environment SOUTHLAND

Regional Water Plan for Southland

(*amended in accordance with Council and Environment Court decisions*)

April 2010

The majority of the Plan was approved and made operative on 18 January 2010. The plan provisions on agricultural effluent ponds were approved and made operative on 13 April 2010. Refer to table on next page for consequential Plan Changes to this Plan that have been made operative.

Publication No: 2014/09

ISBN 978-0-909043-11-7

Plan Change	Title	Applicable Provisions	Operative Date
1	Farm Dairy Effluent	Rule 50 and Policies 42, 42A and 43.	11 February 2013
2	Silage	Rule 51 and Policy 44.	23 November 2011
3	Community Water Supplies	Policies 14A, 14B, 15, 15A, 15B, 16 and 18A.	9 March 2013
11	Discharges from Idustrial and Trade Premises	Rules 16A, 16B, and 16D. Rule 16C	14 January 2014 1 March 2014
12	Fractured Rock and Confined Aquifers	Rule 23, Policies 30 and 31.	9 March 2013
13	New Dairy Farming	Rule 17A and Policy 13A.	10 June 2014
14	Landfills and Contaminated Land	Rule 53, 54, 55, 56, 57 and 58 and Policies 46, 47 and 48.	1 September 2014
15	Discharge of Contaminants onto or into Land and Historic Heritage	Rules 4, 6, 7, 22, 26, 27, 28, 32, 33, 36, 37, 40, 41, 48, 49 and 51 and Policies 1A, 6, 14, 15A, 32, 31A, 31B, 31C and 31D.	14 January 2014
	National Policy Statement for Freshwater Management 2020 Provisions	Objective 14 and Policies 40A and 40B	10 May 2022

Resource Management Act 1991

Approval (in full) of the Regional Water Plan for Southland

It is hereby certified that this is the Regional Water Plan for Southland.

Consent to the adoption of:

- Rule 49 – Agricultural effluent ponds
- Policy 41 – Adverse effects of agricultural effluent ponds

was given by the Southland Regional Council on 24 March 2010.

DATED this 31 **day of** March **2010**

The Common Seal of the
Southland Regional Council
was affixed pursuant to a resolution of
the Council dated 24 March 2010

Chief Executive

Chairman

The Regional Water Plan for Southland shall become Operative (in full) on 13 April 2010.

Resource Management Act 1991

Approval (in part) of the Regional Water Plan for Southland

It is hereby certified that this is the Regional Water Plan for Southland.

Adopted (in part) by resolution of the Council on 16th day of September 2009 for all of the Regional Water Plan with the exception of:

- Rule 49 – Agricultural effluent ponds
- Policy 41 – Adverse effects of agricultural effluent ponds

Approved (in part): Excluding Rule 49 and Policy 41 concerning agricultural effluent ponds.

DATED this 17 **day of** December **2009**

The Common Seal of the
Southland Regional Council
was affixed pursuant to a resolution of
the Council dated 16 September 2009

Chief Executive

Chairman

The Regional Water Plan for Southland shall become Operative (in part) on

the 18th day of January 2010

Resource Management Act 1991

Approval of Policy 44 and Rule 51 of the Regional Water Plan for Southland

It is hereby certified that this is the Regional Water Plan for Southland.

Consent to the adoption of:

- Rule 51 – Silage
- Policy 41 – Silage storage facilities

was given by the Southland Regional Council on 28 September 2011.

DATED this 28th **day of** NOVEMBER **2011**

The Common Seal of the
Southland Regional Council
was affixed pursuant to a resolution of
the Council dated 28 September 2011

Chief Executive

Chairman

Resource Management Act 1991

Consent to Adoption of Policies and Rules

It is hereby certified that this is the Regional Water Plan for Southland.

Consent to the adoption of:

- Rules 16A, 16B, 16C and 16D concerning discharges from industrial and trade premises
- Objectives 5, 9A, 9B, 9C and 11, Policies 1A, 6, 14, 15A, 32, 31A, 31B, 31C and 31D and Rules 4, 6, 7, 22, 26, 27, 28, 32, 33, 36, 37, 40, 41, 48, 49 and 51 concerning discharges of contaminants onto or into land and historic heritage

was given by the Southland Regional Council on 11 December 2013.

DATED this ...11..... **day of** .....December..... **2013**

The Common Seal of the
Southland Regional Council
was affixed pursuant to a resolution of
the Council dated 11 December 2013

Chief Executive

Chairman

The above listed provisions to the Regional Water Plan for Southland shall become operative on the.....1st.....day of..JANUARY.....2014, excluding Rule 16C which shall become operative on the.....1st.....day of..March.....2014.

Resource Management Act 1991

Certificate of Water Plan Adoption

It is hereby certified that this is the Regional Water Plan for Southland.

Consent to the adoption of:

Policy 13A, and Rule 16C (renumbered as Rule 17A in the Regional Water Plan) concerning new dairy farming

was given by the Southland Regional Council on 28 May 2014.

Dated this 28 day of May 2014

The Common Seal of the }
Southland Regional Council }
was affixed pursuant to a resolution of }
the Council dated 28 May 2014 }

Chief Executive

Chairman

The above listed provisions to the Regional Water Plan for Southland shall become operative on the 10 day of June 2014.

Resource Management Act 1991

Consent to Adoption of Policies and Rules

It is hereby certified that this is the Regional Water Plan for Southland.

Consent to the adoption of:

- Rules 53, 54, 55, 56, 57, and 58
- Policies 46, 47 and 48

was given by the Southland Regional Council on 20 August 2014.

DATED this ...20..... **day of** .....August..... **2014**

The Common Seal of the
Southland Regional Council
was affixed pursuant to a resolution of
the Council dated 20 August 2014

Chief Executive

Chairman

The above listed provisions to the Regional Water Plan for Southland shall become operative on the 1st day of September 2014.

Mai ea i te po i te tiMātānga.
Mai ea ki nga hekenga kia Maku.

Otira, ka kii a ngā puna roi Mātā a Rangi,
ko tona aroha kia Papatūānuku, kia kii
ona puna hei oranga mona me ona
Taonga e noho ake nei.

Ko tatou, ngā kaitiaki o tenei taonga tuku iho
kia kaha i roto i te tapu, kia whai mana
i roto i tona wehi, kia u tona wairua,
ka whakanoa i muri ake nei.

From the void, through the regions of the night,
through the steps of the evolution, eventually
arriving at the dampness, indeed filling the pools
of Rangi which overflow eventually as tears of love
on Papatūānuku. In turn her bosom is filled
with those tears and she disperses them evenly
to everything that grows on her.

We Tāngata whenua and Te Taiao Tonga
have the responsibility as protectors for this treasure
handed down for use in its natural state
with prestige, retaining its spiritual wellbeing so that
we can continue to use it safely and wisely into the future.

Contents

A Introduction / Rule Finder

1 Introduction **1**
1.1 Purpose of this Plan ... 3
1.2 What the Plan Applies to ... 5
1.3 Framework of this Plan ... 7
1.4 Our Partnership with Tāngata whenua ... 9

2 Management Methods **1**
2.1 Rule Finder – *your quick reference user guide to the rules* ... 3

B Quality Rules

2.2 Rules ... 1
2.2.1(a) General Discharges to Water and Land ... 2
2.2.1(b) Land Use Rules ... 24

C Quantity Rules

2.2.2 Taking and Using Water ... 1

D Structure Rules

2.2.3 Structures in river and lake beds ... 1

E Bed Disturbance Rules

2.2.4 Bed disturbance activities in river and lake beds ... 1

F Agricultural Effluent Rules

2.2.5 Agricultural effluents ... 1

G Landfill and Land Contamination Rules

2.2.6 Landfills ... 1
2.2.7 Land contamination ... 7

H Non-Regulatory Approach

2.3 Non-Regulatory Approach ... 1

I Financial Contributions

2.4 Financial Contributions ... 1
2.4.1 Introduction ... 1
2.4.2 Circumstances, purpose and amount ... 1
2.4.3 Matters to be considered ... 5
2.4.4 General Provisions ... 6

J Outcomes

3 Outcomes We Expect to Achieve 1
3.1 Water Quality and Quantity 3
3.2 Groundwater 5
3.3 Activities in River Beds (including beds of streams and modified watercourses) and Lake Beds 6

K Issues

4 What is Stopping us Achieving the Outcomes 1
4.1 Water Issues 3
4.2 Groundwater Issues 14
4.3 Land and Soil Issues 19
4.4 River Bed (including beds of streams and modified watercourses) and Lake Bed Use and Development Issues 22
4.5 Wetlands Issue 25

L Objectives/Policies

5 Setting the Direction 1
5.1 Objectives 3
5.1.1 Water Objectives 3
5.1.2 Groundwater Objectives 1
5.1.3 Land and Soil Objectives 1
5.1.4 River Bed (including beds of streams and modified watercourses) and Lake Bed Use and Development Objectives 1
5.2 Policies 1
5.2.1 Water Policies 1
5.2.2 Groundwater Policies 1
5.2.3 Land and Soil Policies 1
5.2.4 River Bed (including beds of streams and modified watercourses) and Lake Bed Use and Development Objectives 1
5.2.5 Wetlands Policies 1
5.2.6 Agricultural Effluent Policies 1
5.2.7 Contaminated Land Policies 1

M Monitoring

6 How We Will Know the Plan is Working 1
6.1 Monitoring Plan Effectiveness, Suitability and Usability 3
6.1.1 Plan Outcome, Effectiveness and Suitability Monitoring 4
6.1.2 Plan Method, Effectiveness and Suitability Monitoring 5
6.1.3 Plan Usability 6
6.2 Implementing Plan Monitoring 7
6.3 Reviewing the Plan 8

N Integrated Management

7 Integrated Management and Cross Boundary Issues 1

7.1 Management Roles and Responsibilities 3

7.2 Integrated Management Options 4

O Glossary

8 Glossary 1

P Appendices

Appendices

A Information to be Submitted with a Resource Consent Application

B Regionally Significant Wetlands in Southland

C Ngāi Tahu Statutory Acknowledgement Areas

D Water Classification Maps

E ANZECC Sediment Guidelines

F Good Spray Management Practices

G Water Quality Standards

H Groundwater Allocation

I Methods for Determining Minimum Flows and Levels

J Water Conservation Orders

K Popular Bathing Sites

L Water Terminology Framework

M Natural State Waters Outside National Parks

N Accidental Discovery Protocol

Q Maps

Water Classification Maps 1

1 Introduction

1.1 Purpose of this Plan

1.2 What the Plan Applies to

1.3 Framework of this Plan

1.4 Our Partnership with Tāngata whenua

1 Introduction

1.1 Purpose of this Plan

The purpose of this Plan is to promote the sustainable management[1] of Southland's rivers, lakes and water resources. The Plan is also aimed at enabling the use and development of water where this can be undertaken in a sustainable manner. In order to achieve these goals it is recognised that there needs to be wide community co-operation and support. The goals cannot be achieved through Plan provisions alone.

The Regional Policy Statement sets out what the community expects the Plan to deliver. The Plan will provide the framework that:

- **sustains the quality of the region's water resources to meet the needs of a range of present and future uses, while safeguarding the life-supporting capacity of water and related ecosystems;**
- **ensures that water quality is maintained and wherever practicable enhanced;**
- **ensures that the taking, use, damming, diversion of water and the discharge of contaminants into water does not compromise water quality standards;**
- **recognises and provides for the relationship of Māori and their culture and traditions with water, lakes, rivers and wetlands;**
- **manages the use and development of water and land resources so as, wherever practicable, to maintain and enhance flow regimes;**
- **achieves the efficient use of water extracted from waterbodies;**
- **protects the natural character, heritage values and outstanding natural features of lakes, rivers and wetlands;**
- **maintains and enhances public access to, along and across lakes, rivers and wetlands and their margins;**
- **avoids, remedies or mitigates the adverse effects of activities in, on, under, over or adjacent to the beds of lakes, rivers and wetlands.**

[1] See Glossary for definition

While the intent of this Plan is to avoid where practicable, remedy or mitigate adverse effects in the future, it is acknowledged that there are existing situations which will require remedying. Studies commissioned by Environment Southland have shown that land uses, such as the application of effluent and sludge onto or into land, can have an adverse effect on the water resource. The studies on the Mataura River (Ryder Consulting, 2000) show high levels of phosphorus and nitrogen which appear to originate from specific point source discharges along the river.

It has been noted that nutrient enrichment of groundwater is often associated with effluent and sludge components, such as nitrates (Robertson & Ryder, 1993). Elevated nitrate levels have been recorded in shallow, unconfined groundwater underlying intensively farmed agricultural land in almost every instance that they are monitored (Rekker, 1994). Monitoring has identified elevated nutrient concentrations as a significant groundwater quality issue for the users of this water.

Groundwater, once contaminated, can be difficult to restore and contamination may remain in the aquifer for years to come. Surface water contamination can occur as a result of surface runoff or ponding of contaminants from the activities on the land. Contamination of surface waters may occur as a result of recharge from contaminated groundwater.

1.2 What the Plan Applies to

This Plan applies to the whole of the Southland region excluding the coastal marine area. It relates in particular to all water bodies on land, including surface water, groundwater and wetlands. The Plan also addresses matters relating to water quantity and water quality including some land use activities that can affect water quality.

Under Sections 13, 14 and 15 of the Resource Management Act 1991, many activities involving water or water bodies can only occur if they are expressly allowed by a rule in a regional plan, or by a resource consent, including:

- certain activities in, on, under or over the beds of lakes and rivers;
- the taking, use, damming or diversion of water;
- the discharge of contaminants or water into water;
- the discharge of contaminants onto or into land in circumstances which may result in that contaminant entering water.

This Plan is not the only mechanism for the management of the water resources of the region. There are other regional plans established under the Resource Management Act 1991 that also place controls on activities that may affect water use and development. For example:

- the direct discharge of effluent and sludge (treated or untreated) to land is dealt with in the Regional Effluent Land Application Plan;
- the direct discharge of solid waste is covered by the Regional Solid Waste Management Plan;
- coastal waters are dealt with under the Regional Coastal Plan;
- natural hazards are dealt with under the provisions of the Transitional Regional Plan, and the Resource Management Act 1991.

It should be noted that the Regional Effluent Land Application Plan and Regional Solid Waste Management Plan are currently under review and are likely to be merged with this Plan in future.

Territorial authorities are responsible for surface water activities, such as boating or noise on the surface of rivers and lakes, and the use of land adjacent to river and lake beds in accordance with Section 9 of the Resource Management Act 1991. For these types of activities you will need to refer to the appropriate territorial authority's Plan to assess whether your activity requires a resource consent

Activities in artificial watercourses (including open drains) are only controlled through impacts on water quality and quantity in this Plan. For any structure and bed disturbance activities in artificial watercourses, you will need to refer to the appropriate territorial authority's Plan to assess whether your activity requires a resource consent.

In addition, the Department of Conservation is responsible for the management of activities in conservation areas (e.g. marginal strips and National Parks such as Rakiura and Fiordland). For activities in conservation areas Plan users should contact the Department of Conservation to establish whether a concession may also be required for their activity.

This Plan came into effect from the date it was notified, being 30 September 2000. Environment Southland publicly notified its decisions on submissions to the Plan (and subsequent variations) on 13 December 2003, 31 March 2007, 14 July 2007 and 19 December 2009 and the Plan was deemed to have been amended in accordance with those decisions from those dates. The Plan became operative in part on 18 January 2010 following the completion of Environment Court processes with the exception of Rule 49 and Policy 41, which were introduced to the Plan by Variation 6 (Agricultural Effluent Ponds) in March 2009. These provisions became operative on 13 April 2010. Plan Change 2 (Silage) introduced Rule 51 and Policy 44 to the Plan in July 2010. These provisions became operative on 23 November 2011.

1.3 Framework of this Plan

The Regional Policy Statement states the significant water management issues of the region, and contains methods for addressing these issues. Included among the methods are directions to prepare, implement and administer a regional plan for the management of water quality and quantity, and protection of certain values of lakes, rivers and wetlands.

The approach taken by this Plan is not inconsistent with the Water Conservation Order (Mataura River) 1997 as required by Section 67 of the Resource Management Act 1991.

The Water Conservation Order extends over:

- the Mataura River from its source (approx E42:502:333) to its confluence with the sea; and
- the Waikaia River and its tributaries, the Ōtamita Stream, and all other tributaries of the Mataura River above its confluence with the Ōtamita Stream (approx F45:881:582); and
- the Mimihau Stream and the Mokoreta River and each of their tributaries.

Plan provisions, where relevant, recognise the requirements of the Order. The Order sets out the minimum standards that must be complied with but the Plan may contain more stringent standards. Plan users should also refer directly to the Water Conservation (Mataura River) Order if they propose to carry out any activities which may impact on the rates of flow in the Mataura or Waikaia River, propose to dam the Mataura and Waikaia Rivers and their tributaries; or discharge to any of the waters identified above.

In this Plan, the management of the water resource has been developed in terms of the following five core areas:

- Water quality
- Water quantity
- Groundwater
- River and lake beds
- Wetlands

This Plan sets the framework for the use, development, and protection of the surface water and groundwater resources and sets out the types of information required to be collected in order to deal with the matters raised. The Plan has been developed as an enabling document that uses the permitted activity category to a significant extent, in combination with performance standards. This general approach should ensure that uncertainty and compliance costs are minimised for resource users.

Technical language or jargon has been minimised wherever possible throughout the Plan. In some cases though, the use of such language is unavoidable. The Plan has deliberately not included or repeated large

amounts of information from the Resource Management Act or the Regional Policy Statement as previous Plans have, as that is considered to be unhelpful to Plan users.

The layout of the Plan has also been changed around from the conventional layout of such Plans in that the Rules are at the front of the document. From the lay user's perspective they are the matters of immediate interest. There are a number of other presentation changes that users familiar with such Plans will see but overall, the Plan retains the main elements required by the legislation.

1.4 Our Partnership with Tāngata whenua

Tāngata whenua of Southland are Ngāi Tahu[2]. Te Taiao Tonga (Environment Southland) has a highly valued partnership with Tāngata whenua in the region. The management of the natural resources in the region is dealt with in a holistic way and the approach taken to the issues that are of significance to Iwi in this Plan, reinforces that approach. Unlike other resource management documents, there is no specific or separate section that deals with Tāngata whenua matters. The concerns of Tāngata whenua on water quality, water quantity and the activities that can take place in the beds of rivers and lakes are the same as the concerns of the community as a whole.

However, water, like all things in the natural world, is seen by Māori as having the spiritual qualities of mauri (life force) and wairua (spiritual dimension). The continued well-being of these qualities is dependent on the physical health of the water, which in turn affects the mana of the kaitiaki. These spiritual qualities may be adversely affected by activities such as the taking and use of water, discharges of contaminants to land and water and the diversion of water from one catchment to another. These important elements are "sewn" into the framework of this Plan and builds on the guidance provided by *Te Whakatau Kaupapa o Murihiku (1997)* and *Te Rūnanga O Ngāi Tahu Freshwater Policy Statement (1999).*

In a physical sense, water is valued by Tāngata whenua for the provision of sustenance through food resources; for example, tuna (eel), kana kana (lamprey), pātiki (flounder), kanahi (mullet) kōkopu, inanga and other whitebait species. Socially, considerable tribal mana is derived from providing locally obtained food for manuhiri (guests) on the Marae. Spiritually, water is important for cleansing and ceremonial rituals.

Particular rivers and lakes also have special significance to Ngāi Tahu as their identity is inextricably linked to those locations. The Ngāi Tahu Claims Settlement Act 1998 has set out a range of areas that are required to be recognised for various purposes when dealing with issues under the Resource Management Act and this Plan. These areas are known as Statutory Acknowledgement areas, Tōpuni features, Nohoanga (campsites alongside specified rivers and lakes), and taonga (treasured or valued) species of plants, and animals. Appendix C sets out the full detail of each of these matters.

The principal elements identified as being of importance to Tāngata whenua in relation to rivers, lakes and wetlands includes:

- **Protection of mauri and wairua**
  Protection of the mauri and wairua of rivers, lakes and wetlands.

- **Adverse effects on mahinga kai**
  Adverse effects on mahinga kai and harvested aquatic species, including tuna (eel), kana kana (lamprey), inanga (whitebait),

[2] Ngāi Tahu Claims Settlement Act, 1998.

waikōura (fresh water crayfish), waikākahi (fresh water mussels) and wātakirihi (watercress).

- **Protection of Wāhi tapu and other taonga**
  The protection of Wāhi tapu and areas or resources associated with water and the beds of rivers and lakes that are of special significance.

- **Recognition of special significance of particular water bodies**
  Recognition of the special significance of particular rivers and lakes to Iwi and the aspirations of Iwi to develop, use and protect water.

2 Management Methods

2.1 Rule Finder – *a quick reference to the rules*

2.2 Rules

2.3 Non-regulatory Approach

2.4 Financial Contributions

2 Management Methods

This Plan uses two types of methods to implement its policies: regulatory and non-regulatory. Regulatory methods control activities through the use of rules, resource consents, compliance and abatement action. Non-regulatory methods seek to implement policies and achieve objectives by using a range of "softer" methods (such as education and incentives).

2.1 Rule Finder – *your quick reference user guide to the rules*

The following table will assist the reader to determine if an activity they propose to carry out is permitted or regulated in some way. It is important to note that this table is a summary and guide only, and reference should be made to the actual rules and the explanations to them. In a majority of cases, the rules specify conditions that have to be met prior to deciding the actual rule category. Where the conditions of a permitted or controlled activity rule are not able to be met then the default status for the activity is discretionary (unless stated otherwise) and a resource consent will be required. The Council can decline, grant, or grant with conditions a resource consent for the activity. In some instances the Plan will describe the matters which the Council will restrict its discretion over when considering the resource consent application.

Activity *See Note 1	Rule Category[3]	Rule No	Section	Water affected
Abstraction and use of groundwater * up to 20,000 litres/day * existing washdown/cooling * other	Permitted – conditions apply[3] Permitted – conditions apply[3] Restricted discretionary, discretionary or non-complying depending on level of allocation	Rule 23	Section C Page 11	Groundwater
Abstraction, diversion and use of surface water * up to 10,000 litres/day * from an artificial storage pond * existing washdown/cooling * other	Permitted – conditions apply[3] Permitted – conditions apply[3] Permitted – conditions apply[3] Restricted discretionary, discretionary or non-complying depending on level of allocation	Rule 18	Section C Page 1	Surface water

[3] Rule categories are defined in the Glossary
[3] Conditions also apply and the reader should refer to the relevant rules for these conditions

Activity *See Note 1	Rule Category[3]	Rule No	Section	Water affected
Abstraction, damming, diversion and use from the Waiau catchment * existing * further or new	Discretionary Non-complying	Rule 21	Section C Page 8	Water in Waiau Catchment
Agricultrual effluent ponds * construction	Restricted discretionary or discretionary if conditions not met	Rule 49	Section F Page 1	Not applicable
Bed disturbance activities not provided for	Discretionary	Rule 47	Section E Page 10	
Boat ramps * to place, erect, reconstruct * use	Discretionary Permitted – conditions apply[3] Discretionary if conditions not met	Rule 25	Section D Page 2	Lakes, rivers, streams and modified watercourses
Bores and wells * drilling or construction * use, maintenance and decommissioning	Controlled Permitted – conditions apply[3] Discretionary if conditions not met	Rule 22	Section C Page 9	Not applicable
Bridges * to place, erect, reconstruct * to use	Permitted – conditions apply[3] Restricted discretionary or discretionary if conditions not met	Rule 26	Section D Page 3	Lakes, rivers, streams and modified watercourses
Cables, wires and pipes * to place, erect, reconstruct * to use	Permitted – conditions apply[3] Permitted – conditions apply[3] Restricted discretionary or discretionary if conditions not met	Rule 27	Section D Page 4	Lakes, rivers, streams and modified watercourses
Canoe gates * to place, erect, reconstruct * to use	Permitted – conditions apply[3] Permitted – conditions apply[3] Restricted discretionary or discretionary if conditions not met	Rule 33	Section D Page 15	Lakes, rivers, streams and modified watercourses
Channel realignment or deepening	Discretionary	Rule 39	Section E Page 1	Lakes, rivers, streams and modified watercourses
Cleanfill sites	Permitted - Conditions apply[3] Restricted discretionary if conditions not met	Rule 53	Section G Page 1	All water
Closed landfills	Permitted – conditions apply[3] Restricted discretionary or discretionary if conditions not met	Rule 58	Section G Page 3	All water

Activity *See Note 1	Rule Category[3]	Rule No	Section	Water affected
Community water supplies * existing * new	Controlled Discretionary	Rule 18A	Section C Page 5	Surface water
Contaminated land	Permitted – conditions apply[3] Discretionary if conditions not met	Rule 57	Section G Page 1	All water
Culverts, to place, erect	Permitted – conditions apply[3] Permitted – conditions apply[3] Controlled or discretionary if conditions not met	Rule 28	Section D Page 6	Lakes, rivers, streams and modified watercourses
Dairy farming (new land use)	Discretionary	Rule 17A	Section B Page 25	All water
Damming of water * small-scale * large-scale * main stems	Permitted – conditions apply[3] Discretionary Non-complying	Rule 19	Section C Page 6	All water
Dams * to place, erect, reconstruct * to place or erect in the Mataura/Waikaia catchments * to use	Permitted – conditions apply[3] Prohibited Permitted – conditions apply[3] Discretionary if conditions not met	Rule 29	Section D Page 7	Lakes, rivers, streams and modified watercourses
Dead holes (offal pits)	Permitted – conditions apply[3] Discretionary if conditions not met	Rule 55	Section G Page 3	All water
Discharges to surface water bodies that meet water quality standards	Discretionary – conditions apply[3] Non-complying under Rule 2 if conditions not met	Rule 1	Section B Page 3	Surface water bodies
Discharges to surface water bodies that do not meet water quality standards	Non-complying	Rule 2	Section B Page 4	Surface water bodies
Discharges to water (other)	Discretionary	Rule 3	Section B Page 5	All water
Discharges of surface water	Controlled – conditions apply[3] If conditions not met, one of Rules 1, 2 or 3 will apply	Rule 3A	Section B Page 6	Surface water bodies and artificial watercourses
Discharge of agrichemicals onto or into surface water	Permitted – conditions apply[3] If conditions not met, one of Rules 1, 2 or 3 will apply	Rule 4	Section B Page 7	Surface water

Activity *See Note 1	Rule Category[3]	Rule No	Section	Water affected
Discharge of agrichemicals to land where they may enter water	Permitted – conditions apply[3] If conditions not met, one of Rules 1, 2 or 3 will apply	Rule 5	Section B Page 9	All water
Discharge of Sodium Monofluoroacetate (1080)	Controlled	Rule 6	Section B Page 10	All water
Discharge of vertebrate pest control poisons	Restricted discretionary	Rule 7	Section B Page 11	All water
Discharge of non-toxic dyes	Controlled	Rule 8	Section B Page 12	All water
Discharge from installed subsurface drainage systems	Permitted	Rule 9	Section B Page 13	All water
Discharge of fertiliser	Permitted – conditions apply[3] Non-complying if conditions not met	Rule 10	Section B Page 14	All water
Discharge of stormwater into surface water	Permitted – conditions apply[3] If conditions not met, one of Rules 1, 2 or 3 will apply	Rule 11	Section B Page 15	Surface water bodies and water in artificial watercourses
Discharge of stormwater into or onto land	Permitted – conditions apply[3] Discretionary if conditions not met	Rule 12	Section B Page 16	Not applicable
Discharge of water from bores and wells	Permitted – conditions apply[3] If conditions not met, one of Rules 1, 2 or 3 will apply	Rule 13	Section B Page 17	Surface water bodies and water in artificial watercourses
Discharge of raw sewage, foul water or untreated agricultural effluent	Prohibited	Rule 14	Section B Page 18	All water
Discharge of sediment associated with drainage maintenance	Permitted	Rule 15	Section B Page 18	All water
Discharge of water from a water treatment plant containing contaminants from the purging of instruments onto or into land	Permitted conditions apply[3]	Rule 16A	Section B Page 20	All water
Discharge of water from a water treatment plant containing contaminants associated with standard water treatment onto or into land	Controlled	Rule 16B	Section B Page 21	All water
Discharge of whey from industrial and trade premises onto or into	Restricted discretionary	Rule 16C	Section B Page 22	All water

Activity *See Note 1	Rule Category[3]	Rule No	Section	Water affected
production land				
Discharge of contaminants originating from industrial or trade premises	Discretionary	Rule 16D	Section B Page 23	All water
Discharge of farm dairy effluent to land	Permitted – conditions apply[3] Consent required if conditions not met	Rule 50	Section F Page 3	All water
Discharge of silage leachate into or onto land	Permitted – conditions apply[3]	Rule 51	Section F Page 7	All water
Discharges associated with stock access to surface water	Permitted – conditions apply[3] If conditions not met, one of Rules 2 or 3 will apply	Rule 16	Section B Page 19	Surface water
Diversion of water (minor) * within the bed * for land drainage * from wetlands	Permitted – conditions apply[3] Permitted – conditions apply[3] Discretionary If conditions not met, Rule 18 will apply	Rule 20	Section C Page 6	All water
Dry cuts	Restricted discretionary	Rule 40	Section E Page 1	Lakes, rivers, streams and modified watercourses
Erosion control structures * to place or reconstruct rock rip rap or anchored or layered trees * to place or reconstruct concrete * to place, erect or reconstruct all other erosion control structures * to use	Permitted – conditions apply[3] Permitted – conditions apply[3] Discretionary Permitted – conditions apply[3] Discretionary if conditions not met	Rule 30	Section D Page 9	Lakes, rivers, streams and modified watercourses
Farm landfills	Permitted – conditions apply[3] Discretionary if conditions not met	Rule 54	Section G Page 2	All water
Flood debris removal	Permitted – conditions apply[3] Restricted discretionary if conditions not met	Rule 43	Section E Page 5	Lakes, rivers, streams and modified watercourses
Fords * to excavate, disturb bed * to place or erect a structure * to use	Permitted – conditions apply[3] Discretionary Permitted – conditions apply[3]	Rule 31	Section D Page 12	Lakes, rivers, streams and modified watercourses

Activity *See Note 1	Rule Category[3]	Rule No	Section	Water affected
	Discretionary if conditions not met			
Gravel extraction	Restricted discretionary	Rule 41	Section E Page 2	Lakes, rivers, streams and modified watercourses
Jetties * to place, erect, reconstruct * use	Discretionary Permitted – conditions apply[3] Discretionary if conditions not met	Rule 25	Section D Page 2	Lakes, rivers, streams and modified watercourses
Land contamination *contaminated by a hazardous substance	Permitted – conditions apply[3] Discretionary if conditions not met	Rule 57	Section G Page 1	All water
Landfills *discharge of contaminants	Discretionary	Rule 56	Section G Page 5	All water
Monitoring and sampling structures * to place, erect, reconstruct * to use	Permitted – conditions apply[3] Permitted – conditions apply[3] Discretionary if conditions not met	Rule 24	Section D Page 1	Lakes, rivers, streams and modified watercourses
Moorings * to place, erect, reconstruct * to use	Permitted – conditions apply[3] Permitted – conditions apply[3] Restricted discretionary or discretionary if conditions not met	Rule 32	Section D Page 13	Lakes, rivers, streams and modified watercourses
Navigation aids * to place, erect, reconstruct * to use	Permitted – conditions apply[3] Permitted – conditions apply[3] Restricted discretionary or discretionary if conditions not met	Rule 32	Section D Page 13	Lakes, rivers, streams and modified watercourses
Pipes * to place, erect, reconstruct * to use	Permitted – conditions apply[3] Permitted – conditions apply[3] Restricted discretionary or discretionary if conditions not met	Rule 27	Section D Page 4	Lakes, rivers, streams and modified watercourses
Signs * to place, erect, reconstruct * to use	Permitted – conditions apply[3] Permitted – conditions apply[3] Restricted	Rule 32	Section D Page 13	Lakes, rivers, streams and modified watercourses

Activity *See Note 1	Rule Category[3]	Rule No	Section	Water affected
	discretionary or discretionary if conditions not met			
Silage * use of land as a silage storage facility **(see also Discharges of silage leachate)**	Permitted – conditions apply[3]	Rule 51	Section F Page 7	Not applicable
Ski lane markers * to place, erect, reconstruct * to use	Permitted – conditions apply[3] Permitted – conditions apply[3] Restricted discretionary or discretionary if conditions not met	Rule 33	Section D Page 15	Lakes, rivers, streams and modified watercourses
Stock access * the entry to, grazing of stock on, passage across * use for supplementary feeding, fodder crops or as stock run-off **(see also Discharges associated with stock access to surface water)**	Permitted – conditions apply[3] Prohibited Discretionary if conditions not met	Rule 42	Section E Page 3	Lakes, rivers, streams and modified watercourses
Stock access or grazing within 3 metres of water when intensive winter grazing is being undertaken	Non-complying activity	Rule 17(a) Rule 17(b)	Section B Page 24	Lakes, rivers, streams, modified watercourses and artificial watercourses
Stock access or grazing within Natural State surface water bodies and Regionally Significant wetlands on public conservation land	Non-complying activity	Rule 17(c)	Section B Page 24	Natural State surface water bodies and Regionally Significant wetlands on public conservation land
Structures, alter or extend	Permitted – conditions apply[3] Restricted discretionary if conditions not met	Rule 36	Section D Page 19	Lakes, rivers, streams and modified watercourses
Structures, demolish or remove	Permitted – conditions apply[3] Restricted discretionary if conditions not met	Rule 37	Section D Page 20	Lakes, rivers, streams and modified watercourses
Structures, maintain	Permitted – conditions apply[3] Restricted discretionary if conditions not met	Rule 35	Section D Page 18	Lakes, rivers, streams and modified watercourses
Structures, not provided for	Discretionary	Rule 38	Section D Page 21	Lakes, rivers, streams and modified

Activity *See Note 1	Rule Category[3]	Rule No	Section	Water affected
				watercourses
Vegetation, introduce or plant	Restricted discretionary	Rule 44	Section E Page 5	Lakes, rivers, streams and modified watercourses
Vehicles and machinery, entry into or passage across bed	Permitted – conditions apply[3] Restricted discretionary if conditions not met	Rule 45	Section E Page 6	Lakes, rivers, streams and modified watercourses
Weed and sediment removal	Permitted – conditions apply[3] Restricted discretionary if conditions not met	Rule 46	Section E Page 7	Lakes, rivers, streams and modified watercourses
Weirs * to place, erect, reconstruct * to place or erect in the Mataura and Waikaia catchment * to use	Permitted – conditions apply[3] Prohibited Permitted – conditions apply[3] Discretionary if conditions not met	Rule 29	Section D Page 7	Lakes, rivers, streams and modified watercourses
Wharves * to place, erect, reconstruct * use	Discretionary Permitted – conditions apply[3] Discretionary if conditions not met	Rule 25	Section D Page 2	Lakes, rivers, streams and modified watercourses
Whitebait stands * to place, erect * to use * to maintain, repair * to alter, reconstruct * to remove * to replace	Prohibited Controlled Permitted – conditions apply[3] Permitted – conditions apply[3] Permitted – conditions apply[3] Restricted discretionary	Rule 34	Section D Page 16	Lakes, rivers, streams and modified watercourses

Note 1 – Recorded Historic Heritage Sites

Under the permitted activity rules in the Plan, all persons are to ensure that no recorded historic heritage sites exist at the site of the activity. Historic heritage and recorded historic heritage sites are defined in the Glossary.

Recorded historic heritage sites for the purposes of the rules in this Plan are defined as those found in the following two sources. Rarangi Taonga: the Register of Historic Places, Historic Areas, Wahi Tapu and Wahi Tapu Areas is the national schedule of New Zealand's heritage places. It is established under the Historic Places Act 1993, compiled by the New Zealand Historic Places Trust Pouhere Taonga, and currently contains 5600 entries. The New Zealand Archaeological Association (NZAA) Site Recording Scheme is a national system for recording information on archaeological sites, which was established in 1958. It currently holds

over 60,000 records. The Southland District Filekeeper looks after archaeological site information in the Southland File District.

The Historic Places Act 1993 makes it unlawful for anyone to damage an archaeological site without prior authority from the New Zealand Historic Places Trust, irrespective of whether it is recorded or not. Offences can carry significant fines. The Trust must also be consulted about any proposals to modify a registered historic place. The Council strongly encourages the implementation of an Accidental Discovery Protocol for all works in order to avoid adverse effects on historic heritage. An Accidental Discovery Protocol for unrecorded sites can be found in Appendix N of this Plan.

Note 2 - Structures and Bed Disturbance Activities

- Any structure may also require a building consent or resource consent from the relevant territorial authority (city or district council).
- Any structure or bed disturbance activity carried out in the bed of a lake or river, managed by the Department of Conservation (e.g. a conservation area) may also require a concession/permit from the Department of Conservation.
- The Department of Conservation should be advised if any structure is likely to impede fish passage (Part VI of the Fresh Water Fisheries Regulations 1983).
- Any structure or bed disturbance activity may require the permission of the owner of the bed (either a Crown agency or a private person or organisation)
- The Maritime Safety Authority should be advised of any structure in any navigable river or lake bed.
- The Council has no liability for the maintenance of any structure, or any damage or loss associated with any structure.

2.2 Rules

This section of the Plan contains rules relating to the use and development of the water resource and river and lake beds. The rules either expressly allow activities (permitted activities), or specify that a resource consent is required (controlled, restricted discretionary, discretionary or non-complying activities[4]). The rules are set out in the following order:

- Discharges to water (water quality)
- Taking, using, damming and diverting water (water quantity)
- Structures
- Bed disturbance activities
- Agricultural effluent (water quality)
- Discharges to land (water quality)

The water quality rules are based on Section 15 of the Resource Management Act 1991, and apply to the discharge of contaminants to water, and the discharge of contaminants to land in a way that may result in the contaminants entering water. Under Section 15, no person may discharge contaminants unless the discharge is expressly allowed by a rule in a plan or by a resource consent.

Also included in the water quality section are rules applying to the construction and use of bores and wells and the construction of agricultural effluent ponds, as these structures can have adverse effects on water quality.

The water quantity rules are based on Section 14 of the Resource Management Act 1991, and apply to the taking, use, damming and diversion of both surface water and groundwater. Under Section 14, no person may take, use, dam or divert water unless:

- expressly allowed by a rule in a plan or a resource consent; or
- the water is required for an individual's reasonable domestic or stock-drinking water needs, and the taking or use does not, or is not likely to, have an adverse effect on the environment; or
- the water is required for fire-fighting purposes.

Therefore, the water quantity rules relate to the taking, use, damming or diversion of surface water other than the taking or use of water for fire-fighting or reasonable domestic or stock water purposes. These latter uses continue to be permitted as of right, provided there is no adverse effect on the environment.

The rules are focused on the management of flow regimes and low flow events, and do not address the management of flood flows or the construction and maintenance of flood protection works outside of river and lake beds, such as stopbanks.

[4] See Glossary for definitions

The structures and bed disturbance activity rules are based on Section 13 of the Resource Management Act 1991, and apply to activities carried out in, on, under or over the beds of rivers and lakes. Under Section 13, people may not do certain things, including the erection and use of structures, and the excavation or disturbance of the bed, unless expressly allowed by a resource consent or a rule in a plan.

As defined in the Glossary, the "bed" of a river or lake is the space of land covered by the waters of the river or lake at its fullest flow, or highest level, without its banks (in the case of a river) or margin (in the case of a lake) being overtopped. A "river" is any permanently or intermittently flowing body of fresh water, including a stream or modified watercourse, but not including an artificial watercourse (for example, an open drain, irrigation canal or water race).

Therefore, the structure and bed disturbance activity rules apply to activities that take place within the beds of rivers, lakes, streams and modified watercourses. Whilst the structure and bed disturbance activity rules **do not** apply to activities that take place within artificial watercourses such as open drains, irrigation canals or water races, the water quality and water quantity rules apply to rivers, streams, modified watercourses and artificial watercourses. These rules also do not apply to surface water activities, such as boating or noise control within river and lake beds – these are territorial authority matters.

Note: To determine which definition a farm drain/ditch or farm drainage channel falls under it is necessary to refer to each of the following definitions "open drain", "modified watercourse" and "river" contained in the Glossary of the Plan.

2.2.1(a) General Discharges to Water and Land

The surface water quality rules in this Plan are based around Section 15 of the Resource Management Act 1991, concerning discharges. If a discharge to water is not provided for as a permitted activity and is not prohibited by this Plan, a resource consent is required to undertake that discharge. In the same manner, this Plan also provides for some discharges onto land where the discharge may enter water, if these discharges are not already provided for in the Regional Effluent Land Application Plan or the Regional Solid Waste Management Plan. It should be noted that the Regional Effluent Land Application Plan and Regional Solid Waste Management Plan are currently under review and are likely to be merged with this Plan in future.

The differentiation between discharges into different types of water is made on the basis of requiring higher standards to be met for higher quality waters. This provides greater certainty and gives a clear signal to those wishing to discharge of what is required of them.

All standards apply after reasonable mixing and disregarding natural perturbations, as required by the Resource Management Act 1991. The

need to establish a zone of reasonable mixing means that unless a suitable set zone can be prescribed or standards can be set for the discharge at the pipe to ensure water quality objectives are not compromised, point source discharge activities will need to go through a consent process. This process will establish the size of the zone of reasonable mixing and can provide for low flow situations where ecosystems are under greater stress. Where it has been identified that specific types of discharges will have minor or less than minor adverse effects, these have been provided for as permitted activities either through a set zone of reasonable mixing or through setting standards for the discharge at the pipe.

Rule 1 – Discharges to surface water bodies that meet water quality standards

Other relevant sections: Objectives 1-4, 9A-C, Issues 1, 5A, 6, 7, 9A, Policies 1, 1A- 4, 6-12, 31A-D, 32-36, 38-40, Rules 2, 3A-17, Sections 2.3, 2.4.

Except as provided for elsewhere in this Plan or in any other Southland Regional Council regional plan, the discharge of any:

(a) contaminant or water into a surface water body; or
(b) contaminant onto or into land in circumstances where it may enter a surface water body

is a discretionary activity provided the following condition is met:

(i) the discharge does not reduce the water quality below any standards set for the relevant water body in Appendix G "Water Quality Standards" after reasonable mixing.

Explanation
Discharges of water or any contaminant to surface water bodies, or to land where it may enter surface water bodies, where they are not expressly provided for by another rule in this Plan or any other Environment Southland regional plan, require consent under Section 15 of the Act. Discharges that are considered to have minor effects have been provided for by permitted or controlled activity rules. Where the conditions of the permitted rules cannot be met, consent is required either under this rule if the water quality standards in Appendix G "Water Quality Standards" can be met, or under Rule 2, if they cannot be met.

Where water quality in any surface water body is higher than the standards set for that water body, Policy 3 provides that it will not be allowed to deteriorate down to those standards unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so.

This rule will cover a wide variety of discharges. To ensure that Council can consider all discharges appropriately, its discretion has not been limited.

Rule 2 – Discharges to surface water bodies that do not meet water quality standards

Other relevant sections: Objectives 1-4, 9A-C, Issues 1, 5A, 6, 7, Policies 1, 1A- 4, 6-12, 31A-D, 32-36, 38-40, Rules 1, 3A-17, Sections 2.3, 2.4.

(a) Except as provided for elsewhere in this Plan or in any other Southland Regional Council regional plan, the discharge of any:

(i) contaminant or water into a surface water body; or
(ii) contaminant onto or into land in circumstances where it may enter a surface water body

that cannot meet the conditions in Rule 1 is a non-complying activity.

(b) Notwithstanding the provisions of Rules 1 and 2(a) of this Plan or any other Southland Regional Council regional plan, the discharge of biologically treated wastewater, treated to a minimum of secondary standard:

(i) into the main stem of the Makarewa River; or
(ii) onto or into land in circumstances where it may enter the main stem of the Makarewa River

at any point downstream of the sheep bridge at or about Map Reference NZMS 260 E46:483:191 is a discretionary activity.

Explanation

Discharges of water or any contaminant to surface water bodies, or to land where it may enter surface water bodies, where they are not expressly provided for by another rule in this Plan or any other Environment Southland plan, require consent under section 15 of the Act. Discharges that are considered to have minor effects have been provided for by permitted or controlled rules. Where the conditions of the permitted rules cannot be met, consent is required either under Rule 1 if the water quality standards in Appendix G "Water Quality Standards" can be met, or under this rule, if they cannot be met.

If water quality standards cannot be met, it is appropriate that the discharge is a non-complying activity. The applicant must demonstrate that the effects of the discharge are minor, or that it is not contrary to the objectives and rules of the Plan.

Where no water quality standards are set, for example for discharges to artificial watercourses or to groundwater, Rule 3 applies.

Part (b) of the rule provides for the discharge of treated wastewater from the Alliance Lorneville plant to the Makarewa River as a discretionary activity. This is because the nature of the receiving waters at that location means that even a discharge of wastewater that has been treated to a standard that substantially reduces the biological content of the wastewater cannot meet some of the water quality standards at present.

To ensure that Council can consider all discharges appropriately, its discretion has not been limited in respect to either part (a) or (b) of the rule. Consent applications will be considered in accordance with Section 104 of the Act having regard to the actual and potential effects on the environment of allowing the activity and the relevant objectives and policies of this Plan. In addition, applications under part (a) of this rule will be subject to the restrictions set out in Section 104D of the Act.

Rule 3 – Other discharges to water

Other relevant sections: Objectives 1-2, 8, Issues 1, 4, 5A, Policies 1A, 2, 3, 5-12, 25-27, Rules 3A-17, Sections 2.3, 2.4

(a) Except as provided for elsewhere in the Plan, the discharge of any contaminant or water into water is a discretionary activity.

(b) Notwithstanding any other rule in this Plan, the discharge of any contaminant or water into the following artificial watercourses is a permitted activity:

(i) a drain known as the North Drain on the Tiwai Peninsula, at about Map Reference NZMS 260 E47 560:924 – E47:560:928 and E47:560:925 – E47:563:925;
(ii) a drain known as the West Drain on the Tiwai Peninsula, at about Map Reference NZMS 260 E47 554:922 – E47:555:922;
(iii) a drain known as the South Drain on the Tiwai Peninsula, at about Map Reference NZMS 260 E47 553:918 – E47:560:917.

Explanation

Rules 1 and 2 cover discharges into surface water bodies. Surface water bodies include fresh water or geothermal water in a river, lake, stream, pond or wetland or any part thereof that is not located within the coastal marine area. This rule is designed to capture water that is outside the definition of surface water body including water in artificial watercourses, groundwater, and coastal water above the coastal marine area.

Artificial watercourses include irrigation canals, water supply races, canals for the supply of water for electricity power generation and farm drainage canals. They do not include modified (e.g. straightened) natural surface water bodies. Some artificial watercourses have habitat values, although they are not constructed for this purpose. It is therefore considered appropriate that consent is required for discharges that are not authorised as permitted activities in this Plan so that Council can ensure that discharges into these systems do not cause adverse effects on any ecosystem values that are present and that cumulative effects are avoided. The discharge of contaminants and water into the drains at Tiwai Aluminium Smelter does not need to be consented as the discharge of contaminants and water from these drains into the coastal marine area is controlled under the Regional Coastal Plan for Southland.

This rule links to Policy 5 whereby discharge to artificial water courses will be managed so that any new discharge, in conjunction with existing discharges meet the water quality standards as specified in Appendix G "Water Quality Standards", following a zone of reasonable mixing of the surface water body into which the artificial watercourse flows. This rule also links to Policy 3, which allows no discharges to water that will result in a reduction of water quality beyond the zone of reasonable mixing unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so.

Groundwater is primarily recharged by rainfall and flow loss from rivers and streams, and in turn makes a significant contribution to water flows in rivers and streams. The quality of groundwater is therefore an important factor in maintaining ecological and natural values. Polices within the groundwater section of the Plan identify the need to manage the adverse effects arising from point source and non-point discharges so that there is no net deterioration in groundwater quality. This rule gives effect to policies listed in the groundwater section of the Plan.

Coastal water found in areas above the coastal marine area generally also has habitat values requiring protection. Depletion in water quality as a result of discharges into areas where this water is found should be avoided. Coastal water is likely to be found in areas above the coastal marine area where the agreed landward boundary of the coastal marine area in relation to a river mouth is listed in the Regional Coastal Plan for Southland as being a feature such as a bridge and there is evidence of saltwater above that boundary.

Rule 3A – Discharges of surface water

Other relevant sections: Objectives 1-4, Issue 1, Policies 1, 1A-10, Rules 1-3, Sections 2.3, 2.4.

The discharge of surface water into a surface water body or artificial watercourse is a controlled activity provided the following conditions are met:

(a) the discharge was lawfully established prior to this Plan coming into force and is associated with a lawfully established activity that existed prior to this Plan coming into force;

(b) the discharge is in the same location as the discharge that existed before the Plan came into force;

(c) after reasonable mixing, the discharge shall not reduce the water quality of the receiving waters or give rise to any or all of the effects listed in Section 107(1)(c) to (g) of the Resource Management Act 1991.

The Council will restrict the exercise of its control to the following matters:

(i) flooding of any person's property;
(ii) erosion of the bed or banks of the receiving surface water body or artificial watercourse; and
(iii) actual or potential effects on existing water users and aquatic ecosystems.

Explanation
This rule allows for the discharge of surface water into a surface water body or artificial watercourse where the discharge was lawfully established prior to this Plan coming into force and is associated with a lawfully established activity that existed prior to this Plan coming into force subject to certain conditions. Examples of situations where this rule would apply include the discharge of the waters of Lake Te Anau to the Waiau River associated with the Lake Control Structure at Te Anau, the discharge of the waters of Lake Manapouri and the Waiau and Mararoa Rivers to the Waiau River associated with the Lake Control Structure at Manapouri, and the discharge of the waters of Lake Monowai to the Monowai River associated with the Monowai Power Scheme.

Rule 4 – Discharge of agrichemicals onto or into surface water

Other relevant sections: Objectives 1-4, Issue 1, Policies 1, 1A- 6, 12, Rules 1-3, Section 2.3.

The discharge of agrichemicals and any associated wetting, antifoaming and antidrifting agents and marker dyes, into surface water, is a permitted activity provided the following conditions are met:

(a) the discharge is for the purpose of eradicating, modifying or controlling excessive growth of aquatic plants, and does not exceed the quantity, concentration or rate necessary, as recommended by the manufacturer;

(b) the agrichemical is approved for aquatic use within New Zealand under the Hazardous Substances and New Organisms Act 1996;
(c) all practicable measures are taken to minimise spray drift beyond the target area ;

(d) the discharge does not give rise to any or all of the following effects in the receiving water:

  (i) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
  (ii) any conspicuous change in visual clarity;
  (iii) the rendering of fresh water unsuitable for consumption by farm animals;
  (iv) any significant adverse effects on aquatic life, other than the target species.

(e) there is no adverse effect on any water takes permitted by the Resource Management Act, this Plan or under a resource consent;

(f) there are no recorded historic heritage sites in the surface water body or artificial watercourse, at the point of discharge or within 1 km downstream of the discharge point;

(g) any person who is likely to be directly affected by the discharge must be notified prior to the discharge occurring;

(h) the discharge does not take place into water within Natural State Waters, or into the Protected Waters of the Water Conservation (Mataura River) Order.

Explanation

Note 1:

Plan users should note that the Hazardous Substances and New Organisms (HSNO) Act 1996 also specifies requirements regarding the management of agrichemicals, including training and record keeping requirements. Under HSNO regulations, agrichemical users generally need to be certified as Approved Handlers. This certification can be gained through training programmes such as GROWSAFE. Under HSNO regulations, the record of agrichemical application may require the inclusion of the following information:

- *the name of the substance;*
- *the date and time of each application or discharge of the substance;*
- *the classification or classifications of the substance;*
- *the amount of the substance applied or discharged;*
- *the location where the substance was applied or discharged;*
- *if the substance is applied to or discharged in the air, a description of the wind speed and direction when the substance was applied or discharged; and*
- *the name of the user of the substance and the user's address.*

New Zealand Standard 8409: 2004 (Management of Agrichemicals) is approved as a means of compliance with HSNO regulations. Compliance with the Standard is also a means of minimising the adverse effects of agrichemical application and complying with the conditions of Rule 4. Appendix F of this Plan contains extracts from the Standard providing guidance on minimising spray drift, notification of potentially affected parties, the preparation of a spray plan and information on other good spray management practices.

The use of agrichemicals in or over water has the potential to adversely affect both water bodies and downstream water users, and for this reason Council considers that activity should be permitted if the conditions specified in the rule are met. If the conditions are complied with the adverse effect should be minor.

The Mataura River Conservation Order does not allow permitting discharges within a regional plan that would result in "*any destruction of aquatic life by reason of a concentration of toxic substances*". The area covered by the Mataura Conservation Order is therefore excluded from this rule and a resource consent must be applied for.

Consent must also be obtained for spraying into water within Natural State Waters.

If the conditions attached to this rule cannot be met, the activity will require consent under one of Rules 1, 2 and 3 of this Plan depending on

the receiving water and whether or not the discharge will meet the water quality standards for the relevant surface water body.

This rule does not cover the discharge of vertebrate pest control poisons and fertilisers, which are dealt with under Rules 6, 7 and 10.

Rule 5 – Discharge of agrichemicals to land where they may enter water

Other relevant sections: Objectives 1-4, 9A-C, Issue 1, 5A, Policies 1, 1A- 6, 12, 31A-D, Rules 1-3, Sections 2.3.

The discharge of agrichemicals and any associated wetting, antifoaming and antidrifting agents and marker dyes onto or into land where they may enter water is a permitted activity provided the following conditions are met:

(a) the agrichemical is approved for use within New Zealand under the Hazardous Substances and New Organisms Act 1996, does not persist in the environment and does not bioaccumulate within organisms;

(b) all practicable measures are taken to minimise spray drift beyond the target area[5];

(c) any person who is likely to be directly affected by the discharge must be notified prior to the discharge occurring[6];

(d) the discharge shall not result in any destruction of natural aquatic

life by reason of a concentration of toxic substances within Natural State Waters, or the Protected Waters[7] of the Water Conservation (Mataura River) Order.

---

[5] Appendix F of this Plan contains an extract from New Zealand Standard 8409: 2004 (Management of Agrichemicals) providing guidance on minimising spray drift.

[6] Appendix F of this Plan contains an extract from New Zealand Standard 8409: 2004 (Management of Agrichemicals) providing guidance on notification of potentially affected parties.

[7] Protected Waters means

(a) The Mataura River from its source (approximate map reference NZMS 260 E42:502-333) to its confluence with the sea (approximate map reference NZMS 260 F47:877-946); and

(b) The Waikaia River and its tributaries, the Ōtamita Stream, and all other tributaries of the Mataura River upstream of its confluence with the Ōtamita Stream (approximate map reference NZMS 260 F45:881-582); and

(c) The Mimihau Stream and the Mokoreta River and each of their tributaries.

Explanation

Note 1:

Plan users should note that the Hazardous Substances and New Organisms (HSNO) Act 1996 also specifies requirements regarding the management of agrichemicals, including training and record keeping requirements. Under HSNO regulations, agrichemical users generally need to be certified as Approved Handlers. This certification can be gained through training programmes such as GROWSAFE. Under HSNO regulations, the record of agrichemical applications may require the inclusion of the following information:

- *the name of the substance;*
- *the date and time of each application or discharge of the substance;*
- *the classification or classifications of the substance;*
- *the amount of the substance applied or discharged;*
- *the location where the substance was applied or discharged;*
- *if the substance is applied or discharged in the air, a description of the wind speed and direction when the substance was applied or discharged; and*
- *the name of the user of the substance and the user's address.*

New Zealand Standard 8409: 2004 (Management of Agrichemicals) is approved as a means of compliance with HSNO regulations. Compliance with the Standard is also a means of minimising the adverse effects of agrichemical application and complying with the conditions of Rule 5. Appendix F of this Plan contains extracts from the Standard providing guidance on minimising spray drift, notification of potentially affected parties, the preparation of a spray plan and information on other good spray management practices.

This rule relates to discharges of agrichemicals to land which are applied in situations where they, or contaminants resulting from their breakdown, may enter water. Direct discharge of these agrichemicals to water is not permitted except as provided by Rule 4. Discharge via land-based methods and aerial methods are both included within the rule. Provided the conditions are met the effects of the discharge should be minor. It is therefore appropriate that these discharges may take place without the need for consent.

If the conditions attached to this rule cannot be met, the activity will require consent under one of Rules 1, 2 and 3 of this Plan depending on the receiving water and whether or not the discharge will meet the water quality standards for the relevant surface water body.

While the discharge of agrichemicals to air where they do not enter water is permitted by Rules 6.5.6 and 6.5.8 in the Regional Air Quality Plan, a discharge of agrichemicals to air and subsequently to land, in circumstances where the agrichemicals may enter water, will need to comply with the provisions of both the Regional Air Quality Plan and this Plan.

Rule 6 – Discharge of Sodium Monofluoroacetate (1080)

Other relevant sections: Objectives 1-4, 9A-C, Issue 1, 5A, Policies 1, 1A- 6, 12, 31A-D, Rules 1-3, Sections 2.3, 2.4.

The aerial discharge of sodium monofluoroacetate (1080) into or onto land where it may enter water is a controlled activity.

The Council will restrict the exercise of its control to the following matters:

(a) the concentration and application rate per hectare;
(b) the form (pellet etc);
(c) the proximity of the discharge to surface water bodies, coastal marine areas and historic heritage;
(d) appropriate buffer zones;
(e) signage requirements;
(f) information and monitoring requirements;
(g) the duration of the activity.

An application for resource consent under this rule does not need to be notified and does not need to served on persons who may be adversely affected by the activity unless the applicant requests notification or the council considers special circumstances exist that warrant notification of the application.

Explanation
1080 is the only poison registered for aerial application. Aerial application of 1080 in key areas of Southland is an effective method for possum control. Possums act as a reservoir of Bovine Tb infection, and intensive control over infected areas is an important method in reducing herd infection rates within Southland. Without controlling the infestation of Tb this could create consequential adverse effects on Southland's pastoral and regional industry. High possum numbers also significantly adversely affect indigenous plant communities and can adversely affect indigenous fauna as well. Possums selectively target plant species such as Rātā and have also been recorded targeting indigenous bird nests.

This rule allows for the aerial discharge of 1080 as a controlled method. Resource consent will be required, however an application for consent will be approved under this rule. The Council have the ability to exercise their control over matters listed under the rule and minimise any potential adverse effects as a result of such discharge. The Council may if special circumstances warrant a need, publicly notify an application for resource consent.

Rule 7 – Discharge of vertebrate pest control poisons

Other relevant sections: Objectives 1-4, 9A-C, Issue 1, 5A, Policies 1, 1A- 6, 12, 31A-D, Rules 1-3, Sections 2.3, 2.4.

The discharge of vertebrate pest control poisons other then sodium monofluoroacetate (1080) onto or into land where it may enter water is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:

(a) the concentration of vertebrate pest control products and the application rate per hectare;
(b) the persistence of poisons in the environment;

(c) the method of application (ground based or aerial) and its form (pellet, paste etc);
(d) the proximity of the discharge to surface water bodies, coastal marine areas and historic heritage;
(e) appropriate buffer zones;
(f) signage requirements;
(g) the information and monitoring requirements;
(h) the location and occurrence;
(i) the duration of the activity.

An application for resource consent under this rule does not need to be publicly notified unless the applicant requests public notification or the Council considers special circumstances exist that warrant public notification of the application. If written approval cannot be obtained from all persons who, in the opinion of the Council, may be adversely affected by the activity, the Council will serve notice on all persons adversely affected by the activity.

Explanation
At present there are a number poisons registered in New Zealand for pest animal control: 1080 (sodium monofluoroacetate), cyanide, cholecalciferol, phosphorus, pindone and brodifacoum. All of these poisons are used in concentrations in baits that are deadly poisonous. Each poison has their own disadvantages and advantages for use and the application of such will be in accordance with associated rules and regulations under which they are registered.

This rule allows for the application of vertebrate pest control poisons as a restricted discretionary activity. It is considered that given the complexity of these poisons and the differing rates of application, biochemical breakdown, persistence within the environment and potential risks, that discharges of vertebrate pest control poisons into onto or into land where it may enter water should be addressed with certain levels of discretion. The matters listed under the rules are matters in which the Council shall restrict their discretion to. Should the Council determine that the application does not fulfil the matters in which it has restricted over, the consent application will be declined.

Should the Council consider special circumstances exist that warrant notification of the application or the applicant requests public notification, the Council may decide to publicly notify the consent application. Furthermore if written approval cannot be obtained from all persons who, in the Council's opinion may be adversely affected by the activity, the Council will at this stage serve notice on all persons adversely affected by the activity.

Rule 8 – Discharge of non-toxic dyes

Other relevant sections: Objectives 1- 4, Issue 1, Policies 1, 1A- 6, Rules 1-3, Sections 2.3, 2.4.

The discharge of non-toxic dyes for investigative purposes onto or into water other than within Natural State Waters is a controlled activity.

The matters that Environment Southland will exercise its control over are:

(a) the type of dye used;
(b) the amount of dye used and the rate of application;
(c) any requirements for Public Notice of the test occurring;
(d) duration of the test.

An application for resource consent under this rule does not need to be notified and does not need to be served on persons who may be adversely affected by the activity unless the applicant requests notification or the Council considers special circumstances exist that warrant notification of the application.

Explanation
The use of dyes such as Rhodamine WT and Fluorescine is likely to have no more than minor adverse effects. However, Section 70(1)(d) of the Resource Management Act 1991 does not allow a regional council to permit discharges where there will be a conspicuous change to colour or clarity in the receiving water. By their nature, dyes discolour the water. In recognition of the minor nature of the activity, the discharge will be processed as a controlled activity and without notification or the need for written approvals. A condition of resource consent may be a requirement to publicly advertise when and where the discharge will occur as the discharge of these dyes sometimes gives rise to public concerns. Public Notice of the use of dyes provides for the public to be adequately informed.

Discharges into water within Natural State Waters will require consent under Rules 1, 2 and 3 of the Plan.

Rule 9 – Discharge from installed subsurface drainage systems

Other relevant sections: Objectives 1- 4, Issues 1, 7, Policies 1, 1A- 6, Rules 1-3, Section 2.3.

The discharge of land drainage water from an installed subsurface drainage system to water is a permitted activity, provided that there is no conspicuous change to the colour and/or clarity of the receiving waters at a distance of 20 metres from the point of discharge.

Explanation
Installed subsurface drains are important to the economic and productive operation of farms throughout Southland. Generally good management practices will significantly reduce the likelihood of any contaminants reaching the subsurface drains. However, poor management can allow contaminants such as large amounts of sediment or nutrients to find their way into these drains and result in potentially significant adverse effects on water quality. Subsequent changes to the colour or clarity of water are immediate visual indicators of any gross contamination and mismanagement practices.

This rule applies only to the discharge of land drainage water from an installed subsurface drainage system to water. Other rules in this Plan cover the discharge of contaminants directly to water and to land in circumstances where contaminants may enter water. The discharge of foul water is addressed by rules in the Regional Effluent Land Application Plan.

The distance of 20 metres from the point of discharge is considered to be an appropriate zone of reasonable mixing.

Rule 10 – Discharge of fertiliser

Other relevant sections: Objectives 1- 4, 9A-C, Issues 1, 5A, 7, Policies 1, 1A-6, 31A-D, Rules 1-3, Sections 2.3, 2.4.

(a) The discharge of fertiliser onto or into land by aerial or land based application methods in circumstances where the fertiliser may enter water is a permitted activity provided the following conditions are met:

(i) there is no direct discharge of fertiliser into a surface water body, water in an artificial watercourse or into groundwater;
(ii) all practicable measures are taken to minimise fertiliser drift beyond the target area and run-off of nutrients to surface water;
(iii) the fertiliser is applied at a rate and volume that minimises leaching of nutrients to groundwater.

(b) The discharge of fertiliser into water or onto or into land by aerial or land based application methods in circumstances where the fertiliser may enter water that cannot meet the above conditions is a non complying activity.

Explanation

The discharge of fertiliser requires resource consent under Section 15 of the Resource Management Act 1991 unless it is expressly permitted by a rule in a regional plan. Fertiliser applied to land may enter water through accidental drift into surface water, by leaching through the soil into groundwater or by being washed off the land into surface water.

Compliance with the current Codes of Practice published by the New Zealand Fertiliser Manufacturers' Research Association and the New Zealand Fertiliser Quality Council for the application and use of fertiliser/nutrients is a means of minimising the adverse effects of fertiliser application and complying with the conditions of Rule 10(a). Nutrient budgeting, to ensure that only the amount required is applied, can also reduce potential effects on water quality. Where fertiliser is applied in such a way as to minimise spray drift, leaching and run-off, the effects on surface water quality should be minor and therefore it is appropriate that the activity is permitted.

Application of fertiliser directly into water is unnecessary and can have significant adverse effects on water quality. It is therefore a non-complying activity.

While the discharge of fertiliser to air by aerial methods is permitted by Rule 6.5.7 of the Regional Air Quality Plan, a discharge of fertiliser to air and subsequently to land by aerial methods, in circumstances where the fertiliser may enter water, will need to comply with the provisions of both the Regional Air Quality Plan and this Plan.

Rule 11 – Discharge of stormwater into surface water

Other relevant sections: Objectives 1- 4, Issues 1, 7, Policies 1, 1A- 7, 11, Rules 1-3, Section 2.3.

The discharge of stormwater into a surface water body or water in an artificial watercourse is a permitted activity provided the following conditions are met:

(a) the discharge is not from a reticulated system.

(b) the discharge does not originate from industrial or trade premises where hazardous substances are stored or used unless:

  (i) hazardous substances cannot enter the stormwater system; or
  (ii) there is an interceptor system in place to collect stormwater that may contain hazardous substances and discharge or divert it to a trade waste system; or
  (iii) the stormwater contains no hazardous substances except oil and grease and the stormwater is passed through an oil interceptor system prior to discharge.

(c) the discharge does not contain any sewage, foul water or agricultural effluent;

(d) the discharge does not result in the production of any conspicuous oil or grease films, scums, foams or floatable or suspended materials;

(e) except for the discharge of stormwater from a roof, road or vehicle parking area, the discharge is not into water within Natural State Waters.

Explanation

Stormwater has the potential to carry high levels of contaminants into surface water. Contaminants may include sediment, oil and grease, organic material, faecal material and hazardous chemicals. The risk of such contaminants being present is higher when the discharge is from industrial or trade premises or from a reticulated system that collects stormwater from a larger area and a number of properties. For this reason, the rule has specific conditions in relation to these types of discharge. If the conditions attached to the rule cannot be met, the activity will require consent under one of Rules 1, 2 and 3 of this Plan

depending on the receiving water and whether or not the discharge will meet the water quality standards for the relevant surface water body. This will enable Council to ensure that appropriate treatment measures are in place to meet water quality standards. It will also allow the discharges to be monitored.

Under Section 20A of the Act, a resource consent application must be made within six months of a rule becoming operative for a lawfully established activity requiring consent under that rule. Conditions of consents granted for existing stormwater discharges would stipulate that the standards and guidelines specified in Policy 11 were to be met at the end of the phase-in period contained in the policy; alternatively consents may be granted with a shorter consent term to allow reconsideration of the activity and appropriate consent conditions at the end of the phase-in period.

It is unlikely that every stormwater discharge will need to be individually consented in practice. The process will be more efficient if resource users obtain "global" consents that allow them to discharge into surface water, subject to meeting the conditions specified on the consent including requirements to provide the Council with information.

Other stormwater discharges, for example from individual dwellings, are likely to contain far fewer contaminants. It is appropriate that, provided the other conditions can be met, the discharge is permitted.

Discharges from industrial and trade premises are permitted. Raw sewage, foul water and untreated effluent may not be discharged. This can occur, for example, where stormwater enters sewage collection pipes, causing them to overflow.

Stormwater discharge into water within Natural State Waters will require consent under Rules 1, 2 and 3 of the Plan.

Rule 12 - Discharge of stormwater into or onto land

Other relevant sections: Objectives 1-4, 9A-C, Issues 1, 5A, 7, Policies 1, 1A-7, 11, 31A-D, Rules 1-3, Sections 2.3, 2.4

(a) The discharge of stormwater onto or into land is a permitted activity provided the conditions below are met:

(i) the discharge is not from a reticulated system;

(ii) the discharge does not originate from an industrial or trade premises where hazardous substances are stored or used unless:

1. hazardous substances cannot enter the stormwater system; or
2. there is an interceptor system in place to collect stormwater that may contain hazardous substances and discharge or divert to a trade waste system; or

3. the stormwater contains no hazardous substances except oil and grease and the stormwater is passed through an oil interceptor system prior to discharge;

(iii) the discharge does not contain any sewage, foul water or agricultural effluent;

(iv) the discharge does not result in the production of any conspicuous oil or grease films;

(v) the discharge does not cause flooding of any other person's property, erosion or land instability;

(vi) except for the discharge of stormwater from a roof, road or vehicle parking area, the discharge is not onto land where it may enter water within Natural State Waters.

(b) The discharge of stormwater onto or into land that cannot meet the above conditions is a discretionary activity.

Explanation
Stormwater run-off to ground will generally have few adverse effects on water quality. The exception is where contaminants such as untreated agricultural effluent, sewage or hazardous substances may be present. The conditions attached to Rule 12(a) should ensure that the risk of such contaminants being present in the discharge is low. The stormwater disposal system needs to be designed so that stormwater does not cause erosion, land instability or flooding of a neighbouring property.

If the conditions attached to the rule cannot be met, the activity will require consent under Rule 12(b). Under Section 20A of the Act, a resource consent application must be made within six months of a rule becoming operative for a lawfully established activity requiring consent under that rule. Conditions of consents granted for existing stormwater discharges would stipulate that the standards and guidelines specified in

Policy 11 were to be met at the end of the phase-in period contained in the policy; alternatively consents may be granted with a shorter consent term to allow reconsideration of the activity and appropriate consent conditions at the end of the phase-in period.

Rule 13 – Discharge of water from bores and wells

Other relevant sections: Objectives 1- 4, 9A-C, Issues 1, 5A, Policies 1, 1A- 6, 31A-D, Rules 1-3, Sections 2.3.

The discharge of water from any bore or well into a surface water body or water in an artificial watercourse or onto or into land where it may enter a surface water body or water in an artificial watercourse, as a result of aquifer testing, is a permitted activity provided the following conditions are met:

(a) the discharge does not cause flooding of any other person's property, erosion of the bed or banks of the receiving water body or land instability;

(b) where the discharge is into water, there is no conspicuous change to colour and clarity of the receiving waters at a distance of 20 metres from the point of discharge.

Explanation
The discharge of water as a result of aquifer testing is usually of short duration and limited volume, and the quality of the water being discharged is not altered. However, the water may sometimes contain elevated levels of sediment. In addition, there is the potential for erosion, flooding or land instability if the discharge is not managed appropriately. Provided the conditions in the rule are met, the discharge should have minor adverse effects and it is appropriate that it is permitted.

Rule 14 – Discharge of raw sewage, foul water or untreated agricultural effluent

Other relevant sections: Objectives 1- 4, Issues 1, 7, Policies 1, 1A- 7, 13, Rules 1-3, Section 2.3.

The discharge of raw sewage, foul water or untreated agricultural effluent into water is a prohibited activity.

Explanation
The discharge of raw sewage and untreated agricultural effluent has ecological, recreational and aesthetic impacts. In addition, the discharge of raw sewage is culturally offensive. It is not acceptable to use rivers or lakes as treatment systems for this type of waste. Discharge from all sources, including from boats, is therefore prohibited.

The discharge of effluent to land is dealt with under the Regional Effluent Land Application Plan.

Rule 15 – Discharge of sediment

Other relevant sections: Objectives 1- 4, Issues 1, 6, Policies 1, 1A- 6, 32-35, Rules 1-3, 46, Section 2.3.

The discharge of sediment into water associated with the removal of aquatic weeds and plants and sediment for drainage maintenance purposes from any lake, river, stream or modified watercourse under Rule 46(a) or from any artificial watercourse is a permitted activity.

Explanation
This rule provides for the discharge of sediment into water associated with the removal of aquatic weeds and plants and sediment from rivers, streams and modified watercourses subject to certain conditions. See Rule 46 for the relevant conditions. Sediment discharges in artificial watercourses resulting from drain maintenance activities are also permitted under this rule.

Rule 16 - Discharges associated with stock access to surface water

Other relevant sections: Objectives 1- 4, 9A-C, Issues 1, 5A- 7, Policies 1, 1A-6, 31A-D, 32, 35, Rules 1-3, 17, 42.

Except as provided by Rule 17, the discharge of any contaminant into water, or onto or into land in circumstances where it may enter water, associated with:

(a) the disturbance of the bed of any lake, river, modified watercourse or stream arising from stock access permitted under Rule 42(a); or
(b) stock access to any other surface water;

is a permitted activity provided the following conditions are met:

(a) for artificial watercourses, the discharge (either by itself or in combination with the same, similar or other contaminants) does not give rise to any or all of the following effects in the receiving water after reasonable mixing:

  (i) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
  (ii) any conspicuous change in the colour or visual clarity;
  (iii) any emission of objectionable odour;
  (iv) the rendering of fresh water unsuitable for consumption by farm animals;
  (v) any significant adverse effects on aquatic life;

(b) for surface water bodies, the activity shall not reduce the water quality below any standards set for the relevant surface water body in Appendix G "Water Quality Standards" after reasonable mixing;

(c) for artificial watercourses, in addition to the requirements specified in condition (a), the activity shall not reduce the water quality of the surface water body into which the artificial watercourse flows below any standards set for the surface water body in Appendix G "Water Quality Standards" following a zone of reasonable mixing from the point of confluence of the artificial watercourse with the surface water body.

Explanation

Note 1:

The actions required to ensure compliance with conditions (a), (b) and (c) of this rule will vary depending on the intensity of the farming operation and the nature of the receiving waters. In circumstances where:

1. *stocking rates alongside water bodies are high (for example, under strip grazing or rotational grazing with mob stocking);*
2. *cattle, deer or pigs have unrestricted access to a water body;*
3. *large herds of stock are crossing a water body frequently e.g. herds of dairy cows on their way to or from the milking shed; or*
4. *the bed of the water body has a soft or silty substrate.*

The following types of actions are likely to be necessary to ensure compliance with conditions (a), (b) and (c):

- *Use of permanent or temporary fences along the banks to deter stock from entering the stream bed, grazing bank side vegetation, trampling aquatic habitat or defecating directly into the water or onto the immediate bank.*
- *Provision of bridges and culverts.*
- *Provision of alternative water supplies so that stock do not need to access the stream bed.*
- *Provision of shade so stock do not need to cool themselves by standing in water.*

Note 2:
The zone of reasonable mixing will vary depending on site-specific factors and needs to be determined on a case-by-case basis. For example, in small streams reasonable mixing is generally considered to have occurred at the point downstream from a sediment discharge where the stream returns to uniform colour and clarity. Determining the zone of reasonable mixing in larger water bodies or where a discharge of faecal contaminants has occurred is a much more complex process.

This rule, in conjunction with Rules 17 and 42, gives effect to Policy 35, which provides that stock access to water bodies is to be managed in a way that avoids significant adverse effects on water quality, bed and bank stability, and habitats.

Rule 42 predominantly addresses the bed disturbance aspects of stock access to water bodies (including the adverse effects on bed and bank stability, and habitats) while this rule addresses the water quality aspects. Rule 17 targets the land use practices where stock access to water has the most significant adverse effects and those water bodies with high natural values.

The rule requires discharges associated with stock access to water bodies to meet the water quality standards contained in Appendix G "Water Quality Standards" of the Plan after reasonable mixing. This requirement is consistent with the direction for managing the effects of discharges on water quality set out in Policies 4 and 5 of the Plan. Advice Note 1 to the rule outlines activities that are likely to cause a breach of the water quality standards.

If the conditions attached to Rule 16 cannot be met, the activity will require consent under Rules 2 or 3 depending on the receiving water.

Rule 16A – Discharge of water from purging of instruments at a water treatment plant

Other relevant sections: Objectives 2- 4, 9A-C, Issues 1, 4, 5A, Policies 1, 1A-7, 25, 31A-D, Rules 1-3, Section 2.3.

The discharge of water containing contaminants from the purging of instruments at a water treatment plant onto or into land is a permitted activity, provided the following conditions are met:

(i) the volume of water discharged does not exceed 3 m^3 per day;

(ii) the concentration of chlorine shall not exceed 2 mg/l;
(iii) the pH of the discharge shall be between 6 and 8;
(iv) the discharge does not result in overland flow to surface water or beyond the property boundary or ponding.

Explanation:
Rule 16A provides for the daily purging of instruments associated with water treatment at a water treatment plant. The small volume of the discharge and the low level of contaminants mean that the effect of such discharges is likely to be less than minor and can be considered as a permitted activity with appropriate conditions.

Rule 16B – Discharge of water associated with standard water treatment processes

Other relevant sections: Objectives 2- 4, 9A-C, Issues 1, 4, 5A, Policies 1, 1A-7, 25, 31A-D, Rules 1-3, Section 2.3.

The discharge of water containing contaminants associated with standard water treatment processes from a water treatment plant onto or into land is a controlled activity, provided the following conditions are met:

(i) the associated water take does not exceed 7,500 m^3 per day;
(ii) the discharged volume of water containing contaminants does not exceed 8% of the daily water take.

The Council will retain control over the following matters:

(i) the assimilative capacity and drainage characteristics of the soil;
(ii) compliance with ANZECC and/or WHO guidelines for soil/human health;
(iii) the separation distance of the discharge from surface water bodies, artificial watercourses, subsurface drains, the coastal marine area, residential dwellings, property boundaries and drinking water sources;
(iv) methods of discharge and management of the discharge.

Explanation
Chemicals are often used in the treatment of water to remove potential contaminants in order to ensure its potability and to meet drinking water standards. An example of a common by-product from this treatment process is Alum, which is a flocculent necessary to remove fine sediment from water to make it potable. Any excess Alum needs to be appropriately discharged and is an unavoidable by-product of providing clean drinking water. Backwash is another common by-product which is often highly sediment laden. By-products associated with the treatment of water (commonly termed residuals) meet the definition of a contaminant under the RMA because they have the potential to change the physical, chemical, or biological condition of land onto or into which they are discharged.

Providing for the discharge of water containing treatment residuals associated with the operation of standard water treatment processes as a

controlled activity will give the water supply operator certainty of continued operation, whilst appropriately managing the contaminants being discharged. The limited types of contaminants generally associated with raw water supplies mean that the effects of such discharges are likely to be able to be controlled with appropriate conditions.

The matters over which control is retained will ensure that the effects of the discharge will be mitigated. Assessing the assimilative capacity of the soil recognises the degree to which the soil can effectively absorb treatment residuals and will minimise the risk of contamination reaching groundwater or surface water. Retaining control over the drainage characteristics of the soils will avoid excess runoff or ponding of the discharge, which could result in effects such as flooding or erosion of land, is avoided. In addition, effects on public health will be minimised by compliance with appropriate guidelines, and effects on waterbodies and sensitive land uses will be avoided by adherence to appropriate setback distances for the discharge.

Rule 16C – Discharge of whey from industrial or trade premises

Other relevant sections: Objectives 2- 4, 9A-C, Issues 1, 4, 5A, Policies 1, 1A-7, 25, 31A-D, Rules 1-3, Section 2.3.

(a) The discharge of whey that has originated from any industrial or trade premises onto or into production land at an application rate that does not exceed 150 kilograms of nitrogen per hectare per year is a restricted discretionary activity;

The Council will restrict its discretion to the following matters:

(i) the assimilative capacity and drainage characteristics of the soil;
(ii) the effect of the discharge in relation to areas of groundwater that exceed 75% of the Maximum Allowable Value for nitrate under the Drinking Water Standards New Zealand 2005;
(iii) the separation distance of the discharge from surface water bodies, artificial watercourses, subsurface drains, the coastal marine area, residential dwellings, property boundaries and drinking water sources;
(iv) methods and management of application;
(v) inspection, audit and water quality monitoring requirements.

An application for resource consent under this rule does not need to be notified or served on any person.

(b) The discharge of whey that has originated from any industrial and trade premises onto or into production land that cannot meet the conditions of Rule 16C(a) above is a discretionary activity.

(c) Clauses (a) and (b) of this Rule shall not be operative until 1 March 2014.

Explanation
Whey generated from the processing of dairy products can contain high concentrations of nutrients, and with large quantities, potentially result in high contaminant loadings from discharges. The discharge of whey can pose a risk to surface water and groundwater quality and needs to be managed in a way that recognises the local environment in which the discharge is occurring and the potential for adverse effects on water quality.

Given the site specific variables involved, the general state of water quality in the region, and the potential for adverse effects, whey discharges that meet the specified nitrogen loading rate are restricted discretionary activities so that the potential for effects can be assessed through the resource consent process. This will allow for the activity to proceed with the minimum of cost and delay, but will provide Environment Southland with the opportunity to assess effects and impose conditions where necessary. Any discharge that does not meet these discharge standards will be a discretionary activity to allow for the additional risk to water quality in the catchment to be further addressed.

Rule 16D – Discharge of contaminants originating from industrial or trade premises

Other relevant sections: Objectives 2-4, 9A-C, Issues 1, 4, 5A, Policies 1, 1A -7, 25, 31A-D, Rules 1-3, Section 2.3.

Except as provided elsewhere in this Plan or any other regional plan, the discharge of contaminants that has originated from any industrial or trade premises onto or into land is a discretionary activity.

Explanation:
Section 15(1)(d) of the Resource Management Act 1991 states that no person may discharge any contaminant from any industrial or trade premises onto or into land unless the discharge is allowed by a regulation, rule or resource consent. Contaminants discharged from industrial and trade premises can include solid waste, process effluent, general site effluent, contaminated stormwater and general leaching of contaminants through soil to groundwater. This variety of discharges, and the wide range of types of industrial and trade premises in Southland has led to the Council wishing to retain discretion over whether to grant consents for discharges from industrial and trade premises to land. Where discharges are not covered by other rules in this plan (for example, Rule 57 concerning contaminated land, or Rule 12 relating to stormwater discharges), Rules 16A-16D will apply.

Plan users should refer to Appendix A for guidance on the information that should be submitted with a resource consent application for a discharge of effluent to land from industrial and trade premises.

2.2.1(b) Land Use Rules

Rule 17 - Stock grazing and access to surface water

Other relevant sections: Objectives 1- 4, 9B-C, Issues 1, 6, 7, Policies 1, 1A- 6, 31A-D, 32, 35, Rules 1-3, 16, 42, Sections 2.3, 2.4.

Grazing or access of stock within:

(a) 3 metres horizontally of water in a lake, river, modified watercourse, stream or artificial watercourse, when intensive winter grazing is being undertaken; or

(b) any Natural State surface water body; or

(c) any Regionally Significant Wetland identified in Appendix B that is on public conservation land managed as such under the National Parks Act 1980, Conservation Act 1987 or the Reserves Act 1977;

is a non-complying activity.

Explanation
This rule, in conjunction with Rules 16 and 42, gives effect to Policy 35, which provides that stock access to water bodies is to be managed in a way that avoids significant adverse effects on water quality, bed and bank stability, and habitats.

Rule 42 predominantly addresses the bed disturbance aspects of stock access to water bodies (including the adverse effects on bed and bank stability, and habitats) while Rule 16 addresses the water quality aspects. This rule targets the land use practices where stock access to water has the most significant adverse effects and those water bodies with high natural values.

The rule requires stock to be excluded by a minimum of 3 metres (horizontal) from water in a lake, river, modified watercourse, stream or artificial watercourse when intensive winter grazing is being undertaken. Intensive winter grazing is considered to have a high risk of adversely affecting water quality as it results in bare, often pugged soil, with concentrated amounts of effluent on the soil surface. Rainfall and the resultant overland flow can transport sediment and effluent into surface water bodies and artificial watercourses. A three metre buffer zone of vegetation protected by an electric fence will help trap sediment and nutrients within the paddock and hence improve water quality within the adjacent water body. This minimum setback distance is considered to be adequate for the majority of intensive winter grazing operations in Southland. **There will be instances where wider buffer zones are required to ensure compliance with conditions (a), (b) and (c) of Rule 16.** These include forage crops planted on steeper ground, long sloping banks where the top of the bank is more than 3 metres horizontally from the water's edge and where natural depressions or swales carry concentrated overland flow from intensively winter grazed paddocks. Free advice on this matter is available from Environment Southland upon request. General principles for buffer zones are

outlined in the joint Dexcel and Environment Southland publication *Clean Streams – A Guide to Managing Waterways on Southland Farms.*

The rule also excludes stock from Natural State surface water bodies and regionally significant wetlands on public conservation land managed as such under the National Parks Act 1980, Conservation Act 1987 or the Reserves Act 1977. These water bodies have high natural values.

In most cases, fencing (either permanent or temporary) is the most practical method of excluding stock from water bodies. However, there may be circumstances where fencing is not required due to natural barriers. The provision of alternative sources of water, shade and shelter can also help discourage stock from accessing water bodies.

The use of setback areas and riparian margins in conjunction with fencing is recommended to provide bank stability and to filter contaminants. It is important to remember to allow space for future maintenance programmes (e.g. drain clearing) when fencing and planting beside water bodies.

Free advice on fencing and managing water bodies is available from Environment Southland upon request and is also contained in the joint Dexcel and Environment Southland publication *Clean Streams – A Guide to Managing Waterways on Southland Farms.*

Rule 17A – Transitional rule relating to the establishment of new dairy farms

Other relevant sections: Policy 13A

a) The establishment of a new dairy farm is a discretionary activity.

(b) Subject to (c) an application for resource consent under (a) does not need to be notified or served on any person unless the applicant requests or the Council considers that special circumstances warrant notification.

(c) Notwithstanding (b), notice of an application under this rule shall be served on the following:
  (i) Te Runanga o Ngai Tahu and the appropriate runanga.
  (ii) The Department of Conservation for an application that adjoins a national park or conservation area administered by that department.
  (iii) The Gore District Council for an application within that area of the Knapdale Groundwater Zone identified on the Knapdale Groundwater Map.

Explanation

Rule 17A requires new dairy farming to obtain consent, in order for the Council to ensure that adverse effects and risks to water quality have been considered and will be managed. For the avoidance of doubt, any activities relating to new dairy farming that occur off the land that is converted will not be subject to consent under Rule 17A.

The purpose of the transitional provisions is not to prevent the establishment of new dairy farms, but to ensure each new development is sustainable from an environmental, social, economic and cultural view point.

Inclusion of the word 'transitional' in the headings for the rule reflects the fact that the Council is developing a long-term policy framework that will eventually replace Rule 17A. Throughout 2013 and 2014 it is anticipated that new provisions relating to a series of agricultural activities will be publicly notified. Where applicable, these new provisions will replace the transitional policies and rule. The Council has also commenced work on developing water quality load limits and allocating those limits, as required by Policy A1 of the National Policy Statement on Freshwater Management. This work will enable the cumulative effects of activities in catchments to be addressed. A timetable for this work was publicly notified in December 2012.

2.2.2 Taking and Using Water

Rule 18 – Abstraction, diversion and use of surface water

Other relevant sections: Objectives 5-7, Issues 2, 5, Policies 1A, 14-18, 19A-24, 29, Sections 2.3, 2.4.

(a) In addition to the takes authorised by Section 14(3) of the Act and the abstraction, diversion and use of surface water permitted under Rules 18(b) and (c), the abstraction and use of up to 10,000 litres of surface water per landholding or per facility on public conservation land managed as such under the National Parks Act 1980, Conservation Act 1987, or the Reserves Act 1977 per day is a permitted activity provided the following conditions are met:

(i) the rate of abstraction does not exceed 5 litres per second; and
(ii) the abstraction and use does not result in adverse effects on existing water users, aquatic ecosystems or water quality; and
(iii) fish are prevented from entering the reticulation system.

(b) In addition to the takes authorised by Section 14(3) of the Act and the abstraction and use of surface water permitted under Rules 18(a) and (c), the abstraction, diversion and use of surface water from an artificial storage pond is a permitted activity.

(c) In addition to the takes authorised by Section 14(3) of the Act and the abstraction, diversion and use of surface water permitted under Rules 18(a) and (b), the abstraction and use of surface water for milk-cooling water or washing down of dairy sheds and piggeries is a permitted activity provided the following conditions are met:

(i) the abstraction and use was lawfully established as a permitted activity up to and including as at 25 June 2005; and
(ii) the volume or rate of abstraction, or the number of stock using the dairy shed or piggery, does not increase beyond the levels established up to and including as at 25 June 2005; and
(iii) the surface water after use is discharged pursuant to a discharge permit granted prior to 25 June 2005. For the avoidance of doubt, the discharge permit referred to in this clause does not include any discharge permit granted in substitution or by way of renewal of that discharge permit; and
(iv) the abstraction does not result in adverse effects on existing water users, surface water ecosystems or surface water quality.

(d) Except as provided for in Rules 18(a), 18(b), 18(c), 20(a), 20(b), 20(c), 21(a) and 21(b) and the takes authorised by Section 14(3) of the Act, the abstraction, diversion and use of water from the following sources is a restricted discretionary activity:

(i) any surface water body or any artificial watercourse draining into a surface water body where the total volume of water allocated at any time is less than 10 percent of the mean annual low flow at any downstream point in the catchment so estimated by the Southland Regional Council from measurements taken at that point; or
(ii) any surface water body or artificial watercourse draining into a surface water body where the minimum flow applied is equal to the natural mean flow; or
(iii) any surface water body or artificial watercourse where the water abstracted or diverted is returned in the vicinity of the abstraction or diversion point; or
(iv) any surface water body or artificial watercourse where the volume of water taken is less than 70,000 litres per day.

The Council will restrict its discretion to the following matters:

(i) the volume of water to be taken (including any water to be returned to the surface water body);
(ii) any effects on river and stream flows (including effects on minimum flows, flow variability and duration), wetland and lake water levels, aquatic ecosystems, aquifer storage volumes, the availability and reliability of supply for existing users and water quality;
(iii) the location of the abstraction or diversion;
(iv) The efficiency of water use;
(v) the need for the installation of a water meter;
(vi) monitoring requirements;
(vii) methods to prevent fish from entering the reticulation system;
(viii) minimum flow and level requirements;
(ix) consistency with any water conservation order;
(x) the degree of hydraulic connection to groundwater.

(e) Except as provided for in Rules 18(a), 18(b), 18(c), 18(d), 20(a), 20(b), 20(c), 21(a) and 21(b) and the takes authorised by Section 14(3) of the Act, the abstraction, diversion and use of water from the following sources is a discretionary activity:

(i) any surface water body or any artificial watercourse draining into a surface water body where the total volume of water allocated at any time is between 10 and 30 percent of the mean annual low flow at any downstream point in the catchment so estimated by the Southland Regional Council from measurements taken at that point; or
(ii) any surface water body or artificial watercourse that does not drain into a river or stream.

(f) Except as provided for in Rules 18(a), 18(b), 18(c), 18(d), 20(a), 20(b), 20(c), 21(a) and 21(b) and the takes authorised by Section 14(3) of the Act, the abstraction, diversion and use of water from the following sources is a non complying activity:[8]

(i) any surface water body or artificial watercourse draining into a surface water body where the total volume of water allocated at any time is greater than 30 percent of the mean annual low flow at any downstream point in the catchment so estimated by the Southland Regional Council from measurements taken at that point.

(g) The status of the activity under Rules 18(d) to (f) is determined by the total volume of water allocated at the date the resource consent application is notified. The phrase "total volume of water allocated" in Rules 18(d) to (f) includes the water that is allocated through current resource consents, the water that is proposed to be taken under consent applications that have been notified and the additional water proposed to be taken by the consent applicant. It also includes the stream depletion effect of each groundwater abstraction greater than 2 litres per second with a direct, high or moderate degree of hydraulic connection in accordance with Policy 29 "Stream Depletion Effects".

(h) Where relevant, Rule 18(d)(iii) includes the stream depletion effect of each groundwater abstraction greater than 2 litres per second with a direct, high or moderate degree of hydraulic connection in accordance with Policy 29 "Stream Depletion Effects".

Explanation

This rule gives effect to the staged management approach to surface water allocation provided for by Policy 15 "Surface water abstraction, damming, diversion and use" by prescribing staged allocation volumes for surface water bodies based on the level of risk of adverse environmental effects. This approach does not set fixed volumes of allocation for each surface water body, rather it specifies increased information and monitoring requirements as the level of resource development increases. It allows a precautionary approach to surface water allocation by requiring information from monitoring and investigations to be incorporated into the resource allocation decision-making process.

The allocation volumes equate to percentages of mean annual low flow. This approach follows the methodology outlined in *Review of methods for setting water quantity conditions in the Environment Southland draft Regional Water Plan, NIWA, June 2004* which advocates a conservative approach

[8] Policy 15(i) is the key policy the Council will use to determine whether or not to grant resource consent for a non-complying activity under Rule 18(f), 19(c) or 21(b) of the Plan.

to surface water allocation based on a percentage of mean annual low flow.

To determine the allocation volume for a proposed surface water abstraction, Environment Southland should be contacted for information on the percentage of mean annual low flow already allocated from the relevant surface water body. This information is located outside of the Plan because it is continually changing as new consents are granted and existing consents are reviewed or expire. Plan users can use this information to determine what type of activity the proposed abstraction or diversion is under Rule 18. Alternatively, Environment Southland staff will assist to determine the type of activity.

Section 14 of the Resource Management Act 1991 authorises the taking and use of water for an individual's reasonable domestic needs, or for the reasonable needs of an individual's animals for drinking water; provided the taking or use does not, or is not likely to, have an adverse effect on the environment. The Act also authorises the taking and use of water required for fire-fighting purposes. Resource consent is not required for takes authorised by the Act.

While takes for an individual's reasonable domestic needs or for the reasonable needs of an individual's animals for drinking water do not require resource consent, the Council has the ability to require these takes to be metered to ensure they are not having an adverse effect on the environment. Metering of these takes is most likely to occur when they are from the same bore as consented takes e.g. takes for dairy shed wash down and milk cooling water. In such circumstances metering is required to allow the Council to gain an overview of the amount of water being used and the potential for adverse effects.

In addition to the takes authorised by the Act, small surface water abstractions (up to 10,000 litres per landholding per day) and abstractions and diversions from artificial storage ponds are provided for as permitted activities. Both individually and cumulatively, these abstractions and diversions have a minimal risk of adverse effects. At the other end of the spectrum, surface water abstractions and diversions with a high risk of adverse effects are non-complying activities.

Existing abstractions for milk-cooling and washdown purposes, that are greater than 20,000 litres per day but are permitted activities under the Transitional Plan, will continue to be permitted until such time as a new discharge permit is sought for the discharge connected to these activities under Rule 5.4.5 or 5.4.6 in the Regional Effluent Land Application Plan.

Plan users should refer to Appendix A for guidance on the information that should be submitted with a resource consent application for a surface water abstraction or diversion. Policy 16 "Environmental Flow and Level Regimes" and Appendix I "Methods for determining minimum flows and levels" should also be referred to. The level of information required increases as the level of risk of adverse effects increases.

In order to determine the cumulative impact of surface water abstraction, Environment Southland will monitor surface water levels at representative sites distributed across the region to enable identification of spatial and temporal trends.

Rule 18A – Community water supply

(a) Existing community water supply

(i) Notwithstanding Rule 18(d), (e) and (f) and Rule 23(c), (d) and (e), and except as provided for in Rule 21(a), taking water for a community water supply is a controlled activity provided:

(aa) the activity is pursuant to a water permit current on the date of application for the new water permit; and
(ab) the effects of the activity are the same or similar in character, intensity and scale to the effects authorised by the water permit identified in (aa); and
(ac) water demand management strategy is provided to the Council by the applicant.

