk*.

**Step 4 – Undertake a quantitative *risk* assessment**

While Steps 1-3 will qualitatively categorise *natural hazard risk* based on a community's understanding and acceptance level of *risk*, it will not provide quantitative understanding of the *risk* a *natural hazard* presents to the built environment, or health and safety.

If the assessment undertaken in Steps 1-3 determines that one of the three *natural hazard* scenarios generate *risk* that is significant, undertake a quantitative *risk* assessment utilising the following methodology:

(1) Based on the likelihood of a *natural hazard* event within the hazard zone (see Step 1), and including the potential impacts of *climate change* and sea level rise, select a representative range

of at least five hazard scenarios with varying likelihoods to model,[50] including the maximum credible event.

(2) Model the Annual Individual Fatality Risk (AIFR)[51] and Annual Property Risk (APR)[52] for the range of hazard scenarios across the hazard zone, and create loss exceedance distributions.

(3) Analyse loss exceedance distributions and determine losses.

(4) Implementing a first-past-the-post principle for the AIFR and APR:

(a) for areas of new development where the greatest AIFR or APR is:

(i) less than $1 \times 10^{-6}$ per year, the *risk* is re-categorised as acceptable,

(ii) between $1 \times 10^{-6}$ and $1 \times 10^{-5}$ per year, the *risk* is re-categorised as tolerable, or

(iii) greater than $1 \times 10^{-5}$ per year, the *risk* is re-categorised as significant.

(b) for areas with existing development, where the greatest AIFR or APR is:

(i) less than $1 \times 10^{-5}$ per year, the *risk* is re-categorised as acceptable;

(ii) between $1 \times 10^{-5}$ and $1 \times 10^{-4}$ per year, the *risk* is re-categorised as tolerable; or

(iii) greater than $1 \times 10^{-4}$ per year, the *risk* is re-categorised as significant.

(5) Following the quantitative *risk* assessment, a *risk* level is assigned to the hazard area.

AIFR and APR are the selected *risk* metrics as they represent the likely consequences of a wide range of *natural hazards*. For example, some *natural hazards*, generally, do not have the capacity to cause fatalities, but may result in widespread damage to property, while other *natural hazards* have a high capacity to cause fatalities. A first-past-the-post principle to the re-categorisation of *risk* is applied to ensure that decisions are based on the greatest *risk* present between the two metrics.

If the level of knowledge or uncertainty regarding the likelihood or consequences of a *natural hazard* event precludes the use of Step 4, then a precautionary approach to assessing and managing the *risk* should be applied, as set out in HAZ–NH–P5.

[50] The model should include an analysis of uncertainty
[51] Annual probability that an individual most at risk is killed in any one year as a result of the hazards occurring
[52] Annual probability of total property loss (relating to permanent structures) as a result of the hazards occurring

## APP7 – Identifying *wāhi tūpuna*

This appendix is a guide to assist in identifying *wāhi tūpuna*. It is not a complete list of all *wāhi tūpuna* in Otago.

Kāi Tahu use the term *'wāhi tūpuna'* to describe landscapes that embody the customary and contemporary relationship of Kāi Tahu and their culture and traditions with Otago. It is important to understand this concept in the context of the distinctive seasonal lifestyle that Kāi Tahu evolved in the south. The sites and resources used by Kāi Tahu are spread throughout Otago. These places did not function in isolation from one another but were part of a wider cultural setting and pattern of seasonal resource use. The different elements of these sites of significance include:

