

Waitaki Catchment Water Allocation Regional Plan Section 32 Report



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Prepared by the Waitaki Catchment Water Allocation Board

September 2005

Waitaki Catchment Water Allocation Board



Te Poari Tiaki Wai o Waitaki

Resource Management (Waitaki Catchment) Amendment Act 2004

Adoption of the Waitaki Catchment Water Allocation Regional Plan, Section 32 Report

This report, prepared by the Waitaki Catchment Water Allocation Board under section 32 of the Resource Management Act 1991, summarises the Board's evaluation under that section (in accordance with section 19 of the Resource Management (Waitaki Catchment) Amendment Act 2004) of the objectives, policies, rules and other methods of the Waitaki Catchment Water Allocation Regional Plan prepared under the latter Act, and gives reasons for that evaluation. The Board adopted this report by resolution duly passed at a meeting held on 30 September 2005, prior to making its decisions under clause 10 of Schedule 1 of the Resource Management Act 1991 in respect of the Plan.

DATED at Christchurch this 30th day of September 2005.

Adopted by the Waitaki Catchment Water Allocation Board:

David Sheppard (Judge) Chairperson

Sheila Watson Deputy Chairperson

Dr Nick Brown

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Waitaki Catchment Water Allocation Board



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1. Aoraki/Mt Cook and Lake Pūkaki
2. Small stream near Clearburn
3. Lower Waitaki River and mouth (Photo courtesy of the *Otago Daily Times*)
4. Lower Waitaki River at Kurow Bridge

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Contents

Executive Summary	vi
1. Introduction	1
1.1 Overview of report	1
1.2 Waitaki Catchment Water Allocation Regional Plan	2
1.3 Section 32 evaluation and report	4
1.3.1 Introduction	4
1.3.2 Evaluation of benefits and costs	5
1.3.3 Information base	6
2. Objectives	7
2.1 Introduction	7
2.2 Objective 1	7
2.3 Objective 2	8
2.4 Objective 3	10
2.5 Objective 4	11
2.6 Objective 5	12
3. Approaches	13
3.1 Introduction	13
3.2 Different approaches	13
3.3 Appropriateness	14
4. Amount of water to be retained in water bodies	15
4.1 Introduction	15
4.2 Defining the amount of water to be retained in water bodies	15
4.2.1 Introduction	15
4.2.2 Plan provisions	16
4.2.3 Effectiveness	16
4.2.4 Benefits and costs	18
4.2.5 Efficiency	20
4.2.6 Uncertain or insufficient information	20
4.2.7 Appropriateness	21
4.3 Review of existing environmental flow conditions in resource consents	22
4.3.1 Introduction	22
4.3.2 Plan provisions	22
4.3.3 Effectiveness	22
4.3.4 Benefits and costs	23
4.3.5 Efficiency	24
4.3.6 Appropriateness	25
5. Allocation of water to activities	26
5.1 Introduction	26
5.2 Allocation of water to activities	27

5.2.1	Plan provisions	27
5.2.2	Effectiveness	27
5.2.3	Benefits and costs	28
5.2.4	Efficiency	29
5.2.5	Uncertain information	29
5.2.6	Appropriateness	29
5.3	Division of allocated water between activities	29
5.3.1	Introduction	29
5.3.2	Plan provisions	30
5.3.3	Effectiveness	30
5.3.4	Benefits and costs	33
5.3.5	Efficiency	37
5.3.6	Appropriateness	37
5.4	Harvesting of water	37
5.4.1	Plan provisions	37
5.4.2	Effectiveness	38
5.4.3	Benefits and costs	38
5.4.4	Efficiency	39
5.4.5	Appropriateness	39
5.5	Mixing of water in and out-of-catchment	39
5.5.1	Introduction	39
5.5.2	Plan provisions	39
5.5.3	Effectiveness	39
5.5.4	Benefits and costs	40
5.5.5	Efficiency	41
5.5.6	Appropriateness	41
5.6	Out-of-catchment use of water	41
5.6.1	Introduction	41
5.6.2	Plan provisions	41
5.6.3	Effectiveness	42
5.6.4	Benefits and costs	42
5.6.5	Efficiency	43
5.6.6	Appropriateness	43
6.	The restriction of water takes at times of low water flows and levels	44
6.1	Introduction	44
6.2	Plan provisions	44
6.3	Effectiveness	44
6.4	Benefits and costs	45
6.5	Efficiency	47
6.6	Appropriateness	47
7.	Technical efficiency in the use of water	48
7.1	Introduction	48
7.2	Plan provisions	48
7.3	Effectiveness	48
7.4	Benefits and costs	49
7.5	Efficiency	50
7.6	Appropriateness	50

8.	Other consent matters	51
8.1	Introduction	51
8.2	Adverse effects not covered by the Plan	51
8.3	Water measuring and recording devices	52
8.3.1	Plan provisions	52
8.3.2	Effectiveness	52
8.3.3	Benefits and costs	53
8.3.4	Efficiency	53
8.3.5	Appropriateness	54
8.4	Transfer of resource consents	54
8.4.1	Introduction	54
8.4.2	Plan provisions	55
8.4.3	Effectiveness	55
8.4.4	Benefits and costs	56
8.4.5	Efficiency	56
8.4.6	Appropriateness	57
8.5	Replacement of existing consents	57
8.5.1	Introduction	57
8.5.2	Plan provisions	57
8.5.3	Effectiveness	58
8.5.4	Benefits and costs	58
8.5.5	Efficiency	59
8.5.6	Appropriateness	59
9.	High Natural-Character Water Bodies	60
9.1	Introduction	60
9.2	Plan provisions	60
9.3	Effectiveness	60
9.4	Benefits and costs	61
9.5	Efficiency	64
9.6	Appropriateness	64
10.	Lakes Tekapo, Pūkaki and Ōhau	65
10.1	Introduction	65
10.2	Plan provisions	65
10.3	Effectiveness	65
10.4	Benefits and costs	66
10.5	Efficiency	70
10.6	Appropriateness	70
11.	Tekapo, Pūkaki and Ōhau Rivers	71
11.1	Introduction	71
11.2	Plan provisions	71
11.3	Effectiveness	71
11.4	Benefits and costs	72
11.5	Efficiency	77
11.6	Appropriateness	77

12. Rivers and streams in the upper Waitaki catchment	78
12.1 Introduction	78
12.2 Plan provisions	78
12.3 Effectiveness	78
12.4 Benefits and costs	79
12.5 Efficiency	80
12.6 Appropriateness	80
13. Tributaries of Lakes Benmore, Aviemore and Waitaki	81
13.1 Introduction	81
13.2 Plan provisions	81
13.3 Effectiveness	81
13.4 Benefits and costs	82
13.5 Efficiency	83
13.6 Appropriateness	84
14. Lakes Ruataniwha, Benmore, Aviemore and Waitaki	85
14.1 Introduction	85
14.2 Plan provisions	85
14.3 Effectiveness	85
14.4 Benefits and costs	86
14.5 Efficiency	90
14.6 Appropriateness	91
15. Hakataramea catchment	92
15.1 Introduction	92
15.2 Plan provisions	92
15.3 Effectiveness	92
15.4 Benefits and costs	93
15.5 Efficiency	94
15.6 Appropriateness	95
16. Lower Waitaki River tributaries	96
16.1 Introduction	96
16.2 Plan provisions	96
16.3 Effectiveness	96
16.4 Benefits and costs	97
16.5 Efficiency	98
16.6 Appropriateness	98
17. Waitaki River downstream of Waitaki Dam	99
17.1 Introduction	99
17.2 Plan provisions	99
17.3 Effectiveness	99
17.4 Benefits and costs	100

17.5	Efficiency	102
17.6	Appropriateness	102
18.	Relationship with the Regional Plan: Water for Otago	103
18.1	Introduction	103
18.2	Evaluation	103
19.	Definitions and abbreviations	105
20.	List of reports received by the Board	107

Executive Summary

This report summarises the evaluation of the provisions of the Waitaki Catchment Water Allocation Regional Plan (the Plan) undertaken by the Waitaki Catchment Water Allocation Board (the Board) as required by section 19(1) of the Resource Management (Waitaki Catchment) Amendment Act 2004 (the Waitaki Act). Section 19 of the Waitaki Act requires an evaluation be undertaken in accordance with the requirements of section 32(3) and (4) of the Resource Management Act 1991 (the RMA).

All the objectives, policies and rules of the Plan have been examined. Within this report, the examination of each objective is summarised. In contrast, for the policies and rules, the examination is summarised by grouping related policies and rules.

The Board has considered all the information available to it during the preparation of the Plan. This includes; the reports received by the Board relevant to the development of the Plan (listed at the rear of this report), information provided to it by the public through the Board's consultation process, all the submissions lodged on the draft Plan, and all the material presented and produced as part of the hearing process.

After undertaking the evaluation required by section 32(3) and (4) of the RMA, it is the Board's overall judgement that:

- the extent to which each of the five objectives is the most appropriate way to achieve the purpose of the RMA means it is appropriate to include each objective in the Plan
- having regard to effectiveness and efficiency; and taking into account the benefits and costs, and the risk of acting if there is uncertain or insufficient information; each policy and rule is the most appropriate to achieve the objectives of the Plan.

The Board considers that the evaluation undertaken by it, as summarised in this report, meets the requirements of section 19(1) of the Waitaki Act.

1. Introduction

1.1 Overview of report

This report summarises the evaluation of the provisions of the Waitaki Catchment Water Allocation Regional Plan (the Plan) undertaken by the Waitaki Catchment Water Allocation Board (the Board) as required by section 19(1) of the Resource Management (Waitaki Catchment) Amendment Act 2004 (the Waitaki Act).

The report records the evaluation of objectives, policies, rules and other methods undertaken during the development of the Plan. The information presented is a summary of the Board's evaluation and the reasons for that evaluation. The report is based on the all information which was available to the Board during the development of the Plan.

The evaluation is presented in a number of discrete sections. This has been achieved by grouping issues, plan provisions, or geographic areas of the Waitaki catchment. This is a presentation technique only. The Board recognises the linkages and synergies between the different matters presented in the discrete sections.

The report is ordered so that the evaluation summary moves from the general to the specific:

- chapter 2 examines the objectives of the Plan
- chapter 3 examines the different approaches available to be used within the Plan to achieve the objectives.

The next five chapters relate to the catchment-wide techniques and provisions used in the Plan:

- chapter 4 examines the techniques and provisions defining the amount of water to be retained in water bodies, and how this is to be implemented
- chapter 5 examines the relevant catchment-wide provisions relating to the allocation of water to activities
- chapter 6 examines the provisions for the reduction of water takes when the amount of water available for taking and diverting is low
- chapter 7 examines the provisions relating to technical efficiency in the use of water
- chapter 8 examines other matters relevant to resource consents, including; adverse effects not covered by the Plan, the transfer of resource consents, and the replacement of resource consents.

Within the next nine chapters, the provisions of the Plan specific to different areas within the Waitaki catchment are evaluated. There is a summary within these chapters of the examination of the specific environmental flow and level regimes. These chapters are generally ordered from the top to the bottom of the catchment. The chapters are as follows:

- chapter 9: High Natural-Character Water Bodies

- chapter 10: Lakes Tekapo, Pūkaki and Ōhau
- chapter 11: Tekapo, Pūkaki and Ōhau rivers
- chapter 12: rivers and streams in the upper Waitaki catchment
- chapter 13: tributaries of Lakes Benmore, Aviemore and Waitaki
- chapter 14: Lakes Ruataniwha, Benmore, Aviemore and Waitaki
- chapter 15: Hakataramea catchment
- chapter 16: Lower Waitaki River tributaries
- chapter 17: Waitaki River downstream of Waitaki Dam.

Chapter 18 evaluates the changes to be made to the Otago Regional Council’s *Regional Plan: Water* (Otago Regional Plan Water).

Finally, included at the end of this report are:

- definitions and abbreviations
- the list of reports received by the Board relevant to the development of the Plan.

1.2 Waitaki Catchment Water Allocation Regional Plan

The Waitaki Act established the Waitaki Catchment Water Allocation Board with the function of developing, within 12 months, a plan for the allocation of water in the Waitaki catchment on a basis consistent with the purpose and principles of the RMA.

The Waitaki Act directs that the Board must include objectives, policies, and methods (including rules, if appropriate) in the Plan, to provide for:

- (a) water that is or may be taken from, or used in, the Waitaki catchment in accordance with section 14(3)(b) and (e) of the RMA; and
- (b) water to sustain the intrinsic values and amenity values that the Board identifies and determines should be sustained in the Waitaki River and associated beds, banks, margins, tributaries, islands, lakes, wetlands, and aquifers; and
- (c) the allocation of water to activities, as appropriate; and
- (d) the management of allocated water, including methods that provide for dealing with periods of time or seasons when the level or flow of water is low.

The Waitaki Act includes provisions relating to the nature of this Plan and the process for its preparation, including provisions that sections of the RMA do or do not apply to the development of this Plan.

The Plan provides for the matters set out in section 13 of the Waitaki Act. In preparing the Plan, water allocation is defined as addressing the taking, using, damming and diverting of water in relation to the following matters:

- a whole-catchment approach
- environmental flow and level regimes
- the mixing of waters
- the allocation to activities
- efficient and effective use
- water metering
- transfer of resource consents
- restrictions during times of low water availability
- replacement of existing consents.

The Plan addresses the following matters to the extent necessary to provide for water allocation as defined in this Plan but does not make comprehensive provision for them. Objectives, policies and methods (including rules) contained in the relevant Canterbury Regional Council statutory planning instruments that address the following matters apply in the Waitaki catchment with any necessary modification to give effect to the provisions of this Plan:

- landscape
- water quality
- soil and bank erosion
- afforestation in flow-sensitive catchments
- wetland management – fencing and siltation
- operational management of beds and rivers
- management of floods
- forestry as a land use
- interference effects between bores – well interference
- dam safety and high water levels, including maximum lake levels
- ramping rates
- passage of fish past structures
- fish screening of intakes.

Part V of the RMA (Standards, Policy Statements and Plans) does not apply to the preparation of the Plan, except for particular specified sections (section 18 of the Waitaki Act). Therefore, the requirement that the Plan must not be inconsistent with the regional policy statement or with any other plan of the region concerned (section 67(2)(b) RMA) does not apply.

1.3 Section 32 evaluation and report

1.3.1 Introduction

The Board is required, during the development of the Plan, to examine the policies, rules, and other methods of that plan in accordance with the requirements of section 32(3) and (4) of the RMA (section 19 of the Waitaki Act). Section 32(3) and (4) of the RMA are as follows:

- (3) *An evaluation must examine –*
 - (a) *the extent to which each objective is the most appropriate way to achieve the purpose of this Act; and*
 - (b) *whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.*
- (4) *For the purpose of this examination, evaluation must take into account –*
 - (a) *the benefits and costs of policies, rules, or other methods; and*
 - (b) *the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.*

Appropriateness means the suitability of any particular provision. For the objectives in the Plan, appropriateness is measured against achieving the purpose of the RMA. For the other provisions, appropriateness is measured against achieving the objectives of the Plan.

Getting a measure of *effectiveness* involves assessing how well the provision(s) will work.

Determining *efficiency* involves an examination of benefits and costs. A measure of efficiency is the extent to which the provision(s) achieve the relevant objectives, compared to the magnitude of what is forgone as a result of using the provision(s).

The Board's duties under section 32(3) of the RMA are to form overall judgements about the extent to which each objective is the most appropriate to achieve the purpose of the RMA, and whether having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives. The Board understands that the judgements required are, for objectives, relative to the purpose of the RMA, and for policies, rules, or other methods, relative to the Plan objectives. The Board considers that, in forming those judgements, it is not necessary or helpful to undertake a comparative analysis of other means or principal alternative means.¹ However, in evaluating the benefits and costs, and consequently efficiency, comparison with a reference point is required. This reference point is as set out in the following section (Evaluation of benefits and costs).

¹ A previous requirement to do so was repealed by the 2003 Amendment Act.

1.3.2 Evaluation of benefits and costs

In evaluating the packages of policies and rules, the Board categorises the benefits and costs as follows:

- environmental – being those benefits and costs that fall upon ecosystems and their constituents parts, natural and physical resources, and the conditions associated with these
- economic – being those benefits and costs that accrue to the productive economy
- social – being those benefits and costs that fall on people and the community
- cultural – being those benefits and costs that relate to the customs, values and beliefs of people and communities, including Ngāi Tahu.

When evaluating benefits and costs, for other than the allocation of water to activities, the Board's reference point is the current environment. When determining the benefits and costs associated with the allocation of water to activities, the Board considers that any allocation combination is possible.

Within the catchment the natural environment is significantly altered, including by hydro-generation and irrigation structures. When evaluating the provisions of the Plan, the Board considered effects that are cumulative with the adverse effects of the existing development and activities.

Under the heading 'environmental' there are a variety of considerations. These relate to changes to ecosystems and their constituents parts, natural and physical resources, and the conditions associated with these. Generally, the impacts of these changes fall in the locality, and downstream of, where the water is taken and used. In a number of circumstances, the actual environmental benefits and costs depend on the manner in which consent authorities exercise their discretion when determining resource-consent applications, particularly for discretionary and non-complying activities.

Under the heading of 'economic' there are a variety of economic wellbeing and efficiency considerations. These have different implications at a national and local level. In this evaluation, in the main, economic efficiency is assessed at the national level, with economic impacts determined at the local level. However, the Board acknowledges that the location of the recipients of economic efficiency benefits will be dependent on the various benefits and costs being considered. For example, the benefits and costs associated with hydro-electricity generation will generally accrue at the national level, while the benefits and costs associated with irrigation will generally fall within the local area. Finally, within the economic benefits and costs tables, water is attributed an economic value in relation to the existing hydro-electricity generation schemes within the Waitaki catchment. The terms used in this report have the following meaning:

- 'highest' value – water that passes through all eight hydro-electricity generation power stations downstream of Lake Tekapo
- 'high' value – water that passes through four to seven of the hydro-electricity generation power stations downstream of Lake Tekapo canal
- 'moderate' value – water that passes through one to three of the hydro-electricity generation power stations downstream of the inlet to Lake Benmore.

Under the heading ‘social’ there are a variety of social wellbeing considerations. Often these impacts relate to changes in environmental and economic conditions and fall in the locality, and downstream of, where the water is taken from and used. For example, changes in economic activity in the local area will have consequences which are not apparent at the national level. These may include changes in service delivery costs and affordability, job opportunities and population. Therefore, while recognising environmental and economic dimensions exist with respect to many social impacts, they are included in the social category in this report. The use of the term ‘secondary’ in this report recognises that multiplier effects occur, and includes all such related impacts.

Under the heading ‘cultural’ there is a variety of cultural wellbeing considerations, both for the community in general and for Ngāi Tahu. These considerations can be specific or holistic in nature. They often relate to changes in environmental, economic, social or spiritual conditions. The impacts affect people and communities that have a relationship with the Waitaki catchment and fall wherever those people and communities are.

1.3.3 Information base

During its evaluation, the Board considered all the information available to it. This includes:

- the reports received by the Board relevant to the development of the Plan, listed at the rear of this report
- the information provided to the Board by the public through the Board’s consultation process
- all the submissions lodged on the draft Plan
- all the material produced as part of the hearing process.

2. Objectives

2.1 Introduction

This chapter summarises the Board’s evaluation of the five objectives of the Plan. Based on this evaluation, the Board’s overall judgement of the extent to which each objective is the most appropriate way to achieve the purpose of the RMA is recorded.

When considering the purpose of the RMA, the Board recognises this is informed by the matters found in sections 6, 7 and 8 of the RMA.

2.2 Objective 1

Objective 1 is as follows:

To sustain the qualities of the environment of the Waitaki River and associated beds, banks, margins, tributaries, islands, lakes, wetlands and aquifers by:

- a. recognising the importance of maintaining the integrity of the mauri in meeting the specific spiritual and cultural needs of the tāngata whenua, and by recognising the interconnected nature of the river*
- b. safeguarding the life supporting capacity of the river and its ecosystems*
- c. managing the water bodies in a way that maintains natural landscape and amenity characteristics and qualities that people appreciate and enjoy*
- d. safeguarding the integrity, form, functioning and resilience of the braided river system*
- e. providing for individuals’ reasonable domestic water needs*
- f. providing for individuals’ reasonable needs for their animals’ drinking-water*
- g. providing for fire-fighting water needs.*

The summary of the evaluation of Objective 1 is set out in Table 1, below.

Table 1: Evaluation of Objective 1

Purpose of the RMA		Evaluation
Controlling	s5(2)(a)	<p>The objective directly recognises the need to sustain the potential of the Waitaki catchment to meet reasonably foreseeable needs, including by:</p> <ul style="list-style-type: none"> o safeguarding the integrity, form, functioning and resilience of the braided river system o maintaining natural landscape and amenity characteristics and qualities of the river that people appreciate and enjoy. <p>In addition, the objective responds to the relationship of Ngāi Tahu and their culture and traditions with the resources of the Waitaki catchment and to kaitiakitanga.</p>
	s5(2)(b)	The objective directly recognises life-supporting capacity of the Waitaki catchment and its ecosystems, including safeguarding the integrity, form, functioning and resilience of the braided river system.
	s5(2)(c)	This objective sustains the qualities of the environment of the Waitaki catchment and through doing this will manage adverse effects on the environment.
Enabling	Social wellbeing	Use of water for an individual's drinking-water, stock drinking-water and fire-fighting provides for social wellbeing. In addition, social wellbeing is provided for through maintaining the amenity characteristics and qualities of the water bodies that people appreciate and enjoy.
	Economic wellbeing	The provision for individual's drinking water, stock drinking water and fire-fighting provides for economic wellbeing. In addition, people reliant on the qualities of the environment of the Waitaki catchment for their economic wellbeing are provided for.
	Cultural wellbeing	The objective provides for cultural wellbeing by recognising the relationship of Ngāi Tahu and their culture and traditions with the resources of the Waitaki catchment and responding to kaitiakitanga.
	Health and safety	Use of water for an individual's drinking water and fire-fighting will provide for health and safety by providing for essential services and needs.

In conclusion, after considering all the information available to it, the Board's judgement is that to a significant extent Objective 1 is the most appropriate way to achieve the purpose of the RMA.

2.3 Objective 2

Objective 2 is as follows:

To the extent consistent with Objective 1, to enable people and communities to provide for their social, economic and cultural wellbeing and their health and safety, by providing for water for:

- a. town and community water supplies
- b. hydro-electricity generation
- c. agricultural and horticultural activities
- d. industrial and commercial activities
- e. tourism and recreation facilities
- f. any other activities.

The summary of the evaluation of Objective 2 is set out in Table 2, below.

Table 2: Evaluation of Objective 2

Purpose of the RMA		Evaluation
Controlling	s5(2)(a)	The allocation to activities regime recognises current and future generations by providing for reasonably foreseeable needs.
	s5(2)(b)	Objective 1 addresses life-supporting capacity. To the extent consistent with Objective 1, Objective 2 addresses life supporting capacity.
	s5(2)(c)	Objective 1 sustains the qualities of the environment of the Waitaki catchment and through doing this manages adverse effects on the environment. The relationship between Objective 1 and Objective 2 ensures that an overall broad judgement is made in relation to the effects of activities on the environment.
Enabling	Social wellbeing	By allocating water to activities, social wellbeing will be enhanced. Direct recognition is provided for town and community water supply needs and tourism and recreation facilities. In addition, there will be social wellbeing benefits derived through secondary gains from other productive out-of-river uses of water. The relationship between Objective 1 and Objective 2 ensures that an overall broad judgement is made in relation to social wellbeing.
	Economic wellbeing	Through allocating water to a number of productive activities, including hydro-electricity generation, agriculture and horticulture, industrial and commercial, tourism and recreation facilities, and 'any other activity', economic wellbeing will be enhanced. Having a known allocation to each activity provides greater economic certainty, and allows diverse uses of water. Once allocations are taken up, the ability for some users to provide for their economic wellbeing will be restricted. The relationship between Objective 1 and Objective 2 ensures that an overall broad judgement is made in relation to economic wellbeing.
	Cultural wellbeing	The relationship between Objective 1 and Objective 2 ensures that an overall broad judgement is made in relation to cultural wellbeing. Objective 1 provides for cultural wellbeing by recognising the relationship of Ngāi Tahu and their culture and traditions with the resources of the Waitaki catchment and responding to kaitiakitanga.
	Health and safety	This objective provides specifically for town and community water supplies. The relationship between Objective 1 and Objective 2 ensures that an overall broad judgement is made in relation to health and safety considerations.