The Council will exercise its control over the following matters:

(i) all issues contained in the water demand management strategy;
(ii) the volume of water to be taken (including any water to be returned to the surface water body);
(iii) any effects on river and stream flows (including effects on minimum flows, flow variability and duration), wetland and lake water levels, aquatic ecosystems, aquifer storage volumes,
(iv) the availability and reliability of supply for existing users and water quality;
(v) monitoring requirements;
(vi) minimum flow and level requirements;
(vii) consistency with any water conservation order;
(viii) the degree of hydraulic connection to other water bodies.

(b) New community water supply

(i) Except as provided for in Rule 21(b) and notwithstanding any provision of Rules 18 and 23 the taking of water for a community water supply is a discretionary activity.

Explanation

Community water supplies primarily make water available for human use and consumption. This water is treated to meet drinking water standards and is supplied to meet basic human needs but it may also be used for other community activities. This rule gives effect to the priority afforded to such supplies by Policy 15A. However, it also recognises that community water supplies can use significant quantities of the water

resource and so gives effect to the requirement for such supplies to demonstrate efficient use of water as per Policy 15B.

Rule 19 - Damming of water

Other relevant sections: Objectives 5, 7, Issue 2, Policies 1A, 14-18, 19A-24, Rule 29, Sections 2.3, 2.4.

(a) (i) The damming of water associated with the placement or erection of a dam or weir permitted under Rule 29(a); and

(ii) The damming of water associated with the placement, erection or use of a dam or weir in an artificial watercourse, are permitted activities provided they do not result in adverse effects on existing water users.

(b) Except as provided for in Rules 19(a), 19(c), 21(a), 21(b), the damming of water is a discretionary activity.

(c) The damming of water on the main stems of the Aparima River, downstream of the Aparima Forks at NZMS260 D44 151919, and the Ōreti River, downstream of the forks at NZMS 260 E42 345450, is a non-complying activity.[9]

Explanation

This rule provides for the damming of water associated with the construction of small-scale dams and weirs. Any reduction in the quantity of water in downstream water bodies associated with the construction and filling of these small-scale dams will only be temporary as these dams typically fill very quickly. However, existing water users must not be adversely affected by the damming. See Rule 29(a) and Explanation 29 for the relevant conditions for constructing a dam or weir as a permitted activity. Larger scale damming of water will require a resource consent.

Rule 20 – Minor diversions of water

Other relevant sections: Objectives 5, 7, Issues 2, 7, Policies 1A, 14-24, 38, Rules 18, 24-46, 48, Sections 2.3, 2.4.

(a) Notwithstanding any other rule in this Plan, the diversion of water within a river or lake bed is a permitted activity provided the following conditions are met:

(i) the diversion is for the purposes of undertaking a permitted activity under Rules 24 to 46 or for the purposes of habitat creation, restoration and enhancement, and is carried out in accordance with the conditions of Rule 48;

[9] Policy 15(i) is the key policy the Council will use to determine whether or not to grant resource consent for a non-complying activity under Rule 18(f), 19(c) or 21(b) of the Plan.

(ii) the diversion is carried out completely within a river or lake bed (i.e. no water is diverted outside of the river or lake bed);
(iii) the water is returned to its original course after completion of the activity, no later than one month after the diversion occurs;
(iv) the diversion does not result in adverse effects on existing water users;
(v) the diversion does not result in a net loss of water from the catchment.

(b) Notwithstanding any other rule in this Plan but subject to Rule 20(c), the diversion of water for the purpose of land drainage is a permitted activity provided the following conditions are met:

(i) the drainage and associated discharge shall not cause significant erosion or deposition;
(ii) the drainage shall not cause any flooding of downstream or adjacent properties;

(c) Notwithstanding any other rule in this Plan, the diversion of water from a Regionally Significant Wetland identified in Appendix B or any naturally occurring wetland is a discretionary activity.

(d) Notwithstanding any other rule in this Plan, the diversion of water at the mouth of:

(i) a drain known as the North Drain on the Tiwai Peninsula, at about Map Reference NZMS 260 E47 560:928;
(ii) a drain known as the West Drain on the Tiwai Peninsula, at about Map Reference NZMS 260 E47 554:922; and/or
(iii) a drain known as the South Drain on the Tiwai Peninsula, at about Map Reference NZMS 260 E47 553:918

is a permitted activity provided the following conditions are met:

- the work is carried out under the direct control of the body or person responsible for the maintenance of the drain;
- machinery may only cross through the drains to the extent that it is necessary to obtain reasonable access to the side of the drain from which the work is to be undertaken;
- the opening is constructed at right angles to the line of the beach;
- any excavated spoil is removed or spread over non-vegetated areas;
- the body or person responsible advises the Director of Environmental Management, Southland Regional Council, of the details of the time and extent of the work to be undertaken, prior to the work commencing;
- in the event of a discovery, or suspected discovery, of a site of cultural, heritage or archaeological value, the operation shall cease immediately in that location and the Director of

Environmental Management, Environment Southland shall be informed. Operations may recommence with the permission of the Director of Environmental Management.

Explanation

Part (a) of this rule provides for minor diversion works within river and lake beds that are necessary for the purpose of carrying out other permitted river and lake bed activities, such as the construction and maintenance of certain structures, or for the purposes of habitat creation, restoration and enhancement. The adverse effects of these diversion works are generally minor, provided that the diversion is contained within the banks and is of a temporary nature and there are generally positive effects associated with these diversion works. The activity is therefore permitted subject to conditions.

Part (b) of this rule provides for the diversion of water for the purposes of land drainage. This activity is generally carried out on production land, and has minor adverse effects provided that the Regionally Significant Wetlands identified in Appendix B and naturally occurring wetlands are not affected. The activity is therefore permitted subject to conditions.

Part (c) of this rule gives effect to Policy 6.1 of the Regional Policy Statement, which is to protect the regionally significant wetlands listed in Appendix B of the Plan from inappropriate subdivision, use and development and to Policy 38 of the Plan, which is to avoid, remedy or mitigate the adverse effects of activities on wetlands through an integrated management approach with the Southland territorial authorities. The diversion of water from a regionally significant wetland or any naturally occurring wetland is therefore a discretionary activity.

Part (d) of the Rule permits the diversion of water at the mouth of NZAS drains at Tiwai Peninsula. The adverse effects of these diversion works are generally minor, provided the conditions in Part (d) of the Rule are met. Similar diversion activities within the adjacent coastal marine area at Tiwai Peninsula are permitted under the Regional Coastal Plan for Southland.

Diversion activities that do not meet the permitted activity conditions of Rules 20(a), (b) and (d) will be considered under Rule 18.

Rule 21 – Water abstraction, damming, diversion and use from the Waiau catchment

Other relevant sections: Objectives 5-7, Issues 2, 3, Policies 1A, 14 –24, Sections 2.3, 2.4.

(a) Except as provided in Rules 18(a), 18(b), 18(c), 19(a), 20(a), 20(b) and 20(c) and the takes authorised by Section 14(3) of the Act, any water abstraction, damming, diversion and use from the Waiau catchment that is authorised by a resource consent that is in force and operative in accordance with its terms as at the date of application being made for a new consent is a discretionary activity, provided the effects of the activity are the same or similar

in character, intensity and scale to the effects authorised by the resource consent in force and operative as at the date of application being made for the new consent.

(b) Except as provided in Rules 18(a), 18(b), 18(c), 19(a), 20(a), 20(b), 20(c) and 21(a) and the takes authorised by Section 14(3) of the Act, any further or new water abstraction, damming, diversion and use from the Waiau catchment is a non-complying activity.[10]

Explanation
This rule makes any further or new water abstraction, damming, diversion and use of water from the Waiau catchment a non-complying activity except those activities that result in no more than minor adverse environmental effects and in some cases result in positive effects such as the restoration and creation of fisheries and wildlife habitat, which are provided for by Policies 15(f) and (h)(i) and various aspects of Rules 18, 19 and 20. This approach has been adopted because of the significant and ongoing effects on the environmental flow and level regime of the Waiau catchment as a result of the allocation of water for hydroelectric generation and other users.

Rule 22 - Bores and Wells

Other relevant sections: Objectives 1-2, 8, Issue 4, Policies 1A, 2, 3, 6, 26, 27, Sections 2.3, 2.4.

(a) The drilling or construction of any bore or well is a controlled activity provided the following conditions are met:

(i) the bore or well design and headworks prevents:
1. the infiltration of contaminants; and
2. the uncontrolled discharge or leakage of water to the surface and between aquifers.

The Council will restrict the exercise of its control to the following matters:

(i) the proximity of the bore or well to surface water (including spring-fed streams), potential sources of groundwater contamination, existing bores and wells and historic heritage;
(ii) the design and depth of the bore or well;
(iii) the method of drilling and excavation;
(iv) the design and management of the bore head;
(v) the use, maintenance and decommissioning of the bore or well;
(vi) the information and monitoring requirements;
(vii) adoption and implementation of an Accidental Discovery Protocol.

An application for resource consent under this rule does not need to be notified and does not need to be served on persons who may

[10] Policy 15(i) is the key policy the Council will use to determine whether or not to grant resource consent for a non-complying activity under Rule 18(f), 19(c) or 21(b) of the Plan.

be adversely affected by the activity unless the applicant requests notification or the Council considers special circumstances exist that warrant notification of the application.

(b) The drilling or construction of any bore or well that cannot meet the above conditions in Rule 22(a) is a discretionary activity.

(c) The use, maintenance and decommissioning of any bore or well is a permitted activity provided the following conditions are met:

(i) the bore or well design and headworks prevents:
1. the infiltration of contaminants; and
2. the uncontrolled discharge or leakage of water to the surface and between aquifers.

(d) The use, maintenance and decommissioning of any bore or well that cannot meet the above conditions in Rule 22(c) is a discretionary activity.

Explanation

This rule gives effect to Policy 26, which is to avoid the adverse effects on groundwater quality arising from bores and wells. All new bores and wells that intercept groundwater, including geotechnical investigation bores, will require resource consent to enable the Council to assess and control the adverse effects that may arise from penetration of an aquifer as a result of bore construction. However, it is unlikely that every new bore will need to be individually consented in practice. The process will be more efficient if resource users obtain "global" consents that allow them to construct bores within identified areas, subject to meeting the conditions specified on the consent including requirements to provide the Council with information.

In order to avoid potential degradation of groundwater, it is important that all new bores and wells are constructed to appropriate standards such as the NZS 4411:2001 Environmental Standard for Drilling of Soil and Rock. These standards will therefore be used in the development of appropriate consent conditions.

There are also some existing bores and wells that may be having adverse effects on groundwater quality and quantity. Where an issue arises (e.g. it is determined that an existing bore or well is resulting in significant localised groundwater contamination), the owner of the bore or well will be required to upgrade their structure as the structure will not meet the conditions attached to the rule permitting the use, maintenance and decommission of bores and wells.

While the construction of bores and wells is a controlled activity, the activity of abstracting groundwater may also require resource consent depending on the quantity and rate of take (see Rule 23). Matters relating to abstraction such as quantity and rate of take are controlled under Rule 23 rather than Rule 22.

Rule 23 - Abstraction and use of groundwater[11]

Other relevant sections: Objectives 5, 7, 9, Issue 5, Policies 1A, 14, 17, 19B-25, 27-31, Sections 2.3, 2.4.

(a) In addition to the takes authorised by Section 14(3) of the Act and the abstraction and use of groundwater permitted under Rule 23(b), the abstraction and use of up to 20,000 litres of groundwater per landholding per day is a permitted activity provided the following conditions are met:

(i) the rate of abstraction does not exceed 2 litres per second, except where the abstraction is for the purpose of carrying out an aquifer test or hydrological study; and
(ii) the abstraction does not result in adverse effects on existing water users, surface water ecosystems or groundwater quality.

(b) In addition to the takes authorised by Section 14(3) of the Act and the abstraction and use permitted under Rule 23(a), the abstraction and use of groundwater for milk-cooling water or washing down of dairy sheds and piggeries is a permitted activity provided the following conditions are met:

(i) the abstraction and use was lawfully established as a permitted activity up to and including as at 31 July 2004; and
(ii) the volume or rate of abstraction, or the number of stock using the dairy shed or piggery, does not increase beyond the levels established up to and including as at 31 July 2004; and
(iii) the groundwater after use is discharged pursuant to a discharge permit granted prior to 31 July 2004. For the avoidance of doubt, the discharge permit referred to in this clause does not include any discharge permit granted in substitution or by way of renewal of that discharge permit; and
(iv) the abstraction does not result in adverse effects on existing water users, surface water ecosystems or groundwater quality.

(c) Except as provided for in Rules 23(a) and 23(b) and the takes authorised by Section 14(3) of the Act, the abstraction and use of groundwater from any of the following sources is a restricted discretionary activity, provided the rate of take is less than or equal to 2 litres per second;

(i) a riparian or terrace aquifer where the total volume of water allocated from the relevant groundwater zone is less than 25 percent of mean annual land surface recharge;

[11] **Advice note**: To determine the aquifer type and allocation volume for a proposed groundwater abstraction, Plan users should firstly refer to Groundwater Map 1 of Appendix D to establish the relevant groundwater zone. Once the relevant groundwater zone has been established, Appendix H can be used to determine the aquifer type.

(ii) a confined aquifer where the total volume of water allocated from the relevant groundwater zone is less than 25 percent of aquifer throughflow; or

(iii) a source outside of the groundwater zones identified on Groundwater Map 1 of Appendix D, or a fractured rock aquifer, where the total volume of water applied for is less than 25 percent of rainfall recharge over the relevant land area where the water is to be used.

The Council will restrict its discretion to the following matters:

(i) any effects on aquifer storage volumes, existing bore or well yields, river and stream flows and wetland and lake water levels (stream depletion effects), and groundwater quality;
(ii) the efficiency of water use;
(iii) the need for the installation of a water measuring device;
(iv) the need for pump tests;
(v) monitoring requirements.

(d) Except as provided for in Rules 23(a) and 23(b) and the takes authorised by Section 14(3) of the Act, the abstraction and use of groundwater from any of the following sources is a discretionary activity:

(i) a riparian or terrace aquifer where the total volume of water allocated from the relevant groundwater zone is between 25 and 50 percent of mean annual land surface recharge;
(ii) a lowland aquifer where the total volume of water allocated from the relevant groundwater zone is less than or equal to 15 percent of mean annual land surface recharge;
(iii) a confined aquifer where the total volume of water allocated from the relevant groundwater zone is between 25 and 75 percent of aquifer throughflow;
(iv) a riparian, terrace, confined or, fractured rock aquifer, or a source outside of the groundwater zones identified on Groundwater Map 1 of Appendix D, where the rate of take is greater than 2 litres per second, except as provided for in Rule 23(e); or
(v) a source outside of the groundwater zones identified on Groundwater Map 1 of Appendix D, or a fractured rock aquifer, where the total volume of water applied for is between 25 and 50 percent of the rainfall recharge over the relevant land area where the water is to be used.

(e) Except as provided for in Rules 23(a) and (b) and the takes authorised by Section 14(3) of the Act, the abstraction and use of groundwater from any of the following sources is a non-complying activity:

(i) a riparian or terrace aquifer where the total volume of water allocated from the relevant groundwater zone is greater than 50 percent of mean annual land surface recharge;

(ii) a lowland aquifer where the total volume of water allocated from the relevant groundwater zone is greater than 15 percent of mean annual land surface recharge;
(iii) a confined aquifer where the total volume of water allocated from the relevant groundwater zone is greater than 75 percent of aquifer throughflow; or
(iv) a source outside of the groundwater zones identified on Groundwater Map 1 of Appendix D, or a fractured rock aquifer, where the total volume of water applied for is greater than 50 percent of the rainfall recharge over the relevant land area where the water is to be used.

(f) The status of the activity under Rules 23(c) to (e) is determined by the total volume of water allocated at the date the resource consent application is notified. The phrase "total volume of water allocated" in Rules 23(c) to (e) includes the water that is allocated through current resource consents, the water that is proposed to be taken under consent applications that have been notified and the additional water proposed to be taken by the consent applicant.

(g) Notwithstanding Rules 23(c), (d) and (e) above, where:

(i) the rate of take of any abstraction and use of groundwater exceeds 2 litres per second; and
(ii) there is a direct, high degree or moderate degree of hydraulic connection between the groundwater source and an adjacent surface water body, as defined in Policy 29 "Stream Depletion Effects",

The stream depletion effect component of the groundwater abstraction and use, calculated in accordance with Policy 29 "Stream Depletion Effects", shall be considered in accordance with Rule 18 as though the abstraction and use was from the adjacent surface water body.

Explanation

This rule gives effect to the staged management approach to groundwater allocation provided for by Policy 30 "Groundwater abstraction" by prescribing staged allocation volumes for the various aquifer types identified in the policy based on the level of risk of adverse environmental effects. This approach does not set fixed volumes of allocation for each of the groundwater management zones identified, rather it specifies increased information and monitoring requirements as the level of resource development increases. It allows a precautionary approach to groundwater allocation by requiring information from monitoring and investigations to be incorporated into the resource allocation decision-making process.

The allocation volumes for riparian, terrace and lowland aquifers equate to percentages of mean annual land surface recharge. This approach follows the methodology outlined by Lincoln Environmental et al., (2001) who advocate a conservative approach to groundwater allocation

based on a percentage of estimated aquifer recharge. This model of groundwater allocation does not take into account any aquifer recharge from surface water bodies.

In the Southland region current knowledge of the hydrogeology of confined aquifers is not sufficient to allow management of groundwater allocation based on a percentage of aquifer recharge with any degree of accuracy. Due to the uncertainty associated with estimates of recharge for confined aquifers the alternative approach adopted is to manage groundwater allocation on the basis of aquifer throughflow.

Allocation volumes are not specified for fractured rock aquifers as these are considered to have limited potential for large-scale groundwater development due to their low permeability. It is also difficult to establish the boundaries of fractured rock aquifers as they are so spatially variable. Two bores close to each other may not intercept the same fractured systems even though they might be within the same rock mass. Due to the localised nature of fractured rock aquifers, the allocation volumes for these aquifers will equate to percentages of the rainfall recharge over the relevant land area where the water is to be used.

To determine the aquifer type and allocation volume for a proposed groundwater abstraction, Plan users should firstly refer to Groundwater Map 1 of Appendix D to establish the relevant groundwater zone. It should be noted that if the proposed abstraction is outside of the groundwater zones identified in Map 1, the abstraction is to be treated in the same manner as if the abstraction was from a fractured rock aquifer, which is the case for most of the areas outside the groundwater zones identified in Map 1.

Once the relevant groundwater zone has been established, Appendix H can be used to determine the aquifer type. This schedule also lists the mean annual land surface recharge for groundwater zones that are classified as riparian, terrace and lowland aquifers. Additional information on the percentage of mean annual land surface recharge already allocated from these groundwater zones is available from Environment Southland. This information is located outside of the Plan because it is continually changing as new consents are granted and existing consents are reviewed or expire.

Plan users can use the information obtained above to determine what type of activity the proposed abstraction is under Rule 23. Alternatively, Environment Southland staff will assist to determine the type of activity. Where a proposed abstraction is from a confined aquifer, this is unlikely to be known until hydrogeological information become available and Environment Southland staff will determine the aquifer type in this situation. Similarly, the annual throughflow from a confined aquifer will need to be determined on a case-by-case basis.

Section 14 of the Resource Management Act 1991 authorises the taking and use of water for an individual's reasonable domestic needs, or for the reasonable needs of an individual's animals for drinking water; provided the taking or use does not, or is not likely to, have an adverse

effect on the environment. The Act also authorises the taking and use of water required for fire-fighting purposes. Resource consent is not required for takes authorised by the Act.

While takes for an individual's reasonable domestic needs or for the reasonable needs of an individual's animals for drinking water do not require resource consent, the Council has the ability to require these takes to be metered to ensure they are not having an adverse effect on the environment. Metering of these takes is most likely to occur when they are from the same bore as consented takes e.g. takes for dairy shed wash down and milk cooling water. In such circumstances metering is required to allow the Council to gain an overview of the amount of water being used and the potential for adverse effects.

In addition to the takes authorised by the Act, small groundwater abstractions (20,000 litres per landholding per day) are provided for from all aquifer types as a permitted activity. Both individually and cumulatively, these abstractions have a minimal risk of adverse effects. At the other end of the spectrum, groundwater abstractions with a high risk of adverse effects are non-complying activities.

Existing abstractions for milk-cooling and washdown purposes, that are greater than 20,000 litres per day but are permitted activities under the Transitional Plan, will continue to be permitted until such time as a new discharge permit is sought for the discharge connected to these activities.

Plan users should refer to Appendix A for guidance on the information that should be submitted with a resource consent application for a groundwater abstraction. The level of information required increases as the level of risk of adverse effects increases.

Plan users should also refer to Policy 31 "Interference effects", which outlines how the interference effects of groundwater abstraction on existing groundwater users will be managed having regard to the construction and efficiency of existing bores and wells and Policy 29 "Stream Depletion Effects", which sets out a framework for managing the stream depletion effects of groundwater abstractions that are hydraulically connected to surface water bodies.

In order to determine the cumulative impact of groundwater abstraction, Environment Southland will monitor groundwater levels at representative sites distributed across the region to enable identification of spatial and temporal trends. Monitoring of aquifer response to abstraction forms an integral part of the resource allocation process by providing feedback on the actual effects of current levels of abstraction that can be used in the future management of the resource.

Environment Southland will also maintain a database containing the calculated allocation from each groundwater zone and surface water body. The allocation for each surface water body will be calculated from both direct surface water abstraction and the abstraction of hydraulically connected groundwater.

2.2.3 Structures in river and lake beds

Unless stated otherwise, the following rules apply to structures **in, on, under or over** the bed of any lake, river, modified watercourse or stream. These rules do not apply to artificial watercourses. The rules cover the erection, placement, reconstruction, use, maintenance, alteration, extension, demolition and removal of a range of different structures, and any associated disturbance of the bed and discharge of sediment to water.

Rule 24 – Monitoring and sampling structures

Other relevant sections: Objectives 10, 11, Issue 6, Policies 1A, 32, 36, Rules 20, 35-37, 48, Sections 2.3, 2.4.

(a) The placement, erection or reconstruction and any associated bed disturbance of any equipment, measuring apparatus or similar device, in, on, under or over the bed of any river, modified watercourse, stream or lake for the purpose of carrying out inspections, surveys, investigations, tests, measurements, or taking samples, is a permitted activity provided the following conditions are met:

(i) the standard conditions in Rule 48 (a) and (b).

(b) The placement, erection or reconstruction and any associated bed disturbance of any equipment, measuring apparatus or similar device in, on, under, or over the bed of any river, modified watercourse, stream or lake that cannot meet the above condition is a discretionary activity.

(c) The use of any equipment, measuring apparatus or similar device, in, on, under or over the bed of any river, modified watercourse, stream or lake for the purpose of carrying out inspections, surveys, investigations, tests, measurements, or taking samples, is a permitted activity provided the following conditions are met:

(i) the structure was lawfully established (either before or after this plan came into force);
(ii) use of the structure shall not cause a hazard to navigation;
(iii) the structure shall not be used to store hazardous substances;
(iv) the standard conditions in Rule 48 (b) and (c);
(v) fish passage shall not be impeded as a result of the activity.

(d) The use of any equipment, measuring apparatus or similar device, in, on or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions in (c) is a discretionary activity.

Explanation

Monitoring and sampling structures are required to monitor and record certain conditions. Any adverse effects are likely to be minor and temporary, and the activity is permitted subject to conditions. Any activity

that cannot meet the conditions of Rule 48 will require a resource consent.

There are many existing lawfully established structures in river and lake beds throughout the region. The use of these structures is generally authorised under an existing consent or permit, and has little or no adverse effect on the environment. The use of structures is therefore permitted subject to conditions. Use that cannot meet the conditions will require a resource consent.

Reconstruction is also addressed by this rule, as the effects of completely rebuilding a structure are similar to erecting or placing a new structure.

Rule 25 - Boat ramps, jetties[12] and wharves

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32-36, Rules 20, 35-37, 48, Sections 2.3, 2.4.

(a) The placement, erection or reconstruction and any associated bed disturbance of any boat ramp, jetty or wharf, in, on or over the bed of any river, modified watercourse, stream or lake is a discretionary activity.

(b) The use of any boat ramp, jetty or wharf in, on or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure was lawfully established (either before or after this plan came into force);
(ii) use of the structure shall not cause a hazard to navigation;
(iii) the structure shall not be used to store hazardous substances;
(iv) the standard conditions in Rule 48 (b) and (c);
(v) fish passage shall not be impeded as a result of the activity.

(c) The use of any boat ramp, jetty or wharf in, on or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions in (b) is a discretionary activity.

Explanation

Boat ramps, jetties and wharves can enhance public access to rivers and lakes and have a number of other social and economic benefits. However, these structures can also have adverse effects on river, modified watercourse, stream and lake bed processes, natural character and amenity, and cultural and other values. In addition, the use of these structures can impact on navigational safety and amenity values, among other things. As many of these structures are already in place around the region and are providing for current demand, the need for any new structures should be assessed on a case by case basis through the resource consent process.

There are many existing lawfully established structures in river and lake beds throughout the region. The use of these structures is generally authorised under an existing consent or permit, and has little or no

[12] Jetties do not include whitebait stands. See Rule 34 for whitebait stands.

adverse effect on the environment. The use of structures is therefore permitted subject to conditions. Use that cannot meet the conditions will require a resource consent.

Reconstruction is also addressed by this rule, as the effects of completely rebuilding a structure are similar to erecting or placing a new structure.

Rule 26 - Bridges

Other relevant sections: Issue 6, Objectives 10-13, Policies 1A, 32, 36, Rules 20, 35-37, 48, Sections 2.3, 2.4.

(a) The placement, erection or reconstruction and any associated bed disturbance of any bridge in, on or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) there are no support structures (for example, piles) in the bed;
(ii) the bridge and its abutments shall not increase the risk of flooding to surrounding land;
(iii) the bridge and its bank abutments shall not impede the flow of water within the river channel;
(iv) the bridge shall not be a hazard to navigation;
(v) the standard conditions in Rule 48(a) and (b).

(b) The placement, erection or reconstruction and any associated bed disturbance of any bridge in, on or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:

(i) the design and location of the bridge;
(ii) any effects on flood risk, river morphology and dynamics (including erosion and deposition), aquatic and riverine ecosystems and habitats, the spiritual and cultural values and beliefs of the tangata whenua, historic heritage, natural character and amenity, and navigational safety;
(iii) any standard conditions in Rule 48(a) and (b) that cannot be met.

(c) The use of any bridge in, on or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure was lawfully established (either before or after this plan came into force);
(ii) use of the structure shall not cause a hazard to navigation;
(iii) the structure shall not be used to store hazardous substances.
(iv) the standard conditions in Rule 48 (b) and (c);
(v) fish passage shall not be impeded as a result of the activity.

(d) The use of any bridge in, on or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions in (c) is a discretionary activity.

Explanation

Bridges have the benefit of allowing passage over a river without disturbance of the bed or adverse effects on water quality. However, depending on factors such as design and location, bridges can have adverse effects on flood risk, river bed processes, and natural and cultural values. Single span bridges, which do not have piles in the bed and which do not obstruct water flows, will have only minor effects and are permitted subject to conditions. Larger scale bridges, which have support structures in the bed and cannot meet the conditions, will require a resource consent.

It should also be noted that the design of the bridges and their approaches provides one method of meeting any discharge rule.

There are many existing lawfully established structures in river and lake beds throughout the region. The use of these structures is generally authorised under an existing consent or permit, and has little or no adverse effect on the environment. The use of structures is therefore permitted subject to conditions. Use that cannot meet the conditions will require a resource consent.

Reconstruction is also addressed by this rule, as the effects of completely rebuilding a structure are similar to erecting or placing a new structure.

Rule 27 – Cables, wires and pipes

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 35-37, 48, Sections 2.3, 2.4.

(a) The placement, erection or reconstruction and any associated bed disturbance of any cable, wire, pipe or pipeline (including any intake or discharge pipe or temporary gauging or monitoring structure) and associated safety signs or markers in, on, under or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure shall not have any support structures (for example, stays or piles) in the bed (other than if it is attached to a pre-existing structure, such as a bridge);
(ii) the structure shall not cause a hazard to boating/navigation, or aircraft/aviation;
(iii) where the structure crosses over the bed, and is not a temporary structure, it shall not impede the flow of water within the river channel;
(iv) where the structure crosses over the bed, and is designed to carry contaminants, it shall comply with the relevant construction standards imposed by a territorial authority under the Building Act;

(v) where the structure crosses under the bed it shall be completely buried and remain buried, with the depth of burial being indicated on markers on either bank;
(vi) where the structure is an intake pipe, it shall have a screening device to prevent fish from entering the pipe;
(vii) where the structure is a discharge pipe, any discharge from the pipe shall not cause significant erosion of, or deposition on, the surrounding bed or banks;
(viii) the standard conditions in Rule 48(a) and (b).

(b) The placement, erection or reconstruction and any associated bed disturbance of any cable, wire, pipe or pipeline) and associated safety signs or markers in, on, under or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:

(i) the design and location of the structure;
(ii) any effects on river morphology and dynamics (including erosion and deposition), aquatic and riverine ecosystems and habitats, the spiritual and cultural values and beliefs of the tangata whenua, historic heritage, natural character and amenity, navigation and aviation hazard, and public access and recreation values;
(iii) any standard conditions in Rule 48(a) and (b) that cannot be met.

(c) The use of any cable, wire, pipe or pipeline, and associated safety signs or markers in, on or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure was lawfully established (either before or after this plan came into force);
(ii) use of the structure shall not cause a hazard to navigation;
(iii) the structure shall not be used to store hazardous substances;
(iv) the standard conditions in Rule 48 (b) and (c);
(v) fish passage shall not be impeded as a result of the activity.

(d) The use of any cable, wire, pipe or pipeline, and associated safety signs or markers in, on or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions in (c) is a discretionary activity.

Explanation
Cables and pipelines that cross over or under the bed have minimal effects on the bed once construction is complete, and are permitted subject to conditions. The main adverse effect of concern for cables, wires and pipes, particularly in relation to overhead cables and wires, is in terms of boating and aircraft safety. If a hazard to navigation exists, the activity should go through the consent process.

There are many existing lawfully established structures in river and lake beds throughout the region. The use of these structures is generally authorised under an existing consent or permit, and has little or no adverse effect on the environment. The use of structures is therefore permitted subject to conditions. Use that cannot meet the conditions will require a resource consent.

Reconstruction is also addressed by this rule, as the effects of completely rebuilding a structure are similar to erecting or placing a new structure.

Rule 28 - Culverts

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 35-37, 48, Sections 2.3, 2.4.

(a) The placement, erection or reconstruction and any associated bed disturbance of any culvert, including any associated inlet or outlet protection structure, or sediment trap less than 2.5 square metres surface area, in, on, under or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the culvert is less than or equal to 1200 mm in diameter;
(ii) the culvert is a single structure (i.e. it is not placed in combination with other culverts across the width of the river);
(iii) the culvert shall be positioned so that its alignment is the same as the river;
(iv) the culvert shall be designed to pass flood flows (either through, around or over the culvert) and shall not increase the risk of flooding to neighbouring properties;
(v) the invert (or bottom) of the culvert shall be installed to a depth of either 300 mm below the natural bed level, or one third of the diameter of the culvert, whichever is the lesser;
(vi) the culvert shall be purpose built for the passage of water (i.e. it shall not be a drum, container or other item not designed as a culvert);
(vii) the standard conditions in Rule 48(a) and (b).

(b) The placement, erection or reconstruction and any associated bed disturbance of any culvert, including any associated inlet or outlet protection structure, or sediment trap less than 2.5 square metres surface area, in, on, under or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions is a controlled activity.

The Council will exercise control over the following matters:

(i) the design of the culvert;
(ii) any effects on flood risk, river morphology and dynamics (including erosion and deposition), aquatic and riverine ecosystems and habitat (including fish passage), the spiritual and cultural values and beliefs of the tangata whenua, and historic heritage;

(iii) any standard conditions in Rule 48(a) and (b) that cannot be met.

(c) The use of any culvert including any associated inlet or outlet protection structure or sediment traps less than 2 square metres, and its associated bed disturbance in, on or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure was lawfully established (either before or after this plan came into force).
(ii) use of the structure shall not cause a hazard to navigation.
(iii) the structure shall not be used to store hazardous substances.
(iv) the standard conditions in Rule 48 (b) and (c).
(v) fish passage shall not be impeded as a result of the activity.

(d) The use of any culvert including any associated inlet or outlet protection structure or sediment traps less than 2 square metres, and its associated bed disturbance in, on or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions in (c) is a discretionary activity.

Explanation
Culverts have the benefit of allowing vehicles and stock to cross over rivers, modified watercourses, streams or lakes without disturbing the bed or banks or impacting on water quality. However, inappropriately designed culverts may have adverse effects such as restricting the passage of fish, increasing flood risk and erosion, and reducing the drainage capacity of rivers and streams. These effects can largely be avoided by adopting the design and construction standards outlined in the permitted activity conditions. Culverts that do not meet these standards will require a resource consent.

It should also be noted that the design of the culverts and their approaches provides one method of meeting any discharge rule.

There are many existing lawfully established structures in river and lake beds throughout the region. The use of these structures is generally authorised under an existing consent or permit, and has little or no adverse effect on the environment. The use of structures is therefore permitted subject to conditions. Use that cannot meet the conditions will require a resource consent.

Reconstruction is also addressed by this rule, as the effects of completely rebuilding a structure are similar to erecting or placing a new structure.

Rule 29 - Dams and weirs

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 19, 20, 35-37, 48, Sections 2.3, 2.4.

(a) The placement, erection or reconstruction and any associated bed disturbance of any dam or weir, in, on or over the bed of any lake,

river, modified watercourse or stream and the associated damming of water, is a permitted activity provided the following conditions are met:

(i) if the dam is two metres or less in height (measured from the crest of the dam to the bed), the impoundment area shall be less than ten hectares;
(ii) if the dam is three metres or less in height (measured from the crest of the dam to the bed), the impoundment area shall be less than five hectares;
(iii) the dam or weir is located below a catchment area of less than 500 hectares;
(iv) the dam or weir shall not be located upstream of any railway, formed public road, or residence, where these are likely to be affected by any failure of the structure;
(v) the dam or weir shall have a spillway, or an auxiliary spillway that is capable of conveying flood flows;
(vi) the dam or weir shall neither impound water nor adversely affect drainage beyond the property on which it is constructed, unless agreed to in writing by any affected landowner;
(vii) the discharge from the dam or weir shall be to the original channel, and shall not cause significant erosion of, or deposition on, the downstream bed or banks;
(viii) the standard conditions in Rule 48(a) and (b);
(ix) the dam or weir is not in the Mataura or Waikaia River;
(x) dams or weirs in the tributaries of the Mataura or Waikaia River shall not harm spawning or prevent passage of salmonid fish.

(b) The placement, erection or reconstruction and any associated bed disturbance of any dam or weir in, on, under or over the bed of any lake, river, modified watercourse or stream that cannot meet the above conditions and is not included in (c) is a discretionary activity.

(c) The placement or erection of dams or weirs in the Mataura or Waikaia River, and damming in the tributaries of the Mataura and Waikaia River where the dam or weir would harm spawning or prevent passage of salmonid fish is a prohibited activity.

(d) The use of any dam or weir in, on or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure was lawfully established (either before or after this plan came into force).
(ii) use of the structure shall not cause a hazard to navigation.
(iii) the structure shall not be used to store hazardous substances.
(iv) the standard conditions in Rule 48 (b) and (c).
(v) fish passage shall not be impeded as a result of the activity.

(e) The use of any dam or weir in, on, under or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions in (d) is a discretionary activity.

Explanation

Note 1:

The Building Act 2004 specifies obligations on the owner of a dam as defined in the Act regarding classification, certification and other matters of safety. Plan users should contact the Council to inquire as to the need to meet these requirements in each case.

Dams and weirs are constructed on both small and large scales and can have a variety of positive and negative effects. Small-scale structures, which are generally used to create small ponds or habitat areas, have minor adverse effects and are permitted subject to conditions. The conditions relate mainly to ensuring the structure does not create a potential hazard or adversely affect neighbouring properties. Larger-scale dams and weirs have greater potential impacts on the environment and need to be assessed on a case by case basis through the resource consent process.

The activity of damming water is distinct from the activity of constructing a dam, and is restricted under Section 14 of the RMA. Damming water can have adverse effects on flow regimes and associated impacts on aquatic ecosystems, water quality and natural character, among other values. However, the damming of small catchments, as provided for in, is unlikely to have adverse effects that outweigh the benefits provided, and is therefore permitted along with the structure. Larger scale damming of water will require a resource consent.

There are many existing lawfully established structures in river and lake beds throughout the region. The use of these structures is generally authorised under an existing consent or permit, and has little or no adverse effect on the environment. The use of structures is therefore permitted subject to conditions. Use that cannot meet the conditions will require a resource consent.

Reconstruction is also addressed by this rule, as the effects of completely rebuilding a structure are similar to erecting or placing a new structure.

Rule 30 - Erosion control structures

Other relevant sections; Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 35-37, 48, Sections 2.3, 2.4.

(a) Notwithstanding any other rule in this Plan to the contrary, the placement or reconstruction and any associated bed disturbance of rock rip rap or anchored or layered trees in, on, under or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the work is not in a lake bed, national park, reserve or land in respect of which there is a covenant under the Conservation

Act 1987, Queen Elizabeth the Second Trust Act 1977 or Reserves Act 1977;

(ii) any anchored or layered trees shall be anchored to the bed or banks so that they will not wash away in a flood;

(iii) the standard conditions in Rule 48(a) and (b);

(iv) there shall be no planting of pest plant species as identified in any Southland Regional Pest Management Strategy unless an exemption has been granted under the Strategy enabling the propagation of that pest plant species and the planting is carried out in accordance with the terms of that exemption.

(b) The placement or reconstruction and any associated bed disturbance of concrete in, on, under or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the river is less than three metres wide on average over the area of construction;

(ii) the placement of the concrete shall be for the sole purpose of remedying or mitigating an erosion problem;

(iii) the work shall not be in a lake bed, national park, reserve or land in respect of which there is a covenant under the Conservation Act 1987, Queen Elizabeth the Second Trust Act 1977 or Reserves Act 1977;

(iv) the concrete shall have a minimum length of 300 mm;

(v) the concrete shall be intact and not dusting or containing large amounts of fines;

(vi) there shall be no concrete that has not set, or loose cement present;

(vii) the concrete shall not have been used in direct contact with chemicals that are toxic to aquatic life;

(viii) the concrete shall not contain asbestos pipe or asbestos cement mixtures;

(ix) no reinforcing steel shall protrude from the completed works;

(x) the standard conditions in Rule 48(a) and (b).

(c) The placement, erection or reconstruction and any associated bed disturbance of erosion control structures, debris traps, rail and mesh, rope retards, gabion baskets, drop structures, groynes, weirs, and pre-formed concrete in, on, under or over the bed of any river, modified watercourse, stream or lake is a discretionary activity.

(d) The use of any erosion control structures in, on or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure was lawfully established (either before or after this plan came into force).

(ii) use of the structure shall not cause a hazard to navigation.

(iii) the structure shall not be used to store hazardous substances.

(iv) the standard conditions in Rule 48 (b) and (c).

(v) fish passage shall not be impeded as a result of the activity.

(e) The use of any erosion control structures in, on or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions in (d) is a discretionary activity.

Explanation

Erosion control structures are required to protect valuable land and infrastructure assets and can also help to maintain water quality and habitat. However, these structures, depending on their design and location, can also have adverse effects on habitats, natural character and amenity and other values. Rock rip rap, anchored trees and small amounts of concrete rubble can be constructed with a minimum of bed disturbance and are permitted subject to conditions. This allows for small scale and low impact bank protection works to be undertaken in a cost-effective manner while mitigating any adverse effects. More major works, including larger amounts of concrete rubble on larger rivers, modified watercourses, streams or lakes, and works involving railway irons, wire rope and other hardy materials, have greater impacts and will require a resource consent.

There are many existing lawfully established structures in river and lake beds throughout the region. The use of these structures is generally authorised under an existing consent or permit, and has little or no adverse effect on the environment. The use of structures is therefore permitted subject to conditions. Use that cannot meet the conditions will require a resource consent.

Reconstruction is also addressed by this rule, as the effects of completely rebuilding a structure are similar to erecting or placing a new structure.

The first bullet point in Rule 30(a) and the fourth bullet point in Rule 30(b) refer to erosion control structures not being in covenants under three different pieces of legislation. Covenants under the Conservation Act 1987 are for Conservation purposes. Under the Conservation Act 1987, "conservation" means the preservation and protection of natural and historic resources for the purpose of maintaining their intrinsic values, providing for their appreciation and recreational enjoyment by the public, and safeguarding the options of future generations.

Conservation covenants under the Reserves Act 1977 apply where private land or Crown land under Crown lease is to be managed under a covenant to preserve the natural environment, or landscape amenity, or wildlife or freshwater life or marine life habitat or historical value.

Open space covenants under the Queen Elizabeth the Second National Trust Act 1977 apply where private land, or land held under Crown lease is established or maintained as open space under a covenant.

Where erosion control structures are considered for placement in these covenant areas, it is appropriate that the structures are considered through a resource consent process to ensure that the values that the area was covenanted for are not compromised. If the covenant is adjacent to the bed of the lake or river and does not cover the bed itself, there is no affect on the permitted activity rule under the auspices of this Plan. However,

there may be considerations under the relevant territorial authority plan if the erosion control works extend beyond the bed of the river.

Rule 31 – Fords

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 35-37, 42, 45, 48, Sections 2.3, 2.4.

(a) The excavation or disturbance of the bed of any river, stream, modified watercourse or lake for the purpose of constructing a ford is a permitted activity provided the following conditions are met:

(i) the standard conditions in Rule 48(a) and (b).

(b) The excavation or disturbance of the bed of any river, stream, modified watercourse or lake for the purpose of constructing a ford that cannot meet the above conditions, or the placement and erection of any ford involving a structure such as a concrete pad in, on or over the bed of any river or lake, is a discretionary activity.

(c) The use of any ford in, on or over the bed of any river, stream, modified watercourse or lake is a permitted activity provided the following conditions are met:

(i) the ford was lawfully established (either before or after this plan came into force);
(ii) use of the ford on navigable rivers, modified watercourses, streams and lakes shall not cause a hazard to navigation;
(iii) the ford shall not be used to store hazardous substances.
(iv) the standard conditions in Rule 48 (b) and (c);
(v) fish passage shall not be impeded as a result of the activity.
(vi) where the ford is used as a stock crossing, the activity shall meet the conditions set out in Rule 42(a) "Stock access to river and lake beds";
(vii) where the ford is used as a vehicle crossing, the activity shall meet the conditions set out in Rule 45(a) "Vehicles and machinery".

(d) The use of any ford in, on or over the bed of any river, stream, modified watercourse or lake that cannot meet the above conditions in (c) is a discretionary activity.

Explanation

Fords have the benefit of providing for stock or vehicle access across a river bed where bridges or culverts do not exist and it is impractical to build such structures. This rule addresses the effects of ford construction and the effects of the on-going presence of the structure in the bed.

The rule covers two types of fords. The first type is a structure (e.g. a concrete pad or similar) that modifies the bed of a river or lake to establish a crossing by which any vehicle, stock or persons may pass through the water body. The second type of ford is where machinery is used to

modify the bed of a river or lake to provide a crossing that may be used in exactly the same way as a structural ford.

Where the ford is a modification of the river bed as opposed to a structure, the adverse effects of construction are likely to be no more than minor. Construction of such fords is therefore a permitted activity subject to conditions under part (a) of the rule.

Where the ford involves a structure such as a concrete pad, the construction and ongoing effects can be more serious. The construction of concrete fords can involve a significant amount of bed and bank disturbance and the use of cement in the wet bed, while the finished structure can cause erosion and deposition problems and impede fish passage. Such fords are unlikely to meet the standard conditions contained in Rule 48 and therefore need to be assessed on a case by case basis through the resource consent process.

Where the ford does not involve a concrete structure, the main effects of concern are related to the passage of stock and vehicles across the ford. The "use" of a ford referred in parts (c) and (d) of the rule does not include the passage of stock and vehicles across the bed, but rather includes the effects of the physical presence of a structure in the bed of the river. The effects of the passage of stock and vehicles across a ford are addressed under Rule 42 and Rule 45 respectively.

There are many existing lawfully established fords in river beds throughout the region. The use of these fords (meaning the on-going presence of the ford in the bed) is generally authorised under an existing consent or permit, and has little or no adverse effect on the environment. The use of fords is therefore permitted subject to conditions under part (c) of the rule. Use that cannot meet the conditions will require a resource consent.

Rule 32 - Moorings, navigational aids and signs

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 34, 36, Rules 20, 35-37, 48, Sections 2.3, 2.4.

(a) The placement, erection or reconstruction and any associated bed disturbance of any mooring, navigational aid or sign in, on, under or over the bed of any river, modified watercourse, stream or lake not provided for in Rule 27 is a permitted activity provided the following conditions are met:

(i) the structure is located in Fiordland National Park (including lakes Te Anau, Manapōuri, Monowai and Hauroko);
(ii) in the case of a mooring, the mooring block shall be free of contaminants including oil and grease;
(iii) in the case of a mooring, the use of the mooring shall not interfere with the use of existing lawful moorings;
(iv) where the structure has been moved to the site from any other area, it shall be effectively cleaned to prevent the spread of pest species;

(v) the structure shall be maintained in a state of good repair.

(b) The placement, erection or reconstruction and any associated bed disturbance of any mooring, navigational aid or sign in, on, under or over the bed of any river, modified watercourse, stream or lake, not provided for in Rule 27 that cannot meet the above conditions, is a restricted discretionary activity provided the following conditions are met:

(i) in the case of a mooring, the mooring block shall be free of contaminants such as oil and grease.
(ii) where the structure has been moved to the site from any other area, it shall be effectively cleaned to prevent the spread of pest species.

The Council will restrict its discretion to the following matters:

(i) the location of the structure;
(ii) any effects on natural character and amenity, the spiritual and cultural values and beliefs of the tangata whenua, historic heritage, existing users and navigational safety, suitability of mooring for its purpose, and maintenance requirements;
(iii) the use of the structure;
(iv) any standard conditions in Rule 48(a) and (b) that cannot be met.

(c) The use of any mooring, navigational aid or sign in, on, under or over the bed of any river, modified watercourse, stream or lake not provided for in Rule 27 is a permitted activity provided the following conditions are met:

(i) the structure is located in Fiordland National Park (including lakes Te Anau, Manapōuri, Monowai and Hauroko);
(ii) in the case of a mooring, the mooring block shall be free of contaminants including oil and grease;
(iii) in the case of a mooring, the use of the mooring shall not interfere with the use of existing lawful moorings;
(iv) where the structure has been moved to the site from any other area, it shall be effectively cleaned to prevent the spread of pest species;
(v) the standard conditions in Rule 48 (b) and (c).

(d) The use of any mooring, navigational aid and sign in, on or over the bed of any river, modified watercourse, stream or lake not provided for in Rule 27 that cannot meet the above conditions in (c) is a discretionary activity.

Explanation

Moorings, navigational aids and signs are generally low impact structures in terms of bed disturbance and effects on habitat. The main effects of concern are related to use and associated navigational safety and impacts on natural character and amenity. These effects need to be assessed on a case by case basis. Within National Parks, the placement of these

structures requires a concession from the Department of Conservation. Given that the Department of Conservation will assess natural character and navigational effects in the concession process, no resource consent will be required from Environment Southland, provided the permitted activity conditions are met. In all other areas Environment Southland is solely responsible for managing the placement of these structures, and a resource consent is required.

Reconstruction is also addressed by this rule, as the effects of completely rebuilding a structure are similar to erecting or placing a new structure.

Rule 33 - Temporary canoe gates and ski lane markers

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 35-37, 48, Sections 2.3, 2.4.

(a) The placement, erection or reconstruction and any associated bed disturbance of any temporary canoe gate or ski lane marker in, on or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure shall remain in place not longer than two weeks[13];
(ii) the structure shall not cause a hazard to boating/navigation;
(iii) the standard conditions in Rule 48(a) and (b).

(b) The placement, erection or reconstruction and any associated bed disturbance of any canoe gate or ski lane marker, in, on or over the bed of any river, modified watercourse, stream or lake, that cannot meet the above conditions, is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:

(i) the location of the structure;
(ii) any effects on natural character and amenity, the spiritual and cultural values and beliefs of the tangata whenua, historic heritage, and navigational safety;
(iii) any standard conditions in Rule 48(a) and (b) that cannot be met.

(c) The use of any temporary canoe gate or ski lane marker in, on or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure was lawfully established (either before or after this plan came into force);
(ii) use of the structure shall not cause a hazard to navigation;
(iii) the structure shall not be used to store hazardous substances;
(iv) the standard conditions in Rule 48 (b) and (c);
(v) fish passage shall not be impeded as a result of the activity.

[13] The "two weeks" can include three consecutive weekends.

(d) The use of any temporary canoe gate or ski lane marker in, on or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions in (c) is a discretionary activity.

Explanation

Temporary canoe gates and ski lane markers are sometimes erected in river, modified watercourse, stream and lake beds for sporting and recreational purposes. These structures have minimal and temporary impact on river and lake bed values and are permitted subject to conditions. Structures that cannot meet the conditions will require a resource consent.

There are many existing lawfully established structures in river and lake beds throughout the region. The use of these structures is generally authorised under an existing consent or permit, and has little or no adverse effect on the environment. The use of structures is therefore permitted subject to conditions. Use that cannot meet the conditions will require a resource consent.

Reconstruction is also addressed by this rule, as the effects of completely rebuilding a structure are similar to erecting or placing a new structure.

Rule 34 - Whitebait stands[14]

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36-37, Rule 20, Sections 2.3, 2.4.

Placement or Erection of Whitebait Stands

(a) Except as provided for in Rule 34(f), the placement or erection of any whitebait stand in, on or over the bed of any lake, river, modified watercourse or stream is a prohibited activity.

Use of Whitebait Stands

(b) The use of any lawfully established whitebait stand in, on, under or over the bed of any river is a controlled activity provided the following conditions are met:

(i) the stand is structurally sound;
(ii) the stand is secure against fluvial and coastal processes;
(iii) the stand is located so that it does not deflect flow into the river bank or increase water velocities near the bank, if the stand is either on piles or is a floating pontoon construction;
(iv) the name of the owner is displayed on a post or handrail at the entrance to the stand;
(v) no stand shall exceed more than one third of the width of the river at that place at that time;
(vi) annual administration fees have been paid within three months of invoice issue.

[14] Please note that the Department of Conservation also administers regulations associated with whitebaiting.

The Council will exercise its control over the following matters:

(i) any effects on amenity values, river morphology and dynamics (including erosion and deposition), public safety and public access.

Maintenance and Repair of Whitebait Stands

(c) The maintenance and repair of any lawfully established whitebait stand in, on, under or over the bed of any river is a permitted activity provided the following conditions are met:

(i) the stand still complies with the conditions in Rule 34(b);
(ii) the bed beneath, above or beyond the structure is not disturbed to the extent that it is not corrected within 24 hours;
(iii) no debris from maintenance of the structure enters the river or bed.

Alteration or Reconstruction of Whitebait Stands

(d) The alteration or reconstruction of any lawfully established whitebait stand on the existing site in, on, under or over the bed of any river is a permitted activity provided the following conditions are met:

(i) the stand complies with the conditions in Rule 34(b);
(ii) the bed beneath, above or beyond the structure is not disturbed to the extent that it is not corrected within 24 hours.

Removal of Whitebait Stands

(e) The removal of any whitebait stand in, on, under or over the bed of any river, modified watercourse or stream is a permitted activity provided all debris from the stand is removed from the bed and the adjoining land is left in a tidy and stable condition.

Replacement of Whitebait Stands

(f) The placement or erection of any replacement whitebait stand in, on or over the bed of any river, modified watercourse or stream is a restricted discretionary activity provided the following conditions are met:

(i) the original stand has been destroyed or it is necessary to move the stand due to natural alterations to the course of the river, bank erosion, or high water mark alterations;
(ii) the replacement stand complies with the conditions in Rule 34(b);
(iii) the replacement stand is erected a minimum distance of 20 metres from any existing stand;
(iv) the replacement stand is located on the same river as the original stand, as close as practicable to the former site;
(v) the original stand is removed in accordance with Rule 34(e).

The Council will restrict its discretion to the following matters:

(i) the location of the new stand;

(ii) any effects on amenity values, river morphology and dynamics (including erosion and deposition), public safety and public access.

Explanation

This rule is consistent with Policy 13.17 of the Regional Policy Statement for Southland, which restricts the allocation of space for whitebait stands to those stands lawfully established as of 1 October 1993. The existing number of whitebait stands is considered to be sufficient to achieve the needs of present and future users. Therefore, the number of existing whitebait stands will not be allowed to increase.

Most whitebait stands in Southland are located within the coastal marine area and are controlled through the provisions in the Regional Coastal Plan. Only twenty one stands are located outside the coastal marine area as at 1 November 2003. These stands are located within the Aparima and Pourakino Rivers and are controlled through the provisions of the Regional Water Plan, which is consistent with the Regional Coastal Plan.

Whitebait stands should not contribute to river bank erosion by deflecting flows into the bank, increasing water velocities near the bank or disturbing the bank during construction. Stands must be structurally sound to ensure that they are capable of supporting expected working loads and withstanding expected fluvial processes.

Each year whitebait stands are likely to need maintenance work that may involve changes to the physical structure. This type of work is generally minor. Alteration and reconstruction activities will have similar effects to maintenance work. Where river bank erosion has occurred, an extension from the existing stand to the new point of location on the river bank is allowed.

Removal of whitebait stands is a permitted activity. This enables either the owner of the stand or the Council to remove the stand and restore the site to its original condition. The physical removal of stands is unlikely to cause permanent adverse effects.

Where an existing whitebait stand needs to be relocated or replaced because it has been endangered or destroyed by changes to river bed or bank morphology, this may be allowed on a case-by-case basis through the resource consent process. The rule is not intended, however, to provide for the moving of stands to obtain a better fishing site, where it is still physically possible to use the old site. The replacement stand should be as close as practicable to the former site.

Rule 35 - Maintenance of structures

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32-36, Rules 20, 24-33, 48, Sections 2.3, 2.4.

(a) The maintenance and any associated bed disturbance of any structure in, on, under or over the bed of any river, modified

watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure was lawfully established (either before or after this plan came into force);
(ii) the standard conditions in Rule 48(a) and (b).

(b) The maintenance and any associated bed disturbance of any structure in, on, under or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:

(i) any standard conditions in Rule 48(a) and (b) that cannot be met.

Explanation
Maintenance activities are necessary to keep a structure in a state of good repair. Such activities are generally desirable and have positive effects in terms of safety and amenity. Any adverse effects are likely to be minor and temporary, and the activity is permitted subject to conditions. Any maintenance activity that cannot meet the conditions will require a resource consent.

Rule 36 - Alteration and/or extension of structures

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 34, 36, Rules 20, 24-34, 48, Sections 2.3, 2.4.

(a) The alteration or extension and any associated bed disturbance of any structure in, on, under or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure was lawfully established (either before or after this plan came into force);
(ii) the structure is not listed on the New Zealand Historic Places Register, and was not constructed prior to 1920;
(iii) the alteration or extension shall not involve an increase in the number or area of any support structures in the bed of the river, modified watercourse, stream or lake;
(iv) the standard conditions in Rule 48(a) and (b);
(v) the alteration or extension shall not cause a hazard to, or restrict, safe navigation.

(b) The alteration or extension and any associated bed disturbance of any structure in, on, under or over the bed of any river, modified watercourse, stream or lake that cannot meet the above conditions is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:

(i) any effects on the morphology and dynamics (including erosion and deposition) of the river, modified watercourse, stream or lake, natural character and amenity, the spiritual and cultural values and beliefs of the tangata whenua, and historic heritage;
(ii) any standard conditions in Rule 48(a) and (b) that cannot be met.

Explanation
The alteration and extension of structures is generally undertaken to upgrade or improve the usefulness of a structure. The adverse effects of this activity depend mainly on the scale and type of alteration or extension. Small-scale alterations or extensions that do not involve bed disturbance (for example, simple additions to the top-side of a structure) are unlikely to have a significant adverse effect and are permitted subject to conditions. Larger scale alterations (for example, the addition of support structures in the bed), or alterations that cannot meet the conditions, will require a resource consent.

Rule 37 - Demolition and/or removal of structures

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 24-33, 48, Sections 2.3, 2.4.

(a) The demolition or removal and any associated bed disturbance of any structure in, on, under or over the bed of any river, modified watercourse, stream or lake is a permitted activity provided the following conditions are met:

(i) the structure is not listed on the New Zealand Historic Places Register, and was not constructed prior to 1920;
(ii) the standard conditions in Rule 48(a) and (b).

(b) The demolition or removal and any associated bed disturbance of any structure in, on, under or over the bed of any river or lake that cannot meet the above conditions is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:

(i) any effects on the spiritual and cultural values and beliefs of the tangata whenua, historic heritage, and natural character and amenity;
(ii) any standard conditions in Rule 48(a) and (b) that cannot be met.

Explanation
Structures that are no longer used or that have fallen into disrepair can cause a hazard or other adverse effect, and in many cases need to be demolished or removed. This activity is generally beneficial in terms of improved safety, amenity and natural character, and is permitted subject to

conditions. However, if the structure has recognised or potential heritage values, or the other conditions cannot be met, the activity will require a resource consent.

Rule 38 - Structures not covered by, or not complying with, rules

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rule 20, Sections 2.3, 2.4.

Any use, erection, maintenance, reconstruction, placement, alteration, extension, removal or demolition and any associated bed disturbance of any structure in, on, under or over the bed of any river (including streams and modified watercourses) or lake, that is not provided for by a rule in this Plan, or that does not meet the conditions set out by a rule, is a discretionary activity (unless the Plan specifically provides that an activity that fails to meet the conditions set out by a rule is a controlled activity or a restricted discretionary activity).

Explanation

Rule 38 allows structures in, on, under, or over the bed of any river (including any streams or modified watercourse) or lakes, that are not specifically covered by or that do not comply with the rules in this Plan to be assessed on a case by case basis through the resource consent process.

2.2.4 Bed disturbance activities in river and lake beds

Unless stated otherwise, the following rules apply to activities that disturb the bed of any lake, river, modified watercourse or stream. These rules do not apply to artificial watercourses. The rules cover excavation, extraction and other bed disturbance activities, the introduction or removal of plants, and entry to and passage across the bed by stock and machinery and the associated discharge of sediment to water.

Rule 39 - Channel realignment or deepening

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rule 20, Sections 2.3, 2.4.

The excavation or disturbance of the bed of any river, modified watercourse, stream or lake for the purpose of realigning or deepening any channel within the bed is a discretionary activity.

Explanation
Channel realignment and deepening is usually carried out to mitigate a flooding, drainage or erosion problem, and therefore can have beneficial effects. However, these activities can also have significant adverse effects on aquatic and riverine habitats, river morphology and dynamics, water quality, natural character and other values, and need to be assessed on a case by case basis through the resource consent process.

Rule 40 - Dry cuts

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 48, Sections 2.3, 2.4.

The excavation or disturbance of the bed of any river, modified watercourse, stream or lake for the purpose of making a dry cut is a restricted discretionary activity

The Council will restrict its discretion to the following matters:

(i) the design and location of the work;
(ii) any effects on river, modified watercourse, stream or lake morphology and dynamics (including erosion and deposition), aquatic and riverine ecosystems and habitat, the spiritual and cultural values and beliefs of the tangata whenua, and historic heritage;
(iii) any standard conditions in Rule 48(a) that cannot be met.

Explanation
The creation of a dry cut is a more minor form of channel realignment that takes place within the dry bed of a river, modified watercourse, stream or lake. Accordingly, the activity can have less of an adverse effect on river bed values than more large scale realignments that can involve work in the water. However, each dry cut needs to be assessed through the resource consent process to ensure that any adverse effects

are addressed. The Council has however restricted its discretion to the matters it considers are significant. This includes the design and location, effects on morphology and dynamics, effects on ecosystems and habitat, and cultural and heritage values. In addition any standard conditions of Rule 48(a) that cannot be met, also become discretions for the Council to consider.

Rule 41- Gravel extraction

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 33, 36, Rules 20, 48, Sections 2.3, 2.4.

(a) The excavation or disturbance of the bed of any river, modified watercourse, stream or lake for the purpose of extracting gravel is a restricted discretionary activity provided the following conditions are met:

(i) the quantity of gravel removed is less than 120 m^3 per year;
(ii) there shall be no extraction from flowing water or from below the MALF level of the river;
(iii) no holes or pits shall be dug and the area shall be left level and tidy on completion of the activity;
(iv) the standard conditions in Rule 48(a).

The Council will restrict its discretion to the following matters:

(i) the quantity and location of the extraction;
(ii) any effects on river morphology and dynamics (including erosion or deposition), aquatic and riverine ecosystems and habitat, historic heritage and the spiritual and cultural values and beliefs of the tangata whenua.

(b) The excavation or disturbance of the bed of any river, modified watercourse, stream or lake for the purpose of extracting gravel or aggregate for flood or erosion control or the protection of infrastructure is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:

(i) the location of the extraction;
(ii) the design of the works and the quantity of material extracted;
(iii) any effects on infrastructure, flood risk, river morphology and dynamics (including erosion or deposition), aquatic and riverine ecosystems and habitat, historic heritage and the spiritual and cultural values and beliefs of the tangata whenua;
(iv) any standard conditions in Rule 48(a) that cannot be met.

(c) The excavation or disturbance of the bed of any river, modified watercourse, stream or lake for the purpose of extracting gravel that cannot meet the above conditions is a discretionary activity.

Explanation

Gravel extraction is undertaken to supply roading and construction needs and in some cases to mitigate flooding or erosion control problems. While this activity can have important benefits, it can also have significant adverse effects on the environment if not managed appropriately. The extent of the effects depends on site-specific factors such as the sensitivity of the river (including modified watercourses and streams) and rate of gravel replenishment, and activity-specific factors such as the method of extraction and quantity of gravel removed. Given the variables involved and the potential for adverse effects on riverbed processes and habitats, it is considered necessary to assess all gravel extractions through the resource consent process.

Some methods of gravel extraction can result in the creation of habitats for fish and wildlife. These methods will be encouraged, where appropriate.

Gravel extractions (of 120 cubic metres or less per year) are a restricted discretionary activity subject to conditions. This will allow extraction of gravel from riverbeds (including modified watercourses and streams) with the minimum of cost and delay, but will provide Environment Southland with the opportunity to assess effects and impose conditions where necessary. Extractions that are undertaken primarily for flood or erosion control purposes or for the protection of infrastructure have beneficial effects and are also restricted discretionary activities.

While the upper limit of extraction is 120 cubic metres, this quantity of extraction will not necessarily be suitable on all rivers or at all sites. For this reason Council has restricted its discretion to quantity and location. This enables Council to either grant consent for a lesser quantity or to decline the consent if there is not sufficient gravel supply at the location, or if the gravel extraction is likely to result in significant adverse effects.

Gravel extractions that are greater than 120 cubic metres per year, and that are not for flood or erosion control purposes, are discretionary activities. These larger scale, often commercial, extractions require appropriate design and assessment of wider environmental, social and economic effects.

Rule 42 – Stock access to river and lake beds

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 35, 36, Rules 16, 17, 20, 31, Sections 2.3, 2.4.

(a) Except as provided by Rule 17 and Rule 42(c), the entry to, grazing of stock on, or passage of stock across, the bed of any lake, river, modified watercourse or stream, and the associated bed

disturbance, is a permitted activity provided the following conditions are met:

(i) the activity shall meet the conditions set out in Rule 16 "Discharges associated with stock access to water";
(ii) other than at fords or stock crossings, there shall be no significant devegetation of the bed and banks, or significant alteration to the profile of the bed and banks;
(iii) there shall be no bed disturbance of the roosting and nesting areas of the black fronted tern, black billed gull, and banded and black fronted dotterel;
(iv) between the beginning of November and the end of May, there shall be no disturbance of the tidal river habitat up to the spring tide level.

(b) The entry to, grazing of stock on, or passage of stock across, the bed of any lake, river, modified watercourse or stream, and the associated bed disturbance, that cannot meet the above conditions is a discretionary activity.

(c) The use of the beds of lakes, rivers, modified watercourses or streams for supplementary feeding, fodder crops or as stock run-off is a prohibited activity.

Explanation

This rule, in conjunction with Rules 16 and 17, gives effect to Policy 35, which provides that stock access to water bodies is to be managed in a way that avoids significant adverse effects on water quality, bed and bank stability, and habitats.

This rule predominantly addresses the bed disturbance aspects of stock access to water bodies (including the adverse effects on bed and bank stability, and habitats) while Rule 16 addresses the water quality aspects. Rule 17 targets the land use practices where stock access to water has the most significant adverse effects and those water bodies with high natural values.

Part (a) of the rule permits stock access to the beds of lakes, rivers, modified watercourses and streams provided certain conditions are met. These conditions have been developed to ensure the adverse effects of the activity are no more than minor. Clause (a)(i) of the rule highlights the fact that the conditions attached to Rule 16 must also be met for the activity to be permitted. Clause (a)(iii) of Rule 42(a) addresses roosting and nesting areas of certain bird species while Clause (a)(iv) of Rule 42(a) addresses disturbance of inanga/whitebait spawning areas.

Further information regarding these areas can be found in the explanation for Rule 48 of this Plan.

If the conditions attached to part (a) of Rule 42 cannot be met, the activity is discretionary, as outlined in part (b) of the rule.

Part (c) of Rule 42 prohibits the use of river, lake, modified watercourse and stream beds for supplementary feeding, fodder crops or as stock runoff. These activities cause stock to congregate in high numbers and for extended periods of time on the bed, and are unacceptable in terms of adverse effects on water quality and bed and bank integrity.

Rule 43 - Vegetation flood debris[15] removal

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 48, Sections 2.3, 2.4.

(a) The removal of vegetation flood debris obstructing water flow from any river, modified watercourse, stream or lake bed is a permitted activity provided the following conditions are met:

(i) the removal of the material is for the purpose of flood or erosion control or maintaining the integrity of infrastructure;
(ii) the removal of material shall not cause any significant alteration to the original channel shape, area, depth or gradient;
(iii) the standard conditions in Rule 48(a).

(b) The removal of vegetation flood debris obstructing water flow from any river, modified watercourse, stream or lake bed, that cannot meet the above conditions, is a restricted discretionary activity

The Council will restrict its discretion to the following matters:

(i) any effects on flood risk, river, modified watercourse, stream or lake morphology and dynamics (including erosion or deposition), and aquatic and riverine ecosystems and habitat.
(ii) any standard conditions in Rule 48(a) that cannot be met.

Explanation

Vegetation flood debris can provide habitats for fauna, providing shelter, food and substrate. However when vegetation flood debris obstructs water flow it often needs to be removed from river, modified watercourse, stream and lake beds to mitigate a flooding or erosion problem and to protect infrastructure. This activity is generally beneficial but may have adverse effects on river bed processes, water quality and other values including habitat if not carried out appropriately. Provided the permitted activity conditions are followed, any negative impacts are likely to be temporary and minor. Vegetation flood debris removal that cannot meet the conditions will require a resource consent.

[15] Refer to the Glossary for the definition of "Vegetation flood debris".

Rule 44 - Vegetation planting

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 48, Sections 2.3, 2.4.

The introduction or planting of any plant, or part of any plant, in the bed of any lake, river, modified watercourse or stream is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:

(i) the location of the planting;
(ii) the species of plant;
(iii) any effects on flood risk, river morphology and dynamics (including erosion or deposition), and aquatic and riverine ecosystems and habitat;
(iv) the standard conditions in Rule 48.

Explanation
While planting of vegetation in the riparian margins adjacent to river and lake beds can be beneficial in terms of improving erosion control, water quality, ecosystems and habitats, this rule concerns planting in the beds of rivers, streams, modified watercourses and lakes. The rule is therefore limited in its coverage to the bed of the river which is "the space of land which the waters of the river cover at its fullest flow without overtopping its banks;" and in the case of lakes the bed is "the space of land which the waters of the lake cover at its highest level without exceeding its margin".

If planting was a permitted activity in the beds of rivers, streams, modified watercourses and lakes, there could be issues with the species planted and potential for adverse effects for flood management and drainage management. Of particular concern is the potential to restrict flood flows, increased risk for infrastructure and access restriction for drainage maintenance. The extent of these effects depends on type of plant and location and scale of the planting. In recognition of these potential adverse effects, planting of vegetation in the beds of rivers, streams, modified watercourses and lakes needs to be assessed on a case by case basis through the resource consent process.

Rule 45 - Vehicles and machinery

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 31, 48, Sections 2.3, 2.4.

(a) The entry into or passage across the bed[16] of any river, modified watercourse, stream or lake by any wheeled or tracked vehicle or machine is a permitted activity provided the following conditions are met:

[16] Refer to the Glossary for the definiton of "bed".

(i) the activity is necessary for the purposes of crossing over the bed, or carrying out another permitted or consented activity within the bed;
(ii) there shall be no significant alteration to the original profile of the bed;
(iii) the standard conditions in Rule 48.

(b) The entry into or passage across the bed of any river, modified watercourse, stream or lake by any wheeled or tracked vehicle or machine that cannot meet the above conditions is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:

(i) the location, type of vehicle or machine, and frequency and duration of the activity;
(ii) any effects on water quality, river morphology and dynamics (including erosion or deposition), and aquatic and riverine ecosystems and habitat;
(iii) any standard conditions in Rule 48(a) that cannot be met.

Explanation
Vehicles and machinery sometimes need to pass across or be located for short periods of time in the beds of lakes and rivers (including modified watercourses and streams). The main adverse effects of this activity relate to the disturbance of bed and impacts on water quality. Trout, salmon and native fish spawn in riffles in streams throughout Southland. From May to November, fish eggs and larvae in the gravel are susceptible to damage from vehicles crushing them. However, provided the conditions of the rule are followed, the adverse effects will be temporary and minor and the activity can be permitted. Any activity that cannot meet the conditions will require a resource consent.

Rule 46 - Weed and sediment removal for drainage maintenance[17,18]

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 34, 36, Rules 15, 20, Sections 2.3, 2.4.

(a) The removal of aquatic weeds and plants and sediment[19] from any modified watercourse for the purpose of maintaining or restoring

[17] The diversion of water (including for the purpose of land drainage) is addressed under Rules 18 and 20 of this Plan. It should be noted that the diversion of water from a Regionally Significant Wetland identified in Appendix B of the Plan or any naturally occurring wetland requires resource consent. When removing weed and sediment from modified watercourses on the margins of wetlands, the weed and sediment should be placed on exotic vegetation or previous spoil areas rather than indigenous vegetation that is an integral part of the wetland.

[18] Please note that it is an offence under the Conservation Act 1987 to disturb or damage the spawning ground of any freshwater fish, or disturb or injure the eggs or larvae of any freshwater fish. Spawning fish that could be affected by drainage maintenance activities include inanga (whitebait) and trout. Please refer also to advice notes 34 and 35.

drainage outfall is a permitted activity provided the following conditions are met:

(i) the activity shall be undertaken solely to maintain or restore the drainage capacity of a modified watercourse that has previously been modified or maintained for drainage maintenance/restoration purposes at that location;
(ii) the activity shall be restricted to the removal of aquatic weeds and plants and/or sediment deposits for drainage maintenance/restoration purposes;
(iii) any incidental bed disturbance and removal of gravel shall be only to the extent that it is necessary to undertake the activity and shall be kept to the absolute minimum[3 and 20];
(iv) upon completion of the activity, fish passage shall not be impeded as a result of the activity;
(v) the operator shall take all reasonable steps to return any fish captured or stranded by the activity to water immediately;
(vi) between the beginning of June and the end of October, there shall be no disturbance of the spawning habitat of trout[21];
(vii) between the beginning of November and the end of May, there shall be no disturbance of banks within the tidal river habitat that floods at spring tide[22];
(viii) no fuel storage or machinery refuelling shall occur on any area of the bed;
(ix) no contaminants, other than sediment released from the bed, shall be discharged to water during the activity unless allowed by a relevant permitted activity rule or resource consent;
(x) there are no known archaeological sites or wahi tapu in the bed, at the site of the activity. In the event of the discovery of a site of potential historical or cultural importance (for example, archaeological site or wahi tapu), the activity shall cease and the Council's Director of Environmental Management shall be informed immediately. The activity may not recommence without the permission of the Director of Environmental Management;
(xi) before any equipment, machinery, or operating plant is moved to a new activity site from any other area it shall be effectively cleaned to prevent the spread of "pest" or "unwanted organisms" as defined in the Biosecurity Act, 1993;

---

[19] This rule allows the removal of aquatic weeds and plants and sediment to maintain or restore drainage outfall. Gravel extraction (including for flood control or erosion control purposes) requires resource consent under Rule 41 of this Plan.
[20] While it may be necessary to stabilise banks in conjunction with this activity, channel deepening and/or significant rebattering (reshaping) of the banks to increase channel capacity requires resource consent.
[21] Trout spawning occurs in riffles (gravel ridges in the stream bed). It does not occur within the tidal river habitat that floods at spring tide i.e. condition (vi) is mutually exclusive to condition (vii). Please note that trout spawning can occur outside the period from June to October, particularly in the months of May and November.
[22] Inanga (whitebait) spawn in tidal lowland areas during the spring tide, with eggs hatching on the subsequent spring tide. The preferred habitat is grassy-like vegetation on stream banks.

(xii) all equipment, machinery, operating plant and debris associated with the bed disturbance activity shall be removed from the site on completion of the activity;

(xiii) where the modified watercourse is spring-fed, removal of aquatic weeds and plants shall be only to the extent that is is necessary to undertake the activity and shall be kept to the absolute minimum[23].

(b) The removal of aquatic weeds and plants and sediment from any modified watercourse for the purpose of maintaining or restoring drainage outfall that cannot meet the above conditions is a discretionary activity.

Explanation

Southland has a large network of modified and artificial watercourses that are maintained for drainage outfall. Without adequate drainage, large areas of agricultural land in the region would be unproductive or inaccessible. It is therefore necessary to remove aquatic weeds and plants and sediment from time to time to maintain or restore drainage outfall.

While the removal of aquatic weeds and plants and sediment is very important for maintaining land drainage and farm productivity, it can have significant adverse effects on aquatic ecosystems, habitats, areas of significant vegetation and water quality. For this reason, the removal of aquatic weeds and plants and sediment from modified watercourses is a permitted activity subject to conditions that seek to minimise adverse effects. Other measures to minimise adverse effects will be promoted through sustainable drainage management strategies/codes of practice/range of best management practices for drainage.

Improved drainage and land productivity have been achieved through the construction of artificial watercourses (including open drains) as well as the straightening and modification of existing natural rivers and streams (modified watercourses). However, this rule only applies to weed and sediment removal activities in the beds of modified watercourses in accordance with Section 13 of the Act, which does not impose controls over the beds of artificial watercourses. It should be noted though that many "farm drains" are in fact modified watercourses rather than artificial watercourses.

Weed and sediment removal is a corrective management practice. While this activity deals with the immediate problem, it is important to address the causes of weed and sediment build up as well. For this reason, Environment Southland favours an integrated management approach to drainage maintenance with a combination of land, channel margin and instream management practices that address both the problem and its

[23] Spring-fed surface water bodies provide critical cold water inflows to main-stem rivers at times of low flow. Excessive removal of aquatic weeds and plants not only reduces instream-habitat value, but causes increased exposure to sunlight and consequential increases in water temperature.

causes. The aim of an integrated management approach is to reduce the frequency that it is necessary to undertake weed and sediment removal.

The types of management practices promoted as part of an integrated management approach to drainage maintenance and detailed in the relevant sustainable drainage management strategies/codes of practice/range of best management practices for drainage include:

- controlling soil loss and contaminants from agricultural land through stock, crop and effluent management;
- controlling soil erosion and contaminant entry to water through the use of buffer zones and riparian plantings;
- controlling bed and bank erosion by improved channel design and erosion control measures e.g. the construction of sediment traps;
- reducing nutrients and sediments in streams with nutrient budgeting, nutrient stripping and sediment control measures;
- using alternative drain designs and management practices to avoid, remedy or mitigate habitat loss or destruction. For example, spraying of weeds that trap sediment;
- using "work windows" to avoid sensitive times and places for significant flora and fauna, particularly fish.

Free advice on these best management practices can be sourced from Environment Southland upon request.

Rule 47 - Bed disturbance activities not covered by, or not complying with, rules

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 33, 37, Sections 2.3, 2.4.

Any river, modified watercourse, stream, or lake bed disturbance activity that is not provided for by a rule in this Plan, or that does not meet the conditions set out by a rule, is a discretionary activity

Explanation
This rule allows bed disturbance activities in rivers, modified watercourse, streams, or lakes that are not specifically covered by or that do not comply with the rules in this Plan to be assessed on a case by case basis through the resource consent process.

Rule 48 - Standard conditions

Other relevant sections: Objectives 10-13, Issue 6, Policies 1A, 32, 36, Rules 20, 24-33, 35-37, 40-41, 43-45, Section 2.3.

Where expressly provided for in the permitted activity rules, for activities that occur in, on under or over the bed of any river, lake, modified watercourse or stream in sections 2.2.3 (Structures in river and lake beds) and 2.2.4 (Bed disturbance activities in river and lake beds) and Rule 20, the following standard conditions shall apply.

Where expressly provided for in the restricted discretionary activity rules in sections 2.2.3 (Structures in river and lake beds) and 2.2.4 (Bed

disturbance activities in river and lake beds), Council shall consider standard conditions within Rule 48 that cannot be met.

(a) Standard conditions for placement, erection, reconstruction, maintenance, alteration, extension, demolition and removal of structures and bed disturbance activities:

(i) fish passage shall not be impeded as a result of the activity;
(ii) there shall be no bed disturbance of the roosting and nesting areas of the black fronted tern, black billed gull, and banded and black fronted dotterel;
(iii) any activity in the water shall be kept to a minimum to avoid, as much as practicable, discoloration to the river or lake. Where any sediment release occurs, it will be only temporary;
(iv) any bed disturbance shall be kept to the minimum necessary to undertake the activity, and the site shall be reinstated, as near as practicable, to its original condition on completion of the activity (with the exception of revegetation);
(v) no fuel storage or machinery refuelling shall occur on any area of the bed;
(vi) no contaminants, other than sediment released from the bed, shall be discharged to water during the activity unless allowed by a relevant permitted activity rule or resource consent;
(vii) there are no recorded historic heritage sites, at the site of the activity;
(viii) before any equipment, machinery, or operating plant is moved to a new activity site it shall be effectively cleaned to prevent the spread of "pests" or "unwanted organisms" as defined by the Biosecurity Act 1993;
(ix) all equipment, machinery, operating plant and debris associated with the structure or bed disturbance activity shall be removed from the site on completion of the activity;
(x) the activity shall not result in significant adverse effects on aquatic ecosystems;
(xi) between the beginning of November and the end of May, there shall be no disturbance of the tidal river habitat up to the spring tide level.

(b) Additional standard conditions for placement, erection, reconstruction, use, maintenance, alteration, extension, demolition and removal of structures:

(i) the structure shall not cause significant erosion of, or deposition on, the surrounding bed or banks;
(ii) any build-up of debris against the structure, which may adversely affect flood risk, drainage capacity or bed or bank stability, shall be removed as soon as practicable;
(iii) the structure shall be maintained in a state of good repair.

(c) Additional standard condition for the use of structures only:

(i) no contaminants, shall be discharged to water as a result of use of the structure unless allowed by a relevant permitted activity rule or resource consent.

Explanation

Many of the activities specified in the rules are permitted activities subject to conditions. Where the conditions apply exclusively to a particular activity, they are listed within the rule for that activity (for example, specific conditions for culvert construction appear within the rule for culverts). The conditions listed within Rule 48 apply where expressly provided for in the permitted activity rules for activities that occur in, on, under or over the bed of any river, lake, modified watercourse or stream in sections 2.2.3 (Structures in river and lake beds) and 2.2.4 (Bed disturbance activities in river and lake beds) and Rule 20. Further, where expressly provided for in the restricted discretionary activity rules in sections 2.2.3 (Structures in river and lake beds) and 2.2.4 (Bed disturbance activities in river and lake beds), Council shall consider standard condtions within Rule 48 that cannot be met.

Rule 48(a)(ii)

Black-billed gulls and black fronted terns nest in colonies on shingle bars or islands from September to February. While nesting areas of black fronted and banded dotterels are less visible than colony nesting birds, the birds will react to the presence of intruders with various displays. Any person undertaking activities within the bed of a lake or river, modified watercourse or stream observing this behaviour should suspect a nesting site is nearby. The breeding period for these birds is similar to that of the gulls and terns.

Rule 48(a)(vi)

Historic heritage means those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures. It includes, but is not limited to historic sites, structures, places and areas, archaeological sites, and sites of significance to Maori, such as waahi tapu. The New Zealand Archaeological Association (NZAA) Site Recording scheme and Rarangi Taonga: the Register of Historic Places, Historic Areas, Wahi Tapu and Wahi Tapu Areas hold details of recorded historic heritage sites. Any activity that has potential adverse effects on these sites should be avoided.

Not all sites are recorded, and it is possible that a site may be discovered during the course of an activity. Works should be undertaken under an Accidental Discovery Protocol, which requires that in the event of the discovery of a site of potential historical or cultural importance the activity should cease, and the site should be reported immediately to the New Zealand Historic Places Trust, and Te Ao Marama Inc. The discovery of the site should also be reported immediately to the Director of Environmental Management, Environment Southland along with the ceased activity. The activity should not recommence without the permission of the Director of Environmental Management.

Historic heritage is a matter of national importance under section 6 of the RMA. The Council strongly encourages the use of an Accidental Discovery Protocol for permitted activities. It is an offence under the Historic Places Act 1993 to destroy, damage or modify an archaeological site (including wahi tapu) irrespective of whether it is recorded or not. Offences can carry significant fines. An Accidental Discovery Protocol for unrecorded sites can be found in Appendix N of this Plan.

Rule 48(a)(vii)

Historic heritage means those natural and physical resources that contribute to an understanding and appreciation of New Zealand's history and cultures. It includes, but is not limited to historic sites, structures, places and areas, archaeological sites, and sites of significance to Maori, such as waahi tapu. The New Zealand Archaeological Association (NZAA) Site Recording scheme and Rarangi Taonga: the Register of Historic Places, Historic Areas, Wahi Tapu and Wahi Tapu Areas hold details of recorded historic heritage sites. Any activity that has potential adverse effects on these sites should be avoided.

Not all sites are recorded, and it is possible that a site may be discovered during the course of an activity. Works should be undertaken under an Accidental Discovery Protocol, which requires that in the event of the discovery of a site of potential historical or cultural importance the activity should cease, and the site should be reported immediately to the New Zealand Historic Places Trust, and Te Ao Marama Inc. The discovery of the site should also be reported immediately to the Director of Environmental Management, Environment Southland along with the ceased activity. The activity should not recommence without the permission of the Director of Environmental Management.

Historic heritage is a matter of national importance under section 6 of the RMA. The Council strongly encourages the use of an Accidental Discovery Protocol for permitted activities. It is an offence under the Historic Places Act 1993 to destroy, damage or modify an archaeological site (including wahi tapu) irrespective of whether it is recorded or not. Offences can carry significant fines. An Accidental Discovery Protocol for unrecorded sites can be found in Appendix N of this Plan.

Rule 48(a)(viii)

It is important that erection or placement of structures and/or bed disturbance activities do not result in the spread of "pests" or "unwanted organisms". If equipment, machinery or operating plant have been used in an area where these "pests" or "unwanted organisms" occur, seeds or viable organisms may be on this equipment. If the equipment is not cleaned before moving to an area where pests or unwanted organisms are not present, there is potential for colonisation to occur.

Rule 48(a)(ix)

The intent of the reference to debris in the condition concerning removal of equipment etc was that any debris that resulted from the activity of erecting or placing a structure or from a bed disturbance activity should be removed when the activity is finished. If there are off-cuts from erection or placement of a structure, or if parts of the structure

are no longer needed as a result of reconstruction, that debris should not be left in the bed of the lake or river. If machinery parts are sitting in the bed of the river while a bed disturbance activity is being undertaken, that material should be removed when the activity is completed.

Rule 48(a)(xi)

There are five whitebait species known in Southland. In most locations, the majority of the whitebait population will be Inanga. Inanga spawn in tidal lowland areas during the spring tide, with eggs hatching on the subsequent spring tide. The preferred habitat is grassy-like vegetation on stream banks. Smelt (Retropinna retropinna) also spawn in tidal areas and may comprise part of the whitebait catch. Giant bully (Gobiomorphus gobiodes) also spawn in these areas at those times. The spawning period is the time when the Inanga are most vulnerable to adverse effects from structure and bed disturbance activities and therefore disturbance of these areas should not be permitted at that time. It should be noted they are protected under the Conservation Act 1987 Section 26(zj) which specifies: Every person commits an offence who –

(a) disturbs or damages the spawning ground of any freshwater fish;
(b) disturbs or injures the eggs or larvae of any freshwater fish.

2.2.5 Agricultural effluents

The rule below covers the construction of agricultural effluent ponds. The discharge of agricultural effluents and sludges (treated or untreated) to land is currently dealt with under the Regional Effluent Land Application Plan. However, it should be noted that both the Regional Effluent Land Application Plan and the Regional Solid Waste Management Plan are currently under review and are likely to be merged with this Plan in future.

Rule 49 – Agricultural effluent ponds

Other relevant sections: Objectives 2-4, 9A-C, Issues 1, 4, 5A, Policies 1A, 3-4, 6, 31A-D, 41, Section 2.3.

(a) The construction of any agricultural effluent pond is a restricted discretionary activity provided the following conditions are met:

(i) a set of plans and specifications containing the information specified in Appendix A (*Requirements for Agricultural Effluent Pond Construction and Design*) is supplied to the Council describing the proposed design and construction process to avoid adverse effects on water quality;
(ii) the agricultural effluent pond is not within 50 metres of any surface water body, artificial watercourse or coastal marine area;
(iii) the agricultural effluent pond is not within 200 metres of any dwelling not on the same property, or 50 metres of the boundary of any other property;
(iv) the agricultural effluent pond is not within 100 metres of any water abstraction point;

The Council will restrict its discretion to the following matters:

1. the design and construction of the pond and ancillary structures and the adequacy of the methods to be used to protect its embankments from damage by stock and machinery;
2. the separation distance of the agricultural effluent pond from surface water bodies, artificial watercourses, installed subsurface drains, groundwater, bores, registered drinking-water supplies, the coastal marine area, trees, stop banks, residential dwellings, places of assembly, urban areas, property boundaries and historic heritage;
3. the height of the embankments and placement and orientation of the agricultural effluent pond relative to flood flows and stormwater run-off;
4. the storage capacity of the agricultural effluent pond in relation to the volume and nature of the liquid that will enter, and the options considered to reduce this volume;
5. information and monitoring requirements, including installation of monitoring devices;

6. adoption and implementation of an Accidental Discovery Protocol.

(b) The construction of any agricultural effluent pond that cannot meet the conditions in Rule 49(a) is a discretionary activity.

(c) The construction of any agricultural effluent pond required as a condition of a discharge permit, where the application for the permit was lodged with the Council between 1 June 2007 and 28 March 2009, shall be deemed to be authorised by this rule as a restricted discretionary activity subject to the conditions contained in that discharge permit.

Explanation

This rule gives effect to Policy 41, which provides that adverse effects on water quality arising from agricultural effluent ponds are to be avoided and other adverse environmental effects avoided as far as possible. Policy 41 and this rule are both primarily focused on water quality effects but also address other adverse effects such as the diversion of flood waters and odour issues. Poor standards of construction can result in significant adverse environmental effects, and all new agricultural effluent ponds therefore require a resource consent.

Part (a) of the rule makes agricultural pond construction a restricted discretionary activity provided certain conditions are met.

Condition (a)(i) specifies that the consent applicant must supply the Council with a set of plans and specifications describing the proposed design and construction process. The information required to be supplied as part of these plans and specifications is specified in Appendix A "Information to be Submitted with a Resource Consent Application".

It is imperative that the type of liner selected is appropriate to the intended purpose and that whatever liner type is used, that due diligence is observed during preparation, installation and subsequent use. If a clay liner is installed, a geotextile underliner should be considered as a second layer of defence to the primary clay layer. A defective or inappropriate liner may result in fines, costs of remedial work, and wasted capital invested in a structure that fails to control environmental liabilities.

Conditions (a)(ii) to (iv) set out recommended minimum buffer distances for agricultural effluent ponds. A buffer distance of 100 metres from water abstraction points is considered an appropriate default given the potential viral and bacterial risks agricultural effluent ponds pose. However, it is recognised that it may not be possible or necessary to comply with the buffer distances in the rule in all situations. Similarly, in some situations greater buffer distances may be needed. For example, a buffer distance greater than 100 metres may be required from a water abstraction point for a registered drinking-water supply.

If the conditions in Rule 49(a) cannot be met, the construction of an agricultural effluent pond is a discretionary activity so that the Council can consider the application without its discretion being limited.

Part (c) of the rule acknowledges that conditions attached to the discharge permits for the disposal of farm dairy effluent from 1 June 2007 onwards largely address the matters addressed by Rule 49(a). At the time of notification (28 March 2009), some of these permits had yet to be exercised and the associated agricultural effluent ponds constructed. Such agricultural effluent ponds have therefore been excluded from Rule 49 to avoid double regulation.

Rule 50 – Discharge of farm dairy effluent to land

Other relevant sections: Issue 5A, Objectives 9A-C, Policies 31A-D

(a) The discharge of farm dairy effluent to land from dairy sheds servicing a maximum of 20 cows is a permitted activity, provided the following conditions are met:

(i) there is no discharge of farm dairy effluent to any surface watercourse, either directly or by overland flow, run-off, or via a pipe;
(ii) there is no overland flow, ponding or contamination of water resulting from the discharge of farm dairy effluent;
(iii) the discharge is not within 20 metres of any surface water body, artificial watercourse or the coastal marine area;
(iv) the discharge is not within 200 metres of any place of assembly or dwelling not on the same property, or 20 metres of the boundary of any other property;
(v) the discharge is not within 100 metres of any water abstraction point;
(vi) the maximum depth of farm dairy effluent application is 10 mm for each individual application;
(vii) the maximum loading rate of nitrogen onto any land area does not exceed 150 kilograms of nitrogen per hectare per year (150 kg N/Ha/yr) from farm dairy effluent; and
(viii) the farm dairy effluent discharge system is operated and maintained so that there is no spray drift nuisance or offensive or objectionable odour beyond the property boundary.

(b) The discharge of farm dairy effluent to land, lawfully being undertaken up to and including 17 July 2010, in any of the following situations is a controlled activity:

(i) low rate irrigation to soil/landscape categories A and B, and D and E as identified on Map 1 of Appendix N or determined by farm-scale soils mapping undertaken by a suitably qualified person; or
(ii) low or high rate irrigation by slurry tanker to soil/landscape categories A, B, D and E as identified on Map 1 of Appendix N, or determined by farm-scale soils mapping

undertaken by a suitably qualified person, that does not exceed 5 mm in depth.

provided the following conditions are met:

1. the discharge is not within 20 metres of any surface water body, artificial watercourse or the coastal marine area;
2. the discharge is not within 200 metres of any place of assembly or dwelling not on the same property, or 20 metres of the boundary of any other property; and
3. the discharge is not within 100 metres of any water abstraction point.

The Council will restrict the exercise of its control to the following matters:

(a) application depth and rate, storage requirements, nitrogen loading and contingency plans;
(b) the separation distance of the discharge from surface water bodies, artificial watercourses, subsurface drains, the coastal marine area, residential dwellings, places of assembly, urban areas, property boundaries, water abstraction points and registered drinking-water supplies;
(c) inspection and audit requirements;
(d) water quality monitoring directly relating to the possible effects of the authorised discharge (NB This does not include general state of the environment water quality monitoring).

(c) The discharge of farm dairy effluent to land, lawfully being undertaken up to and including 17 July 2010, in any of the following situations is a restricted discretionary activity:

(i) high rate irrigation to soil/landscape categories A, B, D and E as identified on Map 1 of Appendix N or determined by farm-scale soils mapping undertaken by a suitably qualified person; or
(ii) low rate irrigation to soil/landscape category C as identified on Map 1 of Appendix N or determined by farm-scale soils mapping undertaken by a suitably qualified person; or
(iii) where the discharge falls within the situations listed in Rule 50(b) but cannot meet the conditions contained in Rule (50)(b).

The Council will restrict the exercise of its control to the following matters:

(a) application depth and rate, storage requirements, nitrogen loading and contingency plans;
(b) the separation distance of the discharge from surface water bodies, artificial watercourses, subsurface drains, the coastal marine area, residential dwellings, places of assembly, urban

areas, property boundaries, water abstraction points and registered drinking-water supplies;
(c) inspection and audit requirements;
(d) water quality monitoring directly relating to the possible effects of the authorised discharge. *(NB: This does not include general state of the environment water quality monitoring.)*

(d) The discharge of farm dairy effluent to land, that was not being lawfully undertaken as at 17 July 2010 (including an increase in the scale of an activity) in any of the following situations is a restricted discretionary activity:

(i) low rate irrigation to soil/landscape categories A and B, and D and E as identified on Map 1 of Appendix N or determined by farm-scale soils mapping undertaken by a suitably qualified person; or
(ii) low or high rate irrigation by slurry tanker to soil/landscape categories A, B, D and E as identified on Map 1 of Appendix N, or determined by farm-scale soils mapping undertaken by a suitably qualified person, does not exceed 5 mm in depth.

provided the following conditions are met:

1. the discharge is not within 20 metres of any surface water body, artificial watercourse or the coastal marine area;
2. the discharge is not within 200 metres of any place of assembly or dwelling not on the same property, or 20 metres of the boundary of any other property; and
3. the discharge is not within 100 metres of any water abstraction point.

The Council will restrict the exercise of its discretion to the following matters:

(a) application depth and rate, storage requirements, nutrient loading (in particular nitrogen) and contingency plans;
(b) the separation distance (beyond that required under conditions 1, 2 and 3 above) of the discharge from surface water bodies, artificial watercourses, subsurface drains, the coastal marine area, residential dwellings, places of assembly, urban areas, property boundaries, water abstraction points and registered drinking-water supplies;
(c) other measures to avoid, remedy or mitigate adverse effects (including cumulative effects directly related to the discharge of farm dairy effluent) on water quality taking into account the nature and sensitivity of the receiving environment.

(e) The discharge of farm dairy effluent to land outside of the soil/landscape categories identified on Map 1 of Appendix N or where, in the case of an application for the discharge of farm dairy effluent to land that was not being lawfully undertaken as at 17 July 2010 (including an increase in the scale of the activity, the

discharge is within Natural State areas, or waterways which feed into Natural State catchments, or areas classified as Lowland/Coastal Lakes and Wetlands in Appendix D is a discretionary activity.

(f) The discharge of farm dairy effluent to land within soil/landscape category C as identified on Map 1 of Appendix N or determined by farm-scale soils mapping undertaken by a suitably qualified person using high rate irrigation is a non-complying activity.

(g) Where the discharge of farm dairy effluent is to a mix of the soil/landscape categories identified on Map 1 of Appendix N, the status of the activity under Rules 50(a) to (e) will be determined by the soil/landscape category that has the highest consent test.

(h) Where the discharge of farm dairy effluent to land will occur using both high rate and low rate irrigation, the status of the activity under Rules 50(a) to (d) will be based on the low rate irrigation.

