

**Proposed  
Plan Change 5A  
(Lindis: Integrated water  
management)  
to the  
Regional Plan: Water for Otago**

**Section 42A Report:  
Decisions Requested  
by Submitters**



## **Purpose of the Plan Change**

The aim of the plan change is to set a management regime for surface water and groundwater resources of the Lindis catchment and the Bendigo-Tarras Basin that gives effect to the NPSFM.

The plan change builds on existing provisions of the operative Water Plan for managing surface water and groundwater by:

- Setting a management regime (allocation limits and minimum flow) for surface water and connected groundwater in the Lindis catchment;
- Setting maximum allocation limits for specified aquifers within the Bendigo-Tarras Basin (Ardgour Valley, Bendigo, and Lower Tarras aquifers);
- Mapping the minimum flow catchment boundaries and location of the monitoring site associated with the Lindis River in the B-series of the Water Plan maps; and
- Mapping the boundaries of the Bendigo-Tarras Basin aquifers and amending the boundaries of the Lindis Alluvial Ribbon Aquifer in the C-series of the Water Plan maps.

Proposed Plan Change 5A was publicly notified in the Otago Daily Times on 8 August 2015 and submissions closed on Friday 4 September 2015. Eighty-one submissions were received by the Otago Regional Council (ORC).

ORC released the Summary of Decisions Requested and called for further submissions on Saturday 27 September 2015, with further submissions closing on Friday 9 October 2015. There were 6 further submissions received.

## **Purpose of this report**

The Section 42A report assists the decision making process by summarising the main matters raised in submissions on Proposed Plan Change 5A (Lindis: Integrated water management), and identifies key questions which the Hearing Committee must consider in order to make their recommendations to the ORC.

## **Structure of this report**

This Section 42A report contains seven separate chapters, grouped according to the major themes that emerged from the submissions received. Submitter requests relating to the overall approach of the plan change are discussed in Chapter 1. Chapters 2 and 3 provide an overview of requests relating to the management of surface water and groundwater. Requests relating to the implementation of Proposed Plan Change 5A are addressed in Chapter 4, while requests relating to the process for developing the plan change proposal are set out in Chapter 5. Other submitter requests, including requests for minor and consequential amendments and requests relating to matters beyond the scope of the plan change, are addressed in the remaining chapters of the report.

Each chapter starts with a brief description of relevant Water Plan provisions and aspects of the plan change, followed by an overview of related submitter requests. For major themes, information is provided about the constraints within which decisions must be made, including

the relationship between different parts of the document and some of the consequences of particular changes requested.

Provisions that did not receive submissions are not discussed, but may require consequential change.

### **Documents referred to in this report**

This report should be read in conjunction with the following documents:

- Proposed Plan Change 5A (Lindis: Integrated water management) (8 August 2015)
- Summary of Decisions Requested (submissions and further submissions) (9 December 2015)
- Section 32 Evaluation Report: Consideration of alternatives, benefits and costs (8 August 2015)

## Abbreviations

Deemed permit	Refers to about-to-expire permits under Section 413 (1)(c) of the Resource Management Act 1991. (Includes mining privileges within the meaning of Section 2 of the Water and Soil Conservation Amendment Act 1971 and rights granted or authorised under the Water and Soil Conservation Act 1967 in substitution for a mining privilege.)
d/s	downstream
l/s	Litres per second
MALF	Mean annual low flow
MAR	Mean annual recharge
Mm <sup>3</sup> /yr	Million cubic metres per year
NPSFM	National Policy Statement for Freshwater Management 2014
NPSREG	National Policy Statement for Renewable Energy Generation 2011
ORC	Otago Regional Council
Plan change	Proposed Plan Change 5A (Lindis: Integrated water management)
RMA	Resource Management Act 1991
RPS	Regional Policy Statement
SH8	State Highway 8
u/s	upstream
Water Plan	Regional Plan: Water for Otago
Water permit	Resource consent to take water in accordance with Section 87(d) of the Resource Management Act 1991
<i>Note: use of section/Section:</i>	
section	A reference to a segment of the Water Plan.
RMA s	A section of the RMA.

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# 1. Approach to achieving sustainable management of Lindis water resources

This chapter provides an overview of submitter requests relating to the overall approach of Proposed Plan Change 5A (Lindis: Integrated water management) to the Water Plan.

## 1.1. Overall approach of Proposed Plan Change 5A

Proposed Plan Change 5A seeks to achieve the purpose of the Resource Management Act 1991 (RMA) and give effect to the National Policy Statement for Freshwater Management 2014 (NPSFM).

Proposed Plan Change 5A proposes an integrated approach to the management of the groundwater and surface water resources of the Lindis Catchment and the groundwater of the Bendigo-Tarras Basin, recognising the hydraulic connections between these water bodies and the inter-dependencies of the values and ecosystems they support. In doing so the plan change seeks to provide water users with a workable regime for sustaining these resources and enabling the Lower Tarras, Bendigo and Ardour Valley Aquifers to be used appropriately as an alternative source of irrigation water, thereby easing the demand for surface water from the Lindis River.

### 1.1.1. Summary

For detail of the submissions received relating to the overall approach of the proposed plan change, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
1	<i>General Support</i>	<i>Whole</i>	<i>1-3</i>	<i>Whole</i>
2	<i>General Opposition</i>	<i>Whole</i>	<i>4-8</i>	<i>Whole</i>
6	<i>Schedule 2A - 1 Oct to 31 May minimum flow for primary allocation</i>	<i>10</i>	<i>9-36</i>	<i>5-15</i>
7	<i>Schedule 2A - 1 June to 30 September minimum flow for primary allocation</i>	<i>10</i>	<i>36-38</i>	<i>5-15</i>
8	<i>Primary allocation limit</i>	<i>10</i>	<i>38-43</i>	<i>5-15</i>
35	<i>Schedule 2B – Supplementary allocation</i>	<i>10</i>	<i>43-44</i>	<i>5-15</i>
36	<i>Rule 12.1.4 and mapping of the Lindis catchment</i>	<i>6-7</i>	<i>45-49</i>	<i>5-15</i>
16	<i>Schedule 2C – Lindis Alluvial Ribbon Aquifer</i>	<i>11</i>	<i>50</i>	<i>5-15</i>
37	<i>Schedule 4A - Maximum allocation limits</i>	<i>12</i>	<i>50</i>	<i>5-15</i>
38	<i>Schedule 4B.2 – Restrictions on groundwater takes</i>	<i>12</i>	<i>51-53</i>	<i>5-15</i>
5	<i>Policy 6.4.5, incl. transition timeframes</i>	<i>2-3</i>	<i>54-61</i>	<i>15</i>

A summary of the decisions requested follows:

- A need to achieve the purpose of the RMA, to give effect to the NPSFM, and to be consistent with the objectives and policies of the Regional Policy Statement (RPS), the Proposed RPS and the Water Plan.
- A need to protect existing use rights or existing investment.
- A need to have certainty when replacing deemed permits.
- A need to use the best available science and knowledge.
- A need to apply a precautionary approach to freshwater management.

### **1.1.2. Information to assist decision making**

#### **1.1.2.1 Achieving the purpose of the Resource Management Act 1991**

RMA s5 seeks to enable “people and communities to provide for their social, economic, and cultural well-being and for their health and safety while:

- (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- (b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystem; and
- (c) Avoiding, remedying or mitigating any adverse effects of activities on the environment.”

The Environment Court in *Blakeley Pacific Ltd v Western Bay of Plenty DC* [2011] NZEnvC 354 held that it was not correct that RMA s5 was meant to enable landowners only and that the RMA, by the phrase “people and communities”, recognises that there may be different groups within New Zealand with different views. The Environment Court has upheld this view in *Manawatu-Whanganui Regional Council v Day* [2012] NZEnvC 182 stating that enabling people and communities to provide for their economic well-being is not absolute or necessarily even predominant, and that economic well-being must be able to co-exist with the purposes in subparagraphs a), b), and c) of RMA s5.

Accordingly, the plan change should achieve the purpose and principles of the RMA by safeguarding the social, cultural and environmental values supported by the Lindis, while at the same time enabling socio-economic activity in the Lindis catchment.

#### **1.1.2.2 Giving effect to the National Policy Statement for Freshwater Management 2014**

The NPSFM requires ORC to set environmental flows and/or levels for all freshwater management units in its region. The NPSFM states that these environmental flows and/or levels must include an allocation limit and a minimum flow (or other flow/s) for rivers and streams, and an allocation limit and minimum water level (or other level/s) for all other freshwater management units. The environmental flows and/or levels set under the requirements of the NPSFM must give effect to objectives B1, B2 and B3 of



*Part B: Water Quantity* of the NPSFM. *Part B: Water Quantity* of the NPSFM is attached to this report as Appendix 1.

The Supreme Court in *Environmental Defence Society Inc v New Zealand King Salmon Company Limited* [2014] NZSC 167 (*King Salmon*) states that ‘give effect to’ simply means ‘implement’. It is a strong directive creating a firm obligation on those subject to it. Hence, in order to give effect to the NPSFM the plan change must set a minimum flow and allocation limit for the Lindis River that safeguards its life-supporting capacity, ecosystem processes, and indigenous species.

The Supreme Court in *King Salmon* also noted that where higher order planning documents, such as national policy statements are established, these documents are assumed to be in accordance with Part 2 of the RMA. Hence, the Court’s findings imply that by giving effect to NPSFM, a regional council is necessarily acting “in accordance with” Part 2 and that applying an overall judgment approach to the economic benefits and environmental effects is not appropriate when giving effect to provisions in higher order planning documents.

### 1.1.2.3 Meeting the Objectives and Policies of ORC plans

The Regional Plan: Water for Otago (Water Plan) gives effect to the NPSFM by recognising the need to protect the natural and human use values, which include cultural values, amenity and natural character of rivers, while enabling the sustainable and efficient use of this resource to the benefit of Otago’s industries and communities. The Water Plan achieves this by:

- setting minimum flows and allocation limits for surface water bodies;
- establishing maximum allocation limits and aquifer restriction levels for groundwater resources; and
- promoting the efficient use and sharing of the water resource.

The objectives and policies of the operative Water Plan, RPS and proposed RPS that are of particular relevance to this plan change are shown in Table 1 below.

**Table 1: Overview of Water Plan, RPS and proposed RPS provisions.**

Recognising the need to ...	Plan	Objectives	Policies	Other provisions
...ensure that water use does not remove/reduce: <ul style="list-style-type: none"> <li>• life-supporting capacity, ecological values</li> <li>• natural character, amenity</li> <li>• cultural values, Kai Tahu beliefs, values &amp; uses</li> </ul>	<i>RPS</i>	6.4.3, 6.4.4, 6.4.8	6.5.1, 6.5.2, 6.5.4	
	<i>Proposed RPS</i>	2.1	2.1.1	
	<i>Water Plan</i>	5.3.1, 5.3.2, 5.3.3, 5.3.4, 6.3.1	5.4.2, 6.4.4, 6.4.9	<i>Schedules 1A, 1D, 2D, 4C</i> <i>Appendix 3</i>
...consider the importance of the water use in maintaining the economic, social and cultural well-being of Otago’s communities and industries.	<i>RPS</i>	6.4.1	6.5.2, 6.5.4, 6.5.11	
	<i>Proposed RPS</i>	4.4	4.4.1	
	<i>Water Plan</i>	5.3.6, 6.3.2	6.4.1, 6.4.2, 6.4.10A1	<i>Schedules 2D, 4C</i> <i>Appendix 2</i>
... promote efficient water use and the use of alternative water sources.	<i>RPS</i>	6.4.1	6.5.3	
	<i>Proposed RPS</i>		4.4.1	
	<i>Water Plan</i>	6.3.3	6.4.0A, 6.4.0C	
... have an integrated approach to the management of natural resources	<i>RPS</i>	6.4.8		<i>Method 6.6.21</i> <i>Section 1.7</i>
	<i>Proposed RPS</i>	2.3	2.3.1, 2.3.3	
	<i>Water Plan</i>	6.3.2	6.4.0	

### 1.1.2.4 Identified community values

The plan change intends to do this by enabling existing socio-economic activity in the Lindis catchment and the Bendigo-Tarras Basin, while safeguarding environmental conditions (including life-supporting capacity, ecosystem processes and indigenous species) and other important community values associated with the Lindis River.