In conclusion, after considering all the information available to it, the Board's judgement is that to a significant extent Objective 2 is the most appropriate way to achieve the purpose of the RMA.

2.4 Objective 3

Objective 3 is as follows:

In allocating water, to recognise beneficial and adverse effects on the environment and both the national and local costs and benefits (environmental, social, cultural and economic).

The summary of the evaluation of Objective 3 is set out in Table 3, below.

Table 3: Evaluation of Objective 3

Purpose of the RMA		Evaluation
Controlling	s5(2)(a)	The objective, in recognising both national and local benefits, recognises the reasonably foreseeable needs of future generations.
	s5(2)(b)	The objective recognises life-supporting capacity by recognising the beneficial and adverse effects on the environment.
	s5(2)(c)	The objective specifically recognises the adverse effects of activities on the environment.
Enabling	Social wellbeing	The objective recognises national and local social benefits.
	Economic wellbeing	The objective recognises national and local economic benefits.
	Cultural wellbeing	The objective provides for cultural wellbeing by recognising the relationship of Ngāi Tahu and their culture and traditions with the resources of the Waitaki catchment and responding to kaitiakitanga.
	Health and safety	The objective does not address this matter.

In conclusion, after considering all the information available to it, the Board's judgement is that to a significant extent Objective 3 is the most appropriate way to achieve the purpose of the RMA.

2.5 Objective 4

Objective 4 is as follows:

To promote the achievement of a high level of technical efficiency in the use of allocated water.

The summary of the evaluation of Objective 4 is set out in Table 4, below.

Table 4: Evaluation of Objective 4

Purpose of the RMA		Evaluation
Controlling	s5(2)(a)	The objective is primarily focused on the users of allocated water. However, through increased efficiencies the opportunity to meet the needs of future generations is provided for.
	s5(2)(b)	The objective does not specifically address life-supporting capacity. It seeks to ensure that allocated water that is available for use is used in a highly technically efficient manner.
	s5(2)(c)	The objective may result in adverse effects arising from the overuse of allocated water being avoided, remedied or mitigated, for example increased nitrate leaching.
Enabling	Social wellbeing	Secondary social wellbeing benefits will occur as a result of the greater economic benefit being derived from the allocated water.
	Economic wellbeing	The objective will provide the potential for greater economic benefit to be derived from the same quantum of allocated water.
	Cultural wellbeing	The objective provides for cultural wellbeing by recognising the relationship of Ngāi Tahu and their culture and traditions with the resources of the Waitaki catchment and responding to kaitiakitanga.
	Health and safety	This is not explicitly addressed by the objective.

In conclusion, after considering all the information available to it, the Board's judgement is that to a significant extent Objective 4 is the most appropriate way to achieve the purpose of the RMA.

2.6 Objective 5

Objective 5 is as follows:

To provide for a practical and fair sharing of allocated water during times of low water availability.

The summary of the evaluation of Objective 5 is set out in Table 5, below.

Table 5: Evaluation of Objective 5

Purpose of the RMA		Evaluation
Controlling	S5(2)(a)	The objective does not address this matter.
Enabling	S5(2)(b)	Other objectives sustain the life-supporting capacity of the river and its ecosystems. This objective addresses the sharing of allocated water during times of low water availability. It does not affect the effectiveness of the other objectives.
	S5(2)(c)	Other objectives will manage adverse effects on the water bodies. This objective addresses the sharing of allocated water during times of low water availability. It does not affect the effectiveness of the other objectives.
	Social wellbeing	Social wellbeing is enhanced by providing a rational and equitable approach to water sharing.
	Economic wellbeing	Provides for economic wellbeing by providing a certain water sharing approach. The approach avoids the involuntary capture of water by a single activity during water-short times.
	Cultural wellbeing	The objective provides for cultural wellbeing by recognising the relationship of Ngāi Tahu and their culture and traditions with the resources of the Waitaki catchment and responding to kaitiakitanga.
	Health and safety	Does not specifically address this matter.

In conclusion, after considering all the information available to it, the Board's judgement is that to a moderate extent Objective 5 is the most appropriate way to achieve the purpose of the RMA.

3. Approaches

3.1 Introduction

This chapter summarises the Board's evaluation of different approaches to achieve the objectives of the Plan. The summary of the evaluation presented is in narrative form. Based on this evaluation, the Board's overall judgement, having regard to efficiency and effectiveness, of whether the approaches are the most appropriate for achieving the objectives, is recorded.

3.2 Different approaches

The different approaches available to the Board to achieve the objectives of the Plan are limited by the functions of the Board. The functions of the Board are defined in Section 6 of the Waitaki Act – the Board is obliged to develop and approve a plan.

As the Board is required to develop and approve a plan, it cannot do nothing. Similarly, allowing the planning process of the Canterbury Regional Council to allocate water in the Waitaki catchment is also not open to the Board.

Further, the Board does not have functions and powers to develop and implement approaches outside of a plan. Accordingly, the Board considers that the allocation of water by a range of potential economic and market instruments outside of the Plan is not available to it.

The implementation of this Plan is the responsibility of the Canterbury Regional Council (section 14 of the Waitaki Act). Further, any changes the Board directs to the *Regional Plan: Water* for Otago are implemented by the Otago Regional Council. Both the Canterbury Regional Council and the Otago Regional Council are elected bodies with the status, roles and powers prescribed under the Local Government Act 2002. In the Board's view, it is not appropriate for it to commit these bodies to actions and financial expenditure beyond the extent necessary for the Board to fulfil its function.

Given this, the Board's judgement is that the only effective and efficient approaches available to include in its plan are:

- policies and rules
- non-regulatory methods which the Canterbury Regional Council and the Otago Regional Council have committed themselves to.

In recognition of the above, the Board considers that a number of specific administrative provisions from the *Proposed Canterbury Natural Resources Regional Plan* should apply within the Plan. Further, provisions relating to the administrative matter of consent duration in the relevant statutory planning instruments that apply to the Waitaki catchment should remain available to be implemented by the Canterbury Regional Council.

The Board has also considered the High Court decision *Aoraki Water Trust v. Meridian Energy Limited*². The Board has noted the ‘non-derogation of grant’ principle contained in this decision in relation to the consideration of resource consents, and in relation to the provisions of this Plan. It also noted the specific statutory provisions that enable certain alterations to existing consents (eg sections 68(7) and 128 of the RMA).

The Board believes that the ‘non-derogation of grant’ principle identified in the High Court decision does not prevent it from allocating water in a manner that differs from the allocation regime specified in the current consents. However, the implementation of the allocation to activities regimes established will be constrained during the term of the existing resource consents to the extent that:

- it does not derogate from the entitlements under those existing consents; or
- it is specifically provided for in the law (and in particular by sections 68(7) and 128 of the RMA); or
- the holders of existing resource consents may agree.

Finally, the Board is mindful of a number of existing mining privileges within the lower part of the Waitaki catchment³. These are ‘deemed permits’ in accordance with section 413 of the RMA. Deemed permits exist until 1 October 2021. The Plan may only affect deemed permits with the agreement of the permit holders (section 414 of the RMA). No deemed permit holder has requested the Board include a rule in the Plan which affects their deemed permit. A regional council may acquire a deemed permit, but in doing so compensation is payable (section 415 and 416 of the RMA). Any acquisition of deemed permits, and associated compensation, is a matter for the Canterbury Regional Council or the Otago Regional Council. The Board considers that the environmental benefits gained by the Plan affecting deemed permits do not justify, and exceed, the cost of interference with long established rights, dating back to prior to 1872.

3.3 Appropriateness

After having regard to efficiency and effectiveness, the Board’s judgement is that policies and rules are the most appropriate approach available to it for achieving the objectives of the Plan. Administrative matters and other methods remain available to be implemented by the Canterbury Regional Council and the Otago Regional Council. These will include non-regulatory methods the Canterbury Regional Council and the Otago Regional Council are committed to within the Waitaki catchment.

² [2005] NZRMA 251; 11 ELRNZ 207 (Chisholm & Harrison JJ).

³ The Canterbury Regional Council has advised that there are deemed permits in the Awakino, Kurow, Maerewhenua, Otekaieke and Otiake catchments.

4. Amount of water to be retained in water bodies

4.1 Introduction

This chapter summarises the Board's evaluation of the Plan techniques and provisions for:

- defining the amount of water that must be retained in water bodies (the environmental flow and level regimes)
- the review of existing resource consents to implement this.

In this chapter, the effectiveness, benefits and costs, and efficiency of the techniques and resulting provisions are examined. Consideration is given to the circumstances where there is uncertain or insufficient information. Based on this evaluation, having regard to efficiency and effectiveness, the Board's overall judgement of whether the techniques, and resulting provisions, are the most appropriate to achieve the objectives is recorded.

'Ramping rates' (rate of change when transitioning from one flow condition to another) do not form part of the environmental flow and level regime. The Board considers that these are appropriately handled through the consent processes.

For the purposes of clarification, the Board records that it considers that the setting of maximum lake levels is outside the primary function of the Plan, being the allocation of water.

Further, the National Water Conservation (Ahuriri River) Order 1990 sets provisions including allocation limits and environmental flows for the taking, using, damming and diverting water from the Ahuriri catchment. Consequently, the environmental flow and level regimes of the Plan do not apply to the water bodies subject to the water conservation order.

4.2 Defining the amount of water to be retained in water bodies

4.2.1 Introduction

Water to be retained in water bodies sustains the qualities of the environment of the Waitaki River and associated beds, margins, tributaries, islands, lakes, wetlands and aquifers.

Within the Plan in different circumstances different combinations of techniques are used to define the environmental flow and level regimes. In each circumstance, the combination of techniques defines the environmental flow and level regime. The individual techniques used are:

- minimum flows and levels
- flow-sharing
- allocation limits
- flushing flows.

Where groundwater is hydraulically connected to surface water, or in areas where the groundwater is shallow, it is subject to the relevant environmental flow and level regime for surface water.

4.2.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 3, 4, 5, 6 and 7
- Rules 2, 3, 12, 15, 16, 19 and 20.

4.2.3 Effectiveness

The Board's evaluation of the effectiveness of the techniques and provisions in the Plan defining the environmental flow and level regimes is summarised in Tables 6, 7 and 8 below. The techniques are evaluated independently of each other. In this circumstance, Objectives 1 and 2 are relevant to the evaluation.

Table 6: Effectiveness of the Plan techniques defining the environmental flow and level regimes – Objective 1

Technique	Objective 1	Effectiveness
Minimum flows and levels	<p>Enables minimum flows and levels to be established through the Plan process. This enables a catchment-wide approach to be taken, recognising the interconnected nature of the river.</p> <p>Recognises the interconnectedness of the groundwater and surface water. In much of the catchment, water flows between surface water and groundwater.</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki catchment, a taonga, and its associated sites and wāhi tapu.</p> <p>Safeguards the life-supporting capacity and maintains people's appreciation and enjoyment of water bodies. Further, minimum flows and levels can be set to safeguard the integrity of the braided river system.</p> <p>Recognises natural flows and levels and the effect of these on the qualities of the Waitaki catchment.</p> <p>Enables the provision of water for an individual's reasonable domestic needs, the reasonable drinking-water needs of an individual's animals, and for fire-fighting needs.</p> <p>However, the effectiveness of this technique can be reduced by allocating water in a manner that allows water bodies to operate at the minimum flows and levels for a considerable period of time. This will adversely affect the life-supporting capacity of the water body and its ecosystems, and reduce people's appreciation and enjoyment of a naturally dynamic environment.</p>	Moderate

Flow-sharing	<p>Enables flow-sharing regimes to be established through the Plan process. This enables a catchment-wide approach to be taken, recognising the interconnected nature of the Waitaki catchment.</p> <p>Recognises the interconnectedness of the groundwater and surface water. In much of the catchment, water flows between surface water and groundwater.</p> <p>Flow-sharing allows the natural variations in water bodies to be mimicked. This safeguards life-supporting capacity and maintains people's appreciation and enjoyment of water bodies.</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki catchment, a taonga, and its associated sites and wāhi tapu.</p> <p>However, flow-sharing in isolation of other techniques may, in water-short times, result in the water necessary to sustain the values of the water body being extracted. If this occurs, adverse effects will result on the life-supporting capacity of the water body and its ecosystems, and on people's appreciation and enjoyment of a dynamic environment.</p>	Moderate
Allocation limits	<p>Enables allocation limits to be established through the Plan process. This enables a catchment-wide approach to be taken, recognising the interconnected nature of the Waitaki catchment.</p> <p>Recognises the interconnectedness of the groundwater and surface water. In much of the catchment, water flows between surface water and groundwater.</p> <p>Controls the maximum amount of water that can be allocated to activities from the water body. Consequently, allocation limits can have the effect of retaining water in the water body. This safeguards the life-supporting capacity and maintains people's appreciation and enjoyment of water bodies. Further, it recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki catchment, a taonga, and its associated sites and wāhi tapu.</p> <p>However, allocation limits in isolation of other techniques may, in water-short times, result in the water necessary to sustain values of the water body being extracted. If this occurs, adverse effects will result on the life-supporting capacity of the water body and its ecosystems, and on people's appreciation and enjoyment of a dynamic environment.</p> <p>In catchments with no flow recorders, an allocation limit is the most practical part of an environmental flow and level regime to enforce.</p>	Moderate
Flushing flows	<p>Enables flushing flows to be established through the Plan process. This enables an integrated approach to be taken, recognising the interconnected nature of the Waitaki catchment.</p> <p>Flushing flows provide for variations in river flows by creating short periods of higher flows. These flow conditions assist in the movement of silt and removal of algae thereby sustaining the qualities of the Waitaki catchment.</p> <p>Flushing flows are only of benefit where medium level natural variations in the flows in the Waitaki catchment are dampened through the management of the river for hydro-electricity generation purposes.</p>	Moderate

Table 7: Effectiveness of the Plan techniques defining the environmental flow and level regimes – Objective 2

Technique	Objective 2	Effectiveness
Minimum flows and levels	To the extent consistent with Objective 1, minimum flows and levels provide the opportunity to allocate water to activities supporting people and communities social, economic and cultural wellbeing and health and safety. Minimum flows and levels in the lower part of the Waitaki River influence the available operational management flexibility for the hydro-electricity generation system upstream of Waitaki Dam.	Moderate
Flow-sharing	To the extent consistent with Objective 1, flow-sharing enables a proportion of the water flows and levels to be allocated to activities supporting people and communities social, economic and cultural wellbeing and health and safety.	High
Allocation limits	To the extent consistent with Objective 1, allocation limits provide for the allocation of water for activities supporting people and communities social, economic and cultural wellbeing and health and safety.	High
Flushing flows	Water released for the purpose of flushing flows is not available to allocate to activities.	Low

Table 8: Overall effectiveness of the Plan techniques defining the environmental flow and level regimes

	Objective 1	Objective 2	Overall
Minimum flows and levels	Moderate	Moderate	Moderate
Flow-sharing	Moderate	High	Moderate
Allocation limits	Moderate	High	Moderate
Flushing flows	Moderate	Low	Moderate

In summary, it is the Board's judgement that all these techniques are, by themselves, of moderate effectiveness. However, under specific conditions, when two or more of these techniques are combined to reflect the resource management issues of a particular water body, the overall effectiveness will be high.

4.2.4 Benefits and costs

The Board's evaluation of the benefits and costs of the Plan techniques defining the environmental flow and level regimes is summarised in Table 9 below. Where a benefit or cost does not apply to all techniques, the relevant technique(s) are shown in brackets.

Table 9: Benefits and costs of Plan techniques defining the environmental flow and level regimes

Benefits	Costs
Environmental Recognises the intrinsic values and life-supporting capacity of the water body. Recognises the habitat values associated with the water body, including those habitats within the water body, at the margins of the water body (ie riparian areas) and in wetlands. Links between groundwater and surface water, and the	Environmental May result in habitat changes associated with changes in water flow regimes. Reduced flexibility as a plan change process would need to be initiated to change the environmental flow and level regimes applied to new consents if higher environmental flow and level regimes are deemed appropriate in the future.

<p>importance of the water exchange which occurs, are recognised and provided for.</p> <p>Provides favourable conditions to protect the integrity of the groundwater system.</p> <p>Influence will increase over time as resource consents are reviewed, replaced or expire.</p> <p>Maintains conditions supporting the movement of silt and removal of algae (flushing flows).</p> <p>Provides for certainty of environmental outcomes (minimum flows and levels).</p> <p>Enables the enhancement of surface water habitats by mimicking natural flow variations (flow-sharing and allocation limits).</p>	<p>Habitat values can be degraded if minimum flow and level conditions occur for more than a short period of time (minimum flows and levels).</p> <p>Habitat values can be degraded when there is a significant abstraction of water (flow-sharing and allocation limits).</p> <p>The values within connected water bodies may be affected and degraded (minimum flows, flow-sharing and allocation limits).</p>
<p>Economic</p> <p>Assists decision making by providing a reasonable degree of long term certainty.</p> <p>Provides for economic benefit to be derived from operational management flexibility for hydro-electricity generation activities during periods of unfavourable climatic conditions (minimum flows and levels).</p> <p>Share of the water retained in the surface water bodies will generally be available to derive economic benefit from the generation of hydro-electricity, and from other activities that do not extract water.</p> <p>The reasonable water needs for fire-fighting can be met.</p> <p>Resource consent processes will require less information, resulting in reduced compliance costs.</p>	<p>Economic</p> <p>Compliance costs are incurred if existing resource consents are reviewed to impose new environmental flow and level regimes.</p> <p>Reduced flexibility to recognise the specific circumstances of the resource-consent application being considered.</p> <p>Unless the minimum flows and levels are reduced, less water will be reliably available for extractive activities (minimum flows and levels in combination with flow-sharing and allocation limits).</p> <p>Reduced flexibility as a plan change process would need to be initiated to change the environmental flow and level regimes applied to new consents if lower environmental flow and level regimes are deemed appropriate in the future.</p>
<p>Social</p> <p>Share of the water retained in the surface water bodies will be available for non-extractive recreation activities.</p> <p>Provides an opportunity for parties to contribute to the setting of the levels within a whole-catchment and integrated process.</p> <p>Existence values maintained (minimum flows and levels and flushing flows) or increased by flows in rivers being more natural (allocation limits and flow-sharing).</p> <p>Enables the provisions of water for an individual's reasonable drinking-water needs, the reasonable needs for their animals' drinking-water and the needs for fire-fighting (minimum flows and levels).</p>	<p>Social</p> <p>Reduced flexibility to meet changing community needs and aspirations as a plan change process would be required.</p> <p>Fewer secondary social wellbeing effects to communities may occur through a reduced amount of water being available to extractive uses (allocation limits and flow-sharing).</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p>	<p>Cultural</p>

4.2.5 Efficiency

Following the consideration of the benefits and costs of the techniques defining the environmental flow and level regime, it is the Board's judgement that all of these techniques are, by themselves, of moderate efficiency. However, under specific conditions, when two or more of these techniques are combined to reflect the resource management issues of a particular water body, the overall efficiency will increase to high.

4.2.6 Uncertain or insufficient information

Section 32(4)(b) of the RMA requires the Board to take into account the risk of acting or not acting if there is uncertain or insufficient information. The Board considers that the information available is sufficient to provide a sound basis for its decisions. However, it is aware that there is a lack of specific knowledge, or varying degrees of knowledge, regarding the ecological values in many parts of the Waitaki catchment. In addition, the natural flows of many streams and rivers are not measured. In the absence of comprehensive investigation and assessment, the Board is conscious that the consequences of abstraction above the environmental flow and level regimes put in place may be to undermine, and detrimentally impact upon, existing ecological values. This could have a significant adverse effect to the natural, physical and ecological qualities and values associated with this environment, and, in turn, would result in costs on the environment. Alternatively, the environmental flow and level regimes could over-estimate the ecological values associated with the environment. While this would have positive benefits to the environment, the Board notes that this could result in opportunity costs to water users.

To not act would detrimentally impact upon the management of water takes. The Board, in setting environmental flow and level regimes on the basis of information at hand, has acted in such a way to reduce the cost and uncertainty to potential water extractors. By setting the environmental flow and level regimes at an identified level on the basis of the information at hand, the Board has minimised any potential risk to the ecological values.

If, with time, the environmental flow and level regimes cease to be appropriate, there is the ability to initiate a change to the Plan to address this. In addition, where resource consents to take water within the environmental flow and level regimes are to be treated as a non-complying activity, a degree of flexibility is provided, depending on the individual circumstances of the resource-consent application.

4.2.7 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the techniques defining the environmental flow and level regimes within the Plan is summarised in Table 10 below.

Table 10: Summary of the effectiveness and efficiency of the Plan techniques defining the environmental flow and level regimes

	Effectiveness	Efficiency
Minimum flows and levels	Moderate	Moderate
Flow-sharing	Moderate	Moderate
Allocation limits	Moderate	Moderate
Flushing flows	Moderate	Moderate
Combinations	High	High

Having regard to this information, and taking into account the benefits and costs and the risk of acting due to insufficient information, it is the Board's judgement that the techniques used in the Plan defining the environmental flow and level regimes are the most appropriate to achieve the objectives of the Plan.

4.3 Review of existing environmental flow conditions in resource consents

4.3.1 Introduction

This section summarises the Board's evaluation of the provisions of the Plan relating to section 68(7) of the RMA. Section 68(7) of the RMA is as follows:

where a plan includes a rule relating to maximum or environmental levels or flows or rates of the use of water, or environmental standards of water quality, or air quality, or ranges of temperature or pressure of geothermal water, the plan may state –

- (a) whether the rule shall affect, under section 130, the exercise of existing resource consents for activities which contravene the rule; and*
- (b) that the holders of resource consents may comply with the terms of the rule, or rules, in stages or over specified periods.*

4.3.2 Plan provisions

The provisions of the Plan that relate to section 68(7) of the RMA are as follows:

- Policies 2, 3, 4, 5, 6, 7, 8, 29, 30, 31, 32, 33, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, and 45
- Rule 25.

4.3.3 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan relating to section 68(7)(a) and (b) of the RMA is summarised in Tables 11 and 12 below. In this circumstance, Objectives 1, 3 and 4 are relevant to the evaluation.

Table 11: Effectiveness of the provisions in the Plan relating to section 68(7)(a) of the RMA

Objective	Section 68(7)(a) – affect existing resource consents	Effectiveness
1	If section 68(7)(a) is not used, environmental flow and level regimes specified by the rules of the Plan will not be applied to those parts of the Waitaki catchment that are either substantially, or fully, allocated until such time as the existing resource consents expire. For parts of the Waitaki catchment this is a considerable time in the future. This would delay the achievement of the outcomes sought in Objective 1. However, the actual implementation of this is reliant upon the actions of the Canterbury Regional Council, not the Board.	Moderate
3	The application of environmental flow and level regimes, within specified time-frames, recognises national and local benefits and beneficial and adverse effects on the environment.	High
4	Will create an incentive to use water with greater technical efficiency where existing consent-holders are required to restrict their take of water more often.	Low/Moderate
Overall effectiveness		Moderate

Table 12: Effectiveness of the provisions in the Plan relating to section 68(7)(b) of the RMA

Objective	Section 68(7)(b) – 7 years for Maerewhenua and 5 years for remainder	Effectiveness
1	<p>Section 68(7)(b) provides the opportunity for the Board to state its expectation as to when the new environmental flow and level regimes will apply in order to achieve Objective 1. However, the actual implementation of this is reliant upon the actions of the Canterbury Regional Council, not the Board.</p> <p>The seven-year period for the Maerewhenua catchment reflects the existing pressures within the catchment and the significant values present, while recognising the time required in order for the necessary infrastructure and practice changes to occur. The five-year time-frame recognises the pressures within the rest of the Waitaki catchment, and thereby provides an appropriate time-frame for the necessary changes in infrastructure and practices.</p>	Moderate
3	The use of Section 68(7)(b) provides for recognition of the relative environmental importance of the different environmental flow and level regimes when compared to the existing situation. The 5-year and 7-year periods recognise the existing investment, and provide reasonable time periods within which to undertake any future investment that may be required to comply with the new environmental flow and level regimes.	High
4	Provides time for existing water users to achieve greater technical efficiency where existing consent-holders will lose the right to take some water.	Moderate
Overall effectiveness		Moderate/High

4.3.4 Benefits and costs

The Board's evaluation on the benefits and costs of the provisions in the Plan relating to section 68(7)(a) and (b) of the RMA is summarised in Tables 13 and 14 below.