(i) An application for resource consent under clause (c) or (d) does not need to be notified and does not need to be served on persons who may be adversely affected by the activity unless the applicant requests notification or the Council considers special circumstances exist that warrant notification of the application.

Explanation

This rule gives effect to Policies 42 and 42A, which is to avoid adverse effects on water quality and other adverse environmental effects associated with the application of farm dairy effluent to land by matching farm dairy effluent management practices to receiving environment risk. As the level of environmental risk increases, so too does the activity status. At one end of the spectrum, farm dairy effluent discharges with a low environmental risk are provided for as permitted and controlled activities. This means that there is either no consent requirement or if consent if required, it must be granted and there is no requirement to obtain affected parties approvals unless special circumstances exist. At the other end of the spectrum, farm dairy effluent discharges with a high environmental risk are non-complying activities. A consent applicant for a non-complying farm dairy effluent discharge will need to supply detailed information showing that either the adverse effects of the farm dairy effluent discharge are no more than minor or that the discharge will not be contrary to the objectives and policies of this plan.

Distinction has been made in the Rule for activities that were authorised at time of notification of the plan change to provide for certainty based on capital investment in the activity. Rule 50 also provides encouragement to move to low rate irrigation systems, which are considered to be of lower risk to the environment. Where the existing activity is located on soil/landscape categories A, B, D and E and effluent will be irrigated via low rate systems, an application for consent will be considered as a controlled activity.

Clause (g) specifies that where a mix of soil/landscape categories is present, the category with the highest consent test will determine what activity status the farm dairy effluent discharge is. For example, if a farm dairy effluent disposal area is mainly soil/landscape categories E and D but also has a small area of category B and the discharge will be via high rate irrigation, the discharge will be a restricted discretionary activity under Rule 50(b) for activities that are authorised as the date of notification of the plan change. New activities, or activities that are an increase in scale, will be subject to Rule 50(d).

Similarly clause (g) notes that where both high rate and low rate irrigation will be used, the activity status will be based on low rate irrigation. For example, if a consent applicant is planning on discharging farm dairy effluent to soil/landscape category A and will use both low and high rate irrigation, the activity status will be a controlled activity under Rule 50(b). The use of a dual system is one means of effectively matching application depths to soil water deficits. For example, when soil moisture levels are high in the late spring, low rate irrigation can be used, while high rate irrigation can be used in the summer when soil moisture levels are low to empty the agriculture effluent pond faster than using low rate irrigation.

Consent applicants under this rule will be required to demonstrate that direct losses of faecal microbes and nutrients to water will be avoided by matching farm dairy effluent management to soil and landscape risk in accordance with Table 1 of Policy 42. In order to provide flexibility in meeting the management criteria contained in Table 1, Environment Southland has established three approaches for potential consent applicants as follows:

(1) Adoption of a default set of consent conditions designed to achieve the minimum criteria in Table 1, based on the soil/landscape category shown on Map 1 of Appendix N for the effluent disposal area; or

(2) Refinement of the default set of consent conditions based on farm mapping of the soil/landscape categories within the effluent disposal area and/or a property specific calculation of storage requirements; or

(3) Property and effluent system specific consent conditions based on a plan supplied by the consent applicant containing detailed information on the effluent disposal area and proposed effluent system, demonstrating how the minimum criteria in Table 1 will be met.

Rule 51 - Silage

Other relevant sections: Objectives 2-4, 9A-C, Issues 1, 4, 5A, Policies 1A, 3-4, 6, 31A-D, 44, Section 2.3.

(a) The use of land as a silage storage facility is a <u>permitted activity</u> provided the following conditions are met:

(i) the activity does not cause any discharge that results in a noxious, dangerous, offensive, or objectionable effect

beyond the boundary of the landholding on which silage is stored;

(ii) there is no overland flow of stormwater into the silage storage facility;

(iii) there is no discharge of contaminants from the silage storage facility to any water or naturally occurring wetland;

(iv) there are no adverse effects on recorded historic heritage sites;

(v) no part of the silage storage facility is within:

1. 50 metres of any surface water body or naturally occurring wetland, or any potable water abstraction point.
2. 100 metres of any dwelling or place of assembly, on another landholding constructed or in use prior to the silage storage facility being lawfully established.

Clause (a)(v) shall come into force as follows:

(i) for a silage storage facility lawfully established prior to 17 July 2010, on 17 July 2013;

(ii) for a silage storage facility lawfully established prior to 17 July 2010 where any contaminants from it are disposed of as part of an effluent discharge authorised by a discharge permit, on the date of expiry of that permit;

(iii) in other cases on the date of this Rule 51 becoming operative.

(vi) no part of the silage storage facility is on contaminated land;

(vii) no part of the silage storage facility is located on land that is made permanently or intermittently wet by the presence of springs, seepage, high groundwater, ephemeral streams, or flows of stormwater.

(viii) on any silage storage facility not complying with conditions (v) to (vii) above, all of the silage stored in it is on a sealed concrete pad with all silage leachate controlled, captured and managed in accordance with the provisions of other rules in the Regional Water Plan for Southland (2010).

(b) The use of land as a silage storage facility that does not comply with part (a), above is a <u>restricted discretionary activity</u> subject to the following conditions:

(i) no part of the silage storage facility is within:

1. 20 metres of a surface water body;
2. 50 metres of a dwelling, potable water abstraction point, or place of assembly, on another landholding;
3. 50 metres of the main stems of the Waiau, Aparima, Oreti or Mataura rivers, or inside flood banks of the main stems of these rivers (if present);
4. 200 metres of an abstraction point used for community water supply;

(ii) no part of the silage storage facility is within the Coastal Marine Area.

The Council will restrict its discretion to the following matters:

(i) measures necessary to prevent the discharge of silage leachate or other contaminants from the silage storage facility to water;
(ii) measures necessary to prevent noxious, dangerous, offensive, or objectionable effects beyond the boundary of the landholding on which silage is stored;
(iii) measures necessary to prevent inflows of stormwater, or infiltration from underlying seeps, springs, or groundwater;
(iv) the physical dimensions and location of the silage storage facility;
(v) measures necessary to avoid adverse effects on any historic heritage;
(vi) methods of containing any silage leachate that may be emitted prior to application to land, including volume of storage;
(vii) the duration of the activity;
(viii) information and monitoring requirements.

An application for resource consent under this rule does not need to be notified and does not need to be served on persons who may be adversely affected by the activity, unless the applicant requests notification, a resource consent is necessary to manage known or likely adverse effects on users of nearby landholdings, or the council considers that special circumstances exist that warrant notification of the application.

(c) The use of land as a silage storage facility that does not meet the conditions in b(i) and b(ii), above is a non-complying activity.

(d) The discharge of silage leachate onto or into land is a permitted activity, provided the following conditions are met:
(i) the discharge of silage leachate does not enter any water or naturally occurring wetland;
(ii) there is no noxious, dangerous, offensive, or objectionable effect beyond the boundary of the landholding onto or into which the silage leachate is discharged;
(iii) any discharge outside of a silage storage facility is not within:
1. 20 metres of a surface water body, artificial watercourse or the coastal marine area;
2. 100 metres of a place of assembly or dwelling not on the same landholding, or 20 metres of the boundary of any other landholding;
3. 100 metres of a water abstraction point;
(iv) any discharge outside a silage storage facility does not result in:
1. overland flow or ponding of silage leachate, or contamination of water;
2. depth of application in excess of 10mm for each individual application;
3. a loading rate of nitrogen from silage leachate in excess of 150 kilograms of nitrogen per hectare per year (150 kg N/Ha/yr);

4. any adverse effect on any recorded historic heritage sites;

(v) any silage leachate discharged to land within a silage storage facility is contained within the silage storage facility, or conveyed to an effluent management system.

(e) The discharge of silage leachate to land that does not comply with the conditions in (d), above is a discretionary activity.

Explanation

This rule gives effect to Policy 44, which encourages the use of land as a silage storage facility such that there are unlikely to be adverse effects on any water or naturally occurring wetland, or a noxious, dangerous, offensive, or objectionable effect beyond the boundary of the landholding on which silage is stored.

This rule targets the location and preparation of silage storage facilities as well as the discharge of silage leachate to land.

Part (a) of the rule

Part (a) of the Rule controls the use of land as a silage storage facility. Silage storage facilities include land that is used for loading of silage wagons, supporting animals that are directly feeding on silage, or other activities associated with the direct utilisation of stored silage.

Contaminants such as waste silage, silage leachate, sediment or excreta accumulate on land used for a silage storage facility. These contaminants must be contained and must not be able to enter any water or naturally occurring wetland.

It is particularly important to prevent in-flows of stormwater or infiltration of groundwater. The movement of water into a silage storage facility may wash accumulated contaminants out of the area, and cause accumulation of additional silage leachate, mud and waste silage. The most reliable way to exclude water is to site the silage storage facility on an elevated area. Drains can also be used to divert water, but care must be taken to ensure drains do not become a pathway for contaminants from the silage storage facility to surface water.

A transition period and a sunset clause are included to give users of some silage storage facilities additional time to achieve compliance with clause 51(a)(v). Clause 51(a)(v) will not apply to silage storage facilities:

- established before 17 July 2010 until 17 July 2013 (the transition period);
- established prior to 17 July 2010 where any contaminants from the facility are disposed of as part of an effluent discharge authorised by a discharge permit, until the date of expiry of that permit (the sunset clause).

Clause 51(a)(v) applies to silage storage facilities not provided for by the transition period or sunset clause immediately upon Rule 51 taking legal effect.

Silage should not be stored directly on contaminated land, because acid drainage from silage leachate may mobilise contaminants bound to the underlying soil. A definition of 'contaminated land' is included in the Glossary of this Plan.

Where conditions 51(a)(v) to (vii) cannot be met, additional measures such as the construction of a sealed concrete pad with all silage leachate controlled, captured and managed in accordance with the provisions of other rules in the Regional Water Plan for Southland (2010) are necessary. This means that structures or surface features must be in place to reliably control and capture any silage leachate that emanates from the silage and enable disposal in accordance with the conditions of relevant permitted activity rules or discharge permits.

Part (b) of the rule
Under part (b), the use of land as a silage storage facility that does not comply with part (a) of the rule is a restricted discretionary activity. Part (b) is intended to provide for situations where additional certainty is required beyond that already provided by the conditions of parts (a) and (c) (and associated explanations) of this rule.

Rule 51(b) includes a non-notification clause, the intent of which is to allow resource consents to use land as a silage storage facility to proceed without notification in instances where there is little or no risk of adverse environmental effects beyond the boundary of the subject landholding.

Where a resource consent is required it is appropriate, where practicable, to link the timing of the upgrading of the silage storage facility to other consented activities on the same landholding. This enables an efficient approach because consents investigation, hearings, construction activities, inspections and monitoring and so on can be undertaken in conjunction with each other.

Part (c) of the rule
Part (c) makes the use of land as a silage storage facility that does not comply with the conditions of part b(i), above a non-complying activity. The Council may only to grant a non-complying activity if it is satisfied that the adverse effects of the activity on the environment will be minor; or the application is for an activity that will not be contrary to the objectives and policies of this Plan.

Part (d) of the rule
To comply with part (d), it is necessary to locate, prepare, and manage the silage storage facility so that silage leachate does not escape the silage storage facility or reach any water or naturally occurring wetland. Furthermore the discharge must not result in any noxious, dangerous, offensive, or objectionable effects on occupants of nearby landholdings.

To comply with condition (d)(iii) it is essential that the application does not exceed the soil infiltration rate and soil water deficit at the time.

Part (e) of the rule

Part (e) of the rule makes the discharge of silage leachate to land that does not comply with part (d) above, a discretionary activity. This allows Council to exercise its full discretion when deciding on an application, and provides for the variety management systems that might arise during the life of the plan.

Advice notes:

1. *Transfer of silage leachate to a farm dairy effluent management system or a manure store is an efficient means of disposal so long as the resulting inputs of silage leachate and rainwater do not result in loss of ability to apply the stored material to land in accordance with consent conditions through effects such as loss of storage capacity or discharge of odour.*
2. *The construction (or moving) of structures may require a building consent from the territorial authority of the area.*

2.2.6 Landfills

Rule 53 – Cleanfill sites

Other relevant sections: Objectives 1-4, 8, Issues 1, 4, Policies 2-4, 6, 25, 46 and Section 2.3.

(a) The discharge of cleanfill into or onto land at a cleanfill site is a permitted activity provided the following conditions are met[24]:
   (i) the total amount of cleanfill discharged at all cleanfill sites on a landholding does not exceed 500 cubic metres;
   (ii) the discharge does not occur within:
      1. the bed of a lake or river;
      2. 50 metres of a surface water body, artificial watercourse, the coastal marine area, or landholding boundary;
      3. the flood banks of the Waiau, Aparima, Oreti or Mataura rivers, or 50 metres of the main stems of these rivers where flood banks are not present;
      4. 100 metres of a water abstraction point;
   (iii) there are no adverse effects on recorded historic heritage sites;
   (iv) stormwater is directed away from the discharge site.

(b) The discharge of cleanfill into or onto land at a cleanfill site that does not meet all of the conditions in Rule 53 (a) is a restricted discretionary activity.

The Council will restrict its discretion to the following matters:
   (i) prevention of inundation of any other person's landholding, sedimentation in any waterbody, erosion and land instability, or the restriction or diversion of flood flows or coastal water;
   (ii) site selection and effects on sensitive receiving environments;
   (iii) effects on historic heritage;
   (iv) design, construction and management of the cleanfill site;
   (v) post-closure management practices and procedures;
   (vi) information and monitoring requirements;
   (vii) the quantity of cleanfill to be discharged.

An application for resource consent under this rule does not need to be notified and does not need to be served on persons who may be adversely affected by the activity unless the applicant requests notification or the council considers special circumstances exist that warrant notification of the application.

Explanation

In general, cleanfill sites are areas where cleanfill is imported from outside of the landholding and either disposed of as waste or deposited for a purpose, such as small-scale land-raising. There are strict acceptance criteria for cleanfill materials and the discharge of cleanfill in small quantities at a cleanfill site has a low environmental risk and

[24] Southland's territorial authorities may have separate consent requirements for this type of activity.

requires only limited management. The environmental risk increases with the quantity of material discharged.

In some cases, evidence will be required to prove the materials meet the definition. A discharge of cleanfill may contain only negligible quantities of non-hazardous material that cannot readily be separated from the cleanfill. The discharge of cleanfill into a farm landfill must comply with the conditions in Rule 54.

Rule 54 – Farm landfills

Other relevant sections: Objectives 1-4, 8, Issues 1, 4, Policies 2-4, 6, 25, 46 and Section 2.3.

(a) The discharge of contaminants into or onto land at a farm landfill is a permitted activity provided the following conditions are met:

(i) the discharge is derived from the same landholding on which the farm landfill is located;

(ii) the discharge does not include septic tank sludge, dairy farm sludge, liquids, carcasses, offal, or a hazardous substance (other than those in tanalised timber, furniture and furnishings);

(iii) the discharge does not occur within:

1. the bed of a lake or river;
2. 50 metres of a surface waterbody, artificial watercourse, or the coastal marine area;
3. the flood banks of the Waiau, Aparima, Oreti or Mataura rivers, or 50 metres of the main stems of these rivers where flood banks are not present;
4. 100 metres of a water abstraction point, dwelling, place of assembly, or landholding boundary;

(iv) there are no adverse effects on recorded historic heritage sites;

(v) stormwater is directed away from the discharge site;

(vi) the farm landfill does not intercept a spring or is not excavated below the seasonal mean groundwater level in that location;

(vii) as each section of the farm landfill becomes full or unused, the discharges are covered and the surface restored to a similar state as the surrounding land;

(viii) From 1 November 2015, the discharge does not occur within:

1. the microbial health protection zone of a drinking water site identified in Appendix O;

or, where no such zone is identified, then

2. 250 metres of the abstraction point of a drinking water site identified on Map 1 in Appendix O.

(b) The discharge of contaminants into or onto land at a farm landfill that does not meet all of the conditions in Rule 54 (a) is a discretionary activity.

Explanation
The discharge or disposal of farm waste at a farm landfill is common practice in Southland but the potential adverse effects on the environment means that it requires management. The on-farm disposal of dead stock requires a separate site and must comply with the conditions in Rule 55.

In general, any farm waste that contains a hazardous substance should not be disposed on at a farm landfill, such as agrichemicals, oil and paint, containers with hazardous residues, batteries, treated wood ash, motor vehicles, and tyres. The exception is tanalised timber, furniture and furnishings, and although the disposal of such items is allowed, they should be taken to a waste transfer station for disposal at the Regional landfill where it is practical to do so. Similarly, while the rule allows for the disposal of agricultural plastic wrap, it should be recycled using options, such as the Agrecovery silage wrap programme, where practicable. Discharges to a farm landfill must not create a nuisance under the Health Act 1956. Environment Southland can provide practical advice for how to prevent this occurring.

Rule 55 – Dead holes (offal pits)

Other relevant sections: Objectives 1-4, 8, Issues 1, 4, Policies 2-4, 6, 25, 46 and Section 2.3.

(a) The discharge of a carcass or offal into or onto land at a dead hole is a permitted activity provided the following conditions are met:

(i) the carcass or offal is derived from the same landholding on which the dead hole is situated or the activity is carried out by a local authority or government agency in the exercise of their statutory powers;

(ii) the discharge does not include any contaminant other than carcasses, offal, or a compost bulking agent;

(iii) the discharge of a carcass or offal does not occur within:

1. the bed of a lake or river (including ephemeral streams), a gully, or a swale;
2. 50 metres of a surface waterbody, artificial watercourse, or the coastal marine area, or 150 metres of a surface waterbody where the discharge is to loose gravels;
3. the flood banks of the Waiau, Aparima, Oreti or Mataura rivers, or 50 metres of the main stems of these rivers where flood banks are not present;
4. 100 metres of a water abstraction point other than a registered drinking water supply, or 200 metres where the discharge is to loose gravels;
5. 100 metres of a dwelling, place of assembly, or landholding boundary;

(iv) there are no adverse effects on recorded historic heritage sites;

(v) stormwater is directed away from the discharge site;

(vi) the dead hole does not intercept a spring or is not excavated below the seasonal mean groundwater level in that location;

(vii) the carcass or offal does not contact naturally formed limestone rock;

(viii) From 1 November 2015, the discharge does not occur within:

1. the microbial health protection zone of a drinking water site identified in Appendix O;

or, where no such zone is identified, then

2. 250 metres of the abstraction point of a drinking water site identified on Map 1 in Appendix O.

(b) The discharge of a carcass or offal into or onto land at a dead hole that does not meet all of the conditions in Rule 55(a) is a discretionary activity.

(c) Notwithstanding the provisions of Rule 55(a) the discharge of the carcass of, or offal from, a single animal into or onto land is a permitted activity provided the following conditions are met:

(i) the carcass or offal cannot be reasonably disposed of in accordance with the conditions in Rule 55(a);

(ii) the carcass or offal is derived from the same landholding;

(iii) the carcass or offal is buried in a shallow pit that has no water in it and is immediately and completely covered by sufficient soil or plant material so as to prevent discharge of odour to air, or other nuisance;

(iv) the carcass or offal burial does not occur within:

1. 20 metres of surface water or a water abstraction point;
2. 20 metres of a dwelling, place of assembly, or landholding boundary;

(v) there are no adverse effects on recorded historic heritage sites.

(d) The discharge of the carcass of, or offal from, a single animal into or onto land that does not meet all of the conditions in Rule 55(c) is a discretionary activity.

Explanation

Offal pits, or "dead holes" as they are commonly referred to in Southland, are used for the on-farm disposal of dead stock across the Region. Decomposing carcasses and offal release intense discharges of pathogenic microbes and have a high level of environmental risk, particularly for human health, either through direct contact or contamination of potable water supplies.

The on-farm disposal of all other farm waste, including containers, requires a separate disposal site and must comply with the conditions in Rule 54. There are alternatives to the burying of dead stock, such as composting or collection services, but these are not yet available throughout the year or in all areas.

The discharge of a carcasses; or offal must not create a nuisance under the Health Act 1956, and in particular, it must not be injurious to human health. Situations that can create risks to human health include microbial contamination of potable water supplies, infestations of vermin and other disease carriers, and the decomposition of stock on the surface. Where this occurs then either the Medical Officer of Health or Health Protection Officer at Public Health South should be notified.

Rule 56 – Landfills

Other relevant sections: Objectives 1-4, 8, Issues 1, 4, Policies 2-4, 6, 25, 46 and Section 2.3.

Except as provided for elsewhere in this Plan, the discharge of contaminants into or onto land at a landfill is a discretionary activity.

Explanation

Landfills are usually industrial and trade premises that deal with large quantities of municipal waste, construction and demolition waste that is not cleanfill, and some industrial waste. Landfills can also be monofills, associated with a specific industry or location. Discharges of contaminants at a landfill have a high risk to the environment and human health but most landfills now have strict environmental controls to manage these risks at the time of discharge. A landfill does not include sites used for the temporary storage or stockpiling of waste (such as at a waste transfer station recycling facility, or composting) or where waste is used for a purpose, such as when cleanfill materials are used for land-raising activities.

A Landfill Management Plan commensurate to the scale of the activity and its potential effects must be prepared as part of any resource consent application. Details of the requirements for a Landfill Management Plan are included in Appendix A. Hazardous waste may be discharged at a Class A landfill where it meets the landfill's waste acceptance criteria. There are specific rules for discharges to cleanfill sites, farm landfill, and dead holes (offal pits).

2.2.7 Land Contamination

Rule 57 - Land Contaminated by a Hazardous Substance

Other relevant sections: Objectives 1-4, 8, Issues 1, 4, Policies 2-4, 6, 25, 47, 48 and section 2.3.

(a) The discharge of contaminants from land contaminated by a hazardous substance onto or into land in circumstances which may result in contaminants entering water is a permitted activity provided:

(i) the hazardous substance in the discharge results from the application of a fertiliser or agrichemical to the land authorised by a rule in a regional plan for Southland or a resource consent; or

(ii) The discharge does not result in a breach of:

the Australia and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC) 2000 at the level of protection set in that Standard for 80% of species, except for benzene where the level of protection is 90% of species (i.e. 1mg/litre);

at the nearest of:

- 50 metres;
- the landholding boundary;
- any point immediately adjacent to a surface water body, artificial watercourse, or water abstraction bore (excluding monitoring bores);

from the discharge; and

(iii) the discharge does not result in a breach of the Drinking Water Standards for New Zealand 2005 (Revised 2008) in any bore utilised for potable supply, except where the ambient water quality naturally breaches those Standards and the discharge does not result in any further degradation of the water quality.

(b) The discharge of soil from land contaminated by a hazardous substance onto or into land in circumstances which may result in those contaminants entering water is a permitted activity provided:

(i) the hazardous substance in the soil results from the application of a fertiliser or agrichemical to the land authorised by a rule in a regional plan for Southland or a resource consent; or

(ii) the soil is being returned to the excavation or site from which it was taken.

(c) The discharge of contaminants or soil from land contaminated by a hazardous substance that does not meet all of the conditions in Rule 57(a) or (b) is a discretionary activity.

Explanation
Discharges from land contaminated by a hazardous substance may present risks to water quality and aquatic ecosystems. Discharges of soil from land containing a hazardous substance may create new sites of land contamination.

Under Rule 57(a), a discharge is allowed where specific conditions relating to drinking water standards and the protection of aquatic ecosystems are met at the point where the discharge is measured (e.g. 50 metres). A measurement point may be within the site of contamination, beyond the contamination site, or both. Environment Southland can provide guidance to clarify the point of measurement at which the permitted activity conditions must be met in each case. The level of protection for aquatic species is set at 80% because the discharge is assessed before it comes into contact with surface water and dilution occurs. The level for benzene is established at a more conservative level due to the potential for more than minor effects at the 80% protection level with regard to vapour intrusion risks. Compliance with the permitted activity conditions may change over time because discharges can vary and there can be fluxes of contamination. However, it is expected that any monitoring in support of permitted activity status would demonstrate the plume is stable or is unlikely to breach the permitted activity conditions.

The concentration and type of contamination found in soils on a site may provide sufficient evidence that contamination is highly unlikely to be present at the point of compliance at a level sufficient to breach the standards contained in Rule 57(a)(i) and (ii). Fate and transport modelling of contaminants in groundwater, based on conservative scenarios, may provide additional assurance that groundwater concentrations are likely to comply with the thresholds without the need for establishing a groundwater monitoring bore. Supplying the Council with a detailed site investigation, as defined in the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health, encompassing the matters above is a means of demonstrating compliance with the permitted activity conditions in Rule 57(a).

Rule 57(b) specifies locations at which the discharge of soil is allowed. Any discharge that cannot comply with the conditions in either Rule 57(a) or (b) will require a resource consent under Rule 57(c). Landuse activities on potentially and actually contaminated land are regulated under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health. To gain a resource consent it will be necessary to assess the risk from the discharge(s) to the environment and to adopt the best practicable option for managing that risk. Where the best practicable option is successfully adopted the landowner can request that this information is recorded on the Council's

Register of Sites Associated with Hazardous Substances (SAHS) in Southland.

This rule is intended to apply to land contaminated by a hazardous substance (for example, as a result of a historical spill or leak of hazardous substances). Clauses (a)(i) and (b)(i) of Rule 57 clarify that the rule does not apply to discharges from land containing a hazardous substance resulting from the application of fertilisers or agrichemicals to the land authorised by a rule in a regional plan or resource consent as part of normal farming practice.

Rule 58 – Closed landfills

Other relevant sections: Objectives 1-4, 8, Issues 1, 4, Policies 2-4, 6, 25, 47, 48 and Section 2.3.

Notwithstanding Rule 57 -

(a) The discharge of contaminants from a closed landfill onto or into land in circumstances which may result in those contaminants entering water is a permitted activity provided the following conditions are met:
   (i) a risk assessment of the closed landfill is carried out in accordance with the risk screening system developed by Ministry for the Environment[25] and shows that the environmental risk is low;
   (ii) a copy of the risk assessment is lodged with the Southland Regional Council by 1 November 2015.

(b) The discharge of contaminants that does not meet all of the conditions in Rule 58(a) is a restricted discretionary activity provided the following conditions are met:
   (i) a risk assessment of the closed landfill is carried out in accordance with the risk screening system developed by Ministry for the Environment[26];
   (ii) a copy of the risk assessment is lodged with the Southland Regional Council by 1 November 2015.

   The Council will restrict its discretion to the following matters:
   1. nature, concentration, toxicity and quantity of contaminants at the site;
   2. potential for the mobilization of contaminants and any adverse environmental effects;
   3. current or proposed land use both on and adjacent to the site and restrictions on future uses of the site;

[25] The current risk screening system for closed refuse disposal facilities <15,000 m3 MSW is contained in the document *Small Landfill Closure Criteria – Risk Assessment for Small Closed Landfills* (MfE, 2002) and for closed refuse disposal facilities >15,000 m³ MSW in the procedures set out in the document in *A Guide to the Management of Closing and Closed Landfills in New Zealand* (MfE, 2001).

[26] The current risk screening system for closed refuse disposal facilities <15,000 m3 MSW is contained in the document *Small Landfill Closure Criteria – Risk Assessment for Small Closed Landfills* (MfE, 2002) and for closed refuse disposal facilities >15,000 m³ MSW in the procedures set out in the document in *A Guide to the Management of Closing and Closed Landfills in New Zealand* (MfE, 2001).

4. geological nature and history of the site;
5. adverse effects on recorded historic heritage sites;
6. information and monitoring requirements.

An application for resource consent under Rule 58 (b) does not need to be notified and does not need to be served on persons who may be adversely affected by the activity unless the applicant requests notification or the Council considers special circumstances exist that warrant notification of the application.

(c) From 1 November2015 the discharge of contaminants that does not meet all of the conditions in Rule 58(a) or (b) is a discretionary activity.

Explanation

Discharges of contaminants from closed landfills can have adverse effects on water quality and aquatic ecosystems if there were not the necessary environmental controls in place at the time of discharge. Although a discharge from a closed landfill is the continuation of some past activity, it is the responsibility of the current landowner of the site to ensure that all of the risk assessment and consenting requirements of Rule 58 are met.

Consent holders with current resource consents to discharge contaminants from a closed landfill have the option to undertake a risk assessment of the landfill. If the outcome of that assessment shows the landfill to be low risk then they can surrender their permit and the landfill can continue to discharge under the permitted activity in Rule 58 (a). For the avoidance of doubt, Rule 58 controls the discharge of contaminants from a closed landfill. It is a specific rule that overrides the generic provisions of Rule 57.

2.3 Non-Regulatory Approach

An implementation strategy is needed to ensure that non-regulatory methods for achieving environmental outcomes are planned for and incorporated into the Annual Plan process. Not all targets for non-regulatory methods, or not all waterbodies or activities can be targeted every year. It must be remembered that other Plans produced by Environment Southland will have non-regulatory projects that also need to be funded to achieve the Environmental Outcomes for those Plans. It must also be remembered that many of the targets for non-regulatory methods in the Water Plan will need to be funded over a number of years if they are to achieve the environmental outcomes they are targeting. These factors imply a strategic planning approach to achieving the environmental outcomes.

The process that the implementation strategy should adopt for implementing non-regulatory methods is as follows:

1. identify what problems the Water Plan has identified that non-regulatory methods will target e.g. for Water Quality – for each waterbody type e.g. Natural State, hill country and lowland: (the problems may include preventing human induced sediment getting into waterbodies, reducing high levels of E.coli and disease-causing micro-organisms (such as other bacteria, viruses and protozoa), reducing the amount of phosphorus or nitrogen getting into water, increasing shading and therefore reducing summer high temperatures in lowland streams). The problems relate to what is preventing each waterbody type and/or each waterbody from achieving the objectives/environmental outcomes identified in the Plan;

2. prioritise - in order of which problem is the most significant in terms of preventing achievement of the objective for each waterbody type. Prioritise waterbodies – do we first attempt to address those in the worst condition or at the most risk of deterioration?

3. identify who needs to be targeted/who has the ability to do something about the problem) to achieve change in attitude/behaviour desired to help achieve the environmental outcome for that waterbody type/waterbody;

4. identify the most appropriate non-regulatory tools to address each problem/waterbody under the relevant circumstances. Prioritise most effective use of tools/money to achieve desired result;

5. link with monitoring part of implementation strategy to assess effectiveness of method;

6. each year identify in the Annual Plan which non-regulatory tools will be used to address which problems in which areas.

The non-regulatory toolbox includes but is not restricted to:

Water Quality

(a) Rewards for good practice – recognition, rates relief, rates rebates.
(b) Incentives for good practice – subsidies, grants, rates rebates, assistance with labour, materials, pest control.
(c) On-site advice from Environment Southland staff e.g. on appropriate best management options, species advice for planting in riparian areas etc.
(d) Promotion of Best Management Practices – local and/or National Codes of Practice etc.
(e) Promotion and recognition of appropriate Environmental Management Systems and Programmes.
(f) Identification and promotion of windows of opportunity or work windows.
(g) Encourage and support research and investigations into methods of managing the adverse effects of land use activities on water quality.

Water Quantity

(a) Promote and encourage the efficient use of water, water conservation and water harvesting techniques.
(b) Educate, distribute information and improve public awareness of water quantity issues.
(c) Undertake research and investigation into the quantity of Southland's water resource, including that into scientific assessment methods for setting minimum flow requirements.

Groundwater Quality

(a) Promote the use of national codes of practice (for example, drilling standards, fertiliser application, agrichemical use).
(b) Identify, promote and facilitate best management practices for land use activities that result in non-point source discharges to groundwater.
(c) Investigate the use of well-head protection areas (for example, for municipal supply wells), and identify, promote and facilitate best management practices for well-head protection.
(d) Work with district councils to develop joint approaches to, and integrated management of, groundwater quality issues.
(e) Work with industry groups to develop environmental management systems/quality management systems for groundwater quality.
(f) Educate, distribute information and improve public awareness of groundwater quality issues.
(g) Provide information, advocacy and advice through land sustainability officers/field workers.

(h) Encourage land users to upgrade existing bores and wells to the appropriate standard, and to properly seal disused or decommissioned bores and wells.
(i) Encourage and support research and investigations into methods of managing the adverse effects of land use activities on water quality.

Groundwater Quantity

(a) Promote the efficient use of groundwater.
(b) Educate, distribute information and improve public awareness of the groundwater quantity issue.
(c) Investigate the use of allocation plans.
(d) Undertake research and investigation into the quantity of Southland's groundwater resource, including that into aquifer systems.

Structures and Bed Disturbance

(a) Identify, promote and facilitate the use of codes of practice/best management practices for river and lake bed activities, with a particular priority on:
    (i) riparian management and stock grazing near rivers, modified watercourses, streams or lakes;
    (ii) sustainable drainage management;
    (iii) sustainable gravel extraction;
    (iv) vehicle and stock crossings.
(b) Promote and encourage appropriate fencing, riparian management and stock grazing practices through the use of incentives and education.
(c) Provide technical advice and assistance in the areas of fencing, riparian management and stock grazing practices.
(d) Discourage unsustainable practices by undertaking enforcement procedures in cases of significant adverse effect on the environment.
(e) Promote and encourage the adoption and implementation of an Accidental Discovery Protocol for all activities that disturb the beds of rivers and lakes.

Wetlands

(a) Encourage the establishment and maintenance of riparian margins to reduce non-point source discharges into wetlands.
(b) Promote and facilitate the use of Best Management Practices (BMPs) to prevent or reduce sediment inputs into wetlands.

Investigate and promote the development and introduction of a combined regional and district plan to provide for the integrated management of wetlands.

Discharges from Industrial and Trade Premises

(a) The Council will promote the development of codes of practice, protocols and accords, involving territorial authorities, industry, the Southland Regional Council and other parties as appropriate, relating to discharges of effluent from industrial and trade premises to land.

(b) The Council will undertake regular auditing of industrial and trade premises and discharges of contaminants to land as part of an environmental monitoring programme.

(c) The Council will facilitate research and investigation into the environmental risks of effluent discharges from industrial and trade premises to land and develop appropriate management procedures and consent conditions for discharges deemed to be in areas of high risk.

(d) The Council will gather information on the number, extent and scope of minor industrial and trade premises in the region.

Discharges at Cleanfill Sites and Landfills

(a) Identify, promote and facilitate the use of good management practices for the discharge of waste and cleanfill.

(b) Develop good management practice guidelines to guide decisions about site selection, construction and operation of cleanfill sites, farm landfills and dead holes.

(c) Educate, distribute information and improve public awareness of the adverse effects of inappropriate discharges of waste and cleanfill.

(d) Promote awareness and encourage use of an Accidental Discovery Protocol for historic heritage sites.

(e) Provide information, advocacy and advice through land sustainability officers / field workers on alternative disposal methods to farm landfills and dead holes.

(f) Develop and maintain a pollution prevention guide for industry and households for the management of waste containing hazardous substances.

(g) Encourage appropriate discharges of cleanfill on a small-scale (less than 500 cubic metres) for land raising activities where the effects are managed appropriately.

(h) Use national and industry guidelines and protocols for managing landfills and cleanfills in assessing discharges of waste or cleanfill as relevant.

(i) Work with Southland territorial authorities, central government and industry to collect information on the transportation and disposal of waste containing hazardous substances in the Region.

(j) Work with Southland territorial authorities to promote the development of facilities for the safe disposal of hazardous substances as waste and ensure consistency in its disposal.

(k) Support industry-led schemes to manage waste containing hazardous substances, especially agrichemical product

stewardship schemes to prevent the inappropriate disposal of unused agrichemicals and their containers.

(l) Support the concept of generator responsibility for the appropriate treatment and disposal of hazardous substances and the use of WasteTrack to control the movement and disposal of hazardous substances as waste.

Discharges from Land Contamination and Closed Landfills

(a) Investigate land to identify and monitor land contamination and contaminated land, in accordance with its function under section 30(ca) of the RMA.
(b) Educate, distribute information and improve public awareness of potentially and actually contaminated land.
(c) Promote the use of national guidelines published or endorsed by the Ministry for the Environment for assessing and managing potentially and actually contaminated land as relevant.
(d) Work with Southland Territorial Authorities to develop a Contaminated Land Information Management Strategy.
(e) Encourage landowners, or parties with liability for land, to investigate potentially contaminated land and manage any land that is having more than minor adverse effects.
(f) Seek information from landowners, consultants, other sources about site investigations of potentially and actually contaminated land.
(g) Manage potentially and actually contaminated land in full consultation with landowners and affected parties.
(h) Assist landowners in how to carry out a risk assessment of a closed landfill.
(i) Assist landowners in applying to the Ministry for the Environment's Contaminated Sites Remediation Fund where management of land is required but no liable party can be found.
(j) Manage all information on potentially and actually contaminated land in a manner that reflects its sensitive nature as far as practicable. *Public access to this information will be subject to the provisions of the Local Government Official Information and Meetings Act 1997.*
(k) Develop and maintain a register of information on Sites Associated with Hazardous Substances (SAHS) and recognise any change in status, including where the best practicable option for managing the land has been successfully adopted.
(l) Identify priority sites where there is potentially contaminated land for investigation.

2.4 Financial Contributions

2.4.1 Introduction

Where Environment Southland grants a resource consent under the rules in this Plan, it may impose a condition requiring that a financial contribution be made for the purposes specified in the Plan.

Environment Southland's responsibilities under the Act are:

> *"A consent authority must not include a condition in a resource consent requiring a financial contribution unless –*
> *(a) the condition is imposed in accordance with the purposes specified in the Plan or proposed plan (including the purpose of ensuring positive effects on the environment to offset any adverse effect); and*
> *(b) the level of contribution is determined in the manner described in the Plan or proposed plan." (Section 108(10) RMA)"*

Financial contributions may be required for the purposes specified in Section 2.4.2 of the Plan.

All monies collected under the financial contributions regime of the Plan are collected by Environment Southland for use in reasonable accordance with the purposes for which the money was received. When deciding how those contributions should be levied, consideration will be given to matters contained in public submissions on a resource consent application.

The provisions which follow reflect the requirements of the Act and set out:

1. the circumstances when such contributions may be imposed;
2. the purposes for which such contributions may be required and used;
3. the manner in which the amount of the contribution will be determined; and
4. matters which Environment Southland will have regard to when deciding whether to impose a financial contribution, the type or types of contribution, and the amount of any contribution, and the general provisions that would apply.

2.4.2 Circumstances, purpose and amount

Financial contributions may, in certain instances, be imposed on a resource consent in the circumstances and for the purposes set out below. Contributions of money to Environment Southland must be used in reasonable accordance with the purposes for which the contribution was taken.

The following provisions set out circumstances and purposes for which financial contributions may be imposed and used, and the manner in which the amount of the contribution will be determined is also set out. The determination of amount provides criteria to assist in deciding the actual quantum of the financial contribution to be required, rather than any arbitrary dollar amount or percentage of project value, neither of which may reasonably relate to the degree of adverse effects or the potential significance of the project.

1. **Maintenance or improvement of public access to and along rivers and lakes**

   Circumstances – Where public access to or along rivers or lakes will be limited or prevented by the activity for which consent is granted.

   (a) **Purposes** – To offset such effects by providing for public access to or along rivers or lakes through or around the area to which the consent applies.

   Determination of amount – The amount of contribution will be determined by calculating the fair and reasonable costs inherent in the acquisition and vesting of land, or an interest in land, to give effect to alternative public access to a reasonably equivalent standard necessary to compensate for access that will be lost or reduced due to the proposed activity, or shall comprise the vesting of sufficient land, or the vesting or creation of a sufficient interest in land, to compensate for access that will be lost or reduced due to the proposed activity.

   (b) **Purposes** – To offset or compensate for reduction or loss of access by contributing to the costs of, or providing, sufficient land, or a sufficient interest in land, for new or enhanced access to or along another part of the river or lake within the same general locality, or serving the same general community, to compensate for access that will be lost or reduced due to the proposed activity.

   Determination of amount – The amount of contribution will be determined by calculating the fair and reasonable costs inherent in the acquisition and vesting of land to give effect to alternative public access to a reasonably equivalent standard necessary to compensate for access that will be lost or reduced, or shall comprise the vesting of sufficient land, or the vesting or creation of a sufficient interest in land, to compensate for access that will be lost or reduced due to the proposed activity.

2. **Protection, restoration or enhancement of river and lake beds**

Circumstances - Where the activity for which consent is granted is likely to cause or contribute to adverse effects on river and lake beds.

(a) **Purposes** – To offset the adverse effects of the activity by providing land, or an interest in land, for the purposes of protecting, restoring or enhancing river and lake beds or contributing to the cost of protecting, restoring or enhancing river and lake beds, including (without limitation) maintenance and planting of vegetation, sediment replenishment, erosion protection works, and fencing, and including contribution to such measures elsewhere in the same general locality.

Determination of amount – The amount of contribution will be determined by calculating the fair and reasonable contribution to the costs of maintenance and planting of vegetation, sediment replenishment, erosion protection works, fencing and/or river and lake bed protection appropriate to compensate for the adverse effects of the proposed activity on river and lake beds taking into account any positive effects of the proposed activity on the protection, restoration or enhancement of river and lake beds.

3. **Protection, maintenance or restoration of heritage values and of places, areas, or features of importance to Tāngata whenua**

Circumstances – Where the activity for which consent is granted will adversely affect places, areas, buildings or features of special historical, archaeological, architectural, scientific, ecological or intrinsic value (including trees or areas of vegetation with such values) and places, areas or features of importance to tāngata whenua for spiritual, cultural or historical reasons.

(a) **Purposes** - To offset such effects by protecting, maintaining or restoring the place, area, building or feature and/or to offset such effects by contributing to protection, maintenance or restoration of some alternative place, area, building or feature elsewhere in the same general locality.

Determination of amount – The amount of contribution will be determined by calculating the fair and reasonable costs of protecting or restoring such place, area, building or feature and/or contributing to the costs of protecting or restoring some alternative place, area, building or feature in the same general locality with the same or similar values to an extent appropriate to compensate for the adverse effects caused by the proposed activity.

4. **Landscaping or planting**

Circumstances – Where the activity for which consent is granted is likely to cause or contribute to adverse effects on visual amenities and/or involves land clearance or disturbance.

(a) **Purposes** – To offset the adverse effects of land clearance, land disturbance and structures by landscaping or replanting in the general locality of the site in question.

Determination of amount – The amount of contribution will be determined by calculating the fair and reasonable costs of carrying out landscaping or replanting on land in the general locality of the site in question to an extent appropriate to compensate for the adverse effects on visual amenities arising due to clearance or disturbance of land or the erection of new structures

5. **Fencing or screening**

Circumstances – Where the activity for which consent is granted is likely to contribute to adverse effects on visual amenities, or conservation areas.

(a) **Purposes** – To offset adverse visual effects by fencing or screening to protect and/or separate conservation areas; areas where vegetation has been removed; and areas on land or within lake and riverbeds used privately or publicly for recreational or residential purposes.

Determination of amount – The amount of contribution will be determined by calculating a fair and reasonable contribution to the costs of fencing or screening the visual amenities or conservation areas to compensate for the adverse visual effects on them caused by the proposed activity.

6. **General – mitigation works**

Circumstances – Where the activity for which consent is granted will cause or contribute to adverse effects on the environment which will not be adequately offset by any of the types of contribution described elsewhere in this section.

(a) **Purposes** – To offset the adverse effects of the activity, including protection, and/or restoration of natural or physical resources.

Determination of amount – The amount of contribution will be determined by calculating a fair and reasonable level of contribution to the costs of undertaking works which are reasonably necessary to avoid, remedy or mitigate the adverse effects of the activity on the environment, including

where appropriate works to protect, and /or restore natural or physical resources.

7. **General – environmental compensation**

Circumstances – Where the activity for which consent is granted will have adverse effects which will not be adequately avoided, remedied or mitigated and those effects can be offset by positive effects elsewhere.

(a) **Purposes** – To provide positive effects to offset adverse effects of the activity on the environment by protecting, restoring and/or enhancing natural and physical resources and/or amenity values.

Determination of amount – The amount of contribution will be determined by calculating a fair and reasonable level of contribution to the costs of undertaking works to protect, restore and/or enhance natural and physical resources and/or amenity values which would have positive effects that would appropriately offset the adverse effects of the activity on the environment.

2.4.3 Matters to be considered

In deciding whether or not to impose financial contributions or the types of contribution or the amount of any contribution, Environment Southland will have particular regard to the following matters:

1. The purpose of the financial contribution is to offset or compensate the community or environment for adverse effects caused or contributed to by the activity and not otherwise avoided, remedied or mitigated by the consent holder;

2. Whether adverse effects are likely to occur notwithstanding any avoidance, remedy or mitigation undertaken;

3. Whether the adverse effects for which a contribution is imposed cannot be avoided, remedied or mitigated directly by project design or, in the case of a discharge, adoption of the best practicable option for preventing or minimising the effects;

4. Whether the adverse effects are of such significance that to allow the activity (with or without a financial contribution) would be contrary to the purpose of the Act;

5. The circumstances and extent of financial contributions previously imposed in relation to the activity, either by this Council or any other consenting authority;

6. Whether granting a resource consent and requiring a financial contribution would be more effective in achieving the purpose of the Act (including recognition of the economic and social benefits of the activity) and the objectives and policies of this Plan than declining consent or granting a consent without a condition requiring a financial contribution;

7. Financial contributions shall relate to the effects of the activity for which consent is granted and be in reasonable proportion to the significance of any adverse effects caused or contributed to by the activity.

8. Financial contributions may not be appropriate in every case, even where there are adverse effects.

9. Environment Southland does not intend that adverse environmental effects must be fully mitigated or fully compensated in every case by way of financial contributions.

2.4.4 General Provisions

In imposing a financial contribution, the following general provisions will apply:

1. All financial contributions shall be GST inclusive.

2. Where the financial contribution is, or includes, a contribution of land, it must be land, or an interest in land, that is owned by the applicant and which the applicant can transfer without requiring the consent or agreement of a third party. The applicant is not required to enter into third party access agreements in order to provide the financial contribution.

3. Where the financial contribution is, or includes, a payment of money, Environment Southland may specify in the condition:

   (a) the amount to be paid by the consent holder;
   (b) how payment is to be made, including whether payment is to be made by instalments;
   (c) when payment shall be made;
   (d) whether the amount of the payment is to bear interest and, if so, the rate of interest; and
   (e) if the amount of the payment is to be adjusted to take account of inflation and, if so, how the amount is to be adjusted.

4. Where the financial contribution is, or includes, land, the value of the land shall be determined by a valuation undertaken by a registered valuer unless Environment Southland and the parties otherwise agree.

5. Where the financial contribution is, or includes, land Environment Southland may specify:

   (a) the location and the area of the land; and
   (b) when and how the land is to be transferred to, or vested in, Environment Southland.

3 Outcomes We Expect to Achieve

3.1 Water Quality and Quantity

3.2 Groundwater

3.3 Activities in River Beds (including beds of streams and modified watercourses)

3 Outcomes We Expect to Achieve

The outcomes expected[27] to be achieved through the adoption of the rules, policies and methods are:

3.1 Water Quality and Quantity

Long-term (looking out beyond the 10-year life of this Plan)

(1) The water quality of all surface water bodies in the region will be suitable for contact recreation, trout and native fish (including all life stages the water body naturally contains habitat for), stock drinking water and Ngāi Tahu cultural values, including mahinga kai.

Short-term (indicators of progress towards the long-term outcome that are expected to be achieved within the 10-year life of this Plan)

2. There will be no reduction of water quality in the Southland region beyond the zone of reasonable mixing for discharges.

3. Water quality will be maintained in Natural State Waters.

4. The water quality of surface water bodies will be maintained and enhanced so that it is suitable for bathing in popular bathing sites, trout and native fish, stock drinking water and Ngāi Tahu cultural values, including mahinga kai.

5. An improvement in the water quality and in particular a minimum 10 percent reduction in levels of microbiological contaminants, nitrate and phosphorus and a minimum 10 percent improvement in water clarity will be achieved in hill, lowland and spring-fed surface water bodies over 10 years from the date this Plan became operative (January 2010).

6. Discharges to water bodies will not result in levels of toxic substances that harm humans, domestic animals including stock or aquatic life.

7. Wherever practicable, and where effects are less adverse, discharges will be to land rather than to water.

8. The significant adverse effects of discharging during low flows are avoided.

[27] These outcomes are the equivalent of anticipated environmental results.

9. The number of surface water bodies with riparian vegetation that assists in maintaining and enhancing water quality, bank and channel stability is significantly increased.

10. Stormwater discharges will meet water quality standards and current ANZECC sediment guidelines by 2010.

11. Freshwater quality does not have an adverse effect on coastal water quality.

12. The establishment of new dairy farms is undertaken in accordance with good management practices and does not result in water quality decline in the region.

Water Quantity Outcomes
(see also Section 3.2 Groundwater Outcomes)

13. Water quantity, flow and level regimes, and the quality and quantity of aquatic habitat are maintained at levels that protect aquatic ecosystem health and the life-supporting capacity of surface water bodies.

14. River and stream flows, and wetland and lake water levels, are maintained at levels that do not cause significant adverse effects on aquatic habitats, areas of significant indigenous vegetation, significant habitats of indigenous fauna, natural character, natural features and amenity, aesthetic and landscape values.

15. As a minimum, there is no net reduction in the integrity and diversity of aquatic and riverine ecosystems, including fish and wildlife habitat. Restoration of degraded habitats and creation of new habitats can offset losses.

16. The reasonable needs of existing and future water users are met.

17. Surface water abstraction, damming, diversion and use does not result in surface water flows/levels less than prescribed minimum flows/levels or surface water allocation regimes being exceeded and does not compromise the availability and reliability of supply for existing users.

3.2 Groundwater

Groundwater Outcomes
(see also Section 3.1 Water Quality and Quantity Outcomes)

17. Groundwater (excluding aquifers where ambient water quality naturally exceeds guidelines) is suitable for human consumption without the need for treatment.

18. Groundwater contribution to surface water bodies does not have any adverse effect on surface water quality, aquatic life or recreational values.

19. Aquifer storage volumes are maintained at levels that provide for the reasonable needs of existing and future users.

20. Existing bore or well yields, and the rights of existing groundwater users, are not significantly affected by interference or drawdown effects.

21. Groundwater abstraction does not result in surface water flows less than prescribed minimum flows or surface water allocation regimes being exceeded.

3.3 Activities in River Beds (including beds of streams and modified watercourses) and Lake Beds

22. Fish passage is not obstructed by any new structures, and is progressively provided for, where needed, on pre-existing structures through the process of obtaining new resource consents for these structures.

23. The public has as much or more access to river beds (including beds of streams and modified watercourses) or lake beds as in the past, except where it is essential for the safety of the public that they be excluded. Amenity and recreational values are maintained or enhanced.

24. Natural character and outstanding natural features are protected from inappropriate use and development, and heritage, cultural and spiritual values are protected from the adverse effects of use and development.

25. Structures have no net or long term effects on water quality.

26. Physical resources, including infrastructure, are protected from the adverse effects of erosion and bed instability.

27. The erosion of river beds and banks (including beds and banks of streams and modified watercourses) and lake beds and banks is avoided, remedied or mitigated, where causing or likely to cause adverse effects to property or infrastructure.

28. Flood risk is maintained at levels that are acceptable to the community.

29. Natural character, amenity, aesthetic, landscape and recreational values are maintained at levels that are acceptable to the community.

30. Cultural and spiritual values are protected.

31. Bed disturbance activities have no net or long term effects on water quality.

4 What is Stopping us Achieving the Outcomes

4.1 Water Issues

4.2 Groundwater Issues

4.3 Soil and Land Issues

4.4 River and Lake Bed Use and Development Issues

4.5 Wetlands Issues

4 What is Stopping us Achieving the Outcomes

4.1 Water Issues

Water Quality

Water is a fundamental resource. Southland's economy is based around the availability of water. As a primary production economy, Southland needs water to grow animals and plants. Water is needed for the processing of these and other products. Water quality is a key factor in the ecological health of waterbodies, influencing what species are able to live there. The mauri (spiritual essence or life force) of a waterbody is affected by water quality. Many people recreate in or near Southland's waterbodies. Recreation includes: swimming, duck hunting, fishing, walking or tramping and boating activities. These activities should be able to occur without a risk of illness from contact with water.

Effects of poor quality water on human use

Poor water quality may mean higher costs for industry as there may be a need to treat the water before it can be used. In some cases, poor water quality may mean lost opportunities for Southland development, either now or in the future, if potential developers look for places where water quality is good and better able to meet their needs. Water needs to be of a high enough standard that it is suitable for animals to drink without treatment and suitable to be applied to horticultural crops without the risk of damaging them. The lower the quality of the water, the higher the costs of treatment for human supply.

Causes of poor water quality

Discharges from the pipes of factories, processing plants and community sewerage schemes have had adverse effects on the water quality of Southland. Discharges to water have been an economical and practical means of waste disposal. Land management practices in urban and rural areas affect what contaminants enter water and what quantity of contaminants enter water. Discharges from land run-off are also an important source of contaminants to water. Urban and industrial areas are sources of contaminants including heavy metals, sediment, bacteria and hydrocarbons. Rural areas are sources of contaminants including sediment, nutrients such as nitrogen and phosphorus, and bacteria.

Poor water quality can be exacerbated by the seasonal effect of low flows, lost riparian vegetation and shading, and changes in stream from leading to elevated water temperatures. This results in water chemistry and biophysical changes occurring, with lowered oxygen levels and excessive aquatic plant growth.

Poor water quality is also exacerbated by the extensive network of installed subsurface drainage in the region. Installed subsurface drains can transport contaminants directly from the soil into surface water and detrimentally affect the quality and health of water within streams, rivers, lakes and wetlands. Surface water quality is therefore also a reflection of land management practices above installed subsurface drainage systems.

The State of Southland's Water Quality

The following information is derived from Environment Southland's State of the Environment report on fresh water. The good news about Southland's water quality is that potentially toxic contaminants such as ammonia have reduced. BOD levels in the water have also reduced and the quality of point source discharges has improved. Clarity in upper catchments has improved, possibly due to soil conservation work.

However in general, Southland's water quality is not as good as many believe it to be. All rivers and streams in lowland areas have, on occasion, exceeded bathing water guidelines i.e. there is a risk that people may become ill after contact with the water. Faecal contamination of Southland rivers is not improving and in some cases is getting worse.

Nutrient levels in rivers are increasing in all catchments. In most rivers, there is insufficient phosphorus to have frequent algal blooms. However, phosphorus is increasing in Southland river systems. In the lower Mataura river, there is sufficient phosphorus in the river, to enable periphyton to proliferate to nuisance levels when the conditions are right, i.e. during summer low flows. This is the reason why algal blooms occur more frequently in the lower Mataura River, below Mataura. Clarity has not improved in the lower parts of major river catchments, except on the Waiau River, despite improvements in the upper catchments.

Plan approach to Water Quality Management

The Plan divides the region's surface water bodies into a number of classes. The first class consists of all surface water bodies within the region's two National Parks: Fiordland and Rakiura and areas of public conservation land where the overall water quality is largely unmodified or unaffected by human activities and the existing water quality is high. The objective for this class is to protect this high water quality.

The region's remaining surface water bodies are divided into the following classes: lowland hard bed, lowland soft bed, hill, mountain, lake-fed, spring-fed and Mataura 1, 2 and 3. These classes have largely been based on the "source of flow" category of the River Environment Classification framework developed by the National Institute of Water and Atmospheric Research (NIWA). The Mataura classes are included to reflect the water quality standards set under the Water Conservation (Mataura River) Order 1997.

Water quality standards have been identified for each class and the Plan sets goals to maintain water quality where these standards are already met, and gradually improve water quality where they are not met. Significant effort will be required to meet these goals. A sub-catchment by sub-catchment approach will enable the issues to be addressed in a manageable, timely and logical manner.

The main surface water quality issues addressed in this Plan are:

- microbial contamination
- improving water quality to meet bathing and stock drinking water guidelines
- ensuring that water quality is suitable for aquatic life
- avoiding or reducing excessive periphyton and excessive filamentous algal growths.

The biggest challenge to the region is the threat to water quality from non-point source discharges. Previously Environment Southland has adopted a predominantly non-regulatory approach to these types of discharges. This Plan signals that if there is no evidence that an improvement in water quality is occurring through the implementation of best management practices and other tools to avoid or reduce non-point source discharges, a move to a more regulatory approach will be considered.

Issue 1 - Discharges can adversely affect water quality

Other relevant sections: Objectives 1-4, 8, Policies 1, 1A-13B, 25-27, 41, 44, Rules 1-17, 22, 49, 51, Section 2.3.

Explanation

Not all poor water quality is a result of land-use or deliberate discharges. Some catchments contain naturally high levels of nutrients and have reduced clarity as a result of tannins leaching into the water. Birds and feral animals on riverbeds can create significant levels of faecal contamination. Floods and freshes can cause erosion and result in high levels of suspended sediment in the water. These are part of the natural background water quality.

Discharges from specific and identifiable sources (such as a pipe) concentrated at a given point are called point source discharges. These discharges are the result of processing of raw materials and the need to dispose of the waste products. The industries and infrastructure that produce these discharges are an important part of the economy and the health and well-being of Southlanders. In recent years there has been a lot of improvement in the quality of discharges from point sources in Southland. This is reflected in improving BOD and ammonia levels in Southland rivers. However, point source discharges of wastes can have adverse effects on water quality.

There are a variety of point source discharges to surface waters in Southland. The most significant of these are the major industrial and

municipal discharges to the Lower Mataura and Ōreti Rivers and tributaries, while a number of smaller point source discharges are scattered around the more developed parts of the region.

Point source discharges can contain a range of contaminants, depending on the type of discharge. Contaminants of concern include nutrients (nitrogen and phosphorus), pathogens, oxygen-depleting substances, suspended solids, organic matter, and toxins such as ammonia. These contaminants can diminish surface water quality.

Contaminants entering water from diffuse sources where there is no single identifiable discharge point (such as a pipe) are called non-point source discharges. Non-point source discharges are generally caused by rainwater carrying contaminants over or through the ground to surface water bodies or groundwater, or by stream bank and bed erosion. Intensity and type of land-use, along with climate, soils and geology, is the major influence over the composition of non-point source discharges. Land-use, along with climate and geology, is the major influence over the composition of non-point source discharges. Land use is the basis for the Southland economy and as such is important for the health and well-being of Southlanders. However, it needs to be recognised that non-point source discharges have adverse effects on water quality.

Agriculture is the dominant land-use in Southland, and non-point source discharges from agricultural land are the most significant contributors of contaminants to surface waters in the region. However, other types of land use, including industrial, urban, forestry, some landfills and horticulture also contribute non-point source contaminants to water bodies.

Non-point source discharges can contain a range of contaminants, including nutrients (phosphorus and nitrogen), pathogens, suspended solids and sediment, oxygen depleting substances, agrichemicals, heavy metals and toxins. Both types of discharge can adversely affect:

- aquatic ecosystem values
- cultural/spiritual values
- estuaries
- human use values/drinking water/stock water/wash-down water/industry processes
- natural character/amenity/aesthetic/landscape values
- recreational values
- suitability of the water body for food gathering

The extent to which water quality is adversely affected by point source discharges depends on the nature of the effluent (e.g., type, volume, concentration) and the sensitivity of the aquatic ecosystems. A point source discharge can have an acute impact around the point of discharge, and, in combination with other discharges, can contribute to contaminant loadings and more widespread cumulative effects on water quality in a catchment.

Often contaminants discharged from a non-point source are not high in contaminant concentration. However, multiple points of discharge over a wide area can result in significant mass loadings of contaminants in water bodies. As land use intensifies towards the lowlands, there is a progressive decline in water quality in the middle to lower reaches of the Mataura, Ōreti, Aparima and Waiau catchments. This decline reflects a cumulative increase in contaminants.

In catchments with lakes and wetlands, the decline in water quality can have more serious effects. Deposition of silt can encourage vegetation colonisation of the lake bed and nutrients promote excessive weed growth and possibly algal blooms.

Under the Act, the point at which a person discharges a contaminant is the point at which that contaminant leaves the effective control of the discharger. Many non-point source discharges are contaminants emanating as a result of natural processes from a discharge of contaminants to land, e.g. leachate. In those cases the point of discharge regulated under the Act is the point at which the contaminant is discharged to land.

Water Quantity Issues
(see also Section 4.2 Groundwater Issues)

Surface water uses and values

Surface water bodies, such as rivers, lakes and wetlands, contain both "instream" and "out-of-stream" values and uses. Instream values include the ecological, recreational, landscape and cultural values supported by the water. Wetlands and lakes also have a valuable role in moderating downstream flood flows and providing base flows in drought events. Out-of-stream uses include the abstraction and diversion of water for domestic and community supply, stock-water, power-generation and agricultural and industrial purposes.

Many of these out-of-stream uses have played a major part in the development of the region and continue to be fundamentally important for economic, social, and community health and safety reasons. However, these activities can also impact on flow regimes, and as a consequence have significant adverse effects on instream values. This can lead to a conflict between protecting instream values and maintaining human use values, particularly during low flow or drought events. In such situations, it is important to recognise that while water is a renewable resource, it is finite at any point in space and time.

Activities and effects on flow regimes

Out-of-stream uses are split up into three main categories: abstraction, damming and diversion. The effects of these activities are summarised below.

The abstraction of surface water affects the low flow part of the flow regime, meaning that low flow frequency and duration is increased, and low flows are further reduced. Damming can alter the entire flow regime of a river, causing a reduction in flow variability and the occurrence of extreme high and low flow events, depending on the storage characteristics of the impoundment behind the dam. Damming of the main stems of large rivers irreversibly alters natural character and results in significant adverse environmental effects therefore retaining the remaining free flowing rivers in the region is a high priority. Diversion can either increase or decrease the magnitude and frequency of low flow events, depending on whether it is into or out of a water body.

Changes in land use can also have an impact on flow regimes. For example, increased vegetative cover by forestry can reduce low flows and flood flows, while increased rates of run-off from land clearance or urbanisation can increase flood flows.

Resource management approach to surface water bodies

The region's surface water bodies have been divided into a number of management units for the purposes of water quantity management. These management units are largely based on the "source of flow" category of the River Environment Classification framework developed by the National Institute of Water and Atmospheric Research (NIWA), which groups together spatially separate surface water bodies with similar physical and biological characteristics. In addition, a Mataura management unit has been included to reflect the provisions of the Water Conservation (Mataura River) Order 1997, a Waiau management unit has been included to recognise the modified nature of the Waiau catchment as a result of hydroelectricity generation, and a natural state management unit has been included to provide for the maintenance of water bodies in their natural state.

The management units defined are:

- Lowland
- Hill (including Hill2 - Hokonui/Catlins)
- Mountain
- Lake
- Mataura
- Natural State
- Waiau

Water Quantity Maps 1 to 13 of Appendix D depict these management units.

During the Plan development process, significant values (both instream and out-of-stream) were derived for each of the River Environment Classification management units through consultation with stakeholders. Following this, "critical values" for each management unit were identified. The concept of critical values is that by providing sufficient flow to sustain the most flow sensitive value, the other significant values will also be sustained.

The significant values and critical values developed with stakeholders were then reviewed by NIWA and the Cawthron Institute to ensure that the critical values identified were the most flow sensitive values (refer *Review of methods for setting water quantity conditions in the Environment Southland draft Regional Water Plan, NIWA, June 2004).* The modified list of critical values suggested by NIWA and Cawthron is used in Policy 16 "Environmental Flow and Level Regimes" as the basis for determining minimum flows and levels.

The Hill2 (Hokonui/Catlins) management unit was separated from the general hill management unit to reflect the fact that the geology of this management unit can support large trout populations at much lower flows than would be found in rivers of the general hill management unit.

Issue 2 - The adverse effects of the abstraction, damming and diversion of surface water

Other relevant sections: Objectives 2, 5, 7, Policies 1A, 14-18, 19A-24, 41, 44, Rules 18-21, Section 2.3.

Explanation

Rivers, lakes and wetlands support a range of instream values that are largely sustained by a sufficient quantity of water and a specific environmental flow and level regime. Out-of-stream uses, such as the abstraction, damming and diversion of surface water, can reduce water quantity and alter flow regimes in water bodies, which can have a number of adverse effects on instream values, including:

- reduction in the quality and quantity of aquatic habitat
- diminished natural character, amenity, aesthetic and landscape values
- impact on recreational use
- impact on cultural and spiritual values
- reduction in water quality, through decreased dilution capacity and increased temperature
- reduction of water available to meet the needs of existing and future users
- reduction in groundwater recharge rates

These effects can be particularly significant during summer when rainfall is less, river levels are low, and the demand for water is at a peak. Out-of-stream uses can alter the frequency, magnitude, timing, duration and

extent of low flow events, and therefore the significance of the adverse effects experienced. This can lead to a conflict between protecting instream values including recreational values and maintaining human out of stream use values, and a potential conflict between existing users.

The extent of the adverse effects of these activities is dependent on the characteristics of a particular surface water body, the values associated with it, and the amount of water taken, dammed or diverted. It is also recognised that widespread changes in land use have had, and continue to have, significant effects on the water quantity and flow regimes.

The Waiau catchment – a special case for water quantity management

The Waiau catchment runs from the headwaters of the Eglington, Clinton and Worsley Rivers, through Lakes Te Anau and Manapōuri to Te Wae Wae Bay, and has nationally significant environmental values.

Waters from the Waiau River catchment are captured and used to generate electricity through the hydroelectric power station at West Arm, Lake Manapōuri, and then discharged outside of the catchment to the coastal marine area at Doubtful Sound. The Manapōuri Power Scheme uses water stored in Lakes Manapōuri and Te Anau. Both lakes have highly variable and unpredictable inflows, arising from heavy rain causing high inflows for short periods of time. Storage is enhanced by control structures at each of the lake outlets. The capture of this water at times of high flows is used as a buffer in times of low inflow. Water stored in Lake Te Anau is released at the Te Anau Lake Control structure and flows into Lake Manapōuri via the Upper Waiau River. The levels of the lakes are operated within gazetted guidelines and are monitored by the Guardians of Lakes Manapōuri and Te Anau.

Clean, non-turbid water from the Mararoa River is diverted into Lake Manapōuri at the Manapōuri Lake Control Structure (Mararoa weir), 10 kilometres downstream from Lake Manapōuri outlet at the confluence of the Mararoa and Lower Waiau Rivers. The Mararoa weir dams the entire Waiau River upstream of the Mararoa River and Lower Waiau confluences and controls the natural outflows of Lake Manapōuri through the release of water from the lake, and release of water from the Mararoa River. Water is released from the lake through the weir during times of high storage when lake level limits are approached, when the Mararoa River waters are turbid, and/or contaminated, and to maintain the consented flow regime of the Lower Waiau. As far as possible, the high inflows are captured into the lakes' storage for use as a buffer in times of low inflow. However, because high inflows are unpredictable and happen quickly, not all inflows can be captured. When lake levels rise rapidly and approach lake limits clean lake water must be released via the Te Anau Lake Control Structure (TLC) and/or the Manapōuri Lake Control Structure (MLC).

The Manapōuri Power Scheme is of national importance and of local benefit, for example it is essential to the operation of the New Zealand

Aluminium Smelters facilities at Tiwai. The Council recognises the regional and national significance of the Manapōuri Power Scheme for hydrogeneration of electricity.

While acknowledging the benefits of this operation, electricity generation at the Manapōuri Power Station has affected the water resources of the Waiau catchment, changing the character and scale of the Waiau River because of the large reduction of flow. Before the control structure at Mararoa was built, the Lower Waiau River was the second largest river in New Zealand. While the river is still a large river on a national scale in its lower reaches, it is small compared to what it was prior to the construction of the Manapōuri Power Scheme.

The operation of the Manapōuri Power Station by the Electricity Corporation of New Zealand (ECNZ) (now Meridian Energy Limited (MEL)) and its use of the water resources of Lakes Manapōuri and Te Anau, the Waiau and Mararoa Rivers and their tributaries, was provided for by the Manapōuri-Te Anau Development Act 1963.

The Resource Management Act 1991 necessitated the renewal of water use permits for continued operation of the Manapōuri Power Scheme. Provision of a new environmental flow regime for the Waiau was established through this process to remedy and mitigate effects of water abstraction on the Lower Waiau River, by achieving a continuous flow, thus restoring some of the river's former physical, ecological and cultural values. This was to address a number of matters such as erosion control, safety hazards, flooding capacity competency, river mouth closure, fish habitat and passage (native and trout), recreational use (jet boating, fishing etc), landscape and amenity values, access issues, riparian management, weed and pest issues, iwi issues (such as the mauri (life force)) of the river and mahinga kai, impacts on town water supplies and groundwater sources.

The process of establishing this altered flow regime extended over a period of six years, and included the convening of the Waiau Working Party, which represents a multitude of groups. The Waiau Working Party investigated the issues raised during the renewal of the Manapōuri Power Scheme consents, and built up a body of scientific knowledge about the Waiau catchment, the basis of which was used to establish the altered flow regime.

Consensus between members of the Waiau Working Party has meant compromises have been made, however the Working Party has stated that the flow regime established is the bottom line for conditions in the Lower Waiau catchment in that the minimum flows currently being maintained over the MLC weir to the Lower Waiau River are the minimum necessary to protect the instream values and that recreational and flushing flows, which are also currently provided, are also essential. The current flow regime supports a range of biological, recreational, landscape, amenity and other values for the Waiau River that are also held with some regard by parts of the community, for example the current trout fishery. This flow regime is reflected in the conditions on the water permit granted for the Manapouri Power Scheme to dam and

divert the waters of Lake Manapouri and the Waiau and Mararoa Rivers. The minimum flows that are currently being maintained over the MLC weir to the Lower Waiau River were developed using similar methods to those set out in Appendix I and have been monitored over the course of time. It should also be noted the Waiau Working Party and ECNZ (now MEL) agreed that as consequence of the reduction in Lower Waiau River flows, it was necessary to mitigate and remedy the loss and degradation of fisheries and wildlife habitat, mahinga kai and other values. Monies were provided to Trusts and other organisations to facilitate this process. There is a community expectation that these values will be enhanced in the Waiau catchment.

Because of the high level of allocation from the Waiau catchment for hydroelectric generation, the Waiau is already at the point where any further consented abstractions would fall into the non-complying activity status under Rule 18(f) because the total volume of water allocated is greater than 30 percent of the mean annual low flow. Because of this and the highly modified and regulated nature of the catchment the Waiau River catchment therefore is a special case and needs to be treated separately. This is true for both the upper Waiau catchment, where MEL has an existing allocation (by way of consent) to a specified flow of water from Lake Manapōuri, and for the lower Waiau (from the Mararoa weir to the sea) where a combination of the effects of consents currently granted to other users and the effects of the upper catchment water utilisation (by hydroelectricity generation) mean that there has been a significant reduction in flow, resulting in a significantly modified flow and level regime.

Taking all the above into consideration the framework for water allocation from the Waiau catchment takes into account that a large proportion of the natural flow in this catchment is allocated by consent for the generation of hydroelectric power. Further allocation of water from the Waiau catchment is only acceptable if there are no effects on the catchment values, environmental flow and level regimes and on the reliability of water available to existing consent holders.

Issue 3 - The existing use of water for hydro-electricity generation by the Manapōuri Power Scheme has significantly affected and modified the surface water resources of the Waiau catchment

Other relevant sections: Objectives 2, 5-7, Policies 1A, 14-23, 41, 44, Rule 21, Section 2.3.

This issue recognises that the allocation of water for generation of hydro-electricity at the Manapouri Power Station has affected and modified the water resources of the Waiau catchment. This use of water for generation of renewable energy is longstanding and is of national and local significance. The scale of damming, diversion and abstraction in this catchment has resulted in a flow regime that is highly modified and no longer "natural", in particular below the Manapouri Lake Control (MLC) Structure (Mararoa weir). The current flow regime supports a range of biological, recreational, landscape, amenity and other values that are held with some regard by the community, for

example, the current trout fishery. Further adverse effects on the existing values supported by the environmental flow and level regimes are to be avoided, remedied or mitigated. Existing users' rights and availability of water supply are to be protected. It is not the intention, however, to inhibit activities that do not result in further consumptive allocation of water within, or diversion of water out of, the Waiau catchment.

4.2 Groundwater Issues

(see also Section 4.1 Water Quality and Quantity Issues)

Overview of resource

Considerable groundwater resources exist in Southland. Groundwater occurs in aquifers over wide areas and at varying depths, both in shallow river gravel deposits and in deeper sedimentary rock sequences. Groundwater Map 1 in Appendix D illustrates the distribution of groundwater resources within the region.

The main aquifer forming units are the Quaternary alluvial gravel deposits that occur extensively across the plains and downlands of northern, central and eastern Southland. Significant alluvial gravel deposits are also present in the Mataura, Ōreti, Aparima and Waiau river valleys, and the Te Anau Basin. These alluvial gravel deposits contain the shallow, unconfined aquifers that are the most commonly used groundwater resource in the region.

Other significant aquifers occur in Tertiary–lignite measure sediments that underlie the alluvial gravel deposits at relatively shallow depths throughout much of eastern and central Southland. Groundwater in these sediments is primarily found in thick sandstone units that form extensive semi-confined to confined aquifers. Localised aquifers are also developed in barrier beach deposits along the south coast and in the fractured greywacke basement of the Hokonui and Catlins hills.

Resource uses and values

Groundwater is an integral part of the hydrological cycle. Groundwater is primarily recharged by rainfall and flow loss from rivers and streams, and in turn makes a significant contribution to water flows in rivers and streams, and to the regulation of water levels in lakes and wetlands. As a result, the quality and quantity of groundwater are very important factors in maintaining ecological and natural values.

Groundwater is also important for social and economic reasons. It is abstracted and used throughout Southland for domestic, farm, municipal and industrial supply. In excess of 60 percent of rural properties are reliant on groundwater for domestic and/or stock supply. Gore, Winton, Te Anau and a number of other communities utilise groundwater for municipal supply. In addition, the dairy, meat, primary aluminium smelting and fertiliser industries use significant quantities of groundwater for processing and production.

There has been a considerable increase in the number of consents granted to take groundwater for irrigation purposes in recent years. Southland has traditionally been perceived as a region where irrigation is not required for reliable agricultural production. However, with land intensification, irrigation is increasingly being used as a tool to enhance reliability and production.

Groundwater is also used, directly or indirectly, as a receiving environment for waste. Some contaminants are discharged directly to groundwater via soakholes and other direct conduits. Other contaminants are discharged to land, but are eventually assimilated in some form in underlying aquifers.

Resource management

For the purposes of resource management, the Southland region has been divided into the 29 groundwater zones shown in Groundwater Map 1 in Appendix D. Due to the limited information currently available to describe the nature and extent of the Tertiary aquifer systems, definition of the groundwater zones is largely derived from the physical characteristics of the alluvial gravel aquifers. The groundwater zones are defined on the basis of:

- surface water catchments – across a majority of Southland, ground and surface water drainage follow the natural topographic gradient;
- known geology or aquifer extents;
- geomorphology;
- observed groundwater quality and/or groundwater level fluctuations; and
- resource development.

These groundwater zones form the basic framework for the investigation, management and monitoring of groundwater resources within Southland and can be classified into five basic aquifer "types". These aquifer types aggregate together spatially separate aquifer systems on the basis of observed similarities in geology, geomorphology, aquifer response and groundwater-surface water interaction. The aquifer types defined are:

- Riparian Aquifers
- Terrace Aquifers
- Lowland Aquifers
- Confined Aquifers
- Fractured Rock Aquifers

Groundwater Map 2 of Appendix D depicts the four unconfined aquifer types, which overlie confined aquifers in parts of the region. Further refinement of the current groundwater zone and aquifer boundaries will inevitably result as knowledge of the region's groundwater increases through future investigations, resource development and monitoring. This is particularly relevant in the case of deeper, confined aquifers that occur in many parts of Southland. At present, many of these confined aquifer systems are relatively poorly defined and aquifer boundaries may not necessarily match those occurring in the overlying alluvial gravel deposits.

The potential for adverse environmental effects to result from groundwater abstraction differs between each aquifer type. This classification system provides for the development of a pragmatic

framework for the management of groundwater resources that recognises the differing aquifer response and potential for adverse effects resulting from both groundwater abstraction and point or non-point source discharges in differing hydrogeological settings.

Activities and effects

The discharge of contaminants and the abstraction of groundwater can have adverse effects on the quality and available quantity of the groundwater resource. Some types of discharge have the potential to degrade groundwater quality, which can limit the usefulness of the resource and adversely affect ecological and natural values.

The individual or cumulative effects of groundwater abstraction have the potential to adversely affect groundwater quantity, surface waterbody availability and flows, and access to the resource for existing and future water users.

Issue 4 - The adverse effects of point and non-point source discharges on groundwater quality

Other relevant sections: Objectives 1, 2, 8, Policies 1A, 2, 3, 6, 13A-B, 25-27, 41, 44, Rules 3, 16A-16D, 22, 49, 51, Section 2.3.

Explanation

Groundwater quality can be degraded by the input of contaminants from both point and non-point discharges. The principal contaminants of concern are pathogens, nutrients (for example, nitrogen and phosphorus) and agrichemicals. These contaminants, if elevated in groundwater beyond a certain level, can have adverse effects on:

- human use values (i.e. degraded groundwater can be unsuitable for drinking or stock water);
- aquatic ecosystem values (i.e. degraded groundwater can contribute to surface water quality problems).

Point source discharges are discharges from specific and identifiable sources (such as pipes) concentrated at a given point. Point source discharges to groundwater may occur due to poorly constructed or inadequately maintained bores and wells, where contaminants enter via the well-head or casing and are transmitted directly into an aquifer. There have also been cases where contaminants have been deliberately discharged straight to groundwater.

Non-point source discharges generally occur over a widespread area and are often associated with agricultural or horticultural land use. Contaminants applied to land, including animal wastes, fertilisers and agrichemicals, can leach down through the soil profile to groundwater. The risk of contamination from these discharges is highest where land use and contaminant application is intensive, and the underlying aquifer is shallow and unconfined. This risk may be heightened where water is discharged for irrigation purposes to the same land that contaminants are discharged to.

The impacts of point source discharges are generally quite localised. In contrast, contamination from non-point source discharges can be more widespread. Degraded groundwater quality is often the result of the cumulative effects of a number of different discharges.

Available data indicates the groundwater quality in the majority of Southland aquifers currently meets the required standards for drinking water supply. The few instances where drinking water standards are exceeded appear to be related to localised point source contamination.

Issue 5 - The adverse effects of groundwater abstraction

Other relevant sections: Objectives 5, 7, 9, Policies 1A, 14, 17, 19B, 20-24, 27-31, Rules 18, 23, Section 2.3.

Explanation

The effect of groundwater abstraction is to lower the groundwater level in the vicinity of the abstraction point. Over time, the individual or cumulative reduction in groundwater level may propagate through the whole aquifer system resulting in adverse effects on the environment.

Potential adverse effects that may result from groundwater abstraction include:

- a depletion of aquifer storage volumes with an associated reduction in groundwater availability to existing and future users;
- adverse effects on existing bore or well yield due to interference or drawdown effects; and
- diminished river and stream flows, and wetland and lake water levels (with the potential to reduce the life supporting capacity of these ecosystems and surface water availability for existing and future users).

The significance of these adverse effects depends on the volume and rate of abstraction and on the characteristics of the aquifer from which the water is abstracted. In addition to the effects of abstraction, aquifer levels are also influenced by changing land use, land drainage development and rainfall patterns.

Due to the hydraulic connection between ground and surface water resources, the potential effects of groundwater abstraction on rivers, streams and other surface water bodies and on existing and future surface water users is a major consideration throughout the region. Consideration of the impact of groundwater abstraction on surface water is important, particularly for surface water bodies subject to a National Water Conservation Order.

Given the widespread development of groundwater resources for domestic and stock supply (as of right under the Resource Management Act 1991), consideration of the potential effects of groundwater abstraction on existing groundwater users is also an important resource

management consideration. When assessing adverse effects on existing groundwater users, the construction and efficiency of existing wells and bores must also be taken into consideration.

Other potential adverse effects of groundwater abstraction that may be relevant in parts of Southland include:

- adverse effects on groundwater quality due to changes in groundwater flow characteristics;
- salt-water intrusion in coastal aquifers;
- wetland drainage; and
- land subsidence/aquifer compression.

4.3 Land and Soil Issues

Overview of resource

There are around 170 different types of soil within the Southland Region.

Southland's soil resources are fundamental to the region's primary production economy. Soils can also assist to maintain or enhance water quality and support human health and economic activities.

When the physical, chemical and biological performance of the soil resource is managed appropriately, it can more effectively absorb rainfall and can provide treatment of both point and non-point source discharges. However, if these soil characteristics are not adequately managed then this has the potential to negatively impact on agricultural productivity, soil quality and potentially lead to a decrease in water quality.

Resource management

Environment Southland has information on the region's various soil types, based on the Topoclimate Survey of Southland and South Otago, which covers approximately 825,000 hectares of intensively farmed land within the region.

This survey has provided Environment Southland with information on key soil characteristics and properties that affect land uses[28], such as:

- Potential rooting depth;
- Aeration;
- Water-holding capacity;
- Permeability and bulk density;
- Texture;
- Topsoil clay content;
- Presence and abundance of gravel.

Environment Southland has also classified soil within the region to assist with farm dairy effluent management based on technical investigations[29]. The classification system uses slope and soil characteristics to determine the potential environmental risk from applying farm dairy effluent to land.

The information held by Environment Southland assists in achieving the sustainable management purpose of the Act, by managing and safeguarding the life-supporting capacity of the soil resource in a way, or

[28] http://map.es.govt.nz/departments/landsustainability/reports/Information_Sheets/Soils.pdf

[29] AgResearch, 2009, *The influence of soil drainage characteristics on contaminant leakage risk associated with the land application of farm dairy effluent*

at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety.

Activities and effects

As well as potentially affecting both surface and groundwater quality, discharges onto or into land can contain contaminants that could create adverse effects on the quality and/or structure of the soil resource.

However, various contaminants, such as some from industrial and trade processes and agricultural activities, when applied appropriately can have positive effects on the soil resource and plant growth.

The discharge of agricultural effluent to land is widespread within the region. Agricultural effluent is generated from farming practices such as feed pads, farm dairy sheds and wintering sheds, and can take the form of manure, slurry and farm dairy effluent. The application of fertiliser to land is another widespread farming practice throughout Southland, which can have a positive effect on soil resources.

Discharges onto or into land are preferred over discharges to surface water in relation to on-site wastewater systems and community sewage schemes. Nonetheless, the system should be designed so as to provide a level of treatment to the discharge before it enters the receiving environment given the potential presence of harmful pathogens within effluent.

There are also a wide range of industrial and trade premises in Southland which discharge a range of wastes onto or into land. Industrial and trade premises can produce large quantities of wastes with high contaminant loading. These include heavy metals, hydrocarbons, biological contaminants or a combination of these, but ultimately depend on the raw materials used in the industrial process itself and the level of treatment by, and maintenance of, the discharge system. However, some of these discharges containing organic matter and nutrients can have positive effects on soil resources and plant growth if applied appropriately by acting as a fertiliser.

Apart from major industrial sites such as the Fonterra Edendale Dairy Plant and the New Zealand Aluminium Smelters, other industrial discharges within Southland originate from:

- meat processing;
- slink skins and tanneries;
- butcheries;
- fish processing;
- vegetable or bulb washing;
- truck washing;
- gravel washing;
- mining;

- water treatment plants; and
- cafés/b&bs/other commercial premises.

A good understanding of relevant soil properties can positively assist in avoiding, remedying or mitigating the potential adverse effects of these various types of discharges onto or into land.

Issue 5A – The adverse effects of discharges of contaminants onto and into land

Other relevant sections: Objectives 1-4, 8, 9A-C, Policies 1A, 2- 4, 6, 7, 31A-D, 41-48, Rules 1-3, 5-7, 10, 12-13, 16-16D, 17A, 49-51, 57-58, Section 2.3

Explanation

Depending on the nature of the activity and receiving environment, discharges onto or into land can contain a number of contaminants that can, if not appropriately managed, adversely affect surface water and groundwater quality and soil quality. This can consequently lead to adverse effects on human and animal health, plants and ecosystems.

Discharges onto or into land from agricultural activities such as offal disposal, handling organic waste, discharges of agricultural effluent and application of agrichemicals can result in a range of environmental risks. A variety of discharges can also be beneficial to the quality and structure of soil if applied appropriately.

General discharges of waste such as those at landfill, dead hole (offal pits) and cleanfill sites can generate sediments, hydrocarbons, acids, and heavy metals. The presence of waste on or in land can generate leachate, which may result in a long term discharge to soil and/or groundwater.

Soil types can influence potential for, or scale of any adverse effects from discharges onto or into land, along with the topography of the receiving environment and proximity to surface water. Other influences include climate/rainfall, soil management and drainage practices, and the concentration and volume of contaminant. Soil in good condition can provide useful treatment of both point and non-point source discharges of contaminants.

4.4 River Bed (including beds of streams and modified watercourses) and Lake Bed Use and Development Issues

River bed (including beds of streams and modified watercourses) and lake bed values and uses

River beds (including beds of streams and modified watercourses) and lake beds contain a wide variety of values, including natural, ecological, heritage, cultural and spiritual values. Rivers and lakes are also used by people and communities for a range of different purposes. On one hand, they have important recreational and cultural uses, including swimming, walking, fishing, boating, and food gathering. On the other hand, river and lake beds are subject to use and development for economic, social and community health and safety reasons.

The use and development of river and lake beds can be broken down into two main categories:

- *Activities that involve structures,* such as bridges, culverts, dams, weirs, pipes, cables, boat ramps, jetties, moorings and flood and erosion control works; and

- *Activities that disturb the bed,* such as gravel extraction, channel realignment, construction activities, vegetation planting and removal, and vehicle and stock access

Some of these activities can have positive effects on the natural environment (for example, bridges and culverts allow access across a river without disturbing the bed) while others have important economic and social benefits (for example, erosion control works protect community assets and wellbeing). However, activities in the beds of rivers and lakes can also have adverse effects on the environment.

Activities and effects

Activities in the beds of rivers and lakes can adversely affect aquatic and riverine habitats. Effects can include physical damage to flora, fauna and habitats, changes in habitat area and quality, reduction of water quality, and alteration of streamflow characteristics and water quantity. Some structures may impede the passage of fish up or downstream.

Activities can also impact on public access, amenity and recreational values, natural character, and the cultural and spiritual values of a river or lake. Physical obstructions and excavations can impair public access to and along lakes and rivers, while structures or changes to flow regime can affect recreational opportunities. The amenity values of an area may be degraded by activities that reduce the visual quality, pleasantness or recreational attributes of a river or lake, while natural character may be reduced or lost through changes to the natural state of a river or lake

bed. Activities in the beds of lakes and rivers may impact on archaeological sites and sites with heritage and cultural values or sites of significance to the tāngata whenua (for example, wāhi tapu, mahinga kai sites or other taonga).

Some activities (for example, machinery or stock in rivers or lakes, and other forms of bed and bank disturbance) can impact on water quality through increased erosion, sediment generation or the input of contaminants to water. The water quality impacts from activities in river and lake beds can in some cases be significant, but often are short term and localised. The significance of the effects must also be viewed in the light of wider impacts from point and non-point source discharges, the current state of water quality, and the potential for cumulative effects.

The beds of lakes and rivers are dynamic areas that are naturally subject to change. Activities can affect the rate of this change, and can increase the extent or risk of natural processes such as erosion, bed realignment and flooding. Erosion can occur as a result of the placement or removal of structures and vegetation, the alteration of bed alignment or stability, and through changes to sediment supply (including the extraction of sediment). The risk of flooding may be increased by impediments to water flow such as structures or vegetation, and by the build-up of sediment and debris in a river or lake.

Erosion and flooding have a number of adverse effects that cut across a range of natural resources such as water, soil and ecosystems, and physical resources such as infrastructure. River management activities such as erosion control, flood control and gravel extraction are employed on an ongoing basis to prevent or reduce these problems. However, these activities can themselves cause adverse effects if not managed appropriately.

Issue 6 - The adverse effects on the environment from the use and development of river beds (including beds of streams and modified watercourses) and lake beds

Other relevant sections: Objectives 1-4, 10-13, Policies 1, 1A, 2-4, 6, 32-36, Rules 1, 2, 15-17, 24-48, Section 2.3.

Explanation

Use and development takes place in river and lake beds for a wide variety of reasons. There are two main types of river and lake bed use and development in Southland: activities that involve structures; and activities that disturb the bed. While these activities generally do have economic, social and sometimes environmental benefits, they can also have significant adverse effects on the environment, including effects on:

- ecosystems, including aquatic and riverine habitat, and fish passage;
- public access, amenity and recreational values;
- heritage, cultural and spiritual values;
- natural character and outstanding natural features;
- water quality and quantity;

- river morphology, hydrology and dynamics;
- extent of erosion and sedimentation;
- extent of flooding and flood risk;
- physical resources, including infrastructure;
- navigational safety;
- estuarine and coastal environment.

4.5 Wetlands Issue

Wetlands are a vital link between land and water. "Wetlands" is the collective term for marshes, swamps, bogs, and similar areas found in generally flat vegetated areas, in depressions in the landscape, and between dry land and water along the edges of streams, rivers, lakes, and coastlines.

Wetland areas include permanently and intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions.

It is recognised that rivers, lakes and wetlands are very closely linked, however, wetlands are a unique ecosystem that is neither fully terrestrial nor fully aquatic. They have been referred to as "biological supermarkets" and they play an integral role in the ecology of a water catchment.

Wetlands vary widely because of regional and local differences in soils, topography, climate, hydrology, water chemistry, vegetation, and other factors, including human disturbance.

Wetlands are an intrinsic part of the water quality and water quantity objectives of this Plan. Developing separate objectives for wetlands would likely confuse the direction and outcomes sought by the water quality and quantity objectives. It then follows that the policies that have been developed from those water quality and water quantity objectives will also include wetlands.

Wetlands are surface water bodies and are therefore subject to the water quality and quantity rules of this Plan that apply to surface water bodies. It is important to note that the diversion of water from a Regionally Significant Wetland identified in Appendix B or any naturally occurring wetland requires resource consent.

Integrated Management Required

As wetlands contain both land and water, integration of all methods of management is required to avoid the duplication of provisions and approaches within regional and district plans. District plans are not to be inconsistent with the provisions of the Regional Policy Statement, which sets out a list of regionally significant wetlands across the region. The majority, if not all, of those wetlands are on publicly held land rather than private land. When considering applications for use and development of wetland areas, the integrated management of wetlands can be facilitated by the use of such techniques as joint hearings.

There is also a danger of including every area of wet ground into the definition of wetland (as defined in the Glossary), which would be totally inappropriate. Attention in the first instance has focussed on areas of recognised regional, national, and international significance, that are often managed through methods outside of regional and district plans.

However, there are many important wetlands in Southland that are on private land and have no formal recognition. It is these wetlands on private land that are the focus for future management, through education, awareness and other methods. A parallel can be drawn with the areas of indigenous vegetation being placed into private covenants as a result of information and awareness of protection of public land areas.

Addressing the issue of wetlands within the region has previously been difficult as no single approach has been promoted or adopted. Each local authority has dealt with the issue in its own way. From an integrated management point of view, Environment Southland will work with other agencies, interested parties and landowners to co-ordinate the management of wetlands in Southland.

Issue 7 - Adverse effects on wetland ecological systems and natural character through wetland modification and the discharge of contaminants

Other relevant sections: Objectives 1-5, 9C, Policies 1, 1A-4, 6, 14, 31A-D, 38-40, Rules 1, 2, 9-12, 14, 16, 17, 20.

Explanation

The Southland region has a number of wetlands that are of international, national or regional significance which contain irreplaceable values and which are or may be at risk of being lost through wetland modification, including reclamation of a wetland or diversion of water from a wetland (construction of drains).

Wetlands can also be adversely affected by activities in or adjoining the wetland, for example, reclamation/infilling, stock grazing, modification to wetland vegetation, and land drainage from adjoining farm land which may add runoff water (non-point source discharges) and contaminants to the wetland. The same issues can apply to wetlands of local significance that are on private land.

Wetlands also have an important role of filtering out sediments (through the action of wetland plants trapping these) and the removal of nutrients, such as nitrogen and phosphorus, from water (through plant uptake).

5 Setting the Direction

5.1 Objectives

5.2 Policies

5 Setting the Direction

5.1 Objectives

5.1.1 Water Objectives

Water Quality

Objective 1 – Natural State Waters

Other relevant sections: Issues 1, 4, 5A- 7, Policies 1, 1A-13B, 25-27, 31A-D, 38-40, Rules 1-17, 22, Section 2.3.

To maintain the quality of water where it is in its natural state.

Explanation

Natural state water quality occurs in waters on land managed by the Department of Conservation where the overall water quality is unaffected or largely unaffected by human activities. Water bodies where the water quality is in a natural state are generally low in nutrients and the riverbed substrate is comprised predominantly of gravels with a relatively small proportion of fine sediment. For the purposes of the water quality section of this Plan, "Natural State Waters" means waters that are either within National Parks (including land for the time being administered as if it was a national park pursuant to any statute or written agreement with the owners) and/or waters within other areas of public conservation land, where the overall water quality is largely unmodified or unaffected by human activities and have been identified in Table 1 "Natural State Waters outside National Parks" in Appendix M "Natural State Waters outside National Parks" of this Plan. In either situation these waters should be protected so there is no net deterioration in quality. Natural state water quality is a standard specified in the Third Schedule of the Act. It requires that the natural quality of the water shall not be altered and, as with all standards, applies after a zone of reasonable mixing of any contaminant or water with the receiving water, disregarding the effect of any natural perturbations that may affect the water body.

Objective 2 – Maintain water quality

Other relevant sections: Issues 1-4, 5A, 6, 7, Policies 1, 1A-13, 25-27, 31A-D, 38-41, 44, Rules 1-17, 22, 49, 51, Section 2.3.

To manage water quality so that there is no reduction in the quality of the water in any surface water body, beyond the zone of reasonable mixing for discharges, below that of the date this Plan became operative (January 2010).

Explanation

This objective adopts the philosophy of Section 69(3) of the Act. It reflects the fact that in many parts of Southland, particularly in lowland surface water bodies, water quality is poor and should not be allowed to

deteriorate further. It also reflects the fact that there are areas of very high quality water outside Natural State Waters, which should be protected from any overall deterioration in quality. While a one-off or temporary discharge with no long-term impacts on water quality may be acceptable into this high quality water, a discharge that will result in long-term or permanent deterioration in water quality would not be acceptable. One of the main purposes of this objective is to take into account the cumulative effects of discharges into water.

Objective 3 – Surface water bodies other than in Natural State Waters

Other relevant sections: Issues 1, 6, 7, Policies 1, 1A – 13B, 31A-D, 38-41, 44, Rules 1, 2, 3A-17, 49, 51, Section 2.3.

To maintain and enhance the quality of surface water bodies so that the following values are protected where water quality is already suitable for them, and where water quality is currently not suitable, measurable progress is achieved towards making it suitable for them.

In surface water bodies classified as mountain, hill, lake-fed, spring-fed, lowland (hard bed), lowland (soft bed) and Mataura 1, Mataura 2 and Mataura 3:

(a) bathing, in those sites where bathing is popular;
(b) trout where present, otherwise native fish;
(c) stock drinking water;
(d) Ngāi Tahu cultural values, including mahinga kai;
(e) natural character including aesthetics.