*Table 9: Sites of significance to Kāi Tahu*

| Site of significance | Explanation |
|---|---|
| Ara Tawhito | Ancient trails. A network of trails crossed the region linking the permanent villages with seasonal inland campsites and along the coast, providing access to a range of mahika kai resources and inland stone resources, including pounamu and silcrete. |
| Kāika | Permanent settlements or occupation sites. These occurred throughout Otago, particularly in coastal areas. |
| Nohoaka | These were a network of seasonal settlements. Kāi Tahu were based largely on the coast in permanent settlements and ranged inland on a seasonal basis. Iwi history shows, through place names and whakapapa, continuous occupation of a network of seasonal settlements, which were distributed along the main river systems from the source lakes to the sea. |
| Wāhi Mahika kai | The places where the customary gathering of food or natural materials occurs. Mahika kai is one of the cornerstones of Kāi Tahu culture. |
| Mauka | Important mountains. Mountains are of great cultural importance to Kāi Tahu. Many are places of spiritual presence, and prominent peaks in the district are linked to Kāi Tahu creation stories, identity and mana. |
| Marae | The marae atea and the buildings around it, including the wharenui, wharekai, church and urupā. The sheltering havens of Kāi Tahu cultural expression, a place to gather, kōrero and to welcome visitors. Marae are expressions of Kāi Tahu past and present. |
| Repo raupo | Wetlands or swamps. These provide valued habitat for taoka species and mahika kai resources. |
| Tauraka waka | Canoe mooring sites. These were important for transport and gathering kai. |
| Tūāhu | Places of importance to Māori identity. These are generally sacred ground and marked by an object, or a place used for purposes of divination. |
| Taumanu | Fishing sites. These are traditional fishing easements which have been gazetted by the South Island Māori Land Court. |
| Umu, Umu-tī | Earth ovens. Used for cooking tī-kōuka (cabbage tree), are found in a diversity of areas, including old stream banks and ancient river terraces, on low spurs or ridges, and in association with other features, such as kāika nohoaka. |
| Urupā | Human burial sites. These include historic burial sites associated with kāika, and contemporary sites, such as the urupā at Ōtākou and Puketeraki marae. |
| Wāhi kōhatu | Rock outcrops. Rocky outcrops provided excellent shelters and were intensively occupied by Māori from the moa-hunter period into early European settlement during seasonal hikoi. Tuhituhi neherā (rock art) may be present due to the occupation of such places by the tūpuna. |

| | |
|---|---|
| Wāhi pakaka | Battle sites. Historic battle sites occur throughout Otago, such as that at Ohinepouwera (Waikouaiti sandspit) where Taoka's warriors camped for six months while they laid siege on Te Wera on the Huriawa Peninsula. |
| Wāhi paripari | Cliff areas. |
| Wāhi taoka | Resources, places and sites treasured by *mana whenua*. These valued places reflect the long history and association of Kāi Tahu with Otago. |
| Wāhi tapu | Places sacred to Kāi Tahu. These occur throughout Otago and include urupā (human burial sites). |
| Wāhi tohu | Features used as location markers within the landscape. Prominent landforms formed part of the network of trails along the coast and inland. |
| Wai Māori | Freshwater areas important to Māori, including wai puna (springs), roto (lakes) and awa (rivers). |

## APP8 – Identification criteria for places and areas of *historic heritage*

A place or area is considered to have *historic heritage* if it meets any one or more of criteria below:

| | |
|---|---|
| **Aesthetic** | The place has, or includes, aesthetic qualities that are considered to be especially pleasing, particularly beautiful, or overwhelming to the senses, eliciting an emotional response. These qualities are demonstrably valued, either by an existing community or the general public, to the extent that they could be expected to experience a sense of loss if the qualities which evoke the aesthetic value were no longer there. |
| **Archaeological** | The place provides, or is demonstrably likely to provide, physical evidence of human activity that could be investigated using archaeological methods. Evidence obtained from an archaeological investigation could be expected to be of significance in answering research questions, or as a new or important source of information about an aspect of New Zealand history. |
| **Architectural** | The place reflects identifiable methods of construction or architectural styles or movements. When compared with other similar examples, or in the view of experts or relevant practitioners, it has characteristics reflecting a significant development in this country's architecture. Alternatively, or in conjunction with this, the place is an important or representative example of architecture associated with a particular region or the wider New Zealand landscape. |
| **Cultural** | The place reflects significant aspects of an identifiable culture and it can be demonstrated that the place is valued by the associated cultural group as an important or representative expression of that culture. |
| **Historic** | The place contributes to the understanding of a significant aspect of New Zealand history and has characteristics making it particularly useful for enhancing understanding of this aspect of history, especially when compared to other similar places. |
| **Scientific** | The place includes, or is demonstrably likely to include, fabric expected to be of significance in answering research questions or a new or important source of information about an aspect of New Zealand's cultural or historical past through the use of specified scientific methods of enquiry. |
| **Social** | The place has a clearly associated community that developed because of the place, and its special characteristics. The community has demonstrated that it values the place to a significant degree because it brings its members together, and they might be expected to feel a collective sense of loss if they were no longer able to use, see, experience or interact with the place. |

