

Proposed Hurunui and Waiau River Regional Plan

Summary of Section 32 Assessment

October 2011

Everything is connected

Hurunui Waiau River

Regional Plan

Summary of Section 32 Assessment

October 2011

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Introduction

This report summarises the evaluation of the provisions of the Hurunui Waiau River Regional Plan undertaken by the Canterbury Regional Council as required by section 32 of the Resource Management Act 1991.

The report records the evaluation of objectives, policies and rules undertaken during the development of the Plan. The information presented is a summary of the Canterbury Regional Council's evaluation and the reasons for that evaluation.

Section 32 Evaluation and Report

The Canterbury Regional Council 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 Resource Management Act, which read 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.*

For the objectives in the Hurunui Waiau River Regional Plan, appropriateness is measured against achieving the purpose of the Resource Management Act. For the policies and rules appropriateness is measured against achieving the objectives of the Plan. Getting a measure of effectiveness involves assessing how well the policies and rules will work. Determining efficiency involves an examination of benefits and costs.

Evaluation of Benefits and Costs

In evaluating the packages of policies and rules, the Canterbury Regional Council categorises the benefits and costs as follows:

Environmental

Environmental benefits and costs fall upon ecosystems and natural and physical resources. Generally, the impacts of these changes fall in the locality, or lower down in the catchment

of, where the water is taken and used or at the location or lower down in the catchment of where nutrient loss from land occurs.

Economic

Economic benefits and costs are those that accrue to the productive economy and are based around economic wellbeing and efficiency considerations. While these have different implications at a national and local level, for the Hurunui, Waiau and Jed catchments, local and regional benefits and costs prevail, as land is intensified and the economic benefit realised, the benefits to the national economy become more noticeable.

Social

Social benefits and costs are those that fall on people and the community. Often these impacts relate to changes in environmental and economic conditions and fall in the locality where the water is taken from and used. Recreational use of water and associated riverbed, riparian margin, headwater catchments and lagoons and hapua is included under the social benefits and costs.

Cultural

Cultural benefits and costs are those that relate to the customs, values and beliefs of people and communities, particularly 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 Hurunui, Waiau and Jed catchments and fall wherever those people and communities are.

Evaluation Baseline

When evaluating benefits and costs, the Council's reference point is the current environment. Within the catchment, the natural environment is significantly altered through the current abstractions and human activities, including introduction of animals and vegetation.

Development Process for the Plan

Development Timeline

Planning for an environmental and flow allocation regime review in the Hurunui and Waiau Catchments has been ongoing since 2004. Initially the flow and allocation regimes for the Hurunui and Waiau catchments were developed separately. Consultation on the Hurunui Catchment began in 2004, while consultation on the Waiau River began in 2009. In 2010 the Hurunui and Waiau Zone Committee was formed and the development of a single regional plan for the Hurunui and Waiau Catchments began. In 2011 a decision was made to additionally incorporate provisions to manage the cumulative effects of land use on water quality.

A summary of the consultation meetings and key development milestones is included below:

Date	Purpose	Key Organisations	Catchment/Process
23 Feb 04	Values/information	Public	Hurunui Flow and Allocation Regime
16 Mar 04	Protect existing Minimum Flow, Cap abstraction	Agriculture interests	Hurunui Flow and Allocation Regime
17 Mar 04	Min. Flow, Water Quality, Upper Hurunui Damming	Recreation/Environment	Hurunui Flow and Allocation Regime
22 Mar 04	Technical Panel Process	Advisory group	Hurunui Flow and Allocation Regime
03 May 04	In and Out of stream interests	Public	Hurunui Flow and Allocation Regime
23 Jul 04	Technical panel	Advisory group	Hurunui Flow and Allocation Regime
30 Aug 04	Presentation of Staff report Economic Analysis Direction for Management	Advisory group	Hurunui Flow and Allocation Regime
15 Aug 04	Submissions to Advisory Group ECan summary and response to submissions	Public	Hurunui Flow and Allocation Regime

Date	Purpose	Key Organisations	Catchment/Process
12 Feb 05	Update on work achieved	Advisory group	Hurunui Flow and Allocation Regime
13 Jun 05	Further Update	Advisory group	Hurunui Flow and Allocation Regime
22 Nov 05	Irrigation efficiency, A Block Size, water Quality	Advisory group	Hurunui Flow and Allocation Regime
May/June 07	Series of focused consultations with: AIC, DOC, NCF&G, RF&B, HWG, Domett irrigators, Ngai Tahu, Ngai Tahu property, Pahau irrigators, Hurunui DC	Various	Hurunui Flow and Allocation Regime
05 Jun 07	Revised staff Report, including: Caps, on mainstem flow regime, minimum flow on mainstem, reliabilities, moat effect	Public	Hurunui Flow and Allocation Regime
18 July 07	RPC Work shop: Presentation of Views (see section 37)	Public	Hurunui Flow and Allocation Regime
Feb 08	Public meeting discussing low flows in the Waiau River	Public	Waiau Flow and Allocation Regime
18 Aug 09	Introduction and Mainstem Minimum Flow Options and explore capping the A Block	Advisory group	Waiau Flow and Allocation Regime
8 Sep 09	Confirm Minimum flow and A Block size, including reliability of supply of exiting abstractors	Advisory group	Waiau Flow and Allocation Regime
27 Oct 09	B Block size and Mainstem Storage Options	Advisory group	Waiau Flow and Allocation Regime
1 Dec 09	Confirm environmental flow and allocation options for Economic Assessment	Advisory group	Waiau Flow and Allocation Regime

Date	Purpose	Key Organisations	Catchment/Process
16 Dec 09	Meet with Christchurch based environmental groups	Advisory group	Waiau Flow and Allocation Regime
24 Feb 10	Council Workshop on Mainstem environmental flow and Management Options	Advisory group	Waiau Flow and Allocation Regime
Mar 10	Minimum Flow recommendations for the Tributaries Identification of issues within tributaries	Tributary Specific Sub Groups	Waiau Flow and Allocation Regime
25 May 10	Discuss results of the Economic Assessment for A Block Meridian Energy Present their proposal	Advisory group	Waiau Flow and Allocation Regime
27 Jul 10	Discuss results of the Economic Assessment for B Block Ngai Tahu Properties Present their proposal	Advisory group	Waiau Flow and Allocation Regime
14 Dec 10	Review Environmental Flow and Management options for tributaries and Mainstem	Advisory group	Waiau Flow and Allocation Regime
13 July 10	Land Use and Water Quality Case-study introduction session - Culverden	Public	Land Use and Water Quality Project
16 Sept 10	Land Use and Water Quality Hurunui Catchment Workshop 1	40+ participants from wide range of interests	Land Use and Water Quality Project
29 Sept 10	Land Use and Water Quality Catchment Workshop 2	40+ participants from wide range of interests	Land Use and Water Quality Project
27 Oct 10	Land Use and Water Quality Catchment Workshop 3	40+ participants from wide range of interests	Land Use and Water Quality Project

Date	Purpose	Key Organisations	Catchment/Process
13 Dec 10	Land Use and Water Quality Catchment Workshop 4	40+ participants from wide range of interests	Land Use and Water Quality Project
21 Mar 11	Land Use and Water Quality Catchment Workshop 5	40+ participants from wide range of interests	Land Use and Water Quality Project
26 July 10	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
16 Aug 10	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
6 Sept 10	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
27 Sept 10	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
18 Oct 10	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
8 Nov 10	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
29 Nov 10	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
31 Jan 11	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
21 Feb 11	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
25 Feb 11	Water management in Hurunui and Waiau Zone	Zone Committee members (some) with some interest groups & developers	Hurunui Waiau Zone Sub-Committee
10 Mar 11	Land Use and Water Quality	Zone Committee members (some)	Hurunui Waiau Zone Sub-Committee
14 Mar 11	Major water storage in Hurunui and Waiau catchments	Developers and Zone Committee members (some)	Hurunui Waiau Zone Sub-Committee
17 Mar 11	Flows and allocation for Hurunui and Waiau Rivers	Zone Committee members (some)	Hurunui Waiau Zone Sub-Committee

Date	Purpose	Key Organisations	Catchment/Process
23 Mar 11	Flows and allocation for Hurunui River	Zone Committee members (some)	Hurunui Waiau Zone Sub-Committee
31 Mar 11	Flows and allocation for Waiau River	Zone Committee members (some)	Hurunui Waiau Zone Sub-Committee
11 April	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
18 April 11	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
12 May 11	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
26 May 11	Flows and allocation for Waiau and Hurunui Rivers	Zone Committee members (some) with NIWA, AIC, Whitewater NZ, HWP, DPML, FraserGeologics, Aqualinc and others	Hurunui Waiau Zone Sub-Committee
27 June 11	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
18 July 11	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
15 Aug 11	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
22 Aug 11	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee
19 Sept 11	Hurunui Waiau Zone Committee Meeting	Zone Committee and Public	Hurunui Waiau Zone Committee

Consultation Process

The consultation process for the Plan has been extensive, with the a number of discrete consultative processes being brought together by the Hurunui Waiau Zone Committee to create a holistic and integrated vision for water management in the Hurunui Waiau Zone.

Consultation initially began on the surface water flow and allocation regime for the Hurunui River in 2004. A Community Advisory Group was formed comprising members with agricultural, conservation, recreation and development interests. This group meet for just over 12 months, before a wider consultation process was carried out before Variation 8 to

the proposed Natural Resources Regional Plan was notified in 2007. This Variation sought to include minimum flows and allocation block sizes to manage surface water flows in the Hurunui River.

In 2007 a water conservation order for the Hurunui River was applied for by the New Zealand and North Canterbury Fish and Game Councils and the New Zealand Recreational Canoeing Association. This dealt with similar issues to Variation 8 and as such the Variation was put on hold pending the outcome of the Water Conservation Order.

In 2008, during a dry summer the Marble Point flow recorder on the Waiau River broke down. For a period of two weeks in February, the Canterbury Regional Council website continued to register a flow in excess of 30 cumecs, while anecdotal evidence suggests that the river had continued to fall. Abstractors were not aware that the river was falling and continued to take water, resulting in very low river levels around Waiau Township and the SH1 bridge. This prompted a number of phone calls to Canterbury Regional Council and several public meetings were held.

As a result of the public meetings it was agreed that there was limited information on the Waiau River and while it was accepted that the management regime may need to change, it was agreed that further information would need to be collected before this could proceed. Technical information was gathered and in June 2009 a public meeting was held to start the consultation process on the surface water flow and allocation regime for the Waiau River. A community advisory group was formed. This group met for 18 months over 2009 and 2010 and discussed the appropriate surface water management regime for the Waiau Catchment. It was identified through this process that groundwater should be included in the water allocation regime because of the inherent interrelationship between surface and groundwater.