In surface water bodies classified as mountain lakes and hill lakes:

(a) bathing
(b) trout
(c) Ngāi Tahu cultural values, including mahinga kai
(d) natural character including aesthetics

In surface water bodies classified as lowland/coastal lakes:

(a) native migratory fish;
(b) stock drinking water;
(c) healthy aquatic habitats;
(d) Ngāi Tahu cultural values, including mahinga kai;
(e) natural character including aesthetics

Explanation

In many areas of Southland, water quality is degraded. The first priority is to ensure that the water quality does not degrade further. The objective is then to improve the quality so that it can support the relevant uses and values. The objective shows the values that the consultative process identified for waterbodies outside Natural State waters. Appendix G details the water quality parameters and relevant standards that have been identified as being necessary to protect these

values by focusing on the critical or most sensitive values for each waterbody. These "critical values" were agreed through the consultative process. Measurement and monitoring of these parameters will determine whether or not the objectives are being met. Examples of parameters and standards that are relevant to natural character and aesthetics of water quality include conditions relating to bacterial and fungal slime growths and visual clarity.

Contact recreation standards are appropriate in areas that are regularly used for bathing and also in hill and mountain lakes where water quality is high. In other water bodies, this standard is unrealistic in the short term. Protection of the instream ecosystem is a more appropriate goal. Maintaining habitat suitable for trout or native fish, as appropriate, will ensure protection of the macroinvertebrate, aquatic plant and periphyton communities on which they depend. All water should be suitable for stock to drink and to support Ngāi Tahu's cultural values. Lowland lakes are at risk of eutrophication, hence the objective to protect against excessive enrichment and excessive sedimentation.

Several values are common to a number of different surface water body types. However, achieving the objective may require different tools or take longer, depending on the water classification of the surface water body. These goals will not be met overnight. The objective is therefore to make progress towards achieving them. Progress will be reviewed by monitoring the specified water quality parameters and trends in these parameters. A lack of progress towards the goals may result in a review of the Plan provisions to require stricter standards.

Objective 4 – Gradual improvement in surface water quality parameters

Other relevant sections: Issues 1, 5A- 7, Objectives 31A-D, Policies 1, 1A, 2- 4, 6-13B, 38-41,44, Rules 1, 2, 3A-17, 49, 51, Section 2.3.

To manage the discharge of contaminants and encourage best environmental practice to improve the water quality in surface water bodies classified as hill, lowland (hard bed), lowland (soft bed) and spring fed, and in particular to achieve a minimum of 10 percent improvement in levels of the following water quality parameters over 10 years from the date this Plan became operative (January 2010):

(a) microbiological contaminants
(b) nitrate
(c) phosphorus
(d) clarity

Explanation

The quality of water in many surface water bodies does not currently meet the goals in Objective 3. Improvements in lowland streams may be hardest to achieve, due to prevalence of intensive farming in the catchments, and upstream cumulative effects. Discharges of the contaminants specified into hill, lowland and spring fed classes of water body are the most significant barrier to achieving Objective 3. Achieving

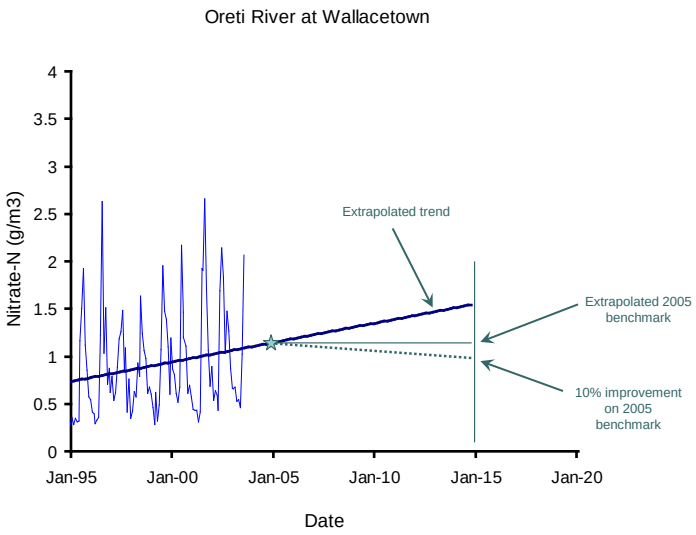
a reduction in these contaminants will also result in a reduction of other associated contaminants, for example ammonia. Attempting to achieve them in a short timeframe would require significant constraints on both land use activities and direct discharge of contaminants to water. Achieving the Objective will require each land manager to implement best practice with regard to maintenance of soil health, nutrient budgeting and effluent disposal to ensure that any applied nutrients are absorbed by plants. These practices, coupled with riparian management developed in a way that overland flow is filtered through soil, will reduce nutrient and soil inputs into water bodies. As best management practices are implemented in all sectors of the community and resource consents replaced, parameter levels will indicate improvement and determine if higher targets should be set when the Plan is reviewed.

So how will this approach and level of improvement contribute to reversing the present upward trend levels of contaminants in the lowland, hill and spring-fed water bodies and aid in protecting the values and goals identified in Objective 3?

By way of illustration, the figure below shows an example of nitrate concentrations over a ten year period (1995-2004) in the Ōreti River at Wallacetown. The graph provides an example of the potential effect of achieving a 10% improvement in nitrate concentrations.

The data shows a positive trend towards increasing nitrate concentrations. The thick black trend line is extrapolated to estimate the nitrate levels in 2015 based on existing trends. The thin black line extrapolates the current 2005 data to establish a benchmark in which to gauge a 10% improvement over the next ten years. The dashed line shows the minimum10% reduction in nitrate concentrations based on the 2005 benchmark.

This example demonstrates that for some river and lake parameters the increasing trend will first need to stabilise and reverse before any improvement can be measured. If this trend continues its positive momentum (thick black line) a greater overall improvement will be required to first counteract any increase since 2005 and then achieve a further 10% reduction (dashed line).



An improvement of a minimum of 10 percent over the life of the Plan is considered to be a realistic goal given that in many of the water bodies there is an increasing trend in parameter concentrations affecting water quality and the first task is to reverse this trend and then work toward implementing strategies to measure improvements. The approach taken under this objective does not curtail future options of stricter controls if the current approach to progressing toward the long-term goals through the short-term indicators is unsuccessful in achieving the objectives. At the same time however the approach should ensure the current situation does not deteriorate further.

Management and improvement of discharges to the said water bodies will require a combination of regulatory and non-regulatory mechanisms. The water quality section of the Plan with associated polices and rules is but one intervention or tool to manage discharges of contaminants and recognise for point and non point sources of pollution. The Regional Effluent Land Application Plan, Regional Solid Waste Management Plan, and policies and rules in the bed disturbance section of this Plan govern management of some sources of these contaminants. A number of sites in Southland are monitored regularly for the parameters listed under Objective 4. Monitoring of these sites will determine success at meeting this objective and where necessary stricter controls on resource consents, higher standards for permitted activities, and advocacy, education and incentives to improve practices that result in the discharge of contaminants through non-point means will be implemented.

Water Quantity Objectives

(see also Section 5.1.2 Groundwater Objectives)

Objective 5 – Sufficient water availability

Other relevant sections: Issues 2, 3, 5, 7, Policies 1A, 14-23, 27-31, 38-40, Rules 18-21, 23, Section 2.3.

To have sufficient water to support the reasonably foreseeable needs of current and future generations and enable people and communities to provide for their social, economic and cultural wellbeing while protecting aquatic ecosystem health, life supporting capacity, natural character and historic heritage values of surface water bodies.

Explanation

Surface water bodies within the region sustain a wide range of instream values, such as ecological, recreational, landscape and cultural values, and out-of-stream uses, such as abstraction, damming and diversion for social and economic purposes. There can be conflict between these values and uses, particularly when water is limited during times of low flow. The objective is to balance these competing values and uses so people are able to provide for their social, economic and cultural wellbeing, but in a way that protects the health and life-supporting capacity of ecosystems.

It is assumed that, by aiming to protect aquatic ecosystem health and the life supporting capacity of surface water bodies, associated ecological, recreational, landscape and cultural values will also be protected to a level that is acceptable to the community. The term "ecological values" refers to the value of all vegetation and fauna that may be present within and dependant on a water system. For practical purposes, the most important ecological values that need to be considered under this objective are areas of significant indigenous vegetation, significant habitats of indigenous fauna, and the habitats of trout and salmon. It should be noted certain activities affecting surface water bodies (such as restoration of existing habitats and creation of new habitats, through damming and diversion) can result in the enhancement of ecological values.

Objective 6 – The Waiau catchment

Other relevant sections: Issue 3, Policies 1A, 19, 19A, Rules 18, 21, Section 2.3.

To provide for the national importance of the existing hydro-electric generation in the Waiau catchment, and recognise the resultant modified flow and level regime.

Explanation

The operation of the Manapōuri Power Scheme and its use of the water resources of Lakes Manapōuri and Te Anau, the Waiau and Mararoa Rivers and tributaries, was provided for by the Manapōuri - Te Anau Development Act 1963. The Scheme was commissioned in 1972 and is of national and local importance, both in its contribution to the nation's

electricity generating capacity and to the operation of the New Zealand Aluminium Smelters facilities at Tiwai – the largest electricity consumer in New Zealand. Under the provisions of the Resource Management Act 1991 it is appropriate to provide for the continued use of this water resource of national importance. However this use and future uses are required to be undertaken in a manner that avoids, remedies or mitigates the adverse effects on the environment. The modified environmental flow and level regimes of the Waiau catchment provide some mitigation of the adverse effects on the ecosystem. Other remedial actions are also in place. Opportunities exist for ongoing mitigation and remediation that will result in the enhancement of ecological values. These activities need to be managed positively.

Objective 7 – Efficient Water Use

Other relevant sections: Issues 2, 3, 5, Policies 1A, 19B, 20-24, Rules 18-21, 23, Section 2.3.

To maximise the efficiency of water use.

Explanation

This objective is consistent with Objective 4.4 of the Regional Policy Statement, which is to achieve the efficient use of water extracted from water bodies. It is also consistent with Section 7(b) of the Resource Management Act 1991, which provides that particular regard must be given to the efficient use and development of natural and physical resources.

Efficiency can be interpreted in many different ways but in terms of water use generally refers to achieving a given outcome using the least amount of water practicable thereby avoiding waste and maximising availability of the water resource.

5.1.2 Groundwater Objectives

(see also Section 5.1.1 Water Quality and Quantity Objectives)

Objective 8 – Drinking Water Standard

Other relevant sections: Issues 1, 4, 5A, Policies 1A, 2, 3, 6, 25-27, 31A-D, Rules 3, 22, Section 2.3.

(a) To maintain groundwater quality in aquifers that already meet the *Drinking-Water Standards for New Zealand 2000*; and

(b) To enhance groundwater quality in aquifers degraded by land use and discharge activities (with the exception of those aquifers where ambient water quality is naturally less than the *Drinking-Water Standards for New Zealand 2000*) to ensure general compliance with the *Drinking-Water Standards for New Zealand 2000* by the year 2010.

Explanation

Groundwater is extensively used for drinking water within the region, with a significant percentage of rural properties reliant on groundwater to some extent for domestic and/or stock water. The widespread use of groundwater for drinking reflects both the importance of the resource, and the expectation within the community that groundwater should be suitable for both human and stock consumption without the need for treatment.

The suitability of water for human consumption is measured against the *Drinking-Water Standards for New Zealand 2000* (DWSNZ 2000) which set Maximum Acceptable Values (MAVs) for a range of contaminants. Recent studies in Southland suggest that the vast majority of groundwater currently falls within these limits, and is safe for human consumption. However, a small percentage of groundwater samples show nitrate and faecal coliform bacteria levels either above or approaching the MAVs.

The objective, therefore, is to maintain high quality groundwater in a state that is suitable for human consumption, and to enhance groundwater quality in aquifers degraded by land use and discharge activities to a drinkable standard (except for those aquifers that have naturally high levels of substances, such as iron, which reduce the suitability of groundwater for human consumption in the first instance). In addition, the objective links to Policy 25, which allows for localised impacts resulting from point source and non-point source discharges provided there is no deterioration of groundwater quality in the receiving aquifer after reasonable mixing, unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so.

The objective also recognises that there may be a significant time lag between changes in land use practice and resulting effects on groundwater quality.

Objective 9 – Sustainable abstraction

Other relevant sections: Issue 5, Policies 1A, 14, 17, 20-23, 27-31, Rule 23, Section 2.3.

To ensure that the total volume and rate of groundwater abstraction is sustainable.

Explanation

Significant quantities of groundwater are extracted from aquifers within the region for important social and economic purposes, including domestic, farm, municipal and industrial supply. With changing land use practices, the abstraction and use of groundwater is on the increase, yet there is an expectation within the community that this use will be sustainable, and that water will continue to be available for current and future users.

The objective, therefore, is to ensure that groundwater abstraction, over both the short and long-term, is carried out in a sustainable manner. This means that the volume and rate of abstraction needs to be set at levels which ensure aquifer storage volumes and minimum surface water flows are maintained. The sustainable management of groundwater will ensure that the water resource continues to be available for human use and continues to sustain natural values such as aquatic ecosystems and habitats.

5.1.3 Land and Soil Objectives

Objective 9A – Maintain soil quality

Other relevant sections: Issues 5A, Policies 1A, 2-4, 6, 31A-D, 41-48, Rules 1-2, 5-7, 10, 12-13, 16-16D, 49-51, 57-58, Section 2.3

To manage discharges onto or into land so that the quality and structure of soil resources are maintained.

Explanation
Soils are an integral and living part of the wider ecosystem, as well as being an ecosystem in their own right.

This objective acknowledges that discharges in excess of the capacity of the receiving environment can have adverse effects leading to changes in soil structure (e.g. through increased levels of calcium, sodium and potassium) and soil quality (e.g. through increased concentrations of nutrients). This can then affect the usability and overall health of the region's soil resources.

The objective reflects the fact that in order to achieve the sustainable management purpose of the Act, the life-supporting capacity of soil needs to be maintained.

Objective 9B – Human health

Other relevant sections: Issues 5A, Policies 1A, 2-4, 6, 31A-D, 41-48 Rules 1-2, 5-7, 10, 12-13, 16-16D, 17C, 49-51, 57-58, Section 2.3

To manage discharges onto or into land so that adverse effects on human health are avoided.

Explanation
Adverse effects on human health may arise as a result of the discharge of contaminants onto or into land. Discharges such as human and animal effluent and offal can contain potentially harmful toxins and pathogens, and can result in soil becoming contaminated to levels that makes it unsuitable for its current use.

Objective 9B recognises the importance of human health by seeking that the adverse effects of discharges of contaminants are avoided.

Objective 9C – Habitats and ecosystems and other values

Other relevant sections: Issues 5A, 7, Policies 1A, 2-4, 6, 31A-D, 41-48, Rules 1-2, 5-7, 10, 12-13, 16-16D, 17C, 49-51, 57-58, Section 2.3

To manage discharges onto or into land so that any adverse effects on:

(a) the diversity and integrity of habitats and ecosystems; and

(b) amenity and historic heritage values

are avoided, remedied or mitigated to ensure that these values are maintained or enhanced.

Explanation

Habitats, being the natural places where organisms live, are an essential part of healthy ecosystems. Habitats and ecosystems can be degraded through discharges to land, and their diversity and integrity should at least be maintained, and wherever possible, enhanced.

This objective recognises that healthy ecosystems have intrinsic value and support a range of human uses that are fundamental to the economic, social and cultural wellbeing of the region's communities. It is also a matter of national importance under the Act to recognise and provide for the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.

Amenity values include those characteristics that contribute to people's appreciation of an area's pleasantness, aesthetic coherence, and cultural and recreational attributes. Particular regard must be had to the maintenance and enhancement of amenity values under the Act. This objective recognises that discharges onto or into land may create adverse effects which have the potential to impact on the amenity values of the wider environment.

Historic heritage is fundamental to the sense of identity of the community, and may have social, technological, cultural or spiritual significance. In addition, it is a matter of national importance under the Act to recognise and provide for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga, which form one part of New Zealand's historic heritage.

5.1.4 River Bed (including beds of streams and modified watercourses) and Lake Bed Use and Development Objectives

Objective 10 – Habitats and ecosystems

Other relevant sections: Issue 6, Policies 1A, 32-37, Rules 24-48, Section 2.3.

To maintain or enhance the diversity and integrity of aquatic and riverine habitats and ecosystems.

Explanation

The phrase "diversity and integrity of aquatic and riverine habitats and ecosystems" means the range of habitat and ecosystem types within river and lake beds and their integrity or life-supporting capacity. The objective recognises that habitats, being the natural places where organisms live, are an essential part of healthy ecosystems[30]. Many habitats and ecosystems within river and lake beds have been lost or degraded through use and development, and should at least be maintained, and where possible enhanced.

The objective recognises that healthy ecosystems have intrinsic value and support a range of human uses that are fundamental to the economic, social and cultural wellbeing of communities. It is also a matter of national importance under the Act to recognise and provide for the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna, while particular regard must be had to the protection of trout and salmon habitat.

Objective 11 – Historic Heritage

Other relevant sections: Issue 6, Policies 1A, 32-37, Rules 24-48, Section 2.3, Appendix C.

To protect significant historic heritage values from the adverse effects of activities in the beds of rivers and lakes.

Explanation

The objective is that significant heritage values in the beds of rivers and lakes will be protected. The objective applies to areas or sites of significance to the general community (e.g., archaeological sites and historic structures), as well as to sites that have particular significance to the tāngata whenua (e.g. wāhi tapu and other taonga).

The objective recognises that heritage sites are fundamental to the sense of identity of the community, and may have social, technological, cultural or spiritual significance. In addition, it is a matter of national

[30] As well as requiring suitable habitat, aquatic organisms need water of sufficient quality and quantity to survive. The Water Quality and Water Quantity sections contain objectives which seek to have levels of water quality and quantity that will, in combination with the right habitat, support healthy ecosystems.

importance under the Act to recognise and provide for the relationship of Māori with culturally significant sites. Statutory Acknowledgment areas are areas where the Crown has acknowledged Ngāi Tahu's special relationship with identifiable areas, namely Ngāi Tahu's particular cultural, spiritual, historical and traditional association with these areas. These areas were identified in the Ngāi Tahu Claims Settlement Act 1998 (the Settlement Act) and are described in Appendix C of this Plan. The Settlement Act also sets up a range of other sites and information that may be relevant to any applicant or consent holder, or to the public generally. The Statutory Acknowledgement areas and other sites and information have significant heritage value for Ngāi Tahu. However, it should be noted that not all the areas identified in Appendix C are areas within the jurisdiction of this Plan. Particular regard must also be had to the recognition and protection of heritage values.

Objective 12 – Public access

Other relevant sections: Issue 6, Policies 1A, 32-37, Rules 24-48, Section 2.3.

To maintain and enhance public access to river beds (including beds of streams and modified watercourses) and lake beds except in circumstances where public health and safety are at risk.

Explanation

Public access to Crown land and land held by local authorities for the purpose of public access in river or lake beds is a traditional right and is important for social, cultural and recreational reasons. The Act recognises this right by stating that the maintenance and enhancement of public access to and along lakes and rivers is a matter of national importance. Activities that take place on Crown land and land held by local authorities for the purpose of public access in river and lake beds should therefore be carried out in a way that either maintains or enhances public access, unless it is necessary to restrict access for safety reasons. It is necessary for operators of electricity generation infrastructure to restrict public access to their assets including hydro lakes and canals in a range of circumstances. For example, large intake structures often need to be fenced off to prevent people swimming near them. Fixed machinery and other areas where automated machinery operates may also need to be fenced off for safety, security and operational reasons. Similarly, the water discharged from a power station is often oxygenated and therefore presents a buoyancy hazard for prospective swimmers and boat users.

The objective is aimed at maintaining or enhancing public access where the right of access currently exists (i.e. on Crown land and land held by local authorities for the purpose of public access). However, it is recognised that a number of river beds within the region are in private ownership, and there is no traditional right of public access to these areas. It is also acknowledged that the riparian margins of some rivers have no "Queens Chain" right of access. The objective does not apply to these areas.

Objective 13 – Natural character and outstanding natural features

Other relevant sections: Issue 6, Policies 1A, 32-37, Rules 24-48, Section 2.3.

To protect natural character and outstanding natural features of rivers and lakes from inappropriate use and development.

Explanation

High levels of natural character and outstanding natural features are still found in many rivers and lakes, particularly in the less developed upper catchments and on Conservation land. More developed lowland rivers and lakes may lack the level of natural character present in less modified rivers and lakes, however they may still retain strong elements of natural character (e.g., channel form, bed rapids, seasonably variable flows and natural habitats).

The objective recognises the importance of the natural character of rivers and lakes within the Southland landscape. It is also a matter of national importance under the Act to recognise and provide for the preservation of the natural character of rivers and lakes from inappropriate use and development.

Objective 14 - Fish passage (Clause 3.26 of National Policy Statement for Freshwater Management 2020)

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.

Explanations and Principal Reasons for Objectives

General Note for all Objectives

Under Section 69(3) of the Resource Management Act 1991, a regional council is not allowed to set standards in a plan which result, or may result, in a reduction of the quality of water existing at the time of public notification of its proposed plan, unless it is consistent with the purpose of the Act to do so. The purpose of the Act is to promote the sustainable management of natural and physical resources.

5.2 Policies

5.2.1 Water Policies

Policy 1A – Take into account Iwi Management Plans

Other relevant sections: All issues, objectives, rules and section 2.3

Any assessment of an activity covered by this plan must take into account any relevant Iwi Management Plan.

Explanation

An Iwi Management Plan is a general term given to any planning document recognised by Te Runanga o Ngai Tahu (as Iwi authority) and lodged with a local authority. While Iwi Management Plans are not statutory, since 2003 local authorities have had an obligation under the Act to take them "into account" when preparing their own regional planning documents and making decisions on an activity.

Te Tangi a Tauira: The Cry of the People (2008) is an Iwi Management Plan recognised by Ngai Tahu which encompasses the Southland region. Te Tangi a Tauira is based around the Ngai Tahu philosophy of "ki uta ki tai" (mountains to the sea). Giving effect to this concept could include the imbedding of Iwi values and policies throughout Council decision-making processes on activities covered by this plan, to ensure connections and the holistic view is achieved.

Water Quality

Policy A4 of the National Policy Statement for Freshwater Management 2014

1. When considering any application for a discharge the consent authority must have regard to the following matters:

    a. the extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water and

    b. the extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, resulting from the discharge would be avoided.

2. When considering any application for a discharge the consent authority must have regard to the following matters:

    a. the extent to which the discharge would avoid contamination that will have an adverse effect on the health of people and

communities as affected by their secondary contact with fresh water; and

b. the extent to which it is feasible and dependable that any more than minor adverse effect on the health of people and communities as affected by their secondary contact with fresh water resulting from the discharge would be avoided.

3. This policy applies to the following discharges (including a diffuse discharge by any person or animal):

   a. a new discharge or
   b. a change or increase in any discharge –

   of any 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 from the discharge of that contaminant, any other contaminant) entering fresh water.

4. Paragraph 1 of this policy does not apply to any application for consent first lodged before the National Policy Statement for Freshwater Management 2011 took effect on 1 July 2011.

5. Paragraph 2 of this policy does not apply to any application for consent first lodged before the National Policy Statement for Freshwater Management 2014 takes effect.[31]

Policy 1 – Surface water body classes

Other relevant sections: Objectives 1-4, Issues 1, 6, 7, Rules 1, 2, 3A-17, Section 2.3.

(a) Recognise the different characteristics of the following surface water body classes when managing discharges:

(i) Natural State Waters
(ii) Lowland (hard bed)
(iii) Lowland (soft bed)
(iv) Hill
(v) Mountain
(vi) Lake-fed
(vii) Spring-fed
(viii) Mataura 1
(ix) Mataura 2
(x) Mataura 3
(xi) Lowland/coastal lakes and wetlands
(xii) Hill lakes and wetlands
(xiii) Mountain lakes and wetlands

(b) Apply water quality standards established under any Water Conservation Order.

[31] The National Policy Statement for Freshwater Management 2014 took legal effect on 1 August 2014.

Explanation
Surface water bodies within Southland have been grouped into a number of classes as listed in Policy 1 above. Appendix D contains water quality maps showing which class each surface water body falls into. In addition, the definitions of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) those two classifications.

Recent analysis of water quality at sites throughout Southland (Ryder Consulting 2004) shows that differences in water quality between river types are fairly subtle. River type, based on 'source of flow' from the River Environment Classification system developed by NIWA, correlates quite closely with land-use and this is likely to influence the water quality and benthic ecosystems. For rivers and streams, the classes chosen are similar to those used to determine critical values in the water quantity section of this Plan. 'Lowland' water bodies are split into 'soft bed' and 'hard bed' to reflect the different ecosystems found in these two environments. Standards for mountain, hill and lowland/coastal lakes and wetlands have been set using parameters more appropriate for these water bodies. The Mataura River has its own standards reflecting the provisions of the Water Conservation Order (Appendix G "Water Quality Standards"). Except for particular situations specified in the Conservation Order (sections 5(2) and 7(2)), water and discharge permits that contravene these standards may not be granted.

The classes chosen allow the various water bodies to be managed to particular standards depending on their existing water quality, surrounding land-use and values. For example the standards set for the 'mountain' class are high, reflecting the existing high water quality, undeveloped catchments and the expectation that water quality should remain high. The standards for lowland rivers are lower and more realistic for these water bodies, given the existing water quality and the highly developed nature of the surrounding land.

Policy 2 – Natural State Waters

Other relevant sections: Objectives 1-4, 8, 9A-C, Issues 1, 4, 5A, 6, 7, Rules 1-17, 22, Section 2.3.

Provide for discharges to Natural State Waters only where there will be no measurable adverse effects on existing water quality beyond the zone of reasonable mixing, unless it is consistent with the sustainable management of natural and physical resources as set out in Part 2 of the Resource Management Act 1991.

Explanation
Water quality within Natural State Waters is largely unaffected by human or animal activity. The water quality within these waters should be protected. Discharges to water within Natural State Waters should be avoided where practicable, but where they are unavoidable, should not result in any deterioration of the water quality beyond the zone of

reasonable mixing. This policy therefore gives effect to Section 69(3) of the Act. Minor discharges with temporary adverse effects may be acceptable, but a long-term deterioration of water quality is not. Section 107(2) of the Act provides that the Council may grant a discharge permit to allow a discharge which after reasonable mixing is likely to give rise to all or any of the effects described in Section 107(1) of the Act if it is satisfied that:

(a) exceptional circumstances justify the granting of the permit; or
(b) the discharge is of a temporary nature; or
(c) the discharge is associated with necessary maintenance work;

and that it is consistent with the sustainable management of natural and physical resources set out in Part 2 of the Act.

Policy 3 – No reduction in water quality

Other relevant sections: Objectives 1-4, 8, 9A-C, Issues 1, 4, 6, 5A, 7, Rules 1-17, 22, 49, 51, Section 2.3.

Notwithstanding any other policy or objective in this plan, allow no discharges to surface water bodies that will result in a reduction of water quality beyond the zone of reasonable mixing, unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so.

Explanation
Section 69 (3) of the Act states that:

"Subject to the need to allow for reasonable mixing of a discharged contaminant or water, a regional council shall not set standards in a plan which result, or may result, in a reduction of the quality of the water in any waters at the time of the public notification of the proposed plan unless it is consistent with the purpose of this Act to do so."

Water quality standards for different classes of surface water bodies have been set in Appendix G "Water Quality Standards". However, where the existing water quality in any surface water body is higher than the standards set for that water body, there is a need to ensure water quality does not deteriorate down to the standards unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so. There is also a need to ensure that the cumulative effect of all discharges does not result in deterioration. This policy therefore provides guidance to Council to ensure that the individual and cumulative effect of discharges does not threaten water quality and puts the onus on applicants to prove that any proposal to lower water quality meets the purpose of the Act. Section 107(2) of the Act provides that the Council may grant a discharge permit to allow a discharge which after reasonable mixing is likely to give rise to all or any of the effects described in Section 107(1) of the Act if it is satisfied that:

(a) exceptional circumstances justify the granting of the permit; or
(b) the discharge is of a temporary nature; or
(c) the discharge is associated with necessary maintenance work;

and that it is consistent with the sustainable management of natural and physical resources set out in Part 2 of the Act.

Policy 4 – Surface water bodies outside Natural State Waters

Other relevant sections: Issues 1, 5A, 6, 7, Objectives 1-4, 9A-C, Policy 13A-B, Rules 1, 2, 3A-17, 49, 51, Section 2.3.

For surface water bodies outside Natural State Waters, manage point source and non-point source discharges to meet or exceed the water quality standards referred to in Rule 1 and specified in Appendix G "Water Quality Standards", unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so and so avoid levels of contaminants in water and sediments that could harm the health of humans, domestic animals including stock and/or aquatic life.

Explanation
Surface water bodies have been grouped into a number of classes as listed in Policy 1 above. Water quality standards for each class are detailed in Appendix G "Water Quality Standards". Appendix D contains water quality maps showing which class each water body falls into. The standards apply following reasonable mixing with the receiving water. Managing discharges to ensure compliance with these standards following reasonable mixing will avoid levels of contaminants in water and sediments that could harm the health of humans, domestic animals including stock and/or aquatic life. Where water quality in any surface water body is higher than the standards set for that water body, Policy 3 provides that it will not be allowed to deteriorate down to those standards unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so.

The standards used are as follows:

Temperature
Trout have a narrow range of thermal preferences, with lethal effects occurring at 24 – 30°C for adults. Native fish can survive in temperatures higher than those likely to be found in Southland's surface water bodies. Mayflies, which are favoured food for trout, are one of the macroinvertebrate species most sensitive to temperature. They have an LT50 (the temperature at which half will die) of 22.6°C. An upper limit of 23°C for the receiving water has therefore been set for lowland and hill country rivers. For mountain rivers, lake outlets and springs a lower temperature of 21°C is more appropriate and in keeping with the natural temperature regime. In addition to this, the natural or existing water temperature shall not be exceeded by more than 3°C when the

natural or existing water temperature is 16°C or less. For example, if the natural temperature of a river was 15°C then the maximum temperature in keeping with the standards would be 18°C. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C.

A maximum of 11°C between May and September is set for water classes that may support trout spawning. In all classes, a maximum change in temperature of 3°C is set. This reflects the standard in the Third Schedule of the Act for water managed for fishery purposes and fish spawning purposes.

pH

Low pH can have a direct adverse effect on aquatic life. Most low pH streams in Southland are as a result of natural acids from forests and wetlands. ANZECC 1992 guidelines specify a pH range of 6.5 – 9. This is appropriate for lowland and hill streams, but a narrower range of between 7.2 – 8 is more appropriate for other river systems. This reflects the higher standard in the ANZECC 2000 guidelines. In addition, a standard requiring that there shall be no pH change due to a discharge that results in a loss of biological diversity or a change in community composition is considered appropriate.

Dissolved oxygen (DO)

The most sensitive species to low levels of DO are trout and mayflies, both of which represent important components of Southland's water bodies. The dissolved oxygen (or saturation) concentration standard proposed for lowland streams is 80%. This reflects water classes (Classes AE, F, FS, SG waters) specified in the Third Schedule of the Act. A higher saturation concentration standard of 99% (ANZECC 2000 guidelines) is considered more appropriate for mountain, lake fed and spring fed water bodies.

Bacterial and fungal slime growths, such as sewage fungus, are undesirable in any water bodies, and a standard limiting their growth is proposed.

Water clarity

Water clarity is important because of its effect on instream ecology, recreation and aesthetic value. The ANZECC 2000 guidelines for lowland and hill country rivers are proposed. For mountain, lake fed and spring fed water bodies, which have high clarity, a higher standard is set.

Ammonia

Ammonia is toxic to aquatic organisms. It is present as a result of breakdown of organic matter and as a contaminant from wastewater discharges and run-off. The ANZECC 2000 trigger values for total ammonia are used.

Faecal coliforms/*Escherichia coli*

Faecal contamination is a serious issue in Southland's surface water bodies. Many water bodies currently grossly exceed guidelines for

contact recreation and stock drinking water. It is not feasible, given the level of agricultural development in the region, to meet the contact recreation standard for all water bodies. For lowland, hill and spring-fed water bodies, the stock drinking water guideline is considered appropriate, apart from those areas that are regularly used for bathing. For those areas, and for mountain and lake-fed water bodies which have inherently higher water quality, the contact recreation standard is appropriate. It is expected that it will take 10 to 15 years to achieve these standards. A schedule of those areas that are regularly used for bathing that are to be managed for contact recreation purposes is included as Appendix K "Popular Bathing Sites".

Periphyton

High levels of nutrients can result in excessive growths of algae, which can affect biodiversity and aesthetic value. However, nuisance growths only develop when temperature conditions are right and there are sustained periods of stable flow. Setting guidelines for periphyton growth ensures that the effect of high nutrient levels is managed, rather than the levels of nutrients themselves, which may cause no problems if other conditions are not conducive to algal growth.

The MFE guidelines for periphyton growths in gravel and cobble streams are used. For lowland streams, the least stringent guideline (for trout habitat and angling) is set. For hill and mountain streams, the aesthetic/recreation guidelines is used, and for spring and lake outlet streams, the benthic biodiversity guideline.

Macroinvertebrate Community Index

The macroinvertebrate community index (MCI) assesses habitat quality by considering the community composition and how tolerant particular species or groups are to poor water quality. It can give an indication of how polluted or organically enriched a water body is. Communities less tolerant of pollution might be expected to be found in cleaner water bodies. The highest MCI is set for mountain streams, with the second highest for hill streams, then lake bed, spring fed and lowland hard-bedded streams. Lowland soft-bedded streams can be expected to support a community indicative of the lowest MCI score.

Policy 5 – Discharges to water in artificial watercourses

Other relevant sections: Objectives 1, 2, Issue 1, Rules 3-17, Section 2.3.

Manage discharges to water in artificial watercourses so that any new discharge, in conjunction with existing discharges, does not reduce the water quality of the surface water body into which the artificial watercourse flows below any standards set for the surface water body in Appendix G "Water Quality Standards" following a zone of reasonable mixing from the point of confluence of the artificial watercourse with the surface water body.

Explanation
Artificial watercourses include irrigation canals, water supply races, canals for the supply of water for electricity power generation and farm drainage canals. They do not include modified (e.g. straightened) natural surface water bodies. Some artificial watercourses do have aquatic ecosystem values although they are not generally constructed for this purpose. Water quality standards have not been set for artificial watercourses and the management of discharges to them will depend on the particular values that are present.

This policy seeks to address the cumulative effects of discharges into artificial watercourses by requiring new discharges, in conjunction with existing discharges, to meet the water quality standards of the surface water body into which the artificial watercourse flows following a zone of reasonable mixing from the point of confluence.

Policy 6 – Non-regulatory methods

Other relevant sections: Objectives 1-4, 8, 9A-C, Issues 1, 4, 5A, 6, 7, Rules 1-17, 22, 49, 51, Section 2.3.

(a) Use non-regulatory methods, in addition to rules, to maintain and enhance surface water and groundwater quality, and to avoid, remedy or mitigate adverse effects on soil quality.

(b) Assess on an ongoing basis whether the adoption of non-regulatory methods has resulted in improvements to water or soil quality, and consider the introduction of other interventions if improvements have not resulted.

Explanation
Non-regulatory methods include approaches such as education, promotion, provision of incentives or rewards, and best management practices. These methods are a key tool in achieving the stated objectives and can be used independently of or in conjunction with rules. Non-regulatory methods are also necessary to promote environmental awareness and good practice.

For the reasons outlined below, non-regulatory methods for point source and non-point source discharges in Southland need to focus on:

(a) reducing faecal contaminant inputs to water;
(b) reducing nutrient inputs to water;
(c) avoiding or reducing discharges that increase Biochemical Oxygen Demand (BOD) in the water;
(d) reducing discharges of contaminants to water that alter colour and clarity of the water;
(e) reducing discharges of contaminants to soil that adversely affect the structure, health and chemical, physical and biological performance of soil.

Methods to achieve the above include, but are not limited to, the following best management practices:

- keeping stock out of streams and riparian margins;
- establishing or maintaining a dense ground cover in the riparian margin;
- riparian vegetation planting that shades water bodies, assists in minimising sediment, animal faecal matter and nutrients entering water bodies, and promotes bank stability;
- adopting good soil conservation practices;
- appropriate nutrient management, including use of nutrient budgeting tools;
- applying effluent when soils are not saturated, and matching application rate and depth to environmental risk, so as to maximise benefits and minimise contaminants entering surface or groundwater;
- appropriate management of installed sub-surface drainage systems;
- managing stocking rates;
- using low erosion risk cultivation methods;
- undertaking appropriate track placement and construction;
- putting in place measures to minimise erosion before undertaking earthworks or forestry activities;
- establishing catchment and sub-catchment groups/committees and catchment and sub-catchment management plans;
- adopting sustainable drain/stream management techniques when constructing and maintaining drains and streams; and
- following relevant industry Codes of Practice, guidelines and New Zealand Standards where they exist

It is recognised that it may not be possible to adopt best management practices in every circumstance, in which case adoption of the best practicable option is acceptable.

To achieve the Plan's objectives, Environment Southland will continue to actively promote best management practices in relation to land management and point source and non-point source discharges. Environment Southland will also continue to support and promote local and national codes of practice and guidelines, provide advice on appropriate best management practices and work with territorial authorities and government bodies in developing joint approaches to water and soil_quality issues.

If ongoing assessment shows there is no evidence that adoption of non-regulatory methods has resulted in an improvement in water and soil_quality, then the need for increased regulation will be considered and a plan change initiated if necessary.

Need for non-regulatory methods

Many Southland surface water bodies are susceptible to nuisance algal growths during summer months. For example, toxic cyanobacteria algal mats have been recorded in the Mataura River. Nuisance algal growths are excessive biomass accumulation. Algae becomes a nuisance when it is of a type and/or extent that instream management objectives are compromised e.g. extensive algae may make the surface water body undesirable for swimming, clog water intakes, clog whitebait nets, degrade benthic invertebrate communities or impair spawning habitat for native fish. A reduction in nutrients can help prevent nuisance algal growths. The availability of phosphorus limits algal growth in many of Southland's rivers. Nitrogen limits algal growth in estuaries and in the headwaters of some rivers.

It should be noted that high levels of nutrients are not enough on their own to cause nuisance or toxic algal growths. The lack of major freshes will result in periphyton accumulation. Climatic factors also play a role in periphyton accumulation. However, reduction of nutrient inputs is something that can be controlled by people while climate is largely beyond human control. Nutrients enter water bodies via seepage into groundwater, bound to soils or via overland flow as well as through point source discharges. The policy aims to reduce nutrient levels in point source discharges, to encourage the adoption of best management practices to reduce the amount of nutrients entering freshwater bodies via non-point source discharges and to encourage soil conservation practices that keep high quality fertile soils on the land.

Biochemical oxygen demand (BOD) measures the strength of a waste, and its ability to remove dissolved oxygen from water by decomposition. BOD levels in Southland have reduced. It is important to avoid or reduce discharges such as nitrogen based compounds and carbon based compounds that increase BOD in Southland surface water bodies if they are to be suitable for native fish and salmonids.

This policy recognises the need for a reduction of inputs of faecal material into these rivers. Reducing the amount of faecal material entering water bodies is critical to ensuring compliance with stock drinking water and contact recreation guidelines. The loss of riparian vegetation has resulted in the reduction in the quality of the in-stream environment. This adds to increased erosion, flooding, decreased habitat and allows for an increase in overland contaminants reaching the water body. Riparian vegetation has beneficial effects in farmed catchments, reducing the detrimental effects of runoff and stock access and helping maintain healthy aquatic environments. Fostering such management practices helps reduce the amount of nutrients entering the water. In addition, reducing faecal contamination will assist with improving water quality in estuaries and shellfish gathering areas, as required by the Coastal Plan.

This policy also recognises that not all water bodies run clear naturally, i.e. some are humic stained. Most of these water bodies are lowland water bodies. Hill country water bodies should have good colour and clarity. Some rivers are carrying a high sediment loading and that has downstream adverse effects in estuaries, increases the frequency at which mechanical drainage work is required, and adversely affects the habitat quality for native fish and trout. Reducing the amount of sediment entering the water bodies through best management practices will help to address some of these issues.

Land management practices can disturb the land to the extent that soil is washed away by rainfall and end up as sediment in surface water bodies. Suspended sediment reduces light penetration, reducing water clarity. This can affect both river ecosystems and recreational uses of the water body such as angling or swimming. Sediment that settles out on the streambed can smother trout redds and the habitat for benthic invertebrates.

Application of fertiliser or agricultural effluent discharged onto or into land can, if poorly managed, result in large quantities of nutrients leaching into groundwater, washing directly into surface water bodies or adverse effects on soil quality and structure. The current Code of Practice for Nutrient Management (With Emphasis on Fertiliser Use) provides advice and guidelines that can minimise adverse effects on water bodies. Nutrient budgeting tools are also available. A range of industry initiatives, including the Sustainable Dairying and Clean Streams Accord and Fonterra's audited self-management programmes, also address nutrient management.

Policy 7 – Prefer discharges to land

Other relevant sections: Objectives 1-4, Issue 1, Rules 1-3A, 11, 12, 14, 16A-16D, Section 2.3.

Prefer discharges to land over discharges to water where this is practicable and the effects are less adverse.

Explanation

The adverse effects of discharges on surface water quality can largely be avoided by removing the discharge from surface water altogether. This policy is derived from Regional Policy Statement Policy 5.4 "Utilise land treatment of liquid wastes where this can be undertaken in a sustainable manner and without significant adverse environmental effects".

In many cases, the discharge of contaminants to land is a practical alternative to discharging to water. Often, there are less adverse effects associated with discharging to land, and in fact there can be benefits (e.g. discharge of effluent promoting pasture growth). In these circumstances, the Council will prefer discharges to land. However, the Council recognises that discharges to land can have adverse effects on surface water bodies, groundwater and soil quality (e.g. through runoff or leaching), and will not be practicable in every case.

Policy 8 – Discharges to water

Other relevant sections: Objectives 1-4, Issue 1, Rules 1-3A, Section 2.3.

Prefer point source discharges of contaminants to water at times of high flow over discharges at normal or low flows, and ensure that where discharging does take place at low flows, the effects that could not be practically avoided are minimised.

Explanation

When rivers are flowing at above mean annual flow they have a better capacity to assimilate discharges and there are likely to be less adverse effects than at normal or low flows. Where discharges to water cannot be minimised or effects not practically avoided as a result of continuing low flows, adopting contingency methods is a remedy. For example providing capacity for onsite storage of a contaminant will allow for discharge to water at times of high flow. However, it should also be noted that some rivers are used for example by certain fish species i.e. long fin eels during migration and by recreationists for kayaking at high flows, especially the Upper Mararoa, lower Waihōpai, parts of the Mataura and parts of the Waiau. Discharges at high flows may therefore conflict with some recreation and habitat values and may not always be appropriate.

If appropriate, resource consents may state the flows at which discharging may take place and specify measures to be taken to minimise the effects. Those discharging should also take responsibility to minimise the effects of their discharges at low flows.

Note that this policy does not apply to discharges of water to water. Where water quality is as good as or higher than the receiving water and other issues concerning the discharge of water have been addressed, the effect of these discharges at low flows is likely to be minor or may be beneficial.

Policy 9 – Zone of reasonable mixing

Other relevant sections: Objectives 1-4, Issue 1, Rules 1-3A, Section 2.3.

When determining the size of the zone of reasonable mixing, minimise the size of the area where the relevant water quality standards are breached. Consideration should be given to, but not be limited to, the following matters:

(a) the aquatic ecosystem values in the affected reach;
(b) the need for fish passage;
(c) the uses of the water body adjacent to and downstream of the point of discharge

Explanation

A zone of reasonable mixing provides for reasonable mixing of any contaminant or water with the receiving water. The size of the zone of

reasonable mixing (the zone where the water quality standards are not met) needs to be determined on a case-by-case basis.

The factors listed above should be considered when determining the size of the zone of reasonable mixing. For example, if water is taken for domestic consumption downstream of a discharge point, the zone of reasonable mixing should be sufficiently small so that water may still be taken unaffected by the discharge.

The size of the zone of reasonable mixing will vary depending on site specific factors including:

(a) the flow rate, velocity and concentration of the discharge;
(b) the design (e.g. number and configuration of outlets) and location of the outfall;
(c) the depth, velocity and rate of turbulent mixing of the receiving water;
(d) the ambient concentrations in the receiving water;
(e) discharge and receiving water temperature;
(f) natural character and amenity values of the receiving environment; and
(g) water body class.

Applicants should consider these factors in order to minimise the size of this area. Resource Management Ideas No. 10 "Reasonable Mixing" produced by the Ministry for the Environment (1994) provides additional guidance on determining the size of the zone of reasonable mixing. In small streams, reasonable mixing is generally considered to have occurred at the point downstream from a sediment discharge where the stream returns to uniform colour and clarity. Determining the size of the zone of mixing in larger water bodies or where a discharge of contaminants that cannot be seen has occurred (e.g. faecal contaminants) is a much more complex process.

It is also important to appreciate that a single discharge containing a number of contaminants may have different sized areas where standards are breached for different contaminants.

Policy 10 - Use of diffusers

Other relevant sections: Objectives 1-4, Issue 1, Rules 1-3A, Section 2.3.

Promote where appropriate, the use of diffusers for point source discharges into water.

Explanation

Various techniques are available to dilute discharges, including dilution at the discharge point (mixing with "clean" water). The method preferred is the use of diffusers that eject the discharge into the water or air to maximise mixing. The purpose of the use of diffusers is to reduce the impacts of discharges in the freshwater environment. They should not be viewed as a means of increasing the concentration or amount of a discharge. Without diffusers there would in many instances be a plume

of concentrated effluent flowing from the discharge point, requiring a large zone of reasonable mixing.

Policy 11 – Stormwater discharges

Other relevant sections: Objectives 1-4, Issue 1, Rules 1-3, 11, 12, Section 2.3.

Apply consent conditions requiring consented discharges of stormwater to meet both the ANZECC sediment guidelines (as shown in Appendix E of this Plan) and the relevant water quality standards specified in Appendix G "Water Quality Standards" following reasonable mixing to:

(a) all resource consents for new stormwater discharges; and
(b) all new resource consents for existing stormwater discharges. Unless it is consistent with the purpose of the Act to allow further time, existing discharges will be required to meet the standards and guidelines by 2010 or the date the resource consent commences, whichever is the latter.

Explanation

The policy as been developed to ensure that discharges into surface water meet the ANZECC sediment guidelines and the relevant water quality standards following reasonable mixing with receiving waters from the point of discharge. The policy does not include discharges into reticulated systems as Section 15 of the Act only allows the Council to control discharges from these systems. The Local Government Act 2002 enables territorial authorities to establish Trade Waste Bylaws to control what can be discharged into the stormwater systems in the region. Environment Southland needs to work closely with the territorial authorities to achieve this policy having regard to the practical constraints that exist and the communities' ability to pay for improvements. It is recognised that it would be unreasonable and costly to require existing stormwater systems to comply with water quality standards within the short term. As a consequence, a 10-year period from the date the proposed Plan was publicly notified (30 September 2000) is provided during which those persons or authorities responsible for these discharges can take action to meet the appropriate standards.

It is expected that the prime means of achieving these standards will be through adopting best management practices (or the best practicable option where it is not possible to adopt best management practices) to prevent contaminants entering the stormwater system. This could occur immediately on all new developments and could occur in other areas as upgrades take place. In some cases, it may be necessary to install some form of settling system that captures the first flush of stormwater in a rain event, before it enters a surface water body.

Policy 6 "Non-regulatory methods" is also relevant to stormwater discharges. Environment Southland will support the development and implementation of best management practices such as those contained in the various industry codes of practice and guidelines. The oil industry is one sector that has produced a detailed guideline that addresses

management of stormwater discharges from petroleum industry sites (Environmental Guidelines for Water Discharges from Petroleum Industry Sites in New Zealand, Ministry for the Environment, 1998).

Policy 12 – Application of agrichemicals and vertebrate pest control poisons

Other relevant sections: Objectives 1-4, Issue 1, Rules 1-3, 4-7, Section 2.3.

Promote the application of agrichemicals to control plant (including aquatic plant) pests and the application of vertebrate pest control poisons to control animal pests in a manner that avoids adverse effects on water quality.

Explanation

The need to control plant (including aquatic plant) and animal pests is recognised. Equally, the potential effects of the misuse of agrichemicals and vertebrate pest control poisons and the potential effects of their use on water quality need to be taken into account. This policy provides the basis for the Council to ensure that the application of agrichemicals and vertebrate pest control poisons is carried out in circumstances and using methods that avoid such adverse effects.

Plan users should note that the Hazardous Substances and New Organisms (HSNO) Act 1996 also specifies controls regarding the application of agrichemicals and vertebrate pest control poisons. Compliance with New Zealand Standard 8409: 2004 (Management of Agrichemicals) is a means of minimising the adverse effects of agrichemical application and complying with the conditions of Rules 4 and 5 of this Plan and HSNO regulations.

Policy 13 – Discharge of untreated effluent

Other relevant sections: Objectives 1-4, Issue 1, Rule 14, Section 2.3.

Avoid the point source discharge of raw sewage, foul water and untreated agricultural effluent to water.

Explanation

Discharge of raw sewage and untreated agricultural effluent to water can significantly raise the level of microbial contamination and increase the risk of disease if the water is used for drinking or contact recreation. Furthermore, discharge of sewage is culturally offensive to most people, particularly tāngata whenua. Methods for treating raw effluent are available, as are alternative disposal methods, such as discharge to land. This policy clearly indicates that discharge directly to water from any source, including from boats, is not acceptable.

Policy 13A – Transitional policy relating to the establishment of new dairy farms

Other relevant sections: Issue 1, Issue 4, Objective 1, Objective 3, Objective 4, Objective 8, Rule 17C, Section 2.3 See also: Policy 4.

(a) Recognise that the establishment of new dairy farms poses risks to water quality, including the quality of water in coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands, that need to be addressed when establishing a new dairy farm.

(b) Manage the risk posed by the establishment of new dairy farms by requiring resource consent and requiring the documentation of risks and measures to avoid or mitigate them in a Conversion Environmental Plan.

(c) Consideration should be given to, but not be limited to, the following matters;

- (i) the assimilative capacity and drainage characteristics of the soil and consequential effects on water quality;
- (ii) the risks posed by the establishment of a new dairy farm to the water quality of water bodies, coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands;
- (iii) the extent to which those risks can be avoided or mitigated through measures proposed in the Conversion Environmental Plan;
- (iv) the likely effectiveness of the measures contained in the Conversion Environmental Plan;
- (v) how, and within what timeframe, those measures will be implemented.

(d) Where the risks to the water quality of water bodies, coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands cannot be avoided or mitigated, the Council may decline consent for the establishment of a new dairy farm.

Explanation

The Council notes that State of the Environment monitoring shows that water quality at a number of surface water and groundwater monitoring sites in Southland is below standards referred to in Rule 1 and specified in Appendix G "Water Quality Standards" for nitrogen, phosphorus, and clarity. Risks to water quality in the region remain, from a combination of historical and current land uses. These land uses give rise to both point source and non point source discharges that can affect water quality.

The Council recognises that intensive agriculture, particularly an increase in the number of dairy farms, has the potential to pose risks to water quality in the region, including the quality of water in coastal lakes, lagoons, tidal estuaries, salt marshes and coastal wetlands. The risks are particularly acute on heavy and very light soils in the region, and arise primarily from non point source discharges of contaminants, including fine sediment, phosphorus, nitrates and faecal bacteria.

The Council acknowledges that expansion of the dairy sector in Southland through the establishment of new dairy farming will be a significant contributor to the regional economy. However the environmental effects of the establishment of new dairy farms are a matter of general public interest, and effects on water quality require management for the sustainability of the sector in the region.

Policy 13A is a transitional region-wide policy and makes the establishment of new dairy farms a discretionary activity in the Southland region.

Inclusion of the word 'transitional' in the heading for the policy reflects the fact that the Council is developing a long-term policy framework that will eventually replace Policy 13A. Throughout 2013 and 2014 it is anticipated that new provisions relating to a series of agricultural activities will be publicly notified. Where applicable, these new provisions will replace the transitional policy and rule. The Council has also commenced work on developing water quality load limits and allocating those limits, as required by Policy A1 of the National Policy Statement on Freshwater Management. This work will enable the cumulative effects of activities in catchments to be addressed. A timetable for this work was publicly notified in December 2012.

Water Quantity

(see also Section 5.2.2 Groundwater Policies)

Policy B7 of the National Policy Statement for Freshwater Management 2014

1. When considering any application the consent authority must have regard to the following matters:

   (a) the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and of any associated ecosystem; and
   (b) the extent to which it is feasible and dependable that any adverse effect on the life-supporting capacity of fresh water and of any associated ecosystem resulting from the change would be avoided.

2. This policy applies to:

   (a) any new activity; and
   (b) any change in the character, intensity or scale of any established activity –

   that involves any taking, using, damming or diverting of fresh water or draining of any wetland which is likely to result in any more than minor adverse change in the natural variability of flows

or level of any fresh water, compared to that which immediately preceded the commencement of the new activity or the change in the established activity (or in the case of a change in an intermittent or seasonal activity, compared to that on the last occasion on which the activity was carried out).

3. This policy does not apply to any application for consent first lodged before the National Policy Statement for Freshwater Management took effect on 1 July 2011.

Policy 14 – Manage the taking, use, damming or diversion of surface water

Other relevant sections: Objectives 5, 9, Issues 2, 3, 5, 7, Rules 18, 19, 20, 21, 23, Section 2.3.

While recognising the positive effects resulting from the use and development of water resources, manage the taking, use, damming or diversion of surface water so as to avoid where practicable, remedy or mitigate significant adverse effects on:

(a) the quality and quantity of aquatic habitat;
(b) natural character, natural features, and amenity, aesthetic and landscape values;
(c) areas of significant indigenous vegetation and significant habitats of indigenous fauna;
(d) recreational values;
(e) the spiritual and cultural values and beliefs of the tangata whenua;
(f) water quality, including temperature;
(g) the rights of lawful existing users;
(h) groundwater quality and quantity;
(i) historic heritage.

Explanation

The abstraction, damming and diversion of surface water is important for social and economic reasons, but can have significant adverse effects on the instream values of water bodies. The extent of the adverse effects is dependent on the characteristics of a particular surface water body, the values associated with it, and the amount of water taken, dammed or diverted. In some cases taking, use, damming and diversion of surface water can result in benefits to the environment, particularly when degraded habitats are being restored or new habitats created and if the adverse effects are minor or temporary.

Where it is appropriate that these activities take place, any adverse effects on the environment need to be avoided where practicable, or remedied or mitigated. In many cases it may not be possible to remedy or mitigate the adverse effects of abstraction. For example, there may not be a practical way of repairing or offsetting the adverse effects on an aquatic ecosystem caused by the abstraction of large quantities of water. The avoidance of adverse effects is therefore preferred in the first instance. The other policies in this section, particularly Policy 15 "Surface water abstraction, damming, diversion and use" and Policy 16 "Environmental

flow and level regimes", put in place a management framework designed to avoid significant adverse effects.

Policy 14A– Determining the term of a water permit

To determine the term of a water permit consideration will be given, but not limited, to:

(a) the degree of certainty regarding the nature, scale, duration and frequency of adverse effects from the activity;
(b) the level of knowledge of the resource;
(c) relevant tangata whenua values
(d) the allocation sought, particularly the proportion of the resource sought;
(e) the duration sought by the applicant, plus material to support the duration sought;
(f) the permanence and economic life of the activity;
(g) capital investment in the activity;
(h) monitoring and review requirement in permit conditions;
(i) the desirability of applying a common expiry date for water permits that allocate water from the same resource; and
(j) the applicant's compliance with the conditions of the previous permit (where a new water permit is sought for a previously authorised activity).

Explanation

Matters (a) to (j) can be taken into account when determining whether a water permit should be approved. However, to help achieve efficient and reasonable use of water when electing the appropriate term for a water permit, matters (a) to (j) will guide Council staff, Councillors, applicants and other stakeholders to ensure the term is appropriate to the specific nature of both the proposed activity and the resource affected.

The matters listed in this policy are drawn from central government guidance and case law on determining the term of a consent. Therefore, it is appropriate that Council staff and decision makers refer to them when recommending or deciding on an appropriate term for a water permit. Applicants should also refer to this policy to ensure water permit applications address all pertinent factors.

Policy 14B – Considering a water permit application for a previously authorised activity

In addition to the matters specified in section 104 of the Act, when considering a water permit application for a previously authorised activity where:

(a) the status of the activity has altered solely as a consequence of subsequent permits being granted to increase allocation from that resource;

(b) the activity and knowledge of its adverse effects are the same or similar in character, intensity, and scale to that which existed previously; and
(c) the adverse environmental effects of the activity are not significant.

regard will be given to:

(i) the status of the activity at the time the original water permit was granted; and
(ii) the conditions that applied to that permit.

Explanation
The staged management approach to the allocation of water resources is likely to result in the status of a particular take changing over time, as provided for in Rules 18 and 23. This means that Council may require more detailed information on the take and the effects of it when a new water permit is applied for than may have been the case with the application for the previously authorised activity. Council may also impose more and more stringent conditions on any new permit it grants.

In addition to the staged management approach, the management framework provided for by the Mataura River Water Conservation Order has the effect of requiring the imposition of conditions that ensure that no more than 5% of the flow within the River is allocated. As the volume of water extracted from the Mataura River increases the point at which takes are "cut-off" progressively increases. For ease of administration these cut-off flows increase in two cubic metre steps. The cut off flows imposed on a new water permit granted as a replacement may be set at a higher level for this reason.

This policy will not prevent the status of a take from changing as a result of increased allocation, either though the granting of additional consents or a change in any other circumstances. However, where the status of an activity has altered solely as a consequence of subsequent permits increasing the allocation from that resource, it is appropriate for Council to take into account the cut-off flow, and any other relevant condition imposed on the original consent.

There should not be an expectation that the conditions on any expired consent will be carried over to any new consent that is sought. Regard must be given to any changes to the extent and vulnerability of the resource that have occurred since the application was first approved. When considering an application that is subject to this policy the Council will also have regard to Objective 7 and Policy 21 The decision in relation to any consent is required to be made within the framework provided by various sections of the Act, especially section 104.

Policy 15 – Surface water abstraction, damming, diversion and use

Other relevant sections: Objective 5, Issues 2, 3, Rules 18-21, Section 2.3.

(a) Use a staged management approach to allocate surface water for abstraction, damming, diversion and use in Southland to allow the knowledge gained by the progressive development of the region's surface water resources to be built into its future management.

(b) Recognise the different characteristics of the following surface water management units when managing surface water quantity:

(i) Lowland
(ii) Hill (including Hill2 – Hokonui/Catlins)
(iii) Mountain
(iv) Lake
(v) Mataura
(vi) Natural State
(vii) Waiau

(c) Apply allocation and minimum flow and level regimes established under any Water Conservation Order.

(d) Have regard to lake management guidelines developed by the Guardians of Lakes Manapōuri, Monowai and Te Anau.

(e) Recognise and provide for surface water abstraction, damming, diversion and use resulting in positive effects and no net loss of water in a catchment.

(f) Recognise and provide for surface water abstraction, diversion and use permitted under Section 14(3) of the Resource Management Act 1991.

(g) Provide for:
(i) a level of permitted surface water abstraction, damming, diversion and use where there is a minimal risk of adverse effects;
(ii) a primary allocation for consented water abstraction, damming, diversion and use; and
(iii) a supplementary allocation for consented water abstraction, damming, diversion and use.

(h) Require resource consent applications for surface water abstraction, damming, diversion and use to be supported by a level of information that corresponds to the level of risk of adverse environmental effects.

(i) Ensure that surface water abstractions, damming or diversions with a high risk of adverse environmental effects, in conjunction with existing abstractions, damming and diversions, will not:

(a) result in significant adverse ecological effects through the increase in time the relevant surface water body is at or below its minimum flows or levels;
(b) compromise the availability and reliability of water supply for existing users;
(c) result in significant adverse effects on the matters listed in Policy 16(b)(i) to (xvi).[32]

(j) Impose monitoring on resource consents for surface water abstraction, damming, diversion and use that corresponds to the level of risk of adverse environmental effects.

(k) Where monitoring shows adverse environmental effects are occurring in a specific water body, remedy or mitigate those effects using one or more of the following methods:

(i) reviewing the conditions of existing water consents for that water body in accordance with Section 128 of the Resource Management Act 1991;
(ii) ceasing any further allocation of water from that water body; and
(iii) imposing water restrictions in accordance with Policy 17 "Instigate appropriate water conservation procedures".

Explanation
This policy sets out a management framework for surface water quantity. The traditional approach to managing surface water quantity in

New Zealand is to set a fixed allocation volume for an individual surface water body based on an estimate of the maximum sustainable allocation for that surface water body. The level of confidence in this estimate depends on the level of knowledge and understanding of the surface water body. In general, there is a higher level of knowledge and understanding of surface water bodies that have high levels of development.

Most of Southland's surface water bodies have low levels of development and hence there is generally insufficient knowledge and understanding of these surface water bodies to develop fixed allocation volumes. In order to address this uncertainty, a staged management approach to surface water allocation in Southland has been developed.

The approach maintains an appropriate level of management intervention to ensure adverse environmental effects remain within acceptable levels while allowing progressive development of the surface

[32] Any proposed activity that is a non-complying activity under Rules 18(f), 19(c) or 21(b) of the Plan is likely to have a high risk of adverse effects. Section 104D of the Act provides that the Council may grant a resource consent for a non-complying activity only if it is satisfied that either the adverse effects of the activity on the environment will be minor or the activity will not be contrary to the objectives and policies of this Plan. Where the adverse effects of a non-complying activity are likely to be more than minor, Policy 15 (i) is the key policy the Council will use to determine whether or not to grant resource consent for a non-complying activity under Rules 18(f), 19(c) or 21(b) of the Plan.

water resource. The knowledge that is gained by the progressive development of the resource will be built into its future management. Such an approach is ideally suited to deal with the varying risk of adverse environmental effects resulting from the differing stages of surface water knowledge and resource development in the Southland region.

As part of the management approach, the region's surface water bodies have been classified into management units that group together spatially separate surface water bodies with similar physical and biological characteristics using the River Environment Classification system. Water Quantity Maps 1 to 13 of Appendix D depict these management units.

Significant values, both instream and out-of-stream, were derived for each management unit. Following this, "critical values" for each management unit were identified and are used in Policy 16 "Environmental Flow and Level Regimes" as the basis for determining minimum flows and levels. The concept of critical values is that by providing sufficient flow to sustain the most flow sensitive value, the other significant values will also be sustained. Further information on the process used to derive critical values for each management unit is contained in Section 4.2 "Resource management" and *Review of methods for setting water quantity conditions in the Environment Southland draft Regional Water Plan, NIWA, June 2004*.

The policy also recognises that there are other surface water management frameworks in place. Allocation and minimum flow and level regimes established under any Water Conservation Order will be applied by Environment Southland in accordance with Section 217 of the Resource Management Act 1991. Environment Southland will also have regard to lake management guidelines developed by the Guardians of Lakes Manapōuri, Monowai and Te Anau. These guidelines are recommended to the Minister responsible for the administration of the Manapōuri Te Anau Development Act 1963, who then promulgates, by notice in the Gazette, operating guidelines aimed at protecting the existing patterns, ecological stability and recreational values of the vulnerable shorelines of Lakes Te Anau and Manapōuri and to optimise the energy output of Manapōuri power station.

The policy recognises and provides for surface water abstraction, damming, diversion and use resulting in positive effects and no net loss of water in a catchment such as habitat enhancement and restoration activities. Many surface water body ecosystems have undergone extensive change as a result of land use and other human activities. Flow regimes in some cases have been altered and habitats destroyed or degraded. The ability to halt and reverse this trend is desirable and the resulting enhancement of ecological values is a positive effect.

The policy recognises and provides for surface water abstraction, diversion and use permitted under Section 14(3) of the Resource Management Act 1991.

In addition to the surface water abstraction, damming, diversion and use permitted under the Act, the policy also permits these activities where

there is a minimal risk of adverse environmental effects. All other surface water abstraction, damming, diversion and use will require resource consent with the level of information required to support the consent application increasing as the level of risk of adverse effects increases. The information requirements for surface water abstraction, damming, diversion and use are specified in Appendix A "Information to be Submitted with a Resource Consent Application".

Any consent applicant for a surface water abstraction, damming or diversion with a high risk of adverse effects will be required to supply detailed information that demonstrates that the proposed abstraction, damming or diversion, in conjunction with existing abstractions, damming and diversions, will not result in significant adverse ecological effects, compromise the availability and reliability of water supply for existing users, or have other significant adverse effects. If the proposed abstraction will have any or all of these effects, it will be considered contrary to Policy 15(i). There are a number of methods that may be utilised to avoid or mitigate potential adverse effects such as the application of a higher minimum flow than that applied to existing abstractions and diversions.

The primary allocation limit will be established by the above requirement. In addition, the policy makes available a supplementary allocation where the minimum flow applied is equal to the natural mean flow. This allocation provides access to water at higher flows and allows water harvesting. At higher flows, water is sufficiently abundant that abstraction, damming, diversion and use is unlikely to have more than minor effects on instream values or other users. Consent conditions will address matters such as flow variability and flood flows. Flow variability is part of the natural character of rivers and flood flows are important for natural ecosystem function.

The policy stipulates that the monitoring imposed on resource consents for surface water abstraction, damming, diversion and use will increase in conjunction with the level of risk of adverse effects. The information that is obtained through this monitoring will be used in the future management of the surface water resource including intervention actions to address adverse environmental effects where these are occurring. The use of the intervention actions listed in clause (k) of the policy will be determined on a case-by-case basis having regard to the particular circumstances. Where catchments or parts of catchments are considered to be over allocated, water will not be able to be "reallocated" under a Section 128 review to new uses until such time as consents expire or are surrendered.

Policy 15A – Water abstraction for community water supply

Subject to Policy 19, recognise the need for, and assign priority to, the provision of water for community water supply when allocating water, provided that significant adverse effects on the following are avoided:

(a) the quality and quantity of aquatic habitats;
(b) natural character, natural features, and amenity, aesthetic and landscape values;
(c) areas of significant indigenous vegetation and significant habitats of indigenous fauna;
(d) recreational values;
(e) the spiritual and cultural values and beliefs of the tangata whenua;
(f) water quantity and quality;
(g) long-term aquifer storage volumes;
(h) historic heritage.

Explanation
Section 14 of the RMA gives recognises a special status for water to be taken by individuals for their reasonable domestic needs, the reasonable needs of their animals and for fire fighting purposes. Territorial authorities are also required by Part VII of the Local Government Act 2002 to ensure a safe and adequate supply of potable water to persons living in towns so as to protect their health and welfare and to provide for their social and economic well-being. This requires assigning a high priority to the supply of water for such purposes. While this may relate primarily to town supplies, owned and operated by municipal authorities, there will be instances where groups of private individuals decide to work together to provide for their needs.

It should also be noted that Objective 7 "Efficient Water Use" and Policy 21 "Reasonable use of water" apply to community water supplies as well as to abstractions and diversions for other purposes.

Policy 15B – Water demand management strategy

Require a water demand management strategy commensurate to both the scale of the activity and its potential effects as part of any application for:

(a) a new water permit for a community water supply; or
(b) an amendment to an existing water permit for a community water supply.

Explanation
Community water supplies utilise significant quantities of the water resource. Through a reticulated supply, community water supplies make water available primarily for human use and consumption. This water is treated to meet drinking water standards and is supplied to meet basic

human needs but it may also be used for other community activities. In order to determine the needs of a community and to put in place provisions that provide for the long term management and the efficient use of the resource it is necessary to prepare a water demand management strategy. The detail contained within the water demand management strategy shall be commensurate to the scale of the activity. Council will not process the associated consent as being for a community water supply until water demand management strategy is provided to the Council by the applicant.

Policy 16 – Environmental flow and level regimes

Other relevant sections: Objective 5, Issues 2, 3, Rules 18-21, Section 2.3.

(a) When granting resource consents for surface water abstraction, damming, diversion and use, the Council where appropriate will apply by way of consent conditions environmental flow and level regimes established under:

(i) the operating guidelines for the levels of Lakes Manapōuri and Te Anau referred to in Section 4A of the Manapōuri Te Anau Development Act 1963;
(ii) any Water Conservation Order;
(iii) Policy 16(b); and
(iv) Policy 17.

(b) Except for surface water bodies subject to an environmental flow and level regime established under any Water Conservation Order, establish environmental flow and level regimes for surface water bodies taking into account the following matters where appropriate:

(i) mauri and healthy ecosystems of indigenous species, including mahinga kai species;
(ii) wāhi tapu sites or areas, and wāhi taonga;
(iii) natural character, landscape, and visual amenity;
(iv) indigenous vegetation within and adjacent to the water body;
(v) habitats including spawning and nesting areas for invertebrates, birds and fish;
(vi) fish passage, including facilitating the passage of native and salmonid fish where appropriate, and limiting the introduction of undesirable species and the spread of non-native species into areas where they are not normally found;
(vii) undesirable periphyton and sediment accumulation;
(viii) maintenance of groundwater flows;
(ix) the potential for establishment of invading exotic vegetation;
(x) bedload and sediment transport processes;
(xi) shoreline or bank erosion;
(xii) functioning of the river mouth;
(xiii) recreation opportunities;
(xiv) accessibility to water bodies and their margins;

(xv) existing flow and level regimes, physical resources and activities;
(xvi) the positive effects resulting from the use and development of the water resources; and
(xvii) Policy 19 in the case of the Waiau catchment.

(c) Except for water permits for community water supplies and water bodies subject to minimum flow and level regimes established under any Water Conservation Order, the Council will apply where appropriate a condition specifying a minimum flow/level in accordance with Appendix I "Methods for determining minimum flows and levels" to all new resource consents for:

(i) surface water abstraction, damming, diversion and use; and
(ii) groundwater abstraction where there is direct or high degree of hydraulic connection in accordance with Policy 29 "Stream Depletion Effects" and the stream depletion effect exceeds two litres per second.

Explanation
This policy identifies how environmental flow and level regimes will be applied and the matters that will be considered when setting environmental flow and level regimes.

A key component of an environmental flow and level regime is the minimum flow or level. The policy requires minimum flows/levels to be applied to all new consents for surface water abstraction, damming, diversion and use and new consents for groundwater abstraction with a direct or high degree of hydraulic connection in accordance with Policy 29 "Stream Depletion Effects", where the stream depletion effect exceeds two litres per second.

The application of minimum flows/levels to water abstractions allows for the maintenance of aquatic ecosystems, natural character and other instream values under low flow conditions. When minimum flows/levels are reached, the majority of abstractions and diversions must cease. Policy 17 "Instigate appropriate water conservation procedures" details the management interventions that will be used to prevent flows falling below minimum flows.

Appendix I "Methods for determining minimum flows and levels" sets out five methods for determining the minimum flow or level for a surface water body. The default method applies where there is a low level of allocation on a river or stream. It has low information requirements and therefore produces a very conservative minimum flow. For that reason, consent applicants may choose to use methods 2 and 3, which determine minimum flow requirements based on scientific assessments. These methods have higher information requirements. As the volume of water allocated from each river or stream increases, the level of information also increases.

Critical values form the basis for determining minimum flows for rivers and streams using the scientific methods detailed in methods 2 and 3.

As described in Section 4.2 "Resource Management" and the explanation to Policy 15 "Surface water abstraction, damming, diversion and use", the region's surface water bodies have been grouped into management units with similar physical and biological characteristics. Significant values have been derived for each management unit and "critical values" identified across a range of flows for each management unit. The concept of critical values is that by providing sufficient flow to sustain the most flow sensitive value, the other significant values will also be sustained. It should be noted that the critical value may not be the most significant value present in a water body. However, the flow required to sustain this value will also sustain the other values.

Once the appropriate critical value is identified using the table in Appendix I "Methods for determining minimum flows and levels", a habitat maintenance level must be established taking into account the relative importance of instream and out-of-stream values. The flow that corresponds to this habitat maintenance level is the minimum flow.

Method 4 specifies the minimum flow for abstractions from the supplementary allocation, which is a much higher flow than the minimum flows for abstractions from the primary allocation.

Method 5 specifies how the minimum water level will be determined for surface water bodies other than river and streams (i.e. lakes, wetlands and backwaters). A case-by-case assessment of the appropriate minimum water level will need to be undertaken for each of these water bodies having regard to the water level needed to sustain the minimum flows in any downstream point in the catchment and the relevant policies of this Plan. Critical values for maintaining habitats in lakes, wetlands and backwaters have not been specified because there are many different types of these water bodies and thus specifying generic critical values is inappropriate. It should be noted that a large number of lakes and wetlands are in the "Natural State" management unit and will therefore need to be maintained in their natural state as far as practicable.

In addition to the five methods specified in Appendix I "Methods for determining minimum flows and levels", Appendix A "Information to be Submitted with a Resource Consent Application" sets out further flow assessment requirements for abstractions and diversions from rivers and streams that are spring-fed where the abstraction or diversion may affect the river or stream temperature and for abstractions and diversions from small streams where water quality is likely to be a limiting factor.

Abstractions for community water supplies are exempt from the minimum flow and level requirements set out in Appendix I "Methods for determining minimum flows and levels" as imposing minimum flows/levels on community water supplies may compromise human health and safety. Notwithstanding the above, community water supplies may be subject to restrictions during low flow conditions. It should also be noted that Objective 7 "Efficient Water Use" and Policy 21 "Reasonable use of water" apply to community water supplies as well as to abstractions and diversions for other purposes.

Abstractions and diversions from water bodies subject to minimum flow and level regimes established under any Water Conservation Order are also exempt from the minimum flow and level requirements set out in Appendix I "Methods for determining minimum flows and levels". Environment Southland will apply the minimum flow and level regimes set out in Water Conservation Orders through the consent process. A copy of the Mataura Water Conservation Order is contained in Appendix J "Water Conservation Orders" to assist Plan users.

The consents held for the Manapōuri Power Scheme have been through a process similar to that contained in Method 4 of Appendix I "Methods for determining minimum flows and levels" to determine an environmental flow regime for the Waiau River. While this flow regime will need to be reviewed at the time the current consents for the Manapōuri Power Scheme expire and new consents are applied for, the assessment of environmental effects included in the application for the current consents will be taken into account by the Council as far as it is relevant at that time.

The operating guidelines for Lakes Manapōuri and Te Anau referred to in Section 4A of the Manapōuri Te Anau Development Act 1963 set the lake levels in these lakes and are recognised in the current conditions of consent for the Manapōuri Power Scheme. It will therefore be unnecessary to carry out a minimum lake level assessment for Lakes Manapōuri and Te Anau using Method 5 of Appendix I "Methods for determining minimum flows and levels" at the time the current consents for the Manapōuri Power Scheme expire and new consents are applied for.

Policy 17 – Instigate appropriate water conservation procedures

Other relevant sections: Objectives 5, 9, Issues 2, 3, 5, Rules 18-21, 23, Section 2.3.

Instigate appropriate water conservation procedures at times of low flow, including:

(a) advise abstractors to conserve water and limit non-essential use of water as far as practicable;
(b) other than for the Waiau River at the Manapouri Lake Control Structure, implement a one-to-one flow sharing regime when flows reach the sum of the minimum flow or level and the total volume of water allocated through current resource consents[33] for the relevant surface water body. Methods to achieve this include, but are not limited to:
    (i) rationing;
    (ii) rostering;

[33] Including the stream depletion effect of each consented groundwater abstraction greater than 2 litres per second with a direct, high or moderate degree of hydraulic connection in accordance with Policy 29 "Stream Depletion Effects".

(iii) the use of water user groups;

(c) require consent holders to cease abstraction in accordance with the minimum flows/levels specified as conditions of their resource consents; and

(d) in extreme situations, consider the need to issue a water shortage direction under Section 329 of the Resource Management Act 1991.

Explanation

During periods of limited rainfall, river and stream flows and lake levels may drop to low levels. Aquatic ecosystems are adapted to cope with periodic low flows; however, there will be times when there is a need to reduce and sometimes cease water abstraction in order to maintain flow and level regimes set to protect instream, lake and wetland values.

At these times, the Council will instigate measures to ensure that water users conserve water as far as practicable. This will involve the provision of advice to the community to ensure that water is used as efficiently as possible and non-essential takes are minimised or suspended.

In order to prevent flows falling below minimum flows/levels, the Council will implement a flow sharing regime when flows reach the sum of the minimum flow or level and the total volume of water allocated through current resource consents for the relevant surface water body. This is best explained by way of an example:

It is determined that a minimum flow of 100 litres per second (the mean annual low flow) should be maintained in a river. There are several water users upstream of the minimum flow site taking a combined quantity of 50 litres per second. When the river flow reaches 150 litres per second, the Council will implement a one-to-one flow sharing regime as if there were no interventions and all users were to pump concurrently when the flow reached 149 litres per second, the flow would fall to 99 litres per second and the minimum flow would not be maintained.

A one-to-one flow sharing regime means that once the river reaches a flow of 150 litres per second, only 25 litres per second is available for abstraction as an equal proportion of the flow above the minimum flow must be retained in the river. As the flow decreases, so too does the amount of water available for abstraction. When the minimum flow is reached, all abstractions subject to a minimum flow requirement must cease.

A one-to-one flow sharing regime can be put into place by either requiring each user to reduce their rate of take on a pro rata basis or setting up a rostering system whereby groups of users have access to the resource at different times. The Council will encourage and promote the establishment of water user groups to assist in the development of suitable restrictions to implement the flow sharing regime. These restrictions will be imposed as conditions of consent in accordance with Policy 16(a).

Where a serious temporary shortage of water occurs, the Council may consider the need to issue a water shortage direction under Section 329 of the Resource Management Act 1991 to apportion, restrict or suspend

the taking and use of water. Policy 24 "Priority takes" sets out the priorities for water use when a water shortage direction is issued.

Policy 18 – Fully allocated surface water bodies

Other relevant sections: Objective 5, Issues 2, 3, Rules 18-21, Section 2.3.

(a) Water from a surface water body will not be over allocated through the resource consent process.

(b) A surface water body will be deemed to be fully allocated when the total volume of water allocated through current resource consents[34] and permitted activities is equal to the maximum amount that may be allocated under the policies and rules of this Plan or the provisions of any Water Conservation Order.

Explanation

This policy provides that no further water will be allocated from a surface water body that is fully allocated and sets out how the Council will decide when a surface water body is fully allocated. This is necessary to ensure that surface water bodies do not become over allocated. Over-allocation of a surface water body can result in ecological values being adversely affected and the availability and reliability of supply for existing users being compromised.

There are no provisions in the Plan that establish the maximum amount of water that may be allocated from a surface water body as such, rather there are policies and rules that establish the process by which the maximum amount will be determined.

In terms of determining the maximum amount of water that can be allocated from a surface water body as part of the primary allocation, the relevant rules are:

(a) Rule 18(f), which stipulates that any abstraction or diversion where the total volume of water allocated is greater than 30 percent of the mean annual low flow at any downstream point in the catchment so estimated by the Southland Regional Council from measurements taken at that point is a non-complying activity;

(b) Rule 19(c), which provides that the damming of water on the main stems of the Aparima River, downstream of the Aparima Forks at NZMS260 D44 151919, and the Ōreti River, downstream of the forks at NZMS 260 E42 345450, is a non-complying activity; and

(c) Rule 17(b), which provides that any further or new water abstraction, damming and diversion from the Waiau catchment is a non-complying activity.

[34] Including the stream depletion effect of each consented groundwater abstraction greater than 2 litres per second with a direct, high or moderate degree of hydraulic connection in accordance with Policy 29 "Stream Depletion Effects".

Section 104D of the Act provides that the Council may only grant a resource consent for a non-complying activity if it is satisfied that either the adverse effects of the activity on the environment will be minor or the activity will not be contrary to the objectives and policies of the relevant plan.

Where the adverse effects of a non-complying activity are likely to be more than minor, Policy 15(i) is the key policy Council will use to determine whether or not to grant resource consent for a non-complying activity under Rule 18(f), Rule 19(c) or Rule 21(b) of the Plan. When one of the two tests in this policy is unable to be met, the relevant surface water body will be deemed to be fully allocated under this policy (Policy 18) i.e. the primary allocation limit will have been established.

There is no limit on the supplementary allocation provided for in Rule 21(d)(ii) because of the high minimum flow.

Reallocation of water to new uses or other users may occur as consents expire or through the transfer of consents.

Policy 19 – Existing hydroelectric generation facilities in the Waiau catchment

Other relevant sections: Objectives 5, 6, Issue 3, Rule 21, Section 2.3.

Recognise and provide for the use and enhancement of existing hydroelectric facilities in the Waiau catchment.

Explanation

The Manapouri Power Scheme utilises the water resources of the Waiau catchment for the generation of hydro-electricity. This policy recognises the national and local importance of the physical resources of the Scheme, both in its contribution to the nation's electricity generating capacity and to the operation of the New Zealand Aluminium Smelters facilities at Tiwai – the largest electricity user in New Zealand. It is appropriate to provide for the Scheme's continued use, and its enhancement, and for the continued use of water on which it relies. This policy is consistent with Policy 14.9 of the Regional Policy Statement for Southland and Section 7 (j) of the Act.

Policy 19A – Renewable energy

Other relevant sections: Objectives 5, 6, Issues 2, 3, Rules 18-21, Section 2.3.

When:

(i) allocating surface water for abstraction, damming, diversion and use; and

(ii) considering all resource consent applications for surface water abstractions, damming, diversion and use

particular regard will be given to the benefits to be derived from the use and development of renewable energy.

Explanation

This policy is consistent with Section 7(j) of the Act, which requires particular regard to be had to the benefits to be derived from the use and development of renewable energy. Benefits associated with renewable energy, such as hydroelectricity, include but are not limited to reduced dependence on non-renewable energy resources and reduced greenhouse gas emissions. While the use and development of renewable energy resources in the region can have adverse effects on the environment that need to be avoided, remedied or mitigated, this use and development will help ensure New Zealand's electricity generation capability is sustainable and contribute to national initiatives under the Kyoto Protocol to reduce net carbon dioxide emissions.

Policy 19B – Natural state water quantity

Other relevant sections: Objectives 5, 7, Issues 2, 3, 5, Rules 18-21, 23, Section 2.3.

As far as possible, maintain water bodies in their natural state within conservation areas, reserves and national parks administered by, or on behalf of, the Department of Conservation for conservation purposes with the exception of the Upper Waiau and Monowai Rivers, Lakes Te Anau, Manapouri and Monowai, and the Tiwai groundwater zone.

Explanation

This policy provides for the maintenance of water bodies in their natural state within conservation areas, reserves and national parks administered by, or on behalf, the Department of Conservation for conservation purposes with the exception of the Upper Waiau and Monowai rivers and Lakes Te Anau, Manapouri and Monowai (these water bodies are excluded due to their modified flow and level regimes resulting from the Manapouri and Monowai Power Schemes) and the Tiwai groundwater zone (this groundwater zone is excluded due to its long term use for the supply of water for industrial purposes). Water bodies within natural state areas have very high natural values and it is important that these values are protected as far as possible.

Policy 20 – Transferable water permits

Other relevant sections: Objectives 5, 7, 9, Issues 2, 3, 5, Rules 18-21, 23, Section 2.3.

Provide for the transfer of water permits to take and use water in accordance with Section 136(2)(b) of the Resource Management Act 1991 provided the transfer occurs in the same catchment or aquifer and is consistent with the provisions of this Plan.

Explanation

Section 136(2)(b) of the Resource Management Act 1991 provides for the transfer of a water permit, or part of a permit, to take and use water to another person on another site, or to another site, if both sites are in the same catchment or aquifer. An application to transfer the consent

must be made to Environment Southland who will undertake an assessment of the effects of allowing the transfer including an assessment of whether or not the transfer is consistent with the provisions of this Plan such as the minimum flow and allocation regime applicable to the area that the permit is proposed to be transferred to.

The transfer of a water permit to take and use water to a subsequent owner or occupier of the same site does not require approval as it is allowed under Section 136(2)(a) of the Resource Management Act 1991. However, written notice of the transfer must be given to Environment Southland.

Transfers of water permits to take and use water are a means by which the beneficial and efficient use of the allocated resource can be achieved.

Policy 21 – Reasonable use of water

Other relevant sections: Objectives 5, 7, 9, Issues 2, 3, 5, Rules 18-21, 23, Section 2.3.

To ensure that the rate of abstraction and abstraction volumes specified on water permits to take and use water are no more than reasonable for the intended end use.

Explanation

This policy seeks to ensure that only the amount of water needed for the efficient operation of each activity is taken to avoid wastage, help ensure the sustainability of the resource and maximise its availability.

Applicants for water permits to take and use water will be required to demonstrate that the volume of water applied for is reasonable for the intended end use. Determining what a reasonable volume for irrigation purposes is likely to involve consideration of the following factors:

(a) physical factors such as soil-water holding capacity;
(b) climatic factors such as rainfall variability and potential evapotranspiration;
(c) land use activity.

Where monitoring of existing water permits reveals significant overestimation of actual water use, the conditions of these permits will be reviewed to provide opportunity to better allocate the resource.

Policy 22 – Water measuring devices

Other relevant sections: Objectives 5, 7, 9, Issues 2, 3, 5, Rules 18-21, 23, Section 2.3.

Require, where appropriate, the installation of water measuring devices on all new permits to take and use water.

Explanation

Measuring water use is a means of addressing the uncertainty associated with estimating water demand. Both the underestimation and overestimation of demand can result in adverse effects on other users and

the environment. Generally water meters will be required on all takes greater than 20,000 litres per day. Measuring water use will assist to identify the actual demand for water and improve the overall management of the resource.

Policy 23 – Review of water permits

Other relevant sections: Objectives 5, 7, 9, Issues 2, 3, 5, Rules 18-21, 23, Section 2.3.

Impose a condition enabling the review of consent conditions in accordance with Sections 128 and 129 of the Resource Management Act 1991 on all new permits to take and use water.

Explanation

The imposition of a review condition on consents to take and use water will allow the Council to deal with any adverse environmental effects arising from the exercise of those consents. It will also enable the Council to ensure compliance with operative regional plan rules relating to maximum or minimum levels, flows and rates of use of water.

In addition to the above, the Council may specify in the consent other purposes for reviewing the conditions of consent such as addressing the results of monitoring, dealing with the cumulative effects of water extraction and ensuring efficiency of water use.

The consent condition must specify the time or times the review may be carried out.

Policy 24 – Priority takes

Other relevant sections: Objective 7, Issues 2, 5, Rules 18-21, 23, Section 2.3.

When issuing a water shortage direction pursuant to Section 329 of the Resource Management Act 1991, the Council will give priority to water abstraction for the following uses:

(a) reasonable domestic needs
(b) reasonable animal drinking needs
(c) fire-fighting purposes
(d) public health needs
(e) animal welfare needs

Explanation

This policy recognises the need to prioritise when issuing a water shortage direction pursuant to Section 329 of the Act. It is consistent with Section 14 of the Act, which gives priority for water to be taken for an individual's reasonable domestic needs, the reasonable needs of an individual's animals for drinking water and fire-fighting purposes.

In addition, the policy gives priority to the abstraction of water for public health and animal welfare needs over other uses of water. Abstraction for public health needs refers to the continuation of water supplies for public health and sanitation services. Abstraction for animal welfare needs refers to water requirements for animal welfare purposes

(e.g. sufficient water to enable freezing works to slaughter starving stock during a drought.

The priority afforded by this policy does not mean that all the water available will be allocated to these uses when a water shortage direction is issued. Priority uses may also be subject to water restrictions.

5.2.2 Groundwater Policies

(see also Section 5.2.1 Water Quality and Quantity Policies)

Groundwater Quality

Policy 25 - Adverse effects arising from point source and non-point source discharges

Other relevant sections: Objective 1, 2, 8, Issues 1, 4, Rules 3, 16A-16D, 23, Section 2.3.

To avoid, remedy or mitigate the adverse effects arising from point source and non-point source discharges so that there is no deterioration in groundwater quality after reasonable mixing, unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so.

Explanation

This policy is aimed to allow for localised impacts resulting from point source and non-point source discharges provided there is no deterioration of groundwater quality in the receiving aquifer after reasonable mixing, unless it is consistent with the promotion of the sustainable management of natural and physical resources, as set out in Part 2 of the Resource Management Act 1991, to do so. Factors which may influence the significance of changes include existing groundwater quality, current and potential future use of the resource and steps taken to offset localised impacts.

Point source discharges are discharges from specific and identifiable sources (such as pipes) concentrated at a given point. Non-point source discharges are discharges from diffuse sources where there is no single identifiable discharge point. Where non-point source discharges to land leach down into groundwater, the extent of the adverse effect depends on the nature of the aquifer and the overlying strata, and on type and intensity of the land use itself. Shallow, unconfined aquifers are most at risk, particularly where the overlying land use involves the intensive application of contaminants. Studies have shown, for example, that intensification of agriculture usually increases nitrate levels in unconfined aquifers.

Land use activities therefore need to be managed in a way that avoids or mitigates adverse effects on the water quality of underlying aquifers. The Regional Effluent Land Application Plan for Southland and the Regional Solid Waste Management Plan address many activities that are the source of point source and non-point source groundwater pollution such as septic tanks, landfills and effluent application. Managing the effects of other land use activities that affect groundwater quality requires an understanding of site specific matters such as aquifer and soil characteristics. These activities are therefore best addressed in a non-regulatory framework through the promotion of best management practices. Best management practices will be developed, implemented and monitored through the implementation strategy process.

In order to determine the cumulative impact of point and non-point source discharges Environment Southland will monitor groundwater quality at representative sites distributed across the Region. This monitoring will be designed to establish "baseline" groundwater quality and enable identification of spatial and temporal trends.

Policy 26 - Adverse effects of bores and wells

Other relevant sections: Objectives 1, 2, 8, Issues 1, 4, Rules 3, 22, Section 2.3.

To avoid the adverse effects on groundwater quality and quantity arising from bores and wells by ensuring that bores and wells are appropriately designed, constructed and maintained in a way that adverse effects are avoided to the extent practicable.

Explanation

Bores and wells provide a conduit between aquifers and the land surface. Unless bores and wells are properly constructed, maintained and decommissioned when no longer required, contaminants can enter the head of the structure and be transmitted directly to groundwater. This has been identified as a significant cause of localised groundwater quality degradation in Southland. Uncapped or inadequately constructed bore headworks can also result in groundwater flowing to waste and a loss in artesian pressure.

The adverse effects of bores and wells can be readily avoided by the adoption of appropriate design and construction standards. For example, wellhead casing and plumbing can be sealed effectively to prevent contaminants from entering these structures and groundwater flowing to waste. Therefore, it is important that all new bores and wells comply with proper construction standards such as *NZS 4411:2001 Environmental Standard for Drilling of Soil and Rock*. In order to ensure compliance with appropriate standards and control adverse effects, the construction of all new bores and wells will require resource consent from the Council.

Where an issue arises (e.g. it is determined that an existing bore or well, including disused and decommissioned facilities, is resulting in significant localised groundwater contamination), the owner of the bore or well will be required to upgrade their structure in the interests of protecting groundwater quality and quantity.

Policy 27 – Groundwater research and investigation

Other relevant sections: Objectives 1, 2, 5, 8, 9, Issues 1, 4, 5, Rules 3, 22, 23, Section 2.3.

To continue to undertake research and investigation into:

(a) the causes and extent of groundwater contamination; and
(b) the extent of groundwater quantity and the effects of abstraction.

Explanation
Continued research and investigation is needed to:

(a) define the causes of groundwater contamination and to provide better information for groundwater quality management; and
(b) define aquifer capacities and the interaction between ground and surface water environments.

In particular, research and investigation efforts should focus on:

(a) identifying the current state and natural controls on groundwater quality;
(b) monitoring ongoing changes in groundwater quality;
(c) quantifying land use effects;
(d) improving definition of the hydrogeology of aquifer systems;
(e) aquifer yields and recharge rates;
(f) the degree of interconnection between aquifers and surface water bodies;
(g) the effects of abstraction on aquifers; and
(h) the hydraulic characteristics of aquifer materials.

Groundwater Quantity

Policy 28 – To manage groundwater abstraction

Other relevant sections: Objectives 5, 9, Issue 5, Rule 23, Section 2.3.

To manage groundwater abstraction to avoid significant adverse effects on:

- long-term aquifer storage volumes
- existing water users
- surface water flows and aquatic ecosystems and habitats
- groundwater quality

Explanation
Groundwater use, resulting in short-or long-term declines in aquifer levels, can have significant adverse effects on the environment. Fluctuating or lowered aquifer levels can cause a reduction in available groundwater yield and/or interfere with the bores or wells of existing users. In addition, declining aquifer levels can impact on surface water ecosystems and habitats by reducing surface water flows in rivers, lakes and wetlands. Changes in groundwater quantity and aquifer flow characteristics can also impact on groundwater quality.

The significance of the effects of abstraction largely depends on the characteristics of the aquifer, the rate and volume of abstraction, and, in some cases, the locality of the abstraction. For example, bores located in close proximity to existing users are more likely to cause interference drawdown effects while bores close to rivers or streams have greater potential to affect surface water flows than those further removed.

Similarly, abstractions from bores located near the coast are more likely to result in groundwater contamination by seawater intrusion.

In order to avoid significant adverse effects, the volume and rate of abstraction needs to be set at levels that are sustainable and that avoid significant declines in groundwater levels. The staged management approach to groundwater allocation outlined in Policy 30 "Groundwater abstraction" has been developed to ensure that development of the region's groundwater resources is sustainable.

The location of the abstraction also needs consideration to limit adverse effects on nearby groundwater users or surface water bodies. Policy 31 "Interference effects" outlines how the interference effects of groundwater abstraction on existing groundwater users will be managed having regard to the construction and efficiency of existing bores and wells while Policy 29 "Stream Depletion Effects" sets out a framework for managing the stream depletion effects of groundwater abstractions that are hydraulically connected to surface water bodies.

Policy 29 – Stream depletion effects

Other relevant sections: Objectives 5, 9, Issue 5, Rules 18, 23, Section 2.3.

(a) Manage the stream depletion effect of any groundwater abstraction with a rate of take exceeding 2 litres per second as follows:

(i) where there is a direct hydraulic connection between the groundwater source and an adjacent surface water body, the stream depletion effect will be determined as the maximum instantaneous rate of take and will be managed in the same manner as a surface water abstraction for flow and allocation purposes. The abstraction will therefore be subject to any relevant minimum flow regime;

(ii) where there is a high degree of hydraulic connection between the groundwater source and an adjacent surface water body, the stream depletion effect will be determined as the greater of:

1. the effect of 150 days pumping at the continuous pump rate required to deliver the seasonal volume;
2. the effect of continuous pumping at the maximum permitted pump rate over the period required to deliver the seasonal volume.

The calculated rate of stream depletion will be managed in the same manner as a surface water abstraction for allocation purposes with the remainder of the abstraction included in the allocation volume for the relevant groundwater zone. Where the calculated rate of stream depletion exceeds 2 litres per second, the abstraction will be subject to any relevant minimum flow regime;

(iii) where there is a moderate degree of hydraulic connection between the groundwater source and an adjacent surface water body, the stream depletion effect will be determined as the effect of 150 days of pumping at the continuous pump rate required to deliver the seasonal volume. The calculated rate of stream depletion will be managed in the same manner as a surface water abstraction for allocation purposes with the remainder of the abstraction included in the allocation volume for the relevant groundwater zone;

(iv) where there is a low degree of hydraulic connection between the groundwater source and an adjacent surface water body, the stream flow effect is considered to be minor and the individual abstraction will not be taken into account in determining surface water allocation but will be included in the allocation volume for the relevant groundwater zone.