Table 13: Benefits and costs of the provisions in the Plan relating to section 68(7)(a) of the RMA

Benefits	Costs
<p>Environmental</p> <p>Allows for the application of new environmental flow and level regimes on existing resource consents to avoid, remedy or mitigate adverse effects on the environment.</p>	<p>Environmental</p>
<p>Economic</p> <p>Any additional share of the water retained in surface water bodies will be available to derive economic benefit from hydro-electricity generation, except where environmental flow and level regime requirements prevent the diversion of water to electricity generation via existing or proposed canal systems, and for other activities that do not extract water (eg tourism facilities).</p>	<p>Economic</p> <p>May reduce the reliability and flexibility of existing consented water takes as a result of the loss, or reduction, of the right to take water at certain times of the year.</p> <p>Existing resource consent-holders' reasonable returns from existing investment may be reduced.</p> <p>Additional investment may be required by existing resource consent-holders to continue to obtain the existing level of benefit from the use of less reliable water.</p> <p>Compliance costs will be incurred by the Canterbury Regional Council, existing consent-holders and other parties participating in the process.</p>
<p>Social</p> <p>Provides for the new environmental flow and level regimes to be fairly applied.</p>	<p>Social</p> <p>Fewer secondary social wellbeing effects to communities may occur through a reduced amount of water being available to existing users.</p>

Cultural Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu. Has particular regard to the kaitiakitanga of Ngāi Tahu.	Cultural
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Table 14: Benefits and costs of the provisions in the Plan relating to section 68(7)(b) of the RMA

Benefits	Costs
Environmental Establishes a clear expectation as to when environmental flow and level regimes will be applied to existing resource consents in order to achieve environmental outcomes during the life of the Plan.	Environmental May slow the implementation of the new environmental flow and level regimes on existing resource consents, prolonging the adverse effects caused by the existing allocation regime.
Economic Allows existing investment regimes to be recognised in the application of the environmental flow and level regimes. Provides certainty as to when investment will be required and sufficient time to allow forward planning of that investment. Addresses the specific pressures of the Maerewhenua catchment.	Economic Compliance costs will be incurred by the Canterbury Regional Council, existing consent-holders and other parties participating in the process.
Social Establishes a clear expectation as to when environmental flow and level regimes will be applied to existing resource consents.	Social
Cultural Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu. Has particular regard to the kaitiakitanga of Ngāi Tahu.	Cultural

4.3.5 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan relating to section 68(7)(a) and (b) of the RMA, it is the Board's judgement that:

- the provisions relevant to section 68(7)(a) of the RMA are of moderate efficiency
- the provisions relevant to the use of section 68(7)(b) of the RMA are of moderate/high efficiency.

4.3.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan relating to section 68(7)(a) and (b) of the RMA is summarised in Table 15 below.

Table 15: Summary of the effectiveness and efficiency of the provisions in the Plan relating to section 68(7)(a) and (b) of the RMA

	Effectiveness	Efficiency
Section 68(7)(a)	Moderate	Moderate
Section 68(7)(b)	Moderate/High	Moderate/High

Having regard to this information, and taking into account the benefits and costs, it is the Board's judgement that the provisions in the Plan relating to section 68(7)(a) and (b) of the RMA are:

- with respect to section 68(7)(a), the most appropriate to achieve the objectives of the Plan
- with respect to section 68(7)(b), the most appropriate to achieve the objectives of the Plan.

5. Allocation of water to activities

5.1 Introduction

This chapter summarises the Board's evaluation of the provisions of the Plan relating to the allocation of water to activities. The effectiveness, benefits and costs, and efficiency of the Plan provisions are examined. Where relevant, considerations of uncertain or insufficient information have been included in the assessment. Based on this evaluation, having regard to efficiency and effectiveness, the Board's overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

Within this chapter the matters considered are the:

- allocation of water to activities
- division of the annual allocation of water between activities
- harvesting of water
- mixing and use of water in and out-of-catchment.

Within the section on the allocation of water to activities, the examination focuses on the approach of allocating water to activities. Based upon this, the next section examines the actual division of water between activities, which is expressed in Rules 6 and 7 in the Plan.

A number of activities are exempt from the annual allocations to activities. These are:

- the water taken and used is for an individual's reasonable domestic needs or the reasonable needs of an individual's animals for drinking water if the take and use does not, or is not likely to, have an adverse effect on the environment (Section 14(3)(b) of the RMA) or is for fire-fighting purposes (section 14(3)(e) of the RMA)
- the amount of water taken or diverted from a river or stream is for a replacement consent not exceeding the allocation limits (Rule 2(1)(b) of the Plan)
- the water for essential drinking, stock drinking-water, maintaining fire-fighting capacity, or for the processing and storage of perishable produce is exempt from minimum flow and level and flow-sharing regimes (Rule 2(2) of the Plan)
- the water taken or diverted for micro hydro-electricity generation or for wildlife and fishery is exempt from the allocation limits (Rule 2(3) of the Plan).

In addition, the Board has considered the High Court decision *Aoraki Water Trust v. Meridian Energy Limited*⁴. The Board interprets the declaration decision as constraining its ability to allocate water, as a permitted activity, in a manner that would derogate from entitlements of existing consent-holders. It considers that it has met this constraint by not increasing the scope

⁴ [2005] NZRMA 251; 11 ELRNZ 207 (Chisholm and Harrison JJ).

of the permitted activities from that authorised under the Canterbury Transitional Regional Plan (and its predecessor instruments) which prevailed when current consents were granted.

Finally, the Board specifically considered the agreement entered into by Mackenzie Irrigation Company Limited (MIC) and Meridian Energy Limited (MEL), by which, on certain conditions, MEL would make water available to the holders of shares in MIC for irrigation (MEL/MIC agreement). The Board is of the view that it is inappropriate for this agreement to be incorporated into the Plan. Even so, the allocation of water provided for in the Plan may enable effect to be given to the substance of the agreement.

5.2 Allocation of water to activities

5.2.1 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 10, 11, 12, 13, 14 and 46
- Rules 1, 6, 7, 9, 10, 11, 15, 16, 17, 18, 19, and 20.

5.2.2 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan relating to the allocation of water to activities is summarised in Table 16 below. In this circumstance, Objectives 2, 3 and 4 are relevant to the evaluation.

Table 16: Effectiveness of the provisions in the Plan relating to the annual allocation of water to activities

Objective	Provisions	Effectiveness
2	Allocation of water occurs either as a permitted activity or through the consideration of resource-consent applications. To achieve the allocation of water to activities identified in the Plan may take some time. Existing consents will dictate the distribution of the allocation of water until the consents expire. The effectiveness will be different throughout the catchment depending on the nature and extent of the existing consents, including when they expire.	Moderate
3	The allocation of water to activities recognises the beneficial effects on the environment and national and local benefits from the use of water.	High
4	The application of the efficiency provisions of the Plan to resource consents in locations where the allocation of water exceeds that set will promote a degree of technical efficiency. However, unless already provided for in the conditions of existing resource consents, it may not be possible to review existing resource consents to require a high level of technical efficiency prior to their replacement.	Low/Moderate
Overall effectiveness		Moderate

5.2.3 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to the allocation of water to activities is summarised in Table 17 below.

Table 17: Benefits and costs of the provisions in the Plan relating to the allocation of water to activities

Benefits	Costs
<p>Environmental</p> <p>The extent of the effect on the wider catchment environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p> <p>Water can be taken, diverted and returned to maintain and enhance wildlife and fishery values.</p>	<p>Environmental</p> <p>At times of cessation, in-stream values may be degraded by essential takes (domestic, animal drinking and maintaining fire-fighting capacity) and takes for the processing and storage of perishable produce. This effect will be small.</p> <p>The extent of the effect on the wider catchment environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>
<p>Economic</p> <p>Allocation to activities provides greater certainty to potential users as to the availability, or otherwise, of water. This will assist in making investment decisions.</p> <p>Allocation to activities provides for existing and anticipated demand for water for a range of extractive activities.</p> <p>The approach avoids the 'capture' of water by a single activity. Certainty is provided that the water allocated to the specified activities will be available for use by those activities into the future.</p> <p>By providing an allocation to 'any other activities' unforeseen activities are not foreclosed.</p> <p>Certainty is provided to small takes within limited compliance costs.</p> <p>Economic benefit can be derived by hydro-electricity generation activities from the water left within the water bodies upstream of Waitaki Dam.</p> <p>Enables provision for essential takes (domestic, animal drinking and maintaining fire-fighting capacity) and takes for the processing and storage of perishable produce.</p> <p>Economic benefit can be derived from the water taken, diverted and returned for micro hydro-electricity generation.</p> <p>Economic benefit may be derived from the water the consent holder of Waitaki Dam is required to provide into the Lower Waitaki River.</p>	<p>Economic</p> <p>Allocation between competing uses may be suboptimal compared to leaving allocation between alternative uses to be decided on a consent by consent basis.</p> <p>Allocation of water to activities may be mismatched with current and future market demand.</p> <p>There will be limited flexibility to exchange water use between internal divisions of the regime.</p> <p>Compliance costs will occur in the administration of allocation of water to activities.</p> <p>Costs to existing consent-holders that have consents which fall outside of the allocation of water to activities. Any costs will not be incurred until the existing consents lapse.</p> <p>The allocation to activities regime will not have effect if they derogate from existing consents.</p> <p>Opportunity cost to hydro-electricity generation resulting from the water the consent holder of Waitaki Dam is required to provide into the Lower Waitaki River. This cost is limited by only actual needs being required to be released, and by the existing allocation through resource consents.</p>
<p>Social</p> <p>Enhanced secondary social wellbeing effects will be derived from economic benefits achieved from the use of water.</p> <p>Enables access by a diverse range of activities.</p> <p>The approach achieves a balance promoting long-term certainty while enabling social wellbeing.</p> <p>Enables provision for essential takes (domestic, animal drinking and maintaining fire-fighting capacity) and takes for the processing and storage of perishable produce.</p> <p>Small water takes enable social wellbeing.</p>	<p>Social</p> <p>Allocations enhancing social wellbeing effects cannot be effective if existing consents are derogated from.</p> <p>Potential loss of social wellbeing effects if the allocation of water to activities does not reflect socially optimal allocations.</p> <p>Once the allocation of water to activities is full, flexibility to reallocate water to socially desirable activities is low.</p> <p>Fewer secondary social wellbeing effects to communities may occur through a reduced amount of water being available to extractive uses.</p>

5.2.4 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan relevant to the allocation of water to activities, it is the Board's judgement that these are of moderate/high efficiency.

5.2.5 Uncertain information

The Board is of the view that there is a risk of acting on the basis of current information as there is uncertainty about the extent that market conditions will change over time. Such changes may impact on the merits of the allocation of water between activities.

If, over time, the allocation of water between activities in the Plan ceases to be appropriate there is the ability to initiate a change to the Plan to address this. In addition, the non-complying activity status of resource consents to allocate water across an internal boundary of the allocation thresholds provides a degree of flexibility, depending on the individual circumstances of the application.

5.2.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan relating to the allocation of water to activities is summarised in Table 18 below.

Table 18: Summary of the effectiveness and efficiency of the provisions in the Plan relevant to the allocation of water to activities

	Effectiveness	Efficiency
Allocation of water	Moderate	Moderate/High

Having regard to this information, including the risk of acting due to uncertain information, and taking into account the benefits and costs, it is the Board's judgement that the provisions in the Plan relating to the approach of specifying allocations of water to activities are the most appropriate to achieve the objectives of the Plan.

5.3 Division of allocated water between activities

5.3.1 Introduction

This section addresses the specific division of the annual allocation of water between activities in the Waitaki catchment. The Waitaki catchment is divided into four areas for the purpose of this assessment. These are:

- upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau, and including Lakes Tekapo, Pūkaki and Ōhau

- upstream of Waitaki Dam but not upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau
- downstream of Waitaki Dam but upstream of Black Point
- downstream of Waitaki Dam but downstream of Black Point.

The grouping for evaluation purposes of ‘upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau, including Lakes Tekapo, Pūkaki and Ōhau’ reflects commonalities in assessment.

5.3.2 Plan provisions

The provisions of the Plan relevant to the division of the annual allocation of water between activities:

- upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau, and including Lakes Tekapo, Pūkaki and Ōhau are:
 - Policies 7, 10, 11, 12, 13, 29, 31, 32, 33, 34, 35 and 36
 - Rules 1, 6, 9, 10, 11, 15, 16, 17, 18, 19 and 20
- upstream of Waitaki Dam but not upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau:
 - Policies 7, 10, 11, 12, 13, 39, 40, 41, 42 and 43
 - Rules 1, 6, 9, 10, 11, 15, 16, 17, 18, 19 and 20
- downstream of Waitaki Dam but upstream of Black Point are:
 - Policies 7, 10, 11, 12, 13, 44, 45 and 46
 - Rules 1, 6, 7, 9, 10, 11, 15, 16, 17, 18, 19, 20 and 46
- downstream of Waitaki Dam but downstream of Black Point are:
 - Policies 7, 10, 11, 12, 13, 44, 45 and 46
 - Rules 1, 6, 7, 9, 10, 11, 15, 16, 17, 18, 19, 20 and 46.

5.3.3 Effectiveness

The Board’s evaluation of the effectiveness of the provisions relating to the division of the annual allocation of water between activities is summarised in Tables 19, 20, 21 and 22 below. In this circumstance, Objectives 2 and 3 are relevant to the evaluation.

Table 19: Effectiveness of the provisions relating to the division of the annual allocation of water between activities upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau, and including Lakes Tekapo, Pūkaki and Ōhau

Objective	Provisions	Effectiveness
2	Ensures that water is available for allocation between activities and uses enabling people and communities to provide for their social, economic and cultural wellbeing. The allocations provide for existing water takes and those (generally abstractive) takes that can be reasonably foreseen, including by reference to the agreement entered into by Mackenzie Irrigation Company Limited and Meridian Energy Limited. However, water is fully allocated by existing resource consents. Therefore, the effectiveness of the provisions, in the medium term, depends on the existing consent-holder voluntarily giving up water. The annual allocation of water to activities regime may only be able to be fully implemented when these resource consents are considered as part of replacement resource-consent applications.	Moderate

	<p>The delineation of upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau recognises the highest and high-value water for hydro-electricity generation to the extent consistent with the iconic values of these lakes and the natural character qualities of their tributaries.</p> <p>Implementation will occur through the permitted activity rules in the Plan, or through the consideration of resource consents as a discretionary activity for water within the annual allocation to activity regime and as a non-complying activity for water in addition to that allocated in the annual allocation to activities regime.</p>	
3	<p>The annual allocation of water to activities recognises that there are competing demands and tensions for the water resource and between users, particularly hydro-electricity generation and agricultural and horticultural users. The provisions recognise both the local and national net benefits associated with different activities and uses as well as beneficial and adverse effects on the environment.</p>	High
Overall effectiveness		Moderate

Table 20: Effectiveness of provisions relating to the division of the annual allocation of water between activities upstream of Waitaki Dam and not upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau

Objective	Provisions	Effectiveness
2	<p>Ensures that water is available for allocation between activities and uses enabling people and communities to provide for their social, economic and cultural wellbeing. The allocations provide for existing water takes and those (generally abstractive) takes that can be reasonably foreseen, including by reference to the agreement entered into by Mackenzie Irrigation Company Limited and Meridian Energy Limited. However, water is fully allocated by existing resource consents. Therefore, the effectiveness of the provisions, in the medium term, depends on the existing consent-holder voluntarily giving up water. Consequently, the new annual allocation of water to activities regime may only be able to be fully implemented when these resource consents are considered as part of replacement resource-consent applications.</p> <p>The delineation of upstream of Waitaki Dam but not upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau recognises the influence of the Waitaki Power Scheme.</p> <p>Implementation will occur through the permitted activity rules in the Plan, or through the consideration of resource consents as a discretionary activity for water within the annual allocation to activity regime and as a non-complying activity for water in addition to that allocated in the annual allocation to activities regime.</p>	Moderate
3	<p>The annual allocation of water to activities recognises that there are competing demands and tensions for the water resource and between users, particularly hydro-electricity generation and agricultural and horticultural users. The provisions, through allocating water to a number of activities, recognises both the local and national net benefits associated with different activities and uses as well as beneficial and adverse effects on the environment.</p>	High
Overall effectiveness		Moderate

Table 21: Effectiveness of the provisions relating to the division of the annual allocation of water between activities downstream of Waitaki Dam but upstream of Black Point

Objective	Provisions	Effectiveness
2	<p>Ensures that water is available for allocation between activities and uses enabling people and communities to provide for their social, economic and cultural wellbeing. The allocation to agricultural and horticultural activities provides for all existing water takes and those that can be reasonably foreseen within the local area.</p> <p>The delineation of the Lower Waitaki River at Black Point provides the opportunity for water to be taken, used, and returned to the river upstream of Black Point, creating opportunity for hydro-electricity generation on that reach of the Lower Waitaki River most suitable for this purpose.</p> <p>Implementation will occur through the permitted activity rules in the Plan, or through the consideration of resource consents as a discretionary activity for water within the annual allocation to activity regime and as a non-complying activity for water in addition to that allocated in the annual allocation to activities regime.</p>	High
3	<p>The annual allocation of water to activities recognises that there are competing demands and tensions for the water resource and between users, particularly hydro-electricity generation, agricultural and horticultural users and in-river users. The provisions, through allocating water to a number of activities, recognises both the local and national net benefits associated with different activities and uses as well as beneficial and adverse effects on the environment.</p> <p>The delineation of the Lower Waitaki River at Black Point provides the opportunity for water to be taken, used, and returned to the River upstream of Black Point, creating opportunity for hydro-electricity generation on that reach of the Lower Waitaki River most suitable for this purpose.</p>	High
Overall effectiveness		High

Table 22: Effectiveness of the provisions relating to the division of the annual allocation of water between activities downstream of Waitaki Dam but downstream of Black Point

Objective	Provisions	Effectiveness
2	<p>Ensures that water is available for allocation between activities and uses enabling people and communities to provide for their social, economic and cultural wellbeing. The allocation to agricultural and horticultural activities provides for all existing water takes and those that can reasonably be foreseen within the local area.</p> <p>Implementation will occur through the permitted activity rules in the Plan, or through the consideration of resource consents as a discretionary activity for water within the annual allocation to activity regime and as a non-complying activity for water in addition to that allocated in the annual allocation to activities regime.</p>	High
3	<p>The annual allocation of water to activities recognises that there are competing demands and tensions for the water resource and between users, particularly agricultural and horticultural users and in-river users. The provisions, through allocating water to a number of activities, recognises both the local and national net benefits associated with different activities and uses as well as beneficial and adverse effects on the environment.</p>	High
Overall effectiveness		High

5.3.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to the division of the annual allocation of water between activities is summarised in Tables 23, 24, 25 and 26 below.

Table 23: Benefits and costs of the provisions in the Plan relating to the division of the annual allocation of water between activities upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau, and including Lakes Tekapo, Pūkaki and Ōhau

Benefits	Costs
Environmental The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.	Environmental The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.
Economic Generally retains significant volumes of the highest value water for hydro-electricity generation. Provides for the existing and foreseeable needs (up to 2050) of the town and community water supplies. Provides for the existing and foreseeable needs (up to 2050) of tourism and recreational facilities. Provides for the existing and foreseeable needs of industrial and commercial activities. Provides for the existing and foreseeable needs of agricultural and horticultural activities within the Waitaki catchment, including those foreshadowed in the MIC/MEL agreement. Water allocated in the Plan to activities other than hydro-electricity generation that is not taken by resource consent-holders will be generally available for hydro-electricity generation. Small amounts of water can be taken. This will provide for the basic needs of individual properties.	Economic Opportunity cost attached to hydro-electricity generation, limited by the existing allocation through resource consents. No flexibility is provided for 'any other activities'. Reduced opportunity to derive economic benefit out-of-catchment. Current irrigators may require capital investment to achieve the technical efficiency expectations in the Plan.
Social Essential community water supply needs are provided for. Enhanced secondary social wellbeing effects from town and community water supplies, tourism and recreational facilities, industrial and commercial, agricultural and horticultural activities and small water takes.	Social Forgone secondary social wellbeing effects from 'any other activities' that require the take and use of water.