The Environment Canterbury (Temporary Commissioners and Improved Water Management) Act 2010 (the Ecan Act) received royal assent in April 2010. The Act enabled the Council to develop moratoria to prevent application for resource consent for a specific reason for a specified time period. On 2 August 2010, Canterbury Regional Council imposed a moratorium in Hurunui as there were several planning processes occurring around water in the Hurunui catchment, all of which raised similar issues and involved many of the same parties. On 6 December Canterbury Regional Council then imposed a moratorium in Waiau, the river being strategically important for a range of uses including for hydro electricity generation, irrigation and storage. By placing resource consent processes on hold, the Council sought a collaborative approach be undertaken through the Hurunui Waiau Zone Committee to bring stakeholders and organisations together to formulate and agree on a Zone Implementation Programme before the consenting process resumed. Both moratorium cease on 1 October 2011.

The need to manage water quality effectively in the region led in recent years lead to the establishment of a 'Land Use and Water Quality Project' for the Canterbury region. The project includes a science aspect which aims to assess the effects of land use changes on the region's groundwater, streams, rivers and their associated ecosystems. The project includes activities at three levels: with land users working on-farm; people living and working within the catchment; and with people working at a regional level to look at the links between

economic, social and environmental factors. The project is designed to ultimately result in a more effective policy framework for establishing limits for nitrate and other contaminants and management/implementation strategies for improving water quality. The project involves Canterbury Regional Council working with the primary sector, and other stakeholders in a collaborative style to ensure solutions are workable and sensible while being science informed.

In 2010, the project commenced with a case study in the upper Hurunui catchment, with the lessons learnt now being applied to other areas in the region. The outcome of the project was a regional preferred approach for managing the impact of land use change on water quality, along with specific information about the preferred management approach and nutrient limits considered appropriate by project participants for the upper Hurunui River. The information about the preferred management approach and nutrient limits was then provided to the Hurunui Waiau Zone Committee, who subsequently provided recommendations to Canterbury Regional Council in their Zone Implementation Programme in July 2011, seeking that a regulatory backstop be incorporated into the Hurunui Waiau Plan to support a range of other non-statutory actions by Canterbury Regional Council, Industry and the Hurunui Waiau community to improve management of the loss of nutrients from land and into water.

Between 2004 and 2010 the Canterbury Water Management Strategy was developed. A key partnership between Environment Canterbury, Canterbury's district councils and Ngai Tahu as well as key environmental and industry stakeholders. The Strategy sets out a way forward towards improving management and use of Canterbury's water resources.

Zone Committees have the role of co-ordinating the development and review of Implementation Programmes that give effect to the Canterbury Water Management Strategy.

Since July 2010, the Hurunui Waiau Zone Committee has been working collaboratively and undertaken extensive consultation with runanga, local communities, interested parties, industry groups, government and non-government organisations, scientists and advisory groups to develop their recommendations on the management of water in the Hurunui Waiau Zone. The Programme was then prepared after receiving and considering over 125 submissions on the Draft, together with feedback from meetings and communities of interest, including public meetings at Amberley, Omihi, Cheviot, Culverden, Hawarden, Hamner Springs and Christchurch in total involving more than 300 people.

The Zone Implementation Programme July 2011 recognises that the future social and economic prosperity of the Zone was largely dependent on utilisation of its water resources, for agricultural and horticultural development through the expansion of irrigation, and tourism activities. The Zone Implementation Programme contained a suite of water-management recommendations to Canterbury Regional Council, Hurunui District Council, developers and other parties. This includes recommendations as to how the Hurunui Waiau River Plan should contribute to an integrated solution for the development and management of freshwater resources in the Hurunui Waiau Zone.

Technical Reporting

A number of Technical Reports were produced to provide adequate information into decision making. The Technical Reports produced include:

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Key Reports and Information

Of particular note are:

Hurunui Waiau Zone Implementation Programme

The Zone Implementation Programme is a suite of water-management recommendations to Environment Canterbury, Hurunui District Council, developers and other parties. It is not a statutory plan under the Resource Management Act. However, the Programme expects the Hurunui Waiau River Regional Plan to give effect to the recommendations through an integrated approach to the development and management of the district's freshwater resources.

Hurunui River: instream values and flow regime

This report provides a holistic description of the values present within the Hurunui Catchment and the hydrological regime that is currently present. The report goes on to make recommendations of a preferred flow and allocation regime to better protect non-economic values.

Waiau River: instream values and flow regime

This is the companion report to the Hurunui River: instream values and flow regime and like the Hurunui report it provides a holistic description of the values present within the Waiau Catchment and the hydrological regime that is currently present. The report goes on to make recommendations of a preferred flow and allocation regime to better protect non-economic values.

Hurunui River Management Regime

This report was prepared by Environment Canterbury prior to the notification of Variation 8 to the proposed Natural Resources Regional Plan to set minimum flows and allocation block sizes to protect values in the Hurunui River. Variation 8 was used as the basis of the minimum flows in the Hurunui River, however some changes have been made to the flow and allocation regime notified in Variation 8 to reduce the impact on reliability of supply in the short term but better protect environmental, social and cultural values in the long term.

Waiau River Hydrological Information

This report summarises a range of hydrological information on the Waiau River. It was prepared at the conclusion of the Waiau River flow and allocation discussions, and as such contains all of the relevant working papers which were presented to the Community Advisory Group.

Land Use and Water Quality Project

The Land Use and Water Quality Project 2010 case study in Hurunui addressed the need to manage water effectively and address the effects of land use changes on the region's groundwater, streams, rivers and their associated ecosystems. The project included activities at three levels: with land users working on-farm; people living and working within the catchment; and with people working at a regional level to look at the links between economic, social and environmental factors. The project was designed to ultimately result in a more effective policy framework for establishing limits for nitrate and other contaminants, and management/implementation strategies for improving water quality. The project involved Canterbury Regional Council working with the primary sector, and other stakeholders in a collaborative style to ensure solutions are workable and sensible while being science informed. For further information and reports on this project see www.ecan.govt.nz/LUWQ

A “Stand-alone” Plan

During the earlier parts of the plan development process, the intention had been to develop a variation to the proposed Natural Resources Regional Plan, for the Waiau, in a similar manner to Variation 8 for the Hurunui, a similar approach followed for other rivers that have been included in the Natural Resources Regional Plan.

In March 2009, the Council resolved that flow and allocation plans, which contain all relevant objectives, policies and rules for a particular catchment, can be a more flexible, efficient and appropriate way to give effect to the Council's responsibilities under the Resource Management Act in certain catchments.

In 2010, the Council undertook a review of the planning framework for managing natural resource use in the Canterbury Region. The key finding of the report was that while the planning framework was considered by some officials as being fundamentally sound, it could be improved. The key method for improving planning framework was to develop a single second generation regional plan, which would also have specific sub-regional chapters that would respond to catchment specific issues in a similar way as Council's 2009 decision to develop catchment specific plans, but also assist with delivery of local Zone Committee Implementation Programmes. The full findings of the review are contained in the report prepared by Mayhew et al (2010). The Council endorsed the findings of the Mayhew et al report and resolved to review the Natural Resources Regional Plan and develop a second generation regional plan. The second generation plan is proposed to be notified in July 2012.

The timing of the development of the second generation land and water regional plan does not align with the lifting of the moratoria and the development of a flow, allocation and water quality framework for the Hurunui and Waiau Catchments. Therefore it was decided that the Hurunui, Waiau and Jed River Catchments Plan would be the last rivers which would have a catchment specific plan developed for them.

It should also be noted that several parts of the Natural Resources Regional Plan still therefore apply in the catchment. This includes controls over point source discharges. The Hurunui and Waiau Plan also utilises the existing Natural Resources Regional Plan framework for managing issues like stream depleting groundwater, well interference and other technical, region specific issues as the appropriate management of these issues have been well established through the proposed Natural Resources Regional Plan hearing process.

A Plan Change to the Natural Resources Regional Plan is being notified alongside the Hurunui and Waiau River Regional Plan to identify the provisions of the Natural Resources Regional Plan which will no longer apply in the Hurunui, Waiau and Jed river catchments.

Objectives

Background – Part II of the Resource Management Act

The Resource Management Act, with its purpose to promote the sustainable management of natural and physical resources, provides the mandate and initial direction for managing water resources. The Resource Management Act is generally restrictive towards water and relies on resource consents and/or regional plans to enable access to the water resources.

The Resource Management Act sets out the functions and duties of regional councils which, in relation to water quantity and quantity, includes establishing, implementing and reviewing objectives, policies, and methods to achieve integrated management of the natural and physical resources of the region (s.30(1)(a)). Section 30(1)(b) and (c) gives regional councils the function to control the use of land to maintain the quality and quantity of water in water bodies. The functions also include the control of the taking, using, damming, and diverting of water, and the control of the quantity, level or flow in any water body (s.30(e)).

In carrying out these functions, the Canterbury Regional Council must also ensure that this is done in accordance with Part II of the Act - s.5 (Purpose), s.6 (Matters of national importance), s.7 (Other matters) and s.8 (Principles of the Treaty of Waitangi).

The purpose of the Resource Management Act is set out in Part II, section 5 which states:

- (1) The purpose of this Act is to promote the sustainable management of natural and physical resources.*
- (2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while-*
 - (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
 - (b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
 - (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

Background – Regional Policy Statement, Objective and Policies

Under section 67(3) of the Resource Management Act, a regional plan must give effect to the operative Regional Policy Statement.

Chapter 9 of the operative Regional Policy Statement deals with water, and Objective 1 states:

“Enable present and future generations to access the region’s surface and groundwater resources to gain cultural, social, recreational, economic and other benefits, while:

- (a) Safeguarding their existing value for efficiently providing sources of potable water for people and for stock;*
- (b) Safeguarding the life-supporting capacity of the water, including its associated aquatic ecosystems, significant habitats of indigenous fauna, and areas of significant indigenous vegetation;*
- (c) Safeguarding their existing value for providing mahinga kai for Ngai Tahu;*
- (d) Protecting wahi tapu and other wahi taonga of value to Ngai Tahu;*
- (e) Preserving the natural character of lakes and rivers and protecting them from inappropriate use and development;*
- (f) Protecting outstanding natural features and landscapes from inappropriate use and development;*
- (g) Protecting significant habitat of trout and salmon; and*
- (h) Maintaining, and, where appropriate, enhancing amenity values.”*

Objective 1 in Chapter 9 of the Regional Policy Statement is of prime importance for setting flow regimes as it establishes the outcomes to be achieved. In achieving the cultural, social, recreational, economic and other benefits set out in Objective 1, the “while” parts of the objective, clauses (a) – (h), also have to be met for each water body.