For the purposes of this policy, the degree of hydraulic connection is classified as follows:

Direct: *Where the stream depletion effect of seven days continuous abstraction at the maximum permitted rate on an adjacent surface water body is greater than or equal to 80 percent of the maximum pump rate.*

High: *Where the stream depletion effect of seven days continuous abstraction at the maximum permitted rate on an adjacent surface water body is less than 80 percent of the maximum pump rate and the stream depletion effect of 150 days of pumping at the average continuous rate required to deliver the seasonal volume is greater than or equal to 60 percent of the average continuous pump rate.*

Moderate: *Where the stream depletion effect of seven days continuous abstraction at the maximum permitted rate on an adjacent surface water body is less than 80 percent of the maximum pump rate and the stream depletion effect of 150 days of pumping at the average continuous rate required to deliver the seasonal volume is either:*

(a) less than 60 percent but greater than or equal to 30 percent of the average continuous pump rate; or
(b) has an overall magnitude greater than 5 litres per second.

Low: *Where the abstraction is not classified as having a direct, high or moderate degree of hydraulic connection.*

(b) Minimise the cumulative stream depletion effect of groundwater abstraction by:

(i) imposing minimum flows on resource consents for groundwater abstraction where there is a direct or high degree of hydraulic connection and the stream depletion effect exceeds two litres per second in accordance with any relevant surface water minimum flow regime (including those established under any Water Conservation Order);

(ii) managing the total stream depletion effect of groundwater abstractions greater than two litres per second with a direct, high or moderate degree of hydraulic connection in accordance with any relevant surface water allocation regime (including those established under any Water Conservation Order);

(iii) ensuring the total stream depletion effect of groundwater abstractions greater than two litres per second with a direct, high or moderate degree of hydraulic connection does not result in surface water flows less than prescribed minimum flows or surface water allocation regimes being exceeded.

Explanation

This policy applies to all groundwater abstractions with a rate of take exceeding two litres per second. The purpose of the policy is to manage stream depletion effects of groundwater abstractions to ensure:

(a) maintenance of flow regimes set to protect the instream values of surface water and the availability of surface water for existing users; and
(b) there is no significant increase in the duration and frequency of naturally occurring dry rivers or stream beds.

This policy classifies individual groundwater abstractions by the degree of hydraulic connection to a surface water body and sets out differing management approaches for varying degrees of hydraulic connection. It also sets out an approach for managing the cumulative stream depletion effects of a number of abstractions.

The stream depletion effect of a groundwater abstraction is directly linked to the degree of hydraulic connectivity between the aquifer the groundwater is being extracted from and the adjacent surface water body. The degree of hydraulic connectivity relates to the rate at which water is exchanged between the surface water body and the aquifer. This policy is not intended to apply to ephemeral surface water bodies (for example, transitory streams resulting from heavy rains) or surface water bodies not in hydraulic connection with underlying groundwater (for example a perched stream). Stream depletion effects of groundwater abstractions are to be calculated in relation to the nearest permanent surface water body in hydraulic connection with the aquifer concerned.

The policy provides that the stream depletion effect of any groundwater abstraction from a bore assessed as having a direct hydraulic connection will be managed as a surface water abstraction for flow and allocation purposes. This is because the effect of such an abstraction on the surface water body is immediate and equivalent to a surface water abstraction. Groundwater abstractions from bores with high and moderate degrees of hydraulic connection also need to be taken into account when determining surface water allocation although the stream depletion effects of these abstractions will be delayed to varying extents. Where the stream depletion effect of a groundwater abstraction is taken

into account when determining surface water allocation, the remainder of the abstraction will be included when determining the allocation volume for the relevant groundwater zone.

The policy also provides that a groundwater abstraction from a bore classified as having a direct or high degree of hydraulic connection will be subject to any relevant surface water minimum flow regime where there is a significant stream depletion effect. The policy defines a significant stream depletion effect as that exceeding 2 litres per second.

Surface water bodies respond relatively rapidly to controls on groundwater abstractions from bores with a direct or high degree of hydraulic connection. Minimum flows will therefore be imposed on all groundwater abstractions where there is a direct or high degree of hydraulic connection and the stream depletion effect exceeds two litres per second in accordance with the relevant surface water minimum flow regime. The total stream depletion effect of these abstractions will also be managed in accordance with any relevant surface water allocation regime. However, it is not effective to impose minimum flows on groundwater abstractions where the effect of abstraction on the surface water body is significantly delayed although the stream depletion effects of these abstractions still need to be taken into account when determining surface water allocation. The Council will therefore manage the total stream depletion effect of all groundwater abstractions greater than two litres per second with a moderate degree of hydraulic connection in accordance with any relevant surface water allocation regime. Managing groundwater abstractions with a significant stream depletion effect in accordance with relevant surface water allocation regimes and imposing minimum flows on those abstractions with a relatively rapid response time will minimise the cumulative stream depletion effect of groundwater abstraction. The Council will also ensure that the total stream depletion effect of groundwater abstractions greater than two litres per second with a direct, high or moderate degree of hydraulic connection does not result in surface water flows less than prescribed minimum flows or surface water allocation regimes being exceeded.

Assessment of potential stream depletion effects will be undertaken using the most appropriate assessment methodology to the particular hydrogeological setting. Stream depletion estimates will be undertaken using the best available estimate of relevant hydraulic parameters but will also include a sensitivity analysis to account for the heterogeneity inherent in natural systems.

Policy 30 – Groundwater abstraction

Other relevant sections: Objectives 5, 9, Issue 5, Rule 23, Section 2.3.

(a) Use a staged management approach to allocate groundwater for abstraction in Southland to allow the knowledge gained by the progressive development of the region's groundwater resources to be built into its future management.

(b) Recognise the different characteristics of the following aquifer types when managing groundwater abstraction:

(i) riparian aquifers;
(ii) terrace aquifers;
(iii) lowland aquifers;
(iv) confined aquifers;
(v) fractured rock aquifers.

(c) Use an assessment of available hydrogeological information from resource consent applications supplemented by investigations and monitoring undertaken by the Council, on a case-by-case basis, to determine if an aquifer is confined. Where an aquifer is determined to be sufficiently confined to warrant management as a separate groundwater resource a preliminary allocation volume shall be determined on the basis of aquifer throughflow.

(d) Provide for:

(i) a level of permitted groundwater abstraction where there is a minimal risk of adverse effects;
(ii) a primary allocation for consented water abstraction and use; and
(iii) a supplementary allocation for consented water abstraction and use.

(e) Require resource consent applications for groundwater abstractions to be supported by a level of information that corresponds to the level of risk of adverse environmental effects. Information to be supported by a conceptual hydrogeological model that corresponds to the level of allocation from the aquifer.

(f) Where appropriate, impose minimum level and/or flow cut-offs and seasonal recovery triggers on resource consents for groundwater abstraction.

(g) Impose monitoring on resource consents for groundwater abstractions that corresponds to the level of risk of adverse environmental effects.

(h) Where monitoring shows adverse environmental effects are occurring in a specific groundwater zone, remedy or mitigate those effects using one or more of the following methods:

(i) reviewing the conditions of existing groundwater abstraction consents for that groundwater zone in accordance with Section 128 of the Resource Management Act 1991;
(ii) ceasing any further allocation of groundwater from that groundwater zone; and
(iii) temporarily restricting the abstraction of water from that groundwater zone by issuing a water shortage direction under Section 329 of the Resource Management Act 1991.

(i) Ensure that groundwater abstractions that have a high risk of adverse environmental effects will not result in:

(i) a long-term decline in groundwater levels;
(ii) surface water allocation regimes being exceeded[35].

Explanation
This policy sets out a staged management approach for groundwater allocation and applies to all groundwater abstractions. It is designed to ensure that groundwater abstraction in the region is sustainable.

The traditional approach to managing groundwater abstraction in New Zealand is to set a fixed allocation volume for an individual aquifer system based on an estimate of the maximum sustainable allocation for that aquifer system. The level of confidence in this estimate depends on the level of knowledge and understanding of the aquifer. Generally, there is a higher level of knowledge and understanding of aquifers that have a long history of development.

For example, the aquifer systems in Canterbury, Marlborough and Tasman have a long history of development and a corresponding length of environmental monitoring record with which to correlate abstraction and any resulting environmental effects. Accordingly, fixed allocation volumes for these aquifer systems can be set with a reasonable degree of confidence. In contrast, aquifer systems such as those in northern Southland, where there has been significant development of the resource over a short period, only have a correspondingly short monitoring record and there is currently insufficient knowledge and understanding of these aquifer systems to develop fixed allocation volumes.

In order to address the uncertainty regarding sustainable allocation volumes for the region's aquifer systems, a staged management approach to groundwater allocation in Southland has been developed.

The approach maintains an appropriate level of management intervention to ensure adverse environmental effects remain within acceptable limits while allowing progressive development of the groundwater resource. The knowledge that is gained by the progressive development of the resource will be built into its future management. Such an approach is ideally suited to deal with the varying risk of adverse environmental effects resulting from the differing stages of aquifer knowledge and resource development in the Southland region.

In order to develop a staged management approach to groundwater allocation, the region's groundwater resources have been classified into five basic aquifer "types" aggregating together spatially separate aquifer systems on the basis of observed similarities in geology, geomorphology, aquifer response and groundwater-surface water interaction.

[35] Any proposed abstraction that is a non-complying activity under Rule 23(e) of the Plan is likely to have a high risk of adverse effects. Section 104D of the Act provides that the Council may grant a resource consent for a non-complying activity only if it is satisfied that either the adverse effects of the activity on the environment will be minor or the activity will not be contrary to the objectives and policies of this Plan.

Groundwater Map 2 of Appendix D depicts the lowland, riparian and terrace unconfined aquifer types, which overlie confined aquifers in parts of the region. Generally the areas outside of the identified aquifer types depicted on Map 2 of Appendix D consist of fractured rock aquifers, the fourth type of unconfined aquifer found in the region. The sensitivity of each hydrological setting to adverse environmental effects varies between the different aquifer types and reflects both the hydraulic properties and hydrogeology of the aquifer systems as well as the degree and nature of interconnection with other water resources.

Currently, it is difficult to determine a set of criteria to classify aquifers based on a certain 'degree' of confinement. This is because confined aquifers exhibit a wide range of hydraulic properties which influence the nature and extent of environmental effects associated with abstraction. To determine if a proposed groundwater abstraction is within a confined aquifer or not, Environment Southland should be contacted for known aquifer hydrogeology. This information is located outside of the Plan because it is continually modified to incorporate improved understanding of aquifer hydrogeology and supports a conservative management approach to aquifer sustainability. Plan users can use this information combined with the applicant users information (for example, well/bore pumping log) to determine if their abstraction is within a confined aquifer or not. Alternatively, Environment Southland staff will assist to determine the aquifer type.

Staged allocation volumes are prescribed for the various aquifer types based on the level of risk of adverse environmental effects (refer to Rule 23). This level of risk is directly related to the sensitivity of the hydrological setting to adverse effects and the level of resource development.

The policy permits groundwater abstraction where there is a minimal risk of adverse environmental effects. All other groundwater abstractions will require resource consent with the level of information required to support the consent application increasing as the level of risk of adverse effects increases. The information requirements for groundwater abstractions are specified in Appendix A. Minimum aquifer test specifications are not specified in Appendix A, but Environment Southland has guidelines available for aquifer testing that should be followed. Any consent applicant for a groundwater abstraction with a high risk of adverse effects will be required to supply detailed information that demonstrates that the proposed abstraction will not result in a long-term decline in aquifer storage volumes and surface water allocation regimes being exceeded. If the proposed abstraction will have either or both of these effects, it will be considered contrary to Policy 30(i). There are a number of methods that may be used to avoid, remedy or mitigate potential adverse effects, such as the application of a higher minimum flow or level than that applied to existing abstractions.

The primary allocation limit will be established by Policy 30. In addition, the policy makes available a supplementary allocation in cases where, for example, there is above average (or artificial) recharge of the aquifer through factors such as seasonal weather fluctuations. The availability of

supplementary allocation may only be intermittent over time, however, this allocation provides access to water when groundwater monitoring indicates that aquifer storage is in excess of volumes required to maintain ongoing aquifer sustainability and existing levels of use either on an inter-annual or long-term basis. In these situations, sufficient groundwater storage is available to ensure that additional abstraction is unlikely to have more than minor effects on groundwater levels, hydraulically connected waterbodies, or the reliability of supply for existing users. The protection of hydraulically connected waterbodies will be established by Policies 16(c) and 29. Consent conditions will be used to manage supplementary allocations including the use of tools such as minimum level and/or flow cut-offs and abstraction duration.

The minimum level and/or flow cut-offs and seasonal recovery triggers imposed on resource consents for groundwater abstractions will ensure maintenance of long-term aquifer storage volumes and security of supply for resource users. The protection of hydraulically connected waterbodies will be established by Policies 16(c) and 29.

The monitoring imposed on resource consents for groundwater abstractions will also increase in conjunction with the level of risk of adverse effects. The information that is obtained through this monitoring will be used in the future management of the groundwater resource including intervention actions to address adverse environmental effects where these are occurring.

Policy 31- Interference effects

Other relevant sections: Objectives 5, 9, Issue 5, Rule 23, Section 2.3.

(a) Limit the cumulative interference effect of any new groundwater abstraction (in conjunction with other lawfully established groundwater takes) to no more than 20 percent of the available drawdown in any unconfined aquifer or up to 50 percent of the potentiometric head in any confined aquifer. The effects on any neighbouring bore will be considered where that bore is lawfully established and an assumption will be made that the bore fully penetrates the aquifer. An increased volume or increased pumping rate for any lawfully established groundwater abstraction will be considered a new groundwater abstraction under this policy.

(b) Limit the cumulative interference effect of any new groundwater abstraction on any bore that is notified to the Council and utilised for long-term monitoring of water levels to no more than 10 percent of the available drawdown in a unconfined aquifer, or no more than 20 percent of the available potentiometric head in a confined aquifer that exists 50 percent of the time during natural conditions when no pumping is occurring. An increased volume or increased pumping rate for any lawfully established groundwater abstraction will be considered a new groundwater abstraction under this policy.

(c) An exception to clause (a) and (b) above may be appropriate for aquifer testing and necessary infrastructure works, and in certain

circumstances for mining activities where dewatering occurs for a short duration.

Explanation

Groundwater abstraction from a bore results in a cone of depression in the groundwater potentiometric surface which expands with time in a way that is largely determined by the abstraction rate and physical properties of the aquifer system. The lowering of groundwater levels as a result of abstraction may affect the ability of existing users to access the groundwater resource through:

(a) localised well interference effects; and/or
(b) a decline in the aquifer-wide groundwater level or potentiometric head due to the cumulative impact of abstraction.

Any new groundwater abstraction should not significantly affect the ability of an existing groundwater user to access the groundwater resource provided the existing bore has been lawfully established and fully penetrates the aquifer. In considering interference effects on lawfully established neighbouring bores Environment Southland will assume the bore fully penetrates the aquifer. This policy sets a figure of 20 percent of the available saturated thickness of an unconfined aquifer (or up to 50 percent of the potentiometric head in the case of a confined aquifer). In determining the actual percentage of potentiometric head reduction that is acceptable in any confined aquifer Environment Southland will consider the individual characteristics of an aquifer system to determine whether a cumulative interference effect is more than minor.

As good practice, bores should fully penetrate the entire saturated thickness of the source aquifer. However, a significant number of existing bores and wells in Southland are drilled to a depth not far below the limit of historical seasonal groundwater level variation and are therefore susceptible to groundwater level reductions induced by nearby abstraction. The interference effect of any new groundwater abstraction will only be assessed on existing neighbouring bores and wells that were lawfully established and it will be assumed that they fully penetrate the entire saturated thickness of the aquifer.

Environment Southland's monitoring bores characterise long-term trends in aquifer storage in response to the combined effects of groundwater abstraction and climate variability. They also ensure the reliability of supply for individual users who have pumping restrictions based on trigger levels in the monitoring bore. Bores used for long-term monitoring whether they are operated by Environment Southland or by other parties are an important tool in the effective management of the groundwater resource and the reliability of supply for users who have minimum cut-off levels. It is critical therefore that such bores are not significantly affected by localised interference effects arising from new groundwater abstractions. Policy 31(b) limits the cumulative interference effects of new groundwater abstractions on bores that have been notified to the Council and are used to monitor long-term aquifer levels. The Policy does not apply to bores required as a condition of a resource

consent to monitor minimum cut-off levels set by that consent. In assessing whether there is likely to be a significant localised drawdown on a monitoring bore, 10 percent of the available drawdown in a unconfined aquifer that exists for 20 percent of the time and 50 percent the available potentiometric head in a confined aquifer that exists for 50 percent of the time during natural conditions when no pumping is occurring should be used.

However, situations, such as aquifer testing and dewatering for construction and mining activities, may arise where it may be appropriate to exceed the thresholds set for interference effects. Such cases are best dealt with on an individual basis to ensure such activities are undertaken under controlled conditions where appropriate monitoring and environmental safeguards have been established.

5.2.3 Land and Soil Policies

(see also Section 5.2.1 Water Quality and Quantity Policies)

Policy 31A – Matching discharges onto or into land to risk

Other relevant sections: Issues 5A, 7, Objectives 1-4, 8, 9A-9C, Rules 1-2, 5-7, 10, 12-13, 16-16D, 17C, 49-51, 57-58, Section 2.3

Match the level of management that is required for discharges of contaminants onto or into land to the level of environmental risk posed by the following risk factors:

(a) Nature and quantity of contaminants in the discharge
(b) Sloping land
(c) Soils with artificial drainage or coarse structures
(d) Soils with impeded drainage or low infiltration rates
(e) Well drained soils
(f) Climate
(g) Proximity to groundwater
(h) Proximity to surface water
(i) Soil's current physical, chemical and biological characteristics and its potential to leach nutrients
(j) Natural hazards (for example, flooding and erosion).

Explanation

Along with the method of discharge, rate, depth and level of contaminant loading, the specific location or attributes of the receiving environment can determine the inherent level of risk that a discharge of contaminants onto or into land will cause adverse effects.

Soil types within Southland have been classified based on technical investigations, with Council holding information on the various soil properties that affect land uses, in particular farm dairy effluent (FDE) management. For example, a 2009 report on the influence of soil drainage characteristics on leakage risks associated with FDE application showed that well-drained soils represented the lowest risk of direct contamination.

The risk factors listed in Policy 31A need to be recognised in order to effectively manage discharges and minimise the potential for adverse effects. The topography of the receiving environment can affect the distribution of a discharge, while climatic factors such as rainfall can impact through increased runoff or the saturation of soils. Current soil fertility can affect the potential for nutrients applied in discharges to leach through the soil to groundwater.

Discharges of contaminants onto or into land should also not be undertaken near any surface water body or at a location where overland or subsurface flow will result in contaminants reaching surface water. Additionally, in areas with a shallow depth to groundwater, there is

limited opportunity for the removal of contaminants through the soil before direct contact with the groundwater.

The potential for effects on the receiving environment can be managed by matching the application method, rate, depth, time and loading of a discharge of contaminants to the corresponding environmental risks. The risk factors listed in Policy 31A have been taken into account when determining the rule framework for discharges of contaminants onto or into land and the information required with consent applications.

The risk factors will also be used when assessing consent applications. Accordingly, resource consents for discharges with low levels of environmental risk are likely to have longer durations and less stringent conditions than those discharges considered to have higher levels of environmental risk.

Managing discharge activities in accordance with the level of environmental risk as defined in Policy 31A will assist Council to achieve Objective 9B, through avoiding adverse effects on human health, and assist to achieve Objectives 3 and 4 in relation to water quality.

Policy 31B – Natural State Catchments

Other relevant sections: Issues 5A, 7, Objectives 1-4, 8, 9A-9C, Rules 1-2, 5-7, 10, 12-13, 16-16D, 17C, 49-51, 57-58, Section 2.3

Recognise that discharges onto or into land in the catchments of Natural State Waters can have adverse effects on water quality, and manage such discharges in accordance with Policy 2 and Policy 31A of this Plan.

Explanation

Natural State Waters are identified under the Water Plan as generally within conservation areas, reserves and national parks administered by, or on behalf of, the Department of Conservation for conservation purposes. Water quality within Natural State waters is largely unaffected by human or animal activity.

Policy 2 provides for the protection of these waters from the effects of direct discharges of contaminants. The catchments of Natural State Waters typically contain a wide range of land uses with associated discharges that could affect water quality. It is important to manage discharges of contaminants onto or into land in these catchments in relation to their effects on water quality.

Policy 31C - Manage discharges of contaminants onto or into land

Other relevant sections: Issues 5A, 7, Objectives 1-4, 8, 9A-9C, Rules 1-2, 5-7, 10, 12-13, 16-16D, 17C, 49-51, 57-58, Section 2.3

Manage discharges of contaminants onto or into land to avoid, remedy or mitigate adverse effects, including on:

(a) soil quality;
(b) amenity values;
(c) habitats, ecosystems and indigenous biological diversity;
(d) historic heritage, cultural and traditional values;
(e) natural character;
(f) outstanding natural features.

Explanation
Discharges of contaminants onto or into land can have a range of adverse effects on the environment, and consequently need to be managed so that these effects are avoided, remedied or mitigated.

Policy 31C acknowledges that Council is obliged to recognise and provide for a number of important matters under Part 2 of the Act when managing discharges of contaminants onto or into land. These include the life supporting capacity of soil, the maintenance and enhancement of amenity values, significant habitats of indigenous flora and fauna, the intrinsic values of ecosystems, the protection of historic heritage, the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga, and the protection of outstanding natural character.

Policy 31C will assist the Council in achieving Objectives 9A and 9C of the Water Plan.

Policy 31D – Beneficial reuse

Other relevant sections: Issues 5A, 7, Objectives 1-4, 8, 9A-9C, Rules 1-2, 5-7, 10, 12-13, 16-16D, 17C, 49-51, 57-58, Section 2.3

Encourage the beneficial reuse of materials where this is appropriate, and promote discharges of these materials onto or into land to maximise the potential reuse of the nutrients and water contained in the discharge.

Explanation
It is recognised that the discharge of certain materials, that might otherwise be considered to be contaminants, can enhance plant growth and have positive effects on the receiving environment, given the nutrient and water levels within the discharge. Encouraging beneficial reuse is an appropriate management technique for Council to employ, to recognise the value that can be derived from some discharges. Beneficial reuse can also reduce the overall amount of materials being disposed of at landfill as waste.

5.2.4 River Bed (including beds of streams and modified watercourses) and Lake Bed Use and Development Objectives

Policy 32 – Manage structures and bed disturbance activities in the beds of rivers (including streams and modified watercourses) and lakes

Other relevant sections: Objectives 10-13, Issue 6, Policies 33-37, Rules 1, 2, 15-17, 24-44, Section 2.3.

Manage structures and bed disturbance activities in the beds of rivers and lakes, to avoid, remedy or mitigate adverse effects on:

(a) water quality and quantity;
(b) habitats, ecosystems and fish passage where this is normally expected to occur;
(c) indigenous biological diversity;
(d) historic heritage, and the spiritual and cultural values and beliefs of the tangata whenua;
(e) public access (except in circumstances where public health and safety are at risk) and amenity values;
(f) natural character and outstanding natural features;
(g) river morphology and dynamics, including erosion and sedimentation;
(h) flood risk;
(i) infrastructural assets;
(j) navigational safety.

Explanation
Many structures and activities that disturb the beds of lakes and rivers can have economic, social, and in some cases environmental benefits. However, these activities can also have a range of adverse effects on the environment. The adverse effects of the activities needs to be weighed against the benefits they provide. Where it is appropriate that these activities take place, any adverse effects on the environment need to be avoided or minimised.

Policy 33 – Provide for the extraction of gravel

Other relevant sections: Objectives 10-13, Issue 6, Policies 32, 36, Rules 1, 2, 15, 25, 35, 41, 47, Section 2.3.

Provide for the extraction of gravel to meet the needs of the community, in a way that avoids, remedies or mitigates adverse effects on the riverine environment; and

(a) maintains or enhances aquatic and riparian habitat; or
(b) equates to no net loss of habitat in the river channel and floodplain; or

(c) maintains or enhances flood protection, erosion control or the integrity of physical resources.

Explanation

Gravel, being a raw material for roading, building and other infrastructure, is a very important resource within the region. Gravel is commonly extracted from river beds and adjacent floodplain deposits because of the high quality of the material and economic and access considerations. In addition, river gravels are sometimes removed to alleviate flooding and erosion problems and associated threats to infrastructure.

While river gravel is often viewed as a "renewable resource", gravel extraction can be unsustainable and lead to adverse effects such as the lowering and destabilisation of river beds and the degradation or destruction of aquatic and riverine habitats. The extent of these impacts depends on site specific factors, such as habitat values and the quantity of gravel available, and activity specific factors, such as the method of extraction and the quantity of gravel removed.

Knowledge of the site and activity details is necessary in order to ensure that adverse effects are avoided or minimised and that habitat is maintained or enhanced. It is particularly important to define and stay within sustainable extraction rates to avoid adverse effects on river bed processes. Information on habitat values is also important, so that sensitive times and place, such as breeding and spawning areas, can be avoided wherever possible.

Some rivers, including the Makarewa, Lower Ōreti and Lower Mataura, are known to have limited gravel supplies within the bed due to natural factors or a history of over-abstraction. Gravel extraction in these areas needs to be carefully managed – it may not be appropriate to take gravel from places where supply is limited.

Policy 34 – Drainage maintenance

Other relevant sections: Issue 6, Objectives 10-13, Policies 32, 36, Rules 1, 2, 15, 25, 35, 46, Section 2.3.

Ensure that drainage maintenance activities within the beds of modified watercourses are managed in a way that either:

(a) avoids, remedies or mitigates significant adverse effects on the aquatic environment; or
(b) maintains or enhances habitat value.

Explanation

Land drainage is an essential element of agriculture in many parts of Southland. Improved drainage and land productivity have been achieved through the construction of artificial watercourses (including open drains) and the straightening and modification of existing natural rivers and streams. Ongoing maintenance of the drainage system, including both artificial and modified watercourses, is carried out to remove the

build-up of sediment and vegetation and restore the original drainage capacity of the system. This policy applies only to drainage maintenance activities in the beds of modified watercourses in accordance with Section 13 of the Act, which does not impose controls over the beds of artificial watercourses. However, activities in the beds of artificial watercourses are still subject to the water quality and quantity provisions of this Plan.

Weed and sediment removal can have significant adverse effects on aquatic ecosystems, habitats and water quality. While there is a need to provide for appropriate drainage maintenance activities, these should be undertaken in a way that minimises adverse effects, or maintains or enhances habitat values. For this reason, Rule 46 makes the removal of aquatic weeds and plants and sediment from modified watercourses a permitted activity subject to conditions that seek to minimise adverse effects. Other measures to minimise adverse effects will be promoted through sustainable drainage management strategies/codes of practice/range of best management practices for drainage.

Policy 35 – Stock access to surface water

Other relevant sections: Issue 6, Objectives 10-13, Policies 32, 36, Rules 1, 2, 15, 16, 17, 25, 35, 42, Section 2.3.

(a) Encourage the exclusion of all stock from surface water bodies and artificial watercourses where practicable.

(b) Ensure that when stock access to surface water bodies and artificial watercourses occurs, this is managed in a manner that avoids significant adverse effects on:

(i) water quality;
(ii) bed and bank integrity and stability;
(iii) aquatic, riverine and riparian ecosystems and habitats.

Explanation

Stock access to surface water bodies and artificial watercourses has a number of adverse environmental effects. These effects include trampling and damage to beds and banks, disturbance of ecosystems and habitat, increased sediment and effluent inputs, and an associated decrease in water quality that can render the water unsuitable for consumption by farm animals and affect water for contact recreation purposes. The damage caused is dependent on a number of factors including the type of stock and density of stocking, the length of time spent in the water body, the frequency of crossing of the water body, and the size and type of water body.

Deer, cattle and pigs are attracted to water and tend to congregate in and around water bodies. These types of stock are therefore most likely to cause adverse environmental effects. Sheep are less of a problem, but can also cause adverse effects, particularly in higher densities. Activities such as mob stocking, supplementary feeding and fencing stock in beds of lakes and rivers are damaging and unacceptable practices. The

adverse effects on bank stability and water quality are often worse in wet conditions and in erosion prone country.

Because of the practical difficulties associated with fencing stock out of water bodies in some situations, the Council has adopted the following strategy for managing the adverse effects of stock access to surface water:

(a) permitted activity rules with effects based conditions addressing the adverse effects of stock access to surface water;
(b) exclusion of stock within 3 metres of water in a lake, river, modified watercourse, stream or artificial watercourse when intensive winter grazing is being undertaken and within any natural state water body or regionally significant wetland; and
(c) education and enforcement of the permitted activity rules for other forms of stock access to surface water.

This strategy is seen as one means of achieving the water quality outcomes contained in Section 3.1 of this Plan. Landowners will be encouraged to adopt best management practices, and required as a minimum, to ensure that stock are managed in a way that does not reduce water quality below any water quality standards set for the relevant surface water body in Appendix G "Water Quality Standards" after reasonable mixing. In some situations, this will necessitate the placement of temporary or permanent fencing and alternative stock water supplies.

The Council will consider the introduction of further regulation if this strategy is shown to be a barrier to achieving the water quality outcomes set out in Section 3.1 of this Plan.

Policy 36 - Promote good environmental practice

Other relevant sections: Issue 6, Objectives 10-13, Policies 32-37, Rules 1, 2, 24-44, Section 2.3

Use non-regulatory methods to promote good environmental practice in relation to structures and bed disturbance activities.

Explanation

Non-regulatory methods include approaches such as education, promotion and best management practices. These methods are a key tool in achieving the stated objectives and can be used independently of or in conjunction with rules. Non-regulatory methods are also necessary to promote environmental awareness and good practice given that many activities are permitted, and will not be formally assessed through the resource consent process.

Policy 37 – Whitebait Stands

Other relevant sections: Issue 6, Objectives 10-13, Policies 32, 36, Rules 34, 47, Section 2.3.

Restrict the allocation of space for whitebait stands in the beds of lakes, rivers, modified watercourses and streams to:

(a) stands lawfully existing as of 1 June 2003; or
(b) new stands used in lieu of previously lawfully existing stands, but as close as practicable to the former site where that site can no longer be used because of either natural alterations to the course of the river, bank erosion or high-water mark alterations.

Explanation

This is an extension of Policy 13.17 of the Regional Policy Statement for Southland and applies to all rivers in the Region. The existing number of whitebait stands is considered to be sufficient to achieve the needs of present and future users. Lawfully existing stands may be repaired or reconstructed, as necessary, but no further space will be allocated. Replacement of existing stands would be compatible with this policy as would the allocation of a new site where either an old site can no longer be used, because of natural alterations to the course of the river, bank erosion, or high-water mark alterations.

5.2.5 Wetlands Policies

Policy 38 - Adverse effects of activities

Other relevant sections: Issue 7, Objectives 1-5, Rules 1, 2, 20, Section 2.3.

Avoid, remedy or mitigate the adverse effects of activities on wetlands through an integrated management approach with the Southland territorial authorities

Explanation

Any adverse effects of the use, development or protection of land or water resources on wetlands should be avoided wherever possible in a co-ordinated way through an integrated management approach. Wetlands contain both land and water therefore integration of all methods of management is required to avoid duplication and/or inconsistency in the approaches taken to wetland management by regional councils and territorial authorities.

Given the above, Environment Southland and the Southland District Council jointly established the Southland Wetlands Working Party in 2004. The working party is comprised of a wide range of agencies with interests in wetland management as well as landowner representatives. The aim of the working party is to help private landowners to identify and sustainably manage wetland areas on their property and to promote the benefits of including wetland ecosystems as an integral part of the productive farming landscape.

Policy 39 – Promote best management practice

Other relevant sections: Objectives 1-5, Issue 7, Rules 1, 2, Section 2.3.

Use non-regulatory methods to promote best management practice in relation to retaining or enhancing the natural values of wetlands.

Explanation

The opportunity exists for the promotion and implementation of non-regulatory methods including approaches such as education, promotion and best management practices. These methods are a key tool in achieving the stated objectives and can be used independently of or in conjunction with rules. Non-regulatory methods are also necessary to promote environmental awareness and good practice, and when used in conjunction with incentives adopted through the Annual Plan process, can provide good environmental outcomes.

Policy 40 – Restoration of existing wetlands and the creation of wetlands

Other relevant sections: Objectives 1-5, Issue 7, Rules 1, 2, Section 2.3.

Encourage the maintenance and restoration of existing wetlands and the creation of new wetlands.

Explanation

The restoration of existing wetlands and creation of new wetlands is occurring in Southland. Wetlands can be created or modified using weirs, embankments or dams (that may be subject to rules elsewhere in the Plan). Examples of wetland creation include dammed wetlands, oxbow lakes, wastewater treatment systems, duck ponds, and stock water reservoirs. There are many benefits of these types of wetlands. As well as enhancing landscape values and providing habitat, created and restored wetlands assist with maintaining good water quality and water quantity during low flows.

Policy 40A – Natural inland wetlands (Clause 3.22 of National Policy Statement for Freshwater Management 2020)

1. 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 Maori
     - (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. Where an application for an activity meets the exception described in Policy 40A(1)(a)(ii) to (vii) or (b) and would result (directly or indirectly) in the loss of extent or values of a natural wetland the application is not granted unless:
   (a) the decision maker 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:
      (i) ecosystem health,
      (ii) indigenous biodiversity,
      (iii) hydrological functioning,
      (iv) Maori freshwater values, and
      (v) amenity values; 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 loss of extent or values of the wetland.

Policy 40B - Rivers (Clause 3.24 of National Policy Statement for Freshwater Management 2020)

1. 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. Where an application for an activity meets the exceptions described in Policy 40B(1), and would result (directly or indirectly) in the loss of extent or values of a river, the application shall not be granted unless:
   (a) the decision-maker 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:
      (i) ecosystem health,
      (ii) indigenous biodiversity,
      (iii) hydrological function,
      (iv) Māori freshwater values, and
      (v) amenity values; and

   (b) any consent granted is subject to conditions that apply the effects management hierarchy.

5.2.6 Agricultural Effluent Policies

Policy 41 - Adverse effects of agricultural effluent ponds

Other relevant sections: Objectives 2-4, 9A-C, Issues 1-4, 5A, Rule 49, Section 2.3.

Avoid adverse effects on water quality, and avoid as far as possible other adverse environmental effects, associated with the location, design, construction, operation and maintenance of agricultural effluent ponds.

Explanation

Agricultural effluent contains high levels of pathogens, nitrogen and other contaminants. This means that there is a significant risk to water quality and public health if deficiencies in the design and construction of an agricultural effluent pond result in a discharge to groundwater or surface water.

The adverse effects of agricultural effluent ponds on water quality can be avoided by the adoption of appropriate design and construction standards such as those contained in the *Environment Southland Code of Practice for Design and Construction of Agricultural Effluent Ponds*. To ensure these standards are met, agricultural effluent ponds need to be properly designed by persons with experience in the design and oversight of construction of this type of structure. In addition, the construction of an agricultural effluent pond requires an experienced contractor with adequate heavy equipment. In order to ensure compliance with appropriate standards, the construction of all new agricultural effluent ponds will require resource consent from the Council.

To further minimise risks to water quality and public health, agricultural effluent ponds should not be located in close proximity to surface water bodies, artificial watercourses, the coastal marine area or potable water abstraction points. Buffer distances have therefore been included in the relevant rule. The proximity of agricultural effluent ponds to registered drinking-water supplies, installed subsurface drains and groundwater will also be considered through the resource consent process.

Inappropriate use may result in adverse effects, for example if the pond is allowed to overflow, or the lining material is damaged during maintenance. It is therefore appropriate that Policy 41 makes reference to pond operation and maintenance, as these activities can also result in adverse environmental effects.

Agricultural effluent ponds can also have other adverse environmental effects such as the diversion of flood waters and odour problems. Buffer distances have therefore been included in the relevant rule to address these effects. Further consideration of these effects will occur through the resource consent process.

Policy 42 – Farm dairy effluent

Other relevant sections: Issue 5A, Objectives 9A-C

Avoid adverse effects on water quality and other adverse environmental effects associated with the application of farm dairy effluent to land by matching farm dairy effluent management to receiving environment risk.

Explanation

Farm dairy effluent contains high levels of faecal microbes and nutrients and organic matter. Poorly managed farm dairy effluent land application systems can therefore generate highly contaminated surface runoff and drainage waters and pose a significant risk to water quality and human and animal health. Direct losses of faecal microbes and nutrients can be avoided by matching application rate, depth, timing and loading to soil and landscape risk. The following table defines minimum management criteria for the five soil/landscape categories identified in Map 1 of Appendix N based on the inherent risk for each soil/landscape category:

Table 1: Minimum management criteria for a land applied effluent system to achieve

	Category A	Category B	Category C	Category D	Category E
Soil and landscape feature	Artificial drainage or coarse soil structure	Impeded drainage or low infiltration rate	Sloping land (>7°)	Well drained flat land (<7°)	Other well drained but very stony[X] flat land (<7°)
Application depth (mm)	< SWD*	< SWD	< SWD	< 50% of PAW#	≤ 10 mm & <50% of PAW#
Instantaneous application rate (mm/hr)	N/A**	N/A**	< soil infiltration rate	N/A	N/A
Average application rate (mm/hr)	<soil infiltration rate	<soil infiltration rate	<soil infiltration rate	<soil infiltration rate	<soil infiltration rate
Storage requirement	Apply only when SWD exists	Apply only when SWD exists	Apply only when SWD exists	24 hours drainage post saturation	24 hours drainage post saturation
Maximum N load	150 kg N/ha/yr	150 kg N/ha/yr	150 kg N/ha/yr	150 kg N/ha/yr	150 kg N/ha/yr

* SWD = soil water deficit (The amount of water (mm) required to restore a soil to field capacity from its current moisture status)
# PAW = Plant available water (The state of top 300mm of soil after rapid drainage has effectively ceased and the soil water content has become relatively stable)
[X] Very stony= soils with > 35% stone content in the top 200 mm of soil
** N/A = Not an essential criteria, however level of risk and management is lowered if using low application rates

If all the criteria in the above table are met, the valuable nutrients contained within farm dairy effluent will be kept in the root zone so they can be taken up by plants, instead of being lost into groundwater or surface waterways. Similarly, compliance with these criteria is necessary to prevent the loss of harmful faecal microbes to water. A high level of management will be required on some soils, and at some times of the year to ensure full compliance with consent conditions.

Farm dairy effluent that is treated to a high standard or applied at very low depths and/or application rates has less environmental risk and may have reduced storage requirements to those contained in Table 1.

Property specific calculations should include information that allows the volume of storage to be established ensuring that irrigation does not occur on soils under saturated conditions.

In order to provide flexibility in meeting the management criteria contained in Table 1, Environment Southland has established three approaches for potential consent applicants under associated Rule 50 as follows:

(1) Adoption of a default set of consent conditions designed to achieve the minimum criteria in Table 1, based on the soil/landscape category shown on Map 1 of Appendix N for the effluent disposal area; or

(2) Refinement of the default set of consent conditions based on farm scale mapping of the soil/landscape categories within the effluent disposal area and/or a property specific calculation of storage requirements; or

(3) Property and effluent system specific consent conditions based on a plan supplied by the consent applicant containing detailed information on the effluent disposal area and proposed effluent system, demonstrating how the minimum criteria in Table 1 will be met.

In addition to potential adverse effects on water quality and human and animal health, the application of farm dairy effluent to land can also have other adverse environmental effects such as objectionable odour and spray drift beyond the boundary. Buffer distances are one means of managing these effects and are contained in the default consent conditions associated with Rule 50 and resource consents issued under this rule.

Policy 42A

Other relevant sections: Issue 5A, Objectives 9A-C

Provide for the discharge of farm dairy effluent to land that is lawfully being undertaken up to and including 17 July 2010.

Explanation

It is considered appropriate to provide for the discharge of farm dairy effluent to land that is lawfully being undertaken up to and include 17 July 2010. This approach has been adopted because of the state and trend of water quality in some areas across Southland, and the potential for new activities (including an increase in intensity of an existing activity) to affect water quality.

Policy 43

Other relevant sections: Issue 5A, Objectives 9A-C

Match consent duration and inspection and audit requirements on resource consents to apply farm dairy effluent to land to the level of risk of adverse environmental effects.

Explanation

The duration of resource consents to apply farm dairy effluent to land will correspond to the level of environmental risk. Resource consent for farm dairy effluent activities with low levels of environmental risk will have longer consent durations than those with higher levels of environmental risk. Factors that will be considered in determining consent duration include:

- extent and nature of potential adverse effects of the activity;
- certainty of potential adverse effects and potential risks of the activity;
- water quality of the water resources that could be impacted by the activity;
- level of Council knowledge of the water resources of the area;
- monitoring and review requirements in consent conditions;
- permanence and economic life of the activity;
- capital investment in the activity;
- compliance history associated with the activity.

Similarly, the inspection and audit requirements imposed on resource consents to apply farm dairy effluent to land will correspond to the level of environmental risk. Farm dairy effluent activities with higher levels of environmental risk will have increased inspection and audit requirements than those with lower risk. The information that is obtained through inspections and audits will be used in future farm dairy effluent management.

Policy 44 – Silage storage facilities

Other relevant sections: Objectives 2-4, 9A-C, Issues 1-4, 5A, Rule 51, Section 2.3.

(a) Encourage the use of land as a silage storage facility such that there are unlikely to be adverse effects on any water or naturally occurring wetland, or noxious, dangerous, offensive, or objectionable effect beyond the boundary of the landholding on which silage is stored.

(b) Ensure that when land used as a silage storage facility is located such that adverse effects on any water or naturally occurring wetland, or noxious, dangerous, offensive, or objectionable effects beyond the boundary of the property on which silage is stored are likely, that soil and landscape features, surface preparations, or other features exist to avoid or mitigate adverse environmental effects.

Explanation

Making, storing, and utilising silage may result in problems such as discharges of silage leachate or sediment to water or naturally occurring wetlands, or noxious, dangerous, offensive, or objectionable effects beyond the boundary of the landholding on which silage is stored or utilised.

Silage leachate has a very low viscosity and high contaminant loading, and must not be discharged to land in circumstances where it may enter surface water. In particular silage leachate has a very high biological oxygen demand, and even small quantities are harmful to aquatic ecosystems.

The use of land as a silage storage facility often results in localised accumulation of sediments, excreta and waste silage at the time silage is utilised. It is important that activities associated with the direct utilisation of silage are managed in a way that prevents the movement of these contaminants to water or naturally occurring wetlands, for example by ensuring that:

- stormwater cannot run into the silage storage facility;
- the silage is properly prepared to avoid excessive production of leachate;
- that structures and surface features are in place to reliably contain any silage leachate that is produced;
- that silage leachate is safely disposed of, through application to land, transfer to an effluent management system, or other method.

Because of the close relationship between appropriate site selection and preparation, and environmental risk, the Council has adopted a risk-based approach to manage the adverse environmental effects of silage making.

A low risk situation occurs where there is little risk of adverse environmental effects, for example where use of land as a silage storage facility and discharge of silage leachate to land complies with permitted activity rules included in this plan.

A medium risk situation occurs where there is a risk of adverse environmental effects but those effects can be safely mitigated or avoided through good practice. This might be achieved by surface preparations that ensure that any discharge to land cannot reach water, or through the conditions of a discharge permit.

A high risk situation occurs where there is a risk of adverse environmental effects, even with the exercise of good environmental practice. Non-complying activity status is appropriate in these circumstances because the Council will have the power to decline any consent application that is received, and will have to adhere to policy guidance if it accepts an application.

5.2.7 Landfill and Land Contamination Policies

Policy 46 – Discharge waste and cleanfill appropriately

Other relevant sections: Objectives 1-4, 8, Issues 1, 4, Rules 53-56 and Section 2.3

Ensure the discharge of contaminants as waste or cleanfill occurs at an appropriate site.

Explanation

Discharges of waste, including soil from land contaminated by a hazardous substance, can remain as residues in the land and continue to leach, or be mobilised by other means including erosion by wind or water, for many years. Cleanfill can either be disposed of as waste or discharged for a particular purpose, such as land-raising activities, and is inert. The adverse effects associated with cleanfill sites usually only occur when non-cleanfill material is discharged as cleanfill, or where a cleanfill site is located in or near a sensitive receiving environment. Without management, discharges of waste and materials as cleanfill are a risk to the environment and can restrict land use activities for present and future generations. It is preferable to manage the disposal of waste and cleanfill at the point of discharge but this is difficult to achieve when it occurs at numerous sites across the region, and in some cases, illegally.

Discharges of waste should be consolidated in the Regional landfill as far as practicable. In some circumstances, it is reasonable to allow discharges to occur elsewhere, such as at industrial landfills, farm landfills, cleanfill sites or dead holes (offal pits). Factors to consider include, but are not limited to, the existence of alternatives (for example, access to waste transfer stations or the availability of collection services) and the risk of transporting hazardous substances. Where possible, an existing landfill should be used over the development of a new landfill unless the new landfill is likely to have less adverse environmental effects or is necessary to support a new industry or waste stream.

The selection of a suitable site is critical to the management of discharges of waste and cleanfill. Possible sites should be assessed in terms of their environmental risk and, once selected, a site should be developed to address any potential adverse effects. In particular, regard should be given to a site's proximity to sensitive receiving environments, particularly potable surface water and groundwater resources and aquatic ecosystems. Other sensitive features include, but are not limited to, dwellings and places of assembly, landholding boundaries, the coastal marine environment, and areas or features with cultural and historic heritage values.

Discharges of individual waste streams must be directed to sites with the necessary environmental controls to deal with such waste. Hazardous substances, including soil from land that has a hazardous substance in or on it, may be disposed of at a Class A or Class B landfill[36] subject to its

[36] Refer to Module 2: Hazardous Waste Guidelines – Landfill Waste Acceptance Criteria and Landfill Classification (Ministry for the Environment, 2004)

waste acceptance criteria. Non-cleanfill materials should be kept out of cleanfill sites because of the low level of environmental controls. Waste deposited at a farm landfill should only be that which is derived from that landholding and has a low environmental risk. Carcasses and offal should be disposed of separately from farm waste.

Policy 47 – Assess land contaminated by a hazardous substance

Other relevant sections: Objectives 1-4, 8, Issues 1, 4, Rules 57, 58 and Section 2.3

Assess the environmental risk of a discharge from land contaminated by a hazardous substance by using guideline values that are appropriate to the discharge and the site.

Explanation

This policy is intended to apply to land contaminated by a hazardous substance (for example, as a result of an historical spill or leak of a hazardous substance). It does not apply to discharges from land containing a hazardous substance resulting from the application of fertilisers or agrichemicals to the land authorised by a rule in a regional plan or resource consent as part of normal farming practice.

Contamination of land with a hazardous substance may have actual or potential adverse effects on the environment. In general, the risk to the environment will depend upon the nature of the hazard (the toxicity, extent, quantity and mobility of the contaminant), the existence of an exposure pathway, and the sensitivity of the receiving environments. Adverse effects will not usually occur, however, unless or until there is a discharge from the land, or the depositing of soil. Contaminant flow paths have a natural variability and land that has no discharge at present may still have a discharge in the future. To assess the environmental risk of a discharge from the land requires an investigation of the concentrations of suspended or dissolved contaminants in the discharge.[37] To assess discharges of soil from the land it is necessary to investigate contaminant concentrations in the soil. All assessments should be carried out in accordance with the Ministry for the Environment Contaminated Land Management Guidelines.

There are a range of New Zealand and international guidelines that are commonly used for site investigations. New Zealand guidelines based on a risk assessment methodology should be used, but if no such sources are available then Australasian guidelines should be applied. Otherwise, either the most conservative guideline values available from an appropriate international source or a site-specific risk assessment may be used. In some cases it will be more appropriate to use industry guidelines because of a past or present land use activity. Guideline values are trigger values to indicate where a management response may be necessary, they

[37] Effective monitoring of contaminants requires careful design and placement of monitoring wells and existing wells are not usually suitable for monitoring purposes. Environment Southland can provide guidance for groundwater investigations.

are not standards. Discharges must also be assessed in the context of their surroundings. This includes, but is not limited to, the physical nature, conductivity / permeability and hydraulic connectivity of the soils (including macropore flow or the existence of natural or manmade preferential flow paths), and also the distance and gradient to groundwater, surface water, the coastal marine environment and other sensitive features.

Policy 48 – Manage land contamination

Other relevant sections: Objectives 1-4, 8, Issues 1, 4, Rules 57, 58 and Section 2.3

Require that:

(a) the best practicable option is adopted to prevent or minimise adverse effects from land contaminated by a hazardous substance; and

(b) monitoring and reporting is carried out to confirm that the option adopted in (a) is successful.

Explanation

A discharge from land contaminated by a hazardous substance in circumstances which may result in contaminants entering water may have adverse environmental effects now and in the future. Where actual or potential adverse effects are more than minor then the best practicable option will need to be implemented to manage these effects. Options will range from monitoring of the discharge to containment or remediation of the site. Best practicable option is defined in the Glossary Section of this Plan.

An evaluation of the best practicable option for managing adverse effects will take account of, but is not limited to, the factors listed in the definition, such as the nature of the discharge and its adverse effects, the methods available, and their likelihood of success. It should take account of all relevant factors, although one or two factors may be more applicable than others in each set of circumstances. The weighting given to each factor will depend upon the facts of the specific case, and this should be done in full consultation with the landowner, particularly because of the possible financial implications involved.

Target contaminant concentration levels or other measures of success should be quantified in the conditions of any consent issued, and it is essential that adequate monitoring and reporting are carried out to show whether or not they are achieved. If a best practicable option is not as successful as anticipated in managing adverse effects, then it may be necessary to re-evaluate the best practicable option and possibly adopt alternative methods if warranted. Where the best practicable option is successful but a discharge does not meet the permitted activity in Rule 57 (a) then it may be necessary to undertake ongoing monitoring of the risk to the receiving environments.

6 How We Will Know the Plan is Working

6.1 Monitorng Plan Effectiveness, Suitability and Usability

6.2 Implementing Plan Monitoring

6.3 Reviewing the Plan

6 How We Will Know the Plan is Working

6.1 Monitoring Plan Effectiveness, Suitability and Usability

Monitoring of Plans is required under Sections 35(2) and 67(1) of the Resource Management Act. Section 35(2) states that:

(2) Every local authority shall monitor—
- (a) the state of the whole or any part of the environment of its region or district to the extent that is appropriate to enable the local authority to effectively carry out its functions under this Act; and
- (b) the suitability and effectiveness of any policy statement or plan for its region or district; and
- (c) the exercise of any functions, powers, or duties delegated or transferred by it; and
- (d) the exercise of the resource consents that have effect in its region or district, as the case may be,—

and take appropriate action (having regard to the methods available to it under this Act) where this is shown to be necessary.

Section 67(1) states that:

(1) A regional plan may make provision for such of the matters set out in Part I of the Second Schedule as are appropriate to the circumstances of the region, and shall state—
- (a) the issues to be addressed in the plan; and
- (b) the objectives sought to be achieved by the plan; and
- (c) the policies in regard to the issues and objectives, and an explanation of those policies; and
- (d) the methods being or to be used to implement the policies, including any rules; and
- (e) the principal reasons for adopting the objectives, policies, and methods of implementation set out in the plan; and
- (f) the information to be submitted with an application for a resource consent, including the circumstances in which the powers under Section 92 may be used; and
- (g) the environmental results anticipated from the implementation of these policies and methods; and
- (h) the processes to be used to deal with issues which cross local authority boundaries, and issues between territorial authorities and between regions; and
- (i) the procedures to be used to review the matters set out in paragraphs (a) to (h) and to monitor the effectiveness of the plan as a means of achieving its objectives and policies; and
- (j) any other information that the regional council considers appropriate; and

(k) such additional matters as may be appropriate for the purpose of fulfilling the regional council's functions, powers, and duties under this Act.

Plan effectiveness and suitability monitoring includes monitoring:

(a) Plan Outcomes
(b) Plan Methods
(c) Plan Usability

6.1.1 Plan Outcome, Effectiveness and Suitability Monitoring

Overview

One method of assessing effectiveness of the Plan involves measuring whether environmental (outcomes) are achieved. Measuring outcomes to determine if the Plan is effective is based on the fact that:

- the objectives identify what the Plan is seeking to achieve;
- the policies set out the approach and philosophy the Council wishes to adopt for achieving those objectives;
- the methods (Rules and non-regulatory methods) set out how activities need to be managed to achieve the objectives given Council's preferred approach and philosophy.
- the outcomes are the results expected from adopting the objectives, policies and methods.

Therefore if the outcomes are being achieved, or there is measurable movement towards achieving them, then the objectives and policies are effective. As part of this assessment, the process can also identify whether or not the outcomes are achievable and therefore whether or not they are suitable.

There is an overlap between measuring achievement of the Plan's outcomes and the monitoring required for the separate development of State of the Environment (SOE) reporting. SOE monitoring includes monitoring key indicators of environmental health. Indicators such as the region's water quality are monitored under the auspices of SOE. The results of SOE monitoring are therefore a key indicator for whether or not the Plan is effective and the most suitable mechanism, in achieving some of its outcomes. SOE monitoring also provides the opportunity to identify any cumulative effects of activities, as well as providing a mechanism for assessing cross boundary issues. Cross boundary issues include the effects of management of land and fresh water resources.

There may therefore be no need to establish additional monitoring for some of the outcomes. However, collation of outcomes may indicate the need to modify the SOE monitoring programme. Similarly, the results of SOE monitoring may indicate the need to modify Plan provisions including outcomes.

It is possible that SOE monitoring may identify issues with our fresh water resources that have not been observed through monitoring outcomes, or monitoring methods. It will also be necessary to ensure that there is good communication between the people responsible for SOE monitoring and those responsible for Plan effectiveness monitoring.

Process for Monitoring Plan Outcomes

Section 3 of the Plan lists the environmental outcomes expected from adopting the Plan's objectives, policies and methods.

The process for monitoring the outcomes involves determining:

- what information/methodology is available to measure achievement of the outcome,
- whether the outcomes are achievable
- whether the outcome is being achieved or whether there is progress towards achieving the outcome,
- what role the plan provisions play in achieving the outcomes,
- whether there is any significant or unanticipated effects despite achieving the outcome,
- whether there is a need to change plan provisions as a result of monitoring results.

6.1.2 Plan Method, Effectiveness and Suitability Monitoring

Overview

Plan Method effectiveness and suitability monitoring includes monitoring:

Whether the Plan Methods (including Rules):

(i) contribute to the achievement of the environmental outcomes;
(ii) allow significant adverse or unanticipated environmental effects;
(iii) make the use and development of resources unnecessarily expensive for little or no net environmental benefit;
(iv) are implemented in a manner that excludes/disadvantages affected parties;
(v) have performance standards that are appropriate and effective;
(vi) have an activity status that is appropriate and effective.

Monitoring suitability therefore incorporates elements of whether Plan Methods are effective.

Rules and non-regulatory methods give effect to the objectives and policies of the Plan. These methods are in the Plan to achieve the objectives and fulfil the policies set by Council. If they are successful they should achieve or contribute to the achievement of the environmental outcomes anticipated by the Plan.

6.1.3 Plan Usability

Overview

If the Plan provisions are to be effective in achieving the environmental outcomes, people must be able to understand and use these provisions. Staff and Councillors, the public and users of the Plan need to be consulted regarding clarity, certainty and ease of use of the Plan.

The following information needs to be obtained and recorded:

- any problems/inconsistencies with interpretation of Plan provisions (understanding what it means)
- any difficulties with:
  - deciding which provisions are applicable for which activities;
  - being able to assess if an activity can comply with performance standards;
  - lack of policy guidance for rules;
  - activities/issues that are not covered by Plan provisions;
  - determining whether or not a consent is needed;
  - understanding information requirements for application;
  - understanding rule/performance standards.

6.2 Implementing Plan Monitoring

Within one year of the Water Plan becoming operative (January 2010), the Council will have in place a strategy to implement the regime for monitoring the matters referred to in this section of the Plan. This strategy will provide the basis for prioritising monitoring requirements.

Not all matters can be monitored every year for every Plan. Therefore prioritisation will assist with Annual Plan proposals. Each year, a monitoring project can be prepared for each Plan stating within that financial year which:

- Outcomes
- Permitted Activities
- Consented Activities
- Non-Regulatory Activities

} will be monitored

and what methodology will be used.

The public will have the opportunity of commenting on these proposals. Where there are no problems/issues arising from monitoring results that year, those activities/ outcomes/methods will go to the bottom of the list and different activities/outcomes/methods will be monitored in the following year. Where problems/issues are identified through the monitoring process, additional monitoring or assessment may be needed.

- Each year SOE monitoring that provides indicators for environmental outcomes will also be reviewed.

- The frequency of monitoring/reporting for each activity/outcome and the monitoring methods themselves will be established in the implementation strategy.

- Feedback systems will be established and used for internal users with regard to Plan usability and complaints monitoring.

- Systems will also be established to capture external users feedback.

- Some funding is likely to be needed each year to incorporate feedback systems for monitoring internal and external users.

6.3 Reviewing the Plan

Any of the following could act as triggers to review and/or change the Plan:

- monitoring results from outcomes;
- monitoring results from rules;
- monitoring results from non-regulatory methods;
- SOE monitoring results;
- legislation change;
- plan change requests;
- commence a review under Section 79 of the Act no more than 10 years after the Plan is operative (January 2010).

7 Integrated Management and Cross Boundary Issues

7.1 Management Roles and Responsibilities

7.2 Integrated Management Options

7 Integrated Management and Cross Boundary Issues

Integrated management involves a consideration of:

1. the effects of the use of one natural resource on other natural and physical resources or on other parts of the environment recognising that such effects may occur across space and time;

2. the functions of other agencies in respect of freshwater management or resource management which could affect fresh water;

3. the social and economic objectives and interests of the community, recognising that natural and physical resources cannot be managed without having regard to social, economic and cultural factors.

Cross boundary issues may occur when environmental effects of one resource use are felt in another part of the environment (for example water quality affected as a result of the discharge of contaminants to land). Integrated management aims to minimise the effects of cross boundary issues and promote complementary, efficient and effective management of all natural and physical resources.

Cross boundary issues may also arise when tāngata whenua are expected to express their interests in freshwater management to a number of different agencies with management functions i.e. Department of Conservation, regional councils and district councils. This can result in consultation duplication and inefficiencies, and place unnecessary demands on tāngata whenua.

7.1 Management Roles and Responsibilities

Integrated management will assist Environment Southland to co-ordinate the management of fresh water and the effects of activities with:

1. adjoining regional councils and territorial local authorities within the Southland region concerning Environment Southland's responsibilities under the Act for the control of activities relating to fresh water;

2. territorial authorities concerning their responsibilities under the Act for the control of the effects of the use of land and the functions and responsibilities of territorial authorities and public health authorities under other Acts;

3. the Department of Conservation (responsible for the conservation of natural resources and aspects of natural resources management);

4. Fish and Game New Zealand, Southland Region, (responsible for managing, maintaining and enhancing the sports fish and game resource.

5. the Medical Officer of Health at Healthcare Otago (responsible for the public health effects of water quality issues).

Territorial authorities have a significant role to play in the integrated management of activities relating to fresh water and river and lake beds, particularly in relation to the issues of protection and enhancement of the natural, ecological and amenity values of fresh water, maintenance and enhancement of public access, the effects of point and non-point source discharges, uses of river and lake beds and wetlands. Territorial authorities can have a significant impact on these issues through their district plans and resource consents. Both district plans and resource consents relating to land uses are important mechanisms for avoiding, remedying and mitigating adverse effects on fresh water and river and lake beds. Through the policies and methods contained in the Plan, Environment Southland recognises the role that territorial authorities can play, and the importance of integrated management.

7.2 Integrated Management Options

Environment Southland will use the following management issues in relation to integrated management and cross boundary issues:

1. **having regard** under Section 66 of the Act, to the **policy statements and plans** (including resource management plans, strategic plans and annual plans) of territorial authorities and neighbouring regional councils, other management plans and strategies, and the extent to which this Plan needs to be consistent with those documents;

2. **liaising**, as appropriate with the **Otago Regional Council** and the **West Coast Regional Council** on matters of water management that are relevant to more than one region;

3. **liaising**, as appropriate with the **Southland District Council, Gore District Council** and **Invercargill City Council** on cross boundary issues affecting water management;

4. **liaising**, as appropriate, with the **Department of Conservation** in relation to matters of **natural resource** conservation;

5. **liaising**, as appropriate, with the **Medical Officer of Health** at **Healthcare Otago** in relation to public health matters arising from issues of water quality and the discharge of contaminants;

6. **liaising and consultation**, as appropriate, with the **community** of the **Southland region** on matters of water management in the region.

7. **considering** the **transfer of functions** which would be more efficiently, effectively and appropriately carried out by other agencies. Transfers of functions will be considered on the basis of the requirements of Section 33 of the Act including where both authorities agree that the authority to which the transfer is made represents the appropriate community of interest, and where the transfer is desirable on the grounds of efficiency and technical or special capability or expertise;

8. **advocating** to the **Southland District Council, Gore District Council** and **Invercargill City Council** that, where appropriate, provisions be included in **district plans** to avoid, remedy or mitigate the effects on the environment of land uses that may affect water.

9. **preparing other regional plans** that are complementary to and consistent with the Regional Water Plan;

10. **considering** the effects on other natural and physical resources in making decisions with respect to water management and resource consents for activities in water;

11. **exercising** the following **functions and powers** under the Act:

    (a) making submissions on resource consent applications made to other consent authorities;

    (b) involving other management agencies in pre-hearing meetings under Section 99;

    (c) holding joint hearings with **Southland District Council, Gore District Council** or **Invercargill City Council** when appropriate under Section 102;

12. **making submissions** in respect of documents prepared by other authorities.

8 Glossary

8 Glossary

This glossary is included to assist in the understanding of terms used in this Plan. Where the definition comes from the Resource Management Act 1991, this is indicated by means of an asterisk*. Other sources, where used, are indicated accordingly.

Abstraction

Removing groundwater or removing water from a surface water body or artificial watercourse.

Act/The Act

The Resource Management Act 1991 (including any amendments thereto), unless expressly stated.

Acute

Having a sudden onset, a severe response and lasting a short time.

Adverse effect

An unwanted or detrimental effect.

Agrichemical ***(from NZS 8409 Management of Agrichemicals)***

Any substance, whether inorganic or organic, man-made or naturally occurring, modified or in its original state, that is used in any agriculture, horticulture or related activity, to eradicate, modify or control flora and fauna. For the purposes of this Plan, it includes agricultural compounds, but excludes fertilisers, vertebrate pest control products and oral nutrition compounds.

Agricultural effluent ***(from Regional Effluent Land Application Plan for Southland)***

Effluent that is derived from either pastoral or horticultural farming, but excludes excreta from individual animals, fertiliser application and non-point source discharges from normal farming practices.

Agricultural effluent pond

A pond used for the storage or treatment of agricultural effluent, but does not include a structure with a capacity equal to or less than 22.5 cubic metres.

Algae

Comparatively simple chlorophyll-bearing plants, most of which are aquatic and microscopic in size.

Allocation regime

The provisions of this Plan or any Water Conservation Order relating to the quantities of water available for abstraction or diversion above any limit set to protect instream values, water quality or aquifer integrity.

Amenity values*

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.

Analytical Model

Mathematical equations describing groundwater flow that allow quantitative assessment by the specification of initial boundary conditions.

Aquifer

Saturated rock or soil material capable of transmitting and yielding water in sufficient quantities for abstraction.

Aquifer hydrogeology

The description of the physical and chemical properties of an aquifer.

Aquifer throughflow

The volume of water flowing through a given cross section of an aquifer system aligned perpendicular to the direction of groundwater movement.

Artesian

Artesian conditions exist where there is sufficient water pressure within an aquifer to cause water to flow from the top of a bore or well.

Artificial storage pond

An artificial pond or lake outside the bed of a lake or river used to store water that is not hydraulically connected to groundwater and does not normally drain into a natural catchment system.

Artificial watercourse

Includes an irrigation canal, water supply race, canal for the supply of water for electricity power generation, and farm drainage canal *(from the definition of "river" in the Resource Management Act 1991).*

Aesthetic

Dealing with those aspects of water that are perceivable by the senses.

Allocation regime

The provisions of this Plan or any Water Conservation Order relating to the quantities of water available for abstraction or diversion above any limit set to protect instream values, water quality or aquifer integrity.

Bed*

(a) In relation to any river -

(i) for the purpose 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;

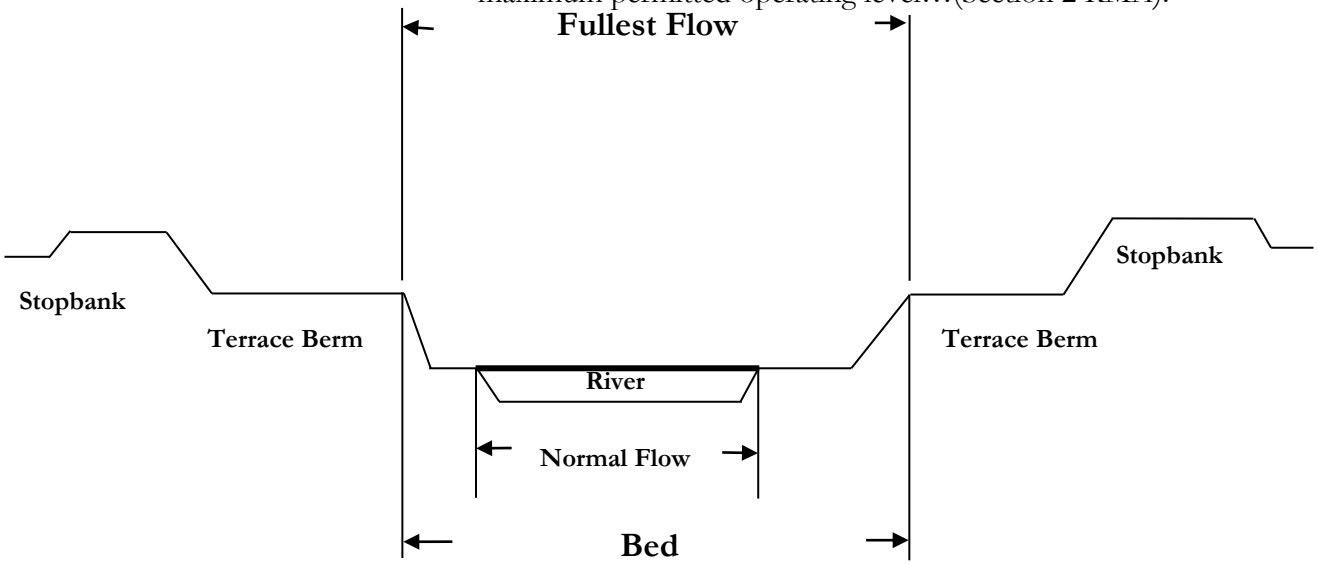
(ii) in all other cases, the space of land which the waters of the river cover at its fullest flow without overtopping its banks; and

(b) in relation to any lake, except a lake controlled by artificial means -

(i) for the purpose of esplanade reserves, esplanade strips and subdivision, the space of land which waters of the lake cover at its annual highest level without exceeding its margin;

(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

(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…(Section 2 RMA).



Benthic

In or on the sediments of aquatic habitats.

Berm

Floodway between a river and its stopbanks.

Best Management Practices

Policies, practices, procedures, structures, or combination of practices implemented which are practical and effective to mitigate adverse environmental effects.

Best practicable option*

In relation to a discharge of a contaminant or an emission of noise, means the best method for preventing or minimising the adverse effects on the environment having regard, among other things, to -

(a) the nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and

(b) the financial implications, and the effects on the environment, of that option when compared with other options; and
(c) the current state of technical knowledge and the likelihood that the option can be successfully applied.

Biochemical oxygen demand (BOD)

Measure of the amount of biochemically degradable organic matter present in a water sample. BOD is measured after incubating the sample in the dark at a specified temperature for a specific period of time, usually five days. This gives rise to the commonly used term "BOD_5". The higher the measure of BOD_5, the greater organic pollution.

Biodiversity

The diversity and composition of the plant and animal species that comprise ecosystems.

Biomass

The total mass of living organisms in a given area, expressed in terms of living or dry weight per unit area.

Bore or well

Any structure or hole, regardless of the method of formation, that has been constructed to provide access to groundwater, or which intercepts groundwater.

Catchment

The land area that contributes the river's or stream's flow.

Cleanfill

means any material that when discharged into or onto land will have no or minimal adverse environmental effects, and includes virgin natural matter (e.g. clay, soil, sand, gravel or rock) and other inert products from construction or demolition activities (e.g. concrete or brick) **that are free of**:

(i) combustible, putrescible, degradable, compostable or leachable components (e.g. animal carcasses, green/garden waste, timber, bark, cork, tree roots, new asphalt);
(ii) hazardous substances (e.g. coal tar, or asbestos);
(iii) products or materials derived from the treatment, stabilisation or disposal of hazardous waste; and
(iv) materials of risk to human or animal health (e.g. medical or clinical waste); and
(v) liquid waste (including sludges).

Cleanfill Site

means land used for the permanent disposal of cleanfill and no other type of material but excludes earthworks on the same landholding, earthworks associated with any road, driveway or

track, and any area within a road reserve containing a formed road that is used for the deposition of roading material.

Closed Landfill

means a landfill containing 15,000m^3 or more of industrial or community waste that ceased to operate between 1970 and 2012 and remains closed but excludes farm landfills.

Coastal marine area*

The foreshore, seabed, and coastal water, and the air space above the water -

(a) of which the seaward boundary is the outer limits of the territorial sea;

(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 -

(i) one kilometre upstream from the mouth of the river; or

(ii) the point upstream that is calculated by multiplying the width of the river mouth by 5.

Code of Practice

A non-statutory guideline prepared by an industry or section of an industry, which uses education and self-regulation amongst its members, and self-regulation through internal procedures to address a particular issue(s).

Community water supply

A permanent reticulated supply of potable water for community use. It excludes any new supply, or increase in supply, where in either case the total exceeds 20 cubic metres per day to any agricultural or industrial user ,[38] except where there is already provision for such use within an existing community water supply as at (date of notification of Council decision).

Compost Bulking Agent

means organic material with a moisture content of 20% or less and a high carbon: nitrogen ratio that aids decomposition.

Confined aquifer

An aquifer which is overlain by a low permeability or impermeable layer where water in the aquifer is under pressure.

Contact recreation

Recreation involving frequent and direct contact with water, either as part of an activity or incidental to an activity (for example, swimming).

[38] In this situation, a separate resource consent must be applied for even if the water is being supplied through the same infrastructure as the community water supply.

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

(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:

(a) has significant adverse effects on the environment; or

(b) is reasonably likely to have significant adverse effects on the environment

Controlled activity* (from s 77B(2) of the RMA)

An activity where -

(a) a resource consent is required for the activity; and

(aa) the consent authority must grant the resource consent, unless it has insufficient information to determine whether or not the activity is a controlled activity; and

(b) the consent authority must specify in the plan or proposed plan matters over which is has reserved control; and

(c) the consent authority's power to impose conditions on the resource consent is restricted to the matters that have been specified under paragraph (b); and

(d) the activity must comply with the standards, terms, or conditions, if any, specified in the plan or proposed plan.

Conversion Environmental Plan

Means a written plan relating to the activities associated with the establishment of a new dairy farm and incorporating a Nutrient Management Plan and Winter Grazing Plan (covering winter grazing on the land that is converted). The Conversion Environmental Plan is required to identify potential risks to water quality in water bodies and in coastal lakes, tidal estuaries, and coastal wetlands, and measures to address those risks.

Critical Value

The most flow sensitive value in a surface water body. This is generally an aquatic species or life stage of an aquatic species.

Cumulative drawdown

The total drawdown at any point in an aquifer system as a result of groundwater abstraction.

Damming

The impounding of all or part of the natural flow of any water that may involve an associated temporary or permanent structure.

Deposition
The laying down of solid material which has been carried by some natural agency (for example, rivers, wind, etc).

Diadromous
Fish that make migrations between the sea and freshwater. These migrations may be in either direction and not necessarily related to spawning.

Discharge*
Includes emit, deposit, and allow to escape.

Discretionary activity* (from s 77B(4) of the RMA)
An activity where –
(a) a resource consent is required for the activity; and
(b) the consent authority may grant the resource consent with or without conditions or decline the resource consent; and
(c) the activity must comply with the standards, terms, or conditions, if any, specified in the plan or proposed plan.

District Plan*
An operative plan approved by a territorial authority (for example, The Southland District Council) under Schedule 1; and includes all operative changes to such a plan (whether arising from a review or otherwise).

Dissolved Oxygen (DO)
Oxygen dissolved in water and available to aquatic organisms.

Diversion
The redirecting of water flow from its existing direction of flow.

Drawdown
The reduction in hydraulic head adjacent to a pumping bore or well that occurs in response to groundwater abstraction.

Dry cut
An artificial channel constructed on the dry bed of a river for the purposes of temporarily or permanently diverting water during a flood event.

Ecosystem
A dynamic complex of plant, animal and micro-organism communities and their non-living environment, interacting as a functional unit.[39]

Effect*
(a) Any positive or adverse effect; and
(b) Any temporary or permanent effect; and
(c) Any past, present or future effect; and

[39] United Nations Convention on Biological Diversity, 1992

(d) Any cumulative effect which arises over time or in combination with other effects - regardless of the scale, intensity, duration or frequency of the effect, and also includes -
(e) Any potential effect of high probability; and
(f) Any potential effect of low probability which has a high potential impact.

Effluent

A liquid that may include solid components discharged as a waste that originates from:
(a) sanitary appliances and fixtures
(b) community sewage schemes
(c) agricultural activities
(d) an industrial or trade process
but excludes solid waste.

Environment*

Includes -
(a) ecosystems and their constituent parts, including people and communities; and
(b) all natural and physical resources; and
(c) amenity values; and
(d) the social, economic, aesthetic and cultural conditions which affect the matters stated in paragraphs (a) to (c) of this definition or which are affected by those matters.

Environment Southland

Environment Southland is the brand name of the Southland Regional Council. The term "the Council" also refers to the Southland Regional Council.

Ephemeral

A water body that only exists for a few days following precipitation or snowmelt.

Erosion Control Structures:

Structures that control erosion for the purpose of preventing damage to people and their property and any significant adverse effects to the environment.

***Escherichia coli* (E. coli)**

A type of coliform bacteria that inhabit intestines of people and animals. Its presence in water is used as an indicator of health risk.

Esplanade reserve*

A reserve within the meaning of the Reserves Act 1977 -
(a) which is either -
(i) a local purpose reserve within the meaning of Section 23 of that Act, if vested in the territorial authority under section 239 [of the Act]; or

(ii) a reserve vested in the Crown or a regional council under Section 237D [of the Act[; and

(b) which is vested in the territorial authority, regional council, or the Crown for a purpose or purposes set out in Section 229 [of the Act].

Esplanade strip*

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 [of the Act].

Eutrophication

The process by which water (usually freshwater) becomes rich in nutrients, causing excessive plant growth which kills animal life by deprivation of oxygen.

Exotic plant

A plant which is not indigenous to New Zealand. These may include introduced plants which are a species not indigenous to New Zealand, but which have been brought in by accident or design.

Faecal coliform

A type of bacteria that inhabit intestines of people and animals. Its presence in water is used as an indicator of health risk.

Farm dairy effluent

Agricultural effluent and water captured by the working surfaces associated with a farm dairy shed.

Fertiliser ***(from Code of Practice for Fertiliser Use)***

Any substance (whether in solid or fluid form) that is described as or held out to be for, or suitable for sustaining or increasing the growth, productivity or quality of plants or animals through the application of the following essential nutrients to plants or soils: nitrogen, phosphorus, potassium, sulphur, magnesium, calcium, chlorine, sodium as major nutrients; or manganese, iron, zinc, copper, boron, cobalt, molybdenum, iodine, selenium as minor nutrients or additives.

Floodway

The bed of a river or the area between one stopbank and another, or a stopbank and a natural terrace, within which floodwater is designed to be contained.

Floodplain

Land liable to actual or potential inundation by floodwater.

Flow Regime

A description of flow magnitude over time (MfE, 1998)

Ford

Any modification of the bed to establish a crossing by which any vehicle, livestock, or persons may traverse through any waterbody.

Foul water

The discharge from any sanitary fixtures or sanitary appliances that has had either no treatment or primary treatment only, but excludes sludges and effluent from industrial or trade processes, agricultural effluent, and sewage collected by community sewage schemes.

Fractured rock aquifer

Saturated rock strata containing crevices, joints and fractures in which water is stored in sufficient quantities for abstraction.

Galaxiid

Small freshwater fish including kōkopu and inanga. Many galaxiids spend their whole lives in fresh water but several species (diadromous species) spend part of their lives in the sea.

Gravel

Fluvial aggregate or river bed material of any size

Groundwater

Subsurface water that occurs beneath the water table in soils and geologic formations that are fully saturated.

Habitat

The place or type of place where an organism or population naturally lives.

Hazardous substance *(from Hazardous Substances and New Organisms Act 1996)*

Means any substance -

(a) with one or more of the following intrinsic properties:
  (i) explosiveness;
  (ii) flammability;
  (iii) a capacity to oxidise;
  (iv) corrosiveness;
  (v) toxicity (including chronic toxicity);
  (vi) ecotoxicity, with or without bioaccumulation; or

(b) which on contact with air or water (other than air or water where the temperature or pressure has been artificially increased or decreased) generates a substance with any one or more of the properties specified in (a).

Heavy metals

Those metals (elements with high density, malleability, and electrical and thermal conductivity) that have high specific gravity and high atomic mass, such as lead, cadmium, zinc, copper, silver and mercury.

Headworks

All materials used at the ground surface to complete the bore. Includes pipework, valves, gauges and access points, concrete pads and/or cellars.

High rate irrigation

Where farm dairy effluent is applied at a maximum instantaneous application rate greater than 10 mm per hour.

Historic heritage

(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:
  (i) archaeological;
  (ii) architectural;
  (iii) cultural;
  (iv) historic;
  (v) scientific;
  (vi) technological; and

(b) includes –
  (i) historic sites, structures, places, and areas; and
  (ii) archaeological sites; and
  (iii) sites of significance to Maori, including wahi tapu; and
  (iv) surroundings associated with the natural and physical resources.

Industrial or trade premises ***(from Resource Management Act 1991)***

(a) Any premises used for any industrial or trade purposes; or
(b) Any premises used for the storage, transfer, treatment, or disposal of waste materials or for other waste-management purposes, or used for composting organic materials; or
(c) Any other premises from which a contaminant is discharged in connection with any industrial or trade process;

but does not include any production land.

Industrial or trade process

Includes every part of a process from the receipt of raw material to the dispatch or use in another process or disposal of any product or waste material, and any intervening storage of the raw material, partly processed matter, or product.

Installed subsurface drainage systems

An artificial permeable subsurface conduit constructed for the purposes of draining agricultural soil water/moisture with no direct or open connection, nor any connection via an artificial free draining area to the surface other than at the outfall. An installed subsurface drainage system includes tile, mole, concrete and clay drains, wooden box drains and plastic subsurface drainage pipes. Stormwater systems, drainage by use of sumps, and foul water drainage systems are not included in this definition.

Instream values

Those uses or values of rivers and streams that are derived from within the river system itself and include those associated with freshwater ecology and recreational, scenic, aesthetic and educational uses.

Intensive winter grazing

Grazing of stock between May and September inclusive on fodder crops or pasture to the extent that the grazing results in significant devegetation. This is usually associated with break feeding behind temporary electric fencing.

Interference effects

The effect of a pumping bore or well on the drawdown and yield of neighbouring pumping bore and wells.

Intrinsic values*

In relation to ecosystems, means those aspects of ecosystems and their constituent parts which have value in their own right, including -

(a) their biological and genetic diversity; and

(b) the essential characteristics that determine an ecosystem's integrity, form, functioning and resilience.

Issue

A significant resource management concern or problem that may require intervention by the Council.

Lake*

A body of fresh water which is entirely or nearly surrounded by land.

Land*

Includes land covered by water and the air space above land.

Landfill

means a site that is used for the permanent disposal of waste but excludes a cleanfill site, earthworks associated with any road, driveway or track, and any area within a road reserve containing a formed road that is used for the deposition of roading material.

Landholding

(a) For land subject to the Land Transfer Act 1952, land in:

(i) a single certificate of title; or

(ii) two or more adjoining certificates of title, with a common occupier.

(b) For land not subject to the Land Transfer Act 1952, all contiguous land last acquired under one instrument of conveyance and occupied by a common occupier.

Landscape

Reflects the cumulative effects of physical and cultural processes. It combines the visual expression of physical, biological and

cultural processes and the way that people experience and perceive the phenomena or elements or configurations of elements arising from those processes in the environment.

Lawfully established

Established in accordance and compliance with any relevant legislation at the time of establishment.

Leaching

Movement through soil of dissolved or suspended substances in water.

Loading

Amount of a substance entering the environment (soil, water, or air).

Loose Gravels

means non-cohesive material with greater than 15% gravel that is easily dislodged by spade or pick and does not maintain a vertical face when excavated.[40]

Low flow

Periods of reduced river flow, when MALF has, or is likely to be reached.

Low rate irrigation

Where farm dairy effluent is applied at a maximum instantaneous application rate less than or equal to 10 mm per hour.

Macroinvertebrate Community Index (MCI)

A measure of the level of organic enrichment in a stream determined using the occurrence of specific macroinvertebrate taxa.

Macrophyte

An aquatic plant, either rooted or floating, other than algae.

Mahinga kai

Areas from which food resources are gathered and/or propagated.

Main stem

The principal course of a river (i.e. does not include tributaries).

Maintenance

Work on a structure, necessary to maintain that structure in good order and repair, including repainting, that does not alter its dimensions.

Mana whenua*

Customary authority exercised by an Iwi or hapū in an identified area.

[40] From Milne J. D. et al (1995) Soil Description Handbook.

Mauri

Essential life force or principle; a metaphysical quality inherent in all things, both animate and inanimate.

MAV

Maximum Acceptable Value. The maximum allowable limit of a contaminant that beyond which will impose a risk to humans.

Mean Annual Low Flow (MALF)

Mean annual low flow, in the context of this Plan, is the natural seven-day mean annual low flow. The natural seven-day mean annual low flow is defined as the average of the minimum flow[41] over a continuous seven day period each year.

Median flow

The flow that is exceeded fifty percent of the time.

Method

The practical action by which a policy is implemented. It is what can be done to put a policy into effect. Includes rules and non-regulatory methods.

Minimum flow

The flow at which the holder of any resource consent to abstract water must cease abstraction.

Mitigate

To reduce or moderate the severity of an effect.

Mixing zone (zone of reasonable mixing)

The Resource Management Act requires that any standards imposed through classification or through Section 107 be met "after reasonable mixing." This implies the existence of a zone where underlying standards need not be met. This zone is commonly referred to as the mixing zone or the zone of reasonable mixing. The size of the zone where the water does not meet standards depends on a number of factors including the:

- effluent flow rate and concentration;
- design of the outfall;
- depth, velocity and rate of turbulent mixing of the receiving water; and
- ambient concentrations in the receiving water.

The size of the zone where the water does not meet standards is not fixed but varies over time with variations in the factors listed above (*this information is taken directly from Resource Management Ideas*

[41] Naturalised though the incorporation of the total volume of water allocated through current resource consents. It includes the stream depletion effect of each consented groundwater abstraction greater than 2 litres per second with a direct, high or moderate degree of hydraulic connection in accordance with Policy 29 "Stream Depletion Effects".

No. 10 "Reasonable Mixing" produced by the Ministry for the Environment).

The size of the zone of reasonable mixing will be determined on a case-by-case basis.

Modified watercourse

A modified watercourse:

(a) means a water carrying channel that was existing in some form prior to land development but has been modified or straightened for drainage or other purposes;

(b) does not include:

(i) a drain known as the North Drain on the Tiwai Peninsula, at about Map Reference NZMS 260 E47: 560:924 – E47:560:928 and E47:560:925 – E47:563:925;

(ii) a drain known as the West Drain on the Tiwai Peninsula, at about Map Reference NZMS 260 E47:554:922 – E47:555:922;

(iii) a drain known as the South Drain on the Tiwai Peninsula, at about Map Reference NZMS 260 E47: 553:918 – E47:560:917.

Mooring

Any weight, post or other structure placed in, or on, the bed of a river or lake for the prime purpose of securing a vessel, raft, aircraft or floating structure. It does not include the anchors of a powered vessel.

National Park

As defined by the National Parks Acts 1980.

Natural and physical resources*

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 character

The qualities of the environment that give it recognisable character. Embraces ecological, physical, spiritual, cultural, intrinsic and aesthetic values, and includes modified and managed environments.

Natural hazard*

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.

Naturally occurring wetland

A naturally occurring wetland includes:

(a) wetlands which are part of river, stream and lake beds;

(b) natural ponds, swamps, marshes, fens, bogs, seeps, brackish areas, mountain wetlands, and other naturally wet areas that support an indigenous ecosystem of plants and animals specifically adapted to living in wet conditions, and provide a habitat for wildlife;
(c) coastal wetlands above mean high water springs;

but excludes:

(d) wet pasture or where water temporarily ponds after rain or pasture containing patches of rushes (juncus species)
(e) oxidation ponds;
(f) artificial wetlands used for wastewater or stormwater treatment;
(g) artificial farm dams and detention dams;
(h) artificial watercourses such as farm drainage canals;
(i) reservoirs for firefighting, domestic or community water supply;
(j) temporarily ponded rainfall.

Natural mean flow

The total flow[42] divided by the duration of the record.

Natural state (for water quantity purposes)

Water within conservation areas, reserves and national parks administered by, or on behalf of, the Department of Conservation for conservation purposes under the Conservation Act 1987, Reserves Act 1977 and National Parks Act 1980 with the exception of water within the Upper Waiau and Monowai Rivers and Lakes Te Anau, Manapōuri and Monowai (these water bodies are excluded due to their modified flow and level regimes resulting from the Manapōuri and Monowai Power Schemes) and groundwater within the Tiwai groundwater zone (this groundwater zone is excluded due to its long term use for the supply of water for industrial purposes).

Natural state waters (for water quality purposes)

Means waters within:

- areas defined as National Park managed under the National Parks Act 1980 (including land for the time being administered as if it was a national park pursuant to any statute or written agreement with the owners); and
- public conservation land managed under the Conservation Act 1987 and the Reserves Act 1977 as detailed in Table 1 "Natural State Waters outside National Parks" in Appendix M "Natural State Waters outside National Parks" of this Plan where the overall water quality is largely unmodified or unaffected by human activities.

[42] Naturalised though the incorporation of the total volume of water allocated through current resource consents. It includes the stream depletion effect of each consented groundwater abstraction greater than 2 litres per second with a direct, high or moderate degree of hydraulic connection in accordance with Policy 29 "Stream Depletion Effects".

New dairy farm

Means land used for farming dairy cattle that is converted for that purpose after 14 April 2012, but excludes:

- any winter grazing that does not occur on the land that is converted;
- any increase in the area or intensity of an existing dairy farm that is undertaken without any additional dairy shed.

Nephleometric Turbidity Units (NTU)

A measure of degree to which light is scattered by suspended solids in water.

NIWA

National Institute of Water and Atmospheric Research.

Non-complying activity* (from s77B(5) of the RMA)

(a) A resource consent is required for the activity.

(b) The consent authority may grant the resource consent with or without conditions or decline the resource consent.

Non-diadromous

Fish that do not make migrations between the sea and freshwater.

Non-point source discharges

Water contamination derived from diffuse sources where there is no single identifiable discharge point.

NTU

A measure of degree to which light is scattered by suspended solids in water.

Numerical Model

Mathematical equations describing groundwater flow that allow quantitative assessment allowing for spatial and temporal variability in input parameters and boundary conditions.

Nutrient

An element or compound essential for the growth and development of life forms. The major plant nutrients are nitrogen, phosphorus, potassium, sulphur, magnesium and calcium but there are also a number of minor nutrients which are required in small quantities.

Nutrient management plan

Means a written component of the Conversion Environmental Plan incorporating a nutrient budget developed by an accredited nutrient adviser using OVERSEER® or similar, that describes how the major plant nutrients (nitrogen, phosphorus, sulphur and potassium, and any other of importance to specialist crops) will be managed, and includes all sources of nutrient, for example discharges from farm dairy effluent systems, animal discharges, atmospheric nitrogen fixation.

Objective
It is the desired result, end state, situation or condition that is aimed for. The resolution of a particular issue or set of issues.

Open Drain
An excavated channel or ditch used to convey water or runoff
Footnote: Water while in tile drains and drainage pipes is not subject to controls under the Act or the provisions of this Plan.

Organism
Any living animal or plant including any bacterium or virus.

Outcome
The likely/anticipated result of policies being implemented.

Out-of-stream values
Values associated with the use of water outside of the river system. These values are frequently associated with an economic or social value (for example, abstraction, power generation).

Pathogen
An organism capable of causing disease symptoms in another organism.

Periphyton
Non-vasular plants forming crusts, films or filamentous mats on plants or beds of water courses.

Permitted activity* (from s 77B(1) of the RMA)
An activity where a resource consent is not required for the activity if it complies with the standards, terms, or conditions, if any, specified in the plan or proposed plan.

Pest
As defined by the Biosecurity Act 1993.

Pest species
Pest species as defined in a Regional Pest Management Strategy.

pH
Value taken to represent the acidity or alkalinity of water.

Piezometric head
The level to which groundwater will rise in a bore or well penetrating an unconfined aquifer.

Place of assembly
Means any building or land used for public and/or private assembly or meeting of people and includes libraries, churches, halls, marae, clubrooms, community centres, conference centres, recreational facilities, chartered clubs, premises with a club license, and other similar establishments.

Plumose growths

Growths that are feathery or tuft like, protruding into the water column.

Point source discharges

Discharges from specific and identifiable sources (such as pipes or drains) concentrated at a given point.

Policy

States explicitly the action that will be taken to achieve the stated Objective(s).

Pollution

Discharge of a contaminant which adversely affects the character of the receiving environment.

Potable water

Water suitable, on the basis of both health and aesthetic considerations, for drinking and food preparation.

Potentiometric head

The level to which water will rise in a bore or well penetrating a confined aquifer.

Precautionary Approach

A precautionary approach is one that adopts prudent foresight, and is only applied in circumstances where there is scientific uncertainty or ignorance about the nature or scope of environmental harm.

Primary allocation

(a) Groundwater

The primary allocation for a groundwater resource is defined as the volume of water able to be abstracted and used under Policy 30(d)(ii) with minimum flows and levels set in accordance with Policy 16 "Environmental Flow and Level Regimes", Policy 29 "Stream depletion effects" and Policy 31 "Interference effects".

In terms of determining the maximum amount of water that can be allocated from groundwater as part of the primary allocation, the relevant rule is Rule 23(e), which stipulates that any abstraction from the following sources is a non-complying activity:

(i) a riparian or terrace aquifer where the total volume of water allocated from the relevant groundwater zone is greater than 50 percent of mean annual land surface recharge;

(ii) a lowland aquifer where the total volume of water allocated from the relevant groundwater zone is

greater than 15 percent of mean annual land surface recharge;

(iii) a confined aquifer where the total volume of water allocated from the relevant groundwater zone is greater than 75 percent of aquifer throughflow; and

(iv) a source outside of the groundwater zones identified on Groundwater Map 1 of Appendix D, or a fractured rock aquifer, where the total volume of water applied for is greater than 50 percent of the rainfall recharge over the relevant land area where the water is to be used.

Section 104D of the Act provides that the Council may only grant a resource consent for a non-complying activity if it is satisfied that either the adverse effects of the activity on the environment will be minor or the activity will not be contrary to the objectives and policies of the relevant plan.

Where the adverse effects of a non-complying activity are likely to be more than minor, Policy 30(i) is the key policy Council will use to determine whether or not to grant resource consent for a non-complying activity under Rule 23(e) of the Plan. When one of the two tests in this policy is unable to be met, the relevant groundwater will be deemed to be fully allocated under Policy 30 i.e. the primary allocation limit will have been established.

(b) Surface water body

The primary allocation for a surface water body is defined as the volume of water able to be abstracted, dammed, diverted and used under Policy 15(g)(ii) with minimum flows and levels set in accordance with Policy 16 "Environmental Flow and Level Regimes".

In terms of determining the maximum amount of water that can be allocated from a surface water body as part of the primary allocation, the relevant rules are:

(i) Rule 18(f), which stipulates that any abstraction or diversion where the total volume of water allocated is greater than 30 percent of the mean annual low flow at any downstream point in the catchment so estimated by the Southland Regional Council from measurements taken at that point is a non-complying activity;

(ii) Rule 19(c), which provides that the damming of water on the main stems of the Aparima River, downstream of the Aparima Forks at NZMS260 D44 151919, and the Ōreti River, downstream of the forks at NZMS 260 E42 345450, is a non-complying activity; and

(iii) Rule 21(b), which provides that any further or new water abstraction, damming and diversion from the Waiau catchment is a non-complying activity.

Section 104D of the Act provides that the Council may only grant a resource consent for a non-complying activity if it is satisfied that either the adverse effects of the activity on the environment will be minor or the activity will not be contrary to the objectives and policies of the relevant plan.

Where the adverse effects of a non-complying activity are likely to be more than minor, Policy 15(i) is the key policy Council will use to determine whether or not to grant resource consent for a non-complying activity under Rules 18(f), 19(c) or Rule 21(b) of the Plan. When one of the two tests in this policy is unable to be met, the relevant surface water body will be deemed to be fully allocated under Policy 18 i.e. the primary allocation limit will have been established.

Prohibited activity* (from s 77B(7) of the RMA)

An activity where no application may be made for that activity and a resource consent must not be granted for it.

Radius of Influence

The calculated distance from a pumping well at which there is no lowering of the water table or potentiometric head.

Raw sewage

Sewage that has not undergone any chemical or biological changes prior to disposal. Raw sewage may have undergone some solids separation in a storage facility such as a pond or sump

Reach

A stretch of river with similar characteristics, often defined by upstream and downstream tributaries, or significant geological controls or bed controls.

Receiving waters

Bodies of water that receive runoff or wastewater discharges, such as rivers, streams, lakes, estuaries, and groundwater.

Reconstruction

The complete rebuilding or complete replacement of a structure to its original dimensions, on the same site.

Recorded historic heritage sites

Sites recorded on Rarangi Taonga: the Register of Historic Places, Historic Areas, Wahi Tapu and Wahi Tapu Areas or on the New Zealand Archaeological Association (NZAA) Site Recording Scheme.

Regional significance

Is based on criteria contained in Section 4.6 of the Regional Policy Statement.

Reserve

As defined by the Reserves Act 1977.

Resource consent

The right or authority granted by the Council to carry out an activity which would otherwise contravene the Act or a provision of a plan.

Restricted discretionary activity* (from s 77B(3) of the RMA)

An activity where -

(a) a resource consent is required for the activity; and

(b) the consent authority must specify in the plan or proposed plan matters to which it has restricted discretion; and

(c) the consent authority's powers to decline a resource consent and to impose conditions are restricted to matters that have been specified under paragraph (b); and

(d) the activity must comply with the standards, term, or conditions, if any, specified in the plan or proposed plan.

Reticulated system

The means by which water is collected and delivered prior to discharge. In relation to stormwater discharge, a piped or channelled network for collecting stormwater from a number of landholdings with a single common discharge point.

Reticulation system

The means by which water is collected and delivered prior to discharge.

Riffle

Shallow part of river where water flows brokenly.

Rip rap

Rock protection work along the bank of a river or lake.

Riparian area/margins

Land situated along the bank of a lake, river, wetland or other water body (see also "*Riparian management*").

Riparian management

The activities and practices that can be applied to riparian areas/margins in order to improve the natural characteristics and functioning of the whole riparian area/margin (which includes the waterway itself as well as the riparian areas/margins).

River*

A continually or intermittently flowing body of fresh water, and includes a stream and modified water course; 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).