**Spiritual** The place is associated with a community or group who value the place for its religious, mystical or sacred meaning, association or symbolism. The community or group regard the place with reverence, veneration and respect, and they might be expected to feel a collective sense of loss if they were no longer able to use, see, experience or interact with the place.

**Technological** The place includes physical evidence of a technological advance or method that was widely adopted, particularly innovative, or which made a significant contribution to New Zealand history

OR

The place reflects significant technical accomplishment in comparison with other similar examples or, in the view of experts or practitioners in the field, has characteristics making the place particularly able to contribute towards our understanding of this technology.

**Traditional** The place reflects a tradition that has been passed down by a community or culture for a long period, usually generations and especially since before living memory, and has characteristics reflecting important or representative aspects of this tradition to a significant extent.

The significance of areas and places with *historic heritage* will be assessed having regard to the following criteria:

(1) the extent to which the place reflects important or representative aspects of Otago or New Zealand history,

(2) the association of the place with events, persons, or ideas of importance in Otago or New Zealand history,

(3) the potential of the place to provide knowledge of Otago or New Zealand history,

(4) the importance of the place to *takata whenua*,

(5) the community association with, or public esteem for, the place,

(6) the potential of the place for public education,

(7) the technical accomplishment, value, or design of the place,

(8) the symbolic or commemorative value of the place,

(9) the importance of identifying historic places known to date from an early period of Otago's or New Zealand's settlement,

(10) the importance of identifying rare types of historic places, and

(11) the extent to which the place forms part of a wider historical and cultural area.

## APP9 – Identification criteria for outstanding and *highly valued natural features*, *landscapes* and seascapes

The areas and the values of outstanding and *highly valued natural features*, *landscapes* and seascapes are identified using the following attributes:

| | | |
|---|---|---|
| **Physical attributes** | (a) | Natural science factors, including geological, topographical, ecological and dynamic components. |
| | (b) | The presence of *water* including in seas, *lakes*, *rivers* and streams. |
| | (c) | Vegetation (native and exotic). |
| **Sensory attributes** | (d) | Legibility or expressiveness – how obviously the feature, landscape or seascape demonstrates its formative processes. |
| | (e) | Aesthetic values including memorability and naturalness. |
| | (f) | Transient values, including presence of wildlife or other values at certain times of the day or year. |
| | (g) | Wild or scenic values. |
| **Associative attributes** | (h) | Whether the values are shared and recognised. |
| | (i) | Cultural and spiritual values for Kāi Tahu, identified by working, as far as practicable, in accordance with tikanga Māori, including their expression as cultural landscapes and features. |
| | (j) | Historical and heritage associations. |