Policies 1-3 in Chapter 9 of the Regional Policy Statement identify relevant matters that need to be addressed in the setting of minimum flow regimes:

Policy 1

“Water flow, level, or allocation regimes for water bodies should be set and managed to achieve (a) to (g) of Objective 1, except that the Regional Council, in accordance with Policy 2, may set and manage water flow, level or allocation regimes that do not achieve (e) to (h) where adverse effects on the matters addressed in (e) to (h) will be remedied or mitigated.

In setting these regimes for surface water bodies particular regard should be had to:

- natural patterns of flow or water level change;*
- river or lake bed morphology and substrate material;*
- bed gradient;*
- water quality;*
- habitat requirements; and*
- appropriate alternative minimum flow regimes including mean annual low flow”.*

Policy 2

“Subject to Policy 1, water flow, level and allocation regimes should be set and managed with the aim of:

- enabling people and communities to maximise the wellbeing obtained from Canterbury’s water resources through taking account of its value both instream and out of stream; and*

- *where appropriate enhancing the availability of water for present and future generations through increased efficiency of use, augmentation or storage”.*

Policy 3

“Promote efficiency in the use of water.”

The Proposed Canterbury Regional Policy Statement

The proposed Canterbury Regional Policy Statement 2011 will eventually replace, the 1998 Regional Policy Statement. The proposed Statement contains three objectives which specifically relate to the management of fresh water. The proposed Policy Statement must be given regard when preparing a regional plan.

Objective 7.2.1 – sustainable management of fresh water

The region’s fresh water resources are managed to enable people and communities to provide for their economic and social well-being through both abstracting water for irrigation, hydro-electric generation and other economic activities, and for in-stream recreational and amenity values, and any economic and social activities associated with those values, provided that:

- (1) the life supporting capacity/mauri of the fresh water is safe-guarded;
- (2) natural character values are preserved; and,
- (3) any actual or reasonably foreseeable requirements for community and stockwater supplies and customary uses, are provided for.

Objective 7.2.2 – parallel process for managing fresh water

Further abstraction of water in the region occurs in parallel with

- (1) improvements in the efficiency with which water is allocated for abstraction, the way it is abstracted and conveyed and its application or use;
- (2) the maintenance of water quality where it is of a high standard and improvement of water quality in catchments where it is degraded; and
- (3) the restoration or enhancement of degraded fresh water bodies and their surroundings.

Objective 7.2.3 – integrated management of fresh water resources

Fresh water is managed in an integrated way within and across catchments, between activities, and between agencies and people with interests in water management in the community, considering:

- (1) the Ngai Tahu ethic of Ki Uta Ki Tai (from the mountains to the sea);
- (2) the interconnectivity of surface and groundwater
- (3) the effects of land uses and intensification of land uses on demand for water and water quality; and,
- (4) Kaitiakitanga and the ethic of stewardship.

The following policies in the proposed Regional Policy Statement have been set to ensure that these objectives are achieved.

These are listed as follows

Policy 7.3.1 adverse effects of activities on the natural character of fresh water

Policy 7.3.2 natural character of braided rivers and lakes

Policy 7.3.3 enhancing fresh water environments and biodiversity

Policy 7.3.4 water quantity

Policy 7.3.5 water quantity and land use

Policy 7.3.6 fresh water quality

Policy 7.3.7 water quality and land use

Policy 7.3.8 efficient allocation and use of fresh water

Policy 7.3.9 integrated solutions to fresh water management

The Hurunui Waiau River Regional Plan has been developed giving significant weight to the proposed Canterbury Regional Policy Statement as it provides a significant change in policy direction for the management of water resources in the Canterbury region.

Background – The National Policy Statement for Fresh Water

The National Policy Statement for Fresh Water was made operative in 2011. It contains objectives and policies relating to Water Quality, Water Quantity, Integrated Management and Tangata Whenua Roles and Interests. It also has a Policy framework outlining how the National Policy Statement should be implemented.

Each Objective is outlined below:

Objective A1

To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water, in sustainably managing the use and development of land, and of discharges of contaminants.

Objective A2

The overall quality of fresh water within a region is maintained or improved while:

- a. protecting the quality of outstanding freshwater bodies
- b. protecting the significant values of wetlands and
- c. improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.

The Hurunui Waiau River Regional Plan gives effect objectives A1 and A2 by setting specific limits on the level of nitrate and phosphate in the Hurunui River and signals that limits are to be introduced in the Waiau, Jed and other parts of the Hurunui Catchment.

The limits are set at levels to meet the objectives in the Hurunui Waiau River Regional Plan which in themselves give effect to objectives A1 and A2 in the National Policy Statement.

Objective B1

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

Objective B2

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

Objective B3

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

Objective B4

To protect significant values of wetlands.

The Hurunui Waiau River Regional Plan give effect to objectives B1 to B4 by setting specific limits on the amount of water that can be abstracted which protects the life supporting capacity of ecosystem processes, indigenous species including their associated ecosystems.

The Hurunui Waiau River Regional Plan maximises efficiency with a suit of Objectives, Policies and Rules which specify a reasonable annual volume and rate of take of water for the land use specified in the application.

The Hurunui Waiau River Regional Plan also has additional controls around the taking of water near wetlands, which compliments the management framework in the Natural Resources Regional Plan.

Objective C1

To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.

The impact of taking of water on the coastal environment has been carefully considered and the minimum flow and allocation block sizes have been set in such a way that exiting river mouth and coastal processes can continue. It is for this reason that minimum flows apply to all consents in the Hurunui and Waiau catchments based to some extent on keeping the river mouths functioning naturally.

Objective D1

To provide for the involvement of iwi and hapū, and to ensure that tāngata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding freshwater planning, including on how all other objectives of this national policy statement are given effect to.

Tangata Whenua have been active members of the plan development process, representatives of local rununga are members of the Zone Committee and a number of meetings have been held with local tangata whenua representatives as well as Ngai Tahu Properties. Three reports have been prepared on tangata whenua values for the Hurunui and Waiau river catchments to assist with plan development. One on Hurunui River in 2002, another on the Waiau River in 2004 which was followed by a further report on the Waiau River and tributaries in 2010. Hoka Kura (Lake Sumner) and Hurunui River are both Statutory Acknowledgement areas and acknowledged by the Crown as of particular cultural, spiritual, historical, and traditional importance to Ngai Tahu. Information on values and interests in these documents has been reflected in the Hurunui Waiau River Regional Plan.

Evaluation of Hurunui and Waiau Plan Objectives

This section summarises the Council’s evaluation of the objectives of the Plan in achieving the purpose of the Act. Based on this evaluation, Canterbury Regional Council’s overall judgement of the extent to which each objective is the most appropriate way to achieve the purpose of the Resource Management Act is recorded.

Objective 1

Proposed Objective 1 is as follows:

People and Communities of North Canterbury have ready access to high quality and reliable supplies of human and stock drinking water

The summary of the evaluation of Objective 1 is set out below:

Purpose of the RMA	Evaluation
s5(2)(a)	The Objective recognises the importance of protecting fresh water supplies for the current and future generations for drinking water.
s5(2)(b)	The Objective recognises that drinking water is an integral part of the allocation of fresh water resources and protecting drinking water recognises the life supporting capacity of this water for people and stock.
s5(2)(c)	Not specifically addressed by this Objective, however it is understood that the amount of water taken for community and stock drinking is minor in comparison to natural river flows and the amount of water taken for other out of stream uses.
Social wellbeing	The Objective recognises the social necessity for reliable high quality drinking water supplies for both people and stock
Economic wellbeing	The Objective provides for economic wellbeing ensuring the people (the workforce) and stock (the major economic earner for Hurunui District) have sufficient supplies of fresh water for drinking.
Cultural wellbeing	The Objective provides for human drinking water which is a

	traditional use of fresh water.
Health and safety	Clean safe drinking water is a health and safety requirement. The Objective recognises the need for community and stock drinking water to protect the health and safety of people and communities.

In conclusion, after considering all the information available to it, it is the Council's view that Objective 1 is the most appropriate way to achieve the purpose of the Resource Management Act.

Objective 2

Objective 2 is as follows:

Management of water levels and flows in the Hurunui, Waiau or Jed river and their tributaries does not result in adverse impacts on:

- a) the mauri of water bodies;*
- b) instream aquatic life;*
- c) upstream and downstream passage of native fish salmon and trout;*
- d) the existing landscape and amenity values present;*
- e) breeding and feeding of riverbed nesting birds;*
- f) river mouth opening of the Hurunui River and maintaining an open river mouth in the Waiau river to provide for the migration of native fish and salmonid species and the collection of mahinga kai by tangata whenua;*
- g) The extent of periphyton and cyanobacterial growth and the impact on recreational activities; and,*
- h) Recreationally important flows in the mainstem of the Hurunui and Waiau Rivers for Kayaking, jetboating, swimming and salmon and trout fishing.*

The summary of the evaluation of Objective 2 is set out below:

Purpose of the RMA	Evaluation
s5(2)(a)	The Objective directly recognises the need to sustain the potential of the Hurunui, Waiau and Jed river catchments to preserve existing ecological, cultural and recreational values through the management of out of stream uses of water.
s5(2)(b)	The Objective directly recognises life-supporting capacity of the Hurunui, Waiau and Jed catchments and their associated ecosystems. The life supporting capacity is protected by the setting of minimum flows alongside appropriately sized allocation blocks.
s5(2)(c)	The Objective seeks to sustain the existing significant qualities of the environment in the Hurunui, Waiau and Jed catchment by ensuring that the management regime for out of stream uses protects critical values.
Social wellbeing	The Objective provides for social wellbeing through explicit

	recognition of the recreational benefits, but also indirectly through managing the out of stream use of water which has wider social benefits.
Economic wellbeing	The Objective provides for economic wellbeing through recognition of the economic need and benefits from abstracting water from the Hurunui and Waiau Rivers and their tributaries.
Cultural wellbeing	The Objective seeks to maintain cultural wellbeing by ensuring that the management of regime for out of stream use protects the mauri and cultural uses of the Hurunui, Waiau and Jed Catchments.
Health and safety	This Objective does not explicitly provide for the health and safety. However there are indirect health benefits from having a sustainably managed river system, including safe drinking water supplies and ensuring that rivers are safe for swimming.

In conclusion, after considering all the information available to it, it is the Council's view that Objective 2 is the most appropriate way to achieve the purpose of the Resource Management Act.