Table 24: Benefits and costs of the provisions in the Plan relating to the division of the annual allocation of water between activities upstream of Waitaki Dam but downstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau

Benefits	Costs
<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>	<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>
<p>Economic</p> <p>Generally retains the high and moderate value water for hydro-electricity generation.</p> <p>Provides for the existing and foreseeable needs (up to 2050) of the town and community water supplies.</p> <p>Provides for the existing and foreseeable needs of industrial and commercial activities.</p> <p>Provides for the existing and foreseeable needs of agricultural and horticultural activities within the Waitaki catchment, including those foreshadowed in the 1969 Order in Council and MEL/MIC agreement.</p> <p>Provides for the existing and foreseeable needs (up to 2050) of tourism and recreational facilities.</p> <p>Flexibility is provided for 'any other activities'.</p> <p>Water allocated in the Plan to activities other than hydro-electricity generation that is not taken by resource consent-holders will be generally available for hydro-electricity generation.</p> <p>Small amounts of water can be taken. This will provide for the basic needs of individual properties.</p>	<p>Economic</p> <p>Opportunity cost attached to hydro-electricity generation, limited by the existing allocation through resource consents.</p> <p>Current irrigators may require capital investment to achieve the technical efficiency expectations in the Plan.</p>
<p>Social</p> <p>Community water supply needs provided for.</p> <p>Significant secondary social wellbeing effects from agricultural and horticultural activities. These will include benefits to the community structure and population.</p> <p>Enhanced secondary social wellbeing effects from town and community water supplies, industrial and commercial activities, tourism and recreational facilities and small water takes.</p>	<p>Social</p>

Table 25: Benefits and costs of the provisions in the Plan relating to the division of the annual allocation of water between activities downstream of Waitaki Dam but upstream of Black Point

Benefits	Costs
<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>	<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>
<p>Economic</p> <p>Provides for the existing and foreseeable needs (up to 2030) of the town and community water supplies within and outside the catchment.</p> <p>Provides for the existing and foreseeable needs of industrial and commercial activities.</p> <p>Provides for the existing and foreseeable needs of agricultural and horticultural activities, including by:</p> <ul style="list-style-type: none"> ○ maintaining 100 percent reliability for existing resource consents taking water from the Lower Waitaki River. ○ providing for a high level of reliability of supply for new resource consents taking water from the Lower Waitaki River. <p>Provides for the existing and foreseeable needs (up to 2030) of tourism and recreational facilities.</p> <p>Flexibility is provided for 'any other activities'.</p> <p>Provides for the opportunity to derive economic benefit from hydro power generation between Waitaki Dam and Black Point.</p> <p>Provides for water allocated to activities downstream of Waitaki Dam to be released from the Dam.</p> <p>Provides for the opportunity to derive economic benefit from the use of water downstream of Black Point that was returned to the Waitaki River upstream of Black Point.</p> <p>Small amounts of water can be taken. This will provide for the basic needs of individual properties.</p>	<p>Economic</p> <p>Opportunity cost attached to hydro-electricity generation upstream of Waitaki Dam limited by the existing allocation through resource consents.</p> <p>Current irrigators may require capital investment to achieve the technical efficiency expectations in the Plan.</p> <p>Opportunity costs attached to annual allocation to activities regime when water remains unutilised, but could be taken up by another activity.</p>
<p>Social</p> <p>Community water supply needs provided for.</p> <p>Significant secondary social wellbeing effects from agricultural and horticultural activities.</p> <p>Enhanced secondary social wellbeing effects from town and community water supplies, industrial and commercial activities, tourism and recreational facilities and small water takes.</p>	<p>Social</p> <p>Forgone secondary social wellbeing effects when water remains unutilised, but could be taken up by another activity.</p>

Table 26: Benefits and costs of the provisions in the Plan relating to the division of the annual allocation of water between activities downstream of Waitaki Dam but downstream of Black Point

Benefits	Costs
<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>	<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>
<p>Economic</p> <p>Provides for the existing and foreseeable needs (up to 2030) of the town and community water supplies within and outside the catchment.</p> <p>Provides for the existing and foreseeable needs of industrial and commercial activities.</p> <p>Provides for the existing and foreseeable needs of agricultural and horticultural activities, including by:</p> <ul style="list-style-type: none"> ○ maintaining 100 percent reliability for existing resource consents taking water from the Lower Waitaki River. ○ providing for a high level of reliability of supply for new resource consents taking water from the Lower Waitaki River. <p>Provides for the existing and foreseeable needs (up to 2030) of tourism and recreational facilities.</p> <p>Flexibility is provided for 'any other activities'.</p> <p>Provides for water allocated to activities downstream of Waitaki Dam to be released from the Dam.</p> <p>Small amounts of water can be taken. This will provide for the basic needs of individual properties.</p>	<p>Economic</p> <p>Opportunity cost attached to hydro-electricity generation upstream of Waitaki Dam limited by the existing allocation through resource consents.</p> <p>Opportunity costs attached to annual allocation to activities regime when water remains unutilised, but could be taken up by another activity.</p> <p>Current irrigators may require capital investment to achieve the technical efficiency expectations in the Plan.</p>
<p>Social</p> <p>Community water supply needs provided for.</p> <p>Significant secondary social wellbeing effects from agricultural and horticultural activities.</p> <p>Enhanced secondary social wellbeing effects from town and community water supplies, industrial and commercial activities, tourism and recreational facilities and small water takes.</p>	<p>Social</p> <p>Forgone secondary social wellbeing effects when water remains unutilised, but could be taken up by another activity.</p>

5.3.5 Efficiency

Following the consideration of the benefits and costs of the provisions, it is the Board's judgement that the provisions relevant to the division of the annual allocation of water between activities:

- upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau, and including Lakes Tekapo, Pūkaki and Ōhau are of moderate efficiency
- upstream of Waitaki Dam but downstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau are of moderate efficiency
- downstream of Waitaki Dam but upstream of Black Point are of high efficiency
- downstream of Waitaki Dam but downstream of Black Point are of high efficiency.

5.3.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of provisions relating to the division of the annual allocation of water between activities are summarised in Table 27 below.

Table 27: Summary of the effectiveness and efficiency of provisions relating to the division of the annual allocation of water between activities

	Effectiveness	Efficiency
Upstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau, and including Lakes Tekapo, Pūkaki and Ōhau	Moderate	Moderate
Upstream of Waitaki Dam but downstream of the outlets of Lakes Tekapo, Pūkaki and Ōhau	Moderate	Moderate
Downstream of Waitaki Dam but upstream of Black Point	High	High
Downstream of Waitaki Dam but downstream of Black Point	High	High

Having regard to this information, and taking into account the benefits and costs, it is the Board's judgement that the provisions relating to the division of the annual allocation of water between activities are the most appropriate way to achieve the objectives of the Plan.

5.4 Harvesting of water

5.4.1 Plan provisions

The relevant provisions of the Plan are:

- Policy 8
- Rule 2, 6, 15, 16, 17, 18, 19, 20 and 24.

5.4.2 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan providing for the harvesting of water at times above mean flow is summarised in Table 28 below. In this circumstance,

Objectives 1, 2 and 3 are relevant to the evaluation.

Table 28: Effectiveness of the provisions in the Plan allocating water for harvesting at times above mean flow

Objective	Provisions	Effectiveness
1	<p>Providing for water harvesting allows natural variations in water bodies to be mimicked and ensures medium sized flood events continue to occur. This safeguards life-supporting capacity, and maintains people's appreciation and enjoyment, of water bodies.</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki catchment, a taonga, and its associated sites and wāhi tapu.</p>	Moderate
2	<p>Allocates water to harvesting in accordance with the parameters specified in the Plan.</p> <p>Implementation will occur through the consideration of resource consents as a discretionary activity for the harvesting of water within the annual allocation to activity regimes (or in excess of the annual allocation to activities regime where this is specifically provided for in the Plan) and as a non-complying activity for the harvesting of water outside that allocated in the annual allocation to activities.</p>	High
3	<p>Providing for harvesting at times of high flow enables water to be stored and used when it is not required for environmental reasons to be in the water bodies. This recognises the beneficial effects on the environment and national and local benefits of the use of water.</p>	High
Overall effectiveness		High

5.4.3 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to the allocation of water for harvesting at times above mean flow is summarised in Table 29 below.

Table 29: Benefits and costs of the provisions in the Plan allocating water for harvesting at times above mean flow

Benefits	Costs
<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>	<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>
<p>Economic</p> <p>Provides opportunity for activities to have access to water and derive economic benefit.</p>	<p>Economic</p> <p>Water storage facilities will need to be constructed.</p>
<p>Social</p> <p>Enhanced secondary social wellbeing effects by increasing the opportunity to utilise water.</p>	<p>Social</p>

5.4.4 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan relating to allocating water for harvesting at times above mean flow, it is the Board's judgement that the provisions are of moderate efficiency.

5.4.5 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan relating to the allocation of water for harvesting at times above mean flow is summarised in Table 30 below.

Table 30: Summary of the effectiveness and efficiency of the provisions in the Plan relating to allocating water for harvesting at times above mean flow

	Effectiveness	Efficiency
Water harvesting	High	Moderate

Having regard to this information, and taking into account the benefits and costs, it is the Board's judgement that the provisions in the Plan relating to allocating water for harvesting at times above mean flow are the most appropriate to achieve the objectives of the Plan.

5.5 Mixing of water in and out-of-catchment

5.5.1 Introduction

This section addresses the mixing of water between different catchments, or sub-catchments within the Waitaki catchment.

5.5.2 Plan provisions

The relevant provisions of the Plan are:

- Policy 9
- Rules 10, 15, 16, 17, 18, 19, 20 and 24.

5.5.3 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan relating to the mixing of water in and out-of-catchment is summarised in Table 31 below. In this circumstance, Objective 1 is relevant to the evaluation.

Table 31: Effectiveness of the provisions in the Plan relating to the mixing of water in and out-of-catchment

Objective	Provisions	Effectiveness
1	The mixing of water of different water bodies will be considered as part of resource-consent applications for a discretionary or non-complying activity. The matters to be assessed include cultural wellbeing, water quality, amenity and natural character and ensuring undesirable organisms are not introduced. These matters relate directly to Objective 1 (a), (b) and (c).	Moderate

5.5.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to the mixing of water in and out-of-catchment is summarised in Table 32 below.

Table 32: Benefits and costs of the provisions in the Plan relating to the mixing of water in and out-of-catchment

Benefits	Costs
Environmental <p>Manages adverse effects of mixing of the water of different water bodies on the water quality, amenity and natural character of water in the Waitaki catchment.</p> <p>Provides for consideration of the intrinsic values and life-supporting capacity of the water within the Waitaki catchment.</p> <p>Provides for the consideration of the interchange of undesirable organisms between the different waters.</p>	Environmental <p>Reduced likelihood of augmenting existing water bodies where this may have habitat benefits.</p>
Economic <p>Retains, in the greater part, potential economic benefits of water use within the catchment.</p> <p>Retains flexibility to grant resource consents for the mixing of water outside and within the catchment.</p>	Economic <p>Reduced opportunity to derive economic benefits from water use outside of the catchment or sub-catchment.</p> <p>Compliance costs will be incurred by the Canterbury Regional Council, any resource consent applicant, and other parties participating, if a resource-consent application is made resulting in the mixing of waters.</p>
Social <p>Enhanced secondary social wellbeing effects of the use of the water within the catchment from which it is derived.</p>	Social <p>Reduced potential secondary social wellbeing effects of the use of water outside of the catchment or sub-catchment.</p>
Cultural <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p>	Cultural

5.5.5 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan to manage the mixing of water in and out-of-catchment, it is the Board's judgement that the provisions are of high efficiency.

5.5.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan relating to the mixing of water in and out-of-catchment is summarised in Table 33 below.

Table 33: Summary of the effectiveness and efficiency of the provisions in the Plan relating to the mixing of water in and out-of-catchment

	Effectiveness	Efficiency
Mixing of water between sub-catchments and out-of-catchment	Moderate	High

Having regard to this information, and taking into account the benefits and costs, it is the Board's judgement that the provisions in the Plan relating to the mixing of water in and out-of-catchment are the most appropriate to achieve the objectives of the Plan.

5.6 Out-of-catchment use of water

5.6.1 Introduction

This section addresses the use of water from the Waitaki River, and its tributaries, outside of the Waitaki catchment.

5.6.2 Plan provisions

The relevant provisions of the Plan are:

- Policy 14
- Rules 10, 15, 16, 17, 18, 19 and 20.

5.6.3 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan relating to the use of water out-of-catchment is summarised in Table 34 below. In this circumstance, Objectives 2 and 3 are relevant to the evaluation.

Table 34: Effectiveness of the provisions in the Plan relating to the use of water out-of-catchment

Objective	Provisions	Effectiveness
2	The allocation of water to activities outside the Waitaki catchment requires a consent authority to have regard to the current and reasonably foreseeable needs for that water within the catchment. This enables consideration of the ability of people and communities within the catchment to provide for their social, economic and cultural wellbeing and health and safety. The amount of water that is allocated to activities is not affected, just where that water may be used. Implementation of the provisions relating to the out-of-catchment use of water will occur through the consideration of resource-consent applications as a discretionary or non-complying activity.	High
3	Provides specific recognition of the cost within the catchment of foregoing the use of water allocated in Table 5. This will be implemented through the assessment of resource-consent applications.	High
Overall effectiveness		High

5.6.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to the use of water out-of-catchment is summarised in Table 35 below.

Table 35: Benefits and costs of the provisions in the Plan relating to the use of water out-of-catchment

Benefits	Costs
Environmental <p>The extent of the effect on the wider catchment environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>	Environmental <p>The extent of the effect on the wider catchment environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p> <p>Reduced likelihood of indirect augmentation of existing water bodies outside the Waitaki catchment where this may have habitat benefits.</p>
Economic <p>Requires consideration of the potential economic benefits of water use within the catchment in any resource consent involving out of catchment use of water.</p> <p>Emphasises the option value of the use of the water within the catchment as a consideration in any resource consent process.</p> <p>Retains some flexibility to grant resource consents for the use of water outside the catchment.</p>	Economic <p>Potentially reduced opportunity to derive economic benefits from water use outside of the catchment.</p> <p>Compliance costs will be incurred by the Canterbury Regional Council, any resource consent applicant, and other parties participating in the resource consent process, if a resource-consent application is made to use waters outside the catchment.</p>
Social <p>Enhanced secondary social wellbeing effects of the use of the water within the catchment from which it is derived.</p>	Social <p>Reduced potential secondary social wellbeing effects of the out-of-catchment use of water.</p>

5.6.5 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan to manage the use of water out-of-catchment, it is the Board's judgement that the provisions are of high efficiency.

5.6.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan relating to the use of water out-of-catchment is summarised in Table 36 below.

Table 36: Summary of the effectiveness and efficiency of the provisions in the Plan relating to the use of water out-of-catchment

	Effectiveness	Efficiency
Use of water out-of-catchment	High	High

Having regard to this information, and taking into account the benefits and costs, it is the Board's judgement that the provisions in the Plan relating to the use of water out-of-catchment are the most appropriate to achieve the objectives of the Plan.

6. The restriction of water takes at times of low water flows and levels

6.1 Introduction

This chapter summarises the Board's evaluation of the provisions in the Plan relating to the reduction of water takes at times of low water flows and levels. Within this chapter the effectiveness, benefits and costs, and efficiency of these provisions are examined. Considerations relating to uncertain or insufficient information do not arise. Based on this evaluation, having regard to effectiveness and efficiency, the Board's overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

6.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 20, 23, 24, 25, 26, 27, 35, 45 and 46
- Rules 2, 3, 7, 15, 16, 17, 18, 19, 20 and 24.

6.3 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan relating to the reduction of water takes at times of low water flows and levels is summarised in Table 37 below. In this circumstance, Objectives 3 and 5 are relevant to the evaluation.

Table 37: Effectiveness of the provisions in the Plan relating to the restriction of water takes at times of low water flows and levels

Objective	Provisions	Effectiveness
3	<p>Allocating water to essential domestic uses, essential animal drinking needs, maintaining fire-fighting capacity and the processing and storage of perishable produce in times of restriction due to low flows and levels (excluding Lakes Tekapo, Pūkaki and Ōhau) and the flow-sharing requirements recognises the significant local benefits created by these activities which are derived from small volumes of water.</p> <p>Allocating water from Lakes Tekapo, Pūkaki and Ōhau for town and community water supplies, stock drinking-water, tourism and recreation facilities, maintaining fire-fighting capacity and the processing and storage of perishable produce in times of low lake levels recognises the significant local benefits created by these activities and negligible effect of these water takes on lake levels.</p> <p>Giving priority to integrated schemes in which water is used for more than one purpose reflects the national and local benefits of the multiple use of water. Implementation of this priority will occur through the assessment of resource-consent applications.</p>	Moderate/High

5	<p>Essential domestic needs, essential animal drinking needs, maintaining fire-fighting capacity and the processing and storage of perishable produce are exempt from the minimum flow and level and flow-sharing regimes and therefore are not subject to restriction in times of low water availability. This provides for the practical sharing of water in times of restriction by prioritising important water uses requiring small amounts of water, while for reasons of fairness, limiting the amount of water to the minimum essential for that activity.</p> <p>With respect to Lakes Tekapo, Pūkaki and Ōhau, town and community water supplies, stock drinking-water, tourism and recreation facilities, maintaining fire-fighting capacity and the processing and storage of perishable produce are exempt from the minimum lake levels. This provides for the practical sharing of water by recognising the negligible effect of takes for these activities on lake levels, and for reasons of fairness, the high degree of management of lake levels for hydro-electricity generation.</p> <p>The reliability of supply provided for in the Lower Waitaki River (downstream of Waitaki Dam) reflects that flows downstream of Waitaki Dam depend on the flows released by the consent-holder for Waitaki Dam, particularly in times of low flows. Existing consented water takes maintain their current reliability. New resource consents are to be provided a high level of reliability up to the allocation limit.</p> <p>The restrictions will be applied through the assessment of resource consent applications. Priority bands for run-of-river reliability are identified in the policies for the tributary water bodies. The specific conditions applying at time of low flow will be applied on a consent by consent basis.</p> <p>The approach of using water-user groups allows restriction methods to be amended to suit the particular circumstances (within overall limits) if agreement can be reached, enhancing the practicality of the regime.</p> <p>The restriction regime may only be applied to existing resource consents by the consent authority in accordance with section 68(7) of the RMA – such a review is at the discretion of the consent authority. Consequently, existing and new resource consents may be subject to different restriction regimes.</p>	Moderate
Overall Effectiveness		Moderate

6.4 Benefits and costs

The Board's evaluation on the benefits and costs of the provisions in the Plan relating to the restriction of water takes at times of low water flows and levels is summarised in Table 38 below.

Table 38: Benefits and costs of the provisions in the Plan relating to the restriction of water takes at times of low water flows and levels

Benefits	Costs
<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>	<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p> <p>Potential site specific adverse effects of taking water for essential domestic uses, essential animal drinking needs, maintaining fire-fighting capacity and for the processing and storage of perishable produce in times of restriction.</p>

<p>Economic</p> <p>Run-of-river reliability of existing resource consents is not affected beyond that specified in those consents, unless these are reviewed by the consent authority.</p> <p>Reliability of existing resource consents to take water downstream of Waitaki Dam is not affected.</p> <p>Up to the allocation limit specified in the Plan, a high level of reliability is provided for new consents to take and use water downstream of Waitaki Dam.</p> <p>The restriction regime is certain.</p> <p>Provides flexibility as water sharing can be adapted through water-user groups.</p> <p>By seeking that priority is given to integrated schemes, opportunities for more users to derive increased economic benefits exist.</p> <p>Enhanced opportunity to derive economic benefit from hydro-electricity generation in times of low hydro storage.</p> <p>Provides opportunity to derive economic benefit from the water in Lakes Tekapo, Pūkaki and Ōhau from takes for town and community water supplies, and tourism and recreation facilities.</p> <p>Provides opportunity to derive economic benefit from the processing of perishable agricultural and horticultural produce that otherwise would be spoilt, significantly reduced in value, or require transportation to alternative processing facilities.</p> <p>Provides opportunity to derive economic benefit from essential animal drinking needs and maintaining fire-fighting capacity.</p>	<p>Economic</p> <p>Water may not be available to the most economically efficient use.</p> <p>Additional expenditure may be required by individuals/organisations taking water to comply with the restriction regime.</p> <p>Compliance costs will be incurred by the Canterbury Regional Council and resource consent-holders.</p> <p>Opportunity cost attached to consent-holders due to exceptions being provided for essential domestic uses, essential animal drinking needs, and fire-fighting.</p>
<p>Social</p> <p>Retains and enhances secondary social wellbeing effects derived from consented water takes downstream of Waitaki Dam.</p> <p>The approach is fair for all with consents within the priority bands (except essential domestic uses, essential animal drinking needs, maintaining fire-fighting capacity and the processing of perishable produce).</p> <p>Provides for secondary social wellbeing effects from takes for town and community water supplies, tourism and recreation facilities (Lakes Tekapo, Pūkaki and Ōhau).</p> <p>Provides for social wellbeing effects from essential domestic uses, essential animal drinking needs, maintaining fire-fighting capacity at times of low water availability.</p> <p>Provides for secondary social wellbeing effects from the processing of perishable produce.</p>	<p>Social</p> <p>Reduced social wellbeing effects through the sharing of water restrictions if water is not efficiently used.</p>

6.5 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan relating to the restriction of water takes at times of low water flows and levels, it is the Board's judgement that the provisions are of moderate efficiency.

6.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan relating to the restriction of water takes at times of low water flows and levels is summarised in Table 39 below.

Table 39: Summary of the effectiveness and efficiency of the provisions in the Plan relating to the restriction of water takes at times of low water flows and levels

Provisions	Effectiveness	Efficiency
Restriction of water takes	Moderate	Moderate

Having regard to this information, and taking into account the benefits and costs, it is the Board's judgement that the provisions in the Plan relating to the restriction of water takes at times of low water flows and levels are the most appropriate to achieve the objectives of the Plan.

7. Technical efficiency in the use of water

7.1 Introduction

This chapter summarises the Board’s evaluation of the provisions in the Plan relating to technical efficiency in the use of water. Within this section the effectiveness, benefits and costs, and efficiency of these provisions are examined. Considerations of circumstances where there is uncertain or insufficient information do not arise. Based on this evaluation, having regard to effectiveness and efficiency, the Board’s overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

When technical efficiency is referred to, what is meant is using a resource in a way that any given output is produced at the least cost, including avoiding waste. This contrasts with ‘allocative efficiency’ which means obtaining the best use for the resource.

7.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 12, 15, 16, 17, 18, 19 and 20
- Rules 1, 8, 10, 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24.

7.3 Effectiveness

The Board’s evaluation of the effectiveness of the provisions in the Plan relating to technical efficiency in the use of the water allocated to activities is summarised in Table 40 below. In this circumstance, Objectives 2, 3 and 4 are relevant to the evaluation.

Table 40: Effectiveness of the provisions in the Plan relating to technical efficiency in the use of water allocated to activities

Objective	Provisions	Effectiveness
2	Ensures that the maximum amount of water is available for allocation between activities and uses. However, it is not considered that this will result in a significant ‘freeing-up’ of water.	Moderate

3	Recognises that the inefficient use of water can lead to adverse effects on the environment. It further recognises the local and national benefits derived from technical efficiency in the use of water when water is a scarce resource.	High
4	<p>The application of the expectations for technical efficiency in water use avoids water being 'locked-up' through the granting of resource consents but not used. Some allowance is made for inefficiencies for irrigation application (c. 20%). This reflects the current understanding of a reasonable level of technical efficiency in the application of water by different techniques. Further, a small allowance is made for inefficiencies in providing stock water (c. 20%). Limited allowance is made for inefficiencies in community supplies.</p> <p>The piping and upgrading of water distribution systems is only encouraged where there is environmental or economic benefit. In some circumstances this may not coincide with the objective of high technical efficiency in the use of water.</p> <p>Implementation will occur through the assessment of resource-consent applications. Unless already provided for in the conditions of existing resource consents, it may not be possible to review existing resource consents to require a higher level of technical efficiency prior to their replacement. Any such review would need to be initiated by the consent authority.</p>	Moderate
Overall effectiveness		Moderate

7.4 Benefits and costs

The Board's evaluation on the benefits and costs of the provisions in the Plan relating to technical efficiency in the use of water allocated to activities is summarised in Table 41 below.

Table 41: Benefits and costs of the provisions in the Plan relating to technical efficiency in the use of water allocated to activities

Benefits	Costs
<p>Environmental</p> <p>Adverse effects relating to nuisance flooding, leaching of nutrients and other contaminants on down-gradient groundwater and surface water caused by surplus water use reduced.</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>	<p>Environmental</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>
<p>Economic</p> <p>Enables an increased number of economic enterprises to access the allocated water, potentially achieving higher overall economic gains.</p> <p>Achieves greater economic returns from the allocated water by reducing waste.</p>	<p>Economic</p> <p>High levels of technical efficiency in the use of water may not result in an economically efficient use of resources. However, the resource consent process allows consideration of this.</p> <p>Individual water users and communities may face capital expenditure requirements to upgrade existing water management (irrigation, stock water, community water and water race) systems. However, the resource consent process allows consideration of this.</p> <p>New water uses, if there are significant financial implications for the user, may prefer other locations (outside Canterbury) where the requirement for technical efficiency in the use of water is not as high.</p>

Social Potentially enhanced secondary social wellbeing effects from increased economic activity, if more technical efficiency in the use of water occurs.	Social Potential to decrease social wellbeing effects by reduced private spending on community-based activities if there is a requirement for increased capital expenditure to achieve technical efficiency.
Cultural Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu. Has particular regard to the kaitiakitanga of Ngāi Tahu.	

7.5 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan relating to technical efficiency in the use of water allocated to activities, it is the Board's judgement that the provisions are of moderate efficiency.

7.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan relating to technical efficiency in the use of water allocated to activities is summarised in Table 42 below.

Table 42: Summary of the effectiveness and efficiency of the provisions in the Plan relating to technical efficiency in the use of water allocated to activities

Provisions	Effectiveness	Efficiency
Efficient use of water	Moderate	Moderate

Having regard to this information, and taking into account the benefits and costs, it is the Board's judgement that the provisions in the Plan relating to technical efficiency in the use of water allocated to activities are the most appropriate to achieve the objectives of the Plan.

8. Other consent matters

8.1 Introduction

This chapter summarises the Board’s evaluation of the provisions of the Plan relating to:

- adverse effects not covered by the Plan
- water metering
- transfer of resource consents
- replacement of existing consents.

The effectiveness, benefits and costs, and efficiency of the provisions in the Plan are examined. Considerations of uncertain or insufficient information are not relevant to this assessment. Based on this evaluation, having regard to efficiency and effectiveness, the Board’s overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

8.2 Adverse effects not covered by the Plan

Rule 24 in the Plan is:

“any taking, damming, diverting or use of water that causes or is likely to cause adverse effects not covered by this Plan is a discretionary activity. In considering an application to which this rule applies the consent authority will have regard, amongst other matters, to all the policies of this Plan.”