## APP10 – Housing bottom lines

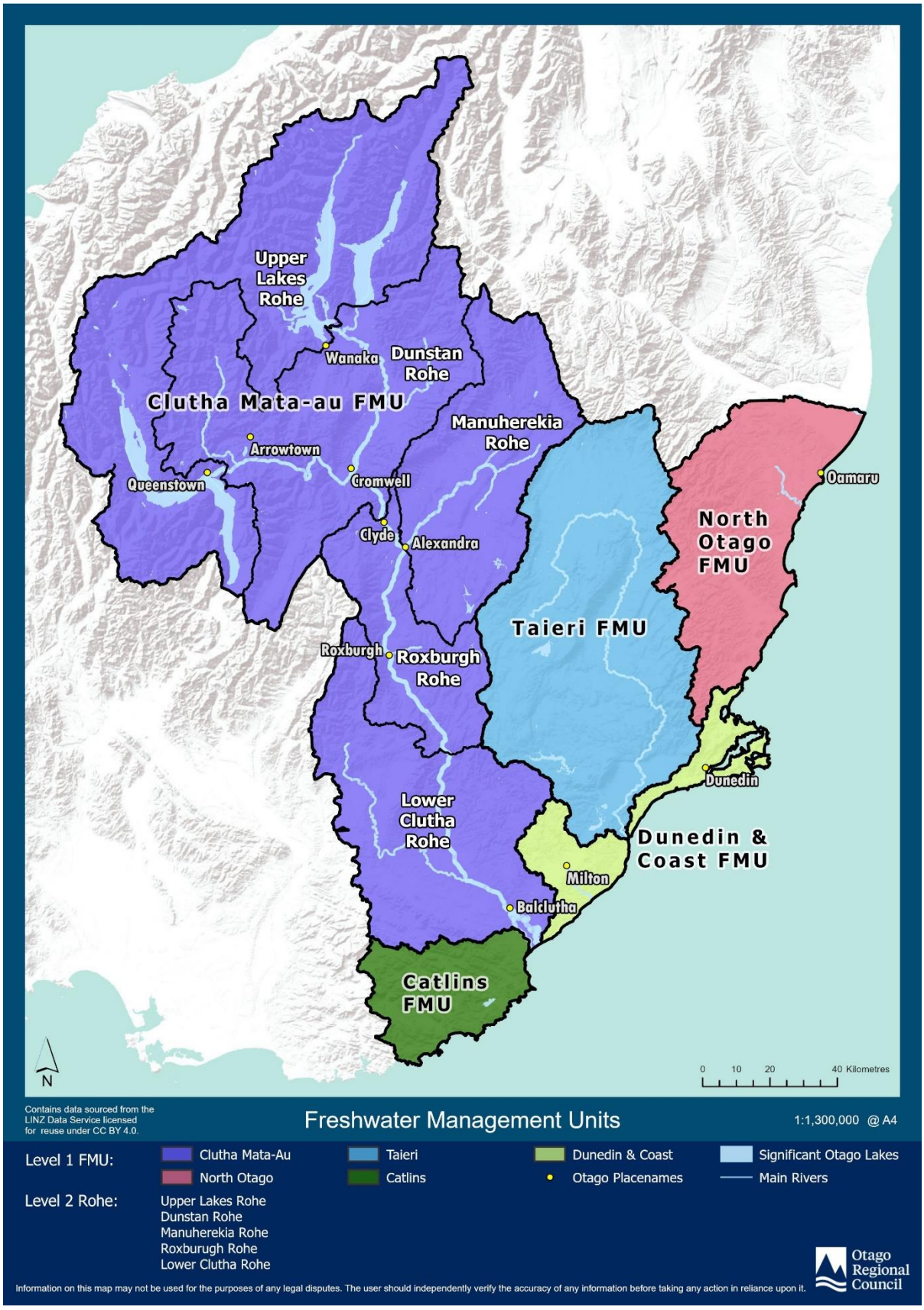
*Table 10: Bottom lines for development capacity*

| Tier 2 Urban Environment | Short- Medium Term (0-10 years) | Long Term (11-30 years) |
|---|---|---|
| **Queenstown** | | |
| **Dunedin** | | |

Note: This schedule will be amended or reamended in accordance with the National Policy Statement for Urban Development 2020, without using RMA Schedule 1, as soon as practicable following the publication of any relevant *Housing and Business Development Capacity Assessment,* the first of which is due to be completed by 31 July 2021.

# Maps

## MAP1 – Freshwater Management Units



## MAP2 – EIT–TRAN–M7 Port Activities