Objective 3

Objective 3 is as follows:

Water is allocated so as to enable further economic development, while:

- (a) Protecting the mauri of the waterbodies*
- (b) Ensuring that water quality is not decreased*
- (c) Ensuring flow variability is maintained and that flows of between 1.5 and 3 times the median flow required to flush periphyton, mobilise gravel and reset the bed of the Hurunui and Waiau rivers are not adversely affected;*
- (d) Ensuring that the water temperature is not unnaturally increased to levels which affect salmonid species;*
- (e) Protecting the ability of native fish, salmon and trout to traverse the river from the marine environment to upstream habitats;*
- (f) Protecting the reliability of supply for existing abstractors; and,*
- (g) Maintaining the ability to navigate the river by Jet Boat.*

The summary of the evaluation of Objective 3 is set out below:

Purpose of the RMA	Evaluation
s5(2)(a)	The Objective explicitly recognises the economic benefit of abstracting water for out of stream uses, which both existing and future generations will benefit from while ensuring that in-stream environmental and recreational values are provided for.
s5(2)(b)	While Objective 2 is primarily focused on sustaining the life supporting capacity of water bodies within the Hurunui, Waiau and

	Jed Catchments, Objective 3 also recognises that environmental factors must be considered when allocating water and that flow variability is important.
s5(2)(c)	The Objective specifically recognises that there are a range of factors that must be considered to avoid, remedy or mitigate effects on the environment from the allocation of water above the minimum flow.
Social wellbeing	The Objective provides for social wellbeing through explicit recognition of the social benefits of the existing and future water abstraction. Alongside the social benefits of recreational activities carried out on the Hurunui and Waiau Rivers.
Economic wellbeing	The Objective provides for economic wellbeing through explicit recognition of the economic benefits of the water abstraction for out of stream use.
Cultural wellbeing	The Objective explicitly recognises the protection of mauri when allocating water for out of stream use and the importance of protecting instream biodiversity that is important for cultural uses.
Health and safety	This Objective does not directly address health and safety however, indirectly health and safety is provided for in a number of ways. Firstly by ensuring that flows are sufficient to maintain drinking water quality, ensuring flow variability is maintained to ensure periphyton and toxic cyano-bacterial growth are managed and finally by ensuring that discharges do not affect the safety of river users.

In conclusion, after considering all the information available to it, it is the Council's view that Objective 3 is the most appropriate way to achieve the purpose of the Resource Management Act.

Objective 4

Objective 4 is as follows:

Groundwater abstraction occurs in a sustainable manner preventing a long term decline in groundwater levels and surface water flows, in the Hurunui, Waiau and Jed Catchments, below the minimums specified in the Environmental Flow and Allocation Regime in Table 1.

The summary of the evaluation of Objective 4 is set out below:

Purpose of the RMA	Evaluation
s5(2)(a)	The Objective takes a holistic approach to groundwater management by ensuring that groundwater is managed both to protect groundwater levels but also surface water flows, sustaining

	the water resource in the Hurunui, Waiau and Jed catchments for current and future generations.
s5(2)(b)	The Objective ensures that groundwater flows continue to augment surface water flows and provide base flow for springs, which in turn provide important habitat, and spawning grounds that safeguards the life supporting capacity of aquatic fauna.
s5(2)(c)	The Objective mitigates the effects of groundwater abstraction by setting limits based on recharge; ensuring groundwater abstraction aligns with the expected water inputs.
Social wellbeing	Secondary social wellbeing benefits will occur as a result of the greater economic benefit being derived from the allocated groundwater.
Economic wellbeing	The Objective will provide the potential for greater economic benefit to be derived from the allocated water. Groundwater allocation blocks specified in the plan all have available capacity for future groundwater abstraction.
Cultural wellbeing	Cultural values are provided for by ensuring groundwater levels are set which prevent long term decline in groundwater levels and ensure that river flows are not adversely affected protecting the mauri of water bodies and habitat and/or spawning grounds for mahinga kai
Health and safety	This Objective does not address this matter.

In conclusion, after considering all the information available to it, it is the Council's view that Objective 4 is the most appropriate way to achieve the purpose of the Resource Management Act.

Objective 5

Objective 5 is in 2 parts:

Objective 5.1 is as follows:

Concentrations of nutrients in the mainstems to the Hurunui, Waiau and Jed rivers do not result in

- (a) Adverse affects on the mauri of the waterbodies;*
- (b) A reduction in the naturally occurring biota including riverbed nesting birds, native fish, trout and their associated feed supplies and habitat;*
- (c) Periphyton growth that adversely affects recreational uses and amenity;*
- (d) Chronic nitrate toxicity effects on aquatic species; and.*
- (e) Water being unsuitable for human consumption.*

Objective 5.2 is as follows;

Concentrations of nutrients in the tributaries of the Hurunui, Waiau and Jed rivers do not result in

- (a) Chronic nitrate toxicity effects on aquatic species; and.*
- (b) Water being unsuitable for human consumption.*

The summary of the evaluation of objectives 5.1 and 5.2 is set out below:

Purpose of the RMA	Evaluation
s5(2)(a)	The objectives recognise the need to meet reasonably foreseeable need for water and protect the life supporting capacity of water, and ecological, recreational, cultural and amenity values that can be affected by increased concentrations of nutrients in waterbodies.
s5(2)(b)	The objective explicitly recognises life-supporting capacity of water bodies within the Hurunui, Waiau and Jed catchments and ensures that water quality is maintained at levels which protect key environmental values.
s5(2)(c)	The objective seeks to minimise effects on the environment by a proactive policy and rule framework which relies on nutrient limits being set.
Social wellbeing	The objective specifically recognises amenity and recreational values that may be at risk if concentrations of nutrients are not managed in a sustainable manner.
Economic wellbeing	The objective provides for economic wellbeing, via out of stream water use within sustainable water quality parameters.
Cultural wellbeing	The objective seeks to maintain the mauri of water bodies within the Hurunui, Waiau and Jed catchments.
Health and Safety	The objective explicitly recognises the nutrient standards required for drinking water.

In conclusion, after considering all the information available to it, it is the Council's view that objectives 5.1 and 5.2 are the most appropriate way to achieve the purpose of the Resource Management Act.

Objective 6

Objective 6 is as follows:

Infrastructure for out of stream uses of water, whether for irrigation, hydro-electric generation or other uses is developed in a manner which, alongside other economically viable proposals, allows for full irrigation of all economically irrigable land in the Hurunui, Waiau and Jed river catchments while:

- (a) *Protecting areas with high intrinsic, cultural and recreational values;*
- (b) *Avoiding areas with significant natural hazards;*
- (c) *Addressing demand for community and stock drinking water supplies;*
- (d) *Maintaining existing geomorphologic and sediment transport processes; and,*
- (e) *Maintaining passage for native and introduced fish.*

The summary of the evaluation of Objective 6 is set out below:

Purpose of the RMA	Evaluation
s5(2)(a)	The Objective recognises that to maximise the economic benefits of water abstraction, infrastructure, including storage dams will need to be planned and sited in a way which protects environmental, cultural and recreational values, because once built, major infrastructure proposals will have an economic life of many decades.
s5(2)(b)	The Objective aims to safeguard the life-supporting capacity of the Hurunui, Waiau and Jed rivers and their tributaries by encouraging storage, which would allow abstractors to take from storage, instead of from the river, at times of low flow. Storage development is encouraged in areas of lower environmental and recreational value.
s5(2)(c)	The Objective aims to avoid, remedy or mitigate adverse effects of water abstraction on the river by encouraging the use of storage, and thereby reducing the amount of water taken from the river at times of low flow allowing for an increase in current minimum flows in some months.
Social wellbeing	Social wellbeing is provided for through ensuring that infrastructure will be sited to reduce the effects on recreational and cultural values, and by increasing the reliability of supply for existing abstractions, which has resulting impacts on community wellbeing.
Economic wellbeing	The Objective provides for economic wellbeing through increasing reliability of supply for abstractors and allowing more land to be irrigated, while at the same time making water available to other out of stream uses such as hydro generation.
Cultural wellbeing	The Objective aims to reduce pressure on the river at times of low flow, which would ensure the maintenance or improvement of river flows which will be positive for the river's mauri.
Health and Safety	The Objective ensures that new infrastructure considers the drinking water requirements of people.

Summary

In conclusion, after considering all the information available to it, it is the Council's view that Objective 6 is the most appropriate way to achieve the purpose of the Resource Management Act.

Objective 7

Objective 7 is as follows:

Surface and groundwater resource consents are transferred efficiently maximising efficient water use in a way that mitigates any additional affects on surface and groundwater levels.

The summary of the evaluation of Objective 7 is set out below:

Purpose of the RMA	Evaluation
s5(2)(a)	The transfer of consents is an important part of maximising the economic benefit of water while ensuring the effects of water remain within the community defined management limits.
s5(2)(b)	All consents are issued with conditions which should safeguard the life supporting capacity of the river. This objective identifies that consents should be transferred in a way which mitigates any new affects on surface water, therefore protecting life supporting capacity.
s5(2)(c)	The Objective explicitly requires any additional effects on the environment to be mitigated.
Social wellbeing	Social wellbeing is provided for by the water being used for the most efficient out of stream use and by ensuring sufficient water remains in stream.
Economic wellbeing	The Objective provides for economic wellbeing through maximising the efficient use of consented water.
Cultural wellbeing	The Objective aims to allow water to be used for the most efficient use, minimising any negative effects on cultural wellbeing.
Health and Safety	This is not explicitly addressed by this Objective.

Summary

In conclusion, after considering all the information available to it, it is the Council's view that Objective 7 is the most appropriate way to achieve the purpose of the Resource Management Act.

Objective 8

Objective 8 is as follows:

Water used for out of stream uses is maximised while ensuring water remains instream to the greatest extent practicable.

The summary of the evaluation of Objective 6 is set out below:

Purpose of the RMA	Evaluation
s5(2)(a)	The Objective ensures that water used for out of stream use is optimised, which will allow for more water to remain in-stream, for the same out of stream economic and social benefits resulting from water use.
s5(2)(b)	The Objective aims to safeguard the life-supporting capacity of the Hurunui, Waiau and Jed rivers and their tributaries by maximising water use out of stream, thus allowing more water to remain instream.
s5(2)(c)	The Objective aims to avoid, remedy or mitigate adverse effects of water abstraction on instream environments by ensuring that water used for out of stream use is used with maximum efficiency.
Social wellbeing	The Objective provides for social wellbeing through ensuring that the maximum benefit is gained from any water taken from the river.
Economic wellbeing	The Objective provides for economic wellbeing through ensuring that the maximum benefit is gained from any water taken from the river.
Cultural wellbeing	The Objective aims to ensure that water instream is maximised by ensuring that any water used out of stream is used in the most efficient way possible. In this way indirectly providing for cultural wellbeing.
Health and Safety	This is not explicitly addressed by this Objective.

Summary

In conclusion, after considering all the information available to it, it is the Council's view that Objective 8 is the most appropriate way to achieve the purpose of the Resource Management Act.

Objective 9

Objective 9 is as follows:

Water in the Hurunui, Waiau and Jed Catchments is managed in an integrated manner, with any changes in water management being undertaken in a consistent way which is fair and equitable for all resource consent holders.