Section 14(1) of the RMA restricts the taking, using, damming, or diverting of water unless it is expressly allowed by section 14(3). Section 14(3)(a) to (e) sets out five circumstances in which water can be taken. Unless provided for in section 14(3)(b) to (e), or expressly allowed by a rule in the Plan, the taking, using, damming or diverting of water requires a resource consent (section 14(3)(a)).

The Plan specifies a number of circumstances when the taking, using, damming or diverting of water is permitted or requires resource consent. However, it is possible that circumstances exist that fall outside the rules (other than Rule 24) of the Plan, and section 14(3)(b) to (e).

In such a circumstance, those activities require resource consent. The resource consent would be required and treated as an innominate activity – the equivalent of a discretionary activity. For the purpose of clarity and certainty of plan administration, the Board considers it is appropriate to specify that such resource-consent applications are to be considered as a discretionary activity. The specific form of Rule 24 is authorised by section 68(5)(c) of the RMA.

After having regard to this information, the effectiveness and efficiency of Rule 24, and taking into account the benefits and costs, it is the Board's judgement that the inclusion of Rule 24 in the Plan is the most appropriate way to achieve the objectives of the Plan.

8.3 Water measuring and recording devices

8.3.1 Plan provisions

The relevant provisions of the Plan are:

- Policy 21
- Rules 1, 8, 10, 15, 16, 17, 18, 19, 20, 21, 22, 23 and 24.

8.3.2 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan requiring water measuring and recording devices on each water take is summarised in Table 43 below. In this circumstance, Objectives 1, 2, 4 and 5 are relevant to the evaluation.

Table 43: Effectiveness of the provisions in the Plan requiring water measuring and recording devices

Objective	Provisions	Effectiveness
1	Enables the collection of information which will result in better decision making. The information will ensure the integrity of the environmental flow and level regimes and therefore assist in achieving the matters identified in this objective. Implementation will primarily occur through conditions imposed on resource consents. This allows the consent authority to recognise the individual circumstances of each resource-consent application influencing the appropriate use of water-measuring and recording devices.	Moderate
2	Enables the collection of accurate information on the amount of water used, allowing effective monitoring of the annual allocation of water to activities. Implementation will primarily occur through conditions imposed on resource consents. This allows the consent authority to recognise the individual circumstances of each resource-consent application influencing the appropriate use of water-measuring and recording devices.	Low
4	Enables the collection of accurate information on the amount of water used, which will assist in promoting the achievement of a high level of technical efficiency. Implementation will primarily occur through the assessment of resource-consent applications. Unless the consent enables the overall volume of water to be reviewed, any efficiency gains will not take effect until the resource consent is replaced.	Moderate
5	Enables the collection of accurate information on the amount of water used, allowing effective monitoring of restrictions during times of low water availability. Implementation will primarily occur through conditions imposed on individual resource consents. This allows the consent authority to recognise the individual circumstances of each resource-consent application influencing the appropriate use of water-measuring and recording devices.	High
Overall effectiveness		Moderate

8.3.3 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan requiring water measuring and recording devices on each water take is summarised in Table 44 below.

Table 44: Benefits and costs of the provisions in the Plan requiring water measuring and recording devices

Benefits	Costs
Environmental Will provide good information of takes to assist in ensuring the integrity of the environmental flow and level regimes, and annual allocation of water to activities regimes, thereby maintaining the flows intended to sustain in-stream values.	Environmental
Economic Will assist in maintaining the integrity of the annual allocation of water to activities regime, providing greater certainty. Will enable users to access information on water consumption to better make decisions on the costs associated with abstraction and application of water relative to the production benefits.	Economic Compliance costs will occur through having to install the equipment and monitor it. On-going data management costs will also occur.
Social Enhanced social wellbeing effects through the perception that the water resource used is not wasted.	Social
Cultural Has regard to the kaitiakitanga of Ngāi Tahu.	Cultural

8.3.4 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan requiring water measuring and recording devices, it is the Board's judgement that the provisions are of high efficiency.

8.3.5 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan requiring water measuring and recording devices is summarised in Table 45 below.

Table 45: Summary of the effectiveness and efficiency of the provisions in the Plan requiring water measuring and recording devices

	Effectiveness	Efficiency
Water measuring and recording devices	Moderate	High

Having regard to this information, and taking into account the benefits and costs, it is the Board's judgement that the provisions in the Plan requiring water measuring and recording devices are the most appropriate to achieve the objectives of the Plan.

8.4 Transfer of resource consents

8.4.1 Introduction

This section summarises the Board's evaluation of the provisions in the Plan allowing the transfer of permits to take water.

Section 136(2) of the RMA expressly provides that:

a holder of a water permit granted other than for damming or diverting of water may transfer the whole or part of the holder's interest in the permit –

- (a) to any owner or occupier of the site in respect of which the permit is granted; or*
- (b) to another person on another site, or to another site, if both sites are in the same catchment (either upstream or downstream), aquifer, or geothermal field, and the transfer –*
 - (i) is expressly allowed by a plan; or*
 - (ii) has been approved by the consent authority that granted the permit on the application under subsection (4).*

In the circumstance of the change of owner or occupier of the site (section 136(2)(a)), the transfer is an administrative action (see section 136(3) of the RMA). The consent authority does not have the power to refuse such a transfer. As such, a rule is not required in a plan to provide for this transfer. Further, a rule in a plan cannot effectively control this transfer.

In contrast, when a transfer is occurring within the catchment to a person on another site, or to another site, unless the transfer is expressly allowed by a plan, consent is required (section 136(2)(b)). The application for this consent is to be treated as if it was an application for a resource consent (see section 136(4)(b) of the RMA). Transfers can be for the whole or part of a consent and for limited periods (section 136(2) and (2A) of the RMA).

There is no provision within section 136 of the RMA providing for the transfer of water permits between catchments.

8.4.2 Plan provisions

The relevant provisions of the Plan are:

- Policy 22
- Rules 8, 21, 22, 23 and 24.

8.4.3 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan relating to the transfer of resource consents is summarised in Table 46 below. In this circumstance, Objectives 2, 3 and 4 are relevant to the evaluation.

Table 46: Effectiveness of the provisions in the Plan relating to the transfer of resource consents

Objective	Provisions	Effectiveness
1	The qualities of the environment are sustained by restricting the transfer of consents to wetlands, Lakes Alexandrina, McGregor and Middleton and their tributaries, and other lakes upstream of Lakes Tekapo, Pūkaki and Ōhau.	High
2	Enabling the transfer of consents within parts of the catchment will provide for flexibility in providing water for the activities identified in the objective. Requiring compliance with the environmental flow and level regimes, the annual allocation to activities thresholds to be met, and that resource consents are not transferred from downstream of to upstream of Waitaki Dam, will reduce the flexibility for transferring consents. Implementation will occur through the consideration of resource-consent applications as a controlled activity or discretionary if the annual allocation to activity thresholds are complied with, and as a non-complying activity if they are not.	Moderate
3	Enabling the transfer of consents may promote greater economic efficiency. Water would be able to transfer from one user to another that may be able to derive greater economic benefit from that resource. Any transfer would only be able to occur within the environmental flow and level regimes, and the annual allocation to activities for the catchment area. Apart from adverse effects on water quality, the ability for the consent authority to address new adverse effects on the environment that may occur due to any change in location is limited by the matters for control relevant to any application for a controlled activity. Specific provision is made for a consent authority to consider adverse effects of taking and using water on water quality if water quality standards specified in the Natural Resources Regional Plan are not complied with, by requiring any such resource consent application is treated as a discretionary or non-complying activity.	Moderate
4	Technical efficiency gains may result in current water users reducing their current water use, allowing the consented surplus to be transferred. The transfer of resource consents creates an incentive for water users to strive for a high level of technical efficiency in the use of water. In the circumstance that the installation and use of water metering devices are not proposed, the consent authority can consider the appropriateness of this as any such resource-consent application is to be treated as a discretionary or non-complying activity.	Moderate
Overall effectiveness		Moderate

8.4.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to the transfer of resource consents is summarised in Table 47 below.

Table 47: Benefits and costs of the provisions in the Plan relating to the transfer of resource consents.

Benefits	Costs
<p>Environment</p> <p>Sustains the qualities of wetlands, Lakes Alexandrina, McGregor and Middleton and their tributaries, and other lakes upstream of Lakes Tekapo, Pūkaki and Ōhau.</p> <p>Protection of the qualities of the environment is achieved by requiring the environmental flow and level regimes be met.</p> <p>Adverse effects relating to water quality caused by the change in location of the use of water within the catchment are managed.</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>	<p>Environment</p> <p>The extent of the effect on the wider environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>
<p>Economic</p> <p>May promote greater economic benefit from the same amount of water.</p> <p>Controlling the transfer of resource consents from downstream of Waitaki Dam to upstream of Waitaki Dam ensures that there is no derogation of the existing consents upstream of Waitaki Dam.</p> <p>Through generally providing for the transfer as a controlled activity, greater certainty is provided for investment decisions than relying on section 136(2)(b)(ii) of the RMA.</p>	<p>Economic</p> <p>Compliance costs will be incurred by the Canterbury Regional Council and any applicant for a transfer.</p> <p>Existing water uses may be affected at or downstream of the new point of take or diversion achieved by a controlled activity.</p>
<p>Social</p> <p>May enable water takes to be moved to locations where social wellbeing effects are enhanced.</p>	<p>Social</p> <p>May enable water takes to be moved to locations where social wellbeing effects are reduced.</p>

8.4.5 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan relating to the transfer of resource consents, it is the Board's judgement that the provisions are of moderate efficiency.

8.4.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan relating to the transfer of resource consents is summarised in Table 48 below.

Table 48: Summary of the effectiveness and efficiency of the provisions in the Plan relating to the transfer of resource consents.

Provisions	Effectiveness	Efficiency
Transfer of resource consents	Moderate	Moderate

Having regard to this information, and taking into account the benefits and costs, it is the Board's judgement that the provisions in the Plan relating to the transfer of resource consents are the most appropriate to achieve the objectives of the Plan.

8.5 Replacement of existing consents

8.5.1 Introduction

This section summarises the Board's evaluation of the provisions in the Plan relating to the replacement of resource consents.

Sections 124A, 124B and 124C as inserted into the RMA by the Resource Management Amendment Act 2005 apply to applications for a new consent to replace an existing consent from 10 August 2008. These sections set up a process to give existing consent-holders priority (in having their application determined) over new applications when an existing consent-holder applies for a new consent to replace an existing consent.

8.5.2 Plan provisions

The relevant provisions of the Plan are:

- Policy 28
- Rules 1, 2, 10, 15, 16, 17, 18, 19, 20 and 24.

8.5.3 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan relating to the replacement of existing consents is summarised in Table 49 below. In this circumstance, Objectives 2, 3 and 4 are relevant to the evaluation.

Table 49: Effectiveness of the provisions in the Plan relating to the replacement of existing consents

Objective	Provisions	Effectiveness
2	The provisions identify that the consent authority will maintain the position of the consent (if granted) in the annual allocation limits and priority bands on the water body concerned. Implementation will occur through the assessment of resource-consent applications.	Moderate
3	<p>The provisions identify that the consent authority will maintain the position of the consent (if granted) in the annual allocation limits and priority bands on the water body concerned, and recognise the value of investment associated with the consent.</p> <p>Specific recognition is provided of the value of the investment of the existing consent holder contributing to national and local costs and benefits.</p> <p>Implementation will occur through the assessment of resource-consent applications.</p>	Moderate
4	Provisions recognise that achieving efficiency expectations will be a consideration.	Moderate
Overall effectiveness		Moderate

8.5.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to the replacement of existing consents is summarised in Table 50 below.

Table 50: Benefits and costs of the provisions in the Plan relating to the replacement of existing consents

Benefits	Costs
Environmental <p>The extent of the effect on the wider catchment environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>	Environmental <p>The extent of the effect on the wider catchment environment is unknown as it is dependent on the use of the water, and the specific circumstances of the use.</p>
Economic <p>Will assist in providing greater investment security to consent holders that they may be able to have a continuity of water allocation.</p>	Economic <p>Limited opportunity to derive economic benefits from new activities that require the take and use of water if the annual allocation to activities regime is fully allocated.</p>
Social <p>Enhanced social wellbeing effects derived from existing activities that are likely to continue.</p>	Social <p>Reduced secondary social wellbeing effects from new activities that require the take and use of water if the annual allocation to activities regime is fully allocated.</p>

8.5.5 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan relating to the replacement of existing consents, it is the Board's judgement that the provisions are of moderate efficiency.

8.5.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan relating to the replacement of existing consents is summarised in Table 51 below.

Table 51: Summary of the effectiveness and efficiency of the provisions in the Plan relating to the replacement of existing consents

	Effectiveness	Efficiency
Existing consents	Moderate	Moderate

Having regard to this information, and taking into account the benefits and costs, it is the Board's judgement that the provisions in the Plan relating to the replacement of existing consents are the most appropriate to achieve the objectives of the Plan.

9. High Natural-Character Water Bodies

9.1 Introduction

This chapter summarises the Board’s evaluation of the provisions in the Plan relating to the environmental flow and level regimes for the water bodies categorised by the Board as being of high natural character. The effectiveness, benefits and costs, and efficiency of the provisions are examined in the context of each water body. Consideration is given to the circumstances where there is uncertain or insufficient information, as identified in section 4.2.6 of this report. Based on these evaluations, having regard to effectiveness and efficiency, the Board’s overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

When reference is made to High Natural-Character Water Bodies, those water bodies described in Policy 2 are being referred to.

9.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 2, 4, 5, 6, 7, 29, 30, 31, 32, 33 and 34
- Rules 1, 2, 4, 5, 9, 10, 11, 13, 14, 15, 16, 19, 20 and 24.

9.3 Effectiveness

The Board’s evaluation of the effectiveness of the provisions in the Plan relating to the environmental flow and level regimes of the High Natural-Character Water Bodies are summarised in Table 52 below. In this circumstance, Objectives 1 and 2 are relevant to the evaluation.

Table 52: Effectiveness of the environmental flow and level regimes for High Natural-Character Water Bodies

Objective	Provisions	Effectiveness
1	<p>The environmental flow and level regimes provide for the retention of sufficient water in the water bodies to safeguard the life-supporting capacity of the water bodies and ecosystems and maintain people’s appreciation and enjoyment of these water bodies. The environmental flow and level regimes recognise the relationship of Ngāi Tahu and their culture and traditions with the Waitaki catchment, a taonga, and its associated sites and wāhi tapu.</p> <p>The environmental flow and level regimes enable the provision of water for an individual’s reasonable domestic needs, the reasonable drinking-water needs of an individual’s animals, and for fire-fighting needs.</p>	High

	The taking of water from within the environmental flow and level regime prescribed in the rules of the Plan is a discretionary, non-complying or prohibited activity.	
2	<p>The allocation limit does not restrict existing resource consents, or replacement resource consents for the same or lesser amounts of water. Micro hydro-electricity generation and fisheries and wildlife activities are exempt from the allocation limit.</p> <p>Except for the above, new resource consents for the taking and diverting of water will be constrained by the allocation limit. However, limited new demand to take and divert water is foreseen.</p> <p>Any water outside the allocation limit is available for downstream hydro-electricity generation at the point it enters the Waitaki Power Scheme.</p>	High
Overall effectiveness		High

9.4 Benefits and costs

The Board's evaluation of the benefits and costs of the environmental flow and level regimes for the High Natural-Character Water Bodies are summarised in Tables 53, 54 and 55 below. In order to fully understand the benefits and costs of the provisions in the Plan, these must be evaluated in the context of the High Natural-Character Water Bodies being considered.

Table 53: The benefits and costs of the environmental flow and level regimes for High Natural-Character Water Bodies described in Policy 2(a)

Benefits	Costs
<p>Environmental</p> <p>Maintains the natural character and intrinsic values of these water bodies, their immediate margins and associated wetlands.</p> <p>Recognises the inherent link between the groundwater and surface water systems.</p> <p>Feeding, roosting and wintering-over habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - deep and shallow water waders - water divers - waterfowl - gulls and terns, including Black-fronted Terns - Black Stilt - Wrybill/Ngutu-parore - Banded Dotterel - Swamp Rail. <p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - alpine galaxias and Canterbury galaxias - koaro - upland and common bully - longfin eels. 	<p>Environmental</p> <p>Potential site-specific adverse effects from micro hydro-electricity generation and fisheries and wildlife activities, subject to mitigation required in any resource consent.</p>

<p>Economic</p> <p>Provide opportunity to derive economic benefit from micro hydro-electricity generation.</p> <p>Retains highest value water for downstream hydro-electricity generation.</p> <p>Retains economic benefit from existing activities.</p>	<p>Economic</p> <p>Reduced opportunity to derive economic benefit from new agricultural and horticultural activities requiring irrigation.</p>
<p>Social</p> <p>Maintains the existence values attached to the relatively natural habitat and associated ecosystems.</p> <p>Community supply needs are provided for.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p>	<p>Social</p> <p>Reduced secondary social wellbeing effects from new agricultural and horticultural activities requiring irrigation.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p>	<p>Cultural</p>

Table 54: The benefits and costs of the environmental flow and level regimes for High Natural-Character Water Bodies described in Policy 2(b) and (c)

Benefits	Costs
<p>Environmental</p> <p>Maintains natural and physical resources and intrinsic values of these water bodies, their immediate margins and associated wetlands.</p> <p>Recognises the inherent link between the groundwater and surface water systems.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - deep and shallow water waders - waterfowl - Black Stilt - Banded Dotterel. <p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - alpine galaxias and Canterbury galaxias - koaro - longfin eels. <p>Maintains important salmonid free habitats supporting a range of native species, including habitat of the upland longjaw galaxias.</p> <p>Habitat and/or spawning for sport fish species are maintained and enhanced, particularly resident brown trout and rainbow trout.</p>	<p>Environmental</p> <p>Potential site-specific adverse effects from micro hydro-electricity generation and fisheries and wildlife activities, subject to mitigation required in any resource consent.</p>

<p>Economic</p> <p>Provides opportunity to derive economic benefit from micro hydro-electricity generation.</p> <p>Retains highest value water for downstream hydro-electricity generation.</p> <p>Retains economic benefit from existing activities.</p> <p>Tourism values maintained therefore providing certainty and security in long term investment in industry.</p>	<p>Economic</p> <p>Forgone opportunity to derive economic benefit from new agricultural and horticultural activities requiring irrigation.</p>
<p>Social</p> <p>Maintains the existence value of the relatively natural habitat.</p> <p>Recreational values are maintained, including sightseeing, trout angling, 4-wheel driving, tramping/climbing, waterfowl hunting, mountain biking.</p> <p>Community water supply needs are provided for.</p> <p>Enhanced opportunity for secondary social wellbeing effects from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p>	<p>Social</p> <p>Forgone secondary social wellbeing from new agricultural and horticultural activities requiring irrigation.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p>	<p>Cultural</p>

Table 55: The benefits and costs of the environmental flow and level regimes for High Natural-Character Water Bodies described in Policy 2(d) and (e)

Benefits	Costs
<p>Environmental</p> <p>Maintains the intrinsic values of the lakes and moderate or higher significance wetlands, including preserving their natural character and their immediate margins.</p> <p>Recognises the inherent link between the groundwater and surface water systems.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - open water divers - waterfowl - Southern Crested Grebe. <p>Preserves an important wintering-over lake environment for birds.</p> <p>Maintains important salmonid-free habitats supporting a range of native fish species.</p>	<p>Environmental</p>
<p>Economic</p> <p>Retains highest value water for downstream hydro-electricity generation.</p>	<p>Economic</p> <p>Forgone opportunity to derive economic gain from new agricultural and horticultural activities requiring irrigation.</p>

Social Maintains the existence value of the relatively natural habitat.	Social Forgone secondary social wellbeing effects from new agricultural and horticultural activities requiring irrigation.
Cultural Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu. Has particular regard to the kaitiakitanga of Ngāi Tahu. Recognises the Statutory Acknowledgement for Whakarūmoana (Lake McGregor).	Cultural

9.5 Efficiency

Following the consideration of the benefits and costs of the environmental flow and level regimes for the High Natural-Character Water Bodies, it is the Board's judgement that the provisions are of:

- high efficiency in relation to the High Natural-Character Water Bodies described in Policy 2(a)
- high efficiency in relation to High Natural-Character Water Bodies described in Policy 2(b) and (c)
- high efficiency in relation to High Natural-Character Water Bodies described in Policy 2(d) and (e).

9.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions relating to the environmental flow and level regimes for the High Natural-Character Water Bodies is summarised in Table 56 below.

Table 56: Summary of the effectiveness and efficiency of the environmental flow and level regimes for the High Natural-Character Water Bodies

	Effectiveness	Efficiency
High Natural-Character Water Bodies described in Policy 2(a).	High	High
High Natural-Character Water Bodies described in Policy 2(b) and (c).	High	High
High Natural-Character Water Bodies described in Policy 2(d) and (e).	High	High

Having regard to this information, and taking into account the benefits and costs and the risk of acting due to insufficient information, it is the Board's judgement that the environmental flow and level regimes for the High-Natural-Character Water Bodies are the most appropriate to achieve the objectives of the Plan.

10. Lakes Tekapo, Pūkaki and Ōhau

10.1 Introduction

This chapter summarises the Board’s evaluation of the provisions in the Plan relating to environmental flow and level regimes (minimum lake levels) for Lakes Tekapo, Pūkaki and Ōhau. The effectiveness, benefits and costs, and efficiency of the provisions are examined. Consideration is given to the circumstances where there is uncertain or insufficient information, as identified in section 4.2.6 of this report. Based on these evaluations, having regard to effectiveness and efficiency, the Board’s overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

When Lakes Tekapo, Pūkaki and Ōhau are referred to, included within this reference are the canals leading from these lakes.

10.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 3, 4, 5, 6, 35, 36 and 37
- Rules 1, 3, 9, 11, 12, 17, 18, 19, 20 and 24.

10.3 Effectiveness

The Board’s evaluation of the effectiveness of the provisions in the Plan relevant to the minimum lake levels for Lakes Tekapo, Pūkaki and Ōhau are summarised in Table 57 below. In this circumstance, Objectives 1 and 2 are relevant to the evaluation.

Table 57: Effectiveness of the provisions in the Plan relevant to the minimum lake levels for Lakes Tekapo, Pūkaki and Ōhau

Objective	Provisions	Effectiveness
1	<p>Provisions in the Plan retain the existing environmental flow and level regimes for Lakes Tekapo, Pūkaki and Ōhau. They reflect the long-standing agreed minimum levels. The environmental flow and level regimes recognise the relationship of Ngāi Tahu and their culture and traditions with the Waitaki catchment, a taonga, and its associated sites and wāhi tapu. These environmental lake levels maintain people’s appreciation and enjoyment of these water bodies. However, the temporary reduction in lake levels for the purposes of the maintenance or rehabilitation of electricity generation infrastructure may create short-term adverse effects on the qualities of the lakes.</p> <p>The environmental flow and level regimes enable the provision of water for an individual’s reasonable domestic needs, the reasonable drinking-water needs of an individual’s animals, and for fire-fighting needs.</p> <p>Implementation will occur through the consideration of resource-consent applications as either a discretionary or non-complying activity. The taking of water beyond the environmental flow and level regime prescribed in the rules of the Plan is a prohibited activity, except for the temporary reduction in lake levels</p>	Moderate/High

	for the purposes of the maintenance or rehabilitation of existing dam infrastructure, which is a discretionary activity.	
2	<p>A significant amount of water is available for allocation to activities above the specified the minimum lake levels.</p> <p>In relation to Lake Tekapo, additional water of the highest value for hydro-electricity generation can be taken and diverted in times when the aggregate storage for the nation, or for the (electricity) region that includes Waitaki catchment, is below the second (emergency) zone established by the Electricity Commission.</p> <p>Additional water can be taken or diverted in order to temporarily lower the lakes for the maintenance and rehabilitation of electricity generation infrastructure if resource consent is obtained.</p> <p>Town and community water supplies, tourism and recreation facilities, stock drinking-water, maintaining fire fighting capacity and the processing of perishable produce are not restricted by the minimum levels.</p>	High
Overall effectiveness		High

10.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to minimum lake levels for Lakes Tekapo, Pūkaki and Ōhau are summarised in Tables 58, 59 and 60 below.