Saltwater intrusion

Inland migration or upward movement of the freshwater/saltwater interface in a coastal aquifer due to a lowering of the water table or potentiometric head in an aquifer as a result of groundwater abstraction.

Seasonal volume

The maximum quantity of water able to be abstracted over a specified time period. For example, the seasonal volume for abstractions for irrigation purposes is generally defined as the maximum volume of water able to be abstracted 1 July to 30 June the following year.

Semi-quantitative Macroinvertebrate Community Index (SQMCI)

A measure of the level of organic enrichment in a stream determined using the occurrence of specific macroinvertebrate taxa. It differs from the Macroinvertebrate Community Index by weighting each taxon score based on how abundant the taxa are within the community.

Sewage

The contents of sewers carrying the waterborne wastes of a community. This is sometimes called "waste water" or "foul sewage" to distinguish it from stormwater.

Silage

Silage is any plant material harvested while green for fodder and kept succulent by partial fermentation, but does not include baleage or hay.

Silage Leachate

Silage leachate refers to the liquids generated from the biological processes that occur when wilted grass is preserved as silage, or when soluble components are dissolved out of silage by percolating or infiltrating rainwater, surface water or groundwater. Leachate that results from the making of baleage or hay is not considered silage leachate for the purpose of this plan.

Silage Storage Facility

Silage storage facility refers to land or structures on which silage is stored, processed or directly utilised. Bales of plant material completely encapsulated in plastic are not considered a 'silage storage facility'.

Significant devegetation

Removal of, or damage to, vegetation caused by stock access or grazing that results in the exposure of large areas of bare ground and/or pugging of the soil.

Solid waste

Any solid materials regardless of form, including containers and their contents, which are considered to be of no further economic use, and require permanent disposal, or storage until such time that

they can be reused or recycled, and includes residues from incineration.

Spring-fed

In addition to surface water bodies that are classed as spring-fed on the water quality maps in Appendix D, a surface water body is spring-fed if it:

(a) has a mean annual flow less than 2,000 litres per second; and

(b) always has an instantaneous flow greater than or equal to 5 litres per second, at a point immediately before the first downstream confluence; and

(c) meets one or more of the following conditions as measured by the Southland Regional Council:

1. the ratio of the December to March median flow to the mean annual low flow is less than or equal to 1.5; or
2. in July, the mean monthly water temperature is at least 1.5^{o}C higher than the mean monthly water temperature in a nearby runoff dominated stream; or
3. in July, the mean monthly water temperature is at least 2^{o}C higher than the mean monthly ambient air temperature in the vicinity.

Staged Management

A resource management approach that acknowledges uncertainty by requiring monitoring of consequent effects to determine future management intervention.

Stock

Farm animals kept for use or profit such as horses, dairy cows, cattle, deer, goats and sheep.

Stock crossing

Means a place, which forms part of the stock access system of tracks and races on a farm, at which stock cross the bed of a lake, river, modified watercourse or stream. Stock crossings involve the crossing of stock through water. Culverts and bridges are not stock crossings.

Stock drinking water

Water taken or used for the reasonable needs of an individual's animals for drinking water.

Stock run-off

The holding of stock off-pasture, including the use of river beaches as wintering pads

Stormwater

Surface water runoff subsequent to precipitation.

Structure*

Any building, equipment, device or other facility made by people and which is fixed to land; and includes any raft.

Supplementary allocation

(a) Groundwater

The supplementary allocation for a groundwater resource is defined as the volume of water able to be abstracted and used under Policy 30(d)(iii) where there is above average (or artificial) recharge of the aquifer through factors such as seasonal weather fluctuations. This temporary allocation provides for short-term groundwater abstraction in circumstances where aquifer storage volumes are in excess of the volume required to maintain aquifer sustainability, reliability of supply for existing users, and environmental flow and level regimes for surface water bodies.

Any unused primary allocation would not be temporarily allocated for supplementary allocation without approval of existing consent holders. Transfer of primary allocation would need to occur in accordance with Policy 20 of this Plan and Section 136 of the Act.

(b) Surface water body

The supplementary allocation for a surface water body is defined as the volume of water able to be abstracted, dammed, diverted and used under Policy 15(g)(iii) where the minimum flow applied is equal to the natural mean flow. This allocation provides access to water at higher flows and allows water harvesting.

Supplementary feeding

Supplementary feeding is defined as the feeding out of stock food including hay or silage.

Surface water body

Fresh water or geothermal water in a river, lake, stream, pond, or wetland or any part thereof, that is not located within the coastal marine area but excludes water in an artificial water course.

Suspended solids

Particles of solid matter in water.

Sustainable management*

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 wellbeing 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 in the environment.

Tāngata whenua

In relation to a particular area, means the Iwi, hapū, that holds mana whenua over that area, and for the Southland region this is Ngāi Tahu.

Te Whakatau Kaupapa O Murihiku

The Kāi Tahu resource management strategy for Southland.

Toxicity

The inherent potential or capacity of a material to cause adverse effects in a living organism.

Turbid

The cloudy or muddy appearance of water which indicates the amount of solids suspended in the water and, to a lesser extent, the colour of the water.

Unconfined aquifer

An aquifer with no upper confining layer so the system is not under pressure, and its water table levels fluctuate both seasonally and from year to year.

Untreated agricultural effluent

Agricultural effluent that has not undergone any chemical or biological changes prior to disposal. Untreated effluent may have undergone some solids separation in a storage facility such as a pond or sump.

Unwanted organisms

As defined by the Biosecurity Act 1993.

Values

The worth, desirability, or utility of a thing, or the qualities on which these depend.

Vegetation flood debris

Vegetation, including entire trees that have been dislodged during flood, or storm events.

Waahi taonga (Wāhi taonga)

Treasured resources.

Waahi tapu (Wāhi tapu)

Sacred place. Typically includes burial grounds and sites of historical importance to the tribe.

Water*

(a) Means water in all its physical forms whether flowing or not and whether over or under the ground.

(b) Includes fresh water.
(c) Does not include water in any form while in any pipe, tank or cistern.

Water balance

An estimate of the balance between recharge, discharge, total abstraction and changes in aquifer storage in an aquifer system.

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.

Water demand management strategy

A water demand management strategy is a document required to accompany a water permit application for a community water supply. It must contain the following information in sufficient detail to enable Council to be reasonably informed on the nature and extent of the activity and any effects of that activity on the environment:

(a) a description of the water supply system including:
  (i) system operation;
  (ii) distribution extent;
  (iii) level of service;
  (iv) water use measurement methods;
  (v) maintenance and asset management procedures;
(b) an assessment of existing and future demand for water to meet:
  (i) reasonable domestic needs;
  (ii) public health needs;
  (iii) the responsibilities of municipal water supply authorities under the Local Government Act 2002 with respect to the supply of water;
  (iv) the needs of other users, including rural, commercial and industrial needs; and
  (v) any increase in allocation that may be sought during the term of the water permit to met these demands;
(c) water conservation and efficiency measures including:
  (i) regulatory or non-regulatory methods;
  (ii) a plan to implement methods identified;
  (iii) performance targets to measure the effectiveness of the methods implemented; and
  (iv) a timeframe for review of the actions and implementation plan;
(d) any existing or proposed water pricing procedures and any linkages with wastewater pricing or management;
(e) plans and management measures to minimise water losses from the water reticulation network as far as practicable;
(f) plans to mitigate the potential impacts of climate change on the community water supply;
(g) an assessment of alternative water sources available or alternative means of sourcing water, including both general

water harvesting and roof water harvesting, seasonal storage or water reclamation;

(h) a drought management plan that includes:
  (i) methods to reduce consumption during water shortage conditions particularly consumption by non-essential[43] agricultural, residential, industrial or trade processes;
  (ii) public education programmes;
  (iii) enforcement procedures;

(i) any external auditing or benchmarking procedures that have been adopted;

(j) any consultation undertaken and the outcomes of such consultation;

(k) details of a strategy review process, including consultation.

Water harvesting

The abstraction or diversion of water for storage for later use.

Water Treatment Plant

The place where raw water undergoes chemical, biological or physical treatment to remove particles or unwanted contaminants, inactivate organisms or enhance the aesthetic quality of the water.

Wellhead

Refer headworks.

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.

Whey

The liquid phase that is separated from the curd in conventional cheesemaking and casein manufacture.

Whitebait Stand

Any structure used in association with whitebaiting.

Winter grazing plan

Means a written component of the Conversion Environmental Plan relating to grazing practices for adult dairy cattle (including cows in the first year of calving), on the land that is converted, when the herd is not being milked during winter, and which details as a minimum:

- type of wintering system to be operated (for example cut and carry, strip grazing, baleage, feed pads), associated risks to water quality, and measures to address risks;

[43] For all uses of water that are considered to be essential refer to Policy 24. In this context, "non-essential" is considered to be water uses for all other purposes.

- process for paddock selection, associated risks (such as presence of swales and/or drainage networks (including sub-surface drains), slope towards waterways) and measures to address risks;
- arrangements for stock exclusion from water bodies and the margins of water bodies;
- measures to control surface runoff;
- any other proposed measures to avoid, remedy or mitigate adverse effects on ~~fresh~~ water quality.

Appendices

A Information to be Submitted with a Resource Consent Application

B Regionally Significant Wetlands in Southland

C Ngāi Tahu Statutory Acknowledgements

D Water Classification Maps

E ANZECC Sediment Guidelines

F Good Spray Management Practices

G Water Quality Standards

H Groundwater Allocation

I Methods for Determining Minimum Flows and Levels

J Water Conservation Orders

K Popular Bathing Sites

L Water Terminology Framework

M Natural State Waters Outside National Parks

N Accidental Discovery Protocol

Appendices

A Information to be Submitted with a Resource Consent Application

Where an activity is specified in this Plan as a controlled, restricted discretionary, discretionary or non-complying activity, a resource consent must be obtained before the activity can commence. An application for a resource consent must be made to Environment Southland in the prescribed form, and shall include the following information:

General requirements for all applications

- The name of the applicant and the name of the landowner or occupier, if different.
- The address and contact telephone or fax number of the applicant, owner or occupier.
- A map or diagram showing the location of the proposed activity (including a map reference of the site), the name of the waterbody in question, and any other relevant details, including:
  - rivers, lakes, streams and drains
  - wetlands and other wildlife habitats
  - roads, buildings and property boundaries
- A description and diagram of the activity, including engineering and/or structural details, and the size of the site required.
- The proposed date of commencement and completion of the activity.
- Where it is likely the activity will result in any significant adverse effects on the environment, a description of any alternative locations or methods for the undertaking activity, and the reasons for making the proposed choice.
- A description of the surrounding environment and current uses and values within a reasonable area of the activity, including any commercial, recreational, cultural and natural uses or values.
- An identification of those persons interested in or affected by the proposal, the consultation undertaken, and the outcome of the consultation.
- A statement specifying all other resource consents that the applicant may require from any consent authority in respect of the activity to which the application relates, and whether or not the applicant has applied for such consents.
- In the case of a controlled or restricted discretionary activity, an assessment of any actual or potential effects that the activity may have on the matters over which the Council will exercise control over or restrict its discretion to.
- In the case of a discretionary or non-complying activity, an assessment of any actual or potential effects that the activity may have on the environment, including, where applicable, the specific matters outlined in the following sections.
- In all cases, a description of the ways in which any adverse effects on the environment may be mitigated.

In addition, the following sections provide guidance as to the types of information that will be required relating to specific types of consent applications. It is recommended that resource consent users contact Environment Southland before lodging the resource consent application, to ensure that all matters of relevance are covered in the application.

Requirements for discharges of contaminants to water

- A description of the nature, volume, contents and frequency or rate of the proposed discharge including, where relevant:
  - a description of the chemical composition as well as any identified chemical and biochemical properties (for example oxygen demand, nutrients);
  - contaminant loading and concentration including toxicity;
  - presence and levels of pathogenic organisms or indicators of these organisms such as E. coli and faecal coliforms;
  - form of the discharge (for example solid, sludge, liquid, or gaseous);
  - a description of the physical properties (for example solubility and density);
  - biological properties (for example presence of viruses, bacteria, yeasts, parasites);
  - persistence: physical, chemical and biological;
  - probability of accumulation and biotransformation in biological materials or sediments;
  - susceptibility to physical, chemical and biochemical changes and interaction in the aquatic environment with other dissolved organic materials;
  - probability of production of taints or other changes reducing the marketability of resources (fish, shellfish etc.);
  - total volume of the discharge as well as the volume of solid matter in the discharge. (In the case of solid matter the applicant should also have regard to the type of information required for deposition).
- A description of the treatment, (including site of treatment) if any, of the contaminant or water prior to the proposed discharge.
- A description of the receiving area where the proposed discharge is to occur, including relevant characteristics of the receiving water, for example:
  - temperature;
  - ambient water colour;
  - pH;
  - chemical oxygen demand (COD);
  - biochemical oxygen demand (BOD)
  - nitrogen present in organic and inorganic form (including ammonia);
  - suspended matter; and
  - other nutrients
  - Initial dilution achieved by proposed method of release;
  - Dispersal characteristics (for example effects of flows, currents, and wind on horizontal transport and vertical mixing)
- An assessment of the water-body's capacity to cope with stress (physical/chemical/biological/ and combinations thereof), including:
  - the rate of flow of the effluent/discharge;
  - volume of water into which the effluent/discharge is being dispersed;
  - the buoyancy of the effluent;

- whether the discharge is a submerged or a bank outfall, the depth at which the effluent is discharged, and whether a diffuser is present or absent;
- seasonal variation of the receiving water.

- An assessment of the effects of the discharge's individual components as well as an assessment of effects where one or more chemicals may be combined. Assessment of effects should consider effects on fauna, flora and water quality.
- Details of how the effects of the discharge will be monitored and by whom.
- An assessment of any actual or potential effects that the activity may have on the environment, including any effects on:
  - Aquatic ecosystem values
  - Cultural and spiritual values
  - Estuaries
  - Human use values
  - Natural character, amenity, aesthetic and landscape values
  - Recreational values and the ability to safely swim
  - Suitability of the water for food gathering

Additional requirements for discharge of agrichemicals

- why the use of agrichemicals is necessary;
- whether the agrichemical is approved for use in the aquatic environment;
- the target of the application and the environmental effects of the product to be used, including:
  - toxicity, including the toxicity of the breakdown product, to non-target fauna including vertebrates and invertebrates present in the aquatic environment
  - impacts on non-target vegetation, including riparian vegetation
  - the half-life of the product in the aquatic environment

Requirements for discharges of contaminants to land

- A description of the nature, volume, contents, source, duration and method of the proposed discharge, including whether it contains any hazardous substances and whether it will be discharged onto or into land;
- The reasons for the proposed discharge and alternative options;
- A description of the treatment (including site of treatment), if any, of the contaminant or land prior to the proposed discharge;
- A description of the receiving area where the proposed discharge is to occur, including relevant characteristics of the land, for example:
  - current and proposed use;
  - the land cover;
  - type of soil and subsoil (especially the presence of gravels);
  - the slope of land;
  - the drainage characteristics of the soil;
  - climatic factors e.g. rainfall;
  - depth and gradient of groundwater; and
  - proximity to surface water bodies (rivers, lakes, streams, watercourses, wetlands) the coastal marine area, and other sensitive areas such as water abstraction points, property boundaries, dwellings, places of assembly, commercial buildings, and recorded historic heritage sites;

- An assessment of the sensitivity of the receiving environments to the proposed discharge;
- A description of how the discharge and any associated residuals or leachate will dissipate in the land and how this will be controlled;
- Details of how the discharge will be monitored and reported on, and any measures to be put in place to avoid, remedy or mitigate any adverse effects on the environment;
- A description of any rehabilitation that may be necessary after the discharge to land is completed(with the aim of the rehabilitation being to return the land to at least a state equivalent to that which existed at the time of application);
- An assessment of any actual or potential effects that the activity may have on the environment, including on soil quality, amenity values, habitats, ecosystems and indigenous biological diversity, historic heritage, cultural and traditional values, natural character and outstanding natural features, and human health;
- If the discharge is to be ongoing then a site management plan that matches the scale of the activity to show how the material will be discharged, its containment within the site, and how stormwater will be controlled.

Additional requirements for discharges to a cleanfill site (Rule 53b)

a. The cover material or lining of the disposal site if either is to be used;
b. An assessment of how the discharge meets the definition of cleanfill; and
c. A brief description of any potential fire risk or soil contamination from the disposal site.

Additional requirements for discharges to a farm landfill, or to a dead hole, or of a single animal to land (Rules 54b, 55b, and 55d)

a. The cover material or lining of the disposal site if either is to be used;
b. A brief description of any potential fire risk or soil contamination from the disposal site; and
c. The reason a separate disposal site cannot be used if the discharge includes a carcass or offal to a farm landfill.

Additional requirements for discharges to landfills (Rule 56)

a. The characteristics, composition and volume of substances being discharged and of any likely by-products occurring from the degradation of these substances;
b. The mitigation measures, safeguards and contingency plans to be undertaken to prevent or reduce the actual and potential environmental effects;
c. The location of any site which will be closed due to the establishment of the new site (when applicable);

d. The landfill management plan prepared for the site. The management plan for the landfill site must include, but is not limited to:

(i) the type of fencing proposed for the landfill site (in order to prevent unauthorised access and dumping, as well as, the loss of windblown material from the site);

(ii) the methodology proposed for the management of stormwater within the landfill site so as to minimise the production of leachate. In particular the Council will consider how the consent holder proposes to:

- divert clean stormwater away from the landfill site;
- within the landfill site, divert stormwater away from the tipping face;
- minimise the amount of uncovered waste areas, and oversow areas that will not be worked for over six months;
- contour the cover material in order to prevent ponding, except where such ponding is on restored land and is permitted as part of a licence to mine or land use consent.

(iii) an operator's manual for the site that includes, but is not limited by the following:

- procedures for handling of recyclable material;
- procedures for identifying hazardous substances;
- methodology for recording the material being discharged into the landfill;
- operation of the tip face and its location;
- covering of refuse, in particular the depth to cover, frequency of covering, and the type of material to be used;
- oversowing of areas which are to be unworked for a set length of time;
- final cover of the landfill site including details on depth, compaction, contour and type of material.

(iv) the type of work to be carried out to prepare the site for use as a landfill in order to minimise leachate and its effects on the environment. In particular the Council will consider how the consent holder proposes to:

- profile the site with sufficient slope to provide for drainage of leachate to a collection drain;
- compact and/or seal the existing base material to consolidate the earth to maximise its impermeability;
- construct collection drainage with adequate self containment so that leachate does not pass into adjacent water courses;
- ensure minimal runoff of natural drainage surface runoff into the leachate collection area;
- treat collected leachate.

(v) the methodology proposed by the consent holder to monitor the ground water at the landfill site. In particular the Council will consider which parameters the consent holder proposes

to monitor, as well as the monitoring interval and location(s);

e. The closure programme and after-care methodology proposed for the site once its operative life has ended.

The headings which could be used in a management plan for a landfill site:

Introduction
Approvals
Design Parameters
Staging
Projected Life
End Use

Management
Site Owner and Operator
Management Structure
Landfill Operations Contract
Right of Access
Operating Hours
Staff Requirements
Training
Occupational Safety and Health
Operators Guide
Annual Review and Reporting

Landfill Operations
Site Preparation
— Tip head
— Signs
— Screens
— Perimeter Fencing
Water Control
— Stormwater
— Leachate

Landfill Gas Control
Waste Acceptance
— Prohibited Wastes
— Acceptable Wastes
— Waste Acceptance Criteria
— Areas for Disposal
— Method of Disposal
— Documentation and Record Keeping
Tipping
— Access Roads
— Method of Tipping
— Size of Face
— Height of Lifts
Compaction
— Method of Compaction
— Degree of Compaction
— Method of Compaction Testing
— Frequency of Compaction Testing
Cover Material
— Daily Cover Requirements
— Intermediate Cover Requirements
— Final Cover Requirements
— Importing of Cover Material
— Stockpiling of Cover Material

— Vegetation

Control of Nuisances

— Spillages
— Noise
— Odour
— Litter
— Dust
— Vermin

Additional requirements for discharges from land contaminated by a hazardous substance (Rule 57b)

a. A history of any hazardous activities or industries on the site (if known);
b. The location, nature and extent of contamination at the site (if known);
c. An assessment of the proposed best practicable option to prevent or minimise adverse effects.
d. The potential for contaminants from the site to contaminate water and any adverse effects of that contamination on human health or aquatic ecosystems.

Additional requirements for discharges of soil from land contaminated by a hazardous substance (Rule 57d)

a. A history of any hazardous activities or industries on the land (if known);
b. The location, nature and extent of contamination of the land (if known);
c. A description of how the activity will be carried out in accordance with the Ministry for the Environment Contaminated Land Management Guidelines;

Additional requirements for closed landfill discharges (Rule 58)

a. A copy of the risk assessment undertaken in accordance with the criteria of a risk screening system developed by the Ministry for the Environment;
b. The information required for discharges from contaminated land if they are not already provided by the risk assessment.

Additional requirements for discharges of effluent to land from industrial and trade premises

- A description of the suitability of the site to act as a receiving environment, including such characteristics as:
  - available disposal area;
  - soil type;
  - depth to groundwater;
  - proximity to sensitive receiving environments such as surface water bodies, artificial watercourses, subsurface drains, the coastal marine area, residential dwellings, property boundaries and drinking water sources.

- Details of any forward planning for the potential finite life of any disposal area.
- A description of any waste minimisation measures proposed to reduce the volume of effluent that needs to be discharged.
- Details of the proposed management and maintenance of the effluent treatment and disposal system.

Requirements for farm dairy effluent discharges to land

- Scaled farm plan showing:
  - property boundary
  - paddock boundaries
  - effluent disposal paddocks (numbered and size in hectares)
  - irrigation system layout
  - tile drains / mole drains
  - surface water bodies (streams, rivers, wetlands etc), artificial watercourses and the coastal marine area if relevant
  - groundwater bores (including neighbouring bores)
  - bores within 100 m of the disposal area that may be used for potable water
  - buildings (houses, sheds, wintering pads)
  - cow races
  - any other discharge areas (such as whey)

- Land Information
  - description of soil types across the effluent disposal paddocks (may include a soil plan prepared by a suitably qualified person)
  - description of soil characteristics (may include soil water deficit, water holding capacity)
  - description of the slope of land across the effluent disposal paddocks

- Details of:
  - cow numbers (as well as projected herd size)
  - whether or not winter milking
  - wintering and/or feed pad effluent included
  - the months of the year effluent will be discharged to land
  - the rate of discharge (check irrigator/pump or tanker capacity)

- Effluent collection details:
  - volume of effluent (m^3/day)
  - stone trap
  - sump (m^3)
  - yard scraping
  - water use / system
  - other

- Effluent treatment and storage details:
  - nature of any primary or secondary treatment
  - solids separation (weeping wall, mechanical, other)
  - anaerobic / aerobic pond system
  - chemical additives (for effluent treatment, not dairy shed cleaning chemicals)
  - other

- Effluent irrigation method:
  - low rate irrigation (applies less than 10 mm/hr instantaneous rate)
  - travelling irrigator, including model name and operating parameters
  - vacuum tanker
  - other

- Maintenance details of:
  - stone trap
  - sump
  - ponds
  - irrigation line
  - irrigator
- Contingency details (in case of equipment breakdown or adverse weather conditions)
- Consideration of alternative methods of discharge

Additional requirements for discharges of effluent to land from industrial and trade premises

- A description of the suitability of the site to act as a receiving environment, including such characteristics as:
  - available disposal area;
  - soil type;
  - depth to groundwater;
  - proximity to sensitive receiving environments such as surface water bodies, artificial watercourses, subsurface drains, the coastal marine area, residential dwellings, property boundaries and drinking water sources.
- Details of any forward planning for the potential finite life of any disposal area.
- A description of any waste minimisation measures proposed to reduce the volume of effluent that needs to be discharged.
- Details of the proposed management and maintenance of the effluent treatment and disposal system.

Requirements for abstraction, use, damming and diversion

- A description of how the water will be taken, what the water will be used for, and the proposed quantity and rate of take.
- In the case of a surface water abstraction, an assessment of any actual or potential effects that the activity may have on the environment, including any effects on:
  - quality and quantity of aquatic habitat
  - natural character, natural features, and amenity, aesthetic and landscape values
  - areas of significant indigenous vegetation and significant habitats of indigenous fauna
  - recreational use
  - cultural and spiritual values
  - water quality, including temperature
  - reduction of water available to meet the needs of existing users
  - groundwater recharge rates

- river and stream flows (including effects on minimum flows, flow variability and duration), wetland and lake water levels and the availability and reliability of supply for existing users

➢ Where the take is a discretionary activity under Rule 18(e), the assessment shall also include:

- a minimum flow assessment using generalised habitat curves in accordance with Appendix I "Methods for determining minimum flows and levels".

➢ Where the take is a non-complying activity under Rules 18(f), 19(c) or 21(b), the assessment shall also include:

- a minimum flow assessment using instream detailed habitat analysis in accordance with Appendix I "Methods for determining minimum flows and levels".

➢ Where the take is a discretionary activity under Rule 18(e) or an non-complying activity under Rules 18(f), 19(c) or 21(b) and either of the following situations applies, Environment Southland may require a flow assessment based on WAIORA in addition to the minimum flow assessments outlined in Appendix I "Methods for determining minimum flow and levels" (refer to *Review of methods for setting water quantity conditions in the Environment Southland draft Regional Water Plan, NIWA, June 2004*):

- the take is from a river or stream that has a high component of groundwater (i.e. spring-fed) and the take may affect the river or stream temperature, particularly during low flows; or
- the take is from a small stream dominated by macrophytes (aquatic plants) and dissolved oxygen concentration is a limiting factor.

➢ In the case of a groundwater take, an assessment of any actual or potential effects that the activity may have on the environment, including any effects on:

- aquifer storage volumes
- existing bore or well yields
- river and stream flows (stream depletion effects), including minimum flows and allocation levels
- wetland and lake water levels (stream depletion effects)
- groundwater quality

➢ In the case of a groundwater take from a riparian aquifer, the assessment of environmental effects outlined above shall include:

- interference effects
- radius of influence
- localised stream depletion effects
- cumulative stream depletion effects

Where the take is a discretionary activity under Rule 23, the assessment shall also include:

- a detailed assessment of water balance
- an assessment of the dynamic aquifer response to abstraction
- analytical modelling

Where the take is a non-complying activity under Rule 23, the assessment shall also include (in addition to the matters outlined above):

- numerical modelling

➢ In the case of a groundwater take from a terrace aquifer, the assessment of environmental effects outlined above shall include:

- interference effects
- radius of influence
- saltwater intrusion potential in coastal aquifers

Where the take is a discretionary activity under Rule 23, the assessment shall also include:

- an assessment of cumulative drawdown
- an assessment of the impact of abstraction on adjacent water resources (throughflow, spring discharge) (stream depletion effects)

Where the take is a non-complying activity under Rule 23, the assessment shall also include (in addition to the matters outlined above):

- a detailed assessment of water balance
- analytical and numerical modelling

➢ In the case of a groundwater take from a lowland aquifer, the assessment of environmental effects outlined above shall include:

- interference effects
- radius of influence
- stream depletion calculations (stream depletion effects)
- a detailed assessment of catchment water balance
- saltwater intrusion potential in coastal aquifers

Where the take is a non-complying activity under Rule 23, the assessment shall also include (in addition to the matters outlined above):

- analytical and numerical modelling

➢ In the case of a groundwater take from a confined aquifer, the assessment of environmental effects outlined above shall include:

- adequacy of bore construction and yield
- long-term aquifer sustainability

- cumulative well interference effects
- potential effects on hydraulically connected water resources
- saltwater intrusion potential in coastal aquifers
- land subsidence
- an assessment of local geology to identify the lateral continuity of potential waterbearing and aquitard units within the lithological sequence
- aquifer test results which include observation bores screened at appropriate depths to identify potential recharge boundary / leakage response. Analysis of aquifer tests should be undertaken using appropriate assessment techniques to identify and characterise any leaky aquifer response observed
- analysis of relative water levels between the proposed confined aquifer and other adjacent aquifer systems including determination of relative groundwater levels to determine hydraulic gradients and flow directions
- assessment of aquifer throughflow

This assessment shall be informed by a conceptual hydrogeological model that is appropriate for the level of resource development.

Where the take is a discretionary activity under Rule 23, the assessment shall also include (in addition to the matters outlined above):

- assessment of temporal groundwater level variations to characterise potential aquifer recharge mechanisms
- analysis of water chemistry, including stable isotopes (e.g. ^{3}H and ^{18}O) to identify potential difference in residence time where appropriate
- a detailed assessment of water balance

Where the take is a non-complying activity under Rule 23, the assessment shall also include (in addition to the matters outlined above):

- application of relevant analytical or numerical modelling techniques to quantify impacts of abstraction

➢ In the case of a groundwater take from a source outside the groundwater zones identified on Groundwater Map 1 of Appendix D, or a fractured rock aquifer, the assessment of environmental effects outlined above shall include:

- an assessment of potential aquifer recharge over the relevant land area where the water is to be used
- aquifer test results to identify local hydraulic characteristics

Where the take is a discretionary activity under Rule 23, the assessment shall also include (in addition to the matters outlined above):

- assessment of cumulative effects of water abstraction on other users/neighbouring abstractions
- aquifer test results adequate to characterise long-term aquifer response to abstraction
- assessment of potential effects of abstraction on hydraulically connected surface water

Where the take is a non-complying activity under Rule 23, the assessment shall also include (in addition to the matters outlined above):

- detailed assessment of local hydrogeological setting including aquifer recharge and discharge characteristics
- analytical or numerical modeling of long-term effects of abstraction

Requirements for river and lake bed activities

➢ An assessment of any actual or potential effects that the activity may have on the environment, including:

- ecosystems, including aquatic and riverine habitat, and fish passage
- public access, amenity and recreational values
- heritage, cultural and spiritual values
- natural character and outstanding natural features
- water quality and quantity
- river morphology, hydrology and dynamics
- extent of erosion and sedimentation
- extent of flooding and flood risk
- physical resources, including infrastructure
- navigational safety
- estuarine and coastal environments

➢ In the case of a structure, a description of:

- the dimensions of the structure
- the proposed method of construction, including:
  - a construction plan
  - the materials and equipment to be used construct the structure
  - any systems used to secure the structure to the bed
  - the design life of the structure
- the extent of the bed disturbance required to construct the structure

➢ In the case of a bed disturbance activity, a description of:

- the area of bed subject to disturbance
- the total volume of material removed, if any
- the methods used to disturb the bed or remove the material

Any assessment of effects on the environment, as required above, shall be in such detail as corresponds with the scale and significance of the actual or potential adverse effects that the activity may have on the environment, and shall be prepared in accordance with the Fourth Schedule of the RMA.

The powers of Section 92 of the Resource Management Act 1991 may be used if insufficient information is provided on any matter set out above, or any additional information which is required by the rule to which the application pertains.

Requirements for agricultural effluent pond construction and design

Plans and specifications that describe the proposed design and construction process for the agricultural effluent pond including:

(a) a description of the locality within which the agricultural effluent pond is to be located, including:

  (i) distances to property boundaries;
  (ii) distances to surface water bodies, artificial watercourses, bores, registered drinking-water supplies, the coastal marine area, stop banks, residential dwellings, places of assembly and urban areas;
  (iii) any installed subsurface drains, groundwater, trees, stop banks, and sites of cultural significance; and
  (iv) any flooding or inundation that occurs on the site.

(b) a geotechnical assessment of the ground in which the agricultural effluent pond is to be built.

(c) a hydrological assessment of the agricultural effluent pond site, including the results of a groundwater investigation.

(d) an assessment of the proposed lining material, including installation requirements and design features to prevent leakage or discharge of contaminants during subsequent use.

(e) procedures for inspection during construction and operation of the agricultural effluent pond and for routine maintenance.

(f) a certificate from the designer of the agricultural effluent pond that states that the plans and specifications are adequate to ensure that the agricultural effluent pond will achieve the following outcomes:

  (i) a leakage rate low enough to avoid environmental contamination;
  (ii) a floor level at a safe height above the water table;
  (iii) ongoing maintenance is provided for; and
  (iv) regulatory requirements are met.

(g) details of the volume and nature of liquid that will enter the agricultural effluent pond and the options considered to reduce this volume.

(h) details of proposed monitoring to be undertaken to assess the extent of any unauthorised discharges occurring from the pond.

(i) an assessment of how the design adopted is consistent with the *Environment Southland Code of Practice for Design and Construction of Agricultural Effluent Ponds* or any equivalent industry agreed guideline.

B Regionally Significant Wetlands in Southland

Awarua Plain - Southland Estuaries including:
- Waituna Scientific Reserve
- Seaward Moss
- Wetlands adjoining Awarua Bay
- Wetlands adjoining Bluff Harbour
- Wetlands adjoining New River Estuary
- Fortrose Harbour (including lower Mataura River)

Bayswater Bog
Big Bay - Waiuna
Borland Mire
Castle Downs (Hamilton Burn)
Drummond Peat Swamp (Isla Bank)
Fiordland National Park (World Heritage site) including:
- Back Valley
- Grebe Valley
- Lower Hollyford
- Sutherland Sound

Five Mile Swamp (wetland in ancient Lake Wakatipu lake outlet)
Freshwater Valley including:
- Freshwater Flats
- Ruggedy Flat

The following wetlands in the Garvie Mountains:
- Blue Lake wetland
- Gow Lake wetland
- Scott Lake wetland

Haldane Estuary and reservoir
Lake George
Lake Vincent, near Fortrose
Lake Brunton, Otara
Mount Tennyson string bog
Redcliff Reserve
So Big Swamp
Silver Lagoon
Table Hill
Te Anau Basin wetland complex including:
- Kepler Mire
- Dome Mire - Dismal Swamp
- Dunton Swamp
- Tekaro Wetland
- Amoeboid Swamp
- Kākāpō Swamp
- Snowdon Forest
- Dale Lake
- Lake Luxmore
- Lagoon Creek

Toetoes Flats
Waiau River - Te Waewae Lagoon
Waikawa Estuary
Waimatuku wetland
Wairaki Lagoon (Waiau River)
Waterloo (Aparima)

C Ngāi Tahu Statutory Acknowledgement Areas

Information for Plan users, and resource consent applicants

Introduction
Ngāi Tahu Claims Settlement Act 1998 (the Settlement Act) gives effect to the Deed of Settlement signed by the Crown and Te Rūnanga o Ngāi Tahu on 21 November 1997 to achieve a final settlement of Ngāi Tahu's historical claims against the Crown.

The Settlement Act includes a new instrument called a Statutory Acknowledgement. Statutory Acknowledgements recognise Ngāi Tahu's mana in relation to a range of sites and areas in the South Island, and provide for this to be reflected in the management of those areas. Statutory Acknowledgements impact upon Resource Management Act 1991 (RMA) processes concerning these areas.

What are Statutory Acknowledgements?
A Statutory Acknowledgement is 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). The statutory areas are named on the map (printed on the reverse).

What are the Purposes of Statutory Acknowledgements?
The purposes of Statutory Acknowledgements are:

- to ensure that Ngāi Tahu's particular association with certain significant areas in the South Island are identified, and that Te Rūnanga o Ngāi Tahu is informed when a proposal may affect one of these areas; and
- to improve the implementation of RMA processes, in particular by requiring consent authorities to have regard to Statutory Acknowledgements when making decisions on the identification of affected parties.

Who may be Affected by Statutory Acknowledgements?
You may be affected by a Statutory Acknowledgement if you are applying for a resource consent for an activity that is within, adjacent to, or impacting directly upon a statutory area.

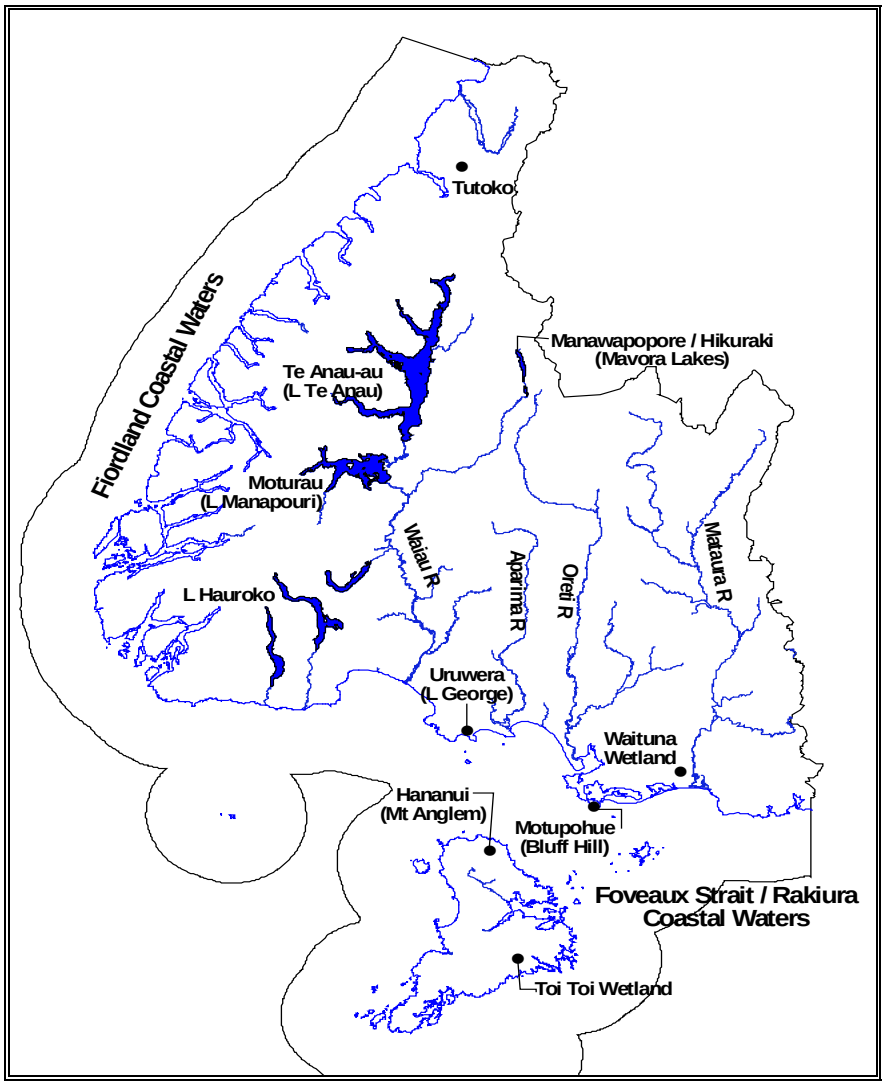
What happens when you apply?
If you are applying for a resource consent for an activity within, adjacent to, or impacting directly upon a statutory area:

- the Council must send a summary of your resource consent application to Te Rūnanga o Ngāi Tahu; and
- the Council must have regard to the Statutory Acknowledgement in going through the process of making a decision on whether Te Rūnanga o Ngāi Tahu is an affected party in relation to the resource consent application.

More Information

The following pages set out the Statutory Acknowledgements as they relate to the Southland region. You can obtain further information on Statutory Acknowledgements from:

- Policy and Planning Division, Environment Southland, Cnr Price Street and North Road, Invercargill
- Kaitiaki Taiao (Natural Resources) Unit, Office of Te Rūnanga o Ngāi Tahu, PO Box 13-046, Christchurch
- Te Ao Mārama Inc, PO Box 7078, South Invercargill 9844
- Ministry for the Environment, PO Box 1345, Christchurch.



Definition Of Statutory Acknowledgements

STATUTORY ACKNOWLEDGEMENT FOR APARIMA RIVER
(From Schedule 15 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area
The statutory area to which this statutory acknowledgement applies is the River known as Aparima, the location of which is shown on Allocation Plan MD 126 (SO 12265).

Preamble
Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to the Aparima River, as set out below.

Ngāi Tahu Association with the Aparima River
The mouth of the Aparima was the site of a permanent settlement, with associated urupā nearby. Urupā are the resting places of Ngāi Tahu tūpuna and, as such, are the focus for whānau traditions. These are places holding the memories, traditions, victories and defeats of Ngāi Tahu tūpuna, and are frequently protected by secret locations.

The river was an important source of mahinga kai, with shellfish, mussels, paua, tuna (eels) and inaka (whitebait) all being taken from the river and its estuary. An eel weir was constructed at the narrows where the Pourakino River enters the Aparima, and was an important source of tuna.

The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka (landing places), places for gathering kai and other taonga, ways in which to use the resources of the Aparima, the relationship of people with the river and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

The mouth of the Aparima was a tauranga waka, from which sea voyages were launched to and from a variety of locations in and around Te Ara a Kiwa (Foveaux Strait), Rakiura and the tītī islands. A carved tauihu (canoe prow) found in the estuary of the river attests to this.

The tūpuna had an intimate knowledge of navigation, river routes, safe harbours and landing places, and the locations of food and other resources on the Aparima. The river was an integral part of a network of trails which were used in order to ensure the safest journey and incorporated locations along the way that were identified for activities including camping overnight and gathering kai. Knowledge of these trails continues to be held by whānau and hapū and is regarded as a taonga. The traditional mobile lifestyle of the people led to their dependence on the resources of the river.

The mauri of the Aparima represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the river.

STATUTORY ACKNOWLEDGEMENT FOR HANANUI (MOUNT ANGLEM)
(From Schedule 18 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area
The statutory area to which this statutory acknowledgement applies is the area known as Hananui (Mt Anglem), as shown on Allocation Plan MS 264 (SO 12249).

Preamble
Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Hananui, as set out below.

Ngāi Tahu Association with Hananui
As with all principal maunga (mountains), Hananui is imbued with the spiritual elements of Raki and Papa, in tradition and practice regarded as an important link to the primeval parents.

The name Hananui is derived from an event involving the tūpuna (ancestor) Rakitamau, a chief of Te Taumutu, and son of Tū Te Kawa. Rakitamau became a widower through the unfortunate death of his wife. Rakitamau journeyed to Motunui (as Rakiura was called then) seeking the hand of a tribally renowned wahine (woman) to take her place, as in his view she would increase his standing due to her mana, reflected in her connections to the land and important people of Rakiura.

On his arrival at her village, Rakitamau asked for the woman by name, only to be told by a laughing group of women she was tāpui (betrothed or set apart). At this, Rakitamau blushed deeply. When he then asked for her sister the people laughed loudly, as they told him she was tāpui also. This news made him blush further so that his cheeks flamed. He left the island never to return and the women were so amused that they named the highest point on the island Hananui, referring to the great glow of Rakitamau, in memory of the event. Rakiura itself takes its name from the glowing skies of this region, the aurora lights.

For Ngāi Tahu, traditions such as this represent the links between the cosmological world of the gods and present generations, these histories reinforce tribal identity and solidarity, and continuity between generations, and document the events which shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

Pūtātāra was an old settlement under the lee of Hananui, a place to which an Otago rangātira (chief, Tukiauau, retired to seek refuge.

The mauri of Hananui represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with Hananui.

STATUTORY ACKNOWLEDGEMENT FOR LAKE HAUROKO

(From Schedule 29 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area

The statutory area to which this statutory acknowledgement applies is the Lake known as Hauroko, the location of which is shown on Allocation Plan MD 41 (SO 12258).

Preamble

Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Lake Hauroko, as set out below.

Ngāi Tahu Association with Lake Hauroko

Hauroko is strongly associated with urupā in the immediate vicinity, including one on an island in the lake, known to Pākehā as Mary Island. In particular, Ngāti Rakiamoa and Ngāti Ruahikihiki have several traditions about their dead laying in this region.

Urupā are the resting places of Ngāi Tahu tūpuna and, as such, are the focus for whānau traditions. These are places holding the memories, traditions, victories and defeats of Ngāi Tahu tūpuna, and are frequently protected by secret locations. It is because of its proximity to these urupā that Hauroko is considered tapu by Ngāi Tahu.

The mauri of Hauroko represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the lake.

STATUTORY ACKNOWLEDGEMENT FOR MANAWAPŌPŌRE/ HIKURAKI (MAVORA LAKES)

(From Schedule 39 – refer to Sections 205 and 206)

Statutory Area

The statutory area to which this statutory acknowledgement applies is the Wetland known as Manawapōpōre/Hikuraki (Mavora Lakes), the location of which is shown on Allocation Plan MD44 (SO 12235).

Preamble

Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Manawapōpōre/Hikuraki, as set out below.

Ngāi Tahu Association with Manawapōpōre/Hikuraki

Manawapōpōre and Hikuraki are part of one of the most significant catchments in Murihiku (Southland). The wetland also lies in the path of the important trail from the mouth of the Ōreti River onward, via the Greenstone Valley, to the head of Whakatipu-wai-Māori (Lake Wakatipu), or alternatively continuing along the Greenstone Valley and out via the Hollyford to the West Coast. These were important trading routes, to gather pounamu for exchange with northern iwi for materials and foods unavailable in the south.

The wetland area was, therefore, an integral part of a network of trails which were used in order to ensure the safest journey and incorporated locations along the way that were identified for activities including camping overnight and gathering kai. Knowledge of these trails continues to be held by whānau and hapū and is regarded as taonga. The traditional mobile lifestyle of the people led to their dependence on the resources of the area.

In addition, the trails were part of summer time pursuits such as kai-hau-kai, whānaungatanga (the renewal and strengthening of family links) and arranging marriages with hapū from the neighbouring region of Otago and further afield. Such strategic marriages between hapū strengthened the kupenga (net) of whakapapa and thus rights to use the resources of the area.

Manawapōpōre (Lower Mavora) is noted for eel weirs, which were constructed on the lake edges for catching eels, utilising flat stones, built in a loop out from the lake edge, with gaps at either end and one in the middle. Construction of the eel weir recreates the type of environment that eels like to congregate in, hence reliable catches are made.

The tūpuna had considerable knowledge of such techniques, places for catching and gathering kai and other taonga, ways in which to use the resources of the area, the relationship of people with the area and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

The mauri of Manawapōpōre/Hikuraki represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the area.

STATUTORY ACKNOWLEDGEMENT FOR MATAURA RIVER

(From Schedule 42 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area

The statutory area to which this statutory acknowledgement applies is the River known as Mataura, the location of which is shown on Allocation Plan MD 125 (SO 12264).

Preamble

Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to the Mataura River, as set out below.

Ngāi Tahu Association with the Mataura River

The area of the Mataura River above the Mataura Falls was traditionally used by the descendants of the Ngāti Mamoe chief, Parapara Te Whenua. The descendants of Parapara Te Whenua incorporate the lines of Ngāti Kuri from which the Mamaru family of Moeraki descend. Another famous tūpuna associated with the river was Kiritekateka, the daughter of Parapara Te Whenua. Kiritekateka was captured by Ngāi Tahu at Te Anau and her descendants make up the lines of many of the Ngāi Tahu families at Ōtākou.

For Ngāi Tahu, histories such as these reinforce tribal identity and solidarity, and continuity between generations, and document the events which shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

The Mataura was an important mahinga kai, noted for its indigenous fishery. The Mataura Falls were particularly associated with the taking of kanakana (lamprey). The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of Mataura, the relationship of people with the river and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

The mauri of the Mataura represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the river.

STATUTORY ACKNOWLEDGEMENT FOR MOTUPŌHUE (BLUFF HILL)

(From Schedule 44 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area

The statutory area to which this statutory acknowledgement applies is the area known as Motupōhue (Bluff Hill), as shown on Allocation Plan MS 8 (SO 12233).

Preamble

Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Motupōhue as set out below.

Ngāi Tahu Association with Motupōhue

The name Motupōhue is an ancient one, brought south by Ngāti Mamoe and Ngāi Tahu from the Hawkes Bay region where both tribes originated. The name recalls a history unique to the Ngai Tuhaitara and Ngāti Kuri hapū that is captured in the line, `Kei korā kei Motupōhue, he pāreka e kai ana, nā tō tūtae' (`It was there at Motupōhue that a shag stood, eating your excrement').

Oral traditions say that the Ngāti Mamoe leader, Te Rakitauneke, is buried upon this hill. Te Rakitauneke's saying was: `Kia pai ai tāku tītīro ki Te Ara a Kiwa' (`Let me gaze upon Foveaux Strait'). Some traditions also place another Ngāti Mamoe leader, Tū Te Mokohu, on this hill.

For Ngāi Tahu, histories such as this represent the links and continuity between past and present generations, reinforce tribal identity and solidarity, and document the events which shaped Ngāi Tahu as an iwi.

The mauri of Motupōhue represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with Motupōhue.

STATUTORY ACKNOWLEDGEMENT FOR MOTURAU (LAKE MANAPŌURI)
(From Schedule 45 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area
The statutory area to which this statutory acknowledgement applies is the Lake known as Moturau (Lake Manapōuri), the location of which is shown on Allocation Plan MD 40 (SO 12257).

Preamble
Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Moturau, as set out below.

Ngāi Tahu Association with Moturau
Moturau (or Motu-ua) is one of the lakes referred to in the tradition of `Ngā puna Wai Karikari o Rakaihautu' which tells how the principal lakes of Te Wai Pounamu were dug by the raNgātira (chief) Rakaihautu. Rakaihautu was the captain of the canoe, Uruao, which brought the tribe, Waitaha, to New Zealand. Rakaihautu beached his canoe at Whakatū (Nelson). From Whakatū, Rakaihautu divided the new arrivals in two, with his son taking one party to explore the coastline southwards and Rakaihautu taking another southwards by an inland route. On his inland journey southward, Rakaihautu used his famous kō (a tool similar to a spade) to dig the principal lakes of Te Wai Pounamu, including Moturau. Rakaihautu named the lake Motu-ua, a reference to the persistent rain which troubled his party here.

Tamatea and his party passed this way in their journey back to their homeland after their waka, Takitimu, broke its back at the mouth of the Waiau River. It was Tamatea who named the lake Moturau (possibly a woman's name but more likely to relate to the many islands found in the lake). Tamatea's party established a camp on the edge of the lake, which is probably under water now, and called it Whitiaka-te-rā (the shining of the sun), indicating that they enjoyed a very different experience of the lake from Rakaihautu. Other traditional names associated with the lake include Te Māui (North Arm), Te Tukeroa (Beehive), Manapōuri (north-eastern reach), Wairoa River (upper Waiau River), Te Rakatū (Garnock Burn), Te Konuotu-te-Makohu (Monument), and Huatea (South Arm).

For Ngāi Tahu, traditions such as this represent the links between the cosmological world of the gods and present generations, these histories reinforce tribal identity and solidarity, and continuity between generations and document the events which shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

A number of wāhi taonga and nohoanga associated with the lake are now under its waters. Eel weirs have been found at the Monument and Hope Arm of the lake, and there was a canoe manufacturing site at Pigeon Island. Such wāhi taonga are places holding the memories, traditions, victories and defeats of Ngāi Tahu tūpuna.

As a mahinga kai, the lake was important for the fowling it offered Murihiku coastal settlements in summer. The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka (landing places), places for gathering kai and other taonga, ways in which to use the resources of Moturau,

the relationship of people with the lake and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

The mauri of Moturau represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the lake.

STATUTORY ACKNOWLEDGEMENT FOR ŌRETI RIVER

(From Schedule 50 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area

The statutory area to which this statutory acknowledgement applies is the River known as Ōreti, the location of which is shown on Allocation Plan MD 123 (SO 12262).

Preamble

Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to the Ōreti River, as set out below.

Ngāi Tahu Association with the Ōreti River

The Ōreti River traverses a significant area of Murihiku, stretching from its mouth at Invercargill almost to the edge of Whakatipu-wai-Māori (Lake Wakatipu). As such, it formed one of the main trails inland from the coast, with an important pounamu trade route continuing northward from the headwaters of the Ōreti and travelling, via the Mavora or Von River Valley, to the edge of Wakatipu and onto the Dart and Routeburn pounamu sources. Indeed, pounamu can be found in the upper reaches of the Ōreti itself.

The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of Ōreti, the relationship of people with the river and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

The kai resources of the Ōreti would have supported numerous parties venturing into the interior, and returning by mōkihi (vessels made of Raupō), laden with pounamu and mahinga kai. Nohoanga (temporary campsites) supported such travel by providing bases from which the travellers could go water fowling, eeling and catching inaka (whitebait), and were located along the course of Ōreti River.

There were a number of important settlement sites at the mouth of the Ōreti, in the New River estuary, including Ōmāui, which was located at the mouth of the Ōreti, where it passes the New River Heads. Ōue, at the mouth of the Ōreti River (New River estuary), opposite Ōmāui, was one of the principal settlements in Murihiku. Honekai who was a principal chief of Murihiku in his time was resident at this settlement in the early 1820s, at the time of the sealers. In 1850 there were said to still be 40 people living at the kaik at Ōmāui under the chief Mauhe.

As a result of this pattern of occupation, there are a number of urupā located at the lower end of the Ōreti, in the estuarine area. Urupā are the resting places of Ngāi Tahu tūpuna and, as such, are the focus for whānau traditions. These are places holding the memories, traditions, victories and defeats of Ngāi Tahu tūpuna, and are frequently protected by secret locations.

The mauri of the Ōreti represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the river.

STATUTORY ACKNOWLEDGEMENT FOR TE ANA-AU (LAKE TE ANAU)
(From Schedule 58 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area
The statutory area to which this statutory acknowledgement applies is the Lake known as Te Ana-au (Lake Te Anau), the location of which is shown on Allocation Plan MD 42 (SO 12259).

Preamble
Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Te Ana-au, as set out below.

Ngāi Tahu Association with Te Ana-au
Te Ana-au is one of the lakes referred to in the tradition of `Ngā puna Wai Karikari o Rakaihautu,' which tells how the principal lakes of Te Wai Pounamu were dug by the raNgātira (chief) Rakaihautu. Rakaihautu was the captain of the canoe, Uruao, which brought the tribe, Waitaha, to New Zealand. Rakaihautu beached his canoe at Whakatū (Nelson). From Whakatū, Rakaihautu divided the new arrivals in two, with his son taking one party to explore the coastline southwards and Rakaihautu taking another southwards by an inland route. On his inland journey southward, Rakaihautu used his famous kō (a tool similar to a spade) to dig the principal lakes of Te Wai Pounamu, including Te Ana-au.

For Ngāi Tahu, traditions such as this represent the links between the cosmological world of the gods and present generations, these histories reinforce tribal identity and solidarity, and continuity between generations, and document the events which shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

Te Ana-au figures in Ngāi Tahu histories as one of the last places where Ngāi Tahu and Ngāti Mamoe came into conflict after the peace established between Rakiihia and Te Hautapunui o Tū. After Rakiihia had died, his bones were stripped of flesh and were buried in a cave on a cliff facing the seaside near Dunedin. However, a landslip led to the bones being uncovered. The bones were found by Ngāi Tahu fishermen and made into fish hooks, an act designed to insult. Among Māori it was a practice to take the bones of enemy leaders who had recently died, fashion them into fish hooks and present fish caught with them to the enemy as a gift. Once the fish had been eaten, the enemy would be told they had feasted on fish that had in turn feasted on their dead.

While Ngāi Tahu were fishing with their Ngāti Mamoe relations, one of the Ngāi Tahu fisherman referred to the fish biting the bones of Rakiihia. The Ngāti Mamoe fisherman recognised the insult and checked the cave in which their leader had been interred. Finding that the cave had been desecrated, the Ngāti Mamoe found and killed the son of a senior Ngāi Tahu raNgātira (chief). Before Ngāi Tahu could retaliate, the Ngāti Mamoe were warned that they should leave the coast for the inland lakes where they would not be found. Ngāti Mamoe headed to Te Ana-au. Among this Ngāti Mamoe party was Rakiihia's brother, Pukutahi. Pukutahi fell sick along Te Anau's shoreline and rested while his followers explored the lake to find a safer place.

Approaching the lakes, Te Hau, the leader of the Ngāi Tahu party, observed that the fugitives had divided in two, and unfortunately for Pukutahi decided to follow the trail up to Te Ana-au. The Ngāti Mamoe camp was found and in the morning the chiefs of Ngāti Mamoe, including Pukutahi, were killed. This was to be one of the last battles between the tribes.

The lake was an important mahinga kai in the interior. The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of Te Ana-au, the relationship of people with the lake and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

The mauri of Te Ana-au represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the lake.

STATUTORY ACKNOWLEDGEMENT FOR TOI TOI WETLAND, RAKIURA

(From Schedule 63 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area

The statutory area to which this statutory acknowledgement applies is the Wetland known as Toi Toi, the location of which is shown on Allocation Plan MD 135 (SO 12266).

Preamble

Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Toi Toi, as set out below.

Ngāi Tahu Association with Toi Toi

Toi Toi wetland is particularly significant to Ngāi Tahu as a kākāpō habitat. The kākāpō, once a prized mahinga kai for Ngāi Tahu, used the wetland as a feeding ground.

The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of Toi Toi, the relationship of people with the wetland and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

Much of Toi Toi's value lies in its pristine and unmodified character. The mauri of Toi Toi represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the wetland.

STATUTORY ACKNOWLEDGEMENT FOR TUTOKO

(From Schedule 66 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area

The statutory area to which this statutory acknowledgement applies is the mountain known as Tutoko, as shown on Allocation Plan MS 3 (SO 24747 (Otago Land District) and SO 12231 (Southland Land District)).

Preamble

Under Sections 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Tutoko as set out below.

Ngāi Tahu Association with Tutoko

The Fiordland area, within which Tutoko stands, represents, in tradition, the raised up sides of Te Waka o Aoraki, after it foundered on a submerged reef and its occupants, Aoraki and his brothers, were turned to stone. These people are now manifested in the highest peaks in Ka Tiritiri o Te Moana (the Southern Alps). The fiords at the southern end of the Alps were carved out of the raised side of the wrecked Waka o Aoraki by Tū Te Rakiwhānoa, so as to make the waka (canoe) habitable by humans. The deep gorges and long waterways that are the fiords were provided as safe havens on this rugged coast, and stocked with fish, forest and birds to sustain humans.

For Ngāi Tahu, traditions such as this represent the links between the cosmological world of the gods and present generations, these histories reinforce tribal identity and solidarity, and continuity between generations, and document the events that have shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

Tutoko is not, in fact, the original name of the maunga (mountain), but was applied by Dr J Hector in 1863 after he met the old raNgātira (chief) Tutoko and his two daughters, Sara and May. The hills to the north of the Kōtuku River are named the Sara Hills, and those to the south May Hills, after these daughters. The use of this name is seen as appropriate to Ngāi Tahu, as Tutoko was an important raNgātira of this region at that time, and is represented by the mountain.

Tutoko is the kaitiaki (guardian) of Whakatipuwaitai, the westernmost creation of Rakaihautu and the southernmost kāinga (settlement) of Te Tai Poutini (West Coast) pounamu trails, which provides access to koko-takiwai (a type of pounamu) at Piopiotahi (Milford Sound) and Poison Bay further to the south. The kāinga was also an important staging post for travel into the Lake Wakatipu area via the Hollyford Valley. All of these trails, whether by land or by sea, lie under the shadow of Tutoko.

The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use

the resources of the land, the relationship of people with the land and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

Mountains such as Tutoko are linked in whakapapa to the gods, and being the closest earthly elements to Raki the sky father, they are likened to the children of Raki and Papa, reaching skyward. The mauri of Tutoko represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the land.

STATUTORY ACKNOWLEDGEMENT FOR URUWERA (LAKE GEORGE)

(From Schedule 68 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area

The statutory area to which this statutory acknowledgement applies is the Wetland known as Uruwera (Lake George), the location of which is shown on Allocation Plan MD 59 (SO 12261).

Preamble

Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Uruwera, as set out below.

Ngāi Tahu Association with Uruwera

Lake George is known to Ngāi Tahu as Uruwera, named after a descendant of the Waitaha raNgātira (chief), Rakaihautu. Uruwera's descent lines lead to Te Ropuake, the wife of Mako, a leading chief of Ngāti Irakehu of Banks Peninsula. Te Ropuake's mother was Hine Te Awheka, wife of Te Rakiwhakaputa, another leading Ngāi Tahu chief who eventually occupied Rapaki on Banks Peninsula. Both Mako and Te Rakiwhakaputa migrated to Canterbury with the Ngāi Tahu hapū, Ngai Tuhaitara. Examples such as this demonstrate the interconnected nature of Ngāi Tahu whakapapa.

For Ngāi Tahu, histories such as this reinforce tribal identity and solidarity and continuity between generations, and document the events which shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

Foods taken from this mahinga kai included tuna (eels), inaka (whitebait) and water fowl. Uruwera has been in continual use by Ngāi Tahu as a mahinga kai for many generations. The lake is a particularly important resource for Ngāi Tahu from Ōraka, Awarua and Ruapuke.

The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of Uruwera, the relationship of people with the lake and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

As a result of this history of use, there a number of urupā associated with Uruwera. Urupā are the resting places of Ngāi Tahu tūpuna and, as such, are the focus for whānau traditions. These are places holding the memories,

traditions, victories and defeats of Ngāi Tahu tūpuna, and are frequency protected by secret locations.

The mauri of Uruwera represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the lake.

STATUTORY ACKNOWLEDGEMENT FOR WAIAU RIVER

(From Schedule 69 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area

The statutory area to which this statutory acknowledgement applies is the River known as Waiau, the location of which is shown on Allocation Plan MD 124 (SO 12263).

Preamble

Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to the Waiau, as set out below.

Ngāi Tahu Association with the Waiau

The Waiau River features in the earliest of traditional accounts, and was a place and resource well known to the earliest tūpuna (ancestors) to visit the area. Rakaihautu and his followers traced the Waiau from its source in Te Ana-au (Lake Te Anau) and Motu-ua or Moturau (Lake Manapōuri), to its meeting with the sea at Te Wae Wae Bay.

The waka Takitimu, under the command of the raNgātira (chief) Tamatea, was wrecked near the mouth of the Waiau River and the survivors who landed at the mouth named the river `Waiau' due to the swirling nature of its waters. Tamatea and his party made their way up the river to Lake Manapōuri where they established a camp site. The journey of Tamatea was bedevilled by the disappearance of Kaheraki who was betrothed to Kāhungunu, a son of Tamatea, Kaheraki strayed away from the party, and was captured by the Maeroero (spirits of the mountain).

For Ngāi Tahu, traditions such as this represent the links between the cosmological world of the gods and present generations, these histories reinforce tribal identity and solidarity, and continuity between generations, and document the events which shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

The Waiau has strong links with Waitaha who, following their arrival in the waka Uruao, populated and spread their influence over vast tracts of the South Island. They were the moa hunters, the original artisans of the land. There are remnants of Waitaha rock art associated with the river. Surviving rock art remnants are a particular taonga of the area, providing a unique record of the lives and beliefs of the people who travelled the river.

There is also a strong Ngāti Mamoe influence in this area of the country. Ngāti Mamoe absorbed and intermarried with the Waitaha and settled along the eastern coast of Te Wai Pounamu. The arrival of Ngāi Tahu in Te Wai Pounamu caused Ngāti Mamoe to become concentrated in the southern part of

the island, with intermarriage between the two iwi occurring later than was the case further north. The result is that there is a greater degree of Ngāti Mamoe influence retained in this area than in other parts of the island. These are the three iwi who, through conflict and alliance, have merged in the whakapapa (genealogy) of Ngāi Tahu Whānui.

Numerous archaeological sites and wāhi taonga attest to the history of occupation and use of the river. These are places holding the memories traditions, victories and defeats of Ngāi Tahu tūpuna. The main nohoanga (occupation site) on the Waiau was at the mouth and was called Te Tua a Hatu. The raNgātira (chief) Te Wae Wae had his kāinga nohoanga on the left bank of the Waiau River mouth.

The Waiau, which once had the second largest flow of any river in New Zealand, had a huge influence on the lives and seasonal patterns of the people of Murihiku, over many generations. The river was a major mahinga kai: aruhe (fernroot), tī root, fish, tuna (eels), shellfish and tutu were gathered in the summer, a range of fish were caught in the autumn, kanakana (lamprey) were caught in the spring, while the people were largely reliant during winter on foods gathered and preserved earlier in the year. Rauri (reserves) were applied to the mahinga kai resources, so that people from one hapū or whānau never gathered kai from areas of another hapū or whānau. Some 200 species of plants and animals were utilised by Ngāi Tahu as a food resource in and near the Waiau.

The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of the Waiau, the relationship of people with the river and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

Place names provide many indicators of the values associated with different areas, including Waiharakeke (flax), Papatōtara (tōtara logs or bark), Kirirua (a type of eel found in the lagoon), Te Rua o te Kaiamio (a rock shelter that was a ‘designated meeting place’ for the local Māori, similar to a marae) and Ka Kerehu o Tamatea — (`charcoal from the fire of Tamatea' — black rocks near old Tuatapere ferry site).

The Waiau River was a major travelling route connecting Murihiku and Te Ara a Kiwa (Foveaux Strait) to Te Tai Poutini (the West Coast), and as such was a important link between hapū and iwi. Pounamu on the West Coast, and summer expeditions to Manapōuri (Motu-ua or Moturau) for mahinga kai were the main motivations for movement up and down the Waiau. Mōkihi (vessels made from Raupō) were utilised for travel down the river and were a very effective and common mode of travel, making transportation of substantial loads of resources possible.

The tūpuna had an intimate knowledge of navigation, river routes, safe harbours and landing places, and the locations of food and other resources on the Waiau. The river was an integral part of a network of trails which were used in order to ensure the safest journey and incorporated locations along the way that were identified for activities including camping overnight and gathering kai. Knowledge of these trails continues to be held by whānau and hapū and is regarded as a taonga. The traditional mobile lifestyle of the people led to their dependence on the resources of the river.

The Waiau was once a large and powerful river, up to 500m across at the mouth, narrowing to 200 m further upstream. The water flow from the Waiau River was an important factor in the ecological health and bio-diversity of the coastal resources.

The mauri of the Waiau represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the river.

STATUTORY ACKNOWLEDGEMENT FOR WAITUNA WETLAND

(From Schedule 73 – refer to Sections 205 and 206 Ngāi Tahu Claims Settlement Act 1998)

Statutory Area

The statutory area to which this statutory acknowledgement applies is the wetland known as Waituna, the location of which is shown on Allocation Plan MD 58 (SO 12260).

Preamble

Under Section 206, the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Waituna, as set out below.

Ngāi Tahu Association with Waituna

Intermittently open to the sea, Waituna wetland (with the western end, where the lagoon breaks out to sea known as Kā-puna-wai) was a major food basket utilised by nohoanga and permanent settlements located in the immediate vicinity of the wetlands, and further away, for its wide variety of reliable mahinga kai. The great diversity of wildlife associated with the complex includes several breeds of ducks, white heron, gulls, spoonbill, kōtuku, oyster-catcher, dotterels, terns and fernbirds. The wetlands are important kōhanga (spawning) grounds for a number of indigenous fish species. Kaimoana available includes giant and banded kōkopu, varieties of flatfish, tuna (eels), kanakana (lamprey), inaka (whitebait), waikākahi (freshwater mussel) and waikōura (freshwater crayfish). Harakeke, Raupō, manuka, tōtara and tōtara bark, and Pīngao were also regularly harvested cultural materials. Paru or black mud was available, particularly sought after as a product for making dyes.

The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of Waituna, the relationship of people with the lake and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

As a result of this history of use and occupation of the area, there are wāhi tapu and wāhi taonga all along its shores. It is also possible that particular sections of the wetland were used for waiwhakaheketūpāpāku (water burial).

Urupā and wāhi tapu are the resting places of Ngāi Tahu tūpuna and, as such, are the focus for whānau traditions. These are places holding the memories, traditions, victories and defeats of Ngāi Tahu tūpuna, and are frequency protected by secret locations.

The mauri of Waituna represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the area.

Purposes of Statutory Acknowledgements

Pursuant to Section 215, and without limiting the rest of this schedule, the only purposes of these statutory acknowledgements are—

(a) To require that consent authorities forward summaries of resource consent applications to Te Rūnanga o Ngāi Tahu as required by regulations made pursuant to Section 207 (clause 12.2.3 of the deed of settlement); and
(b) To require that consent authorities, the Historic Places Trust, or the Environment Court, as the case may be, have regard to these statutory acknowledgements, as provided in Sections 208 to 210 (clause 12.2.4 of the deed of settlement); and
(c) To empower the Minister responsible for management of these statutory acknowledgement areas or the Commissioner of Crown Lands, as the case may be, to enter into a Deed of Recognition as provided in Section 212 (clause 12.2.6 of the deed of settlement); and
(d) To enable Te Rūnanga o Ngāi Tahu and any member of Ngāi Tahu Whānui to cite these statutory acknowledgements as evidence of the association of Ngāi Tahu to these statutory acknowledgement areas as provided in Section 211 (clause 12.2.5 of the deed of settlement).

Limitations on Effect of Statutory Acknowledgements

Except as expressly provided in Sections 208 to 211, 213, and 215,—

(a) These statutory acknowledgements do not affect, and are not to be taken into account in, the exercise of any power, duty, or function by any person or entity under any statute, regulation, or bylaw; and
(b) Without limiting paragraph (a), no person or entity, in considering any matter or making any decision or recommendation under statute, regulation, or bylaw, may give any greater or lesser weight to Ngāi Tahu's association to these statutory acknowledgement areas (as described in these statutory acknowledgements) than that person or entity would give under the relevant statute, regulation, or bylaw, if these statutory acknowledgements did not exist.

Except as expressly provided in this Act, these statutory acknowledgements do not affect the lawful rights or interests of any person who is not a party to the deed of settlement.

Except as expressly provided in this Act, these statutory acknowledgements do not, of themselves, have the effect of granting, creating, or providing evidence of any estate or interest in, or any rights of any kind whatsoever relating to, these statutory acknowledgement areas.

Other mechanisms relevant to this Plan

The Ngāi Tahu Claims Settlement Act also sets up a range of other sites and information that may be relevant to any applicant or consent holder, or to the public generally. These are Nohoanga which are camp sites at specified places on rivers within the region; Tōpuni which are landscape features of special importance or value to Ngāi Tahu; and Taonga species which are a range of flora and fauna that culturally valued by Ngāi Tahu.

The following set out the basic detail on the location and types of places and species referred to in the Schedules to the Act.

Nohoanga (Camp Sites)

SITES OVER WHICH NOHOANGA ENTITLEMENTS TO BE GRANTED IN SOUTHLAND
(From Schedule 95 – refer to Section 246 Ngāi Tahu Claims Settlement Act 1998)

45	Lake Manapōuri	Lake Manapōuri - 1 hectare approximately, being Part Manapōuri Lakebed. Subject survey, as shown on Allocation Plan MN 73 (SO 12234).
46	Lake Te Anau	Lake Mistletoe - 1 hectare approximately, being Part Section 6, Block III, Eglington Survey District (SO 6989). Subject to survey, as shown on Allocation Plan MN 446 (SO 12254).
47	Lake Te Anau	Lake Te Anau – (91 hectares approximately Mile Creek) being Part Run 301B (SO 4685). Subject to survey, as shown on Allocation Plan MN 486 (SO 12256).
48	Mataura River	Ardlussa - 1 hectare, approximately, being Parts Crown Land, Mataura Riverbed and unformed legal, road, Block III, Wendonside Survey District. Subject to survey, as shown on Allocation Plan MN 475 (SO 12255).
49	Mavora Lakes	Mavora Lakes - 1 hectare, approximately, being Part Run 568 (SO6800). Subject to survey, as shown on Allocation Plan MN 77 (SO 12235).
50	Ōreti River	Junction of 1 hectare, approximately, Ōreti River and being Part Section 136, Irthing Stream Eyre Survey District (SO 1). Subject to survey, as shown on Allocation Plan MN 263 (SO 12248).
51	Waiau River and Lagoon	Waiau River - 1 hectare, approximately, (No 1) being Part Section 10 and Part Waiau Riverbed, Block I, Alton Survey District (SO 2840) Subject to survey, as shown on Allocation Plan MN 90(SO 12236).

52	Waiau River and Lagoon	Waiau River -1 hectare, a proximately, (No 2) being Part Sections 7 and 7A, Block XV, Longwood Survey District (SOs 2021 and 3726) Subject to survey, as shown on Allocation Plan MN 444 (SO 12253).
53	Waiau River	Queen's Reach - 1 hectare, approximately, being Part Section 25, Block II, Manapōuri Survey District (SO 10887). Subject to survey as shown on Allocation Plan MN 258 (SO 12245).
54	Waikaia River	Piano Flat - 5800 m², approximately, being Sections 8, 9, 10, 11 and Part Section 7, Block VI, Gap Survey District (SO 6837) Subject to survey, as shown on Allocation Plan MN 259 (SO 12246).
55	Waikawa River and Harbour	Waikawa River - 3085 m² approximately (Public access to the river along track to continue) being Part Section 42, Town of Niagara Comprised in existing Document 084684.1. Subject to survey, as shown on Allocation Plan MN 260 (SO 12247).

Tōpuni

TŌPUNI FOR MOTUPŌHUE (BLUFF HILL)

(From Schedule 85 – refer to Sections 238 and 239 Ngāi Tahu Claims Settlement Act 1998)

Description of Area

The area over which the Tōpuni is created is the area known as Motupōhue, as shown on Allocation Plan MS 8 (SO 12233).

Preamble

Under Section 239 (clause 12.5.3 of the deed of settlement), the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional values relating to Motupōhue as set out below.

Ngāi Tahu Values Relating to Motupōhue

The name Motupōhue is an ancient one, brought south by Ngāti Mamoe and Ngāi Tahu from the Hawkes Bay region where both tribes originated. The name recalls a history unique to the Ngai Tuhaitara and Ngāti Kuri hapū that is captured in the line, `Kei korā kei Motupōhue, he pāreka e kai ana, nā tō tūtae' (`It was there at Motupōhue that a shag stood, eating your excrement').

Oral traditions say that the Ngāti Mamoe leader, Te Rakitauneke, is buried upon this hill. Te Rakitauneke's saying was: `Kia pai ai tāku tītīro ki Te Ara a Kiwa' (`Let me gaze upon Foveaux Strait'). Some traditions also place another Ngāti Mamoe leader, Tū Te Mokohu, on this hill.

For Ngāi Tahu, histories such as this represent the links and continuity between past and present generations, reinforce tribal identity and solidarity, and document the events which shaped Ngāi Tahu as an iwi.

The mauri of Motupōhue represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life

are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with Motupōhue.

TŌPUNI FOR TAKITIMU RANGE, SOUTHLAND

(From Schedule 89 – refer to Sections 238 and 239 Ngāi Tahu Claims Settlement Act 1998)

Description of Area

The area over which the Tōpuni is created is the area known as Takitimu Range located in Murihiku (Southland), as shown on Allocation Plan MS 5 (SO 12232).

Preamble

Under Section 239 (clause 12.5.3 of the deed of settlement), the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional values relating to Takitimu as set out below.
Ngāi Tahu Values Relating to Takitimu

The Takitimu maunga (mountains) were named by Tamatea, the captain of the Takitimu waka (canoe) in memory of the waka after it struck trouble in Te Waewae Bay, and was eventually wrecked near the mouth of the Waimeha Stream.

Tradition states that the Takitimu waka was overtaken by three large waves known as O-te-wao, Ō-roko and Ō-kākā, followed by a cross wave, which resulted in the Takitimu being hurled well inland, with its cargo being strewn about. In some accounts the ranges inland from Te Waewae Bay are likened to the huge waves that caused the demise of the waka Takitimu. In other accounts the Takitimu maunga are considered to be the upturned hull of the waka.

For Ngāi Tahu, traditions such as this represent the links between the cosmological world of the gods and present generations, these histories reinforce tribal identity and solidarity, and continuity between generations, and document the events that have shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

Tamatea and his crew made their way overland from the site of the wreck. Tamatea likened the majestic and upright Takitimu maunga when he viewed them from the south coast, to the crew of the Takitimu struggling to control the waka in adverse conditions. During the overland journey past the Takitimu maunga Tamatea lost one of his party, a woman named Kaheraki who strayed away from the party and was captured by the maeroero (spirits of the mountain) and never seen again. Kaheraki had been betrothed to Kāhungunu, who was a son of Tamatea.

The Takitimu maunga are, therefore, a symbolic reminder of the famous exploits of Tamatea in the south, and a reminder forever locked into the landscape, of the tūpuna (ancestral) waka Takitimu, adding lustre to the noted spiritual values of the western Southland landscape. The Takitimu maunga are visible from all points of the Murihiku landscape, and are also a noted weather indicator.

The mauri of Takitimu represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life

are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the land.

TŌPUNI FOR TUTOKO

(From Schedule 93 – refer to Sections 238 and 239 Ngāi Tahu Claims Settlement Act 1998)

Description of Area

The area over which the Tōpuni is created is the area known as Tutoko located in Fiordland National Park, as shown on Allocation Plan MS 3 (SO 24747 (Otago Land District) and SO 12231 (Southland Land District)).

Preamble

Under Section 239 (clause 12.5.3 of the deed of settlement), the Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional values relating to Tutoko, as set out below.

Ngāi Tahu Values Relating to Tutoko

The Fiordland area, within which Tutoko stands, represents, in tradition, the raised up sides of Te Waka o Aoraki, after it foundered on a submerged reef and its occupants, Aoraki and his brothers, were turned to stone. These people are now manifested in the highest peaks in Ka Tiritiri o Te Moana (the Southern Alps). The fiords at the southern end of the Alps were carved out of the raised side of the wrecked Waka o Aoraki by Tū Te Rakiwhānoa, so as to make the waka (canoe) habitable by humans. The deep gorges and long waterways that are the fiords were provided as safe havens on this rugged coast, and stocked with fish, forest and birds to sustain humans.

For Ngāi Tahu, traditions such as this represent the links between the cosmological world of the gods and present generations, these histories reinforce tribal identity and solidarity, and continuity between generations, and document the events that have shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

Tutoko is not, in fact, the original name of the maunga (mountain), but was applied by Dr J Hector in 1863 after he met the old raNgātira (chief) Tutoko and his two daughters, Sara and May. The hills to the north of the Kōtuku River are named the Sara Hills, and those to the south, May Hills, after these daughters. The use of this name is seen as appropriate to Ngāi Tahu, as Tutoko was an important raNgātira of this region at that time, and is represented by the mountain.

Tutoko is the kaitiaki (guardian) of Whakatipuwaitai, the westernmost creation of Rakaihautu and the southernmost kāinga (settlement) of Te Tai Poutini (West Coast) pounamu trails, which provides access to koko-takiwai (a type of pounamu) at Piopiotahi (Milford Sound) and Poison Bay further to the south. The kāinga was also an important staging post for travel into the Lake Wakatipu area via the Hollyford Valley. All of these trails, whether by land or by sea, lie under the shadow of Mt Tutoko.

The tūpuna had considerable knowledge of whakapapa, traditional trails and tauranga waka, places for gathering kai and other taonga, ways in which to use the resources of the land, the relationship of people with the land and their dependence on it, and tikanga for the proper and sustainable utilisation of resources. All of these values remain important to Ngāi Tahu today.

Mountains such as Tutoko are linked in whakapapa to the gods, and being the closest earthly elements to Raki the sky father, they are likened to the children of Raki and Papa, reaching skyward. The mauri of Tutoko represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu Whānui with the land.

Taonga Species

TAONGA SPECIES
(From Schedule 97 – refer to Section 287 Ngāi Tahu Claims Settlement Act 1998)

Birds

Name in Māori	Name in English	Scientific Name
Hoiho	Yellow-eyed penguin	Megadyptes antipodes
Kāhu	Australasian harrier	Circus approximans
Kākā	South Island Kākā	Nestor meridionalis meridionalis
Kākāpō	Kākāpō	Strigops habroptilus
Kākāriki	New Zealand parakeet	Cyanoramphus spp.
Kākāruai	South Island robin	Petroica australis australis
Kakī	Black stilt	Himantopus novaezelandiae
Kāmana	Crested grebe	Podiceps cristatus
Kārearea	New Zealand falcon	Falco novaeseelandiae
Karoro	Black backed gull	Larus dominicanus
Kea	Kea	Nestor notabilis
Kōau	Black shag	Phalacrocorax carbo
	Pied shag	Phalacrocorax varius
	Little shag	Phalacrocorax varius melanoleucos brevirostris
Koekoeā	Long-tailed cuckoo	Eudynamys taitensis
Kōparapara or Korimako	Bellbird	Anthornis melanura melanura
Kororā	Blue penguin	Eudyptula minor
Kōtare	Kingfisher	Halcyon sancta
Kōtuku	White heron	Egretta alba
Kōwhiowhio	Blue duck	Hymenolaimus malacorhynchos
Kūaka	Bar-tailed godwit	Limosa lapponica
Kūkupa/Kererū	New Zealand wood pigeon	Hemiphaga novaeseelandiae
Kuruwhengu/ Kuruwhengi	New Zealand shoveller	Anas rhynchotis
Mātā	Fernbird	Bowdleria punctata punctata and Bowdleria punctata stewartiana and Bowdleria punctata wilsoni and Bowdleria punctata candata
Matuku moana	Reef heron	Egretta sacra
Miromiro	South Island tomtit	Petroica macrocephala macrocephala
Miromiro	Snares Island tomtit	Petroica macrocephala

		dannefaerdi
Mohua	Yellowhead	Mohoua ochrocephala
Pākura/Pūkeko	Swamp hen/Pukeko	Porphyrio porphyrio
Pārera	Grey duck	Anas superciliosa
Pateke	Brown teal	Anas aucklandica
Pīhoihoi	New Zealand pipit	Anthus novaeseelandiae
Pīpīwharauroa	Shining cuckoo	Chrysococcyx lucidus
Pīwakawaka	South Island fantail	Rhipidura fuliginosa fuliginosa
Poaka	Pied stilt	Himantopus himantopus
Pokotiwha	Snares crested penguin	Eudyptes robustus
Pūtakitaki	Paradise shelduck	Tadorna variegata
Riroriro	Grey warbler	Gerygone igata
Roroa	Great spotted kiwi	Apteryx haastii
Rowi	Okarito brown kiwi	Apteryx mantelli
Ruru koukou	Morepork	Ninox novaeseelandiae
Takahē	Takahē	Porphyrio mantelli
Tara	Terns	Sterna spp.
Tawaki	Fiordland crested penguin	Eudyptes pachyrhynchus
Tete	Grey teal	Anas gracilis
Tīeke	South Island saddleback	Philesturnus carunculatus carunculatus
Tītī	Sooty	Puffinus griseus and shearwater/Muttonbird/ Hutton's Puffinus huttoni and shearwater
		Pelecanoides urinatrix
	Common diving petrel & South Georgian diving	Pelecanoides georgicus
	Petreland Westland petrel	Procellaria westlandica
	Fairy prion and Broad billed prion	Pachyptila turtur
	White-faced storm petrel	Pachyptila vittata
	Pelagodroma marina and Cook's petrel	Pterodroma cookii
	Mottled petrel	Pterodroma inexpectata
Tītītipounamu	South Island rifleman	Acanthisitta chloris chloris
Tokoeka	South Island brown kiwi	Apteriyx australis
Toroa	Albatrosses and Mollymawks	Diomedea spp.
Toutouwai	Stewart Island robin	Petroica australis rakiura
Tūī	Tūī	Prosthemadera novaeseelandiae
Tutukiwi	Snares Island snipe	Coenocorypha aucklandica huegeli
Weka	Western weka	Gallirallus australis australis
Weka	Stewart Island weka	Gallirallus australis scotti
Weka	Buff weka	Gallirallus australis hectori

Plants

Name in Māori	Name in English	Scientific Name
Akatorotoro	White Rātā	Metrosideros perforata
Aruhe	Fernroot (bracken)	Pteridium aquilinum var. esculentum
Harakeke	Flax	Phormium tenax
Horoeka	Lancewood	Pseudopanax crassifolius
Houhi	Mountain ribbonwood	Hoheria lyalli and H glabata
Kahikatea	Kahikatea	Dacrycarpus dacrydioides
Kāmahi	Kāmahi	Weinmannia racemosa
Kānuka	Kānuka	Kunzia ericoides
Kāpuka	Broadleaf	Griselinia littoralis
Karaeopirita	Supplejack	Ripogonum scandens
Karaka	New Zealand laurel/ Karaka	Corynocarpus laevigata
Karamū	Coprosma	Coprosma robusta, coprosma lucida, coprosma foetidissima
Kātote	Tree fern	Cyathea smithii
Kiekie	Kiekie	Freycinetia baueriana subsp. banksii
Kōhia	NZ Pasionfruit	Passiflora tetranda
Korokio	Korokio Wire-netting	Corokia cotoneaster bush
Koromiko/ Kōkōmuka	Koromiko	Hebe salicfolia
Kōtukutuku	Tree fuchsia	Fuchsia excorticata
Kowahi Kohai	Kowhai	Sophora microphylla
Mamaku	Tree fern	Cyathea medullaris
Māania	Sedge	Carex flagellifera
Manuka Kahikatoa	Tea-tree	Leptospermum scoparium
Māpou	Red Matipo	Myrsine australis
Mātāi	Mātāi/Black pine	Prumnopitys taxifolia
Miro	Miro/Brown pine	Podocarpus ferrugineus
Ngaio	Ngaio	Myoporum laetum
Nīkau	New Zealand palm	Rhopalostylis sapida
Pānako	(Species of fern)	Asplenium obtusatum
Pānako	(Species of fern)	Botrychium australe and B. biforme
Patōtara	Dwarf mingimingi	Leucopogon fraseri
Pīngao	Pīngao	Desmoschoenus spiralis
PoKākā	PoKākā	Elaeocarpus hookerianus
Ponga/Poka	Tree fern	Cyathea dealbata
Rātā	Southern Rātā	Metrosideros umbellata
Raupō	Bulrush	Typha angustifolia
Rautāwhiri/Kōhūhū	Black matipo/Māpou	Pittosporum tenuifolium
Rimu	Rimu/Red pine	Dacrydium cypressinum
Rimurapa	Bull kelp	Durvillaea antarctica
Taramea	Speargrass, spaniard	Aciphylla spp.
TaRātā	Lemonwood	Pittosporum eugenioides
Tawai	Beech	Nothofagus spp.
Tētēaweka	Muttonbird scrub	Olearia angustifolia
Ti rākau/Tī Kōuka	Cabbage tree	Cordyline australis
Tikumu	Mountain daisy	Celmisia spectabilis and C semicordata

Titoki	New Zealand ash	Alectryon excelsus
Toatoa	Mountain Toatoa, Celery pine	Phyllocladus alpinus
Toetoe	Toetoe	Cortaderia richardii
Tōtara	Tōtara	Podocarpus tōtara
Tutu	Tutu	Coriaria spp.
Whaririki	Mountain flax	Phormium cookianum
Whīnau	Hinau	Elaeocarpus dentatus
Wī	Silver tussock	Poa cita
Wīwī	Rushes	Juncus all indigenous Juncus spp. and J. maritimus

Marine Mammals

Name in Māori	Name in English	Scientific Name
Ihupuku	Southern elephant seal	Mirounga leonina
Kekeno	New Zealand fur seals	Arctocephalus forsteri
Paikea	Humpback whales	Megaptera novaeangliae
Parāoa	Sperm whale	Physeter macrocephalus
Rāpoka/Whakahao	New Zealand seal	Phocarctos hookeri lion/Hooker's sea lion
Tohorā	Southern right whale	Balaene australis

CUSTOMARY FISHERIES

(From Schedule 98 – refer to Section 297 Ngāi Tahu Claims Settlement Act 1998)

Part A—Taonga Fish Species

Name in Māori	Name in English	Scientific Name
Kāeo	Sea tulip	Pyura pachydermatum
Koeke	Common shrimp	Palaemon affinis
Kōkopu/Hawai	Giant bully	Gobiomorphus gobioides
Kōwaro	Canterbury mudfish	Neochanna burrowsius
Paraki/Ngaiore	Common smelt	Retropinna retropinna
Piripiripōhatu	Torrentfish	Cheimarrichthys fosteri
Taiwharu	Giant kōkopu	Galaxias argenteus

Part B—Shellfish Species

Name in Māori	Name in English	Scientific Name
Pipi/Kākāhi	Pipi	Paphies australe
Tuaki	Cockle	Austrovenus stutchburgi
Tuaki/Hākiari, Kuhakuha/Purimu	Surfclam	Dosinia anus, Paphies donacina, Mactra discor, Mactra murchsoni, Spisula aequilateralis, Basina yatei, or Dosinia subrosa
Tuatua	Tuatua	Paphies subtriangulata, Paphies donacina
WaiKākā/Pūpū	Mudsnail	Amphibola crenata, Turbo smaragdus, Zedilom spp

D Water Classification Maps

See back of plan

E ANZECC Sediment Guidelines

Assessment of Contaminants in Sediments

The table is an extract from the national guidelines for sediment quality (Australia New Zealand Environment and Conservation Council - ANZECC 2000).

The levels referred to in the table represent guidelines, based on overseas biological effects data due to the lack of local data. Values are expressed as concentrations on a dry weight basis. For organics, values are normalised to 1% organic carbon, rather than expressing as mg/kg organic carbon as is sometimes done. This requires that if the sediment organic carbon content is markedly higher than 1%, the guideline value should be adjusted accordingly.

If the lower sediment quality guideline (ISQG-Low) for a particular contaminant is not exceeded, the chemical is unlikely to cause any biological impact on organisms inhabiting that sediment.

If chemical concentrations exceed the ISQG-Low levels, they may be toxic and further investigation is recommended to determine whether they pose a threat.

Recommended sediment quality guidelines[a]

These guidelines apply to the sediment after reasonable mixing.

Contaminant	ISQG-Low
METALS (mg/kg dry wt.)	
Antimony	2
Cadmium	1.5
Chromium	80
Copper	65
Lead	50
Mercury	0.15
Nickel	21
Silver	1.0
Zinc	200
METALLOIDS (mg/kg dry wt.)	
Arsenic	20
ORGANOMETALLICS	
Tributyltin (μgSn/kg dry wt.)	5
ORGANICS (μg/kg dry wt.) [b]	
Acenapthene	16
Acenaphthalene	44
Anthracene	85
Fluorene	19
Naphthalene	160
Phenanthrene	240
Low Molecular Weight PAHs	552

Contaminant	ISQG-Low
Benzo(a)anthracene	261
Benzo(a)pyrene	430
Dibenzo(a,h)anthracene	63
Chrysene	384
Fluoranthene	600
Pyrene	665
High Molecular Weight PAHs[c]	1700
Total PAHs	4000
Total DDT	1.6
p.p'-DDE	2.2
o,p'- + p,p'-DDD	2
Chlordane	0.5
Dieldrin	0.02
Endrin	0.02
Lindane	0.32
Total PCBs	23

a Primarily adapted from Long et al (1995)
b Normalised to 1% organic carbon
c Low molecular weight PAHs are the sum of concentrations of acenaphthene, acenaphthalene, anthracene, fluorene, 2-methylnaphthalene, naphthalene and phenanthrene; high molecular weight PAHs are the sum of concentrations of benzo(a)anthracene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluoranthene and pyrene.

F Good Spray Management Practices

Introduction

This appendix has been developed from various sources of information, including information sheets from MAF, and regional plans developed by other regional councils. The material relating to spray management is based on information contained in New Zealand Standard 8409 (Management of Agrichemicals) developed by the New Zealand Agrichemical Education Trust.

This appendix has been included in the Plan in a simple and convenient form of general public information and education purposes. The information contained in this appendix also provides general guidance on the best practicable option for preventing or minimising adverse effects on the environment from the application of agrichemicals. It provides a general indication of the nature of the conditions that might be attached to a resource consent for the application of agrichemicals.

Any person discharging agrichemicals

- Should use only agrichemicals with label claims for use in or over bodies of water.
- For spraying of emergent plants should not submerge treated plants.
- Should always proceed upstream while spraying surface water, to avoid any buildup of agrichemical concentration in the water.
- Should notify landowners whose stock have access to surface water, or who use the surface water for potable water.
- Should apply agrichemicals to parts of the waterbody at intervals of at least 10 days and not simultaneously over the whole area. Fish then have an opportunity to move to untreated areas if the dissolved oxygen content drops significantly.
- Water that has been treated with agrichemicals should not be used for the following purposes, until the times specified have elapsed after treatment:
  - ***standing water:*** bathing, human consumption, fish farming, and livestock watering (24 hours); overhead irrigation (10 days);
  - ***flowing water*** should not be used for the above purposes for 24 hours. Though it is difficult to determine the distance downstream from the treated stretch that the limitation should apply in, the general criteria are:
    - **near-static water** (flowing not more than 1 km in 24 hours): the limitation should apply to the treated section and 1 km downstream;
    - **faster flowing water:** the limitation should apply over the treated stretch and the distance treated water would move in 24 hours, or up to the point of discharge into the main body of receiving water.

Any person discharging agrichemicals by spray application

- Should undertake an accredited or recognised course in the use of agrichemical sprays or act under the supervision of a registered agrichemical applicator.
- Should not spray if the windspeed over the area to be sprayed is less than one metre per second.
- Should have particular regard to windspeed and direction during the application of spray.
- Should discharge sprays during periods of positive air movement away from sensitive receiving environments (including surface water, places of public assembly, and public amenity areas).
- Should have particular regard to selection of nozzle size and pressure of spray units, to prevent or minimise the potential for spray drift.
- Should dilute spray solutions to the proper concentration for application.
- Should dispose of surplus spray solution and spray containers according to recommendations of the manufacturer or supplier, as stated in the directions on the product container label.
- Should keep specific records of the type of each spray applied, the volume of spray used, the volume of product concentrate used, the date, and the locality.
- Should use only those agrichemicals currently licensed for use within New Zealand under the Hazardous Substances and New Organisms Act 1996.
- Should apply sprays strictly in accordance with the manufacturer's instructions, as stated on the product container label.
- Should preferably use sprays of low volatility or low toxicity.
- Should use equipment generating a droplet size greater than 50 microns in diameter, and preferably greater than 250 microns.

The following information has been reproduced from NZS 8409: 2004 with the permission of Standards New Zealand under Licence 677

NZS 8409:2004

Appendix G

Spray Drift Hazard and Weather Conditions

(Informative)

G1 Introduction

Application of agrichemicals in particulate form, whether as solids or liquids (droplets) inevitably means some losses occur in transferring the agrichemical to the target. The law requires any such losses to be minimized.

The Hazardous Substances (Classes 6, 8 and 9) Regulations specify the setting of tolerable exposure limits for toxic substances (Class 6) and environmental exposure limits for ecotoxic substances (Class 9). It is an offence to exceed these limits when applying agrichemicals.

G2 Off-target Movement

Off-target movement of spray i.e. spray drift, occurs in two main ways:

(a) primary drift – the movement of spray as droplets;

(b) secondary drift – the movement of spray contaminated dust, soil or sand particles and movement of spray as a vapour (gaseous phase). This also applies to the off-site movement of fumigants.

There are a number of factors that can affect both forms of drift, including droplet size, spray release height (relative to the ground or inversions) and wind speed. Vapour pressure (volatility) of the agrichemical can affect secondary drift where it occurs by volatilization from the target surface after deposition. In view of the two types of drift, an internationally accepted definition of drift has been developed.

Drift (of agrichemical) means the physical movement of agrichemical through the air at the time of application or soon thereafter to any off-target site. The movement of agrichemical caused by erosion, migration, volatility, or windblown soil particles to off-target sites that occurs after the application is not included in the definition unless specifically addressed on the product label, with respect to drift control requirements.

The applicator is responsible for primary drift because it occurs at the time of spraying and the means of minimizing primary drift are within the control of the applicator. Factors related to the application equipment (e.g. droplet size, height of release of the spray) can be adjusted by the applicator, who can also make judgements about the weather (e.g. wind speed, wind direction).

Physical movement of agrichemical can also occur as vapour at the time of spraying so can be considered primary drift. The applicator can demonstrate responsibility by selecting agrichemicals that are known to have low volatility (product label information) and choosing weather conditions that are not conducive to volatilization of the agrichemical at the time of application.