Important community values, both economic and non-economic, were identified over a 6-year period through various public consultation methods, including community meetings, discussions with individual stakeholders and the release of a Consultation Draft of Proposed Plan Change 5A for comment (see also part 5.2 of this report).

Table 2 below gives an overview of these important community values.

**Table 2: Overview of identified community values.**

Value	Explanation
Water for irrigation	<i>Water takes from the river support economic activity by providing for pasture irrigation, wine making and frost fighting.</i>
Domestic, communal and stock water supplies	<i>The river contributes to the well-being of the local community and animal welfare</i>
Trout spawning, juvenile trout rearing and retention	<i>The river plays an important role for juvenile recruitment to the nationally important Lake Dunstan and Upper Clutha fisheries. The middle/upper reaches support a small adult brown trout fishery.</i>
Habitat and access for native fish	<i>The river and its tributaries provide habitat for the “Nationally Critical” Clutha flathead galaxiid, longfin eel (classified as “in decline”), and common and upland bully.</i>
Kai Tahu values	<i>The Lindis was an important source of mahika kai and contains longfin eel, a taoka species that forms a key component of Kai Tahu’s tribal identity. Kai Tahu promote a holistic management approach that provides for aquatic ecosystems, natural character, cultural and recreational values over the entire length of the river.</i>
Small stream recreation, family-oriented camping	<i>The river can be easily accessed and provides a safe and peaceful setting for camping, picnicking, angling, swimming and paddling.</i>
Water quality, stream health	<i>Water quality is good throughout the catchment. Nitrogen concentrations in the lower river reaches have increased in recent years. Concerns have been raised around the risk of algal blooms in the lower Lindis during extended low flow periods.</i>
Wildlife habitat	<i>The lower river reaches provide habitat for waterfowl and wading birds (including the endangered black fronted tern).</i>
Amenity, natural character	<i>The river is an important landscape feature, contributing to the amenity and scenic value of the wider environment.</i>

### 1.1.2.5 Protection of existing use rights and established uses

Existing use rights are addressed through a variety of provisions within the RMA. There is no automatic right to take and use water, authorisation is required (RMA s14), unlike the existing use rights provided for most activities under RMA s10.

Water can be taken from the Lindis catchment as of right under the permitted activity rules of the Water Plan and under the provisions of RMA s14(3)(b), which state that any person may take or use 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. Water

can also be taken with a resource consent issued under the RMA or a deemed permit (mining privilege) where it has been expressly allowed (RMA s14(1)(a)).

RMA s124 allows existing water permit holders to continue to exercise an existing permit until an application for a replacement consent is decided upon (and all appeals are determined), provided the permit holder lodges the application with the consent authority at least 6 months before the expiry of the existing consent (i.e. before 1 April 2021 for deemed permits expiring on 1 October 2021).

#### **1.1.2.6 Consent renewal where a resource is fully allocated**

Where resources are fully allocated, as with the Lindis catchment, applications for resource consent to take water by either the existing water permit holders or other persons are addressed through RMA s124A-124C. Section 124B and 124C give priority to existing water permit holders to have their new consent application determined ahead of anyone else competing for the same quantity of water, provided they lodge their applications at least six months in advance of permit expiry.

The Water Plan recognises the need to consider existing lawful activities involving the taking or use of water in plan development and consent decision-making processes and provides for the protection of these activities in a number of ways:

- Water Plan Schedules 2D and 4C require the consideration of existing use rights when setting minimum flows and allocation limits for rivers and maximum allocation limits and restriction levels for aquifers (see also parts 2.1.2.2, 2.2.2.2, 3.1.2.2 and 3.1.2.3 of this report).
- Policy 6.4.5 recognises the value of investments of existing consent holders by effectively allowing for a transition period for implementing the minimum flow and enabling water users to investigate the feasibility of measures that mitigate the effect of a minimum flow restriction on water availability.
- Policy 6.4.2A provides for the granting of replacement consents in fully allocated catchments based on the volume of water that has been taken in the past.
- Policy 6.4.2 protects existing water users in over-allocated catchments by avoiding the reallocation of primary allocation from expired, lapsed or surrendered consents or unused consents that have been cancelled under Policy 6.4.18. This will gradually enhance access to water for remaining water users.
- In fully allocated catchments the Water Plan promotes water storage (Policy 6.6.2), the efficient use of water (Policy 6.4.0A) and, where practicable, the use of alternative water source (Policy 6.4.0C) as means of reducing the pressure of water taking on instream and wider environmental values and providing greater surety of supply for water users that are solely reliant on run-of-the-river takes from the Lindis.
- In fully allocated catchments the Water Plan prohibits any application to take water within primary allocation by a person who does not hold an existing consent to take that water (Rule 12.0.1.1)

Together, these provisions should ensure that, if a new consent is applied for at least 6 months prior to consent expiry (i.e. before 1 April 2021 for deemed permits) consent holders in the Lindis that don't have access to an alternative water source are given access to a quantity of water that is deemed sufficient for the purpose of use.

#### **1.1.2.7 Use of best available science and values information**

The plan making process set out under Schedule 1 of the RMA enables testing of available science and values information, including through the consultation, submission and hearing processes.

Proposed Plan Change 5A was developed using the technical data and scientific knowledge available at the time. Where practicable, information was ground-truthed, reviewed and evaluated against evidence provided by third parties.

Since the start of the consultation process in 2009 the technical data and values information that has been used to develop water management options has been updated and revised on a number of occasions in light of this public consultation process. This has resulted in amendments to the recommended regime option, and through the hearing process, will assess the robustness of that data for setting the water management regime.

Ongoing environmental monitoring of the Lindis River indicates that the degree of surface flow losses to groundwater is subject to change as a result of natural events (flood events) and cyclic processes (sediment deposition, changes to river channel morphology, and variations in the level of connectedness between surface and groundwater, groundwater levels). The monitoring records also indicate that climatic variances have a strong impact on the overall water yield of the Lindis catchment and availability of water for taking.

Other causes for changes to the technical data and values information include:

- Length of the data collection period
- Use of different analytical tools, method and software
- Provision of new information by stakeholders

Changes in the level of technical understanding are inevitable when scientific investigations focus on a dynamic natural environment and are carried out over the course of many years.

#### **1.1.2.8 A precautionary approach to river management**

A precautionary approach to managing risks involving resource use is inherent in the definition of effects under Section 3 of the RMA, as well in Section 7 of the RMA and in the NPSFM (both of which require decision-makers to have regard to the impacts of climate change). The precautionary approach, particularly to the management of water resources, is also implicit in Sections 13 and 14 of the RMA, which state that activities on the beds of lakes and rivers or involving the taking, damming or diversion of water can only be undertaken if these are expressly allowed by a national environmental standard, a rule in a regional plan or a resource consent.

The Environment Court has noted in *Manawatu-Whanganui Regional Council v Day* [2012] NZEnvC 182 that, where experts hold different views or where further analysis

could give a more comprehensive process, deferring action and maintaining the status quo is not justifiable when there is the risk of serious damage to ecosystems.

Proposed Plan Change 5A should consider the need to take a precautionary approach to the management of the water resources of the Lindis by recognising that:

- Scientific uncertainties are difficult to eliminate due to the dynamic nature of the Lindis catchment.
- The proposed allocation limits and minimum flows need to be robust enough to ensure that the outcomes for important community values are meaningful at all times and are not compromised by:
  - changes to the natural environment (e.g. river bed morphology, climate); or
  - any taking and use of water under the permitted activity rules 12.1.2.1, 12.1.2.2, and 12.1.2.3 of the Water Plan;
  - any taking and use of water under RMA s14(3)(b), which states that any person may take or use 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.

## 2. Management regime for the surface water resources of the Lindis Catchment

This chapter addresses submitter requests relating to the proposed primary allocation limit, supplementary allocation blocks and the primary and supplementary allocation minimum flows for consented surface water takes from the Lindis River.

### 2.1. Minimum flow for primary allocation

Proposed Plan Change 5A proposes to set the following primary allocation minimum flow for the Lindis River in Schedule 2A of the Water Plan:

- 750 l/s during the period 1 October to 31 May (summer minimum flow); and
- 1,600 l/s during the period 1 June to 30 September (winter minimum flow).

#### 2.1.1. Summary

For detail of the submissions received relating to the proposed primary allocation regime, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
1	<i>General Support</i>	<i>Whole</i>	<i>1-3</i>	<i>Whole</i>
2	<i>General Opposition</i>	<i>Whole</i>	<i>4-8</i>	<i>Whole</i>
6	<i>Schedule 2A - 1 Oct to 31 May minimum flow for primary allocation</i>	<i>10</i>	<i>9-36</i>	<i>5-9; 11-15</i>
7	<i>Schedule 2A - 1 June to 30 September minimum flow for primary allocation</i>	<i>10</i>	<i>36-38</i>	<i>5-9; 11-15</i>

A summary of the decisions requested follows:

- Increase the proposed summer minimum flow.
- Reduce the proposed summer minimum flow.
- Apply a stepped summer minimum flow.
- Provide for a lower summer minimum flow during drought conditions.
- Amend the duration of the proposed summer and winter minimum flow.

## **2.1.2. Information to assist decision making**

### **2.1.2.1 Water Plan Provisions**

Consents with primary allocation status are subject to a minimum flow set under Policy 6.4.3 of the Water Plan. Minimum flows protect the aquatic ecosystems and natural character of surface water bodies at times when surface flows in the catchment are low. When the surface flow drops below the minimum flow, consented water takes and some permitted takes have to cease.

Schedule 2A of the Water Plan identifies minimum flows for specified catchments.

Matters that need to be considered when setting minimum flows for rivers are listed in Water Plan Schedule 2D.1.

### **2.1.2.2 Rationale for setting proposed summer minimum flow**

The setting of a minimum flow is required by the NPSFM and the proposed summer minimum flow was developed by considering identified community values listed in part 1.1 of this report against the relevant matters listed in Schedule 2D.1.

#### **(a) Any existing or previous minimum flow regime or residual flow**

The Lindis catchment currently has no minimum flow set in Schedule 2A of the Water Plan and none of the water permits that presently authorise the primary allocation takes (deemed permits and RMA consents) have a minimum flow or residual flow condition.

#### **(b) The 7-day mean annual low flow**

The recorded mean flow for the upper catchment of the Lindis River at the Lindis Peak flow monitoring site is 6,230 l/s, while recorded 7-day mean annual low flows (MALF) at the same monitoring site average around 1,462 l/s for the October-April period. Flows in the lower catchment at the Ardgour Road flow monitoring site regularly drop below 250 l/s most years. If no water was taken the naturalised 7-day MALF for the October-April period at the Ardgour Road flow monitoring site would be approximately 1,745 l/s (or 1,935 l/s for the period July-June).

The Proposed National Environmental Standard on Ecological Flows and Water Levels (MFE, 2008)<sup>1</sup> proposes a baseline for developing minimum flow options for rivers and streams. The proposed NES recommends a minimum flow of 80% of MALF for rivers and streams with mean flows greater than 5,000 l/s. However, the NES limits are based on historical flows and were intended to apply to rivers with a low degree of hydrological alteration and low in-stream values. The proposed NES recognises that for rivers with a high degree of hydrological alteration and high in-stream values, such as the Lindis River, it is more appropriate to derive a minimum flow through modelling and/or analysis.