The summary of the evaluation of Objective 6 is set out below:

Purpose of the RMA	Evaluation
s5(2)(a)	This Objective explicitly recognises the needs of both current and future generation. The policy framework with sits under this objective highlights that there are current users who need to have priority; however there are also fairness and equity issues between existing and new users. Therefore this objective caters for both existing and future users.
s5(2)(b)	The Objective does not directly provide for the life supporting capacity, however indirectly this objective aims to safeguard the life-supporting capacity of the Hurunui, Waiau and Jed rivers by ensuring that the water management regime can be, and is expected to be reviewed in the future.
s5(2)(c)	The Objective aims to avoid, remedy or mitigate adverse effects of water abstraction on instream environments by recognising the need to develop and implement a fair an equitable management regime, which is consistent for all users.
Social wellbeing	The Objective provides for social wellbeing through ensuring that the maximum benefit is gained from any water taken from the river, while still ensuring that critical environmental and recreational factors are considered.
Economic wellbeing	The Objective provides for the economic wellbeing by ensuring that the economic benefit is spread fairly across resource users within the catchment, which maximises regional benefit.
Cultural wellbeing	The Objective indirectly assists in providing for cultural values by ensuring water is managed in a fair way and by ensuring that post 2025 consents to take water are aligned with the CWMS priorities, which place cultural values ahead of irrigation, recreation and hydro-electric development.
Health and Safety	This is not explicitly addressed by this Objective.

Summary

In conclusion, after considering all the information available to it, it is the Council's view that Objective 9 is the most appropriate way to achieve the purpose of the Resource Management Act.

Evaluation of Policies and Rules

This chapter summarises Canterbury Regional Council's evaluation of policies and rules to achieve the objectives of the Plan. The summary of the evaluation presented is in narrative form. Based on this evaluation, Canterbury Regional Council's overall judgement, having regard to efficiency and effectiveness, as to whether the policies and rules are the most appropriate for achieving the objectives, is also recorded. Consideration is given to the circumstances where there is uncertain or insufficient information. In addition, references to key research and documents that have assisted the decision-making process are identified.

The themes covered by the policies and rules in the Hurunui Waiau River Regional Plan are:

- Minimum flows – the setting of limits where abstractions from surface water and hydraulically connected groundwater must cease.
- Partial restrictions - the setting of limits where the amount of water that can be abstracted from surface water and hydraulically connected groundwater is limited to a proportion of the available allocation.
- Allocation limits – the setting of maximum rates of take and/or volumes from groundwater and surface water bodies.
- Damming and storage of water – constructing dams to detain water in surface water bodies or constructing facilities to store water outside the bed of surface water bodies.
- Cumulative effects of land use on water quality – managing the non-point source discharge of nutrients, particularly Nitrate and Phosphate.
- Technical efficiency – the use of water in a way that output is produced at least cost, including avoiding waste.
- Transfers – transfer of the right to take and use water between different properties.

The policies and rules under each of these themes are evaluated below.

Minimum Flows

Introduction

This section summarises the Canterbury Regional Council's evaluation of the provisions in the Plan relating to minimum flows in the Hurunui, Waiau and Jed river catchments.

Water abstraction can have impacts on instream values, particularly during low flow periods where it can prolong or exacerbate low flow conditions.

Abstraction within the Hurunui, Waiau and Jed river systems are managed using minimum flow triggers at which most abstractions must cease. Surface flow will sometimes drop below these minimum naturally, without rainfall, however abstraction of surface water and stream depleting groundwater has the potential to prolong or exacerbate these low flow conditions,

by leaving rivers flowing at, near or even below their natural low flow for longer periods than would occur without abstraction.

The minimum flow regime can include managing the flow as it approaches the minimum flow value, through “partial restrictions”. Partial restrictions limit the amount of water that can be abstracted from surface water and hydraulically connected groundwater to a proportion of the available allocation when the flow in the surface water body drops below a specified level.

Minimum flows are not just applied in relation to the existing run-of-river irrigation takes. This Plan includes provisions for water takes at higher flow levels, but these takes are also restricted by minimum flows, in the case of the mainstem of the Hurunui and Waiau Rivers these are termed the B and C Block minimum flows.

The minimum flows on the main stem of the Hurunui and Waiau Rivers and key tributaries within these catchments have been debated extensively through technical reporting, consultation processes, including the Hurunui and Waiau Community Advisory Group processes, numerous Zone Committee and sub-committee meetings and a number of Council workshops.

Plan Policies and Rules

The relevant policies and rules of the Plan are:

Policies 1.5, 2.1, 2.2, 2.8, 2.9, 2.10, 2.11, 4.2, 7.1

Rules 1.3, 2.1, 2.2, 2.3, 3.1, 3.2, 4.2, 4.3, 5.2, 7.2, 8.1, 12.1, 13.1

Effectiveness

The Council’s evaluation of the effectiveness of the policies and rules in the Plan to manage minimum flows is summarised in the table below. In this circumstance, Objectives 2, 3, 4, 6 and 7 are relevant to the evaluation.

Objective	Policies and Rules	Effectiveness
2 and 4	Plan policies and rules recognise interconnectedness of ground and surface water – both connected water takes and natural losses and gains from surface water to groundwater are taken into account when deciding on the minimum flow.	High
2, 3 and 7	Plan policies and rules significantly limit further run of river abstraction from surface water and groundwater. Any further water takes that are provided for are undertaken in a manner that does not further impact the A Block minimum flow.	Moderate
3 and 6	Plan policies and rules provide the opportunity for new irrigation and other out of stream water uses to take unused A Block as well as B and C Block to store for irrigation.	Moderate

Benefits and Costs

The Council's evaluation of the benefits and costs of the minimum flow policies and rules in the Plan is summarised in the table below.

Benefits	Costs
<p>Environmental Links between groundwater and surface water, and the importance of the water exchange which occurs, are recognised and provided for.</p> <p>Surface water flows will increase over time when water storage facilities are developed.</p> <p>Economic Provides new minimum flows, both for new abstractors taking higher flow water (the B and C Block minimum flows). Provides for existing abstractors to maintain their reliability of supply until water storage is developed.</p> <p>Social Enables access to water for an individual's reasonable drinking-water needs, the reasonable needs for their animals' drinking-water and the needs for fire-fighting.</p> <p>Cultural Largely maintains status quo, until storage is developed. However the Plan recognises that cultural values have been compromised and once storage is developed, minimum flows need to be increased. The increase is to a level which protects in stream ecological values and therefore assists in improving the health and the mauri of the river.</p>	<p>Environmental Modelling indicates if all current abstractions use their entire consented rate of take, then the life supporting capacity of the rivers could be adversely affected.</p> <p>River flows and wider environment is substantially modified by abstractions – this will continue.</p> <p>Economic Existing irrigators may need to review their source of water when storage is developed and the minimum flows on the mainstem of the Hurunui and Waiau rivers are increased.</p> <p>Social Existing social benefits of abstraction can continue, as can existing recreational activities, however as more water is abstracted some of the social benefit will shift from the social benefit provided from recreational activities to the social benefits brought about from additional economic activity within the Hurunui, Waiau and Jed Catchments.</p> <p>Cultural Largely maintains status quo until storage is developed. Therefore until storage is developed cultural values continue to be vulnerable.</p>

Efficiency

Following the consideration of the benefits and costs of the provisions in the Plan relating to minimum flows, it is the Council's view that the policies and rules are of high efficiency.

Uncertain or insufficient information

The Council considers that the information available is sufficient to provide a sound basis for its decisions on minimum flows. 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 Hurunui, Waiau and Jed catchments, particularly in relation to the C Block minimum flow on the mainstem of the Hurunui and Waiau Rivers. In this case the Plan manages this issue by identifying the factors that must be managed for in the Hurunui and Waiau Catchment.

In addition, the natural flows of many smaller tributaries are not measured.

However, to not act would detrimentally impact upon the management of water takes, and may result in infrastructure being developed in a way that does not allow water use and storage to be optimised. The Council, in setting minimum flows on the basis of information at hand, has acted in such a way to reduce the cost and uncertainty to existing water abstractors, new storage development proponents while maintaining instream values and providing for these to be improved through minimum flows increasing when a large storage proposal occurs.

Summary

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 Council's view that the policies and rules in the Plan managing minimum flows are the most appropriate for achieving the objectives of the Plan.

Further Analysis and Information

For more detail, see:

Aqualinc Research Ltd (2011), "Hurunui-Waiau Storage Options – Modelling Assumptions and Results", Report No. C1009204/2, March 2011.

Bell, B. (1975). *Waiau River Bird Survey* Letter to the Director of the New Zealand Wild Life Service.

Booker, D., Jellyman, D., Snelder, T., Duncan, M., and Bonnett, M. (2011). *Waiau River Mid-range flows: the importance of flow variability*. NIWA Report, September 2011.

Brown, P. (2010). *Hurunui irrigation reliability and production modeling*. Aqualinc Memorandum to J. Smith, Environment Canterbury. 17 March 2010.

Crossman J. (2011) Hurunui River: Conservation and Recreational Values. Environment Canterbury Unpublished Report, Presented to the Flows Zone Sub Committee in June 2010.

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- Golder Associates (2010). *Waiau River Tributaries Aquatic Ecology and Minimum Flow Requirements*. Submitted to Environment Canterbury. Report Number 077813138.
- Gerard, R. and Eastmond, M. (2010). *Presentations to Hurunui-Waiau Zone Committee on jetboating perspectives*. 27 September 2010.
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- NIWA (2007). *Hurunui River habitat 2-D modelling: habitat for periphyton*. Prepared for Environment Canterbury. NIWA client report CHC 2007-039. NIWA Project: ENC07510.
- NIWA (2008). *Hurunui River: B Block allocation review*. Prepared for Environment Canterbury. NIWA Client Report: CHC2009-017. NIWA Project: ENC09511.
- NIWA (2009). *Waiau River instream habitat based on 2-D hydrodynamic modelling*. NIWA Client Report: CHC2008-176 May 2009. NIWA Project: ENC08514.
- North Canterbury Fish and Game (2010). *A fisheries overview of the Hurunui Waiau Zone*. Resource document prepared for Hurunui-Waiau Zone Committee, Canterbury Water Management Strategy. Presented 20 September 2010.
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- Riley Consultants Ltd (2011). *Preliminary cost estimates of storage options in the Hurunui-Waiau Zone*. Report No. 11803-A, 21 February 2011.
- Schmechel, F. (2008). *Braided river bird surveys of the Waiau River and eight smaller Canterbury rivers, Spring 2008*. Environment Canterbury Report R08/92.
- Smith, J. (2010). *Waiau River hydrological information* Environment Canterbury Unpublished Report U10/11.
- Whitewater Canoe Club and Whitewater NZ (2010). *Presentation to the Hurunui Waiau Zone Committee*. October 2010.

Partial restrictions

Introduction

This section summarises the Canterbury Regional Council's evaluation of the provisions in the Plan relating to partial restrictions in the Hurunui, Waiau and Jed river catchments.