Research shows that vapour drift occurs mostly as secondary drift.

The following information has been reproduced from NZS 8409: 2004 with the permission of Standards New Zealand under Licence 677

NZS 8409:2004

The applicator has little or no control over secondary drift apart from selection of non-volatile agrichemicals and prediction of the weather condition in the period following the agrichemical application (see Appendix D and G7 for further comment on vapour drift).

G3 Drift Hazard

The hazard from spray drift depends on two main factors: the extent of drift (how much spray is drifting and how far it is likely to travel), and what is put at risk from spray drift. In many cases, the extent of crop injury from drift is dependent on the factors of concentration of the agrichemical and the time available for uptake. This means that even low concentrations in time can produce injury. This explains the recognition of high hazard under apparently calm conditions.

Some guidance for operators is required, and table G1 sets out the important factors. Users should note that additional factors such as adequate notification to those who may be at risk, so that they can take precautionary action, effectively reduces drift hazard.

G4 Sensitive Areas

There can be cases where there is considerable spray drift, but no drift hazard because there is nothing that is at risk from the spray drift, i.e. no sensitive areas. Assessing drift hazard is partly a function of the existence of any sensitive areas, and therefore before spraying, users should identify and record any sensitive areas located near the target area. Responsible agrichemical application means being able to demonstrate, by production of a map, sketch, field notes or other documentation that this requirement has been met. The following are examples of sensitive areas, (except where the area involved is the intended spray target). Check with the regional authority however as there may be sensitive areas specified in the regional plan.

Sensitive areas include:

(a) residential buildings;

(b) school buildings;

(c) public places and amenity areas where people congregate;

(d) public water supply catchments and intakes;

(e) water bodies and associated riparian vegetation;

(f) sensitive crops or farming systems (e.g. organic farms, greenhouses);

(g) wetlands, indigenous vegetation habitat areas and reserves;

(h) public roads.

Table G1 summarises the main factors affecting any hazard associated with spray drift.

The following information has been reproduced from NZS 8409: 2004 with the permission of Standards New Zealand under Licence 677

NZS 8409:2004

Table G1 – Drift hazard guidance chart

Potential drift hazard scale			
Factor	**High hazard**	**Low hazard**	**Comment**
Wind speed	Zero/very low (less than 1 m/s) or greater than 6 m/s	Steady (1 – 3 m/s)	Measure or estimate using smoke
Wind direction	Unpredictable	Predictable, and away from sensitive areas	Use smoke to indicate
Humidity	Low (delta T > 8 oC)	High (delta < 4 oC)	Measure, using whirling psychrometer
Atmospheric stability	Inversion layer present	No inversion layer	Use cold smoke to indicate
Maximum height of release of agrichemical	> 1.5 m above the target	< 0.5 m above the target	Application technique See 5.3.4.2
Particle (droplet) size	< 50 microns diameter	> 250 microns diameter	See Q1
Volatility of agrichemical	High (vapour pressure > 10 mPa)	Low (vapour pressure < 0.1 mPa)	Check product label, SDS, or PSC
Sensitive area	Close (< 100 m) away	None, or more than 1 km distant	Identify on property protocol (see M4)
Buffer zone	None	Yes (> 100 m)	Guideline only
Shelter belts	No shelter	Live shelter, > 3 m high and 1 m thick	Not for herbicides
Toxicity	Class 6.1A, B, C, D	Class 6.1E	Check label

NOTE –

(1) The potential drift hazard scale is given as high or low, and intermediate situations should be rated accordingly. For example, a droplet size of 150 microns diameter would represent a moderate drift hazard.

(2) Some factors can be changed to reduce the hazard rating, e.g. use lower volatility chemical, larger droplet size.

(3) All of the weather related factors are to be assessed at the application site.

(4) Toxicity of the agrichemical has been included on the chart, but use of a schedule heading is only one indicator of toxicity and is not always sufficient. In all cases, users should select the least toxic agrichemical that is suitable for the specific application. Check the label and product information.

(5) 1 m/sec = 3.6 km/h; 6 m/sec = 20 km/h (approx.).

G5 Weather Conditions

The important weather conditions at the application site are as follows.

G5.1 Wind direction

Spray can be moved away from the application site (target area) by any wind. The wind direction is also important with respect to the application technique; all applications should be made with a cross-wind, starting at the downwind edge. Smoke generators, or other reliable indicators of wind speed and direction should be used at the application site where conditions dictate.

NOTE – Heat producing smoke generators can produce thermal lift, which may mask the presence of an inversion.

G5.2 Wind speed

Very low wind speeds usually mean the wind direction is unpredictable. Higher wind speeds mean a stable wind direction, and may also give better spray penetration into some crops, by turbulent mixing. Spraying should not be carried out in high winds (see table G1).

G5.3 Inversions

G5.3.1 *Condition favouring inversions*

An inversion condition develops when a band of warmer air develops at some height above the ground. It most commonly forms when air close to the ground cools rapidly as a result of heat loss by radiation to a cloudless sky. The presence of an inversion can be detected by measuring air temperatures and wind speeds at various heights, but for practical purposes, the easiest method is to use smoke. Smoke, rising vertically, cannot pass through the inversion layer, but travels horizontally usually just below the layer of warm air.

NOTE – Do not rely on smoky fires to generate the smoke as the thermal up draught from the fire may allow the smoke to penetrate the inversion layer, and thereby hide its presence, or overcome a light wind movement.

G5.3.2 *Spraying advice*

Spraying under inversion conditions means the final destination of the chemical cannot be predicted with any certainty, and should only be carried out if the spray droplets are non evaporative, are discharged below the inversion layer, and are greater than 250 microns in diameter.

G5.4 Katabatic winds

Katabatic winds flow downhill and are caused by cold air sinking down a slope: this usually occurs early in the morning. Winds of up to 6 knots (3 m/sec or 10 km/h) may flow out of valley systems some considerable distance across flat country.

G5.5 Anabatic winds

Anabatic winds flow uphill, and are caused by warm air rising up the slope as the sun warms them. Anabatic winds usually follow Katabatic winds in the morning. When wind speeds are low (less than 2-3 km/h), wind direction can be unpredictable.

The rule should always be – do not apply agrichemical sprays or dusts unless the wind direction and speed are known, or the agrichemical is non-volatile and applied as particles or droplets greater than 250 microns diameter.

G5.6 Temperature and relative humidity (RH)

G5.6.1 *Temperature*

High air temperatures mean rapid evaporation of spray droplets. The rate of evaporation is also affected by relative humidity. A droplet evaporates faster at an RH of say 50 % in warmer air than in cold air at the same RH.

G5.6.2 *Relative humidity*

RH can easily be measured using a whirling psychrometer, which has 2 thermometers. The bulb of one thermometer is covered with a moist wick, which dries in the air, lowering the temperature of the bulb. The difference between the dry bulb and wet bulb is called the wet bulb depression or delta T. The greater delta T, the greater the evaporation potential for spray droplets.

Generally, spraying of water-based agrichemicals should not be carried out when delta T is greater than 8 ^{o}C. For low and ultra low volume applications (less than 10 L/ha) delta T should be less than 4 ^{o}C.

G6 Buffer Zones and Shelter Belts

Off-target movement of spray is affected by a large number of interrelated factors including weather conditions, spray characteristics and application technique. A buffer zone between the application site, and a sensitive area may reduce the hazard to that sensitive area. The buffer zone works by allowing the agrichemical to disperse to concentrations low enough not to present a risk (i.e. not exceed any Environmental Exposure Limit (EEL) set). The use of shelter belts to intercept and retain the agrichemical may effectively reduce the width of the buffer zone required. However for herbicides, particularly those used for total vegetation control, live shelter will also be affected by the spray so it will not be useful in those situations.

The following information has been reproduced from NZS 8409: 2004 with the permission of Standards New Zealand under Licence 677

NZS 8409:2004

Other factors that affect the width of a buffer zone include:

(a) application technique (e.g. projecting spray into the air);

(b) the agrichemical used (e.g. volatility);

(c) the physical nature of the shelter belt.

G6.1 Buffer zone guidelines

It is vital that the guidelines given below are regarded as that – guidelines, which represent the best estimate for three typical application types. Buffer zones, with or without shelter belts, merely provide an opportunity for concentrations of agrichemical to fall sufficiently so that the risk to sensitive areas beyond the buffer zone becomes acceptable (i.e. environmental exposure levels are not exceeded). Depending on the particular circumstances however, there is no guarantee that this can be achieved. Therefore buffer zones are only one of many methods to manage and reduce drift hazard.

Table G2 gives suggested minimum distances between the downwind edge of the target area and the sensitive area. These are for guidance. There are spray droplet drift models that can be used to give more detailed information for specific situations.
NOTE – For examples of spray drift models, i.e. Spray Drift Task Force, see www.agdrift.com and SpraySafe Manager, NZ Forest Research Institute, www.forestresearch.co.nz.

Table G2 – Buffer zones

Application method	**Distance** (metres)	
	With shelter	**Without shelter**
Boom sprayer	2	10
Air blast sprayer	10	30
Aerial application	100	300

NOTE –
These distances are subject to:
(a) the equipment used (boom, air blast, aircraft) being calibrated and operated correctly;
(b) all other appropriate strategies being observed to reduce spray drift hazard (table G1);
(c) shelter being completed and without gaps at the base.

The following information has been reproduced from NZS 8409: 2004 with the permission of Standards New Zealand under Licence 677

NZS 8409:2004

G6.2 Shelter belt characteristics

Shelter belts will not eliminate spray drift, but can have a significant effect in reducing the amount of spray moving off-target. The physical structure of the shelter belt is important with respect to its effectiveness. The general conclusions are:

(a) natural (live) shelter is much more effective than artificial shelter;

(b) the porosity and density of the shelter is important – a minimum thickness of 1 m and a porosity of about 50 % is recommended;

(c) porosity and density are a function of the thickness of the shelter;

(d) for effective reductions in wind speed (and hence drift reduction) the width to height ratio of shelter is critical. A width to height ratio of about 3.5 is recommended (i.e. a shelter 1 m wide (thick) should be 3.5 m–4 m high);

(e) any spray released at or above shelter height will not be contained by the shelter.

G7 Vapour Drift

As a general rule, spraying of agrichemicals that are volatile should take place in conditions where the temperature following application is likely to decrease rather than increase (see Appendix D and Appendix F). That will help manage the risk of secondary drift, i.e. chemical volatilizing from the target plants some time after spraying has ended.

G7.1

The two main factors controlling the rate of volatilisation are:

(a) the vapour pressure of the agrichemical (high vapour pressure, high volatilisation);

(b) the moisture status of the soil or plant surface (high moisture content, high volatilisation).

There are many other factors that also affect the rate of volatilization of an agrichemical from a target surface. These include airflow (up to 10 times the rate in still air), temperature (0.5 % per ^{o}C), rate of penetration into the target surface, formulation, presence of any adjuvant and chemical/air interfacial area. The major factors in vapour movement are wind velocity and turbulence.

The following information has been reproduced from NZS 8409: 2004 with the permission of Standards New Zealand under Licence 677

NZS 8409:2004

G7.2 Research indicates that the hazard from vapour drift and volatilization is mostly due to the volatilisation of agrichemical from the target surface following application (secondary drift) and not from evaporation from spray droplets during application (primary drift); although both can and do occur. There are a number of ways in which an operator can minimize the vapour drift hazard. The following points should be noted:

(a) use spray quality as coarse as possible (i.e. large droplets), consistent with getting adequate coverage at the selected application rate;

(b) ensure that soil applied products are incorporated into the soil immediately following application;

(c) minimise the distance between the target plant and the discharge point of the spray to reduce the opportunity for primary drift;

(d) use low volatility formulations;

(e) conditions where the wind direction is unstable and likely to change in the period following application (up to 12 hours) increases the hazard where more volatile agrichemicals are used. Also, increases in air temperature following application will increase volatility and increase the downwind drift hazard distance;

(f) do not spray where the conditions are considered too uncertain to be sure about managing any vapour drift hazard.

NZS 8409:2004

APPENDIX M

Notification and Signage for Application of Agrichemicals
(Normative)

M1 Introduction This Appendix applies to both ground and aerial application. Users **shall** check with the appropriate local authority for any specific notification requirements for agrichemical use.

M2 Notification
NOTE – Notification does not prevent spray drift and does not lessen a user's responsibilities regarding the identification and recording of sensitive areas adjacent to the site of any agrichemical application.

M2.1 Application of agrichemicals including fumigants
Notification of the intention to spray is intended to inform people who could be affected, and provide the opportunity for them to take action to avoid or minimize potential exposure of themselves, their children, or their property to specific applications of agrichemicals.

Notification to satisfy the requirements of this Standard for different use situations is set out below. In each case however, check and comply with appropriate local authority requirements.

M2.2 Application on private property
Any person who is likely to be directly affected by the application of agrichemicals has a right to information about the operation. The owner or occupier of the property on which the spraying is to take place **shall** inform, at intervals of no more than once a year, any person who is likely to be directly affected by the application, that a spray plan (see M4) has been prepared and is available on request. More or less frequent information may be provided where mutually acceptable arrangements have been agreed to, and recorded on the spray plan. Notification **shall** also be in accordance with any regulatory requirements of the local authority.

M2.3 Contract application
Contract use of agrichemicals implies that the application is not on the applicator's own property. This makes the proper identification of affected parties difficult. In these cases contractors **shall** ensure that appropriate notification has been given by the client to the affected parties. The notification requirements **shall** be documented using a written spray plan or protocol. This **shall** comply with local authority requirements and **shall** be made available on request to those who may be affected (see M4).

The following information has been reproduced from NZS 8409: 2004 with the permission of Standards New Zealand under Licence 677

NZS 8409:2004

M2.4 Application in public places and amenity areas Notification **shall** be by way of notices in local newspapers, or other recognized methods such as "information drops". Notification **shall** be given not less than one week prior to application and **shall** be in accordance with local authority requirements. Information **shall** include:

(a) the district, street or location to be treated;

(b) the period of use;

(c) the reason for use (e.g. vegetation control).

In addition the notice **shall** indicate where or how further information can be obtained.

(d) door-to-door notification may also be appropriate;

(e) vehicles or equipment used for applying agrichemicals **shall** have an appropriate sign, e.g. "Agrichemical Application in Progress, (Herbicide/Insecticide/Fungicide)". The name of the local authority or contractor **shall** be displayed;

(f) appropriate temporary hazard warning signs **shall** be used where spray vehicles are likely to be a hazard to motorists. Such signs must comply with requirements of the Traffic Regulations – check with the Land Transport Safety Authority;

(g) other temporary signs **shall** be appropriately placed so that any people approaching the target area see them.

M3 Signage
Signs can be used at the application site to advise that agrichemical application is being, or has been carried out. To satisfy the requirements of this Standard the sign **shall** clearly indicate the type of agrichemical used e.g. herbicide, insecticide.

M3.1 Specific requirements
Put signs on all normal lines of approach to an area treated with agrichemicals in the following situations:

(a) public places, for any agrichemical use;

(b) other areas that may be accessible to the public.

Signs **shall** be there during agrichemical use, and **shall** remain in place for a period equivalent to the contact re-entry time for the agrichemical used (refer to product information or supplier).

Users **shall** check with the appropriate local authority for any specific information to be included on signs.

The following information has been reproduced from NZS 8409: 2004 with the permission of Standards New Zealand under Licence 677

NZS 8409:2004

M4 Spray Plans/Protocols

The development of a spray plan or protocol will assist in addressing the potential off-target application of agrichemicals and identify the measures adopted to avoid or mitigate adverse effects associated with them.

NOTE – Local authorities may also have specific requirements for spray plans or protocols.

To satisfy the requirements of this Standard the plan must be available on request and include;

(a) a plan or map detailing the location of any sensitive areas including but not limited to houses, schools, and roads, especially those used by school children and crops sensitive to the chemical being used, (see also Appendix G4);

(b) the crops to be sprayed, the types of chemical (insecticide, herbicide, fungicide etc.) that are likely to be used during the year and the times of the year that spraying is likely to occur;

(c) strategies employed to avoid contamination of sensitive areas (for example specific application techniques such as large droplet sizes, hand application, not spraying outside rows, turning machinery off when turning, having no-spray buffer zone areas, only spraying when the wind is in the specified direction, having personnel monitoring boundaries during the application, lists of people (and their contact phone number) who want to get a phone call just prior to any spraying, any other mutually agreed strategies to manage any risk);

NOTE – It is desirable to consult with potentially affected neighbours to establish mutually acceptable measures to avoid or manage effects of drift.

(d) the identity of the person likely to be carrying out agrichemical application and confirmation of their current qualifications;

NOTE – For example – GROWSAFE® certification.

(e) particular weather conditions which may increase potential drift hazard;

(f) indication of agrichemicals to be used that may present a specific hazard (e.g. bee toxicity).

G Water Quality Standards

These standards apply following reasonable mixing with the receiving waters, unless otherwise stated. They do not apply to waters within artificial storage ponds such as effluent storage ponds or stock water reservoirs or to temporarily ponded rainfall.

The standard for a given parameter will not apply in a surface water body where, due to natural causes, that parameter falls outside the range given in the standard.

Plan users should contact Environment Southland for guidance on standard methodologies for collecting water quality data. Monitoring requirements imposed as consent conditions require sample collection, preservation and analysis to be carried out in accordance with the most recent edition of American Public Health Association (APHA) "Standard Methods for the Examination of Water and Wastewater" and monitoring and analyses to be carried out by a laboratory with International Accreditation New Zealand (IANZ) registration or equivalent.

Surface water bodies classified as "Natural State Waters"

The natural quality of the water shall not be altered.

Surface water bodies classified as "Lowland soft bed"

The temperature of the water:

- shall not exceed 23°C
- the daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water shall be within the range 6.5 to 9, and there shall be no pH change in water due to a discharge that results in a loss of biological diversity or a change in community abundance and composition.

The concentration of dissolved oxygen in water shall exceed 80% of saturation concentration.

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

When the flow is below the median flow, the visual clarity of the water shall not be less than 1.3 metres.[44]

[44] Visual clarity is assessed using the black disc method or other comparable method employed by Environment Southland.

The concentration of total ammonia shall not exceed the values specified in Table 1 "Ammonia standards for Lowland and Hill surface water bodies".

The concentration of faecal coliforms shall not exceed 1,000 coliforms per 100 millilitres, except for popular bathing sites, defined in Appendix K "Popular Bathing Sites" and within 1 km immediately upstream of these sites, where the concentration of *Escherichia coli* shall not exceed 130 *E. coli* per 100 millilitres.

The Macroinvertebrate Community Index shall exceed 80 and the Semi-Quantitative Macroinvertebrate Community Index shall exceed 3.5. [45]

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Surface water bodies classified as "Lowland hard bed"

The temperature of the water:

- shall not exceed 23°C
- shall not exceed 11°C in trout spawning areas during May to September inclusive
- the daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water shall be within the range 6.5 to 9, and there shall be no pH change in water due to a discharge that results in a loss of biological diversity or a change in community composition.

The concentration of dissolved oxygen in water shall exceed 80% of saturation concentration.

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

When the flow is below the median flow, the visual clarity of the water shall not be less than 1.6 metres, except where the water is naturally low in clarity as a result of high concentrations of tannins, in which case the natural colour and clarity shall not be altered. [46]

The concentration of total ammonia shall not exceed the values specified in Table 1 "Ammonia standards for Lowland and Hill surface water bodies".

The concentration of faecal coliforms shall not exceed 1,000 coliforms per 100 millilitres, except for popular bathing sites, defined in Appendix K "Popular Bathing Sites" and within 1 km immediately upstream of these sites, where the concentration of *Escherichia coli* shall not exceed 130 *E. coli* per 100 millilitres.

[45] MCI and SQMCI indices to be determined using Environment Southland's SOE sampling protocol and MfE's Protocol P2 for sample processing (Stark *et al.* 2001)
[46] Visual clarity is assessed using the black disc method or other comparable method employed by Environment Southland.

For the period 1 November through to 30 April, filamentous algae of greater than 2 cm long shall not cover more than 30% of the visible stream bed. Growths of diatoms and cyanobacteria greater than 0.3cm thick shall not cover more than 60% of the visible stream bed.[47]

Biomass shall not exceed 35 grams per square metre for either filamentous algae or diatoms and cyanobacteria.[48]

Chlorophyll *a* shall not exceed 120 milligrams per square metre for filamentous algae and 200 milligrams per square metre for diatoms and cyanobacteria. [49]

The Macroinvertebrate Community Index shall exceed a score of 90 and the Semi-Quantitative Macroinvertebrate Community Index shall exceed a score of 4.5.

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Surface water bodies classified as "Hill"

The temperature of the water

- shall not exceed 23°C
- shall not exceed 11°C in trout spawning areas during May to September inclusive
- the daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water shall be within the range 6.5 to 9, and there shall be no pH change in water due to a discharge that results in a loss of biological diversity or a change in community composition.

The concentration of dissolved oxygen in water shall exceed 80% of saturation concentration.

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

When the flow is below the median flow, the visual clarity of the water shall not be less than 1.6 metres. [50]

The concentration of total ammonia shall not exceed the values specified in Table 1 "Ammonia standards for Lowland and Hill surface water bodies".

---

[47] Applies to the part of the bed that can be seen from the bank during summer low flows or walked on.
[48] Expressed in terms of reach biomass per unit of exposed strata (i.e., tops and sides of stones) averaged across the full width of the stream or river.
[49] Expressed in terms of reach biomass per unit of exposed strata (i.e., tops and sides of stones) averaged across the full width of the stream or river.
[50] Visual clarity is assessed using the black disc method or other comparable method employed by Environment Southland.

The concentration of faecal coliforms shall not exceed 1,000 coliforms per 100 millilitres, except for popular bathing sites, defined in Appendix K "Popular Bathing Sites" and within 1 km immediately upstream of these sites, where the concentration of *Escherichia coli* shall not exceed 130 *E. coli* per 100 millilitres.

Filamentous algae of greater than 2 cm long shall not cover more than 30% of the visible stream bed. Growths of diatoms and cyanobacteria greater than 0.3cm thick shall not cover more than 60% of the visible stream bed.

Biomass shall not exceed 35 grams per square metre for filamentous algae.

Chlorophyll *a* shall not exceed 120 milligrams per square metre for filamentous algae.

The Macroinvertebrate Community Index shall exceed a score of 100 and the Semi-Quantitative Macroinvertebrate Community Index shall exceed a score of 5.5.

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Surface water bodies classified as "Mountain"

The temperature of the water

- shall not exceed 21°C
- shall not exceed 11°C in trout spawning areas during May to September inclusive
- the daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water shall be within the range 7.2 to 8, and there shall be no pH change in water due to a discharge that results in a loss of biological diversity or a change in community composition.

The concentration of dissolved oxygen in water shall exceed 99% of saturation concentration.

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

When the flow is below the median flow, the visual clarity of the water shall not be less than 3 metres.

The concentration of total ammonia shall not exceed 0.32 milligrams per litre.

The concentration of *Escherichia coli* shall not exceed 130 *E. coli* per 100 millilitres in any sample.

Filamentous algae of greater than 2 cm long shall not cover more than 30% of the visible stream bed.

Biomass shall not exceed 35 grams per square metre for filamentous algae.

Chlorophyll *a* shall not exceed 50 milligrams per square metre for filamentous algae.

Growths of diatoms and cyanobacteria greater than 0.3 cm thick shall not cover more than 60% of the visible stream bed.

The Macroinvertebrate Community Index shall exceed a score of 120 and the Semi-Quantitative Macroinvertebrate Community Index shall exceed a score of 7.

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Surface water bodies classified as "Lake Fed"

The temperature of the water

- shall not exceed 21°C
- shall not exceed 11°C in trout spawning areas during May to September inclusive
- the daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water shall be within the range 7.2 to 8, and there shall be no pH change in water due to a discharge that results in a loss of biological diversity or a change in community composition.

The concentration of dissolved oxygen in water shall exceed 99% of saturation concentration.

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

When the flow is below the median flow, the visual clarity of the water shall not be less than 3 metres. [51]

The concentration of total ammonia shall not exceed 0.32 milligrams per litre.

The concentration of *Escherichia coli* shall not exceed 130 *E. coli* per 100 millilitres in any sample.

Chlorophyll *a* shall not exceed 50 milligrams per square metre at any time or exceed a monthly mean of 15 milligrams per square metre for filamentous algae or diatoms and cyanobacteria[52]

[51] Visual clarity is assessed using the black disc method or other comparable method employed by Environment Southland.
[52] Expressed in terms of reach biomass per unit of exposed strata (i.e., tops and sides of stones) averaged across the full width of the stream or river.

The Macroinvertebrate Community Index shall exceed a score of 90 and the Semi-Quantitative Macroinvertebrate Community Index shall exceed a score of 4.5.

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Surface water bodies classified as "Spring Fed"

The temperature of the water

- shall not exceed 21°C
- shall not exceed 11°C in trout spawning areas during May to September inclusive
- the daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water shall be within the range 6.5 to 9, and there shall be no pH change in water due to a discharge that results in a loss of biological diversity or a change in community composition.

The concentration of dissolved oxygen in water shall exceed 99% of saturation concentration.

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

When the flow is below the median flow, the visual clarity of the water shall not be less than 3 metres. [53]

The concentration of total ammonia shall not exceed 0.32 milligrams per litre.

The concentration of faecal coliforms shall not exceed 1,000 coliforms per 100 millilitres, except for popular bathing sites, defined in Appendix K "Popular Bathing Sites" and within 1 km immediately upstream of these sites, where the concentration of *Escherichia coli* shall not exceed 130 *E. coli* per 100 millilitres.

Chlorophyll *a* shall not exceed 50 milligrams per square metre at any time, or exceed a monthly mean of 15 milligrams per square metre for filamentous algae or diatoms and cyanobacteria. [54]

The Macroinvertebrate Community Index shall exceed a score of 90 and the Semi-Quantitative Macroinvertebrate Community Index shall exceed a score of 4.5.

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

---

[53] Visual clarity is assessed using the black disc method or other comparable method employed by Environment Southland.

[54] Expressed in terms of reach biomass per unit of exposed strata (i.e., tops and sides of stones) averaged across the full width of the stream or river.

Surface water bodies classified as "Lowland/Coastal Lakes and Wetlands"

The temperature of the water

- shall not exceed 23°C
- the daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water shall be within the range 6.5 to 9, and there shall be no pH change in water due to a discharge that results in a loss of biological diversity or a change in community composition.

The concentration of dissolved oxygen in water shall exceed 80% of saturation concentration.

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

When lake inflows are below their median values, the Secchi depth clarity of the water shall not be less than 1.5 metres, except where the water is naturally low in clarity as a result of high concentrations of tannins, in which case the natural colour and clarity shall not be altered. [55]

The concentration of total ammonia shall not exceed the values specified in Table 1 "Ammonia standards for Lowland and Hill surface water bodies".

The concentration of faecal coliforms shall not exceed 1,000 coliforms per 100 millilitres, except for popular bathing sites, defined in Appendix K "Popular Bathing Sites", where the concentration of *Escherichia coli* shall not exceed 130 *E. coli* per 100 millilitres.

The concentration of chlorophyll *a* shall not exceed 5 milligrams per cubic metre.[56]

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Surface water bodies classified as "Hill Lakes and Wetlands"

The temperature of the water

- shall not exceed 23°C
- the daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water

[55] Visual clarity in lakes to be measured as Secchi depth.
[56] Determination of lake chlorophyll concentration to be follow the protocols in Burns *et al.* (2000).

temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water shall be within the range 6.5 to 9, and there shall be no pH change in water due to a discharge that results in a loss of biological diversity or a change in community composition.

The concentration of dissolved oxygen in water shall exceed 80% of saturation concentration.

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

When lake inflows are below their median values, the Secchi depth clarity of the water shall not be less than 5 metres.

The concentration of total ammonia shall not exceed the values specified in Table 1 "Ammonia standards for Lowland and Hill surface water bodies".

The concentration of faecal coliforms shall not exceed 130 *E. coli* per 100 millilitres.

Biomass shall not exceed 35 grams per square metre for filamentous algae.

The concentration of chlorophyll *a* shall not exceed 5 milligrams per cubic metre.

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Surface water bodies classified as "Mountain Lakes and Wetlands"

The temperature of the water

- shall not exceed 21°C
- the daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water shall be within the range 6.5 to 9, and there shall be no pH change in water due to a discharge that results in a loss of biological diversity or a change in community composition.

The concentration of dissolved oxygen in water shall exceed 99% of saturation concentration.

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

The natural colour and clarity of the waters must not be changed to a conspicuous extent.

When lake inflows are below their median values, the Secchi depth clarity of the water shall not be less than 10 metres.

The concentration of total ammonia shall not exceed 0.32 milligrams per litre.

The concentration of *Escherichia coli* shall not exceed 130 *E. coli* per 100 millilitres in any sample.

The concentration of chlorophyll *a* shall not exceed 2 milligrams per cubic metre.

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Surface water bodies classified as "Mataura 1"

The Protected Waters[57] between map references NZMS 260 F45:967-503 to F45:963-508 (Mataura River).

Any discharge is to be substantially free from suspended solids, grease and oil.

The daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water must be within the range 6 to 8.5, except when due to natural causes.

The waters must not be tainted so as to make them unpalatable, nor must they contain toxic substances to the extent that they are unsafe for consumption by humans or farm animals, nor must they emit objectionable odours.

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

There must not be any destruction of natural aquatic life by reason of a concentration of toxic substances.

The natural colour and clarity of the waters must not be changed to a conspicuous extent.

The oxygen concentration in solution in the waters must not be reduced below 6 milligrams per litre.

---

[57] Protected Waters means

(a) The Mataura River from its source (approximate map reference NZMS 260 E42:502-333) to its confluence with the sea (approximate map reference NZMS 260 F47:877-946); and

(b) The Waikaia River and its tributaries, the Ōtamita Stream, and all other tributaries of the Mataura River upstream of its confluence with the Ōtamita Stream (approximate map reference NZMS 260 F45:881-582); and

(c) The Mimihau Stream and the Mokoreta River and each of their tributaries.

Based on no fewer than five samples taken over not more than a 30-day period, the median value of the faecal coliform bacteria content of the water must not exceed 2000 per 100 millilitres and the median value of the total coliform bacteria content of the water must not exceed 10,000 per 100 millilitres.

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Surface water bodies classified as "Mataura 2"

The Protected Waters[16] between map references NZMS 260 F45:894-581 to F45:885-584 (Mataura River) and NZMS 260 F46:917-391 to F46:924-396 (Mataura River).

Any discharge is to be substantially free from suspended solids, grease and oil.

The natural water temperature must not be changed by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of a discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water must be within the range 6.5 to 8.3, except when due to natural causes.

The waters must not be tainted so as to make them unpalatable, nor must they contain toxic substances to the extent that they are unsafe for consumption by humans or farm animals, nor must they emit objectionable odours

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

There must not be any destruction of natural aquatic life by reason of a concentration of toxic substances

The natural colour and clarity of the waters must not be changed to a conspicuous extent

The oxygen concentration in solution in the waters must not be reduced below 6 milligrams per litre

Based on no fewer than five samples taken over not more than a 30-day period, the median value of the faecal coliform bacteria content of the water must not exceed 200 per 100 millilitres.

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Surface water bodies Classified as "Mataura 3"

The Protected Waters[16] other than those parts classified as Mataura 1 and Mataura 2

Any discharge is to be substantially free from suspended solids, grease and oil

The daily maximum ambient water temperature shall not be increased by more than 3°C when the natural or existing water temperature is 16°C or less, as a result of any discharge. If the natural or existing water temperature is above 16°C, the natural or existing water temperature shall not be exceeded by more than 1°C as a result of any discharge.

The pH of the water must be within the range 6 to 9, except when due to natural causes

The waters must not be tainted so as to make them unpalatable, nor must they contain toxic substances to the extent that they are unsafe for consumption by humans or farm animals, nor must they emit objectionable odours

There shall be no bacterial or fungal slime growths visible to the naked eye as obvious plumose growths or mats. Note that this standard also applies to within the zone of reasonable mixing for a discharge.

There must not be any destruction of natural aquatic life by reason of a concentration of toxic substances

The natural colour and clarity of the waters must not be changed to a conspicuous extent

The oxygen concentration in solution in the waters must not be reduced below 5 milligrams per litre.

The concentration of faecal coliforms shall not exceed 1,000 coliforms per 100 millilitres, except for popular bathing sites, defined in Appendix K "Popular Bathing Sites" and within 1 km immediately upstream of these sites, where the concentration of Escherichia coli shall not exceed 130 E. coli per 100 millilitres.

Fish shall not be rendered unsuitable for human consumption by the presence of contaminants.

Table 1 "Ammonia standards for Lowland and Hill surface water bodies"

Total Ammoniacal Nitrogen in mg/m³ at different pH	
pH	**NH_4^+-N + NH_3-N mg/m³**
6.0	2570
6.1	2555
6.2	2540
6.3	2520
6.4	2490
6.5	2460
6.6	2430
6.7	2380

Total Ammoniacal Nitrogen in mg/m³ at different pH	
pH	**NH_4^+-N + NH_3-N mg/m³**
6.8	2330
6.9	2260
7.0	2180
7.1	2090
7.2	1990
7.3	1880
7.4	1750
7.5	1610
7.6	1470
7.7	1320
7.8	1180
7.9	1030
8.0	900
8.1	780
8.2	660
8.3	560
8.4	480
8.5	400
8.6	340
8.7	290
8.8	240
8.9	210
9.0	180

References

Australian and New Zealand Environment and Conservation Council 2000. *Australian and New Zealand guidelines for fresh and marine water quality.*

Burns, N., Bryers, G., and Bowman, E. 2000. *Protocol for monitoring trophic levels of New Zealand lakes and reservoirs.* Prepared for the Ministry for the Environment.

Stark, J.D., Boothroyd, I.K.G., Harding, J.S., Maxted, J.R. and Scarsbrook, M.R. 2001. *Protocols for sampling macroinvertebraes in wadeable streams. New Zealand Macroinvertebrate Working Group Report No. 1.* Prepared for the Ministry for the Environment.

H Groundwater Allocation

Groundwater Zone	Aquifer Type	Mean Annual LSR		Preliminary Allocation	
		mm/yr	m^3/year ($x10^6$)	% Mean annual LSR	m^3/year ($x10^6$)
Castlerock	Terrace	364	24.2	25	6.1
Cattle Flat	Riparian	396	9.7	25	2.4
Central Plains	Lowland	470	123.4	15	18.5
Edendale	Terrace	453	34.2	25	8.6
Five Rivers	Riparian	400	52.9	25	13.2
Knapdale	Lowland	254	20.8	15	3.1
Longridge	Terrace	166	7.3	25	1.8
Lower Aparima	Terrace	494	142.7	25	35.7
Lower Mataura	Lowland	476	165.5	15	24.8
Lower Ōreti	Lowland	368	138.1	15	20.7
Lower Waiau	Terrace	490	182.0	25	45.5
Makarewa	Lowland	436	327.1	15	49.1
Ōrepuki	Terrace	500	50.0	25	12.5
Ōreti	Riparian	257	15.5	25	3.9
Riversdale	Riparian	281	29.1	25	7.3
Te Anau	Terrace	489	255.8	25	64.0
Tiwai	Terrace	610	15.2	25	3.8
Upper Aparima	Terrace	417	185.9	25	46.5
Upper Mataura	Riparian	423	33.9	25	8.5
Waihōpai	Lowland	521	360.6	15	54.1
Waimatuku	Lowland	467	125.6	15	18.8
Waimea Plain	Lowland	239	60.2	15	9.0
Waipounamu	Riparian	205	6.6	25	1.6
Wendon	Riparian	205	8.3	25	2.1
Wendonside	Terrace	315	27.6	25	6.9
Whitestone	Riparian	459	10.5	25	2.6

This table does not show confined aquifers as it is unlikely to be known that an abstraction is from this aquifer type until hydrogeological information becomes available. Allocation is based on the aquifer throughflow. Environment Southland will provide advice in this situation.

This table also does not show fractured rock aquifers, or a source outside of the groundwater zones mentioned in the above table, as allocation from those areas are based on the rainfall recharge over the relevant land area where the water is to be used. Environment Southland will provide advice in this situation.

I Methods for Determining Minimum Flows and Levels[58]

Method 1 – Default Minimum Flow

A default minimum flow of the mean annual low flow applies where:

(i) the total volume of water allocated[59] from the relevant surface water body is less than 10 percent of the mean annual low flow at any downstream point in the catchment so estimated by the Southland Regional Council from measurements taken at that point; and
(ii) a minimum flow for the relevant surface water body is not specified in this Plan.

Method 2 – Minimum Flow derived from Generalised Habitat Models

A minimum flow can be derived from generalised habitat models where:

(i) the total volume of water allocated[5] from the relevant surface water body is less than 30 percent of the mean annual low flow at any downstream point in the catchment so estimated by the Southland Regional Council from measurements taken at that point; and
(ii) a minimum flow for the relevant surface water body is not specified in this Plan.

---

[58] The consents held for the Manapōuri Power Scheme have been through a process similar to that contained in Method 4 of Appendix I "Methods for determining minimum flows and levels" to determine an environmental flow regime for the Waiau River. While this flow regime will need to be reviewed at the time the current consents for the Manapōuri Power Scheme expire and new consents are applied for, the assessment of environmental effects included in the application for the current consents will be taken into account by the Council as far as it is relevant at that time.

The operating guidelines for Lakes Manapōuri and Te Anau referred to in Section 4A of the Manapōuri Te Anau Development Act 1963 set the lake levels in these lakes and are recognised in the current conditions of consent for the Manapōuri Power Scheme. It will therefore be unnecessary to carry out a minimum lake level assessment for Lakes Manapōuri and Te Anau using Method 5 of Appendix I "Methods for determining minimum flows and levels" at the time the current consents for the Manapōuri Power Scheme expire and new consents are applied for.

[59] The phrase "total volume of water allocated" includes the water that is allocated through current resource consents, the water that is proposed to be taken under consent applications that have been notified and the additional water proposed to be taken by the consent applicant. It also includes the stream depletion effect of each groundwater abstraction greater than 2 litres per second with a direct, high or moderate degree of hydraulic connection in accordance with Policy 29 "Stream Depletion Effects".

The process for deriving a minimum flow from generalised habitat models is as follows:

- **Step 1:** Determine the relevant surface water management unit and flow range using Water Quantity Maps 1 to 13 of Appendix D and Environment Southland flow data.

- **Step 2:** Determine the appropriate critical value from the data obtained in Step 1 using following table which shows critical values by surface water management unit and flow range:

Median flow	Surface water management unit		
	Lowland	**Hill/Mountain**	**Hill2 (Hokonui/Catlins)**
0 – 300 L/s	Diadromous galaxiid	Non-diadromous galaxiid	Diadromous galaxiids (low elevation) and non-diadromous galaxiids at higher elevations
300 – 750 L/s	Redfin/common bully	Trout spawning/juvenile rearing or non-diadromous galaxiid if trout excluded	Trout spawning/juvenile rearing or non-diadromous galaxiid if trout excluded Large adult trout
0.75 – 2.5 m^3/s	Trout spawning/juvenile rearing* Large adult trout	Trout spawning/juvenile rearing Large adult trout	Trout spawning/juvenile rearing
2.5 – 5 m^3/s	Trout spawning/juvenile rearing*	Large adult trout	Large adult trout
> 5 m^3/s	Large adult trout	Large adult trout	Large adult trout

- **Step 3:** Determine the level of habitat at the mean annual low flow using generalised habitat models for the critical value species (refer to *Review of methods for setting water quantity conditions in the Environment Southland draft Regional Water Plan, NIWA, June 2004*).

- **Step 4:** Determine the habitat maintenance level using the following table. The habitat maintenance level is based on retaining a percentage of the habitat at the mean annual low flow or a proportion of the maximum habitat if it occurs at a flow less than the mean annual low flow. The flow that corresponds to this habitat maintenance level is the minimum flow.

  Fishery quality will be assumed to be high unless agreed otherwise by key stakeholders such as the Department of Conservation, Fish and Game New Zealand and Te Ao Mārama. Similarly, the habitat retention level could be adjusted depending on the perceived values of the out-of-stream use in consultation with key stakeholders.

Critical value	Fishery quality	Significance ranking	% habitat retention
Large adult trout – perennial fishery	High	1	90
Diadromous galaxiid	High	1	90
Non-diadromous galaxiid	-	2	80
Trout spawning/juvenile rearing	High	3	70
Large adult trout – perennial fishery	Low	3	70
Diadromous galaxiid	Low	3	70
Trout spawning/juvenile rearing	Low	5	60
Redfin/common bully	-	5	60

Method 3 – Minimum Flow derived from Instream Habitat Anaysis

A minimum flow can be derived from a detailed site instream habitat analysis where a minimum flow for the relevant surface water body is not specified in this Plan.

The process for deriving a minimum flow from instream habitat analysis is the same as the process for deriving a minimum flow from generalised habitat models outlined in Steps 1 to 4 above except Step 3 of this process should be replaced with the following:

- **Step 3:** Determine the level of habitat at the Mean Annual Low Flow using detailed instream habitat analysis for the critical value species (refer to *Review of methods for setting water quantity conditions in the Environment Southland draft Regional Water Plan, NIWA, June 2004*).

Method 4 – Minimum flow for abstractions or diversions from the supplementary allocation

The minimum flow for any abstraction or diversion from the supplementary allocation is the natural mean flow.

Method 5 – Minimum level for abstractions and diversions from surface water bodies other than rivers or streams

The minimum water level for any abstraction or diversion from a surface water body other than a river or stream (i.e. a lake, wetland or backwater) will be determined on a case-by-case basis having regard to:

(i) the water level needed to sustain the minimum flows in any downstream point in the catchment; and
(ii) the relevant policies of this Plan, particularly those matters set out in Policy 16 "Environmental flow and level regimes".

J Water Conservation Orders

Water Conservation (Mataura River) Order 1997

SR 1997/126

PURSUANT to sections 214 and 423 of the Resource Management Act 1991, His Excellency the Governor-General, acting by and with the advice and consent of the Executive Council, and on the recommendation of the Minister for the Environment made in accordance with the report of the Environment Court following an inquiry by that Court, makes the following order.

ANALYSIS
(List of Sections)

1. Title and commencement

2. Interpretation

3. Outstanding features

4. Rates of flow in Mataura River and Waikaia River

5. General provisions relating to water permits, discharge permits, and regional plans

6. Water permit to dam not to be granted, etc

7. Provisions relating to discharges

8. Scope of this order

ORDERS

1. Title and commencement—

   (1) This order may be cited as the Water Conservation (Mataura River) Order 1997.
   (2) This order comes into force on the 28th day after the date of its notification in the Gazette.

2. Interpretation—

   In this order, unless the context otherwise requires,—
   "Act" means the Resource Management Act 1991:
   "Authorised inflows" means discharges of water or water containing waste into protected waters pursuant to a discharge permit:

"Protected waters" means—

(a) The Mataura River from its source (approximate map reference NZMS 260 E42:502333) to its confluence with the sea (approximate map reference NZMS 260 F47:877946); and

(b) The Waikaia River and its tributaries, the Ōtamita Stream, and all other tributaries of the Mataura River upstream of its confluence with the Ōtamita Stream (approximate map reference NZMS 260 F45:881582); and

(c) The Mimihau Stream and the Mokoreta River and each of their tributaries.

3. Outstanding features—

It is declared that the protected waters include outstanding fisheries and angling amenity features.

4. Rates of flow in Mataura River and Waikaia River—

(1) Because of the outstanding features specified in clause 3, the rates of flow in the Mataura River and in the Waikaia River must not be reduced, by the grant or exercise of water permits, below the minimum rate of flow specified in subclauses (2) and (3).

(2) The minimum rate of flow at any point in the Mataura River and the Waikaia River above the Mataura Island Road Bridge (approximate map reference NZMS 260 F46:850158), where the flow is estimated by the Southland Regional Council from measurements taken at that point, must be 95% of—

(a) The flow so estimated by the Southland Regional Council at that point; plus

(b) Water taken in accordance with the Act from the protected waters upstream of that point and not returned to the protected waters—

less authorised inflows upstream of that point which did not have their source in the protected waters.

(3) The minimum rate of flow at any point in the Mataura River below the Mataura Island Road Bridge (approximate map reference NZMS 260 F46:850158), where the flow is estimated by the Southland Regional Council from measurements taken at that point, must be 90% of—

(a) The flow so estimated by the Southland Regional Council at that point; plus

(b) Water taken in accordance with the Act from the protected waters upstream of that point and not returned to the protected waters—

less authorised inflows upstream of that point which did not have their source in the protected waters.

5. General provisions relating to water permits, discharge permits, and regional plans—

(1) A water permit or a discharge permit must not be granted under Part 6 of the Act and a regional plan must not be made under Part 5 of the Act in respect of any part of the protected waters if such a permit or plan would contravene the provisions of this order.

(2) The prohibitions in subclause (1) do not apply to water permits or discharge permits granted or regional plans made in respect of any

part of the protected waters for all or any of the following purposes:

(a) Research into, and enhancement of, fisheries and wildlife habitats:

(b) The construction, maintenance, or protection of roads, bridges, pylons, and other necessary public utilities:

(c) Soil conservation and river protection and other activities undertaken pursuant to the Soil Conservation and Rivers Control Act 1941:

(d) Stock water and stock-water reservoirs.

6. Water permit to dam not to be granted, etc—

(1) A permit to dam the Mataura River from its source to the sea and the Waikaia River from its source to its confluence with the Mataura River must not be granted under Part 6 of the Act.

(2) A permit to dam any tributary of the Waikaia River or the Mataura River which forms part of the protected waters must not be granted under Part 6 of the Act if the dam would harm salmonid fish-spawning or prevent the passage of salmonid fish.

(3) The prohibition in subclause (1) does not apply to water permits in respect of the weir at approximate map reference NZMS 260 F46:912385 if the water permits are granted or renewed subject to similar terms and conditions to which the former permits were subject.

7. Provisions relating to discharges—

(1) A discharge permit must not be granted and a regional plan must not be made for any discharge into the protected waters if the effect of the discharge would be to breach the following provisions and standards:

(a) Any discharge is to be substantially free from suspended solids, grease, and oil:

(b) After allowing for reasonable mixing of the discharge with the receiving water in that part of the protected waters between map references NZMS 260 F45:967503 to F45:963508 (Mataura River),—

(i) The natural water temperature must not be changed by more than 3 degrees Celsius:

(ii) The acidity or alkalinity of the waters as measured by the pH must be within the range of 6.0 to 8.5, except when due to natural causes:

(iii) The waters must not be tainted so as to make them unpalatable, nor must they contain toxic substances to the extent that they are unsafe for consumption by humans or farm animals, nor must they emit objectionable odours:

(iv) There must not be any destruction of natural aquatic life by reason of a concentration of toxic substances:

(v) The natural colour and clarity of the waters must not be changed to a conspicuous extent:

(vi) The oxygen content in solution in the waters must not be reduced below 6 milligrams per litre:

(vii) Based on not fewer than 5 samples taken over not more than a 30-day period, the median value of the faecal coliform bacteria content of the water must

not exceed 2000 per 100 millilitres and the median value of the total coliform bacteria content of the water must not exceed 10000 per 100 millilitres:

(c) After allowing for reasonable mixing of the discharge with the receiving water in that part of the protected waters between map references—

(i) NZMS 260 F45:894581 to F45:885584 (Mataura River); and

(ii) NZMS 260 F46:917391 to F46:924396 (Mataura River),—

(A) The natural water temperature must not be changed by more than 3 degrees Celsius:

(B) The acidity or alkalinity of the waters as measured by the pH must be within the range of 6.5 to 8.3, except when due to natural causes:

(C) The waters must not be tainted so as to make them unpalatable, nor must they contain toxic substances to the extent that they are unsafe for consumption by humans or farm animals, nor must they emit objectionable odours:

(D) There must not be any destruction of natural aquatic life by reason of a concentration of toxic substances:

(E) The natural colour and clarity of the waters must not be changed to a conspicuous extent:

(F) The oxygen content in solution in the waters must not be reduced below 6 milligrams per litre:

(G) Based on not fewer than 5 samples taken over not more than a 30-day period, the median value of the faecal coliform bacteria content of the waters must not exceed 200 per 100 millilitres:

(d) After allowing for a reasonable mixing of the discharge with the receiving waters in those parts of the protected waters other than the parts specified in paragraphs (b) and (c),—

(i) The natural water temperature must not be changed by more than 3 degrees Celsius:

(ii) The acidity or alkalinity of the waters as measured by the pH must be within the range of 6.0 or 9.0, except when due to natural causes:

(iii) The waters must not be tainted so as to make them unpalatable, nor must they contain toxic substances to the extent that they are unsafe for consumption by humans or farm animals, nor must they emit objectionable odours:

(iv) There must not be any destruction of natural aquatic life by reason of a concentration of toxic substances:

(v) The natural colour and clarity of the waters must not be changed to a conspicuous extent:

(vi) The oxygen content in solution in the waters must not be reduced below 5 milligrams per litre.

(2) Where it is impracticable, because of emergency overflows or the carrying out of maintenance work or any other temporary situation, to require compliance with the relevant provisions of

subclause (1), water permits and discharge permits may be granted by the Southland Regional Council.

8. Scope of this order—

Nothing in this order limits the effect of section 14(3)(b) and (e) of the Act relating to the use of water for domestic needs, for the needs of animals, or for fire-fighting purposes.

MARIE SHROFF,
Clerk of the Executive Council.

EXPLANATORY NOTE
This note is not part of the order, but is intended to indicate its general effect.

This order declares that the Mataura River and the Waikaia River and various other rivers, streams, and tributaries include outstanding fisheries and angling amenity features.

The order includes various provisions to preserve and protect these features.

Issued under the authority of the Acts and Regulations Publication Act 1989.

Date of notification in Gazette: 10 July 1997.

This order is administered in the Ministry for the Environment.

Water Conservation (Oreti River) Order 2008

Issue 127-5744

ANAND SATYANAND, Governor-General

ORDER IN COUNCIL

At Wellington this 4th day of August 2008

Present:

HIS EXCELLENCY THE GOVERNOR-GENERAL
PRESIDING IN COUNCIL

Pursuant to Section 214 of the Resource Management Act 1991, His Excellency the Governor-General, acting on the advice and with the consent of the Executive Council, makes the following Order.

Order

1. **Title**—This order is the Water Conservation (Oreti River) Order 2008.

2. **Commencement**—This order comes into force 28 days after the date of its notification in the *New Zealand Gazette*.

3. **Interpretation**—In this order, unless the context otherwise requires:
"Act" means the Resource Management Act 1991
"damming" means the impounding of all or part of the natural flow of any water that may involve an associated temporary or permanent structure
"river" means the main stem of those waters identified in the Schedules to this order. The main stem shall be the river with that name on NZMS260 series topographical maps between specified lower and upper river limits as defined by map references in Schedules to this Order
"tributaries" means all the tributaries of rivers or sections of rivers identified in Schedules to this order.

4. **Outstanding characteristics**—The waters specified in Schedules 1 and 2 include or contribute to, to the extent identified in Schedule 2, the following outstanding characteristics, features, and values:
(a) habitat for brown trout;
(b) angling amenity;
(c) habitat for black-billed gulls;
(d) significance in accordance with tikanga Māori.

5. **Waters to be protected**—Because of the outstanding characteristics, features, and values identified in clause 4, the waters specified in Schedule 1 are to be protected in accordance with the relevant conditions in clauses 7 to 9 as specified in Schedule 1.

6. **Waters to be protected as contributing to outstanding features**—Because of their contribution to outstanding characteristics and features identified in clause 4, the waters specified in Schedule 2 are to be protected in accordance with clause 8 to the extent specified in those clauses and in Schedule 2.

7. **Restriction on damming of waters**—Subject to clauses 10 and 11, no water permit may be granted or rule included in a regional plan authorising the damming of waters specified in item 1 of Schedule 1.

8. **Requirement to maintain fish passage**—Subject to clauses 10 and 11, no water permit may be granted or rule included in a regional plan relating to the waters specified in Schedule 1 and item 1 of Schedule 2 authorising an activity that will adversely affect the passage of fish.

9. **Restriction on the alteration of water quality**—Subject to clauses 10 and 11, no discharge permit may be granted or rule included in a regional plan authorising a discharge into any of the waters specified in item 1 of Schedule 1 that will result in a reduction of water quality beyond the zone of reasonable mixing.

10. **Scope of order**—
    (1) This order does not limit sections 14(3)(b) and (e) of the Act relating to the use of water for an individual's reasonable domestic needs, or for the reasonable needs of an individual's animals for drinking water, or taken or used for fire-fighting purposes.
    (2) This order does not restrict or prevent the grant of resource consents for the purpose of:
        (a) research into, and protection or enhancement of, fisheries and wildlife habitats; or
        (b) the construction, removal, maintenance or protection of any road, ford or bridge, or the maintenance or protection of any network utility operation (as defined in section 166 of the Act); or
        (c) the construction and maintenance of soil conservation and river protection works undertaken pursuant to the Soil Conservation and Rivers Control Act 1941; or
        (d) the protection of human or animal health.

11. **Exemptions**—Nothing in this order prevents the grant of a discharge or water permit that would otherwise contravene conditions set out in clauses 7, 8 and 9 if:
    (a) a consent authority is satisfied that:
        (i) there are exceptional circumstances justifying the grant of a permit; or
        (ii) the permit is for an activity that is of a temporary nature; or
        (iii) the permit is for an activity that is associated with necessary construction and maintenance work; and
    (b) the exercise of any such resource consent would not compromise the protection of the outstanding characteristics and features identified for the waters specified in the Schedules.

Schedule 1
Clauses 5, 7, 8 and 9
Protected waters with outstanding characteristics

Item	Waters	Outstanding Characteristics or Features	Conditions to Apply
1	Oreti River main stem at Rocky Point at NZMS 260 E44373946 upstream to the forks at	Habitat for brown trout Angling amenity Value in accordance	Prohibit damming (Clause 7) Maintenance of fish passage (Clause 8)

Item	Waters	Outstanding Characteristics or Features	Conditions to Apply
	E42 345 450	with tikanga Māori	Maintenance of water quality (Clause 9)
2	Weydon Burn, Windley River and all other tributaries upstream of the Oreti River at E43 305210 near Lincoln Hill	Habitat for brown trout	Maintenance of fish passage (Clause 8)

Schedule 2

Clauses 6 and 8

Waters to be protected for their contribution to outstanding features

Item	Waters	Outstanding Characteristics or Contribution to Outstanding Features	Conditions to Apply
1	Oreti River downstream of Rocky Point at E44 373946 to the Wallacetown Bridge at E46 455208	Habitat for brown trout Habitat for black-billed gull	Maintain fish passage (Clause 8)
2	Groundwater hydraulically connected to the surface water of the Oreti River from Rocky Point at E44 373946 upstream to the forks at E42 345450	Habitat for brown trout Angling amenity Value in accordance with tikanga Maori	

MICHAEL WEBSTER,
for Clerk of the Executive Council.

EXPLANATORY NOTE
This note is not part of the order, but is intended to indicate its general effect.

This order declares that the Oreti River and various other rivers, streams, and tributaries include outstanding fisheries and angling amenity features.

The order includes various provisions to preserve and protect these features.

Issued under the authority of the Acts and Regulations Publication Act 1989.

Date of notification in Gazette: 14 August 2008.

This order is administered in the Ministry for the Environment.

Oreti Catchment

N
Not to scale

Topographic and Cadastral information sourced from LINZ
Crown Copyright Reserved

K Popular Bathing Sites

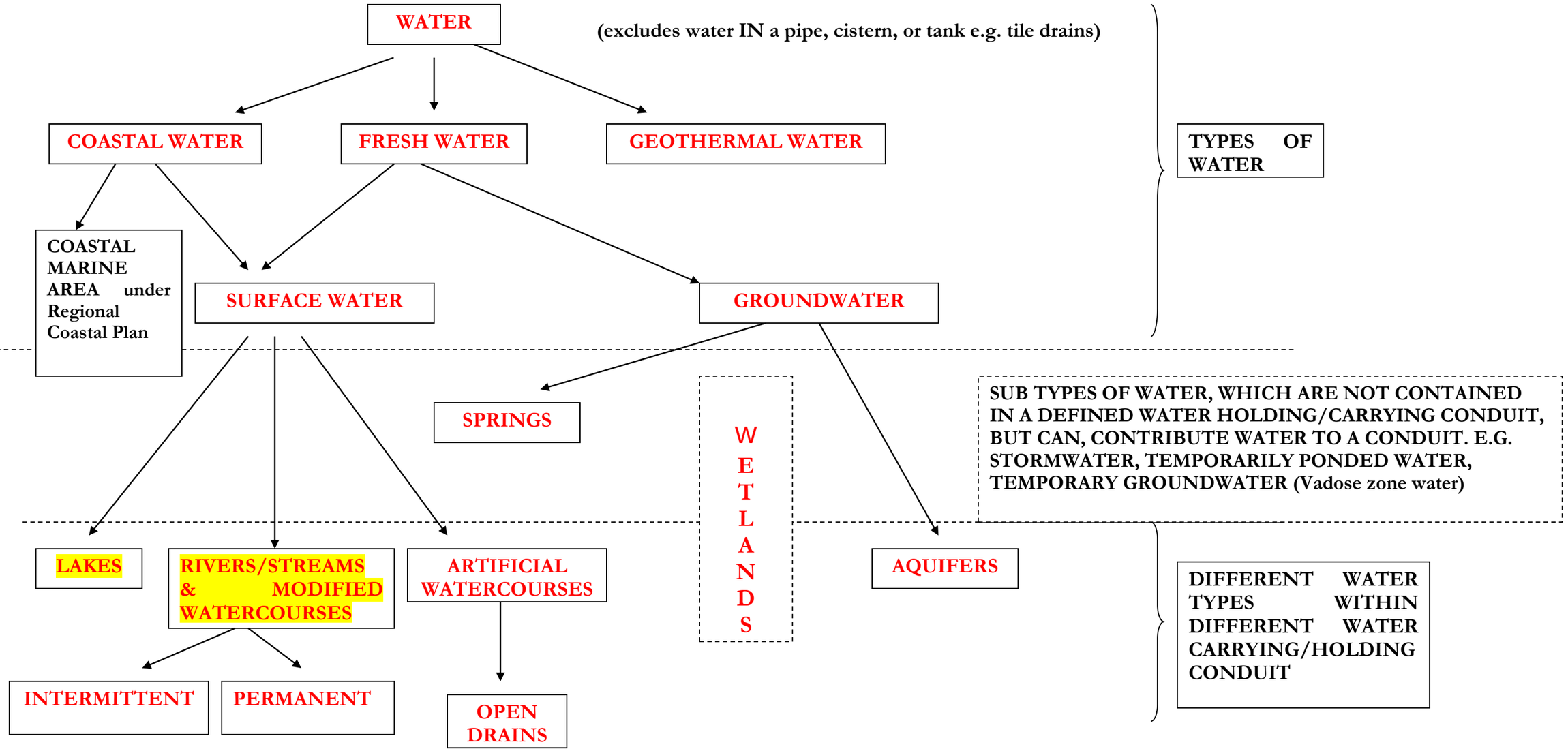
Each of the following sites encompasses the waters immediately under the relevant bridge and 100 metres upstream and downstream of the bridge:

- Ōreti River at Winton Bridge
- Ōreti River at Wallacetown Bridge
- Mataura River at Gore Bridge
- Aparima River at Thornbury Bridge
- Waiau River at Tuatapere Bridge
- Waikaia River at Waikaia Bridge

The following sites listed are considered indicative of popular bathing sites although they are not found within Southland's lowland, hill and spring-fed water bodies. These sites are monitored each month for contact recreation standards:

- Mararoa River at Mavora Lake – classified as mountain
- Waikaia River at Piano Flat – classified under the Mataura classification

L Water Terminology Framework



Scope of water, which can be controlled under a Water Plan

XX = water which can be controlled by a regional council for the purposes of water quality and quantity
XX = water CONDUITS in the form of lakes and rivers (including streams and modified watercourses) which can be controlled for the purposes of water quality and quantity, disturbance of beds and banks, use, placement of structures and introduction of plants.

NOTE

The framework or "genealogy" above provides the basis for the terms used in the Regional Fresh Water Plan for Southland. The framework has been developed to ensure plan users can be confident that when a term is used in the plan they can understand what types of water, and in what conduits, are being controlled.

M Natural State Waters Outside National Parks

Table 1 "Natural State Waters outside National Parks"

Area name	DOC Code	DOC land status	Exclusions – refers to any waters on specified DOC managed land not to be managed as NS (all other waters on specified DOC land to be managed as NS)
Borland Mire	RASI	Scientific Reserve	
Burwood (Red Tussock)	RASI	Scientific Reserve	Excludes headwaters of Weydon Burn and Wash Creek
Dean Forest	CAST	Stewardship Land	Excludes tributaries within Motu Bush.
Eweburn, Lake Te Anau	CAST	Stewardship Land	
Eyre Mountains Taka Ra Haka Conservation Park	CACP	Conservation Park	Excludes Mataura catchment.
Halfmoon Bay	CAST	Stewardship Land	Excludes Little River Catchment.
Hokonui Forest	CAST	Stewardship Land	Excludes tributaries of Makarewa River & Hedgehope Stream but includes Dunsdale Stream.
Lake George	RAGP	Government Purpose Reserve	Excludes tributaries flowing into Lake George
Lillburn Valley Road	CAST	Stewardship Land	
Lindsay Ecological Area	CAEA	Ecological Area	Excludes Masson Creek East Branch but includes Masson Creek West Branch
Longwood Forest	CAST	Stewardship Land	Excludes areas within the Conservation Area near Pourakino Stream and small tributary of Aparima.
Mavora Park	CAST	Stewardship Land	
Mccolgan Fhf	CAST	Stewardship Land	
Paddock Hill	CAST	Stewardship Land	
Pyke Forest	CAST	Stewardship Land	
Rowallan Forest	CAST	Stewardship Land	
Seaward Moss	CAST	Stewardship Land	
Snowdon Forest	CAST	Stewardship Land	
Stewart Island Forest	CAST	Stewardship Land	Excludes Little River Catchment.

Area name	DOC Code	DOC land status	Exclusions – refers to any waters on specified DOC managed land not to be managed as NS (all other waters on specified DOC land to be managed as NS)
Takitimu Conservation Area	CAST	Stewardship Land	
Te Anau Downs	CAST	Stewardship Land	
Te Anau Downs, Henry Creek	CAST	Stewardship Land	
The Cone Forest	CAST	Stewardship Land	
Tiwai Spit	CAST	Stewardship Land	Excludes surface water on land to the west of a straight line drawn on the edge of the main eastern Tiwai North South aligned Boundary and groundwater within the Tiwai groundwater zone.
Toetoes	CAST	Stewardship Land	Excludes two tributaries that flow into Mataura River.
Upper McLeod's Conservation Area	CAST	Stewardship Land	Excludes headwaters to the Ōreti River that do not adjoin Snowden Forest
Woodlaw Forest	CAST	Stewardship Land	

CAST = Stewardship Area – s.25 Conservation Act 1987
CAEA = Ecological Area – s.21 Conservation Act 1987
NPNP = National Park – s.4 National Parks Act 1980
RAGP = Government Purpose Reserve – s.22 Reserves Act 1977
RASI = Scientific Reserve – s.21 Reserves Act 1977
CACP = Conservation Park – s19 Conservation Act 1987

N Accidental Discovery Protocol

In recognition of the legal requirements under the Historic Places Act 1993 there is a requirement to notify the New Zealand Historic Places Trust (NZHPT) when archaeological sites (including Kōiwi finds) are disturbed without authorisation being obtained.

This Accidental Discovery Protocol outlines steps to be taken in the event of discovery of:

- Kōiwi (human skeletal remains)
- Taonga or artefacts;
- In-situ (natural state) pounamu/greenstone

1. Kōiwi accidental discovery

   If Kōiwi (human skeletal remains) are discovered, then work shall stop immediately and Te Ao Mārama Inc. (Ngāi Tahu (Murihiku) Resource Management Consultants) and the NZHPT will be advised. The New Zealand Police also need to be notified.

   Te Ao Marama Inc and/or the NZHPT will arrange a site inspection by the appropriate tangata whenua and their advisers, including statutory agencies, who will determine whether the discovery is likely to be extensive and whether a thorough site investigation is required.

   Once the required advice and authorisations have been obtained, materials discovered will be handled and removed by Iwi responsible for the tikanga appropriate to their removal or preservation.

2. Taonga or artefact accidental discovery

   If taonga or artefact material (Maori, European or Chinese e.g. pounamu/greenstone artefacts, glass, pottery, building foundations) other than Kōiwi is discovered the following steps shall be taken:-

   (i) All activity affecting the immediate area shall cease and the Regional Archaeologist of the NZHPT shall be notified. If any archaeological remains or sites of interest to Maori are identified, Te Ao Marama Inc (Ngai Tahu (Murihiku) Resource Management Consultants) shall also be advised.

   (ii) Steps shall be taken to secure the site and ensure that archaeological matter remains undisturbed.

   (iii) No further modification of those remains shall occur until the NZHPT and Te Ao Marama Inc has been consulted and an appropriate response advised. An archaeological authority

from the NZHPT may be required before work can proceed.

Contact details for Te Ao Marama Inc are:

Te Ao Marama Inc
PO Box 7078
408 Tramway Rd
Invercargill, 9812
Phone: (03)-929 6032

Contact details for the NZHPT Regional Archaeologist for Otago/Southland are:

Regional Archaeologist Otago/Southland
NZ Historic Places Trust
P O Box 5467
Dunedin
Ph. +64 3 477 9871
Fax. +64 3 477 3893

If the Regional Archaeologist is not contactable, please try:

Senior Archaeologist or Archaeologist
NZ Historic Places Trust
Antrim House
63 Boulcott Street, Wellington 6011
P O Box 2629
Wellington 6140
Ph. +64 4 472 4341
Fax. + 64 4 499 0669

3. In-situ (natural state) pounamu/greenstone accidental discovery

Pursuant to the Ngāi Tahu (Pounamu Vesting) Act 1997, all natural state pounamu/greenstone in the Ngāi Tahu tribal area is owned by Te Rūnanga o Ngāi Tahu. The Ngāi Tahu Pounamu Resource Management Plan provides for the following measures:

- Any in-situ (natural state) pounamu/greenstone accidentally discovered should be reported to the Pounamu Protection Officer of Te Rūnanga o Ngāi Tahu as soon as is reasonably practicable. The Pounamu Protection Officer of Te Rūnanga o Ngāi Tahu will in turn contact the appropriate Kaitiaki Rūnanga Papatipu.
- In the event that the finder considers the pounamu is at immediate risk of loss such as erosion, animal damage to the site or theft, the pounamu/greenstone should be carefully covered over and/or relocated to the nearest safe ground. The find should then be notified immediately to the Pounamu Protection Officer.

Contact details for the Pounamu Protection Officer are as follows:

Te Rūnanga o Ngāi Tahu
Level 7, Te Waipounamu House
158 Hereford Street
P O Box 13-046
OTAUTAHI/CHRISTCHURCH

Phone: (03) 366 4344
Fax: (03) 365 4424
Web: www.ngaitahu.iwi.nz
Pounamu Protection Officer
Kaiwhakarite Tiaki Pounamu
Te Rūnanga o Ngāi Tahu

Water Classification Maps

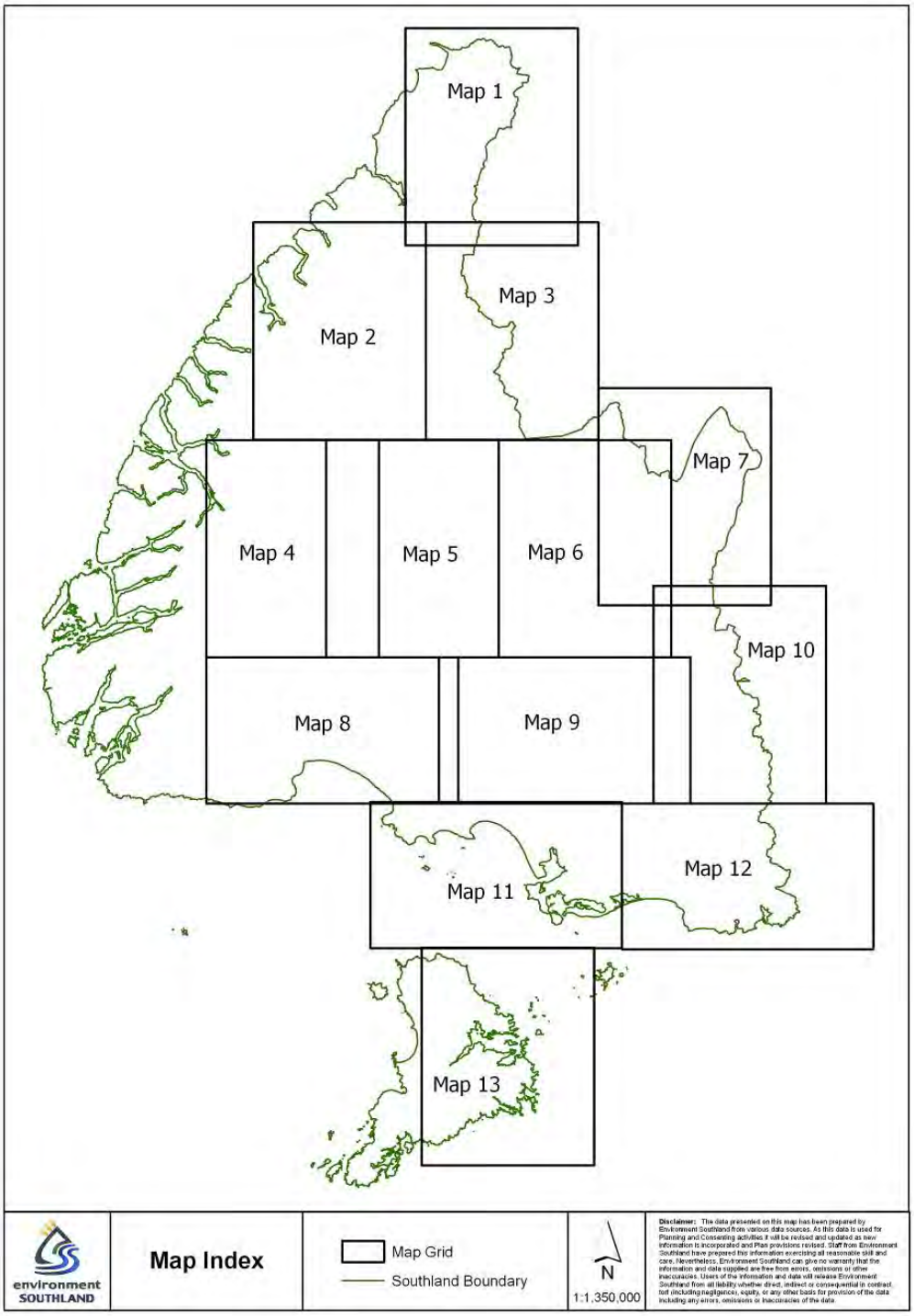
Water Plan Map Index

Legend

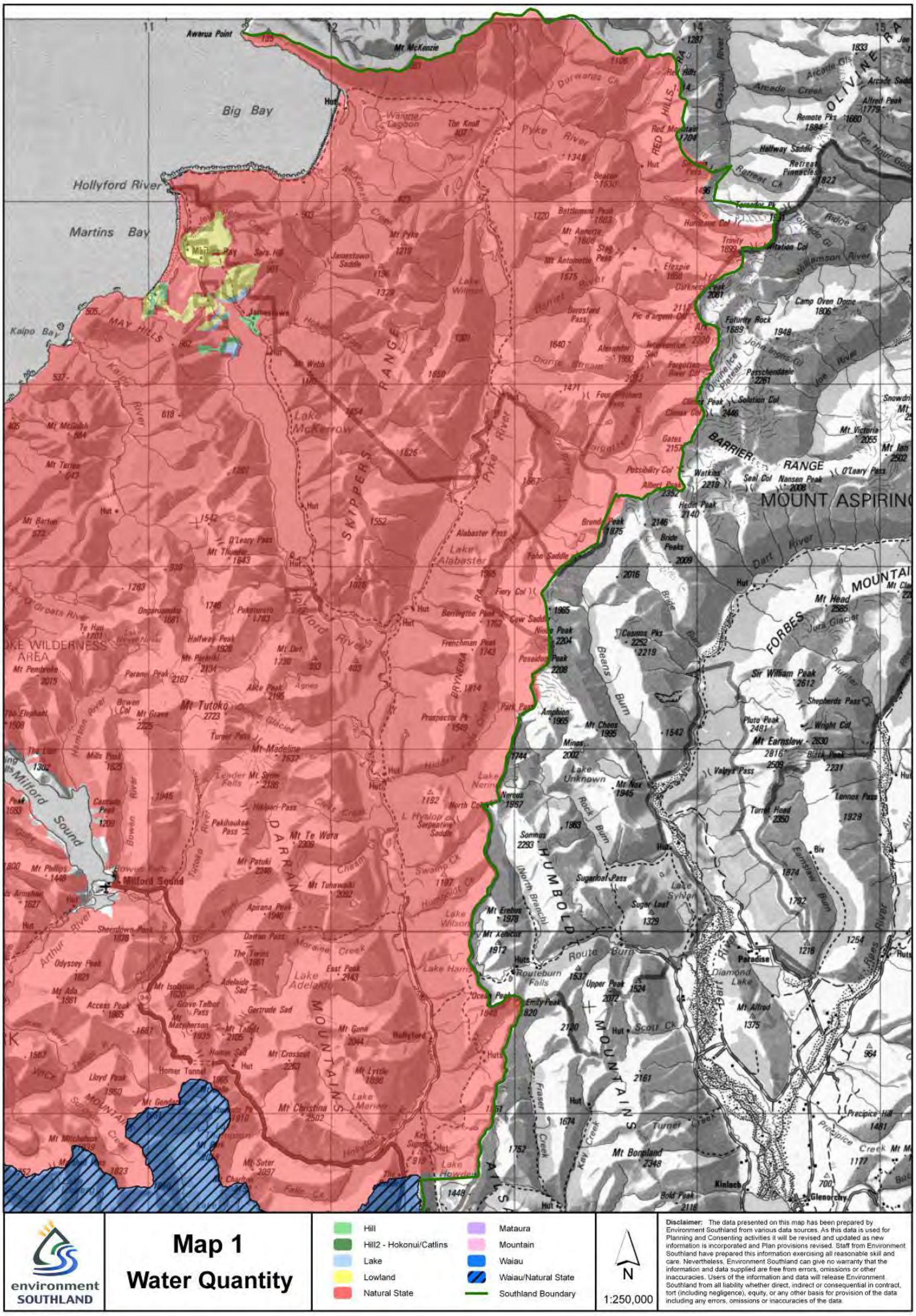
Water Quantity	**Maps 1 to 13 and Map of Southland Region**
Water Quality	**Maps 1 to 13 and Map of Southland Region**
Groundwater	**Maps 1 to 3**
Soil/Landscape Categories for Farm Dairy Effluent Management	**Map 1**

Interactive maps with a "zoom in" function are available on the Environment Southland website – www.es.govt.nz.

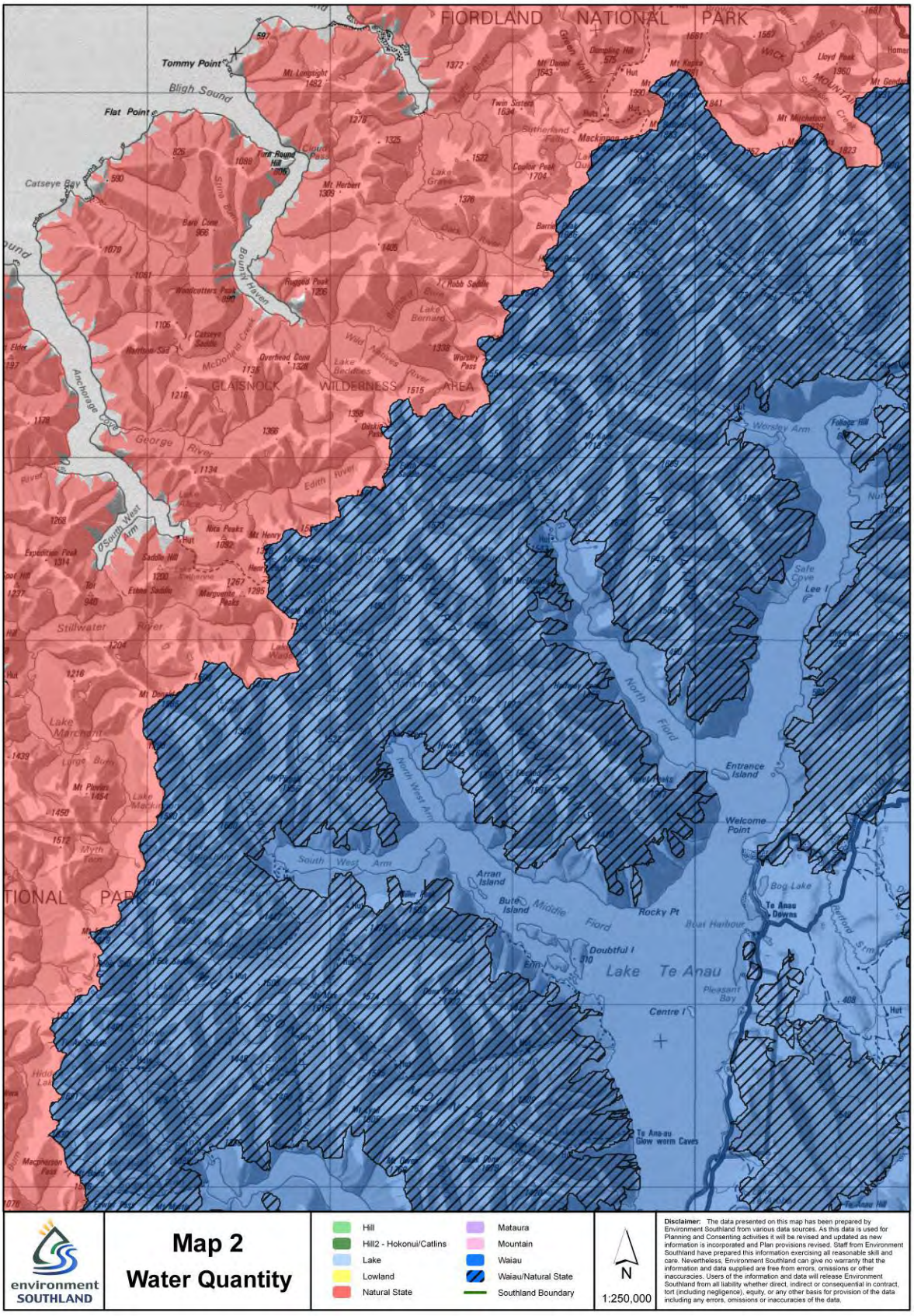
More detailed maps are also available upon request from Environment Southland's offices.


Map 1
Map 2
Map 3
Map 4
Map 5
Map 6
Map 7
Map 8
Map 9
Map 10
Map 11
Map 12
Map 13
environment SOUTHLAND
Map Index
Map Grid
Southland Boundary
N
1:1,350,000
Disclaimer: The data presented on this map has been prepared by Environment Southland from various data sources. As this data is used for Planning and Consenting activities it will be revised and updated as new information is incorporated and Plan provisions revised. Staff from Environment Southland have prepared this information exercising all reasonable skill and care. Nevertheless, Environment Southland can give no warranty that the information and data supplied are free from errors, omissions or other inaccuracies. Users of the information and data will release Environment Southland from all liability whether direct, indirect or consequential in contract, tort (including negligence), equity, or any other basis for provision of the data including any errors, omissions or inaccuracies of the data.

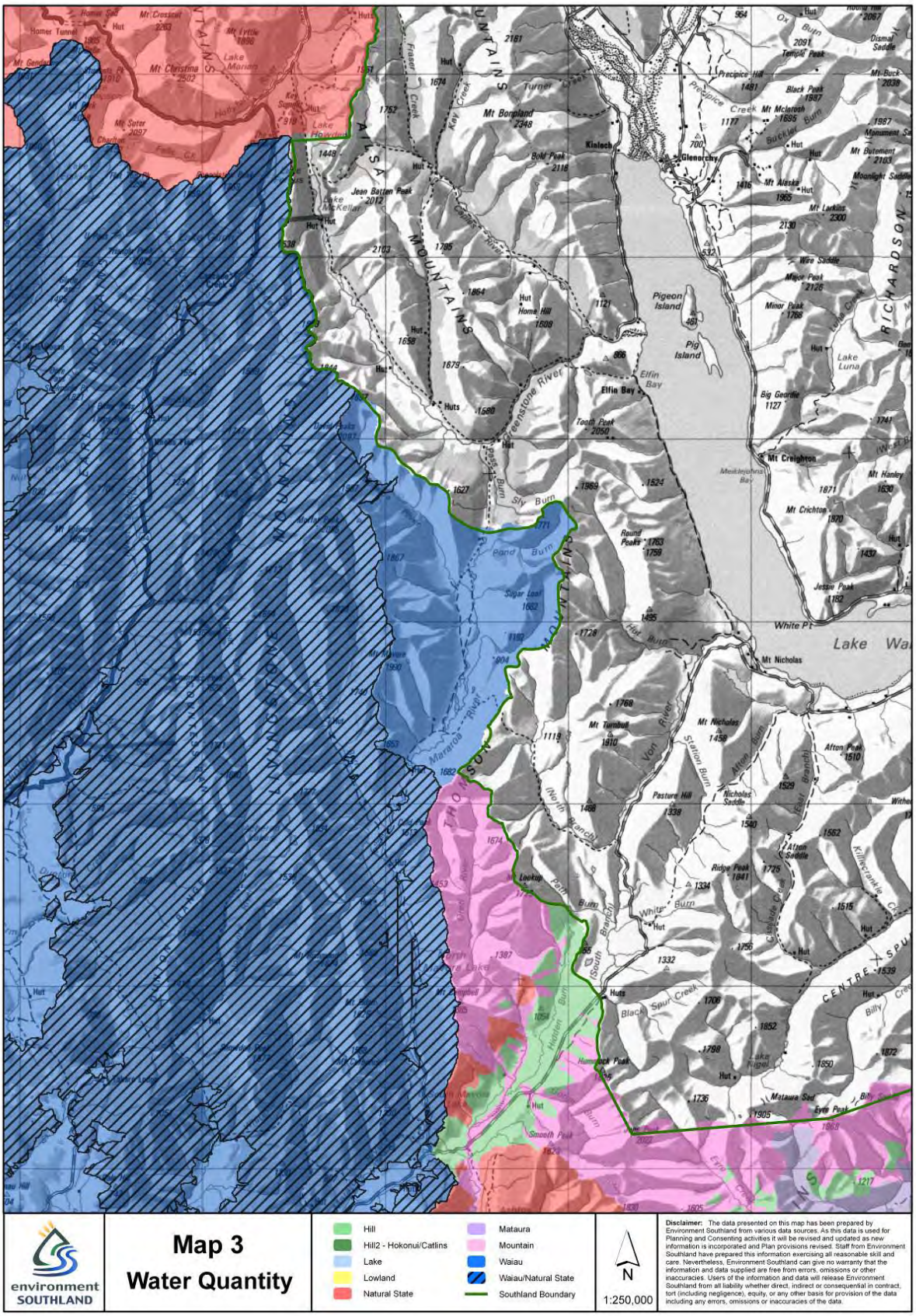

Water Quantity
Hill
Hill2 - Hokonui/Catlins
Lake
Lowland
Natural State
Mataura
Mountain
Waiau
Waiau/Natural State
Southland Boundary
Water Quality
Hill
Hill lakes and wetlands
Mountain lakes and wetlands
Lowland/Coastal lakes and wetlands
Lowland hard bed
Lowland soft bed
Mataura 1
Mataura 2
Mataura 3
Mountain
Lake fed
Natural State
Spring fed
Southland Boundary



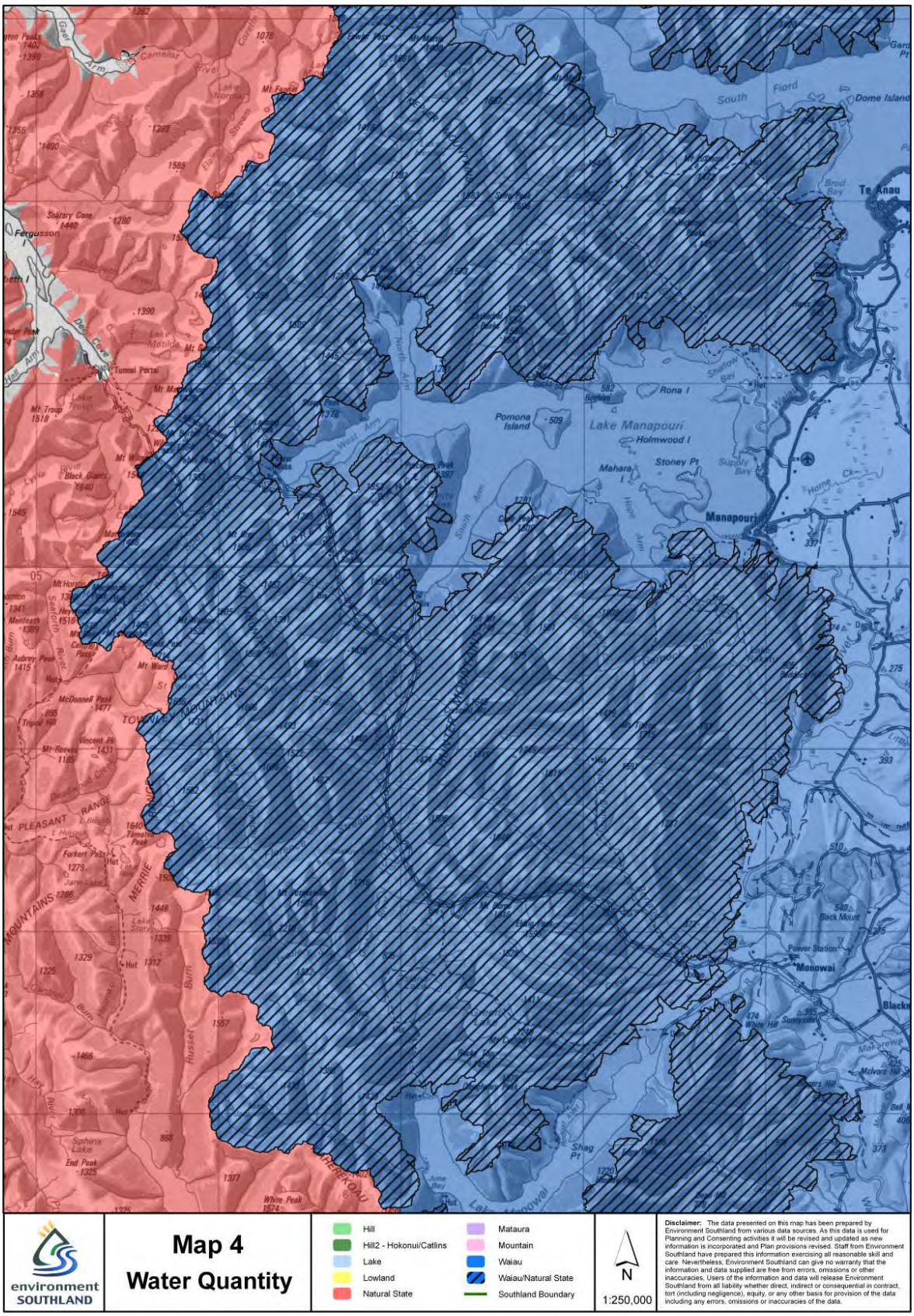
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



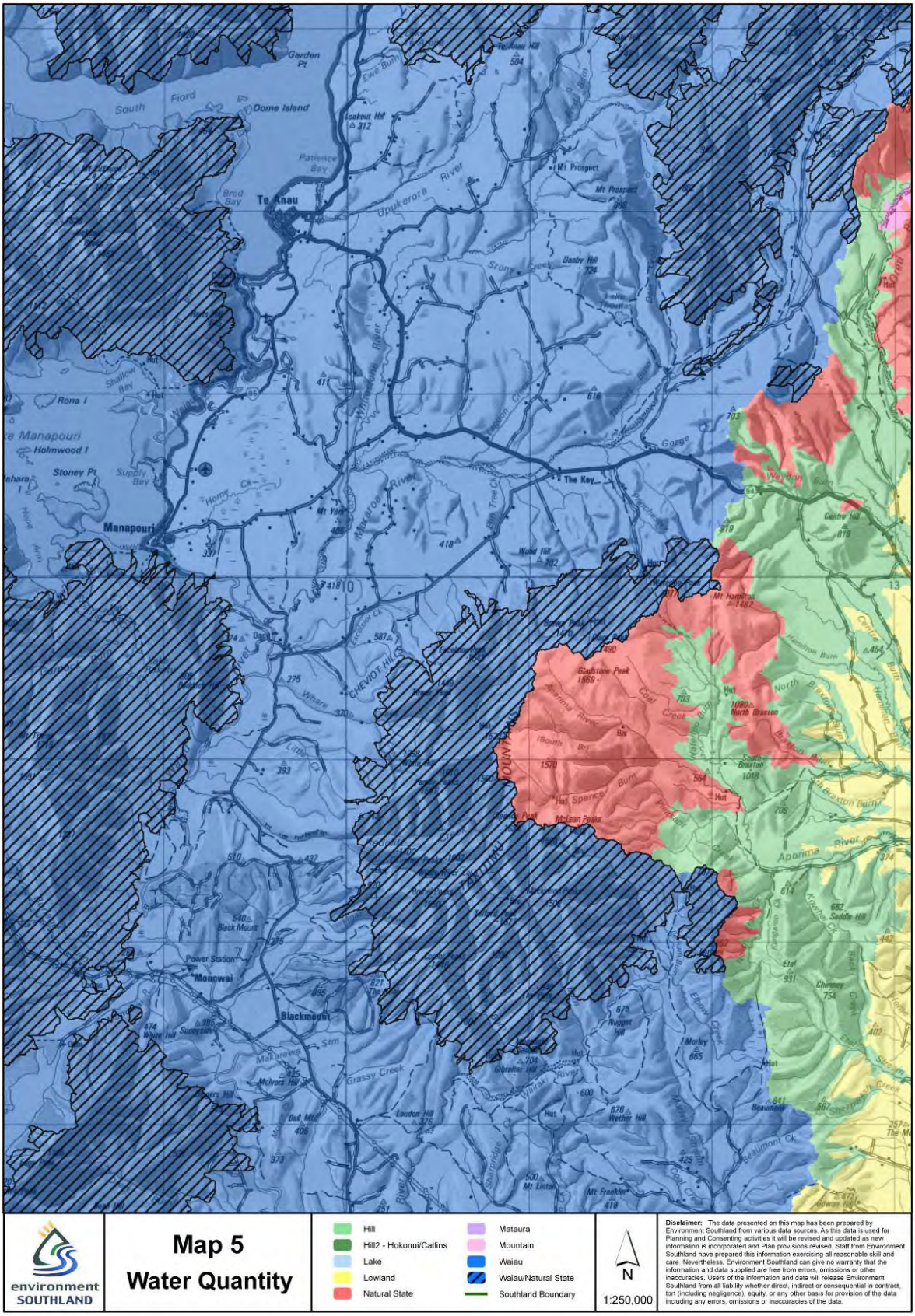
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



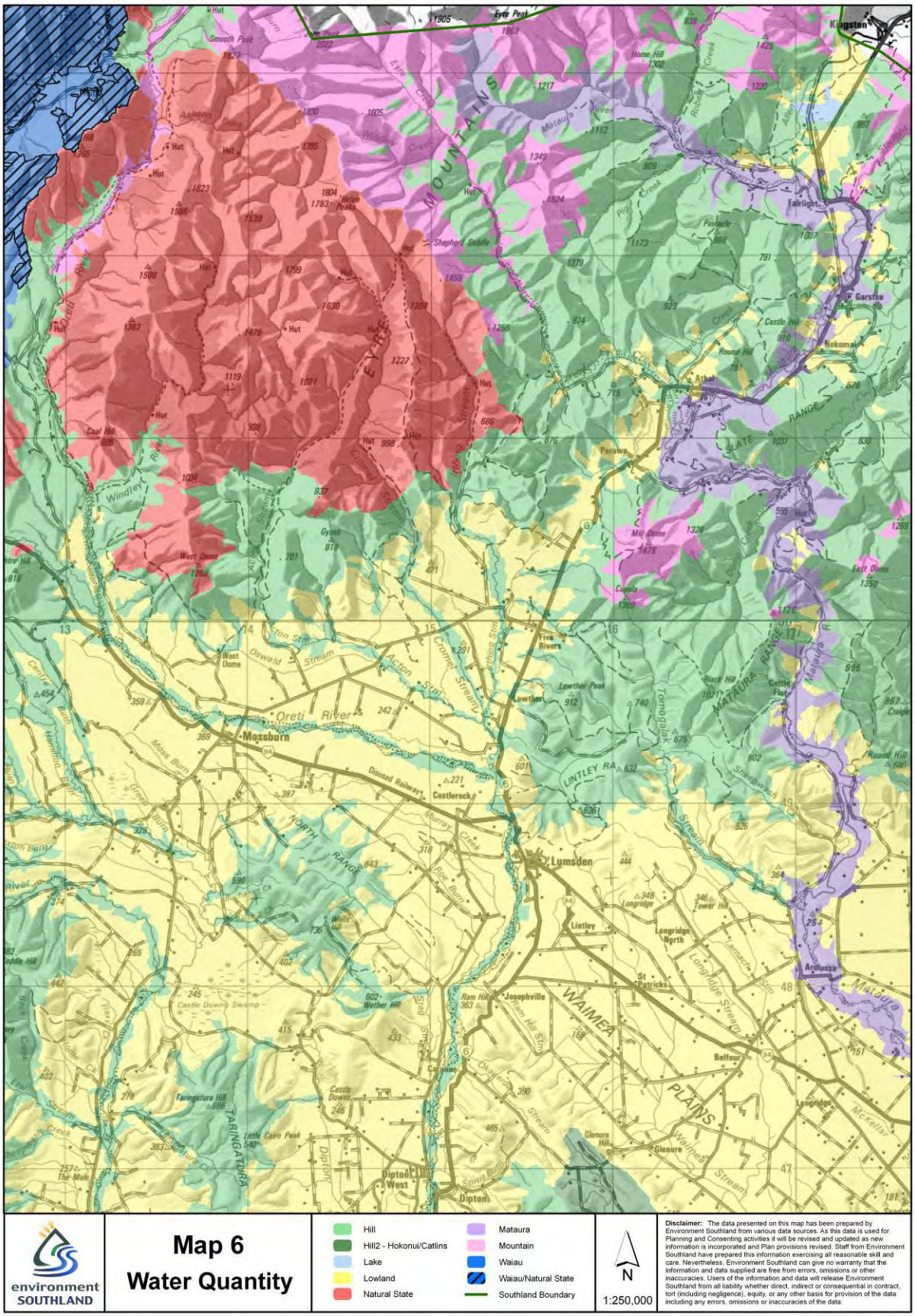
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