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<sup>1</sup> The proposed NES currently has no legal standing, but was developed by scientists and technical experts from a various regional councils and agencies, including Cawthron Institute, NIWA, Massey University, and Aqualinc.

### **(c) Interaction among water bodies**

The Lindis catchment has a semi-arid climate characterised by low rainfall during the summer months. Scientific research suggests that the Lindis River would be flowing all year round, but that river flows are greatly reduced during summer, even when no water is being taken. Research shows that the river loses a significant, but changeable portion of its flow to groundwater downstream from the Ardgour Road flow monitoring site. Losing reaches can also be found upstream of the flow monitoring site.

In recent years, estimates of flow losses between the Ardgour Road flow monitoring site and the Clutha confluence have varied considerably. After an initial estimated flow loss of 440-450 l/s (ORC 2008), evidence collected in 2014/2015 suggested that this initial figure underestimated actual flow losses and assessed the flow losses in this stretch of river to be around 550 l/s (ORC 2015).

During the irrigation season 2015/2016 flows in the Lindis River ceased at the Clutha confluence on 23 December 2015, when flows at the Ardgour Road monitoring site were 401 l/s. Further analysis was carried out to estimate the flow loss in the Lindis River between the Ardgour Road hydrological site and Clutha confluence using data collected between 1 October 2015 and 18 January 2015. This analysis estimated flow losses between the two sites at 352 l/s. However, looking at the actual data, there was no instance of flows at the Clutha confluence site when flows at Ardgour Road were below 380 l/s. This new information complements previous information and does not invalidate previous estimates of flow losses between these sites.

### **(d) Ecological values, including the need for flow variability**

The Lindis River supports important in-stream values. It provides habitat for trout, trout spawning and juvenile recruitment to the nationally important Lake Dunstan and Upper Clutha Fisheries, as well as habitat for native fish species, including the "Nationally Critical" Clutha flathead galaxiid, longfin eel (classified as "in decline"), and common and upland bully. These values, some of which are identified in Schedule 1A: Natural Values of the Water Plan, have been recognised by the local community as important. The proposed summer minimum flow seeks to provide passage for these species in the river's lower reaches and provide for these important ecological values elsewhere.

In some catchments higher river or "flushing" flows could be artificially created by the occasional implementation of a higher minimum flow, intended to mimic natural flow variability. Flushing flows can have an environmental benefit, as they may prevent the build-up of algae or beach weeds, or reduce the temperature in pools, caused by flows being "flat-lined" at or near a low minimum flow.

The MFE Guidelines for the Selection of Methods to Determine Ecological Flows and Water Levels report (MFE, 2008) states that a flushing flow of between three and six times the median flow is required to flush fine sediment and algae. In the Lindis River, this equates to flows between 13,000 l/s and 26,000 l/s. Summer flows of this magnitude are rare in the Lindis catchment and even under the current



situation run-of-the-river water takes are not expected to have a substantial effect on flushing flows or increase the risk of periphyton reaching nuisance levels.

Overall, the environmental benefit of setting a higher minimum flow at periodic intervals to provide for flushing flows during the irrigation season would be limited, while further preventing taking for a specified period during the peak irrigation months.

**(e) Demand for water, including community water supplies**

The proposed minimum flow has been developed taking into account local demand for water. Consultation has shown that the demand for water from the Lindis catchment is not limited to irrigation needs only. The river also contributes to the well-being of the local community and animal welfare by providing for domestic, communal and stock water supplies.

The proposed minimum flow will impact on the availability of water for irrigation (see discussion below), but does not restrict the taking and use of water under the Water Plan's permitted activity rules (except Rules 12.1.2.4 and 12.1.2.5) and under RMA s14(3)(b), provided the taking or use does not, or is not likely to, have an adverse effect on the environment.

**(f) Existing water uses and associated infrastructure**

The local farming community in the Lindis catchment is currently reliant on access to irrigation water, but water availability under the current situation (i.e. without a minimum flow restriction) is already reduced to 80% in an average year, and can drop to as low as 40% in a dry year. The proposed summer minimum flow of 750 l/s is likely to further reduce the availability of irrigation water. An overview of the estimated impacts of the proposed minimum flow on water availability, calculated by using ORC's rationing model, is shown below in Table 3.

The impact of the proposed minimum flow restrictions on irrigators can be mitigated or reduced through the use of nearby alternative water sources and, in a limited number of instances, water storage. The use of more efficient irrigation infrastructure, which is already encouraged through the existing provisions of the Water Plan, will further assist with minimising loss or wastage of water and reducing the shortfall of water to irrigate currently irrigated areas.

The figures shown in Table 3 illustrate that the use of efficient irrigation infrastructure would enable irrigators to achieve greater reliability of supply than what is presently achieved under the current irrigation practices.

**Table 3: The effect of natural restrictions and the proposed minimum flow on water availability<sup>2</sup>**

	Number of days for rationing (1 Oct – 31 May)	Greatest number of continuous rationing days (1 Oct – 31 May)	Number of days when no water is available (1 Oct – 31 May)	Shortfall of water (in Mm <sup>3</sup> /yr) (1 Oct – 31 May)
<b>Scenario 1 : no minimum flow under current irrigation practices (allocation of 2,084 l/s)</b>				
<b>Average</b>	46	21	0	1.73
<b>Minimum</b>	0	0	0	0
<b>Maximum</b>	133	66	0	7.51
<b>Scenario 2 : 750 l/s minimum flow under current irrigation practices (allocation of 2,084 l/s)</b>				
<b>Average</b>	81	41	0	5.87
<b>Minimum</b>	0	0	0	0
<b>Maximum</b>	172	130	0	16.95
<b>Scenario 3 : 750 l/s minimum flow and efficient irrigation (allocation of 1,146 l/s)</b>				
<b>Average</b>	36	16	0	1.07
<b>Minimum</b>	0	0	0	0
<b>Maximum</b>	117	65	0	5.64

**(g) Environmental, social, cultural, recreational and economic costs and benefits of taking and using water before and after the implementation of a minimum flow regime**

An economic assessment was undertaken by BERL to measure the potential cost of the proposed summer minimum flow on the local farming community and the wider regional economy.

The study indicates that the value added impacts from production based on the current availability of irrigation water sourced from the Lindis River is estimated to be NZ\$ 1.76 million at farm gate and NZ\$ 4.3 million for the Otago Region. Employment increases from 14 FTE's 'on farm' to 30 FTE's in Otago. Although the study findings show that the implementation of the proposed minimum flow is likely to result in a 5.6 % reduction in gross margin and employment, these findings also suggests that the economic impact of the proposed minimum flow on the local and regional economy is likely to be relatively small in an average year and that annual impact of fluctuations in environmental conditions on water availability for irrigation is greater overall than those of the proposed minimum flow on the availability of water for irrigation in any year.

The use of available alternative water source (Clutha/Mata-Au and the aquifers of the Bendigo-Tarras Basin), efficient irrigation infrastructure and water storage impacts to mitigate the impacts of the proposed minimum flow will generate initial investment cost. But on the long term these measures are likely to generate benefits, including:

<sup>2</sup> The allocation figures (2,084 l/s and 1,146 l/s) are based on the findings of the report *Lindis Catchment: Hydrological analysis to support an economic assessment of the potential impact of a minimum flow regime for the Lindis River* by OPUS International Consultants (2015).

- Greater reliability of supply for irrigators that use an alternative water source.
- Increased reliability of supply for irrigators that don't have access to an alternative water source (as more irrigation water from the Lindis is being substituted by water from an alternative source).
- Potential for the further expansion of irrigated land area (through the use of alternative water sources).
- The productivity gains and increased farm output (which in turn generate new jobs in the primary sector, stimulate investment in ancillary industries and contribute to the growth of regional GDP).
- Increased capital value of the land (through Off- and on-farm capital investments in water storage, water supply and efficient application infrastructure).

**(h) Any other relevant matter in giving effect to Part 2 of the Resource Management Act**

The proposed 750 l/s minimum flow further contributes to the social and cultural well-being of the community by:

- Providing for the natural character of the Lindis River (RMA S6(a)) and the relationship Maori have with the Lindis River and the cultural values and traditions associated with this river (RMA S6(e))
- Having particular regard to the maintenance and enhancement of amenity values, including aesthetic and recreational attributes associated with the resource (RMA s7(9)).

The table in Appendix 2 describes the anticipated outcomes of the proposed summer minimum flow for identified non-economic community values.

**2.1.2.3 Amending the proposed minimum flow**

Amending the plan change proposal to provide for lower summer minimum flow (450 l/s or less) or to provide for a stepped minimum flow is likely to increase the risk of the summer minimum flow failing to provide for important non-economic community values or could result in the minimum flow not giving effect to the NPS. A lower summer minimum flow would, however, result in more lenient water take restrictions during the height of the irrigation season or during drought conditions. On the other hand, increasing the minimum flow to 1,000 l/s is unlikely to provide significant additional benefits to ecosystem values (due to high temperatures in the Lower Lindis), while further reducing reliability of supply for irrigators.

An overview of the estimated impacts of alternative minimum flow options on water availability, calculated by using ORC's rationing model, is shown below in Table 4.

**Table 4: The effect of alternative minimum flow options on water availability<sup>3</sup>**

	Number of days for rationing (1 Oct – 31 May)	Greatest number of continuous rationing days (1 Oct – 31 May)	Number of days when no water is available (1 Oct – 31 May)	Shortfall of water (in Mm <sup>3</sup> /yr) (1 Oct – 31 May)
<b>450 l/s minimum flow &amp; allocation of 2,084 l/s</b>				
<b>Average</b>	<b>68</b>	<b>33</b>	<b>0</b>	<b>3.95</b>
<b>Minimum</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Maximum</b>	<b>163</b>	<b>129</b>	<b>0</b>	<b>12.65</b>
<b>1,000 l/s minimum flow &amp; allocation of 2,084 l/s</b>				
<b>Average</b>	<b>89</b>	<b>44</b>	<b>0</b>	<b>7.71</b>
<b>Minimum</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Maximum</b>	<b>176</b>	<b>131</b>	<b>8</b>	<b>20.72</b>

Appendix 2 shows a comparison of the anticipated outcomes of the proposed summer minimum flow for identified non-economic community values against the likely outcomes for these values provided by alternative summer minimum flow options.

#### **2.1.2.4 May: summer or winter regime?**

Table 5 lists the key values for water management in the Lindis during the month May.

**Table 5: Overview of key values for river management in the month May.**

Value	Explanation
Water for irrigation (shoulder season)	<i>May is outside the key irrigation season and access to irrigation water during this month is not as critical as it is during the peak summer months. Review of available metering data suggests that some water is still being taken for irrigation during May, but that water taking gradually drops as the month progresses.</i>
Domestic, communal and stock water supplies	<i>Reliable access to water contributes to the well-being of the local community and animal welfare.</i>
Brown Trout spawning	<i>May is the start of the fish spawning season and adult freshwater fish require higher river flows to return to the Lindis from the Clutha main stem.</i>
Hydro-electricity and storage	<i>Inflows into Lake Dunstan from the Clutha/Mata-Au are needed to ensure sufficient water storage to meet peak hydro-electricity demand during winter.</i>
Amenity, natural character	<i>The river is an important landscape feature, contributing to the amenity and scenic value of the wider environment.</i>

The proposed summer minimum flow of 750 l/s from 1 May to 31 May seeks to ensure good access to irrigation water from the Lindis River at the end of the irrigation season while also maintaining continuous flows throughout the catchment and habitat for brown trout spawning.