Table 58: Benefits and costs of the provisions in the Plan relating to minimum lake levels for Lake Tekapo

Benefits	Costs
<p>Environmental</p> <p>High degree of natural character of the glacial lake is maintained.</p> <p>Landscape value of the lake is maintained.</p> <p>Islands of Lake Tekapo are protected.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - shallow water waders - open water divers - Wrybill - Banded Dotterel - Black Stilt - Southern Crested Grebe. 	<p>Environmental</p> <p>Existing lake-edge erosion will continue.</p> <p>Potential short term adverse effects on the environment from the temporary reduction in lake levels for the purposes of maintenance or rehabilitation of electricity generation infrastructure subject to mitigation required to be undertaken to comply with any resource consent.</p>
<p>Economic</p> <p>Retains highest value water for downstream hydro-electricity generation.</p> <p>Enhanced opportunity to derive economic benefit from hydro-electricity generation in times of low hydro storage.</p> <p>Provides for the maintenance or rehabilitation of electricity generation infrastructure necessary for continued hydro-electricity generation.</p> <p>Provides opportunity to derive economic benefit from new activities.</p>	<p>Economic</p> <p>Forgone opportunity to derive economic benefits from new activities taking water within the minimum environment flow and level regime.</p>

<p>Provides opportunity to derive economic benefit from town and community water supplies, stock drinking-water, tourism and recreation facilities and the processing of perishable produce.</p> <p>Retains economic benefit from existing activities.</p> <p>Retains economic benefit from tourism and recreation activities.</p>	
<p>Social</p> <p>High recreation values of the lake are maintained.</p> <p>Moderate fishing values for trout are maintained.</p> <p>Retains the secondary social wellbeing effects from town and community water supplies, stock drinking-water, tourism and recreation facilities and the processing of perishable produce.</p> <p>Sustains existence value of this natural lake.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p>	<p>Social</p> <p>Forgone opportunity to derive secondary social wellbeing effects from new activities.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p> <p>Recognises the Statutory Acknowledgement for Lake Tekapo.</p> <p>Recognises the iconic nature of Lake Tekapo.</p>	<p>Cultural</p>

Table 59: Benefits and costs of the provisions in the Plan relating to minimum lake levels for Lake Pūkaki

Benefits	Costs
<p>Environmental</p> <p>The high degree of natural character of the glacial lake is maintained.</p> <p>The landscape value of the lake is maintained.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - shallow water waders - open water divers - Wrybill - Banded Dotterel - Black Stilt - Southern Crested Grebe. <p>Habitat and/or spawning areas for native fish species is maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - koaro - longfin eels. 	<p>Environmental</p> <p>Existing lake-edge erosion will continue.</p> <p>Short term adverse effects on the environment from the temporary reduction in lake levels for the purposes of maintenance or rehabilitation of electricity generation infrastructure.</p>

<p>Economic</p> <p>Retains highest value water for downstream hydro-electricity generation.</p> <p>Provides for maintenance or rehabilitation of electricity generation infrastructure necessary for continued hydro-electricity generation.</p> <p>Provides opportunity to derive economic benefit from town and community water supplies, stock drinking-water, tourism and recreation facilities and the processing of perishable produce.</p> <p>Provides opportunity to derive economic benefit from new activities.</p> <p>Retains economic benefit from existing activities.</p> <p>Retains economic benefit from tourism and recreation activities.</p>	<p>Economic</p> <p>Forgone opportunity to derive economic benefits from new activities taking water within the minimum environment flow and level regime.</p>
<p>Social</p> <p>High recreation values of the lake are maintained.</p> <p>Retains the social wellbeing effects from town and community water supplies, stock drinking-water, tourism and recreation facilities and the processing of perishable produce.</p> <p>Sustains existence value of this natural lake.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p>	<p>Social</p> <p>Forgone opportunity to derive secondary social wellbeing effects from new activities.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p> <p>Recognises the Statutory Acknowledgement for Lake Pūkaki.</p> <p>Recognises the iconic nature of Lake Pūkaki.</p>	<p>Cultural</p>

Table 60: Benefits and costs of the provisions in the Plan relating to minimum lake levels for Lake Ōhau

Benefits	Costs
<p>Environmental</p> <p>The high degree of natural character of the glacial lake is maintained.</p> <p>Minimum level recognises the natural minimum range of the lake.</p> <p>The landscape value of the lake is maintained.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - deep and shallow water waders - open water divers 	<p>Environmental</p> <p>Short term adverse effects on the environment from the temporary reduction in lake levels for the purposes of maintenance or rehabilitation of electricity generation infrastructure.</p>

<ul style="list-style-type: none"> - Banded Dotterel - Southern Crested Grebe - Black Stilt. <p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - koaro - longfin eels. <p>Habitat and/or spawning areas for sport fish species are maintained and enhanced, particularly for:</p> <ul style="list-style-type: none"> - brown and rainbow trout - sockeye salmon 	
<p>Economic</p> <p>Retains highest value water for downstream hydro-electricity generation.</p> <p>Provides for the maintenance or rehabilitation of electricity generation infrastructure necessary for continued hydro-electricity generation.</p> <p>Provides opportunity to derive economic benefit from town and community water supplies, stock drinking-water, tourism and recreation facilities and the processing of perishable produce.</p> <p>Provides opportunity to derive economic benefit from new activities.</p> <p>Retains economic benefit from existing activities.</p> <p>Retains economic benefit from tourism and recreation activities.</p>	<p>Economic</p> <p>Forgone opportunity to derive economic benefits from new activities taking water within the minimum environment flow and level regime.</p>
<p>Social</p> <p>The high fishing values are maintained.</p> <p>Contact recreation values maintained.</p> <p>Retains the secondary social wellbeing effects from town and community water supplies, stock drinking-water, tourism and recreation facilities and the processing of perishable produce.</p> <p>Sustains existence value of this natural lake.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p>	<p>Social</p> <p>Forgone opportunity to derive secondary social wellbeing effects from new activities.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p> <p>Recognises the Statutory Acknowledgement for Lake Ōhau.</p> <p>Recognises the iconic nature of Lake Ōhau.</p>	<p>Cultural</p>

10.5 Efficiency

Following the consideration of the benefits and costs, it is the Board's judgement that the provisions in the Plan relating to the minimum lake levels for:

- Lake Tekapo, are of high efficiency
- Lake Pūkaki, are of high efficiency
- Lake Ōhau, are of high efficiency.

10.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the provisions in the Plan relating to minimum lake levels for Lakes Tekapo, Pūkaki and Ōhau is summarised in Table 61 below.

Table 61: Summary of the effectiveness and efficiency of the provisions in the Plan relating to minimum lake levels for Lakes Tekapo, Pūkaki and Ōhau

	Effectiveness	Efficiency
Lake Tekapo	High	High
Lake Pūkaki	High	High
Lake Ōhau	High	High

Having regard to this information, and taking into account the benefits and costs and the risk of acting due to insufficient information, it is the Board's judgement that the minimum lake levels for Lakes Tekapo, Pūkaki and Ōhau are the most appropriate to achieve the objectives of the Plan.

11. Tekapo, Pūkaki and Ōhau Rivers

11.1 Introduction

This chapter summarises the Board’s evaluation of the provisions in the Plan relating to the environmental flow and level regimes for the Tekapo, Pūkaki and Ōhau rivers. The effectiveness, benefits and costs, and efficiency of the provisions are examined. Consideration is given to the circumstances where there is uncertain or insufficient information, as identified in section 4.2.6 of this report. Based on these evaluations, having regard to effectiveness and efficiency, the Board’s overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

The upper Ōhau River is that part of the Ōhau River upstream of Lake Ruataniwha. The lower Ōhau River is that part of the Ōhau River downstream of Lake Ruataniwha.

11.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 3, 4, 5, 6, 38 and 39
- Rules 1, 2, 9, 11, 15, 16, 19, 20 and 24.

11.3 Effectiveness

The Board’s evaluation of the effectiveness of the provisions in the Plan in relation to the environmental flow and level regimes for Tekapo, Pūkaki and Ōhau rivers is summarised in Table 62 below. In this circumstance, Objectives 1 and 2 are relevant to the evaluation.

Table 62: Effectiveness of the provisions in the Plan in relation to the environmental flow and level regimes for Tekapo, Pūkaki and Ōhau Rivers

Objective	Provisions	Effectiveness
1	<p>No minimum environmental flow and level regimes are specified for the Tekapo (upstream of Lake George Scott), Pūkaki and lower Ōhau Rivers. This sustains the existing qualities of the environment.</p> <p>The existing minimum flow regime for the upper Ōhau River is retained, and a new minimum flow and level regime for the Tekapo River (downstream of Lake George Scott) is provided for, in the Plan. These will maintain the existing life-supporting capacity and people’s appreciation and enjoyment of the upper Ōhau and Tekapo rivers.</p> <p>Environmental flow and level regimes enable the provision of water for an individual’s reasonable domestic needs, the reasonable drinking-water needs of an individual’s animals, and for fire-fighting needs.</p> <p>Implementation will occur through the consideration of resource-consent applications as either a discretionary or non-complying activity.</p>	High

2	<p>The environment flow and level regime for the upper Tekapo River (between Lake George Scott and Fork Stream) results in no reliable water being available for allocation to activities, maintaining the current situation.</p> <p>There is no environment flow and level regime specified for Tekapo (upstream of Lake George Scott), Pūkaki and lower Ōhau rivers. No reliable water is available for allocation to activities from these rivers.</p> <p>Existing and new activities can access water from Tekapo River downstream of its confluence with Grays River.</p> <p>The allocation limits do not restrict existing resource consents, or replacement resource consents for the same or less amounts of water. Micro hydro-electricity generation and fisheries and wildlife activities are exempt from the allocation limit.</p> <p>Water takes and diversions for essential drinking, stock drinking-water, maintaining fire fighting capacity and the processing of perishable produce are not restricted by the minimum flows.</p> <p>Any water within the environment flow and level regime is available for hydro-electricity generation in downstream hydro-electricity generation stations.</p> <p>The allocation limits for the Tekapo (downstream of Lake George Scott) and upper Ōhau rivers provide that any water released from Lakes Tekapo and Ōhau for agricultural and horticultural activities over and above the required for the environment flow and level regime may be taken for that purpose.</p>	Moderate
Overall evaluation		Moderate/High

11.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to environmental flow and level regimes for the Tekapo, Pūkaki and Ōhau rivers is summarised in Tables 63 to 67 below.

Table 63: Benefits and costs of specifying no environmental flow and level regime for the Tekapo River upstream of Lake George Scott and the environmental and flow regime for Tekapo River from Lake George Scott to its confluence with Fork Stream

Benefits	Costs
<p>Environmental</p> <p>Existing ecosystems adapted to primarily dry conditions will remain undisturbed.</p> <p>Landscape and amenity values associated with the upper Tekapo River will be maintained.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - deep and shallow water waders - waterfowl - gulls and terns, including Black-fronted Terns - Wrybill - Black Stilt - Banded Dotterel - Swamp Rail - Australasian Bittern. 	<p>Environmental</p> <p>Potential site-specific adverse effects from micro hydro-electricity generation and fisheries and wildlife activities downstream of Lake George Scott (to the extent not mitigated as per consent conditions).</p>

<p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - alpine galaxias and Canterbury galaxias - koaro - common and upland bullies - longfin eels. <p>Habitat and/or spawning areas for sport fish species are maintained and enhanced, particularly brown and rainbow trout.</p>	
<p>Economic</p> <p>Retains economic benefit from existing activities.</p> <p>Retains high value water for hydro-electricity generation.</p> <p>Provides opportunity to derive economic benefit from new activities.</p> <p>Provides opportunities to derive economic benefit from micro hydro-electricity generation.</p> <p>Avoids compliance costs (engineering works and annual operating costs) of diverting consistent small flows of water into the upper reaches of the Tekapo River.</p>	<p>Economic</p>
<p>Social</p> <p>Recreation values maintained.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p>	<p>Social</p>
<p>Cultural</p> <p>Acknowledges that Tekapo River could provide for continuity of flow from mountains to the sea at the time of seeking replacement resource consents.</p>	<p>Cultural</p> <p>Fails to connect the waters of the Waitaki River along the natural course of Tekapo River.</p>

Table 64: Benefits and costs of the environmental flow and level regime for the Tekapo River downstream of its confluence with Fork Stream

Benefits	Costs
<p>Environmental</p> <p>Natural character (including shallows, rapids, riffles and pools) of the river downstream of its confluence with Fork Stream is maintained.</p> <p>Landscape and amenity values associated with the Tekapo River will be maintained.</p> <p>Wetland ecosystems associated with the lower parts of the River is maintained.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained, particularly for:</p> <ul style="list-style-type: none"> - deep and shallow water waders - waterfowl - gulls and terns, including Black-fronted Terns - Wrybill - Black Stilt - Banded Dotterel 	<p>Environmental</p> <p>Potential site-specific adverse effects from micro hydro-electricity generation and fisheries and wildlife activities (to the extent not mitigated as per consent conditions).</p> <p>Potential site specific effects from taking essential drinking and stock drinking-water, and for the processing of perishable produce in times of low flow.</p>

<ul style="list-style-type: none"> - Swamp Rail - Australasian Bittern. <p>Habitat and/or spawning areas for native fish species are maintained, particularly for:</p> <ul style="list-style-type: none"> - alpine galaxias and Canterbury galaxias - koaro - common and upland bullies - longfin eels. <p>Habitat and/or spawning areas for sport fish species are maintained, particularly brown and rainbow trout.</p>	
<p>Economic</p> <p>Provides opportunity to derive economic benefit from new activities downstream of the confluence with Grays River.</p> <p>Provides opportunities to derive economic benefit from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Economic</p> <p>Opportunity cost attached to hydro-electricity generation as a result of the use of moderate value water.</p>
<p>Social</p> <p>Recreation values maintained.</p> <p>Highly valued trout fishing opportunities will be maintained.</p> <p>Existence values of the Tekapo River maintained.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Enhanced secondary social wellbeing effects from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Social</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Maintains existing the habitat of mahinga kai species.</p>	<p>Cultural</p>

Table 65: Benefits and costs of specifying no environmental flow and level regime for the Pūkaki River

Benefits	Costs
<p>Environmental</p> <p>Existing ecosystems adapted to primarily dry conditions and will remain undisturbed.</p> <p>Landscape and amenity values associated with the Pūkaki River will be maintained.</p>	<p>Environmental</p>
<p>Economic</p> <p>Retains high value water for hydro-electricity generation.</p> <p>Retains economic benefit from existing activities.</p> <p>Avoids compliance costs (engineering works and annual operating costs) of diverting consistent small flows of water into the upper reaches of the Pūkaki River.</p>	<p>Economic</p> <p>Forgone opportunity to derive economic benefit from new activities requiring water.</p>

Social Moderate recreation values (sightseeing, waterfowl hunting, 4-wheel driving, mountain biking) are maintained. Retains secondary social wellbeing effects associated with existing activities.	Social Forgone opportunity to derive secondary social wellbeing effects from new activities requiring water.
Cultural Acknowledges that Pūkaki River could provide for continuity of flow from mountains to the sea at the time of seeking replacement resource consents.	Cultural Fails to connect the sacred water of Aoraki/Mt Cook, fed by the tears of Raki (Sky Father), with the Waitaki River along the natural course of the Pūkaki River.

Table 66: Benefits and costs of the environmental flow and level regime for the upper Ōhau River

Benefits	Costs
Environmental Natural character (including shallows, rapids, riffles and pools), landscape and amenity values of the river will be maintained. Ecosystems associated with the upper Ōhau River, including the wetlands, will be maintained. Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for: <ul style="list-style-type: none"> - deep and shallow water waders - open water divers - waterfowl - gulls and terns, including Black-fronted Terns - Wrybill - Black Stilt - Banded Dotterel. Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for: <ul style="list-style-type: none"> - Canterbury galaxias - koaro - upland bullies - longfin eels. Habitat and/or spawning areas for sport fish species are maintained and enhanced, particularly for: <ul style="list-style-type: none"> - brown trout and rainbow trout - Chinook and sockeye salmon. 	Environmental Potential site-specific adverse effects from micro hydro-electricity generation and fisheries and wildlife activities (to the extent not mitigated as per consent conditions). Potential site specific effects from taking essential drinking and stock drinking-water, and for the processing of perishable produce in times of low flow.

Economic <p>Recognises high value of this water for hydro-electricity generation.</p> <p>Provides opportunity to derive economic benefit from new activities.</p> <p>Retains economic benefit from existing activities.</p> <p>Provides opportunities to derive economic benefit from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	Economic
Social <p>Recreation values maintained.</p> <p>Valued trout fishing opportunities will be maintained.</p> <p>Existence value for the upper Ōhau River is maintained.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p> <p>Enhanced secondary social wellbeing effects from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	Social
Cultural <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p>	Cultural

Table 67: Benefits and costs of specifying no environmental flow and level regime for the lower Ōhau River

Benefits	Costs
Environmental <p>Existing adapted ecosystems remain undisturbed.</p> <p>Landscape and amenity values associated with the lower Ōhau River will be maintained.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - deep and shallow water waders - waterfowl - gulls and terns, including Black-fronted Terns - Banded Dotterel. 	Environmental

Economic Retains high value water for hydro-electricity generation. Provides opportunity to derive economic benefit from new activities. Retains economic benefit from existing activities. Avoids compliance costs (engineering works and annual operating costs) of diverting consistent small flows of water into the lower Ōhau River.	Economic Forgone opportunity to derive economic benefit from new activities requiring water.
Social Enhanced opportunities for secondary social wellbeing effects derived from new activities. Retains secondary social wellbeing effects associated with existing activities.	Social Forgone opportunity to derive secondary social wellbeing effects from new activities requiring water.
Cultural Acknowledges that the Ōhau River could provide for continuity of flow from mountains to the sea at the time of seeking replacement resource consents.	Cultural Fails to connect the waters of the Waitaki River along the natural course of Ōhau River.

11.5 Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan in relation to the environmental flow and level regimes specific to the Tekapo, Pūkaki and Ōhau rivers, it is the Board's judgement that the provisions are of high efficiency.

11.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the environmental flow and level regimes for the Tekapo, Pūkaki and Ōhau rivers is summarised in Table 68 below.

Table 68: Summary of the effectiveness and efficiency of the provisions in the Plan in relation to environmental flow and level regimes for the Tekapo, Pūkaki and Ōhau rivers

	Effectiveness	Efficiency
Tekapo, Pūkaki and Ōhau rivers	Moderate/High	High

Having regard to this information, and taking into account the benefits and costs and the risk of acting due to insufficient information, it is the Board's judgement that the provisions in the Plan relating to the environmental flow and level regimes for the Tekapo, Pūkaki and Ōhau rivers are the most appropriate to achieve the objectives of the Plan.

12. Rivers and streams in the upper Waitaki catchment

12.1 Introduction

This chapter summarises the Board's evaluation of the provisions in the Plan relating to the environmental flow and level regimes for the rivers and streams in the upper Waitaki catchment. The effectiveness, benefits and costs, and efficiency of the provisions are examined. Consideration is given to the circumstances where there is uncertain or insufficient information, as identified in section 4.2.6 of this report. Based on these evaluations, having regard to effectiveness and efficiency, the Board's overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

When reference is made to rivers and streams in the upper Waitaki catchment those rivers and streams defined in Policy 39 of the Plan are being referred to.

12.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 3, 4, 5, 6, and 40
- Rules 1, 2, 9, 11, 15, 16, 19, 20 and 24.

12.3 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan in relation to the environmental flow and level regimes of the rivers and streams in the upper Waitaki catchment is summarised in Table 69 below. In this circumstance, Objectives 1 and 2 are relevant to the evaluation.

Table 69: Effectiveness of the provisions in the Plan relating to the environmental flow and level regimes of the streams and rivers in the upper Waitaki catchment

Objective	Provisions	Effectiveness
1	<p>The environmental flow and level regimes provide for the retention of sufficient water in the rivers and streams to sustain the health and protection of their natural and physical qualities, and safeguard the life-supporting capacity of ecosystems.</p> <p>Environmental flow and level regimes enable the provision of water for an individual's reasonable domestic needs, the reasonable drinking-water needs of an individual's animals, and for fire-fighting needs.</p> <p>Implementation will occur through the consideration of resource-consent applications as either a discretionary or non-complying activity.</p> <p>Implementation of the environmental flow and level regimes requires the</p>	High

	Canterbury Regional Council to review existing resource consents in terms of section 68(7) of the RMA – such a review is at the discretion of the Canterbury Regional Council.	
2	<p>The allocation limits do not restrict existing resource consents, or replacement resource consents for the same or less amounts of water.</p> <p>Limited potential for taking water for activities over and above that currently consented is provided for, particularly from the Twizel River, Fork Stream and Grays River (and their tributaries).</p> <p>Essential drinking, stock drinking-water, maintaining fire fighting capacity and the processing of perishable produce are not restricted by the minimum flows and flow-sharing requirements.</p> <p>Micro hydro-electricity generation and fisheries and wildlife activities are exempt from the allocation limit.</p> <p>Any water within the environmental flow and level regime is available for hydro-electricity generation in downstream hydro-electricity generation stations.</p>	Moderate
Overall effectiveness		High

12.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to the environmental flow and level regimes for the rivers and streams in the upper Waitaki catchment is summarised in Table 70 below.

Table 70: Benefits and costs of the environment flow and level regimes for the rivers and streams in the upper Waitaki catchment

Benefits	Costs
<p>Environmental</p> <p>Landscape values of scenic rivers and streams are maintained.</p> <p>Wetland habitats and values within the catchments are maintained.</p> <p>Habitat values within the catchments are maintained, including habitat for threatened grasshopper <i>Brachaspis robustus</i>.</p> <p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - longjaw and bignose galaxias - longfin eels. 	<p>Environmental</p> <p>Potential site-specific adverse effects from micro hydro-electricity generation and fisheries and wildlife activities (to the extent not mitigated as per consent conditions).</p> <p>Potential site-specific effects from taking essential drinking and stock drinking-water, and for the processing of perishable produce in times of low flow.</p>
<p>Economic</p> <p>Retains moderate value water for hydro-electricity generation.</p> <p>Provides opportunity to derive economic benefit from new activities.</p> <p>Retains economic benefit from existing activities.</p> <p>Provides opportunities to derive economic benefit from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Economic</p> <p>Opportunity cost attached to existing activities taking water.</p> <p>Reduced opportunity to derive economic benefit from new activities requiring water.</p>

Social Recreational values associated with the rivers and streams maintained. The existence value of rivers and streams is protected. Enhanced opportunities for secondary social wellbeing effects derived from new activities. Retains secondary social wellbeing effects associated with existing activities. Enhanced secondary social wellbeing effects from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.	Social Reduced secondary social wellbeing from existing activities taking water. Reduced secondary social wellbeing from new activities requiring water.
Cultural Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu. Has particular regard to the kaitiakitanga of Ngāi Tahu. Sustains the habitat of mahinga kai species.	Cultural

12.5 Efficiency

Following the consideration of the benefits and costs of the environmental flow and level regimes relating to the rivers and streams in the upper Waitaki catchment, it is the Board's judgement that the provisions are of high efficiency.

12.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of environmental flow and level regimes relating to the rivers and streams in the upper Waitaki catchment is summarised in Table 71 below.

Table 71: Summary of the effectiveness and efficiency of the environmental flow and level regimes for the rivers and streams in the upper Waitaki catchment

	Effectiveness	Efficiency
Rivers and streams in the upper Waitaki catchment	High	High

Having regard to this information, and taking into account the benefits and costs and the risk of acting due to insufficient information, it is the Board's judgement that the environmental flow and level regimes for the rivers and streams in the upper Waitaki catchment are the most appropriate to achieve the objectives of the Plan.