Currently, consents within the Hurunui and Waiau Catchments have a range of different partial restriction controls. Some consent holders in the Hurunui River follow a 1:1 sharing regime while the Balmoral Irrigation Scheme has different minimum flows and no 1:1 sharing regime. Consents on the Waiau River mainstem are organised into 8 bands, with 7 bands in

the A Allocation Block. The Hurunui Waiau River Regional Plan takes a different approach and disestablishes the banding system, simplifying the allocation block system into three blocks for the mainstem of the Hurunui and Waiau Rivers and a single allocation block for tributaries. When the river falls to levels within an allocation block then all takes must share the available water to ensure that the minimum flow is not breached. On the mainstem most abstractors have three options, either to reduce their rate of take on a pro rata basis, or reduce the volume of water taken over a 24 hour period, or by forming a (or joining an existing) water users group. On tributaries abstractors have two options, either reduce the rate of take over a 24 hour period or by forming a (or joining an existing) water users group.

Plan Policies and Rules

The relevant policies and rules of the Plan are:

Policies 2.1, 2.3, 2.4, 3.1, 3.3, 7.1, 7.3

Rules 2.3, 3.1, 3.2, 4.2, 4.3, 7.2, 7.3, 8.1, 12.1, 12.2

Effectiveness

The Council's evaluation of the effectiveness of the policies and rules in the Plan to manage partial restriction is summarised in the table below. In this circumstance, Objectives 2, 3 and 7 are most relevant to the evaluation; however the objective relating to the transfer of water takes is also relevant but to a lesser extent.

Objective	Policies and Rules	Effectiveness
2	Policy 2.1 clearly states the need to protect the river flow below the minimum flow. Policy 2.3 and 2.4 describe how abstractors can manage their take to ensure that Policy 2.1 is complied with.	High
3	Objective 3 seeks that water be allocated to out of stream use to provide for economic development provided certain environmental imperatives are achieved. The allocation blocks in the mainstem of the river are currently over allocated. Therefore the partial restriction regime described in Policy 2.3 will only pro-rata people based on flow in the River, therefore there is a chance that the minimum flow will be breached on some occasions. While this may happen and the minimum flow may at some points be theoretically breached at some point in the river, it will only be a small breach and the effect on values considered minor.	Low
7	Objective 7 manages transfers. This section is only tangentially linked to the partial restriction system, however any consent which is transferred to a new location will also have to comply with the partial restriction regime.	High

Benefits and Costs

The Council's evaluation of the benefits and costs as to how partial restrictions are to be managed is summarised in the table below.

Benefits	Costs
<p>Environmental Protects the life supporting capacity of the Hurunui and Waiau Rivers by ensuring that the values that require protection are protected. The single allocation block approach taken by this Plan will make it easier to monitor compliance with consent conditions and therefore make it easier to ensure the minimum flows are not breached.</p> <p>Economic Some abstractors will get a large boost in reliability, particularly those abstractors on the Hurunui River who are currently are required to share water by way of the 1:1 flow sharing regime. To a lesser extent the abstractors in bands 1 and four abstractors taking water from the mainstem of the Waiau River will also see and increase in reliability.</p> <p>Social There are a range of social benefits in relation to the removal of banding and the proposed restriction regime as part of a single allocation regime for each allocation block, the most important being the fairness and equity between abstractors within the same band.</p> <p>There is also a benefit in terms of allowing for the formation of water user groups which would currently be very difficult under the existing banding system.</p> <p>Cultural There are limited cultural benefits relating to this approach, however tangentially an improvement in environmental outcomes will also have benefits in terms of improved protection for mahinga kai and also help improve the health and mauri of the river.</p>	<p>Environmental The allocation blocks on the mainstem of the Hurunui and Waiau Rivers are slightly over allocated. As a result there is a very small chance that the minimum flow will be breached. It is however not expected that the life supporting capacity of the river will be affected.</p> <p>Economic Some abstractors will see a loss in reliability, particularly those on bands 2, 3 and 5 on the Waiau River mainstem. An assessment has been undertaken in terms of the effect on reliability and it has found that there is likely to be less than a 1% loss in pasture production.</p> <p>Social The social cost associated with this option is that some abstractors may feel that they have lost their historical priority position for abstraction within the catchment.</p> <p>Cultural There are limited cultural costs relating to this approach</p>

Efficiency

Following the consideration of the benefits and costs of the policies and rules in the Plan relating to partial restrictions, it is the Council's view that the policies and rules are of moderate to high efficiency.

Uncertain or insufficient information

The Council considers that the information available is sufficient to provide a sound basis for its decisions on partial restrictions. 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 Hurunui, Waiau and Jed River catchments. The Council is also aware that further information could also be gathered to better describe the impacts of removing banding at an individual property level. Much of this work has been done and circulated past the Zone committee by consultants working for a range of abstractors.

The Council is conscious that the consequences of abstraction below the minimum flow either by continuing to abstract once the minimum flow has been reached or by not reducing the rate of take to ensure that the minimum flow is not breached may be to undermine, and detrimentally impact upon, existing ecological values. This could have an adverse effect on the natural, physical and ecological qualities and values associated with this environment, and, in turn, would result in costs on the environment and impacts on cultural values and uses.

Summary

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 Council's view that the policies and rules in the Plan managing the partial restriction regime are the most appropriate in achieving the objectives of the Plan.

Further Analysis and Information

For more detail, see:

Mosley, P. (2002) *Hurunui River: instream values and flow regime*. Report R02/1

Mosley, P. (2004) *Waiau River: instream values and flow regime*. Report R04/2

Brown, P. (2011). *Affect on irrigation reliability from removing Waiau allocation bands*. Aqualinc Memorandum to A.Parrish, Environment Canterbury. 29 April 2011

Familton, H. (2007) *Hurunui River Management Regime Environment Canterbury Report (R07/20)*

Allocation limits

Introduction

This section summarises the Canterbury Regional Council's evaluation of the provisions in the Plan relating to allocation limits in the Hurunui, Waiau and Jed River Catchment.

Currently, the A Block in both the Hurunui and Waiau Catchments has been fully allocated and any additional water abstraction from these catchments, other than renewals of existing resource consents, will be provided for as part of a B or C Block takes. Where no B or C Block is provided for in a river or stream, there is no further water available for allocation.

A Block water has the lowest minimum flow and the most reliable water, B Block water has a higher minimum flow and is less reliable, while the C Block has the highest minimum flow and is the least reliable. Water may be allocated to two or more activities within an allocation block, for example irrigation and hydro-electric development with water used for hydro-electric development when it is not required for irrigation.

Plan Policies and Rules

The relevant policies and rules of the Plan are:

Policies 1.2, 1.3, 1.4, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 4.1, 4.2.

Rules 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 3.1, 3.2, 4.1, 4.2, 4.3, 6.1, 6.2, 6.3, 6.4, 7.1, 7.2, 7.3, 8.1, 9.1.

Effectiveness

The Council's evaluation of the effectiveness of the policies and rules relating to allocation limits in the Plan is summarised in the table below. In this circumstance, Objectives 1, 3 and 4 are relevant to the evaluation.

Objective	Policies and Rules	Effectiveness
1	Identify Community and/or Stock drinking water supplies as a specific resource management issue which must be addressed and provided for as a priority.	Moderate
3	Controls on the maximum amount of water that can be allocated to activities from surface water. Consequently, the allocation limits have the effect of retaining water in the water body. This safeguards the life-supporting capacity and other	High

	values identified in Objective 3.	
4	Controls on the maximum amount of water that can be allocated to activities from ground water. Consequently, allocation limits can have the effect of maintaining long term groundwater levels, ensuring adequate spring base flow and therefore safeguarding the life-supporting capacity of surface water.	High

Benefits and Costs

The Council's evaluation of the benefits and costs of the policies and rules defining the allocation limits is summarised in the table below.

Benefits	Costs
<p>Environmental Recognises and maintains the intrinsic values, life-supporting capacity and habitat values of the water body.</p> <p>Links between groundwater and surface water and water quality, and the importance of managing the system holistically, is recognised and provided for.</p> <p>Enables the enhancement of surface water habitats by protecting natural flow variations.</p> <p>Flows for key species, key recreational activities and key events are recognised and provided for.</p> <p>Economic Assists decision making by providing a reasonable degree of long term certainty. Large allocation blocks are available to be utilised for out of stream use.</p> <p>The share of the water retained in the surface water bodies will be available to derive economic benefit from other activities that do not abstract water (commercial jet boating, fishing guiding)</p> <p>Much greater certainty for existing and future abstractors about how much surface and groundwater is available for surface water</p>	<p>Environmental May result in habitat changes associated with changes in water flow regimes.</p> <p>Reduced flexibility as a Plan Change process would need to be initiated to change the allocation limits applied to new consents if different allocation limits are deemed appropriate in the future.</p> <p>Habitat values can be degraded when allocation limits are high because of the need to accommodate all existing abstractions.</p> <p>The policy framework outlined in Policies 2.5, 2.6 and 2.7 and Rules 3.1 and 3.2 which allow for large amounts of water to be taken as part of a C allocation block may result in negative environmental effects if unforeseen environmental issues arise or the matters to which control have provided are not effectively implemented.</p> <p>Economic Compliance costs are incurred when existing resource consents are reviewed to impose new conditions relating to allocation.</p> <p>Social As more water is abstracted for irrigation, the social benefits derived from instream uses, such as jet boating, fishing and kayaking</p>

<p>use.</p> <p>The reasonable water needs for stock and community drinking water and fire-fighting can be met.</p> <p>Resource consent processes will require less information, resulting in reduced compliance costs.</p> <p>Social Share of the water retained in the surface water bodies will be available for non-extractive recreation activities, while at the same time social benefits will be derived from the economic benefits of water use.</p> <p>Cultural Recognises the relationship of Ngai Tahu with the Hurunui, Waiau and Jed river catchments, through placing a limit around the existing takes and recognising any further takes will need to be managed by different allocation blocks that are set at limits and/or have policies to manage effects on mauri and mahinga kai.</p>	<p>could be reduced. The management regime has however been developed to provide for these values based on best available current knowledge.</p> <p>Cultural Some cultural values may be reduced, particularly if the policy and rule framework around the C Block on the mainstem of the Hurunui and Waiau Rivers is ineffective or implemented poorly.</p>
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Efficiency

Following the consideration of the benefits and costs of the policies and rules in the Plan relating to allocation limits, it is the Council's view that the provisions are of moderate to high efficiency.

Uncertain or insufficient information

The Council 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 Hurunui, Waiau and Jed river catchments. The Council is also aware that further information could also be gathered to better describe the recreational, cultural, economic, and natural intrinsic values present.

Summary

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 Council's view that the policies and rules in the Plan setting and managing allocation limits are the most appropriate in achieving the objectives of the Plan.