Extending the 1,600 l/s winter minimum flow into the month of May has various benefits. It ensures higher inflows from the Lindis River into the Clutha/Mata-Au at the start of the hydro-electricity generation period and higher river flows at the start of the

<sup>3</sup> The allocation figures (2,084 l/s and 1,146 l/s) are based on the findings of the report *Lindis Catchment: Hydrological analysis to support an economic assessment of the potential impact of a minimum flow regime for the Lindis River* by OPUS International Consultants (2015).

yearly trout run up the Lindis River. A 1,600 l/s minimum flow also reduces the risk of flat-lining the river over an extended period of time.

It is difficult to accurately assess the potential economic impacts of extending the winter minimum flow into May due to the lack of a comprehensive set of water metering data (a significant number of primary allocation takes in the Lindis catchment are currently not metered). However, review of the available water metering records for the irrigation seasons 2013/2014 and 2014/2015 shows that:

- Approximately one in two measured primary allocation takes from the Lindis River have practically ceased taking water by the beginning of May.
- Some measured takes that still take water at the start of this month, stop taking water in the second half of the month.
- The volume of water taken to supply the three main irrigation races (Tarras race, Ardour Race and Begg-Stacpoole race) is greatly reduced in May.

ORC's Rationing Model was used to determine whether water taking over the period 1 May to 31 May would result in any additional water take restrictions if the minimum flow was raised from 750 l/s to 1,600 l/s during May. The model indicates that having a minimum flow of 1,600 l/s during May would only generate additional restrictions (even during dry years), if the total instantaneous rate of take from the Lindis River during that month would exceed 750 l/s.

Restrictions on the taking of irrigation water from the Lindis River during May cannot be mitigated through the use of an alternative water source. A condition is currently imposed on all resource consents to take water from the Clutha/Mata-Au or the Bendigo and Lower Tarras Aquifers requiring consent holders to cease water taking from 1 October to 30 April, in order to protect existing hydro-electricity generation operations on the Clutha/Mata-Au. (See also part 3.1.2.3 of this report).

## 2.2. Primary allocation limit

Proposed Plan Change 5A proposes to set a primary allocation limit for the Lindis River of 1,000 l/s in Schedule 2A of the Water Plan.

### 2.2.1. Summary

For detail of the submissions received relating to the proposed primary allocation regime, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
8	<i>Primary allocation limit</i>	10	38-43	5-9; 11-15

A summary of the decisions requested follows:

- Provide justification for the proposed primary allocation limit.
- Amend the proposed primary allocation limit to better reflect historic water use.
- Set a primary allocation limit that is agreed between landowners and ORC.

## **2.2.2. Information to assist decision making**

### **2.2.2.1 Water Plan provisions**

The primary allocation limit is the amount of water that can be taken from a catchment under primary allocation consents.

Primary allocation limits are set under Policy 6.4.2 of the Water Plan to provide for aquatic ecosystems and socio-economic and cultural wellbeing, while also enabling reliable access to water for existing water permit holders.

Schedule 2A of the Water Plan identifies minimum flows for specified catchments.

Matters that need to be considered when setting primary allocation limits for rivers are listed in Water Plan Schedule 2D.2.

### **2.2.2.2 Rationale for setting the proposed primary allocation limit**

The setting of allocation limits is required by the NPSFM and the proposed primary allocation limit has been developed by considering the relevant matters listed in Schedule 2D.2 of the Water Plan.

#### **(a) Amount of water currently allocated as primary allocation**

There are currently 30 consented surface water takes from the Lindis River with primary allocation status. A further 8 consented groundwater takes are located within the proposed boundaries of the Lindis Alluvial Ribbon Aquifer. The combined total volume of water allocated through these consents is currently estimated to be approximately 4,000 l/s.

#### **(b) Amount of water currently taken as primary allocation**

The consented allocation is not reflective of the actual volume of water that is being taken from the Lindis River because the demand for irrigation water far exceeds the supply during the peak irrigation months. Estimates of actual water use vary between 2,000 l/s and 2,300 l/s, but further scope exist to reduce actual water taking from the Lindis River by using more efficient irrigation infrastructure and alternative water sources.

The proposed primary allocation for the Lindis River was developed while considering records of take, historic water use and irrigation footprint, as well as the likely need for irrigation water from the Lindis if more efficient irrigation techniques and alternative water sources were used. A primary allocation limit of 1,000 l/s is estimated to be sufficient to efficiently irrigate the area that has historically relied on irrigation water from the Lindis River and where economic,

physical or legal obstacles stand in the way of accessing alternative sources of irrigation water.

**(c) The 7-day mean annual low flow**

The Proposed NES on Ecological Flows and Water Levels proposes a baseline for developing a primary allocation limit for rivers and streams. The NES suggest a primary allocation limit of 50% of MALF for rivers and streams with mean flows greater than 5,000 l/s.

Policy 6.4.2(a) of the Water Plan also suggests that 50% of MALF represents an appropriate default primary allocation limit.

The proposed primary allocation limit is generally consistent with the principles set out in the Proposed NES and Policy 6.4.2 of the Water Plan.

**(d) Proposed minimum flow regime**

The proposed primary allocation limit was developed in conjunction with the proposed summer minimum flow, in order to provide good surety of supply for irrigators, while also safeguarding other values that were given significance in relevant planning documents (NPSFM and Water Plan) or that were identified as being important community values.

**(e) Possible sources of water**

While some irrigators in the upper and middle reaches of the Lindis catchment are solely reliant on irrigation water from the Lindis River, others in the Lower catchment are currently using water taken from the Lindis River in areas that are located close to an alternative water source. Alternative water sources that still have water available for allocation include the Clutha Mata-Au, the Lower Tarras Aquifer and the Bendigo Aquifer.

**(f) Acceptable duration and frequency of rationing among consented water users**

If a summer minimum flow of 750 l/s for primary allocation takes in the Lindis catchment and the total volume of water taken within primary allocation would reflect the proposed allocation limit of 1,000 l/s, reliability of supply during an average year would be greater than the reliability of supply that is currently provided by the Lindis River (See table 3 on page 12 of this report).

**(g) Social and economic benefits of taking and using water**

In developing the proposed primary allocation limit ORC has considered the need for continued access to the Lindis River for irrigation water reliance of the social and the economic benefits that arise from the use of this resource (See part 2.1.2.1 of this report).

**2.2.2.3 Amending the primary allocation limit**

In water short catchments, such as the Lindis catchments, there is an inverse relationship between the volume of water taken under primary allocation and reliability of supply.

The greater the primary allocation limit, the greater the demand for water, and the less likely permit holders will be able to realise the quantity allocated in their consent during periods of low river flows. More rationing will be needed. If the allocation limit is set lower, then there will be greater surety of water supply (though this is not guaranteed as the Lindis is a water water-short-catchment).

## 2.3. Supplementary allocation regime

Proposed Plan Change 5A proposes to set the following supplementary allocation minimum flow and block sizes for the Lindis River in Schedule 2B of the Water Plan:

- Minimum flow for 1st supplementary allocation block of 500 l/s :
  - May to November: 2,200 l/s
  - December to April: 1,600 l/s
- Minimum flow for 2nd supplementary allocation block of 500 l/s
  - May to November: 2,700 l/s
  - December to April: 2,100 l/s

### 2.3.1. Summary

For detail of the submissions received relating to the proposed supplementary allocation regime, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
35	<i>Schedule 2B – Supplementary allocation regime</i>	10	36-38	5-9; 11-15

A summary of the decisions requested follows:

- Adopt the proposed supplementary allocation regime.
- Specify the starting dates for the summer and winter supplementary allocation minimum flow period.

### 2.3.2. Information to assist decision making

#### 2.3.2.1 Water Plan provisions

When no more water can be allocated to new water takes through primary allocation consents, further water is available to be taken as supplementary allocation, subject to a higher minimum flow. These takes will need to stop much sooner than primary allocation takes. Supplementary allocation is water taken typically in winter and spring when river flows are much higher.

Schedule 2B of the Water Plan identifies supplementary allocation blocks and supplementary minimum flows for specified catchments in Otago.



Supplementary allocation blocks and supplementary minimum flows are set under Policy 6.4.9 of the Water Plan.

### **2.3.2.2 Specifying starting dates for the supplementary allocation minimum flow periods**

Specifying the starting dates for the summer and winter supplementary allocation minimum flow periods in Schedule 2B will provide more certainty and improve the user-friendliness of the Water Plan.

## **2.4. Flow monitoring site**

Proposed Plan Change 5A proposes to set the primary and supplementary minimum flow at the Ardgour Road flow recorder site.

### **2.4.1. Summary**

For detail of the submissions received relating to the location of the minimum flow monitoring site, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
15	Schedule 2A and 2B – monitoring site	10	45	5-9; 11-15

A summary of the decisions requested follows:

- Adopt the Ardgour Road flow recorder as the minimum flow monitoring site.

### **2.4.2. Information to assist decision making**

#### **2.4.2.1 Water Plan provisions**

Relevant minimum flow monitoring sites for primary and supplementary allocation are specified in Water Plan Schedules 2A and 2B and are shown on the B-series maps.

## **2.5. Mapping of the Lindis catchment**

Proposed Plan Change 5A proposes to add references to the Lindis catchment to Rule 12.1.4.4 and new maps B4 and B7 in the B-series Maps.

For detail of the submissions received relating to the mapping of the Lindis catchment, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
36	Rule 12.1.4 and mapping of the Lindis Catchment	6-7, Map B4, Map B7	45-49	10-15

A summary of the decisions requested follows:

- Remove the reference to the proposed B-series maps of the Lindis catchment in Rule 12.1.4.4.
- Adopt the proposed boundaries of the Lindis catchment as shown on maps B4 and B7.
- Include the Tarras Creek sub-catchment within the Lindis catchment.
- Map the Tarras Creek catchment as a separate area within the Lindis catchment and include new plan provisions to exclude water permit holders in the Tarras Creek catchment from the Lindis minimum flow.

## **2.5.1. Information to assist decision making**

### **2.5.1.1 Water Plan provisions**

The B-series of the Water Plan Maps show the boundaries of the catchment within which consented water takes will be subject to the minimum flows and allocation limits set in Water Plan Schedule 2A and 2B. Rule 12.1.4.4 of the Water Plan provides for the taking and use of water as primary allocation applied for prior to 28 February 1998 in Schedule 2A catchments shown on the B-series Maps as a restricted discretionary activity.

### **2.5.1.2 References proposed in Rule 12.1.4.4**

Rule 12.1.4.4 (Restricted discretionary activity) applies to resource consent applications to replace an existing water permit where water is taken from a Schedule 2A catchment shown on the B-series maps and used within the boundaries of this catchment. A consent holder who takes surface water from a Schedule 2A catchment shown on the B-series maps and uses this water outside the boundaries of this catchment can apply for replacement consent under Rule 12.1.5 (Discretionary activity).

Similar provisions guide decision-making when considering a recourse consent applications under both rules 12.1.5 and 12.1.4.4. However, there are some differences for discretionary activities, which must have regard to:

- The policies and objectives of the Water Plan, particularly those included in sections 5.3, 5.4, 6.3 and 6.4 of the Water Plan.
- The RMA and NPSFM.

Further, public notification must be considered on a case-by-case basis (RMA s95A).

The addition of the Lindis catchment and map references to Rule 2.1.4.4 is a critical part of the proposed plan change. Removing the references to the Lindis catchment would cause all resource consent applications to become a fully discretionary activity under Rule 12.1.5, regardless whether the water is used inside or outside the boundaries of the Lindis catchment.

### **2.5.1.3 Mapping of the Lindis Catchment in the B-series maps**

The Tarras Creek sub-catchment was initially included within the boundaries of the Lindis catchment as shown on the maps of the Consultation Draft for Proposed Plan Change 5A (April 2014). Feedback received on the Consultation Draft for Proposed Plan Change 5A suggests that Tarras Creek and the Lindis River are not hydraulically connected.