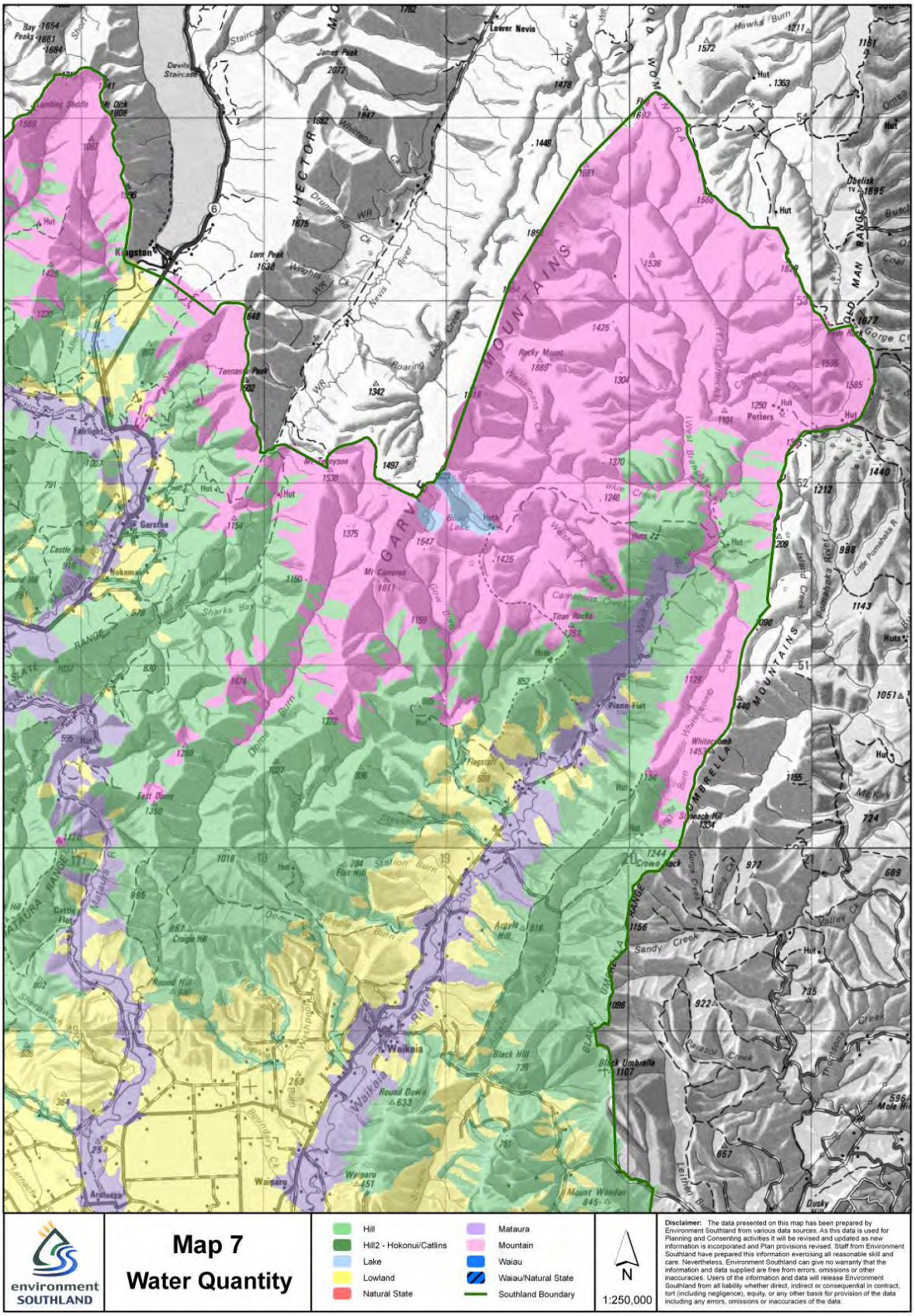
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



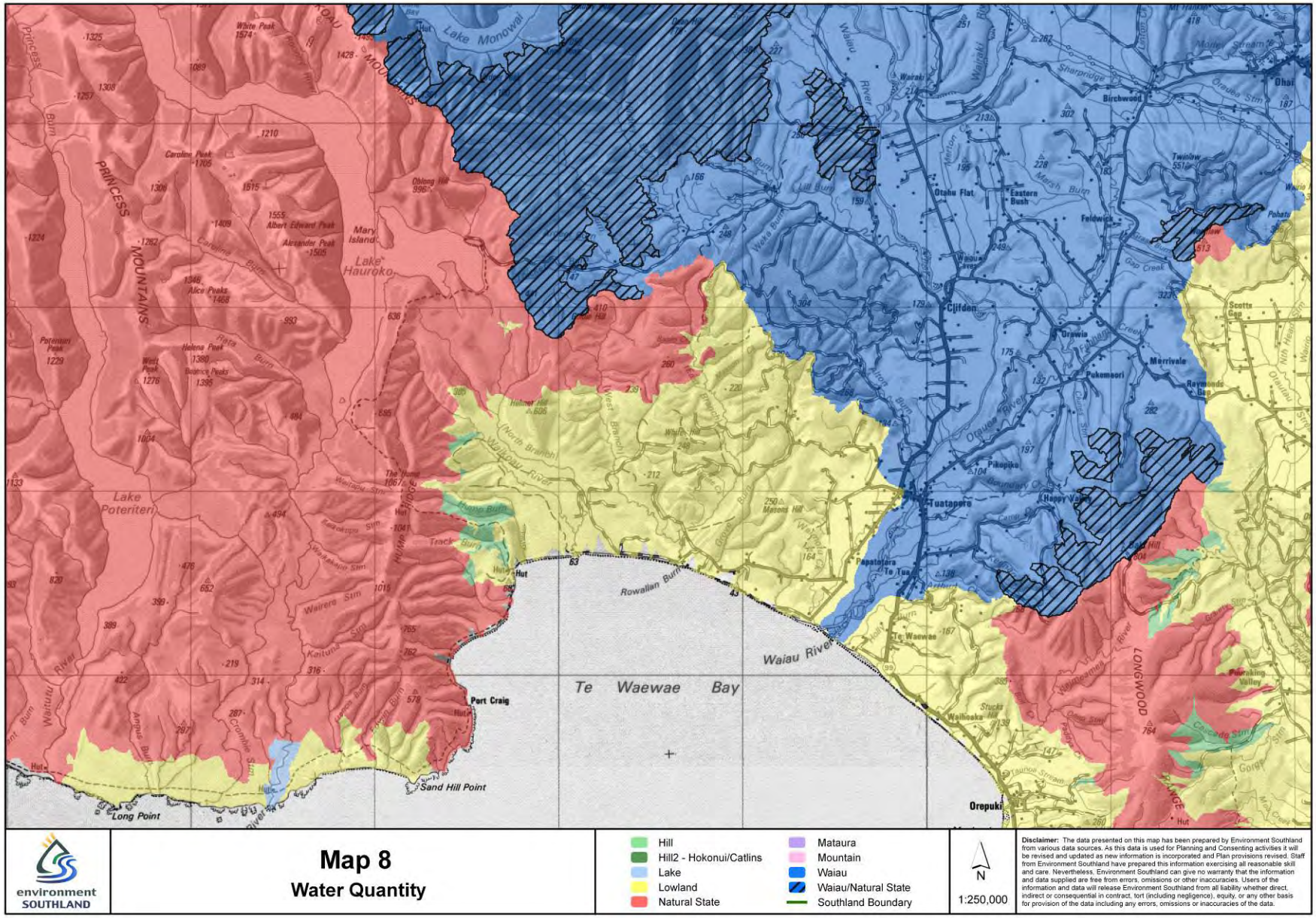
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



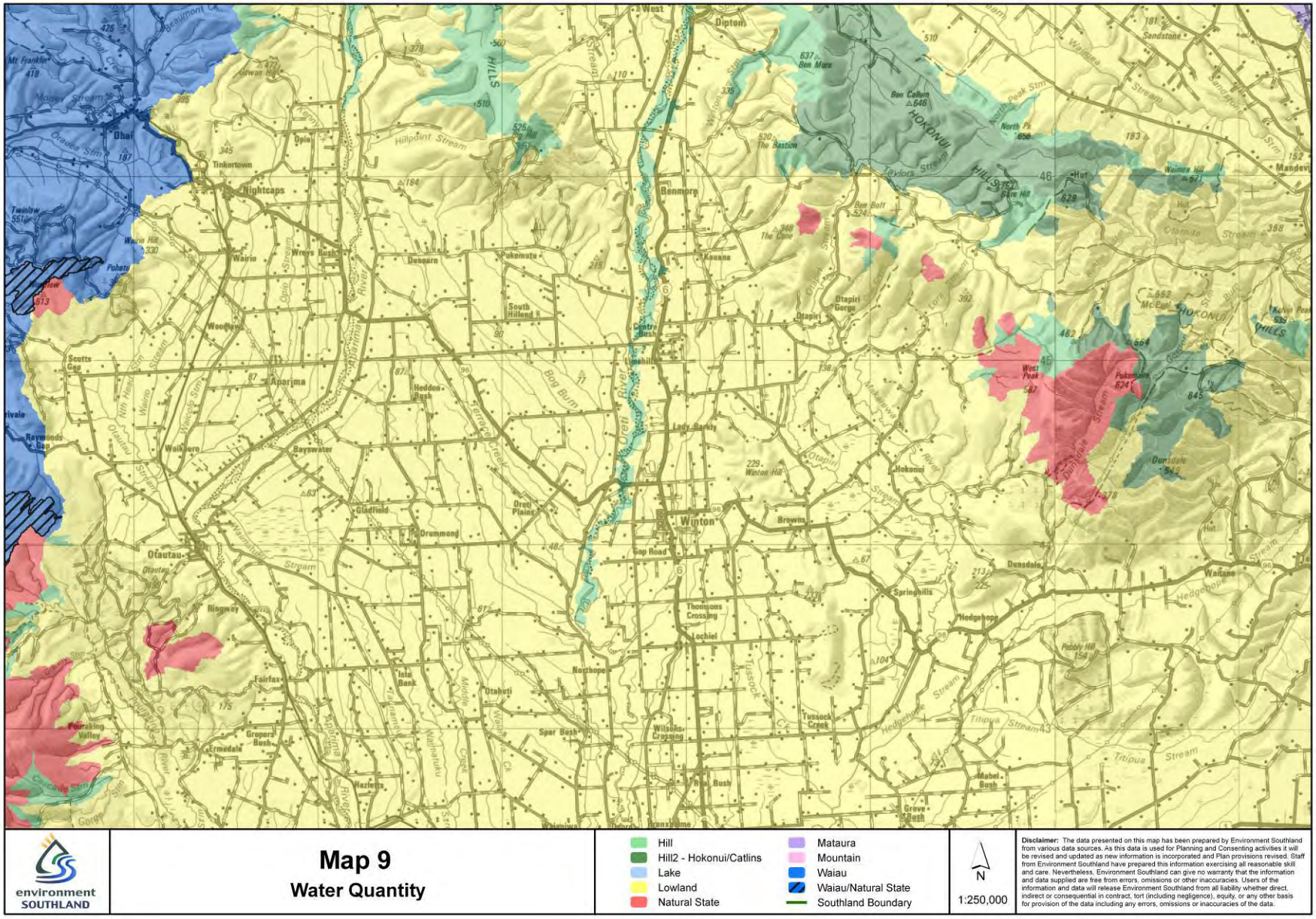
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



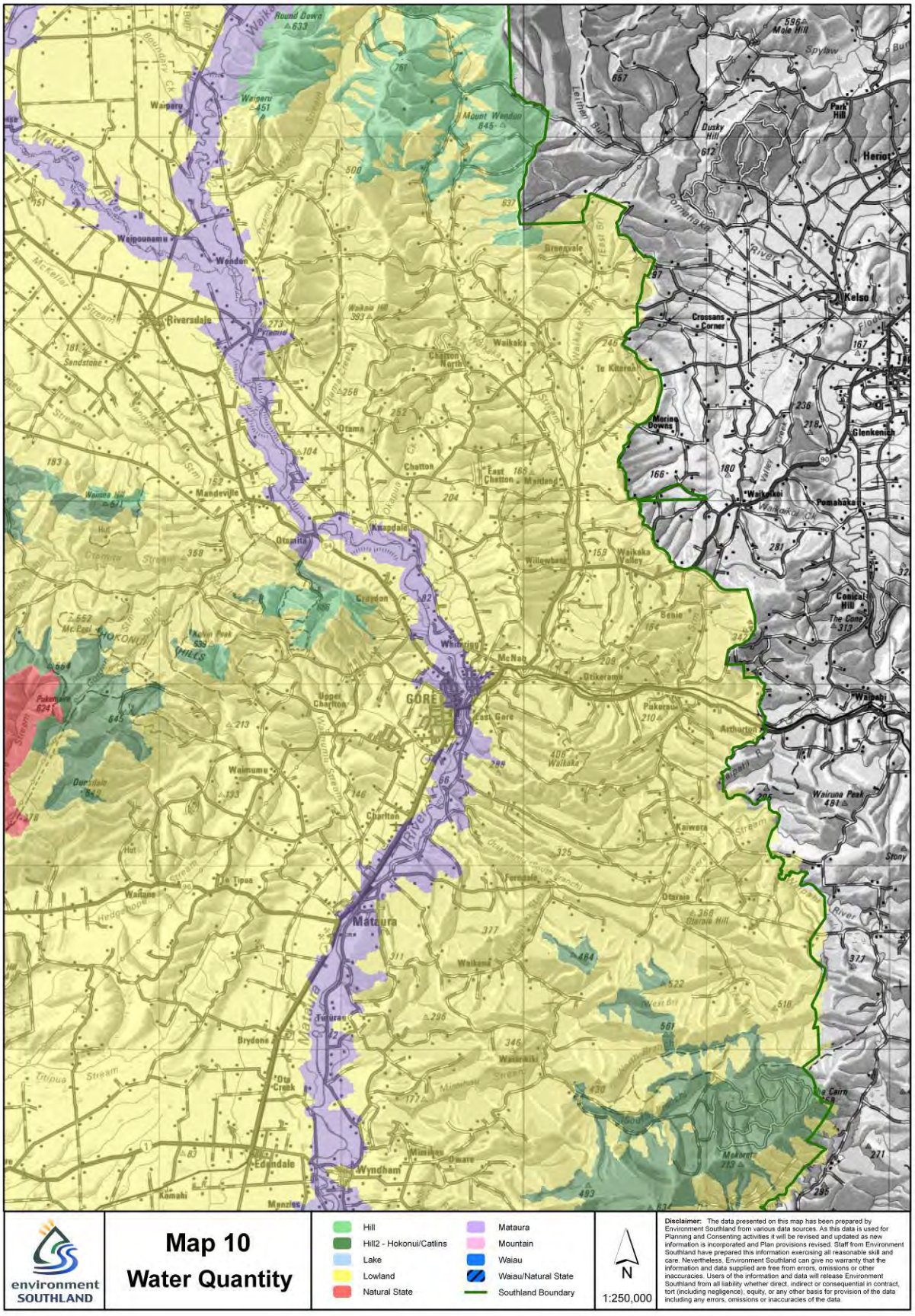
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



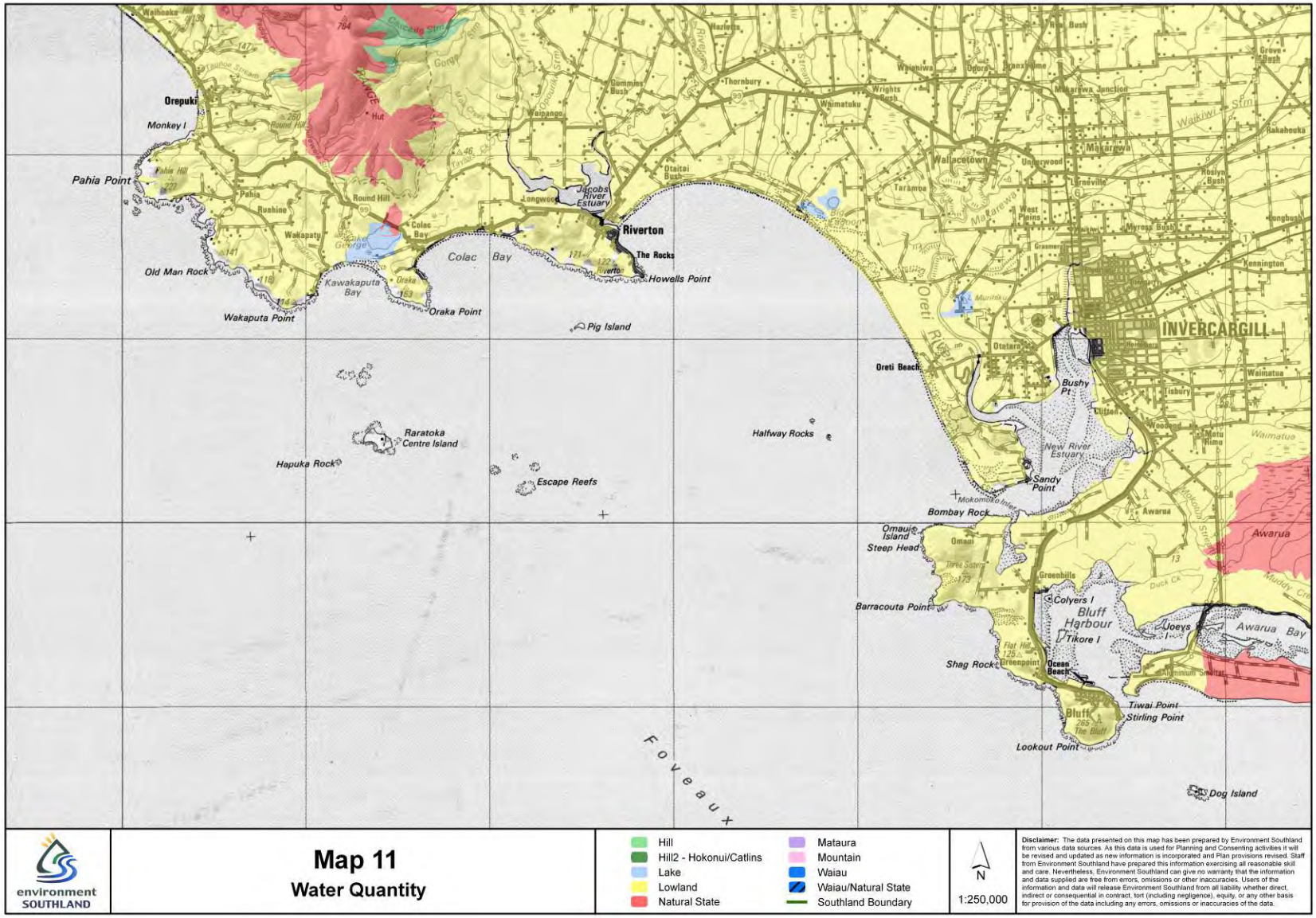
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



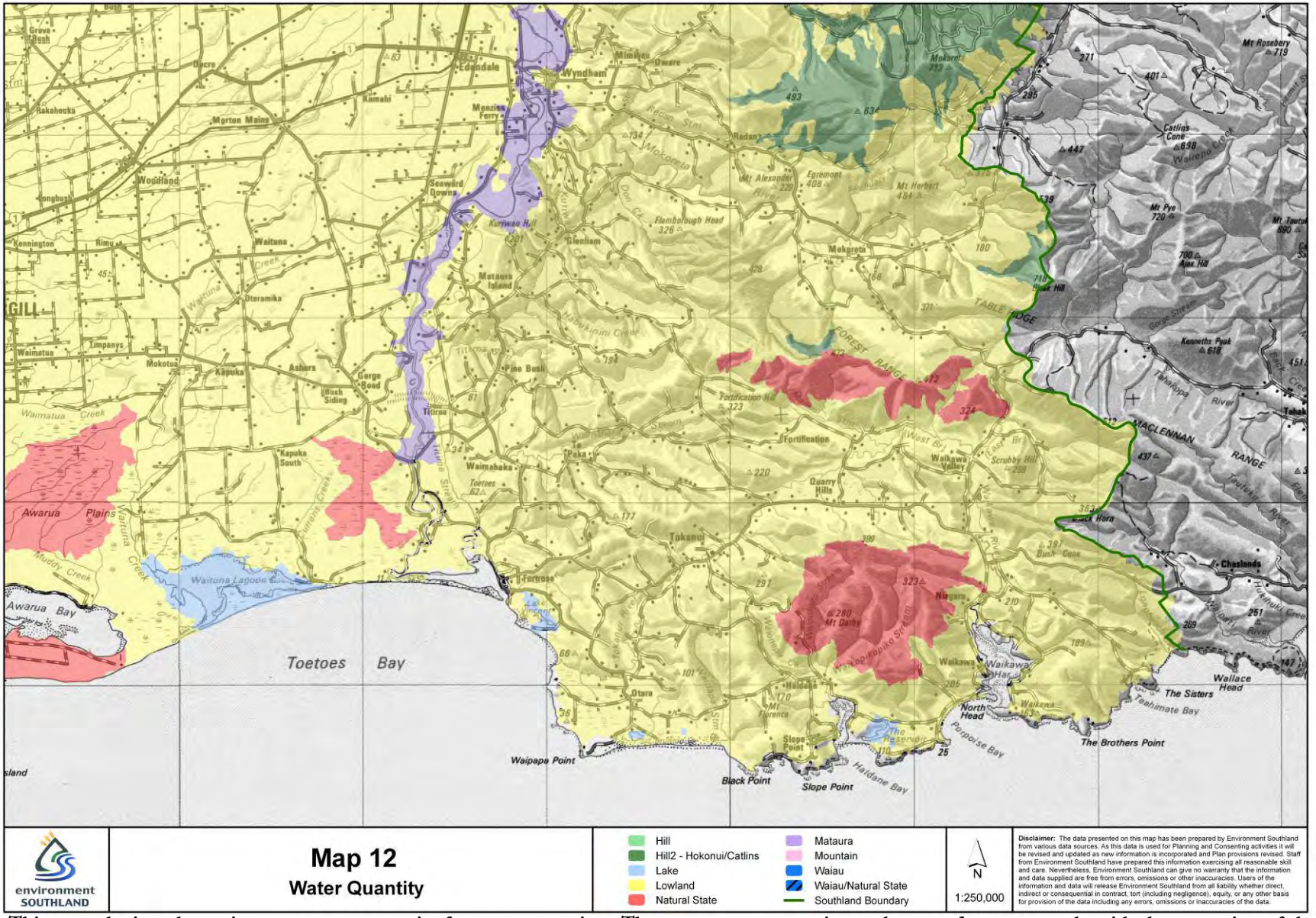
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



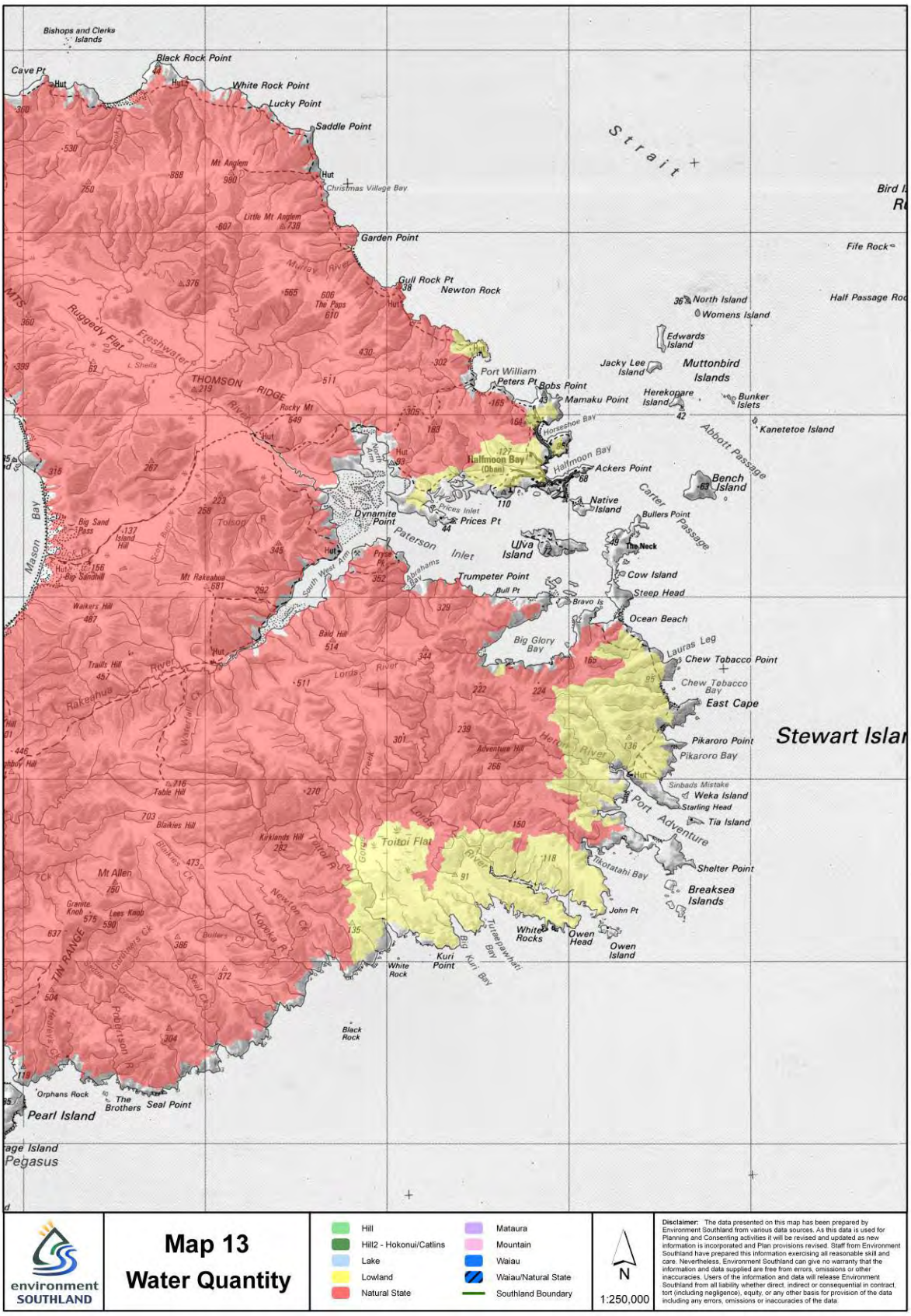
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



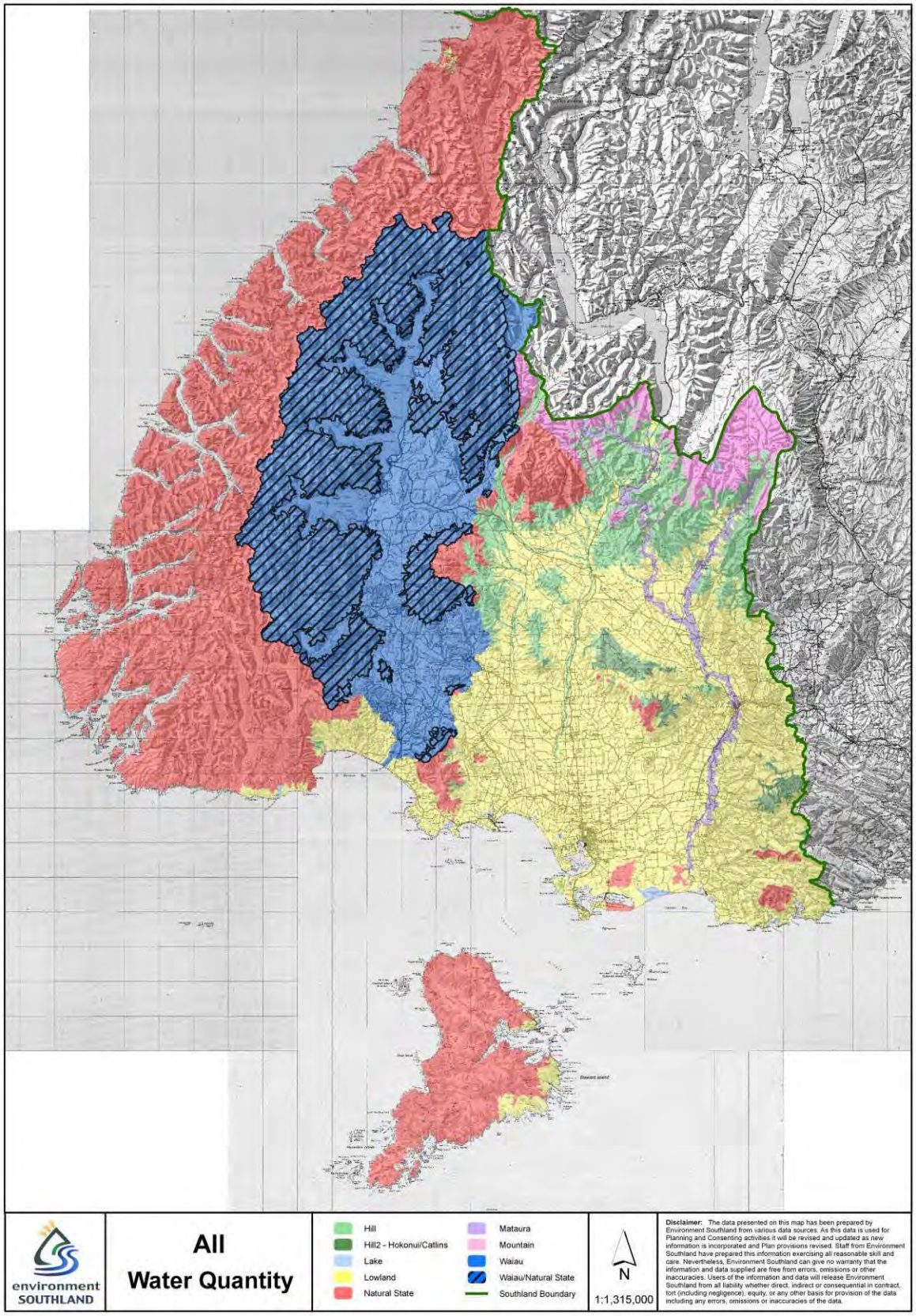
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded) from the management unit. In particular, while the surface water at the eastern end of the Tiwai Peninsula is included within the Natural State management unit, none of the groundwater within the Tiwai groundwater zone is included within the Natural State management unit due to the long term use of groundwater in that zone for the supply of water for industrial purposes.



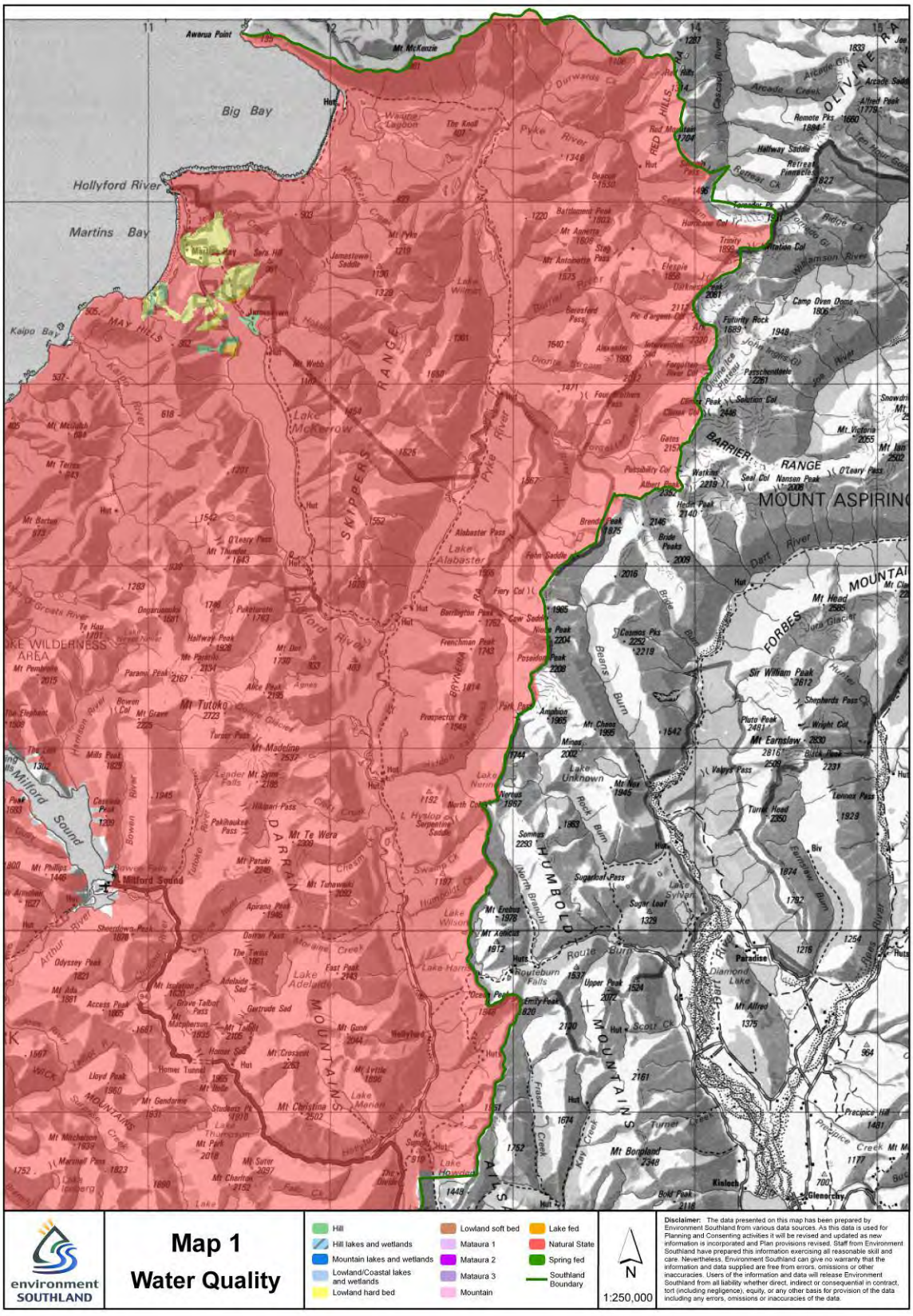
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded) from the management unit. In particular, while the surface water at the eastern end of the Tiwai Peninsula is included within the Natural State management unit, none of the groundwater within the Tiwai groundwater zone is included within the Natural State management unit due to the long term use of groundwater in that zone for the supply of water for industrial purposes.



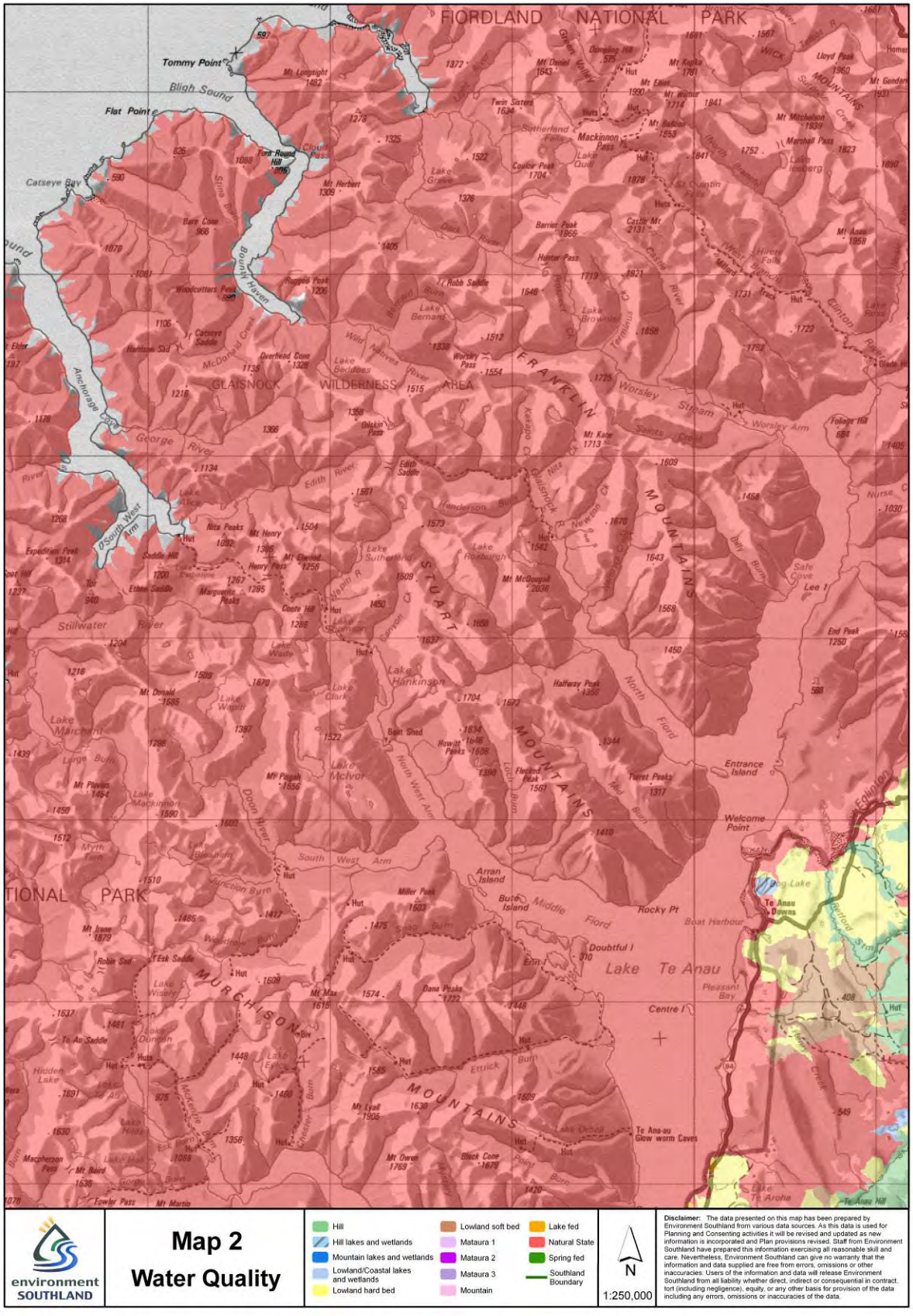
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) this management unit.



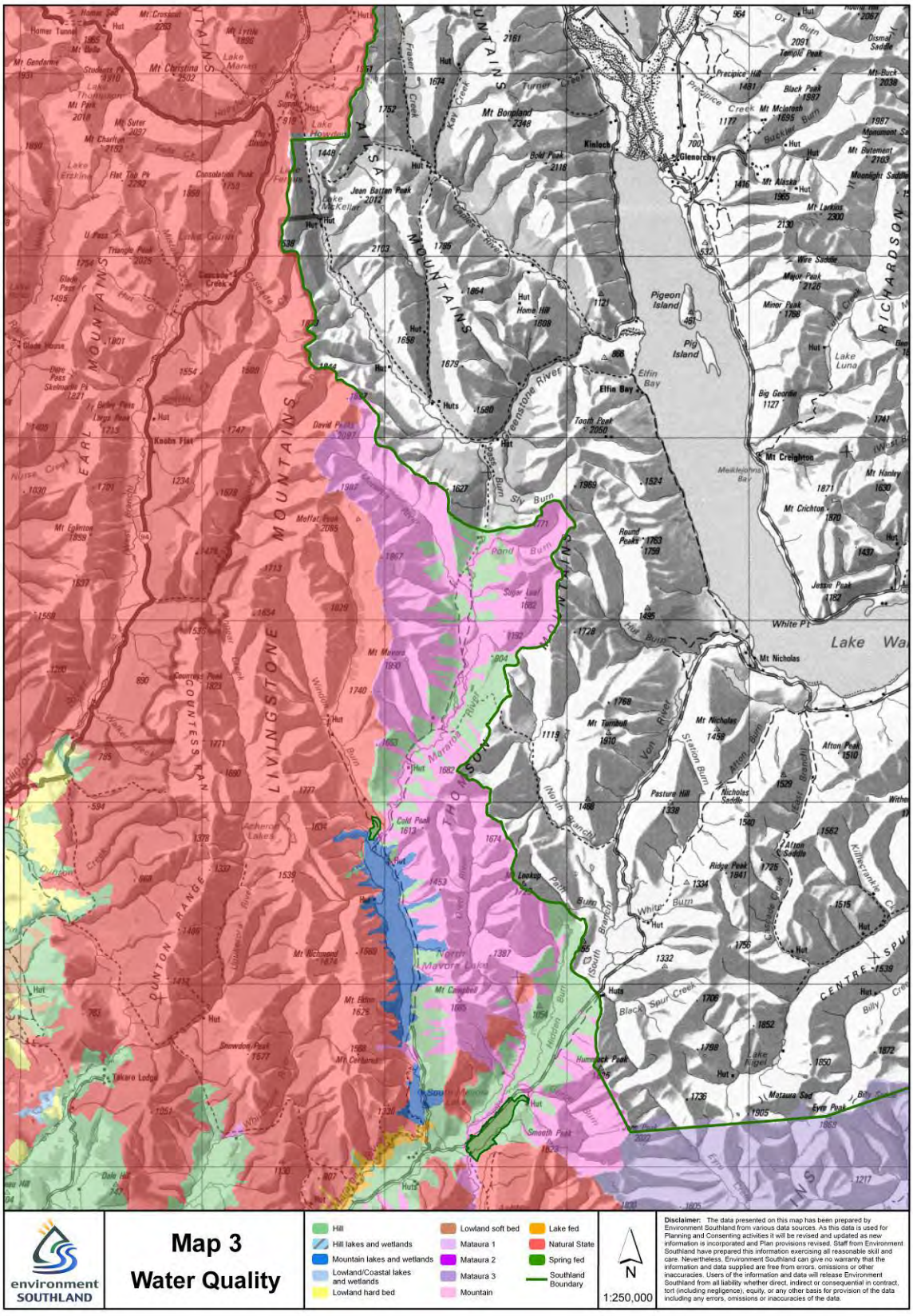
This map depicts the various management units for water quantity. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded) from the management unit. In particular, while the surface water at the eastern end of the Tiwai Peninsula is included within the Natural State management unit, none of the groundwater within the Tiwai groundwater zone is included within the Natural State management unit due to the long term use of groundwater in that zone for the supply of water for industrial purposes.



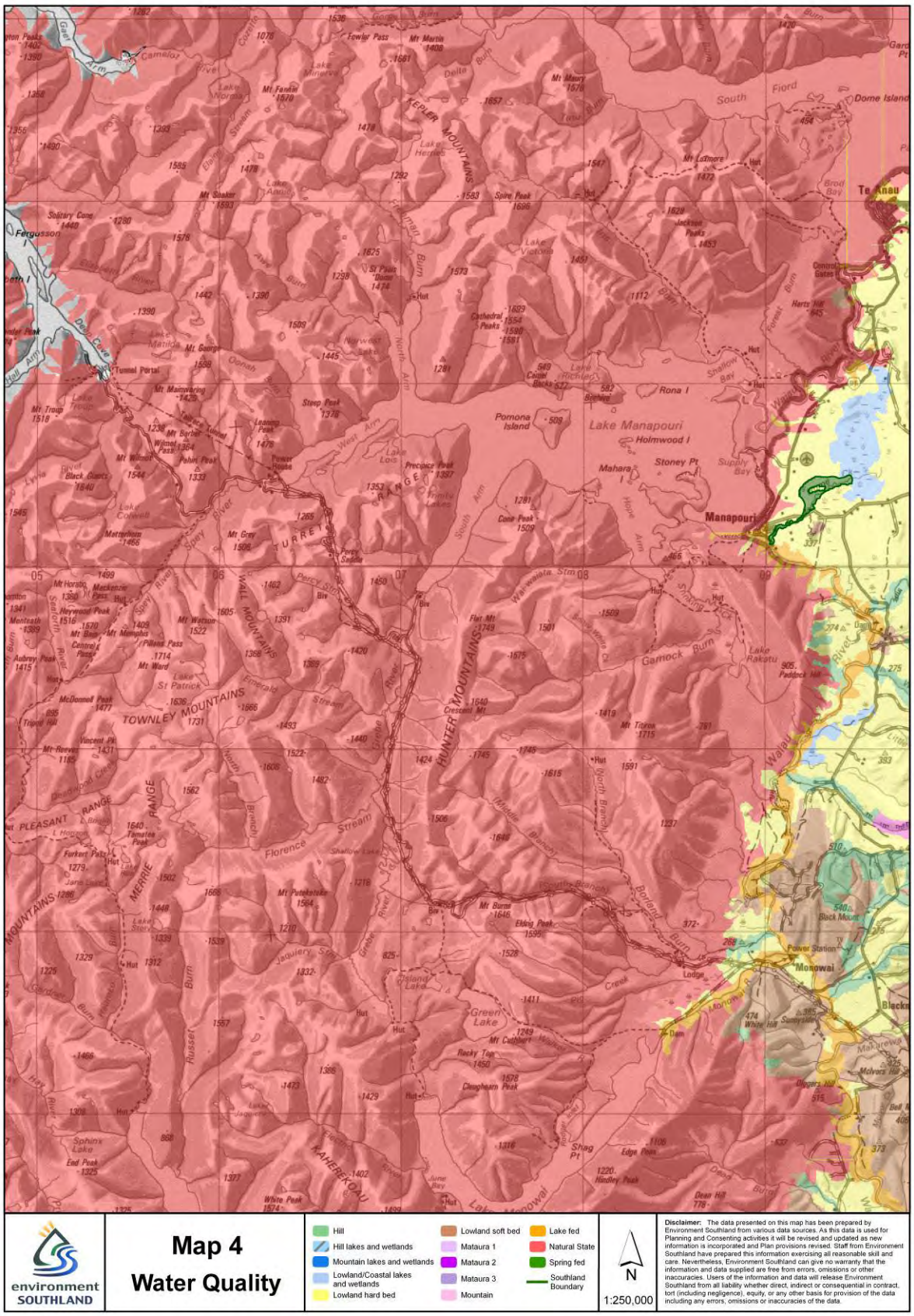
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units.



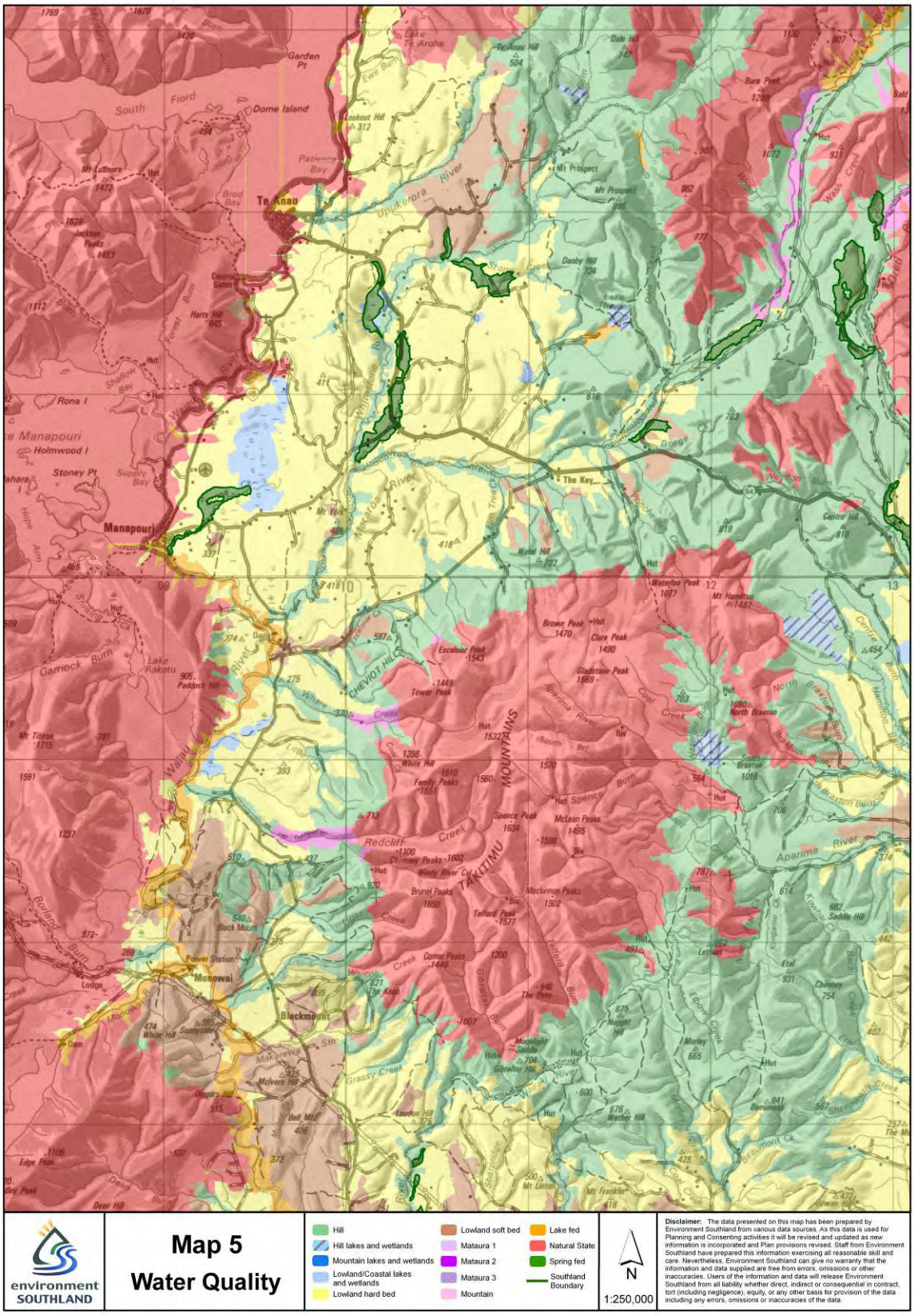
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units.



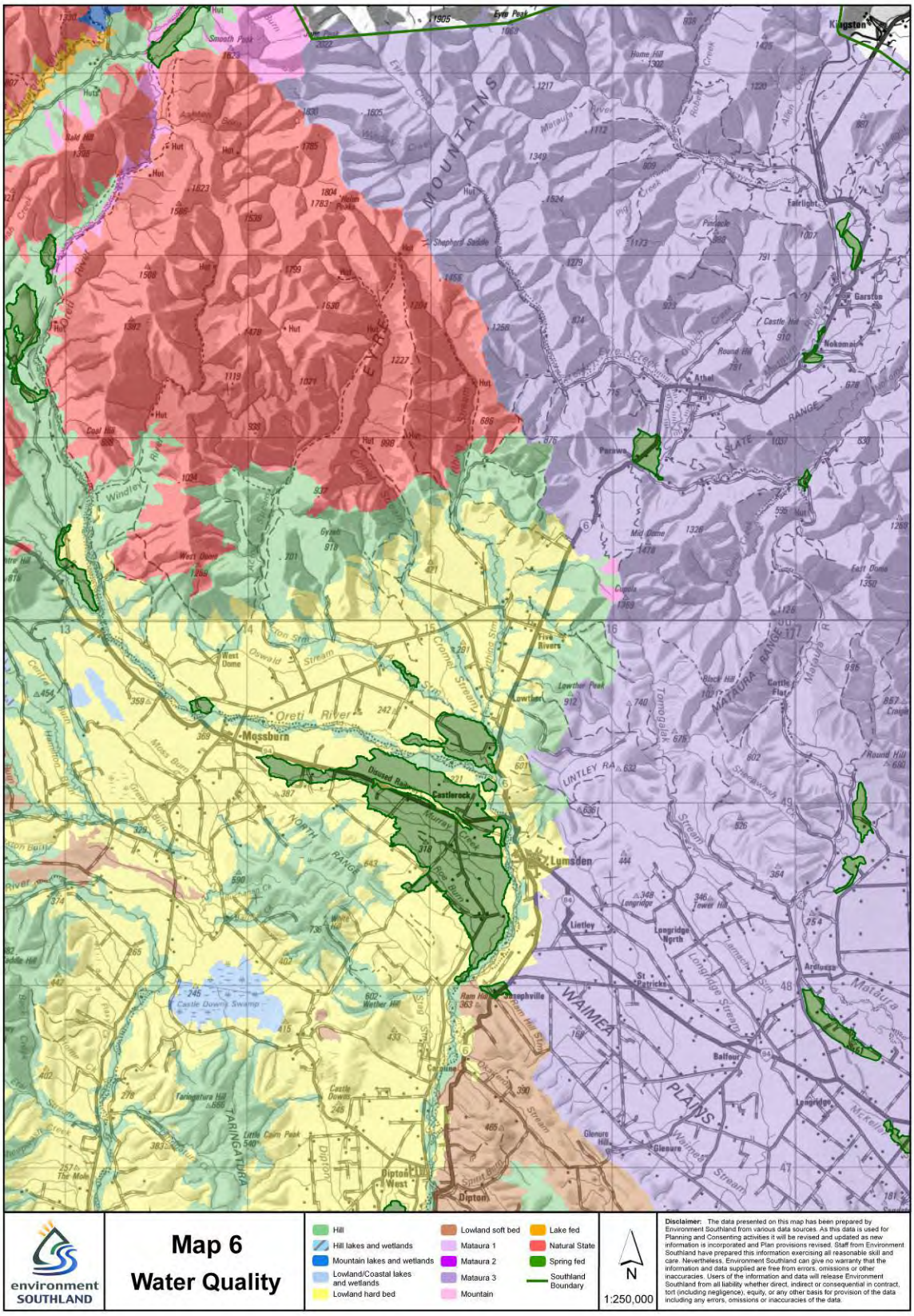
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units.



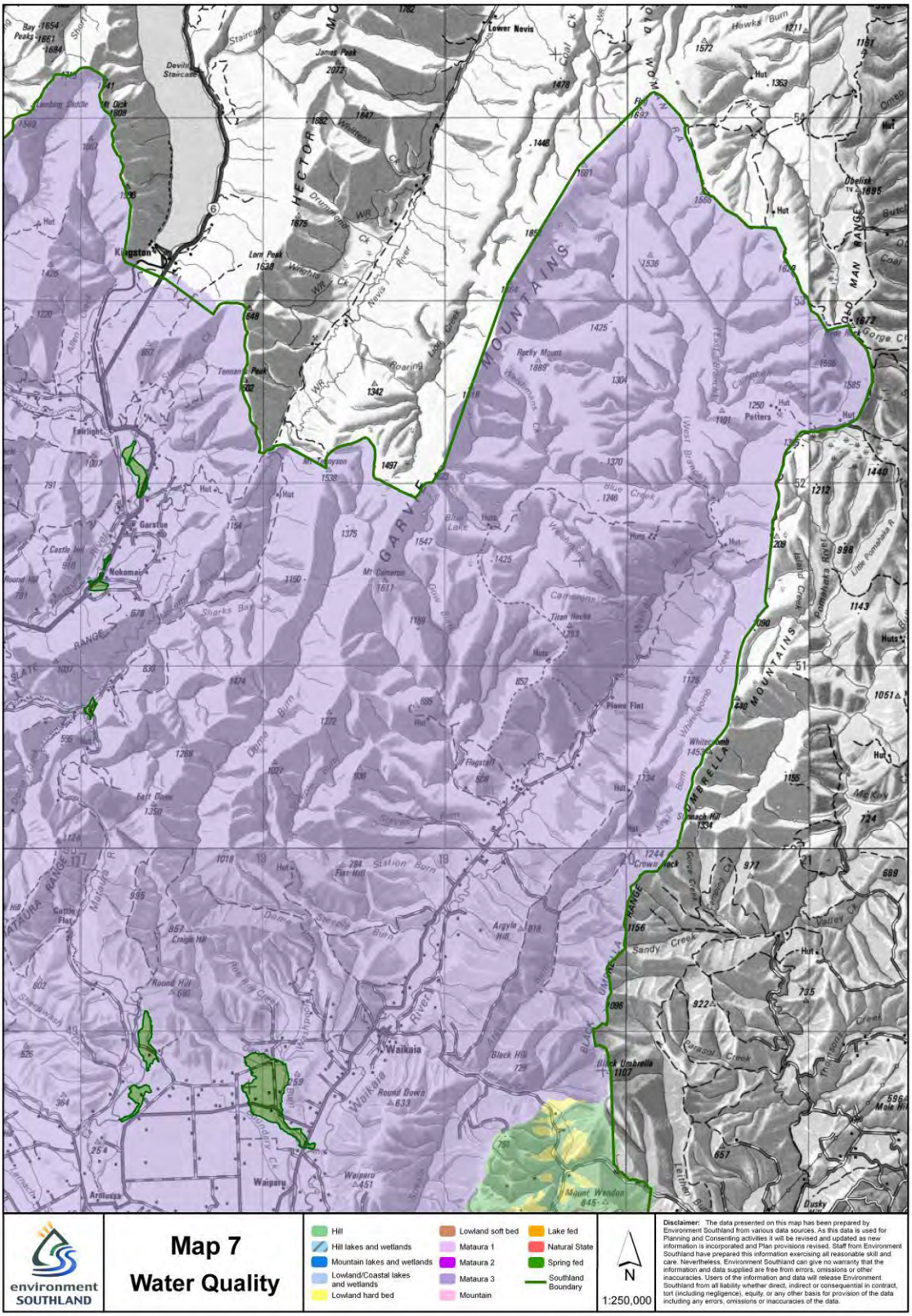
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units.



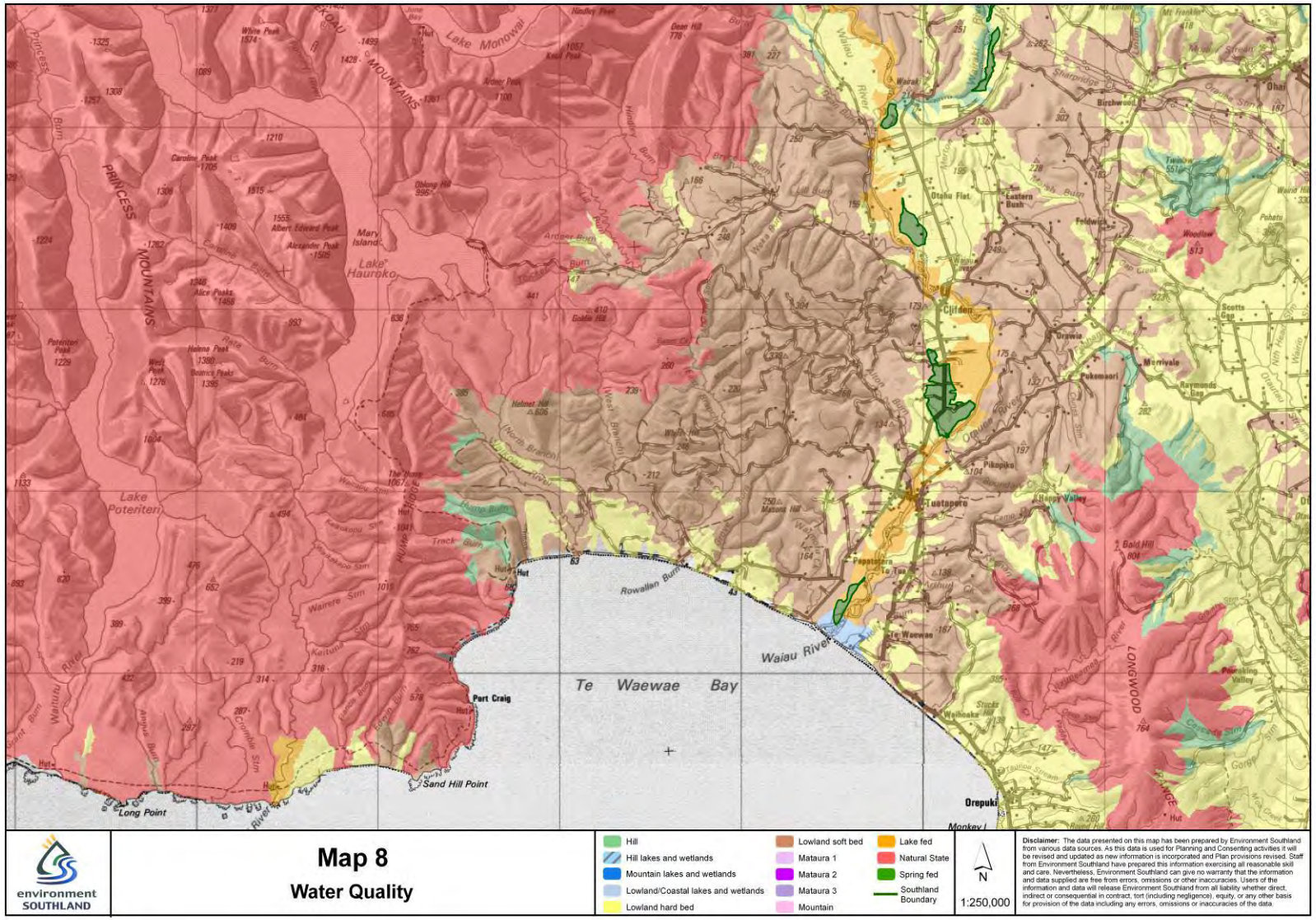
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units.



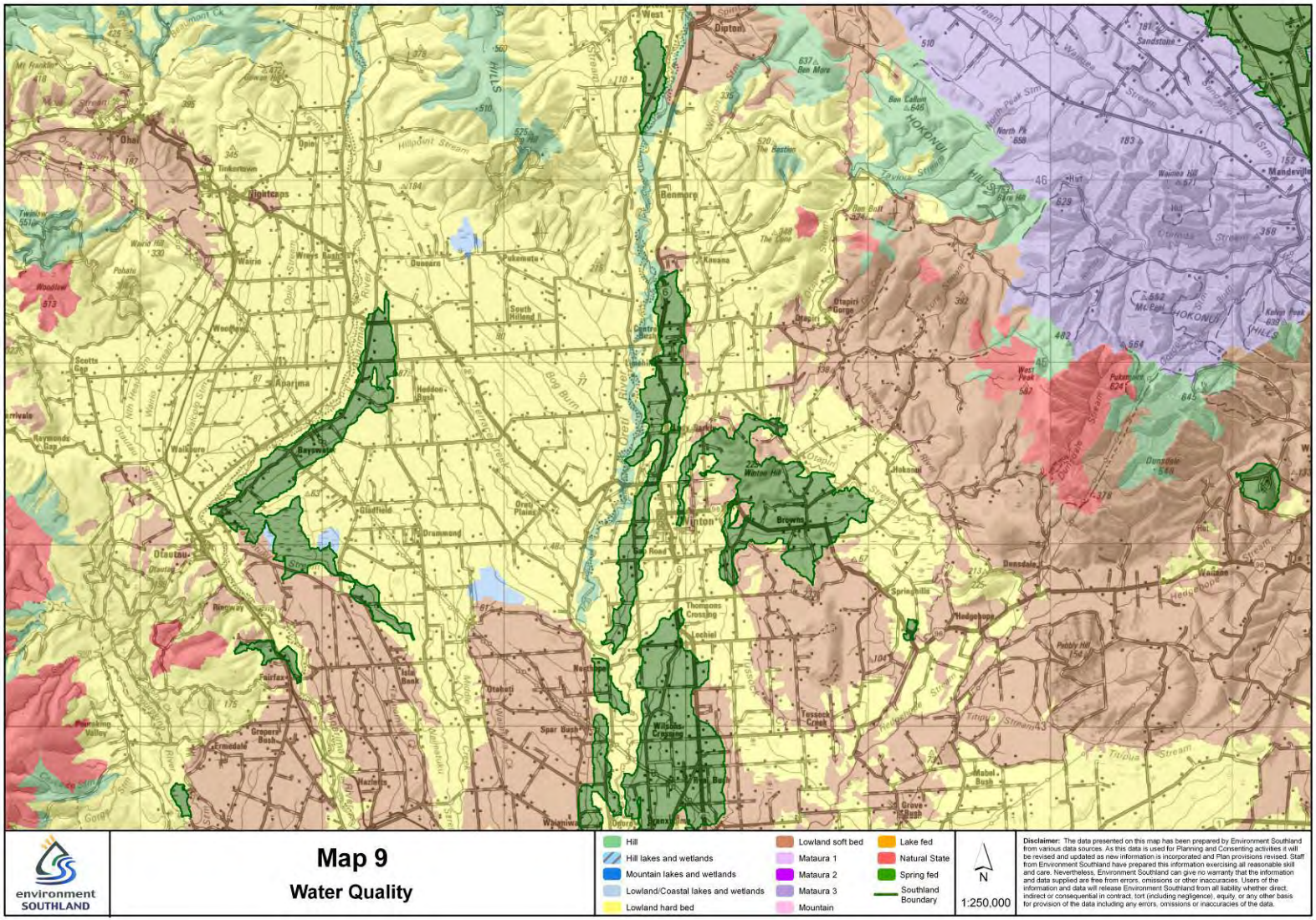
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units.



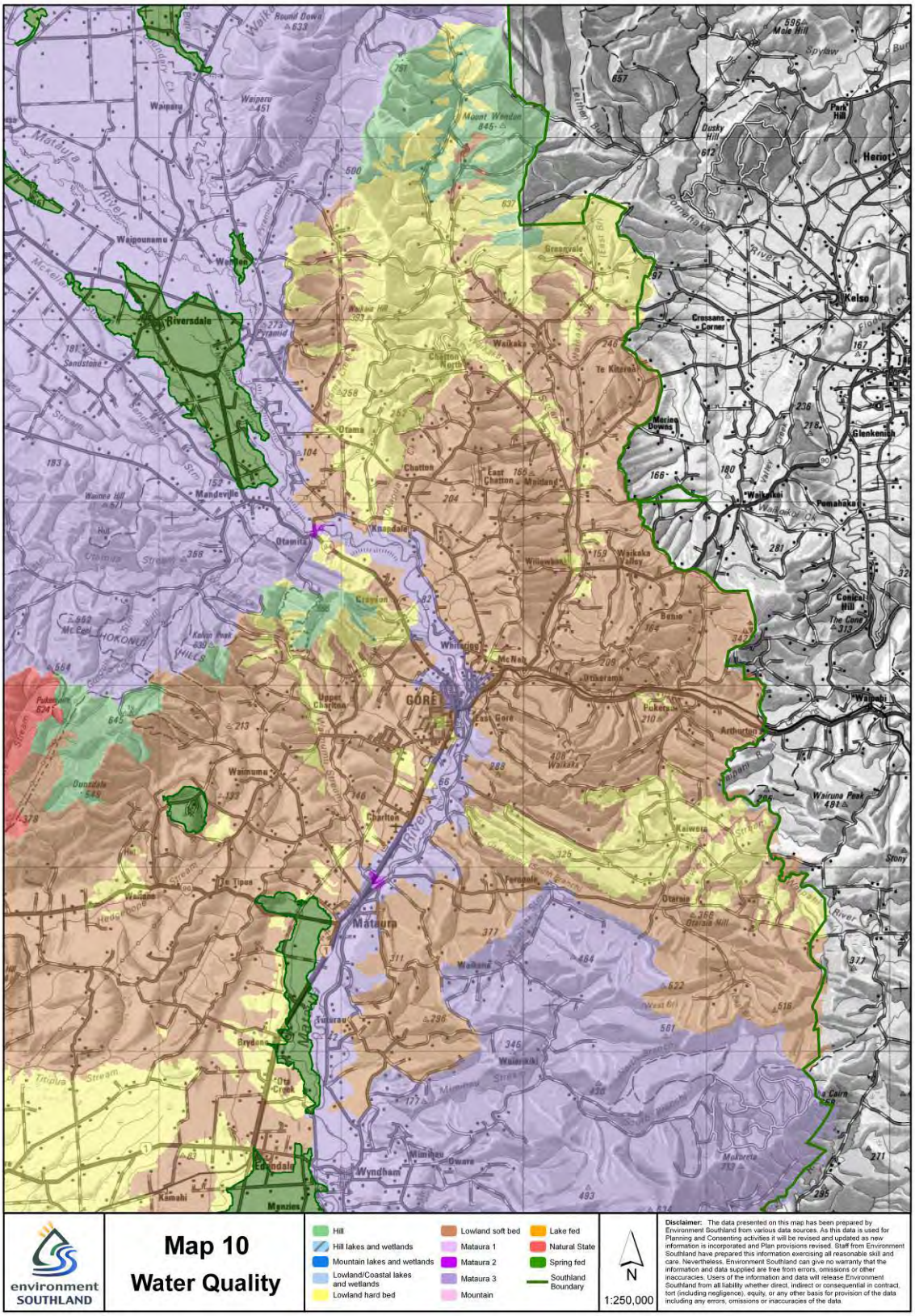
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units.



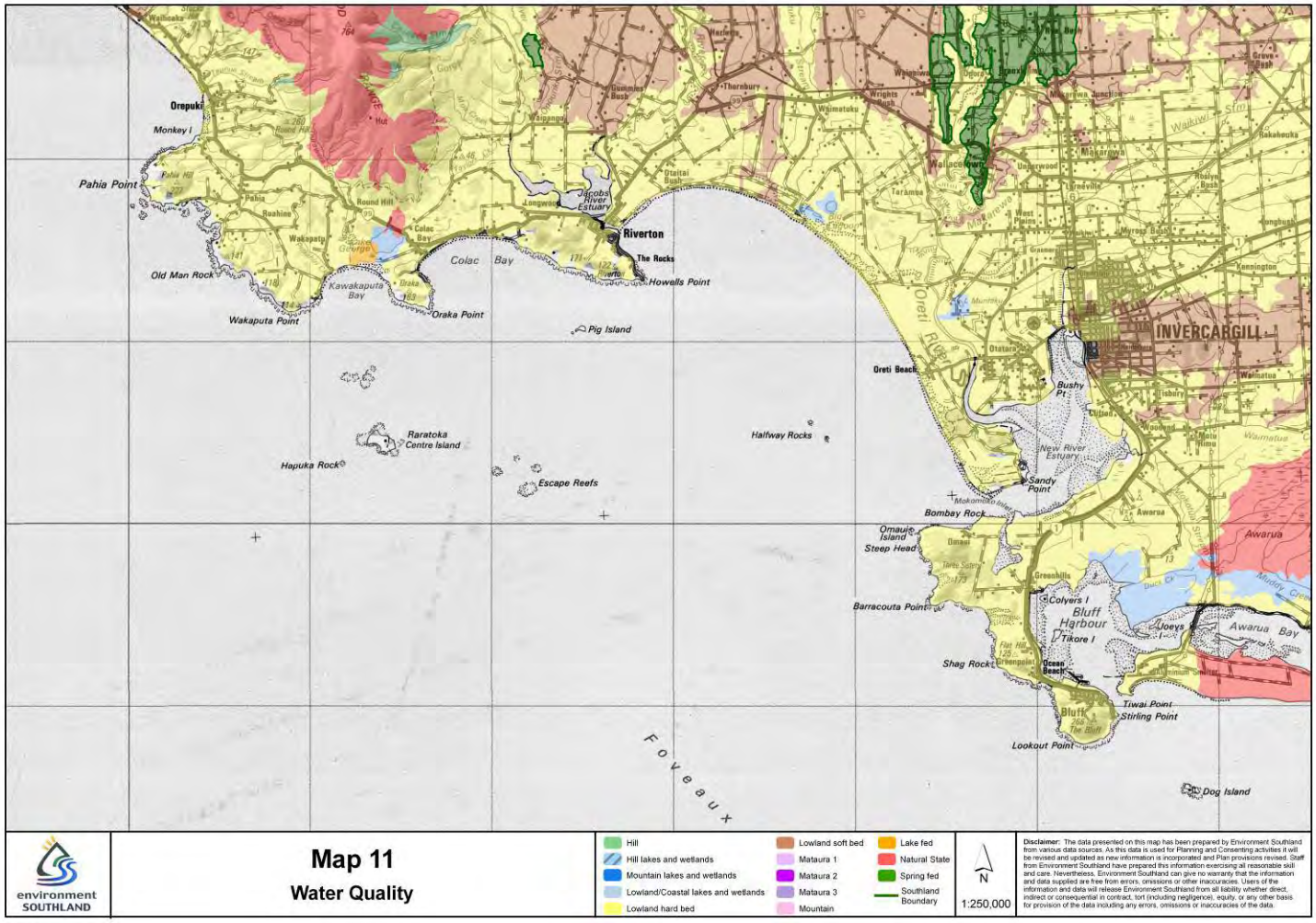
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units.



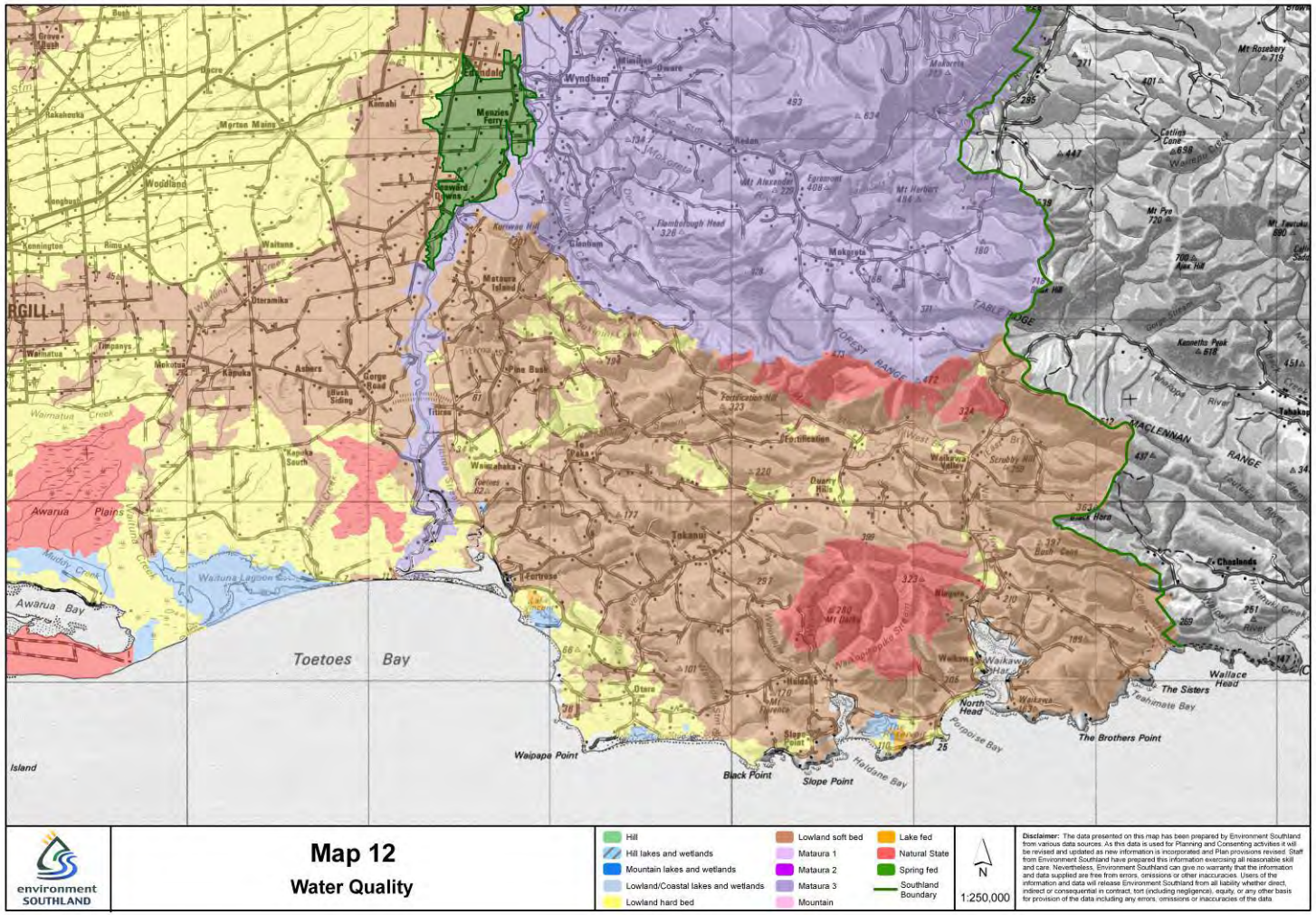
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units.



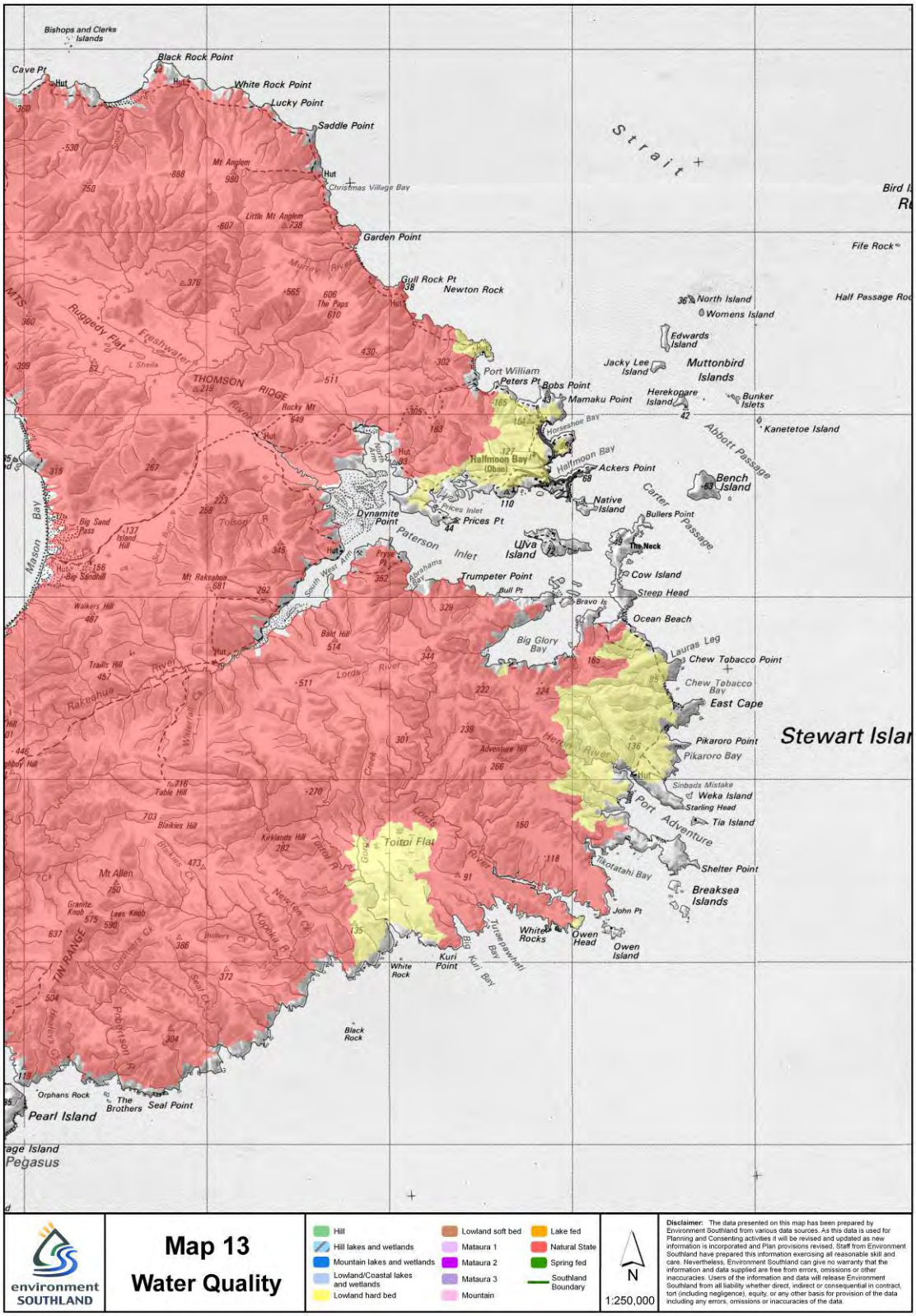
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units.



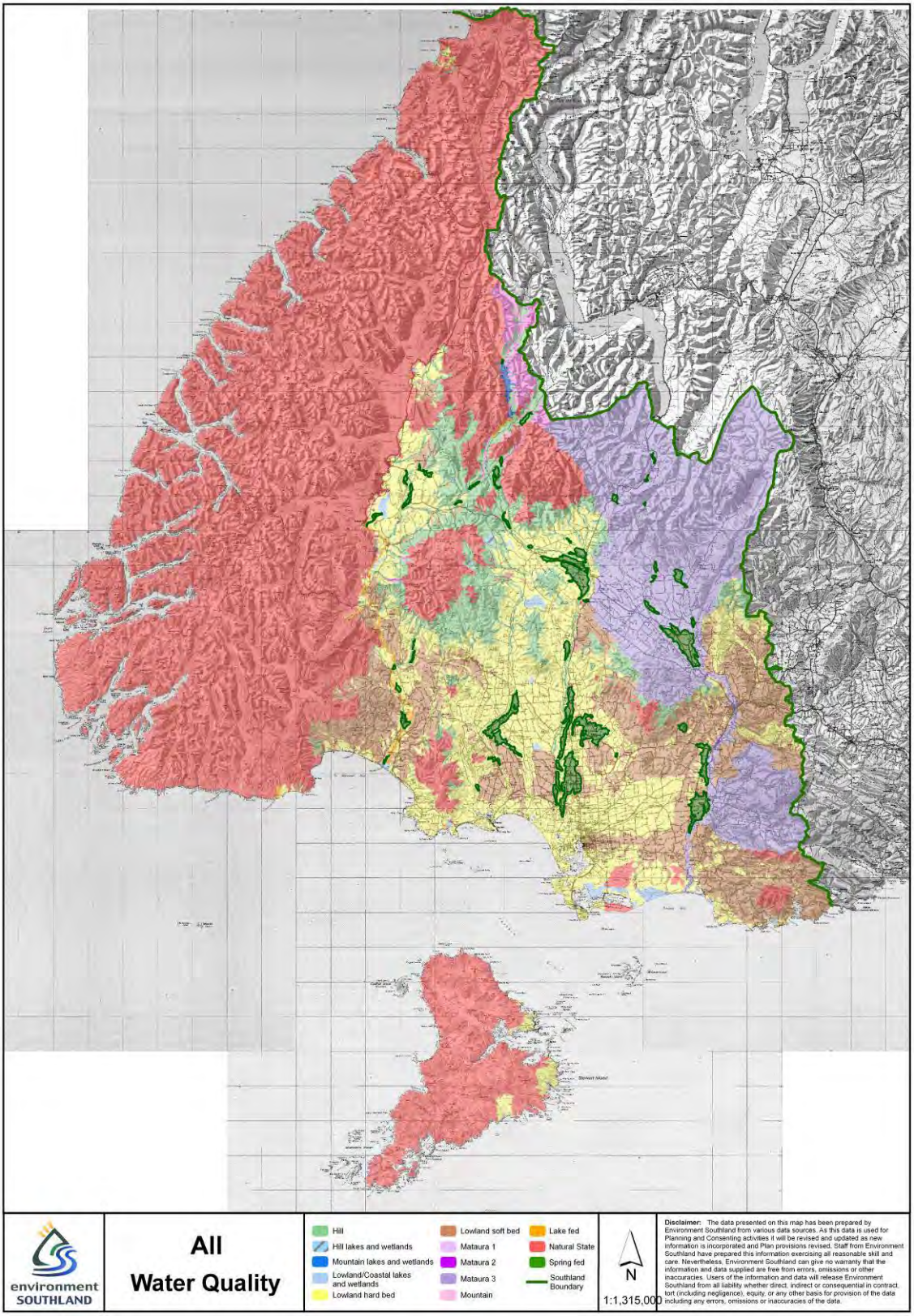
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units. In particular, while the surface water at the eastern end of the Tiwai Peninsula is included within the Natural State management unit, none of the groundwater within the Tiwai groundwater zone is included within the Natural State management unit due to the long term use of groundwater in that zone for the supply of water for industrial purposes.



This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units. In particular, while the surface water at the eastern end of the Tiwai Peninsula is included within the Natural State management unit, none of the groundwater within the Tiwai groundwater zone is included within the Natural State management unit due to the long term use of groundwater in that zone for the supply of water for industrial purposes.

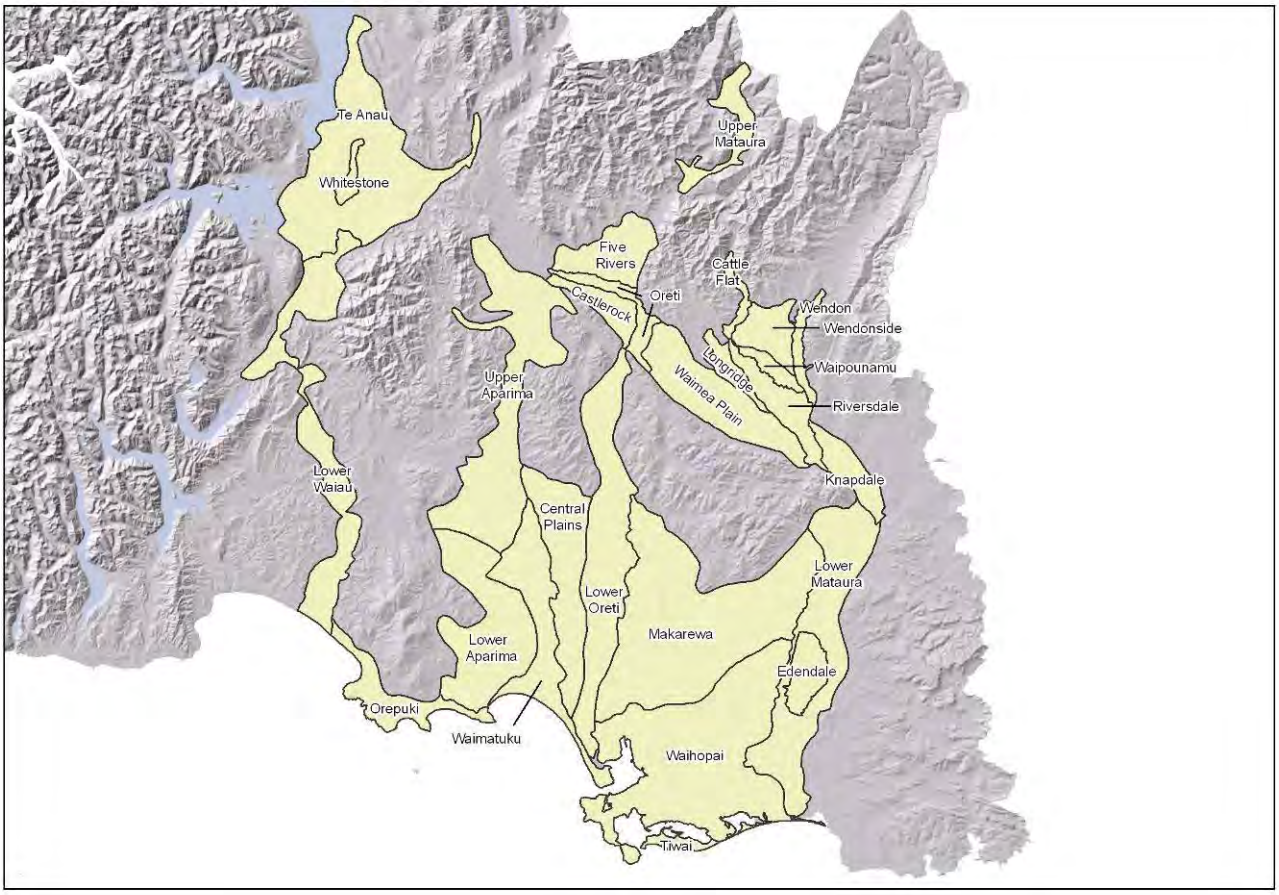


This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these mangement units.



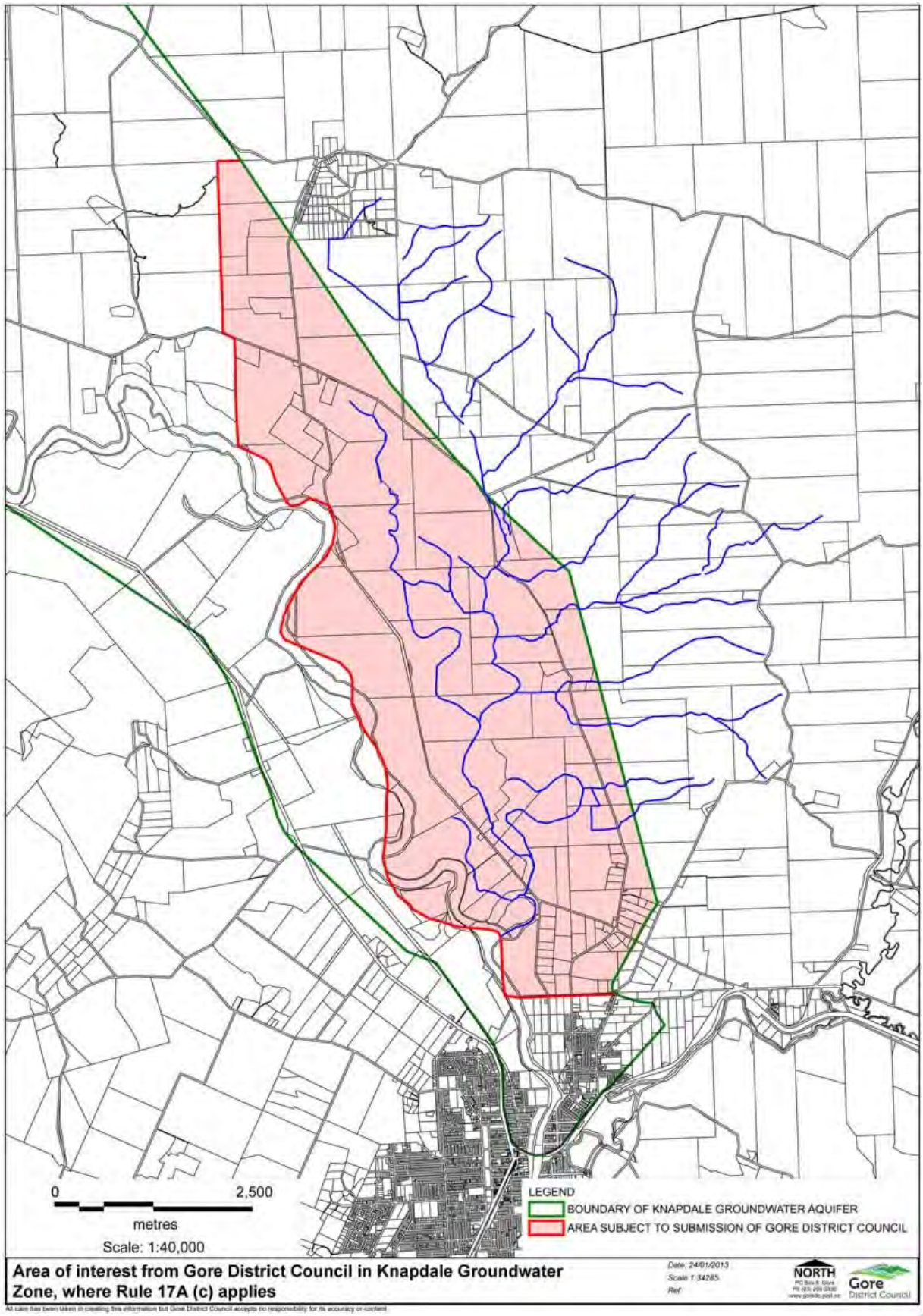
This map depicts the various management units for water quality. These management units apply to surface water only with the exception of the Natural State management unit. The definition of Natural State and Spring-fed in the Glossary of the Plan should be referred to for the detail of the waters included in (and excluded from) these management units. In particular, while the surface water at the eastern end of the Tiwai Peninsula is included within the Natural State management unit, none of the groundwater within the Tiwai groundwater zone is included within the Natural State management unit due to the long term use of groundwater in that zone for the supply of water for industrial purposes.

Map 1 - Groundwater Zones of the Region

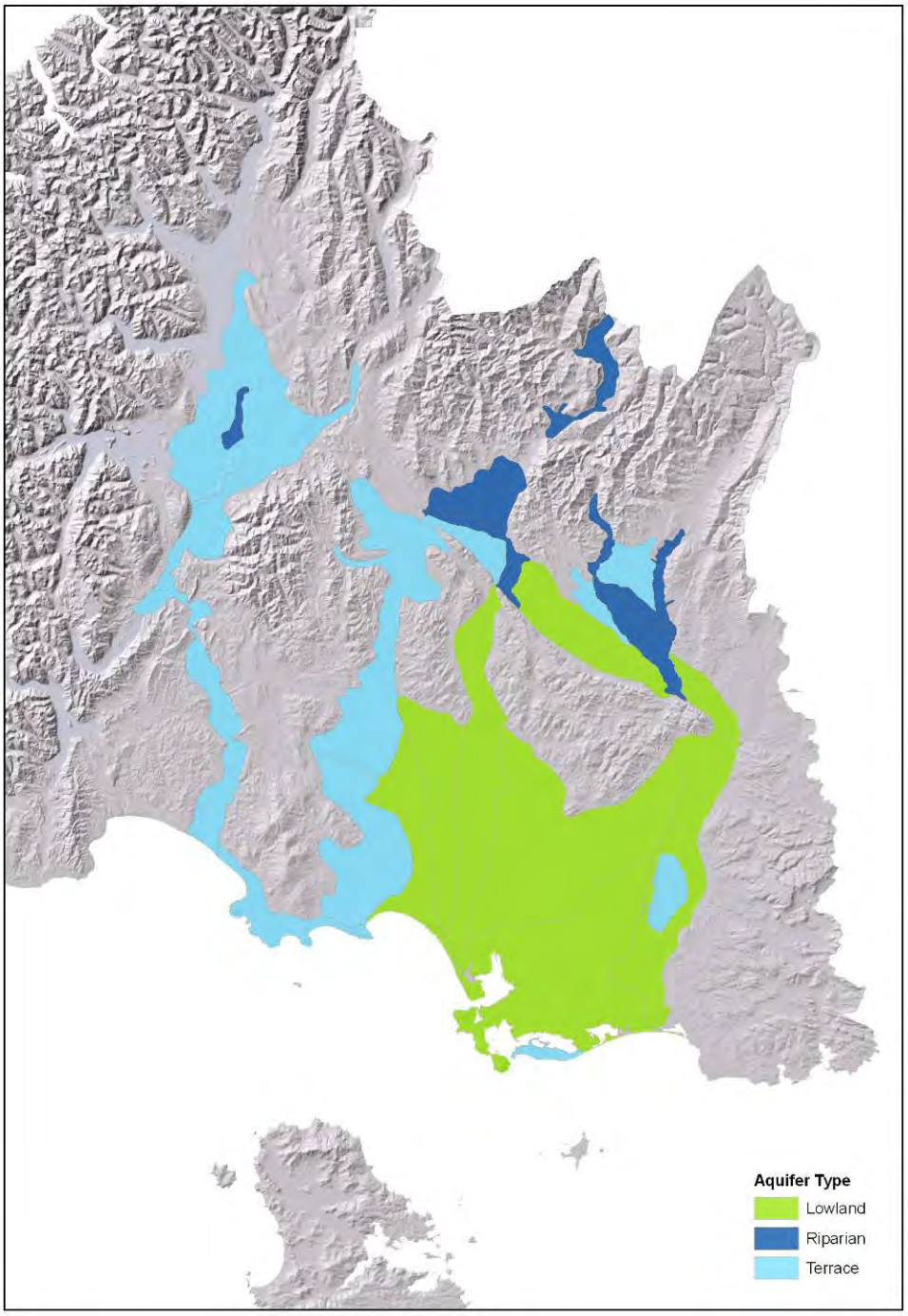


Note: **Plan users should consult Environment Southland to resolve any uncertainty regarding the location of a proposed abstraction in relation to groundwater zone and aquifer boundaries.**

Map 2 – Knapdale Groundwater Zone



Map 3 - Aquifer Zones of the Region



Note: **Plan users should consult Environment Southland to resolve any uncertainty regarding the location of a proposed abstraction in relation to groundwater zone and aquifer boundaries. This map does not show the confined aquifer type as it is unlikely to be known that an abstraction is from this aquifer type until hydrogeological information becomes available. This map also does not show fractured rock aquifers, as allocation from those areas are based on the rainfall recharge over the relevant land area where the water is to be used.**

Map 1 – Soil/Landscape Categories for Farm Dairy Effluent Management