Further Analysis and Information

For more detail, see:

Aqualinc Research Ltd (2011), "Hurunui-Waiiau Storage Options – Modelling Assumptions and Results", Report No. C1009204/2, March 2011.

Bell, B. (1975). *Waiiau River Bird Survey* Letter to the Director of the New Zealand Wild Life Service.

Booker, D., Jellyman, D., Snelder, T., Duncan, M., and Bonnett, M. (2011). *Waiiau River Mid-range flows: the importance of flow variability*. NIWA Report, September 2011.

Brown, P. (2010). *Hurunui irrigation reliability and production modeling*. Aqualinc Memorandum to J. Smith, Environment Canterbury. 17 March 2010.

Crossman J. (2011) Hurunui River: Conservation and Recreational Values. Environment Canterbury Unpublished Report, Presented to the Flows Zone Sub Committee in June 2010.

Familton, H. (2007) Hurunui River Management Regime Environment Canterbury Report (R07/20)

Golder Associates (2010). *Waiiau River Tributaries Aquatic Ecology and Minimum Flow Requirements*. Submitted to Environment Canterbury. Report Number 077813138.

Gerard, R. and Eastmond, M. (2010). *Presentations to Hurunui-Waiiau Zone Committee on jetboating perspectives*. 27 September 2010.

NIWA (2004). *Hurunui River habitat 2-D modelling*. Prepared for Environment Canterbury. NIWA Client Report: CHC2004-011. NIWA Project ENC03519.

NIWA (2007). *Hurunui River habitat 2-D modelling: habitat for periphyton*. Prepared for Environment Canterbury. NIWA client report CHC 2007-039. NIWA Project: ENC07510.

NIWA (2008). *Hurunui River: B Block allocation review*. Prepared for Environment Canterbury. NIWA Client Report: CHC2009-017. NIWA Project: ENC09511.

NIWA (2009). *Waiiau River instream habitat based on 2-D hydrodynamic modelling*. NIWA Client Report: CHC2008-176 May 2009. NIWA Project: ENC08514.

North Canterbury Fish and Game (2010). *A fisheries overview of the Hurunui Waiiau Zone*. Resource document prepared for Hurunui-Waiiau Zone Committee, Canterbury Water Management Strategy. Presented 20 September 2010.

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- Schmechel, F. (2008). Braided river bird surveys of the Waiau River and eight smaller Canterbury rivers, Spring 2008. Environment Canterbury Report R08/92.
- Smith, J. (2010). *Waiau River hydrological information* Environment Canterbury Unpublished Report U10/11.
- Whitewater Canoe Club and Whitewater NZ (2010). *Presentation to the Hurunui Waiau Zone Committee*. October 2010.

Damming and Storage of Water

Introduction

This section summarises the Canterbury Regional Council's evaluation of the provisions in the Plan relating to damming and storage of water in the Hurunui, Waiau and Jed river catchments.

The Hurunui Waiau River Regional Plan splits the Hurunui, Waiau and Jed river catchments into three zones for the purposes of the development of dams and water storage facilities. Zone A encompasses the upper part of the Waiau Catchment, upstream of the Hope River confluence, damming is prohibited in this area as it is on the mainstems of both rivers (in the case of the Hurunui River this is downstream of the confluence of the North and South Branch). Zone C contains the upper part of the Hurunui Catchment upstream of the confluence of the north and south branches and the Jed River Catchment and the Caroline Stream / St Anns Lagoon sub-catchment. There are strong environmental controls over damming in Zone C. Zone B contains all the remaining area, with less onerous controls over the development of dams and water storage facilities.

The Canterbury Water Management Strategy identifies that storage of water is likely to be a significant contributor to improved water availability in Canterbury. The Strategy does not identify options for large scale storage in the Waiau River Catchment, however it does include the development of storage in the Hurunui River Catchment. The Hurunui Waiau Zone Committee has considered these issues and identified that to improve reliability for abstractors in the Waiau Catchment, storage would be needed in the mid reaches of the Waiau River.

The Zone Committee also expressed a preference for storage to occur in the Waitohi River, rather than the South Branch or Lake Sumner. However the Zone Committee is not confident that storage can be provided in the Waitohi that is economically viable.

The Hurunui and Waiau Plan responds to this issue by identifying the need for options in Zone B to be explored before options in Zone C are explored. In addition it includes a restrictive policy framework for 2 years after the plan is notified for development in Zone C (Policy 6.4)

All damming requires resource consent under the Resource Management Act, unless specifically permitted by a rule in a regional plan. The Hurunui Waiau River Regional Plan permits small scale in-stream damming (in Zone B) and encourages the development of on farm storage, however damming can have significant effects on instream values, particularly flushing flows. Therefore larger dams and storage facilities have specific environmental controls in the Plan.

Plan Policies and Rules

The relevant policies and rules of the Plan are:

Policies 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 6.10, 6.11

Rules 1.5, 2.4, 4.1, 5.1

Effectiveness

The Council’s evaluation of the effectiveness of the policies and rules in the Plan for managing damming and storage is summarised in the table below. In this circumstance, Objective 6 is relevant to the evaluation.

Objective	Policies and Rules	Effectiveness
6	The policy framework in the Hurunui Waiau River Regional Plan splits the Hurunui, Waiau and Jed Catchments into 3 zones for the purposes of the development of dams and water storage facilities. Zone A encompasses the upper part of the Waiau Catchment, upstream of the Hope River confluence, damming is prohibited in this area as it is on the mainstems of both rivers (in the case of the Hurunui River this is downstream of the confluence of the North and South Branch). Zone C contains the upper part of the Hurunui Catchment upstream of the confluence of the north and south branches and the Jed River Catchment and the Caroline Stream / St Anns Lagoon sub-catchment. There are strong environmental controls over damming in Zone C. Zone B contains all the remaining area, with less onerous controls, and a lower level of environmental protection required in the development of dams and water storage facilities.	High

Benefits and costs

The Council’s evaluation of the benefits and costs of the policies and rules in the Plan for managing damming and storage is summarised in the table below.

Benefits	Costs
<p>Environmental</p> <p>The high value parts of the Hurunui and Waiau catchments are protected from damming, either by a prohibition on damming of water, or through the requiring applicants for dams to work through the consenting process as a non-complying activity.</p> <p>Fresh and flood flows will be protected to a certain extent by the restrictions on damming in the upper catchment, but more importantly by the allocation blocks specified in the plan and the policy framework to manage the take and use of the C Block should ensure that these flows are protected.</p> <p>Economic</p> <p>Protects the reliability of supply for abstractors from the main stem.</p> <p>Allows for new irrigation development to occur. Provides a higher level of certainty that a project can be consented in Zone B.</p> <p>Social</p> <p>Surface water flows will be protected or maintained to retain recreation and amenity values.</p> <p>Additional flow on social benefits including an increase in jobs, and ancillary businesses and employment within the Hurunui District is large scale water storage proceeds.</p> <p>The increase in income that additional irrigation will promote will also have downstream social benefits, including increasing the quality of life for some</p>	<p>Environmental</p> <p>While there are strong environmental controls in the upper catchment there are less controls in the lower catchment. This may result in values being compromised by the development of water storage infrastructure in the area defined as Zone B. However it has been assessed that the values are lower in this area and therefore the overall environmental costs are considered acceptable when considered alongside the high level of protection in the upper catchments to protect the high environmental value areas.</p> <p>Economic</p> <p>The costs for developing off mainstem storage in Zone B are significantly higher than the development of storage in the upper parts of the Hurunui Catchment. The option that has been explored the most in Zone B is an off mainstem, in-stream storage facility in the Waitohi River. The cost difference between a option in the Waitohi River and the south branch of the Hurunui River has been estimated at around \$100,000,000.</p> <p>Social</p> <p>Depending on the location of storage, there is the possibility that some houses or productive farmland will be flooded. This would displace some communities; however it is believed that this will be more than offset by the wider social benefits.</p> <p>Cultural</p> <p>There may be impacts on cultural values if damming occurs in an environmentally insensitive manner, including the loss of spawning grounds for native, artificially</p>

<p>residents.</p> <p>Cultural High flows to flush the river and maintain the Hapua will be maintained.</p> <p>Spawning grounds for ingauna in Caroline stream and tuna habitat in Mata Kope will be protected.</p> <p>The mauri of the river will be maintained by ensuring an uninterrupted flow between the river mouth and the headwaters.</p>	<p>closing the river mouth, increasing periphyton cover and negatively impacting on the mauri of waterbodies. The policy framework in the plan is anticipated to mitigate these cultural impacts.</p>
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Efficiency

Following the consideration of the benefits and costs of the policies and rules in the Plan relating to damming and storage, it is the Council's view that the provisions are of moderate efficiency.

Uncertain or insufficient information

The Council considers that the information available is sufficient to provide a sound basis for its decisions relating to the rule and policy framework for the development of storage. There is still significant uncertainty in the ecological effects of storage in specific areas, however the policy framework identifies these areas where the existing knowledge base could be improved and requires the information to be provided on application for resource consent.

While preliminary cost estimates have identified a significant cost difference and possible affordability gap between various storage locations, the siting and development of storage infrastructure will have an impact on the overall economic affordability. Some locations may not be affordable. The HWRP enables development to occur in multiple locations, with areas with higher environmental value having more stringent environmental controls. If a larger pool of in-depth investigations was available then the Council could choose to specify the desired storage location, including intake points and dam site, in the HWRP.

Summary

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 Council's view that the policies and rules in the Plan controlling damming and storage are the most appropriate in achieving the objectives of the Plan.

Further Analysis and Information

For more detail, see:

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- Schmechel, F. (2008). Braided river bird surveys of the Waiau River and eight smaller Canterbury rivers, Spring 2008. Environment Canterbury Report R08/92.
- URS New Zealand Ltd (2010). *Canterbury Water Management Strategy Preliminary Strategic Assessment - Project 1: Integrated Hurunui-Waiau*. 6 December 2010. Presentation to Hurunui-Waiau Zone Committee on 29 November 2010.
- Whitewater Canoe Club and Whitewater NZ (2010). *Presentation to the Hurunui Waiau Zone Committee*. October 2010.

Hicks, M. (2011). *Potential sedimentation/geomorphic impacts of water storage in the upper Hurunui*. Presentation and report to Hurunui-Waiiau Zone Committee 12 May 2011.

Cumulative Effects of Land Use on Water Quality

Introduction

This section summarises the Canterbury Regional Council's evaluation of the provisions in the Plan relating to managing the cumulative effects of land use on water quality.

To maintain and improve water quality in the Hurunui and Waiiau rivers and protect current values, uses and the mauri of the rivers, while ensuring the economic return from land is maximised, land use practices that result in the loss of nutrient to water need to be improved.