ORC has undertaken a review of aerial photographs, satellite imagery, and LIDAR (Light Detection and Ranging) data. The review shows that there is no clear flow path from the Tarras Basin to the Lindis River and that at low flows Tarras Creek does not contribute to the flows in the Lindis River or does not recharge the Lindis Alluvial Ribbon Aquifer.

### **2.5.1.4 Avoiding undue restrictions for water users in the Tarras Creek sub-catchment**

Proposed Plan Change 5A does not apply to water permit holders taking surface water from the Tarras Creek catchment. They would not be restricted by the minimum flows and the allocation limits that apply to the Lindis catchment by excluding the Tarras Creek catchment from the Lindis catchment in the B-series maps.<sup>4</sup> Water permits holders in the Tarras Creek catchment will be subject to Water Plan Policy 6.4.4 that provides for the setting of minimum flows outside Schedule 2A catchments.

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<sup>4</sup> Other restrictions, such as residual flow restriction, may still apply.

### 3. Management regime for the groundwater resources of the Lindis Catchment and the Bendigo-Tarras Basin

This chapter provides an overview of submitter requests relating to the management of the Lindis Alluvial Ribbon Aquifer and the maximum allocation limits and the groundwater take restrictions that are proposed for the Lower Tarras, Bendigo and Ardgour Valley Aquifers. Decisions requested relating to the mapping of the aquifer boundaries are also discussed.

#### 3.1. Management of the Bendigo, Lower Tarras and Ardgour Valley Aquifers

Proposed Plan Change 5A sets to:

- Include maximum allocation limits for the Lower Tarras, Bendigo and Ardgour Valley Aquifers in Schedule 4A.
- Include restrictions for irrigation takes between 1 May and 31 August from the Bendigo and Lower Tarras Aquifers in Schedule 4B.2.
- Include new maps for the Lower Tarras, Bendigo and Ardgour Valley Aquifers C5 and C6 in the C-series of the Water Plan Maps.

##### 3.1.1. Summary

For detail of the submissions received relating to the management of the Lower Tarras, Bendigo and Ardgour Valley Aquifers, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
37	<i>Schedule 4A - Maximum allocation limits</i>	12	50	9-15
38	<i>Schedule 4B.2 – Restrictions on groundwater takes</i>	12	51-53	9-15
22	<i>Map C-series</i>	<i>Map C5, Map C6</i>	53	13-15

A summary of the decisions requested follows:

- Remove the reference to the Bendigo and Lower Tarras Aquifers from Water Plan Schedule 4B.2.
- Add a restriction for irrigation takes between 1 May and 31 August from the Ardgour Valley Aquifer in Schedule 4B.2.

### **3.1.2. Information to assist decision making**

#### **3.1.2.1 Water Plan provisions**

Groundwater takes are managed by allocation limits and aquifer restrictions.

Water Plan Policy 6.4.10A1 provides for the setting of maximum allocation limits for aquifers. A maximum allocation limit is a limit on the volume of groundwater that can be taken annually from an aquifer by consent. It is set recognising the need to maintain long term groundwater levels and water storage in the aquifer and avoid groundwater contamination and permanent aquifer compaction.

Water Plan Policy 6.4.10A1 provides for the setting of groundwater take restrictions. These restrict the taking of groundwater from an aquifer during extended periods of low recharge, or assist with sustainably managing groundwater in localised areas of high demand.

Maximum allocation limits are set in Schedule 4A of the Water Plan, while Schedule 4B identifies aquifer restriction levels for specified aquifers in Otago.

The matters that will be considered when setting maximum allocation limits and aquifer restrictions are listed in Schedule 4C.1 and 4C.2 of the Water Plan respectively.

#### **3.1.2.2 Rationale for setting maximum allocation limits**

The setting of maximum allocation limits for aquifers is required by the NPSFM and the proposed maximum allocation limit has been developed by considering the relevant matters listed in Schedule 4C.1 of the Water Plan.

##### **(a) Physical properties of the aquifer**

Groundwater in the aquifers of the Bendigo-Tarras Basin occurs within several distinct geological deposits. The Bendigo Aquifer is mostly characterised by the presence of higher permeability sediments associated with an old Clutha/Mata-Au river channel. Permeability in the Lower Tarras Aquifer is generally lower, except in locations close to the Clutha/Mata-Au where higher permeability gravels occur.

##### **(b) The amount and characteristics of recharge to the aquifer**

Modelling was carried out to better understand land-surface recharge of the Lower Tarras and Bendigo Aquifers. The findings of this investigation, which is discussed in the Bendigo and Tarras Groundwater Allocation Study report (ORC, 2010), show that these aquifers only receive a modest volume of land-surface recharge from rainfall, infiltration from irrigation and smaller surface streams, and that the Clutha/Mata-Au is the dominant source of recharge for the Bendigo and Lower Tarras aquifers. These two aquifers also receive a modest volume of land-surface recharge from rainfall and infiltration from irrigation and smaller surface streams. Land-surface recharge occurs sporadically and requires large rainfall events to saturate soils and to create the potential for aquifer recharge. In the summer months, irrigated land contributes significantly more recharge than non-irrigated land (due to irrigated soils having a lower initial moisture deficit when rainfall occurs).

The Ardour Valley Aquifer receives most of its inflows through land surface recharge.

**(d) Interaction with surface water bodies and their values**

The 2010 Bendigo and Tarras Groundwater Allocation Study results indicate that an increase in groundwater extraction from within the Lower Tarras and Bendigo Aquifers results in increased recharge from the Clutha/Mata-Au.

More recent investigations were carried out in 2015, during which comparison was made between groundwater levels in Lower Tarras and Bendigo Aquifers and the LIDAR level of the Clutha/Mata-Au. These investigations confirmed the 2010 findings, showing that the gradient between the groundwater level and the river level is relatively flat, and that drawdown from pumping in the aquifers, especially at close distance to the Clutha/Mata-Au, is likely to induce infiltration from the river.

The Clutha/Mata-Au supports diverse values, including ecosystem and Kai Tahu values, supply of irrigation water and hydro-electricity generation.

There are two existing hydro-electric power stations on the Clutha/Mata-Au downstream from the Bendigo-Tarras Basin. Policy D of the National Policy Statement for Renewable Electricity Generation 2011 requires decision-makers, to the 'extent reasonably possible', to ensure third party activities are managed in a way that avoids reverse sensitivity effects that could impede the operation, maintenance, upgrade and development of existing renewable electricity generation activities.

**(f) The effects of taking groundwater on the aquifer**

The proposed maximum allocation limits for the Lower Tarras, Bendigo and Ardour Valley Aquifers have been determined based on how the Bendigo-Tarras groundwater system operates and responds to increased pumping; and the extent and permeability of the aquifer system from geophysical information.

The proposed maximum allocation limits also take into account that a degree of uncertainty remains regarding the aquifer properties in some areas and are set to avoid the risk for drawdown and avoid impacts of water taking on existing bores.

**(g) Demand for water and existing water uses, including community water supplies**

The proposed maximum allocation limits for the Lower Tarras, Bendigo and Ardour Valley Aquifers provide for existing activities that rely on access to water from these resources, but also take into account that the demand for water from these aquifers may increase as the availability of water from the Lindis River for taking during low flow periods will reduce if a minimum flow for this river is set in Schedule 2A.

**(h) Environmental, social, cultural, recreational and economic benefits of taking and using water**

Overall, more groundwater can be allocated from the Bendigo-Tarras Basin. This provides a stimulus for economic growth in the lower Lindis and on the Clutha/Mata-Au river terraces.

By allowing irrigators that currently rely on irrigation water from the Lindis River to shift to a more reliable water source, the proposed maximum allocation limits will not only provide for the economic well-being of the local community, but also assist with safe-guarding the cultural, recreational and environmental values that are supported by the Lindis River.

**(i) Any other relevant matter in giving effect to Part 2 of the RMA**

RMA s7 requires decision makers to have particular regard to the benefits of renewable electricity generation.

Court decisions in various cases, such as *Aoraki Water Trust v Meridian Energy Limited* [2005] 2 NZLR 268 (HC) at 280 per Chisholm and Harrison JJ and *Southern Alps Air v Queenstown Lakes District Council* [2008] NZRMA 47 (HC) per Panckhurst J, have recognised that the common law principles of non-derogation and legitimate expectation also apply to the express provisions of the RMA.

**3.1.2.3 Rationale for setting aquifer restrictions**

The aquifer restrictions have been developed by considering the relevant matters listed in Schedule 4C.2 of the Water Plan.

**(a) Physical properties of the aquifer**

(See part 3.1.2.2 of this report)

**(c) The amount and characteristics of recharge to the aquifer**

(See part 3.1.2.2 of this report)

**(d) The proposed or existing maximum allocation limit**

(See part 3.1.2.2 of this report)

**(e) Interaction with surface water bodies and their values**

The proposed aquifer restrictions are set to protect existing hydro-electricity generation on the Clutha/Mata-Au main stem and to ensure sufficient inflows into Lake Dunstan to ensure sufficient water storage to meet peak hydro-electricity demand during winter. (See part 2.1.2.4 of this report)

**(g) The environmental, social, cultural and economic effects of the restriction level on existing users of groundwater from the aquifer**

Including a reference to the Bendigo and Lower Tarras Aquifers in Schedule 4B.2 will not impact any existing consent holders taking water from these aquifers, nor will it result in a change to current plan administration practice. The proposed restrictions are currently included as a consent condition on all resource consents to take groundwater from an aquifer that is hydraulically connected to the Clutha/Mata-Au. Including the Bendigo and Lower Tarras Aquifers in Schedule 4B.2 will provide more certainty for consent applicants and plan administrators, and streamline the consent decision-making by reducing the need for electricity generators to be involved in these processes. Removing the references to the Bendigo and Lower Tarras Aquifers from Schedule 4B.2 would result in the need to address the potential impacts on existing hydro-electricity generation on the

Clutha/Mata-Au main stem during the resource consent process, hence increasing the complexity, duration and costs associated with this process.

The proposed restrictions only apply to irrigation takes (and water takes for surface storage for an end purpose of irrigation) from 1 May to 30 September. No restriction is imposed on water takes for purposes other than irrigation, such as domestic and stock water supply, and frost fighting.

By the start of May water taking for irrigation in the Lindis area has either ceased or has been greatly reduced. A shortfall in irrigation water supply from the Bendigo and Lower Tarras Aquifers due to the proposed restrictions is only expected to be temporary and could partially be alleviated by increased opportunity to take water from the Lindis due to higher river flows during autumn.

#### **3.1.2.4 Ardgour Valley Aquifer and hydro-electricity generation**

The volume of groundwater that Proposed Plan Change 5A seeks to allocate from the Ardgour Valley Aquifer is small, particularly when compared with the allocation limits proposed for the other aquifers in the Bendigo-Tarras Basin or the mean flow rate of Clutha/Mata-Au.

The findings from the 2010 Bendigo and Tarras Groundwater Allocation Study indicate that this aquifer is not hydraulically connected to the Clutha/Mata-Au and that it only receives a small amount of recharge from sporadic rainfall events.

Setting restrictions on groundwater takes from this aquifer is unlikely to make any meaningful contribution to the protection of hydro-electric operations on the Clutha/Mata-Au. Bores within this aquifer are located at considerable distance from the Clutha/Mata-Au. Consequently, there is significant lag time between the taking of groundwater from this aquifer and the effect on surface water levels in the Clutha/Mata-Au.

## **3.2. Management of the Lindis Alluvial Ribbon Aquifer**

Proposed Plan Change 5A proposes to retain the reference to the Lindis Alluvial Aquifer in Water Plan Schedule 2C. The plan change also proposes to extend the boundaries of this aquifer from the edge of the Ardgour Valley at the SH8 Bridge right down to the Clutha/Mata-Au.