13. Tributaries of Lakes Benmore, Aviemore and Waitaki

13.1 Introduction

This chapter summarises the Board’s evaluation of the provisions in the Plan relating to the environmental flow and level regimes for the tributaries of Lakes Benmore, Aviemore and Waitaki. The effectiveness, benefits and costs, and efficiency of the provisions are examined. Consideration is given to the circumstances where there is uncertain or insufficient information, as identified in section 4.2.6 of this report. Based on these evaluations, having regard to effectiveness and efficiency, the Board’s overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

When reference is made to ‘surface water tributaries of Lakes Benmore, Aviemore and Waitaki’, what is being referred to is:

- all the rivers and streams that flow into Lake Benmore, except for Tekapo, Pūkaki and Ōhau catchments and the Ahuriri River and catchment
- all the rivers and streams that flow into Lake Aviemore
- all the rivers and streams that flow into Lake Waitaki.

13.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 3, 4, 5, 6, and 41
- Rules 1, 2, 9, 11, 15, 16, 19, 20 and 24.

13.3 Effectiveness

The Board’s evaluation of the effectiveness of the provisions in the Plan to establish environmental flow and level regimes for the tributaries of Lakes Benmore, Aviemore and

Waitaki is summarised in Table 72 below. In this circumstance, Objectives 1 and 2 are relevant to the evaluation.

Table 72: Effectiveness of the provisions in the Plan relating to the environmental flow and level regimes for the tributaries of Lakes Benmore, Aviemore and Waitaki

Objective	Provisions	Effectiveness
1	<p>The environmental flow and level regimes provide for the retention of sufficient water in the tributaries of sustain the health and protection of their natural and physical qualities, safeguard the life-supporting capacity of ecosystems and maintain people's appreciation and enjoyment of these water bodies.</p> <p>The environmental flow and level regimes enable the provision of water for an individual's reasonable domestic needs, the reasonable drinking-water needs of an individual's animals, and for fire-fighting needs.</p> <p>Implementation will occur through the consideration of resource-consent applications as either a discretionary or non-complying activity.</p> <p>The environmental flow and level regimes enable water to flow into the lake system. However, these provisions will only be effective if implemented by the consent authority in terms of section 68(7) of the RMA.</p>	Moderate/High
2	<p>The allocation limit does not restrict existing resource consents, or replacement resource consents for the same or less amounts of water from the Otematata River.</p> <p>Potential for taking water for activities over and above that currently consented is provided for on individual watercourses.</p> <p>Essential drinking, stock drinking-water, maintaining fire fighting capacity and the processing of perishable produce are not restricted by the minimum flows and flow-sharing requirements.</p> <p>Micro hydro-electricity generation and fisheries and wildlife activities are exempt from the allocation limit from the Otematata River.</p> <p>Any water within the environment flow and level regime is available for hydro-electricity generation in downstream hydro-electricity generation stations.</p>	Moderate
Overall effectiveness		Moderate/High

13.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to the environmental flow and level regimes for the tributaries of Lakes Benmore, Aviemore and Waitaki is summarised in Table 73 below.

Table 73: Benefits and costs of the provisions in the Plan relating to the environmental flow and level regimes for the tributaries of Lakes Benmore, Aviemore and Waitaki

Benefits	Costs
<p>Environmental</p> <p>Wetland habitats of Aviemore Ponds, Ben Omar Swamp and Clark Creek/Otamatapaio Swamp will be maintained.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - Black Stilt - Southern Crested Grebe. 	<p>Environmental</p> <p>Otamatapaio Swamp with an adjacent river swamp is fed by an irrigation overflow which may be degraded through the application of an environmental flow and level regime.</p> <p>Potential site-specific adverse effects from micro hydro-electricity generation and fisheries and wildlife activities (to the extent not mitigated as per consent conditions).</p> <p>Potential site specific effects from taking essential drinking and stock drinking-water, and for the processing of perishable produce in times of low flow.</p>

<p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - longjaw and Canterbury galaxias - common and upland bullies - longfin eels. <p>Habitat and/or spawning areas for sport fish species are maintained and enhanced, particularly for brown trout.</p>	
<p>Economic</p> <p>Retains moderate value water for hydro-electricity generation.</p> <p>Provides some opportunity to derive economic benefit from new activities.</p> <p>Retains economic benefit from existing activities.</p> <p>Provides opportunities to derive economic benefit from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Economic</p> <p>Opportunity cost attached to existing activities taking water.</p> <p>Reduced opportunity to derive economic benefit from new activities requiring water.</p>
<p>Social</p> <p>The existence value of rivers and streams is protected.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p> <p>Enhanced secondary social wellbeing effects from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Social</p> <p>Reduced secondary social wellbeing from existing activities taking water.</p> <p>Reduced secondary social wellbeing from new activities requiring water.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p>	<p>Cultural</p>

13.5 Efficiency

Following the consideration of the benefits and costs of the environmental flow and level regimes for the tributaries of Lakes Benmore, Aviemore and Waitaki, it is the Board's judgement that the provisions are of high efficiency.

13.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the environmental flow and level regimes in relation to the tributaries of Lakes Benmore, Aviemore and Waitaki is summarised in Table 74 below.

Table 74: Summary of the effectiveness and efficiency of the environmental flow and level regimes for tributaries of Lakes Benmore, Aviemore and Waitaki

	Effectiveness	Efficiency
Tributaries of Lakes Benmore, Aviemore and Waitaki	Moderate/High	High

Having regard to this information, and taking into account the benefits and costs and the risk of acting due to insufficient information, it is the Board's judgement that the environmental flow and level regimes for tributaries of Lakes Benmore, Aviemore and Waitaki are the most appropriate to achieve the objectives of the Plan.

14. Lakes Ruataniwha, Benmore, Aviemore and Waitaki

14.1 Introduction

This chapter summarises the Board's evaluation of the provisions of the Plan relating to environmental flow and level regimes (minimum lake levels) for Lakes Ruataniwha, Benmore, Aviemore and Waitaki. The effectiveness, benefits and costs, and efficiency of the provisions are examined. Consideration is given to the circumstances where there is uncertain or insufficient information, as identified in section 4.2.6 of this report. Based on these evaluations, having regard to effectiveness and efficiency, the Board's overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

14.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 3, 4, 5, 6, and 42
- Rules 1, 2, 9, 11, 15, 16, 19, 20 and 24.

14.3 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan relevant to the minimum lake levels for Lakes Ruataniwha, Benmore, Aviemore and Waitaki are summarised in Table 75 below. In this circumstance, Objectives 1 and 2 are relevant to the evaluation.

Table 75: Effectiveness of the provisions in the Plan relevant to the minimum lake levels for Lakes Ruataniwha, Benmore, Aviemore and Waitaki

Objective	Provisions	Effectiveness
1	<p>The environmental flow and level regimes provide for the retention of sufficient water in the lakes to ensure the health and protection of their natural and physical qualities, safeguard the life-supporting capacity of ecosystems, and maintain people's appreciation and enjoyment of the lake environments.</p> <p>The minimum lake levels recognise the relationship of Ngāi Tahu and their culture and traditions with the Waitaki catchment, a taonga, and its associated sites and wāhi tapu. However, retention of minimum lake levels will mean that some of the values of the area important to Ngāi Tahu for Lakes Benmore and Aviemore will remain flooded.</p> <p>The minimum lake levels enable the provision of water for an individual's reasonable domestic needs, the reasonable drinking-water needs of an individual's animals, and for fire-fighting needs.</p> <p>Implementation will occur through the consideration of resource-consent applications as either a discretionary or non-complying activity.</p>	High

2	<p>A significant amount of water is available for allocation to activities above the specified minimum lake levels.</p> <p>Essential drinking, stock drinking-water, maintaining fire fighting capacity and the processing of perishable produce are not restricted by the minimum levels.</p>	High
Overall effectiveness		High

14.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to minimum lake levels for Lakes Ruataniwha, Benmore, Aviemore and Waitaki are summarised in Table 76 to 79 below.

Table 76: Benefits and costs of minimum lake levels for Lake Ruataniwha

Benefits	Costs
<p>Environmental</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - open water divers - waterfowl - gulls and terns - Southern Crested Grebe. <p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for Canterbury galaxias.</p> <p>Habitat and/or spawning areas for sport fish species are maintained and enhanced, particularly for brown trout.</p>	<p>Environmental</p>
<p>Economic</p> <p>Retains moderate value water for hydro-electricity generation.</p> <p>Provides opportunity to derive economic benefit from new activities.</p> <p>Retains economic benefit from existing activities.</p> <p>Provides opportunities to derive economic benefit from essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Economic</p> <p>Opportunity cost attached to existing activities taking water.</p> <p>Reduced opportunity to derive economic benefit from new activities requiring water.</p>
<p>Social</p> <p>The existence value of Lake Ruataniwha is maintained.</p> <p>A wide range of recreation opportunities of high value will be maintained including rowing, canoeing, kayaking, swimming, sailing, water-skiing and camping.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p> <p>Enhanced secondary social wellbeing effects from essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Social</p> <p>Reduced secondary social wellbeing from existing activities taking water.</p> <p>Reduced opportunity to derive secondary social wellbeing effects from new activities requiring water.</p>

<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p>	<p>Cultural</p>
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Table 77: Benefits and costs of minimum lake levels for Lake Benmore

Benefits	Costs
<p>Environmental</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - Black Stilt - Southern Crested Grebe. <p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - common and upland bullies - longfin eels. <p>Habitat and/or spawning areas for sport fish species are maintained and enhanced, particularly for brown and rainbow trout.</p> <p>Environmental lake levels will allow for raupo to continue to be grown on the edge of the lake adjacent to the deep water.</p> <p>The geopreservation sites will be maintained – “Black Jacks Triassic macrofauna and estuarine deposits”.</p>	<p>Environmental</p>
<p>Economic</p> <p>Retains moderate value water for hydro-electricity generation.</p> <p>Provides opportunity to derive economic benefit from new activities.</p> <p>Retains economic benefit from existing activities.</p> <p>Provides opportunities to derive economic benefit from essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Economic</p> <p>Opportunity cost attached to existing activities taking water.</p> <p>Reduced opportunity to derive economic benefit from new activities requiring water.</p>

<p>Social</p> <p>The existence value of Lake Benmore is maintained.</p> <p>A wide range of recreation opportunities of high value will be maintained, including power boating, jet boating, canoeing, kayaking, swimming, fishing, sailing, water-skiing and camping.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p> <p>Enhanced secondary social wellbeing effects from essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Social</p> <p>Reduced secondary social wellbeing from existing activities taking water.</p> <p>Reduced opportunity to derive secondary social wellbeing effects from new activities requiring water.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p> <p>Recognises the Statutory Acknowledgement for Lake Benmore (Te Ao Mārama).</p>	<p>Cultural</p>

Table 78: Benefits and costs of minimum lake levels for Lake Aviemore

Benefits	Costs
<p>Environmental</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - deep and shallow water waders - terns - Banded Dotterel. <p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - common bullies - longfin eels - freshwater mussels. <p>Habitat and/or spawning areas for sport fish species are maintained and enhanced, particularly for brown and rainbow trout.</p> <p>Maintaining environmental lake levels will maintain the opportunity for raupo to continue to be grown on the edge of the lake adjacent to the deep water.</p>	<p>Environmental</p>

<p>Economic</p> <p>Retains moderate value water for hydro-electricity generation.</p> <p>Provides opportunity to derive economic benefit from new activities.</p> <p>Retains economic benefit from existing activities.</p> <p>Provides opportunities to derive economic benefit from essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Economic</p> <p>Opportunity cost attached to existing activities taking water.</p> <p>Reduced opportunity to derive economic benefit from new activities requiring water.</p>
<p>Social</p> <p>Existence value of Lake Aviemore is maintained.</p> <p>A wide range of recreation opportunities will be maintained through including power boating, jet boating, canoeing, kayaking, swimming, fishing, sailing, water-skiing and camping.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p> <p>Enhanced secondary social wellbeing effects from essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Social</p> <p>Reduced secondary social wellbeing from existing activities taking water.</p> <p>Reduced opportunity to derive secondary social wellbeing effects from new activities requiring water.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p> <p>Recognises the Statutory Acknowledgement for Lake Aviemore (Mahi Tīkumu).</p>	<p>Cultural</p>

Table 79: Benefits and costs of minimum lake levels for Lake Waitaki

Benefits	Costs
<p>Environmental</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - waterfowl - terns - Banded Dotterel. <p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for common bullies.</p> <p>Habitat and/or spawning areas for sport fish species are maintained and enhanced, particularly for brown trout.</p> <p>Geopreservation site will be maintained – “Oligocene fossil fauna, molluscan fauna plus kekendon toothed-whale teeth”.</p>	<p>Environmental</p>

<p>Economic</p> <p>Retains moderate value water for hydro-electricity generation.</p> <p>Provides opportunity to derive economic benefit from new activities.</p> <p>Retains economic benefit from existing activities.</p> <p>Provides opportunities to derive economic benefit from essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Economic</p> <p>Opportunity cost attached to existing activities taking water.</p> <p>Reduced opportunity to derive economic benefit from new activities requiring water.</p>
<p>Social</p> <p>Existence value of Lake Waitaki is maintained.</p> <p>A wide range of recreation opportunities of moderate value will be maintained through implementing the minimum lake level, including power boating, canoeing, kayaking, fishing, swimming, sailing, fishing and water-skiing.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p> <p>Enhanced secondary social wellbeing effects from essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Social</p> <p>Reduced secondary social wellbeing from existing activities taking water.</p> <p>Reduced opportunity to derive secondary social wellbeing effects from new activities requiring water.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p>	<p>Cultural</p>

14.5 Efficiency

Following the consideration of the benefits and costs, it is the Board's judgement that the provisions relating to the minimum lake levels for:

- Lake Ruataniwha, are of high efficiency
- Lake Benmore, are of high efficiency
- Lake Aviemore, are of high efficiency
- Lake Waitaki, are of high efficiency.

14.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the minimum lake levels for Lakes Ruataniwha, Benmore, Aviemore and Waitaki are summarised in Table 80 below.

Table 80: Summary of the effectiveness and efficiency of the provisions setting minimum lake levels for Lakes Ruataniwha, Benmore, Aviemore and Waitaki

Environmental lake levels	Effectiveness	Efficiency
Lake Ruataniwha	High	High
Lake Benmore	High	High
Lake Aviemore	High	High
Lake Waitaki	High	High

Having regard to this information, and taking into account the benefits and costs and the risk of acting due to insufficient information, it is the Board's judgement that minimum lake levels for Lakes Ruataniwha, Benmore, Aviemore and Waitaki are the most appropriate to achieve the objectives of the Plan.

15. Hakataramea catchment

15.1 Introduction

This chapter summarises the Board's evaluation of the provisions in the Plan relating to the environmental flow and level regime for the Hakataramea catchment. The effectiveness, benefits and costs, and efficiency of the provisions are examined. Consideration is given to the circumstances where there is uncertain or insufficient information, as identified in section 4.2.6 of this report. Based on these evaluations, having regard to effectiveness and efficiency, the Board's overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

15.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 3, 4, 5, 6, and 43
- Rules 1, 2, 9, 11, 15, 16, 19, 20 and 24.

15.3 Effectiveness

The Board's evaluation of the effectiveness of the environmental flow and level regime for the Hakataramea catchment is summarised in Table 81 below. In this circumstance, Objectives 1 and 2 are relevant to the evaluation.

Table 81: Effectiveness of the environmental flow and level regime for the Hakataramea catchment

Objective	Provisions	Effectiveness
1	<p>The environmental flow and level regime (including flow variability resulting from the required flow sharing) provides for the retention of sufficient water to sustain the health and protection of the natural and physical qualities, safeguard the life-supporting capacity of ecosystems, and maintain people's appreciation and enjoyment, of the Hakataramea catchment.</p> <p>The environmental flow and level regime in the period April to August recognises important habitat values, including the critical time for sustaining the salmon spawning capacity of the Hakataramea River.</p> <p>The environmental flow and level regime enables the provision of water for an individual's reasonable domestic needs, the reasonable drinking-water needs of an individual's animals, and for fire-fighting needs.</p> <p>The environmental flow and level regime recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki catchment, a taonga, and its associated sites and wāhi tapu.</p> <p>The environmental flow and level regime will only be effective if implemented and monitored by the consenting authority in terms of section 68(7) of the RMA.</p> <p>Implementation will occur through the consideration of resource-consent applications as either a discretionary or non-complying activity.</p>	Moderate

2	<p>The allocation limit and flow sharing regime does not restrict existing resource consents, or replacement resource consents for the same or less amounts of water.</p> <p>The environmental flow and level regime in the period September to March provides water for allocation to activities at times of high demand for irrigation.</p> <p>Existing takes and diversions will experience reduced reliability of water.</p> <p>Opportunity is provided for water to be harvested during periods of higher river flow to supplement the water taken by activities during times of restriction.</p> <p>Essential drinking, stock drinking-water, maintaining fire fighting capacity and the processing of perishable produce are not restricted by the minimum flow and flow-sharing requirements.</p> <p>Micro hydro-electricity generation and fisheries and wildlife activities are exempt from the allocation limit.</p>	Moderate
Overall effectiveness		Moderate

15.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to environmental flow and level regime for the Hakataramea catchment is summarised in Table 82 below.

Table 82: Benefits and costs of the environmental flow and level regime for the Hakataramea catchment

Benefits	Costs
<p>Environmental</p> <p>Natural and physical resources associated with the Hakataramea catchment are maintained.</p> <p>Existing shallow braided characteristics and secondary characteristics (riffles, rapids, pools, wetlands) associated with the Hakataramea River will be maintained.</p> <p>Riparian and wetland values, particularly at the rivers confluence with the Waitaki River will benefit by maintaining connectedness of flow thereby providing opportunity for riparian and wetland enhancement.</p> <p>Requires that water be kept in-stream irrespective of the flow-sensitivity created by forestry.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - deep and shallow water waders - open water divers - waterfowl - gulls and terns, including Black-fronted Terns - Banded Dotterel. <p>Will support threatened plant species, namely <i>Carmichaelia curta</i> and <i>Teucrium parvifolium</i>.</p> <p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - longjaw and Canterbury galaxias 	<p>Environmental</p> <p>Reduction in natural flow variations resulting in potential adverse effects on physical and ecological conditions of the Hakataramea River:</p> <ul style="list-style-type: none"> o will occur in the September to March period in flow conditions between 0.5 and 1.0 cubic metres per second o may occur when the flow is above 4.5 cubic metres per second (to the extent not mitigated as per consent conditions). <p>Potential site-specific adverse effects from micro hydro-electricity generation and fisheries and wildlife activities (to the extent not mitigated as per consent conditions).</p> <p>Potential site specific effects from taking essential drinking and stock drinking-water, and for the processing of perishable produce in times of low flow.</p>

<ul style="list-style-type: none"> - koaro - common and upland bullies - shortfin eels. <p>Habitat and/or spawning areas for sport fish species are maintained and enhanced, particularly for:</p> <ul style="list-style-type: none"> - brown trout and rainbow trout - Chinook salmon. 	
<p>Economic</p> <p>Recognises the opportunity to derive economic benefit from irrigation and horticultural activities in the September to March period.</p> <p>Provides opportunity to derive economic benefit from new activities through water harvesting and storage.</p> <p>Retains economic benefit from existing activities.</p> <p>Provides opportunities to derive economic benefit from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Economic</p> <p>Opportunity cost attached to existing activities taking water.</p>
<p>Social</p> <p>Maintains the high recreational values, namely angling, sightseeing, swimming and waterfowl hunting, thereby retaining wide range of recreation choice.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p> <p>Existence value of the Hakataramea catchment is increased.</p> <p>Enhanced secondary social wellbeing effects from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Social</p> <p>Fewer secondary social wellbeing effects as a result of less water to allocate to existing activities.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p> <p>Recognises the Statutory Acknowledgement for Hakataramea River.</p>	<p>Cultural</p>

15.5 Efficiency

Following the consideration of the benefits and costs of the environmental flow and level regime for the Hakataramea catchment, it is the Board's judgement that the provisions are of moderate efficiency.

15.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the environmental flow and level regime for the Hakataramea catchment is summarised in Table 83 below.

Table 83: Summary of the effectiveness and efficiency of the environmental flow and level regime for the Hakataramea catchment

	Effectiveness	Efficiency
Environmental flow and level regime	Moderate	Moderate/High

Having regard to this information, and taking into account the benefits and costs and the risk of acting due to insufficient information, it is the Board's judgement that the environmental flow and level regime for the Hakataramea catchment is the most appropriate way to achieve the objectives of the Plan.

16. Lower Waitaki River tributaries

16.1 Introduction

This chapter summarises the Board's evaluation of the provisions in the Plan relating to the environmental flow and level regimes for the Lower Waitaki River tributaries. The effectiveness, benefits and costs, and efficiency of the provisions are examined. Consideration is given to the circumstances where there is uncertain or insufficient information, as identified in section 4.2.6 of this report. Based on these evaluations, having regard to effectiveness and efficiency, the Board's overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

16.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 3, 4, 5, 6, and 44
- Rules 1, 2, 9, 11, 15, 16, 19, 20 and 24.

16.3 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan relating to the environmental flow and level regimes for the Lower Waitaki River tributaries are summarised in Table 84 below. In this circumstance, Objectives 1 and 2 are relevant to the evaluation.

Table 84: Effectiveness of the environmental flow and level regimes for the Lower Waitaki River tributaries

Objective	Provisions	Effectiveness
1	<p>The environmental flow and level regimes provide for the retention of sufficient water to sustain the health and protection of the natural and physical qualities, safeguard the life-supporting capacity of ecosystems, maintain people's appreciation and enjoyment, and safeguard the integrity of the rivers, streams and waterways forming the Lower Waitaki River tributaries. However, this will only be effective if implemented and monitored by the consenting authority in terms of section 68(7) of the RMA.</p> <p>Environmental flow and level regimes enable the provision of water for an individual's reasonable domestic needs, the reasonable drinking water needs of an individual's animals, and for fire-fighting needs.</p> <p>Implementation will occur through the consideration of resource-consent applications as either a discretionary or non-complying activity.</p>	Moderate/High

2	<p>The allocation limits do not restrict existing resource consents, or replacement resource consents for the same or less amounts of water.</p> <p>Potential for taking water for activities over and above that currently consented is provided for on individual watercourses.</p> <p>Essential drinking, stock drinking-water, maintaining fire fighting capacity and the processing of perishable produce are not restricted by the minimum flows and flow-sharing requirements.</p> <p>Micro hydro-electricity generation and fisheries and wildlife activities are exempt from the allocation limits.</p>	Moderate
Overall effectiveness		Moderate/High

16.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to environmental flow and level regimes for the Lower Waitaki River tributaries is summarised in Table 85 below.