This improvement involves a two pronged approach, where both non-statutory education, advice and leadership is provided to land owners while at the same time the Hurunui Waiiau Plan provides a specific regulatory backstop, specifically by setting limits for nitrogen and phosphorus to maintain or improve concentrations of nutrient in the Hurunui River to protect key values.

At time of notifying the Plan, limits are only included for the Hurunui River at Mandamus and SH1. Over time limits will be established for the Waiiau River, the Hurunui River mouth and specific tributaries as the scientific understanding improves.

Plan Policies and Rules

The relevant policies and rules of the Plan are:

Policy 5.1, 5.2, 5.3, 5.4

Rules 2.3, 3.1, 3.2, 4.2 10.1, 10.2, 11.1, 11.2

Effectiveness

The Council's evaluation of the effectiveness of the policies and rules in the Plan for managing the cumulative effects of land use on water quality is summarised in the table below. In this circumstance, Objectives 5.1 and 5.2 are relevant to the evaluation.

Objective	Policies and Rules	Effectiveness
5.1 and 5.2	Policies and rules seek that a tributary and community approach is taken to managing land use activities and all existing and new land use activities have best nutrient management practices in place by 2017 to maintain current standards of water quality. Requires that all new water takes	Moderate

	<p>assess impacts of development on nutrient limits in the Plan from the date of notification.</p> <p>No limits have however been set for the Waiau or Jed Catchments or the tributaries and the river mouth within the Hurunui Catchment. Unless limits are set in these areas there is a risk that this objective will not be achieved. Policy 5.4 notes that these will be progressively set.</p>	
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Benefits and Costs

The Council's evaluation of the benefits and costs of the policies and rules in the Plan managing the cumulative effects of land use on water quality is summarised in the table below.

Benefits	Costs
<p>Environmental</p> <p>The nutrient limits in the plan are set at a level to ensure concentrations of nutrients in the Hurunui river do not adversely affect existing values. The plan is however just one tool to improve water quality. When the entire package of measures is introduced, including the non-statutory interventions being undertaken by the Zone Committee, Canterbury Regional Council and industry there is expected to be improvements in water quality through improved farming practices thereby enhancing the mauri of the River. Existing controls over point source discharges in the natural resources Regional Plan also work in combination to manage water quality.</p> <p>Economic</p> <p>Improving farming practices can have economic benefits, including reducing fertiliser input and therefore cost, improving animal welfare by greater pasture dry weight in addition to the capital increase in a farms value because of the increased productivity.</p> <p>Social</p> <p>There are social benefits involved in managing nutrients and overall water quality. The most obvious of these is the protection of</p>	<p>Environmental</p> <p>The Environmental costs of this approach are unknown at this stage. However modelling indicates that if all properties improve their farming practice to the best available at the moment, then the existing concentrations of nutrients can be maintained. This approach will mitigate any environmental costs.</p> <p>Economic</p> <p>There is a large economic cost associated with changing on farm practices. For example one of the most effective ways to reduce phosphate loss is to convert boarder dyke to spray irrigation. The costs for this conversion can be in excess of \$1,000,000</p> <p>Social</p> <p>Potential to decrease social wellbeing effects by reduced private spending on community-based activities if there is a requirement for increased capital expenditure on properties to achieve best practice.</p> <p>Cultural</p> <p>Unless limits are established which protect culturally significant values in Waiau or Jed</p>

drinking water supplies. However there are also other social benefits including maintaining recreational opportunities, which may be compromised if the water is unfit for swimming or nuisance periphyton makes the riverside environment unpleasant.

Cultural

Potentially enhanced cultural wellbeing because water quality improvements. This will also protect the mauri of the water body.

Catchments or the tributaries and the river mouth of the Hurunui River there is a risk that cultural values will not be provided for.

Efficiency

Following the consideration of the benefits and costs of the policies and rules in the Plan relating to the cumulative effects of land use on water quality and the non statutory interventions that are planned alongside, it is the Council’s view that the provisions will be of moderate efficiency.

Uncertain or insufficient information

The Council considers that the information available is sufficient to provide a sound basis for its decisions. However, it is aware that there is uncertainty regarding how land owners will determine what their contribution should be to achieving the nutrient loads set for the Hurunui River. This uncertainty is to be addressed through the Zone Committee, industry and Canterbury Regional Council working together with landowners. This is why a five year lead in period is provided for existing landowners. The Council is also aware as to the importance of ongoing monitoring and review of the nutrient loads to ensure they are appropriately achieving the outcomes sought.

Summary

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 Council’s view that the provisions in the policies and rules in the Plan relating to cumulative effects of land use on water quality are the most appropriate in achieving the objectives of the Plan.

Further Analysis and Information

For more detail, see:

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Wedderburn, L.; Bewsell, D.; Blackett, P.; Brown, M.; Kelly, S.; Mackay, M.; Maani, K.; Montes, O.; Payne, T. (April 2011). *Developing a preferred Approach for Managing Cumulative Effects of Land Uses on Freshwater Quality*. Report Prepared for P21 Environment Programme and Environment Canterbury.

Technical Efficiency in the Use of Water

Introduction

This section summarises the Canterbury Regional Council's evaluation of the provisions in the Plan relating to technical efficiency in the use of water. Technical efficiency is referred to as using a resource in such a way that any given output is produced at the least cost, including avoiding waste.

Inefficient use can result in a number of adverse effects, including water resources reaching full allocation more quickly than necessary, and other potential users not being able to access the water. Thus, promoting the efficient use of water is an area where significant gains can be made in reducing demands on a water resource, particularly where its availability may become limited because of high demand and/or seasonal water shortages.

Plan Policies and Rules

The relevant policies and rules of the Plan are:

Policy 8.1

Rules 2.2, 2.3, 3.1, 3.2, 4.2, 4.3, 7.1, 7.2, 7.3, 8.1

Effectiveness

The Council's evaluation of the effectiveness of the policies and rules in the Plan for managing the technical efficiency of using water is summarised in the table below. In this circumstance, Objectives 8 is relevant to the evaluation.

Objective	Policies and Rules	Effectiveness
8	<p>Ensures that any water taken for out of stream use is maximised, which ensures that water remains in-stream, when not being used for productive purposes. This is achieved in a number of ways by</p> <ol style="list-style-type: none"> 1) ensuring all takes for irrigation have an annual volume based on providing water at 80% application efficiency in 9 out of 10 years. 2) By metering all takes and ensuring that they comply with the annual volume and any specific rate of take restriction. 3) By encouraging the voluntary surrender (or transfer under Policy 7.1 or 7.3) of unused water takes 4) By minimising the leakage in the design and installation of infrastructure. 	High

Benefits and Costs

The Council's evaluation of the benefits and costs of the policies and rules in the Plan in relation managing the technical efficiency of using water is summarised in the table below.

Benefits	Costs
<p>Environmental 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>By specifying a quantity of water as reasonable for a given use, where this is based on sound technical information and takes account of the main parameters driving the demand for that use, then the potential for adverse environmental effects to result from the use of that water will be minimised.</p> <p>Economic Reduced wastage enables an increased number of economic enterprises to access</p>	<p>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. However broadly speaking improved distribution systems and more efficient irrigation practices may result in a lower groundwater table and potentially less flow in spring fed streams.</p> <p>Economic High levels of technical efficiency in the use of water may not result in an economically efficient use of resources.</p> <p>Individual water users and communities may face capital expenditure requirements to upgrade existing water management</p>

<p>the allocated water, potentially achieving higher overall economic gains.</p> <p>Achieves greater economic returns from the water which is allocated.</p> <p>Social Potentially enhanced secondary social wellbeing effects from increased economic activity, if increased technical efficiency in the use of water occurs.</p> <p>There will be greater equity and consistency in the quantity of water allocated to individuals who are accessing the resource for the same use.</p> <p>Cultural Potentially enhanced cultural wellbeing because more water remains in the river for longer.</p>	<p>(irrigation, domestic or stock water) systems. For example some properties which currently utilise boarder dyke irrigation, and cannot convert to spray irrigation due to onsite limitations.</p> <p>Social Potential to decrease social wellbeing effects by reduced private spending on community-based activities if there is a requirement for increased capital expenditure on properties to achieve technical efficiency.</p> <p>Cultural No costs to cultural wellbeing unless the policy framework is not effectively implemented.</p>
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Efficiency

Following the consideration of the benefits and costs of the policies and rules in the Plan relating to technical efficiency in the use of water allocated, it is the Council's view that the provisions are of high efficiency.

Summary

Having regard to this information, and taking into account the benefits and costs, it is the Council's view that the policies and rules in the Plan relating to technical efficiency in the use of water are the most appropriate in achieving the objectives of the Plan.

Transfers

Introduction

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

Section 136(2) of the Resource Management Act expressly provides that:

A holder of a water permit granted other than for damming or diverting water may transfer the whole or any 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 regional plan; or*
 - (ii) has been approved by the consent authority that granted the permit on an application under subsection (4).*

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)). Transfers can be for the whole or part of a consent and for limited periods (section 136(2) and (2A) of the Resource Management Act).

Plan Policies and Rules

The relevant policies and rules of the Plan are:

Policies 7.1, 7.2, 7.3

Rules 12.1, 12.2, 13.1

Effectiveness

The Council's evaluation of the effectiveness of the policies and rules in the Plan relating to the transfer of resource consents is summarised in the table below. In this circumstance, Objective 7 is relevant to the evaluation.

Objective	Policies and Rules	Effectiveness
7	Recognition that the transfer of water takes within sub-catchments of the Hurunui, Waiau and Jed River catchments can aid efficiency of water use, subject to environmental effects remaining the same or similar.	High

Benefits and costs

The Council's evaluation of the benefits and costs of the policies and rules in the Plan relating to the transfer of resource consents is summarised in the table below.

Benefits	Costs
<p>Environmental</p> <p>Natural and physical resources are protected or maintained, through minimum standards for transfers.</p> <p>Surface and ground-water allocations will be maintained.</p>	<p>Environmental</p> <p>May increase impact of low flows if currently allocated but unused water is able to be</p>

<p>Economic Protects the reliability of supply for existing abstractors.</p> <p>Enables transfers of water takes to more economically efficient locations.</p>	<p>transferred and used.</p> <p>Economic Not requiring any form of approval for water take transfers may encourage higher economic use of the available water.</p>
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Efficiency

Following the consideration of the benefits and costs of the policies and rules in the Plan relating to the transfer of resource consents, it is the Council's view that the provisions are of high efficiency.

Summary

Having regard to this information, and taking into account the benefits and costs, it is the Council's view that the policies and rules in the Plan relating to the transfer of resource consents are the most appropriate in achieving the objectives of the Plan.

Conclusion

Overall, the Canterbury Regional Council is satisfied, upon examination, that the objectives of the Plan, are the most appropriate way to achieve the purpose of the Resource Management Act and having regard to the efficiency and effectiveness of the policies and rules that they are the most appropriate for achieving the Plans objectives.



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