### **3.2.1. Summary**

For detail of the submissions received relating to the management of the Lindis Alluvial Ribbon Aquifer, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
16	<i>Schedule 2C – Lindis Alluvial Ribbon Aquifer</i>	11	50	9-15
22	<i>Map C-series</i>	<i>Map C5, Map C6</i>	53	10-15



A summary of the decisions requested follows:

- Retain the reference to the Lindis Alluvial Ribbon Aquifer in schedule 2C of the Water Plan.
- Adopt the mapped extent of Lindis Alluvial Ribbon Aquifer as proposed to ensure the health of the river and continuity with the minimum flow.
- Retain the original extent of Lindis Alluvial Ribbon Aquifer as currently shown in C-series Maps.
- Add a restriction for irrigation takes between 1 May and 31 August from the Lindis Alluvial Ribbon Aquifer in Schedule 4B.2.

### **3.2.2. Information to assist decision making**

#### **3.2.2.1 Water Plan provisions**

Aquifers with a strong hydrological connection to adjoining surface water bodies are listed in Schedule 2C of the Water Plan and are managed as surface water (Policy 6.4.1A). Groundwater takes from Schedule 2C aquifers are subject to a minimum flow and surface water allocation regime.

Groundwater takes in the portion of the Lindis Alluvial Ribbon Aquifer that are located upstream from the SH8 Bridge are currently managed as surface water takes through the inclusion of this aquifer in Schedule 2C.

#### **3.2.2.2 Mapped extent of the Lindis Alluvial Ribbon Aquifer**

The 2010 Bendigo and Tarras Groundwater Allocation Study shows that the Lindis Alluvial Ribbon is closely connected to the Lindis River and that takes from within this aquifer have a cumulative impact on surface flows in this river. The study also shows that bores in the Lower Lindis Alluvial Fan Zone, located close to the lower reaches of the Lindis River downstream of the SH8 Bridge, can affect surface flows in the Lindis River and the connection of this river with the Clutha/Mata-Au.

Including the Lower Lindis Alluvial Fan Zone within the mapped extent of the Lindis Alluvial Ribbon Aquifer will minimise the effects of bores in this zone on surface flows in the Lindis downstream of the SH8 Bridge. This will result in an economic cost for groundwater permit holders in the Lower Lindis Alluvial Fan Zone, as their takes will be less sure than if there was no regard to the Lindis minimum flow.

#### **3.2.2.3 Lindis Alluvial Ribbon Aquifer and hydro-electricity generation**

Groundwater investigations indicate that the Lindis Alluvial Ribbon Aquifer is not hydraulically connected to the Clutha/Mata-Au main stem. The main portion of the Lindis Alluvial Ribbon Aquifer is located at considerable distance from the Clutha/Mata-Au, several metres above the river's surface. Groundwater takes from within the Lindis Alluvial Ribbon Aquifer are generally not expected to have a stream depletion effect on the flows in the Clutha/Mata-Au. Accordingly, groundwater take restrictions for irrigation takes from the Lindis Alluvial Ribbon Aquifer are not likely to materially assist in protecting the viability of hydro-electricity operations on the main stem of the Clutha/Mata-Au.

Should a proposed groundwater take from within the Lindis Alluvial Ribbon Aquifer be likely to have a stream depletion effect on flows in the Clutha/Mata-Au, then an appropriate restriction can be added as a condition to that consent.

## 4. Implementation

This chapter addresses matters relating to the implementation of the proposed minimum flow, allocation limits and groundwater restrictions.

### 4.1. Providing for reasonable transition timeframes

Proposed Plan Change 5A becomes fully operative after ORC has made its decision and any appeals have been resolved.

#### 4.1.1. Summary

For detail of the submissions received relating to this matter, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
2	<i>General Opposition</i>	2-4	4-8	15
5	<i>Policy 6.4.5, including transition timeframes</i>	2-4	54-61	15

A summary of the decisions requested follows:

- Implement the minimum flow regime as proposed.
- Amend the Water Plan to allow for an extension of the implementation timeline of the minimum flow.

#### 4.1.2. Information to assist decision making

##### 4.1.2.1 Water Plan provisions

Under Policy 6.4.5 of the Water Plan, the minimum flow will not apply until after a collective review of consents in the Lindis catchment is undertaken. This will occur before 2021 if there is agreement by the holders of deemed permits to adhere to minimum flows, or on the expiry of the deemed permits on 2 October 2021. Policy 6.4.5 effectively allows for a transition period, enabling local consent holders and other stakeholders to investigate the feasibility of measures that mitigate the effect of a minimum flow on water availability. These measures may include:

- The formation of a catchment-wide water management group.
- The use of more efficient irrigation practices.
- The supply of irrigation water from alternative sources.

Other aspects of the plan change, such as the primary and supplementary allocation limits and supplementary minimum flows (for surface water), and the maximum allocation limits and restriction levels (for groundwater), will come into full effect as soon as the plan change becomes operative.

#### **4.1.2.2 Provision of reasonable timeframes**

Policy E1 of the NPSFM states that implementation of the NPSFM is expected as promptly as is reasonable in the circumstances and that full implementation under the NPSFM is required by 31 December 2025. Policy E1 allows for the implementation timeframe to be extended to 2030 if the 2025 timeframe will affect plan quality or it would be impracticable for the council to complete implementation of a policy by 2025. Policy E1 stated that where it was impracticable for a regional council to fully implement the NPS-FM by end of 2015, regional councils were given the opportunity to develop or update a formal progressive implementation programme, which would outline the planned progress toward meeting the 31 December 2025 (or 2030) timeframe. Any programme of time-limited stages had to be formally adopted by 31 December 2015, and publicly notified.

The provisions of the Water Plan that direct ORC to set minimum flows and allocation limits for all the catchments in the Otago region became operative in 2004. In response to the future termination of mining privileges in October 2021 under RMA s413(3), ORC incorporated Plan Change 1C: Water Allocation into the Water Plan, becoming operative on 1 March 2012. Accordingly, ORC determined that as result of past changes to the Water Plan compliance of the plan with the water quantity provisions of the NPSFM was complete and that there was no need to notify a programme of time limited stages.

The process of developing a minimum flow and allocation limit for the Lindis catchment was first discussed with the Tarras community during a public workshop in February 2009.

The 2014 Consultation Draft for Proposed Plan Change 5A recommended a 450 l/s summer minimum flow for primary allocation consents, reflecting the two options proposed at the time of the Tarras Water Scheme proposal of 2012 (minimum flow with the scheme and minimum flow without the scheme). The recommended summer minimum flow was modified in light of consultation with the local and wider community and a 750 l/s summer minimum flow was now deemed more appropriate for managing the river to safeguard identified community values.

Proposed Plan Change 5A seeks to apply an equitable approach that provides for a transition timeframe that applies to all consent holders in the Lindis catchment and that is consistent with how the minimum flow will be implemented with other Schedule 2A catchments that are dominated by deemed permits. Deferring the implementation of the minimum flow could set a precedent for other catchments that are yet to be included in Schedule 2A. It would also mark a departure from the more even-handed approach that requires all deemed permit dominated catchments in Otago to comply with the minimum flow by 2 October 2021.

Having a minimum flow restriction that applies to all consent holders is critical in ensuring the effectiveness of a minimum flow in protecting important values during critical low flow periods. Extending the transition timeframes for some consent holders could compromise the ability of a minimum flow provision to achieve this outcome and could also undermine the effectiveness of a rationing regime adhered to by other consent holders.

## 4.2. Providing for a clear transition process

Proposed Plan Change 5A does not prescribe a specific process for transitioning towards the proposed new regime where water takes will be subject to a minimum flow.

### 4.2.1. Summary

For detail of the submissions received relating to this matter, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
5	<i>Policy 6.4.5, including transition timeframes</i>	<i>N.A.</i>	<i>54-61</i>	<i>15</i>

A summary of the amendments requested follows:

- Provide for new policies and rules that create a clear process for the transitioning from mining privileges to RMA consents.

### 4.2.2. Information to assist recommendations

#### 4.2.2.1 Water plan provisions

A guide “*Preparing a resource consent application to take surface water, including replacing a deemed permit*” was prepared to provide more clarity to water permit holders (including deemed permit holders) in the Lindis area around the process of replacing water permits. This guide explains the relevant provisions of the Water Plan.

In 2012 the Water Plan was amended with an updated suite of policies that include a framework for accommodating the transition from deemed permits to RMA consents and for addressing the various issues that may arise as a result of this process. This framework promotes flexibility by enabling community-driven and catchment-specific solutions to water management while allowing the consideration of unique local challenges and opportunities. It encourages water user groups to think laterally about how they want to manage their collective water use and issues including: abstraction, storage, conveyance, reporting, and monitoring.

Proposed Plan Change 5A does not address these provisions as the purpose of the plan change was never to provide a transition process specifically tailored to the needs of water permit holders in the Lindis.

#### 4.2.2.2 Water user groups

ORC is committed to engaging with water users groups, irrigation companies and individual consent holders in order to facilitate the transition from deemed permits to RMA consents. A Plan Change 1C project implementation programme is currently being developed by ORC to provide guidance and support services to water users and consent holders. The services offered include:

- Providing further information about the plan provisions, the benefits of shared water management and information requirements for water permit replacement.
- Providing support with the establishment of water management groups.
- Assisting consent holders with the establishment of relationships with affected parties.
- Providing support for groups that seek to investigate opportunities in water supply and irrigation infrastructure.

This program is independent from the plan change programme.

### 4.3. Enabling alternative management options

Proposed Plan Change 5A proposes a sustainable management regime for the taking of water in the Lindis Catchment and Bendigo-Tarras Basin. However, the plan change does not prescribe the management of the river channel, its margins or the wider river environment.

#### 4.3.1. Summary

For detail of the submissions received relating to this matter, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
2	General Opposition	N.A.	4-8	15

A summary of the decisions requested follows:

- Enable alternative river management techniques.
- Enable opportunities to move takes and apply innovation and new technology.

#### 4.3.2. Information to assist recommendations

##### 4.3.2.1 River management techniques

ORC supports a holistic management approach for the Lindis River which seeks to enhance river flows and provide meaningful benefits to ecosystem and community values through a broad range of activities, including river bed management, pest management and fisheries management and changes to water take and supply infrastructure.

The transition timeframe provided under Policy 6.4.5 gives the irrigators an opportunity to investigate opportunities provided through the development of new technologies and implement alternative river management measures where appropriate. ORC encourages local communities to continue investigating alternative river management measures, as they may assist irrigators with maintaining access to water under a

minimum flow restriction. However, carrying out alternative river management approaches does not relieve ORC from its duty to give effect to the NPSFM objectives by setting a minimum flow.

The current Water Plan allows for considering a wide range of activities that can play a vital part in maintaining the health of the Lindis River and its dependant ecosystems on a case by case basis through the resource consent process. Resource consent for these activities can be granted if these activities do not generate any adverse effects beyond what is considered acceptable under Policies of Chapter 8 of the Water Plan.

#### **4.3.2.2 Innovative water taking technology**

The resource consent and variation processes give applicants and consent authorities the flexibility to quickly respond to any necessary changes that may emerge during the design or implementation stages.

Changing the Water Plan provisions to specifically provide for some of those activities in the Lindis catchment would result in a more complex plan structure and would reduce the flexibility offered by the current policy framework that seeks to provide for these activities. Amending the Water Plan to that effect through the RMA Schedule 1 process is also likely to be a more time-consuming and costly process than a resource consent process.

## **4.4. Other implementation requests**

The Water Plan encourages the use of alternative water sources such as the Bendigo and Lower Tarras Aquifers and the Clutha/Mata-Au, but the plan change does not prescribe a process for accessing these alternative water sources.