Table 85: Benefits and costs of the environmental flow and level regimes for the Lower Waitaki River tributaries

Benefits	Costs
<p>Environmental</p> <p>Natural and physical resources of the rivers, streams, waterways, and wetlands associated with the Lower Waitaki River tributaries are maintained.</p> <p>Riparian and wetland values will be maintained by providing for connectedness of flow, particularly the braided sections of the Maerewhenua, Otiake, Otekaieke and Kurow rivers providing opportunity for riparian and wetland enhancement. Further, secondary characteristics associated with braided sections of larger rivers (riffles, rapids, pools) will also be maintained and enhanced.</p> <p>The opportunity for people to experience the openness and naturalness of these rivers will be retained and enhanced.</p> <p>Maintains a supportive environment to threatened plant species namely <i>Carmichaelia curta</i>, <i>Carmichaelia vexillata</i>.</p> <p>Habitat and/or spawning areas for native fish species are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - Canterbury galaxias - koaro - common and upland bullies - Canterbury mudfish - shortfin and longfin eels. <p>Habitat and/or spawning areas for sport fish species are maintained and enhanced, particularly for:</p> <ul style="list-style-type: none"> - brown trout and rainbow trout - Chinook salmon. 	<p>Environmental</p> <p>Reduction in natural flow variations resulting in potential adverse effects on physical and ecological conditions of the Maerewhenua River:</p> <ul style="list-style-type: none"> o will occur in flow conditions between 0.4 and 0.8 cubic metres per second o may occur when the flow is above 2 cubic metres per second (to the extent not mitigated as per consent conditions). <p>Potential site-specific adverse effects from micro hydro-electricity generation and fisheries and wildlife activities (to the extent not mitigated as per consent conditions).</p> <p>Potential site specific effects from taking essential drinking and stock drinking-water, and for the processing of perishable produce in times of low flow.</p>

<p>Economic</p> <p>Provides opportunity to derive economic benefit from new activities.</p> <p>Retains economic benefit from existing activities.</p> <p>Provides opportunities to derive economic benefit from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Economic</p> <p>Opportunity cost attached to existing activities taking water.</p> <p>Reduced opportunity to derive economic benefit from new activities requiring water.</p>
<p>Social</p> <p>Maintains and enhances recreational values, namely angling, sightseeing, and swimming, thereby retaining wide range of recreation choice.</p> <p>Enhanced opportunities for secondary social wellbeing effects derived from new activities.</p> <p>Retains secondary social wellbeing effects associated with existing activities.</p> <p>Existence values of the Lower Waitaki River tributaries are maintained and enhanced.</p> <p>Enhanced secondary social wellbeing effects from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.</p>	<p>Social</p> <p>Fewer secondary social wellbeing effects as a result of less water to allocate to existing activities.</p> <p>Reduced secondary social wellbeing effects from new activities requiring water.</p>
<p>Cultural</p> <p>Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>Has particular regard to the kaitiakitanga of Ngāi Tahu.</p> <p>Sustains the habitat of mahinga kai species.</p>	<p>Cultural</p>

16.5 Efficiency

Following the consideration of the benefits and costs of the provisions relevant to the environmental flow and level regimes, it is the Board's judgement that the provisions are of high efficiency.

16.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the environmental flow and level regimes for the Lower Waitaki River tributaries is summarised in Table 86 below.

Table 86: Summary of the effectiveness and efficiency of the environmental flow and level regimes for the Lower Waitaki River tributaries

	Effectiveness	Efficiency
Environmental flow and level regimes	Moderate/High	High

Having regard to this information, and taking into account the benefits and costs and the risk of acting due to insufficient information, it is the Board's judgement that the environmental flow and level regimes for the Lower Waitaki River tributaries are the most appropriate way to achieve the objectives of the Plan.

17. Waitaki River downstream of Waitaki Dam

17.1 Introduction

This chapter summarises the Board's evaluation of the provisions in the Plan relating to the environmental flow and level regime for the Waitaki River downstream of Waitaki Dam. The effectiveness, benefits and costs, and efficiency of the provisions are examined. Consideration is given to the circumstances where there is uncertain or insufficient information, as identified in section 4.2.6 of this report. Based on these evaluations, having regard to effectiveness and efficiency, the Board's overall judgement of whether the provisions are the most appropriate to achieve the objectives is recorded.

17.2 Plan provisions

The relevant provisions of the Plan are:

- Policies 1, 3, 4, 5, 6, 45 and 46
- Rules 1, 2, 7, 9, 11, 15, 16, 19, 20 and 24.

17.3 Effectiveness

The Board's evaluation of the effectiveness of the provisions in the Plan relating to the environmental flow and level regime for the Waitaki River downstream of Waitaki Dam is summarised in Table 87 below. In this circumstance, Objectives 1, 2 and 5 are relevant to the evaluation.

Table 87: Effectiveness of the environmental flow and level regime for the Waitaki River downstream of Waitaki Dam

Objective	Provisions	Effectiveness
1	<p>The environmental flow and level regime provides for the retention of sufficient water in all but extreme climatic conditions to sustain the health and protection of the natural and physical qualities, safeguard the life-supporting capacity of ecosystems, maintain people's appreciation and enjoyment, and safeguard the integrity of the braided river system, of the Lower Waitaki River environment.</p> <p>Any undesirable algae and silt build-up resulting from the Lower Waitaki River flow regime will be mitigated by the required flushing flows.</p> <p>The environmental flow and level regime recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu.</p> <p>The environmental flow and level regime enables the provision of water for an individual's reasonable domestic needs, the reasonable drinking-water needs of an individual's animals, and for fire-fighting needs.</p> <p>However, with respect to existing resource consents, implementation will only</p>	Moderate

	<p>occur if the consenting authority uses section 68(7) of the RMA to review the consents for Waitaki Dam.</p> <p>Implementation will occur through the assessment and consideration of resource-consent applications as either a discretionary or non-complying activity.</p>	
2	<p>A significant amount of water is available for allocation to activities above the specified minimum flow and level regime. Included within this is the potential to divert large volumes of water if the water is returned upstream of Black Point.</p> <p>The allocation limit provides for all existing, and reasonably foreseeable future, needs to take (abstracting and not returning) water in the local area.</p> <p>Increased flexibility to manage the existing Waitaki Power Scheme resulting from the 1-hour rolling average measurement system, once implemented.</p> <p>The minimum flows in climatic conditions resulting in 1 in 20 year low inflows recognise hydro-electricity generation activities upstream of Waitaki Dam.</p> <p>The allocation limit does not restrict existing resource consents, or replacement resource consents for the same or less amounts of water.</p> <p>Essential drinking, stock drinking-water, maintaining fire fighting capacity and the processing of perishable produce are not restricted by the minimum flow.</p> <p>Micro hydro-electricity generation and fisheries and wildlife activities are exempt from the allocation limit.</p> <p>Any allocation cannot derogate from existing resource consents.</p>	Moderate
5	<p>The flow of the Waitaki River is artificially controlled because of the hydro-electricity generation facilities. Therefore the run-of-river reliability of the downstream users is dependent on the pattern of flow releases from those facilities. The Plan prescribes the minimum flow releases through Waitaki Dam necessary during times of low water availability. The provisions of the Plan will be implemented through the consideration of resource-consent applications.</p>	Moderate
Overall Effectiveness		Moderate/High

17.4 Benefits and costs

The Board's evaluation of the benefits and costs of the provisions in the Plan relating to the environmental flow and level regime of the Waitaki River downstream of Waitaki Dam is summarised in Table 88 below.

Table 88: Benefits and costs of the environmental flow and level regime for the Waitaki River downstream of Waitaki Dam

Benefits	Costs
<p>Environmental</p> <p>Natural and physical resources associated with the Lower Waitaki River are maintained, particularly downstream of Black Point.</p> <p>Existing braided character of the Lower Waitaki River will be maintained and protected and secondary characteristics associated with braided river (riffles, rapids, pools) will be maintained, particularly downstream of Black Point.</p> <p>The opportunity for people to experience the openness, naturalness, and magnitude of the dynamic, braided river will be retained.</p> <p>Any undesirable algae and silt build-up resulting from the Lower Waitaki River flow regime will be mitigated as a result of medium sized flushing flows.</p> <p>Riparian, backwater and wetland values will be</p>	<p>Environmental</p> <p>The Lower Waitaki River downstream of Waitaki Dam but upstream of Black Point may experience reduced variability in flow (to the extent not mitigated as per consent conditions).</p> <p>Minimum flows reflecting low natural flows may result in short term adverse effects on ecosystems.</p>

<p>maintained by ensuring connectedness and variation of flows thereby providing opportunity for riparian and wetland rejuvenation and enhancement.</p> <p>Supports coastal processes ensuring the physical and ecological functioning of the river mouth which, in turn, provides for whitebaiting and salmon runs.</p> <p>Recognises that the river mouth is an area of significant natural value in the Proposed Canterbury Regional Coastal Environmental Plan and associated natural values will be maintained.</p> <p>Maintains a supportive environment to threatened plant species namely <i>Carmichaelia curta</i>, <i>Carmichaelia holliwayi</i>.</p> <p>Feeding and/or roosting and/or breeding habitats for bird life are maintained and/or enhanced, particularly for:</p> <ul style="list-style-type: none"> - deep and shallow water waders - open water divers - waterfowl - gulls and terns, including Black-fronted Terns - Wrybill - Black Stilt - Banded Dotterel. <p>Habitat and/or spawning areas for native fish species are maintained, particularly for:</p> <ul style="list-style-type: none"> - Canterbury galaxias - koaro - common bullies - shortfin and longfin eels - Canterbury mudfish. <p>Habitat and/or spawning areas for sport fish species are maintained, particularly for:</p> <ul style="list-style-type: none"> - brown trout and rainbow trout - Chinook salmon. 	
<p>Economic</p> <p>Provides opportunity to derive economic benefit from new activities, including:</p> <ul style="list-style-type: none"> - activities diverting significant volumes of water at (or downstream of) Waitaki Dam returning to the Waitaki River upstream of Black Point. - activities taking water downstream of Black Point. <p>Retains economic benefit from existing activities.</p> <p>Retains economic benefit associated with the large braided river characteristic.</p> <p>Provides for operational management flexibility for the Waitaki Power Scheme associated with the 1-hour rolling average measurement system.</p> <p>Provides for operational management flexibility for the Waitaki Power Scheme in times of low natural inflows into the Waitaki catchment upstream of Waitaki Dam.</p> <p>Provides opportunities to derive economic benefit from</p>	<p>Economic</p> <p>Opportunity cost attached to existing hydro-electricity generation through a reduction in operational flexibility.</p>

micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.	
Social Retains wide range of recreation choice for recreational users, including jet boating, anglers, and whitebaiting. Enhanced opportunities for secondary social wellbeing effects derived from new activities including temporary secondary social wellbeing effects associated with growth potential of new hydro-electricity generation upstream of Black Point. Retains secondary social wellbeing effects associated with existing activities. Existence value of the Waitaki River is maintained except in times of low natural flows. Enhanced secondary social wellbeing effects from micro hydro-electricity generation, essential drinking and stock drinking-water, and the processing of perishable produce.	Social Reduced recreational opportunity during times of minimum flows reflecting low natural flows. Reduced existence values during times of minimum flows reflecting low natural flows.
Cultural Recognises the relationship of Ngāi Tahu and their culture and traditions with the Waitaki River, a taonga, and its associated sites and wāhi tapu. Has particular regard to the kaitiakitanga of Ngāi Tahu. Sustains the habitat of mahinga kai species. Recognises the Statutory Acknowledgement for the Waitaki River.	Cultural

17.5 Efficiency

Following the consideration of the benefits and costs of the environmental flow and level regime for the Waitaki River downstream of Waitaki Dam, it is the Board's judgement that the provisions are of moderate/high efficiency.

17.6 Appropriateness

The Board's evaluation of the effectiveness and efficiency of the environmental flow and level regime for the Waitaki River downstream of Waitaki Dam is summarised in Table 89 below.

Table 89: Summary of the effectiveness and efficiency of the environmental flow and level regime for the Waitaki River downstream of Waitaki Dam

	Effectiveness	Efficiency
Environmental flow and level regimes	Moderate	Moderate/High

Having regard to this information, and taking into account the benefits and costs and the risk of acting due to insufficient information, it is the Board's judgement that the environmental flow and level regime for the Waitaki River downstream of Waitaki Dam is the most appropriate way to achieve the objectives of the Plan.

18. Relationship with the Regional Plan: Water for Otago

18.1 Introduction

This chapter summarises the Board's evaluation of the relationship between the Otago Regional Council's *Regional Plan: Water* (Otago Regional Plan Water) and the Plan, and the changes made to the Otago Regional Water Plan.

Section 16 of the Waitaki Act is as follows:

16 Otago Regional Water Plan

- (1) The Board may change the Otago Regional Water Plan as it relates to the Waitaki catchment as necessary to ensure that the Otago Regional Water Plan gives effect to the plan developed and approved under this Part.*
- (2) A change made to the Otago Regional Water Plan under subsection (1) must be included in the plan developed and approved under this Part.*
- (3) The Otago Regional Water Plan may be reviewed and changed by the Otago Regional Council in accordance with the provisions of the principal Act.*

18.2 Evaluation

An area of the Waitaki catchment falls within the Otago Regional Council administrative boundary. Consequently, the Board considers it is of significant importance that the *Regional Plan: Water* (Otago Regional Water Plan) is consistent with the Plan. The Board is mindful of the importance of the integrated management of the resources of the Waitaki catchment across regional council boundaries. This can be achieved between the respective planning instruments by ensuring their coherence, and consistency in environmental flow and level, and allocation, regimes. The Board, in its assessment, has identified that the Otago Regional Water Plan is inconsistent with the Plan in the following areas, being:

- the policy on adopting a whole-catchment approach to the Waitaki catchment
- the policies that relate to allocation of water to activities, and the rules that implement these, including with respect to Welcome Creek.

In recognition of the physical, ecological, cultural and social connections throughout the Waitaki catchment, the Board has treated the Waitaki catchment as a whole. Otago Regional Council could not apply this catchment-wide approach in the formulation of the Otago Regional Water Plan.

The Board considers that the current policy framework, and environmental flow and level, and allocation, regimes adopted in the Otago Regional Water Plan do not reflect the importance of

ensuring connectedness between all parts of the Waitaki catchment. Further, it does not properly acknowledge or reflect the values associated with that area located within the Otago Regional Council administrative boundary. It is the Board's judgement that the identified inconsistencies are not of a minor, or inconsequential, nature. To address these inconsistencies, the Board will change the Otago Regional Water Plan.

The Board has undertaken the necessary evaluation and examination of the above provisions in the Plan – these are summarised within this report. The Board has evaluated the merits of changing the Otago Regional Water Plan. The Board's judgement is that the changes are appropriate.

19. Definitions and abbreviations

The words in this Report have the same meaning as in the Resource Management (Waitaki Catchment) Amendment Act 2004 or the Resource Management Act 1991, unless otherwise defined in this Report or unless the context clearly requires otherwise.

a.m.s.l.	Above mean sea level
Agricultural and horticultural activities	All activities involved with the primary industries of agriculture and horticulture, including common stock drinking-water schemes, but excludes processing agricultural and horticulture produce.
Allocation limits	The limits on the cumulative rate of taking and diverting of water that are established by this Plan and are specified in Rule 2 of this Plan.
Annual volume	The volume of water that can be taken or diverted in any 12-month period.
Any other activities	Activities that are not agricultural and horticultural activities, hydro-electricity generation, industrial and commercial activities, tourism and recreation facilities, or town and community water supplies.
Connected groundwater	(i) The full amount of water specified in a resource consent to take groundwater is considered connected groundwater if the effect of seven days groundwater abstraction on the surface water body is equal to or greater than 90 percent of a continuous steady abstraction rate. Otherwise (ii) The stream depletion effect is considered connected groundwater provided it is greater than 5 l/s. The stream depletion effect is that determined as the effect after 150 days groundwater abstraction at a continuous abstraction rate consistent with the flows specified in the resource consent.
Deemed permit	A permit derived from a mining privilege in respect of water, as defined in section 413(1) of the RMA.
Environment Canterbury Report UO5/15	"Schedule WQN9 Revision – Review of seasonal use approach included in proposed NRRP". Report UO5/15, May 2005. Prepared for Environment Canterbury by Anthony Davoren and David Scott.
Ecosystem	Plants, animals, their physical environment, and the dynamic processes that link them.
Environmental flow and level regimes	The flow-sharing, allocation limits, minimum flows and levels and flushing flows established by this Plan.
Fisheries and wildlife	Activities relating to the management and enhancement of habitats of fish and indigenous wildlife.
Flow-sharing	The apportioning of flow between in-stream uses and the cumulative taking and diverting of water, as specified in Rule 2(c).
Flushing flows	Flows passing or released from a dam to prevent siltation and build-up of filamentous algae in the river downstream of the dam.
In-catchment needs	Water requirements of users where the water is taken or diverted for use within the Waitaki catchment.
Industrial and commercial activities	Industrial and commercial activities (but excluding hydro-electricity generation) that are not served by a reticulated town and community water supply.
Instantaneous rate of abstraction	The rate at which water is taken at any point in time.
Irrigation application efficiency	A measure of the amount of applied water that is stored in the crop root zone, as a proportion of the average depth of the water applied to the crop.
Iwi Management Plan	A relevant planning document recognised by Te Rūnanga o Ngāi Tahu, and lodged with the council.
l/s	Litres per second.

m ³ /s	Cubic metres per second.
Mahinga kai	Food and other resources, the gathering of those resources and the areas that they are sourced from.
MALF	Mean annual low flow.
Mauri	Essential life force or principle; a metaphysical quality inherent in all things, both animate and inanimate.
Mean annual low flow	The average, for a number of years, of the annual lowest daily flows. This is determined by selecting the lowest daily flow (average over 24 hours) for each year of record, summing those values and then dividing the total by the number of years of record.
Micro hydro-electricity generation	The generation of hydro-electricity not exceeding a capacity of 50 Kilowatts continuous output.
Minimum flow and level Minimum lake level	The flow or lake level at which the taking and diverting of water from a water body authorised by a resource consent must cease. In the case where a river is dammed, inflows and outflows must be managed to maintain or exceed the minimum lake level and the minimum flow downstream.
Natural flow	The flow that would have occurred if the Waitaki Power Scheme had not been installed.
Natural Resources Regional Plan (NRRP)	Proposed Canterbury Natural Resources Regional Plan adopted by the Canterbury Regional Council on 28 March 2002 and publicly notified on 1 June 2002 for submissions, including variation 1 to that plan, adopted by the Canterbury Regional Council on 27 May 2004 and publicly notified on 3 July 2004 for submissions.
Ngāi Tahu or Kāi Tahu	The collection of individuals who descend from the primary hapū of Waitaha, Ngāti Mamoe, and Ngāi Tahu, namely Kāti Kurī, Kāti Irakehu, Kāti Huirapa, Ngāi Tuahuriri and Kai Te Ruahikihiki.
Priority bands	A method for managing run-of-river takes and diversions to ensure a known reliability of supply such that all users within a priority band will be subject to the same restrictions.
Property	Any contiguous area of land held in one, or more than one, ownership that is utilised as a single operating unit, and may include one or more titles.
Rate of abstraction	The rate at which water is taken at any point in time.
RMA	Resource Management Act 1991.
Shallow groundwater	Groundwater having an average depth (assessed at the point of take) below the land surface of less than 10 metres.
Technical efficiency	Using a resource in a way that any given output is produced at least cost, including avoiding waste.
Tourism and recreation facilities	Tourism and recreation facilities that are not served by a reticulated town and community supply, such as hotels, lodges, restaurants and ski fields.
Town and Community water supplies	Reticulated water supplies servicing urban areas, rural-residential and residential subdivisions including all commercial and industrial premises and schools and other educational facilities located within the reticulated area.
Waitaki Act	Resource Management (Waitaki Catchment) Amendment Act 2004.
Water-users group	A group of users with existing authorisation to take water.
Wetland with a moderate or higher significance	A wetland that has been assessed and has been classified as moderate or higher significance in accordance with the criteria and methodology in Appendix WTL1 of the Natural Resources Regional Plan.

20. List of reports received by the Board

The following is a list of reports received by the Board relevant to the development of the Waitaki Catchment Water Allocation Regional Plan:

Reports received by the Board before the notification of the draft Waitaki Catchment Water Allocation Regional Plan:

1. Potential Demands for Waitaki Catchment Water (non-hydro, irrigation or stock). Tonkin and Taylor Ltd (2005).
2. Final Report: Regional Economic Analysis – Uses of Water in the Waitaki Catchment. Harris Consulting, New Zealand Institute of Economic Research and Taylor Baines and Associates (2004).
3. Waitaki Catchment Recreation and Tourism Activities – Collation, Synthesis and Presentation of Existing Studies (written report). Leisure Matters (2004).
4. Waitaki Catchment Recreation and Tourism Activities – Collation, Synthesis and Presentation of Existing Studies (GIS report). Leisure Matters (2004).
5. Freshwater Ecological Values of the Waitaki Catchment. Kingett Mitchell Ltd (2004).
6. Waitaki Catchment Called-in Submissions – An Analysis of Information. Davie, Lovell-Smith; and Caddie (2004).
7. Project Aqua Submissions – An Analysis of Information Relevant to a Waitaki Water Allocation Regional Plan. Davie, Lovell-Smith (2004).
8. Numerical Analysis of Project Aqua and Called-in Waitaki Submissions. Davie, Lovell-Smith (2004).
9. Waitaki Catchment – Summary of Resource Management Planning Documents. Consensus Environmental Consulting (2004).
10. Compilation of Information Provided to the Waitaki Catchment Water Allocation Board. Davie, Lovell-Smith (2004).
11. Waitaki Catchment Groundwater Information. Sinclair Knight Merz (2004).
12. Option and Existence Values for the Waitaki Catchment. Sharp and Kerr (2005).
13. Economic, Social and Environmental Impacts of Irrigation in the Mackenzie Basin. Ian Brown Consulting Ltd and Harris Consulting Ltd (2005).
14. Waitaki Catchment – Hydrological Information. Tonkin and Taylor Ltd (2005).
15. Te Rūnanga o Ngāi Tahu Freshwater Policy. Te Rūnanga o Ngāi Tahu.
16. Investigation into the Merits of Integrating Hydro-Electric Generation with Irrigation Proposals for North Otago. Whitston Consultants (2004).
17. Upper Waitaki Catchment – Review of History and Basis of 1969 Order in Council Allowance for Irrigation Opportunities and Compiled Attachments (MAF Information

Paper No: 51). Opus International Consultants Ltd for Ministry of Agriculture and Forestry (2004).

18. Project Aqua – An Evaluation of the Economic Impact. Concept Consulting Group (2004).
19. National Cost Benefit Analysis of Proposals to Take Water from the Waitaki River. Sinclair Knight Merz (2004).
20. Nature, Culture and Heritage Tourist and Associated Leisure Activities in the Waitaki District. Kearsley and Middleton (2004).
21. Freshwater for a Sustainable Future: Issues and Options, Sustainable Development New Zealand Programme of Action. Ministry for the Environment and Ministry of Agriculture and Forestry (2004).
22. National Energy Efficiency and Conservation Strategy. Energy Efficiency and Conservation Authority (2001).
23. Inventory of In-stream Values for Rivers and Lakes of Canterbury, New Zealand. Canterbury Regional Council (2004).
24. Reliability of Supply for Irrigation in Canterbury. Lincoln Environmental (2001).
25. Reliability of Supply for Irrigation in Canterbury Part 2. Lincoln Environmental (2004).
26. Sustainable Energy – Creating a Sustainable Energy System, Sustainable Development New Zealand Programme of Action. Interdepartmental report to the Minister of Energy (2004).
27. Report to the Commissioner of Works by an Interdepartmental Committee on the Water Resources of the Mackenzie Basin. Ministry of Works (1966).
28. Government Objectives for the South Island High Country: Report Backs. Unpublished paper for the Cabinet Policy Committee, Office for the Minister of Land Information (2004).
29. Mackenzie Country Water Resources Interim Report on Aspects of Irrigation. Waitaki Catchment Commission (1972).
30. Mackenzie Basin Irrigation Takes – Consent Review. Aqualinc Research Ltd (2004).
31. Lower Waitaki River Hydropower Potential. Maunsell Ltd (2004).
32. Proposed Canterbury Natural Resources Regional Plan (Chapters 1, 2, 4 & 5). Canterbury Regional Council (2002 & 2004).

Reports received by the Board after the notification of the draft Waitaki Catchment Water Allocation Regional Plan:

33. Visitor Survey of the Lower Waitaki Valley. Kearsley (2005)
34. Officers' Report on Submissions on the Draft Waitaki Catchment Water Allocation Regional Plan (2005).

Information provided to the Board by the Canterbury Regional Council after the notification of the draft Waitaki Catchment Water Allocation Regional Plan:

35. Seven day mean annual low flow data for the Waitaki Catchment (revised since May 2005)
36. Existing resource consents and allocations for the Waitaki Catchment (revised since November 2004)