### **4.4.1. Summary**

For detail of the submissions received relating to this matter, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
2	<i>General Opposition</i>	<i>N.A.</i>	<i>4-8</i>	<i>15</i>
30	<i>Implementation – Other requests</i>	<i>N.A.</i>	<i>61-62</i>	<i>15</i>

A summary of the decisions requested follows:

- Provide for an enabling policy from local and central government to streamline the process to access an alternative source.
- Allow no irrigation takes from Church Creek to protect wildlife and existing stock water takes.

## **4.4.2. Information to assist making decisions**

### **4.4.2.1 Water sources access**

Various proprietors, administrators & lessees (including New Zealand Transport Authority, Central Otago District Council, Land Information New Zealand, Department of Conservation and private persons) hold rights over the Clutha/Mata-Au river bed and the land located alongside the river. The Water Plan cannot address the private property rights associated with physical access to water.

ORC has investigated whether there are any possible obstacles to access for irrigators to alternative water sources. The investigation found:

- Much of the land along the Clutha/Mata-Au is modified and holds limited ecological values, except for a few pockets of land (e.g. Scientific Reserve).
- Where irrigators apply for easements over land administered by Land Information New Zealand, third parties such as Ngai Tahu and Contact Energy are entitled to participate in the decision-making process and ask for financial compensation.
- New Zealand Transport Agency and the Central Otago District Council promote an enabling approach and straightforward process towards the granting of easements across road corridors, with emphasis on road safety and maintenance of infrastructure
- Irrigators can often consider alternative pipeline routes or locations for infrastructure (e.g. irrigators can avoid the need for easements over river bed or riparian margins by using bores at close distance from the river instead of surface water intakes.)
- Irrigators can ensure future access to water after 2021 via the routes of existing water races by obtaining Certificate Specifying Mining Rights under RMA s417.

### **4.4.2.2 Church Creek**

When considering any consent application to dam or take water from Church Creek ORC considers the potential impacts of the proposal on ecosystem values and existing lawful uses of water supported by this water source, as provided for by the Water Plan. Residual flows may be used to protect instream values.



## 5. Process related matters

This chapter provides an overview of submitter requests and comments relating to the process that was undertaken by ORC to develop Proposed Plan Change 5A.

### 5.1. The evaluation process under Section 32

RMA s32 requires that:

- proposals must be examined for their appropriateness in achieving the purpose of the RMA.
- the benefits and costs, and risks of new policies and rules on the community, the economy and the environment need to be clearly identified and assessed.
- the analysis must be documented, so stakeholders and decision-makers can understand the rationale for policy choices.

#### 5.1.1. Summary

For detail of the submissions received relating to this matter, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
2	<i>General Opposition</i>	<i>N.A.</i>	<i>4-8</i>	<i>Whole</i>
27	<i>Section 32 Report</i>	<i>N.A.</i>	<i>63-64</i>	<i>Whole</i>

A summary of decisions requested follows:

- Carry out an evaluation of the plan change in accordance with RMA s32.
- Undertake a more comprehensive assessment of economic effects.
- Undertake a more comprehensive assessment of alternatives.

#### 5.1.2. Information to assist recommendations

##### 5.1.2.1 Resource Management Act 1991 Section 32

RMA s32(2)(a)(i) and (ii) require that the opportunities for economic growth and employment that are anticipated to be provided or reduced by a plan change proposal are assessed.

The Resource Management Amendment Act 2013 introduced new requirements under s32, which do not change its purpose, but encourage quantification of costs and benefits, stress the need to assess economic costs and benefits, and generally require a robust analysis that is proportionate to the type and scale of the proposal.

The Ministry for the Environment's guide to RMA s32, states that how economic growth and employment opportunities are to be assessed and whether specialist input is required depends on the scale and significance of the proposal and that the economy

should be considered from a broad perspective ... and that "...[economic] growth is not simply the increases in business activity, household income or population gain, but should be seen from a broad district, regional or even national perspective".

The economic analysis that was undertaken for this plan change provides a high level overview at district and regional level and does not look at costs on individual landowners or marginal economic opportunity costs between minimum flow options. To undertake an economic analysis at farm level could be problematic because of the differences between individual farms in terms of scale, farm-type, tax and financial arrangements. Furthermore, the Environment Court has noted (*Minister of Conservation v Otago Regional Council* EnvC C71/2002) that the benefit of an economic analysis is limited in cases where interests such as habitat for fish, recreational use, and landscape and amenity use have to be evaluated against abstractive uses and the impacts of those on industries and the people living in the farming community.

The High Court in *Contact Energy Ltd v Waikato Regional Council* (2007) 14 ELRNZ 128 (HC) also stated that "... while economic evidence can be useful, a s32 evaluation requires a wider exercise of judgement. This reflects that it is simply not possible to express some benefits or costs in economic terms ...".

In *King Salmon* the Court found that the need to consider alternatives will be determined by the nature and circumstances of the particular plan change. The requirement in RMA s32 is to identify all options, but not necessarily to assess all of these options in detail. Whether a screening of alternative options is required, or a full assessment of a number of options is required is dependent on the scale and significance of the proposal. (MFE, guide for s32)

## 5.2. The consultation process

The consultation process for preparing and undertaking a proposed change to a regional plan is set out under Clauses 3 and 6-8A of RMA Schedule 1.

### 5.2.1. Summary

For detail of the submissions received relating to this matter, refer to:

Provision Code	Provision	Page(s) of Proposed Plan Change	Page(s) of Summary of Decisions Requested	Page(s) of Section 32 Evaluation Report
2	General Opposition	N.A.	4-8	15-16

A summary of decisions requested follows:

- Limit input into the plan change process to those that are economically impacted by the proposal or parties that have been involved in the earlier stages of the community consultation process.
- Amend the proposal to better reflect the values that were identified by the local community during the community workshop process.

## **5.2.2. Information to assist recommendations**

### **5.2.2.1 RMA consultation obligations under Schedule 1**

Proposed Plan Change 5A has been prepared lawfully, in accordance with Clause 3 of RMA Schedule 1, which set out the statutory requirements for consultation which must occur before the notification of any proposed plan change, and Clauses 6-8A of RMA Schedule 1, which set out the processes and requirements for making submissions.

The aim of the consultation and submission process is to effectively communicate with individuals and groups with diverse values and concerns and give them with an opportunity to provide feedback in order to improve the quality and buy-in of the plan change proposal.

### **5.2.2.2 Consultation undertaken by ORC**

ORC has undertaken extensive consultation with local community members, Tangata Whenua and other stakeholder groups to identify community values and discuss options for the management of water resources.

To meet its consultation duties under the RMA ORC has applied a variety of consultation techniques:

- **ORC website**, with information made available on the plan change process, workshop presentations, and technical reports and data, together with a contact person for more information and questions.
- **Local interest group meetings** (period April – June 2015), organised by those parties and attended by ORC.
- **Community workshops** (6 workshops in the period February 2009 – April 2015), advertised in the local newspaper and local outlets, open to all members of the public.

In April 2014 ORC also produced a Consultation Draft of Proposed Plan Change 5A with a recommended option for managing the Lindis River and the aquifers in the Bendigo-Tarras Basin. Community feedback on the Consultation Draft and additional information provided by stakeholder groups after the release of the Consultation Draft was considered in the updated plan change proposal that was presented to the community during a public meeting in April 2015. Feedback from this round of consultation was considered in preparing the proposed plan change that was notified on 8 August 2015.

This process of collating information through different methods allowed ORC to identify values that were important to the local and wider community and to evaluate the appropriateness of any allocation and minimum flow regime option in providing for these values.

An important principle of undertaking meaningful and effective consultation is that the local authority is prepared to modify the proposal as a result of the consultation input. The High Court has endorsed the view that consultation should be undertaken with an open mind and that arguments made and values expressed can result in modification of proposals. This became evident in its ruling in *West Coast United Council v Prebble* (1988) 12 NZTPA 399 (HC) which states that “*Consulting involves the statement of a*

*proposal not yet finally decided upon, listening to what others have to say, considering their responses and then deciding what will be done.”*

#### **5.2.2.3 Restricting consultation to specific parties**

RMA Schedule 1 consultation and notification processes do not restrict who may be involved (apart from trade competition). Although one of the current RMA reform proposals could restrict participants in plan change processes, this is not law.

#### **5.2.2.4 Better reflect local community values**

The previous chapters 1-3 of this report address this matter.

## 6. Other requests

This chapter provides recommendations regarding specific requests about matters not dealt with elsewhere in this report.

### 6.1. Minor and consequential amendments

The plan change proposes a number of minor and consequential changes, including changes to the Plan's table of contents, page numbering, and headers and footers.

#### 6.1.1. Summary

For detail of the submissions received relating to this matter, refer to:

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
26	<i>Minor and consequential amendments</i>	13	63	N.A.

A summary of decisions requested follows:

- Make any further amendments necessary to give effect to the proposed plan change be made.

#### 6.1.2. Information to assist recommendations

Clause 10(2) of Schedule 1 RMA provides for any necessary consequential alterations.

## 7. Matters beyond the scope

<i>Provision Code</i>	<i>Provision</i>	<i>Page(s) of Proposed Plan Change</i>	<i>Page(s) of Summary of Decisions Requested</i>	<i>Page(s) of Section 32 Evaluation Report</i>
33	<i>Beyond the scope – general</i>	N.A.	65-66	N.A.-

A number of submissions requested decisions that are considered beyond the scope of the proposed plan change and which consequently would not be considered further through this process. These include:

- Add “birddiv” to the list of values of the Central Otago sub region included in Water Plan Schedule 1A.
- Amend the Water Plan to ensure those switching to the alternative source of water from the Clutha/Mata-Au should continue to enjoy primary allocation status in the replacement consent.
- Publicly notify allocation in the Lindis River and associated aquifers.
- ORC to take on a proactive management approach.

### 7.1.1. Information to assist making decisions

#### 7.1.1.1 Water Plan Schedule 1A

Proposed Plan Change 5A does not propose changes to Water Plan Schedule 1A, and any change to that schedule would need to be addressed through a separate plan change.

#### 7.1.1.2 Clutha Mata-Au takes

This plan change does not propose changes to the provisions that provide for the taking of surface water from the Clutha/Mata-Au, and any change to these provisions would need to be addressed through a separate plan change.

#### 7.1.1.3 Information on allocation status

ORC is committed to provide transparency around the resource management matters relating to all the regions resources. Information around the allocation status of the surface and groundwater resources of the Lindis catchment and Bendigo-Tarras Basin is now publicly available on the ORC’s website. Information about individual water permits is also publicly available and accessible via the ORC website’s Open Data Platform. Community and private sector organisations can use this data to better understand what is happening in the region and help the council protect and enhance Otago’s resources.

#### **7.1.1.4 Pro-active engagement with consent holders**

ORC is committed to actively engage with water users in the Lindis Catchment. The water users group programme is currently being developed by ORC to provide guidance and support services that must assist water users with the transition process towards the proposed water management regime.

#### **7.1.1.5 Concluding note**

If the commissioners hear evidence from a submitter that leads them to conclude a matter is within the scope of the proposed plan change, that matter can be considered further at the hearing and through deliberations.

## **Main reference material**

National Policy Statement for Freshwater Management 2014

Regional Plan: Water for Otago (updated to 1 June 2015)

Resource Management Act 1991

National Policy Statement for Renewable Electricity Generation 2011

Proposed National Environmental Standard on Ecological Flows and Water Levels 2008

## **ORC reports to committee**

2010/1776: Bendigo-Tarras Allocation Study

2014/764: Consultation Draft Proposed Plan Change 5A (Lindis: Integrated Water Management)

2012/1036: NPS for Freshwater Management: Implementation

## **Technical reports**

“Water quality in the Lindis River catchment”, ORC, January 2016

“Update of scientific work in the Lindis catchment: 2008-2015”, ORC, January 2016

“Bendigo and Tarras Allocation Study”, ORC, December 2010

“Economic impacts of minimum flow regimes on the Lindis River”, BERL Economics, 2015

“Lindis Catchment: Hydrological analysis to support an economic assessment of the potential impact of a minimum flow regime for the Lindis River”, OPUS International Consultants, 2015

“Lindis Catchment Water Resource Study”, ORC, June 2014

“Management Flow for Aquatic Ecosystems in the Lindis River”, ORC, July 2008

## **Lindis catchment / ORC workshop material**

“Information Sheet: Lindis Catchment and Bendigo-Tarras Basin”, ORC, updated to June 2015

*Workshop 1, 19 Feb 2009:*

“Key themes from small group discussion”

“Minutes”

“Presentation”

*Workshop 2, 11 May 2010:*

“Comments and feedback”

“Flow matrix assessment”

*Workshop 3, 22 Mar 2011*

“Presentation 1”



“Presentation 2: Groundwater”

*Workshop 4, 30 Nov 2011*

“Feedback”

“Presentation”

“Regime Handout”

*Workshop 5: 1 April 2014*

“Key themes”

“Presentation”

*Workshop 6: 1 April 2015*

“Key themes”

“Presentation”

“Flow sharing in the Lower Lindis”, Lindis Community Think Tank, 2015

“Lindis Think Tanks”, Lindis Community Think Tank, 2015

### **Other material**

“Guide to Preparing a resource consent application to take surface water, including replacing a deemed permit”, ORC, August 2015.

“Towards Better Tourism Outcomes for Central Otago 2014-2019 – A community owned strategy”, Central Otago District Council, 2013.

“Otago Economic Overview”, BERL, 2012

“Central Otago Outdoor Recreation Strategy 2012-2022 – A community owned strategy”, Central Otago District Council, 2012.

“Analysis of flow loss between the Ardgour Road hydrological site and Clutha confluence on the Lindis River in 2015/16”, Otago Regional Council, 2016

**All reference material and background data is available online [www.orc.govt.nz](http://www.orc.govt.nz) .**

## **Appendix 1: National Policy Statement for Freshwater Management 2014 – Section B. Water Quantity**

### **B. Water quantity**

#### **Objective B1**

To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water, in sustainably managing the taking, using, damming, or diverting of fresh water.

#### **Objective B2**

To avoid any further over-allocation of fresh water and phase out existing over-allocation.

#### **Objective B3**

To improve and maximise the efficient allocation and efficient use of water.

#### **Objective B4**

To protect significant values of wetlands and of outstanding freshwater bodies.

#### **Policy B1**

By every regional council making or changing regional plans to the extent needed to ensure the plans establish freshwater objectives in accordance with Policies CA1-CA4 and set environmental flows and/or levels for all freshwater management units in its region (except ponds and naturally ephemeral water bodies) to give effect to the objectives in this national policy statement, having regard to at least the following:

- a) the reasonably foreseeable impacts of climate change;
- b) the connection between water bodies; and
- c) the connections between freshwater bodies and coastal water.

#### **Policy B2**

By every regional council making or changing regional plans to the extent needed to provide for the efficient allocation of fresh water to activities, within the limits set to give effect to Policy B1.

#### **Policy B3**

By every regional council making or changing regional plans to the extent needed to ensure the plans state criteria by which applications for approval of transfers of water take permits are to be decided, including to improve and maximise the efficient allocation of water.

#### **Policy B4**

By every regional council identifying methods in regional plans to encourage the efficient use of water.

#### **Policy B5**

By every regional council ensuring that no decision will likely result in future over-allocation – including managing fresh water so that the aggregate of all amounts of fresh water in a

freshwater management unit that are authorised to be taken, used, dammed or diverted does not over-allocate the water in the freshwater management unit.

### **Policy B6**

By every regional council setting a defined timeframe and methods in regional plans by which over-allocation must be phased out, including by reviewing water permits and consents to help ensure the total amount of water allocated in the freshwater management unit is reduced to the level set to give effect to Policy B1.

### **Policy B7 and direction (under section 55) to regional councils**

By every regional council amending regional plans (without using the process in Schedule 1) to the extent needed to ensure the plans include the following policy to apply until any changes under Schedule 1 to give effect to Policy B1 (allocation limits), Policy B2 (allocation), and Policy B6 (over-allocation) have become operative:

- “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 2011 took effect on 1 July 2011.”*

## Appendix 2: Assessment of anticipated outcomes of different minimum flow options against identified community values (excluding economic values)

	450 l/s @ Ardgour Road		750 l/s @ Ardgour Road		1,000 l/s @ Ardgour Road	
	D/S SH8	U/S SH8	D/S SH8	U/S SH8	D/S SH8	U/S SH8
<b>Aquatic Ecosystems</b>						
Invertebrate	- Value improved but at risk due to algae blooms, low flows/lack of flows and high temperatures	- Value improved but in places at risk due to algae blooms, low flows/lack of flows and high temperatures	- Value improved but some risk due to high temperatures and algae blooms	- Value generally maintained	- Value generally maintained	- Value protected
Clutha Flathead Galaxiids	- Populations of Clutha Flathead Galaxiids are mostly found in tributaries and are unlikely to be present in the main stem of the Lindis River. The minimum flow is unlikely to have an impact on available habitat for Clutha Flathead Galaxiids.					
Longfin eel	- No suitable habitat for eels - Poor/interrupted fish passage.	- Provides (potential) habitat for eel - Risk of poor/interrupted fish passage in some river stretches.	- Provides (potential) habitat for eel. - Uninterrupted fish passage.	- Provides (potential) habitat for eel. - Uninterrupted fish passage.	- Provides (potential) habitat for eel. - Uninterrupted fish passage.	- Provides (potential) habitat for eel. - Uninterrupted fish passage.
Common/Upland Bully	- No suitable habitat for common/upland bully - Poor/interrupted fish passage.	- Habitat for common/upland bully - Risk of poor/interrupted fish passage.	- Habitat for common/upland bully. - Uninterrupted fish passage.	- Habitat for common/upland bully. - Uninterrupted fish passage.	- Habitat for common/upland bully. - Uninterrupted fish passage.	- Habitat for common/upland bully. - Uninterrupted fish passage.
Brown Trout - Adult Habitat - Juvenile rearing & retention - Spawning	- No suitable adult trout habitat. - High mortality due to heat stress, predation and drying. - Poor/interrupted fish passage.	- Suitable adult trout habitat above Cluden irrigation take. - Risk of poor/interrupted fish passage in some river stretches.	- Adult trout habitat improved. - Fish passage enabled most of the time. - No suitable adult trout habitat due to risk of heat stress.	- Adult trout habitat improved. - At times risk of heat stress downstream of the Cluden irrigation take.	- Adult trout habitat improved. - Fish passage enabled. - No suitable for adult trout habitat due to risk of heat stress.	- Adult trout habitat improved. - Limited risk of heat stress downstream of the Cluden irrigation take.
Rainbow trout - Adult Habitat - Juvenile rearing & retention - Spawning	- No suitable adult trout habitat. - High mortality due to heat stress, predation and drying. - Poor/interrupted fish passage.	- Suitable adult trout habitat above Cluden irrigation take. - Risk of poor/interrupted fish passage in some river stretches.	- Adult trout habitat improved. - Fish passage enabled most of the time. - No suitable adult trout habitat due to risk of heat stress.	- Adult trout habitat improved. - At times risk of heat stress downstream of the Cluden irrigation take.	- Adult trout habitat improved. - Fish passage enabled. - No suitable adult trout habitat due to risk of heat stress.	- Adult trout habitat improved. - Limited risk of heat stress downstream of the Cluden irrigation take.
<b>Recreational values</b>						
Recreational fishing	- Value not maintained	- Good recreational fishing opportunities u/s Lindis Peak. - Limited fishing opportunities between Lindis Peak and SH8	- Value not maintained	- Good recreational fishing opportunities u/s Lindis Peak. - Some recreational fishing potential between Lindis Peak and SH8	- Value maintained	- Good recreational fishing opportunities u/s Lindis Peak. - Some recreational fishing potential between Lindis Peak and SH8
Swimming paddling	- Value affected by low flows/lack of flow	- Value may be at risk in some stretches of river due to low flows/lack of flows	- Value maintained	- Value maintained	- Value maintained	- Value maintained
Passive recreation	- Value affected by low flows/lack of flow	- Value may be at risk in some stretches of river due to low flows/lack of flows	- Value maintained	- Value maintained	- Value maintained	- Value maintained
<b>Cultural values</b>						
Ki uta ki tai ("Mountains to sea") philosophy	- Inconsistent with ki uta ki tai philosophy		Consistent with ki uta ki tai philosophy		Consistent with ki uta ki tai philosophy	
Mahika kai species (eels), taoka species, or other species of importance for Kai Tahu.	- Value severely affected by low flows/lack of flow (likely to be absent in places)	- Value may be at risk in some river stretches due to low flows.	- Value improved, but may be at risk in some river stretches due to low flows	Value improved and risks to the value are limited	Value generally maintained and risks to the value are limited	Value adequately protected
Mauri of Lindis River, healing and health giving power, role in providing cultural materials	- Value severely affected by low flows/lack of flow (likely to be absent in places)	- Value may be at risk in some river stretches due to low flows	- Value improved, but may be at risk in some river stretches due to low flows	Value improved and risks to the value are limited	Value generally maintained and risks to the value are limited	Value adequately protected
<b>Water quality and stream health</b>						
Nitrate-nitrite nitrogen (NNN), algal blooms, high temperatures, dissolved oxygen (DO), dissolved reactive phosphorus (DRP)	- Some risk of low DO when surface flows are very limited. - Groundwater enriched with NNN and unlikely to meet Schedule 15 contaminant concentrations. - DRP levels satisfactory. - High risks of risk of prolific algae growth (until reach dries)	- DO levels are satisfactory. - Groundwater enriched with NNN and unlikely to meet Schedule 15 contaminant concentrations. - DRP levels satisfactory. - High risks of risk of prolific algae growth in some river stretches	- DO levels are satisfactory. - Groundwater enriched with NNN and unlikely to meet Schedule 15 contaminant concentrations. - DRP levels satisfactory. - Moderate to high risk of algae growth	- DO levels are satisfactory. - Groundwater enriched with NNN and unlikely to meet Schedule 15 contaminant concentrations. - DRP levels satisfactory. - Moderate risk of algae growth in some river stretches	- DO levels are satisfactory. - NNN levels approach Schedule 15 contaminant concentrations. - DRP levels satisfactory. - Moderate risk of algae growth	- DO levels are satisfactory. - NNN levels approach Schedule 15 contaminant concentrations. - DRP levels satisfactory. - Moderate risk of prolific algae growth in some river stretches
<b>Amenity / Natural character</b>						
Flow continuity – corresponding flows at Clutha confluence	- No flow or extreme low flows (< than 100 l/s) at Clutha Confluence.	- Potential for drying stretches of river bed between Ardgour Rd Flow recorder and Cluden irrigation take.	- Flow continuity at all time - Flows (300 – 400 l/s) at Clutha Confluence.	- Flow continuity at all time. - No dry river bed between Ardgour Rd Flow recorder and Cluden irrigation take.	- Flow continuity at all time - Flows (550 - 650 l/s) at Clutha Confluence.	- Flow continuity at all time - No dry river bed between Ardgour Rd Flow recorder and Cluden irrigation take
Contribution to the overall amenity and scenic quality of the surrounding	- Dry river bed in places	- Appearance of the stream is in keeping with the surrounding environment	- Lower Lindis has the appearance of a small stream, in keeping with the surrounding environment	- Appearance of the stream is in keeping with the surrounding environment	- Lower Lindis has the appearance of a small stream, in keeping with the surrounding environment	- Appearance of the stream is in keeping with the surrounding environment