

# ***An Assessment of the Efficiency and Effectiveness of the Hurunui and Waiau River Regional Plan***

## ***About this Report***

***The Hurunui and Waiau River Regional Plan (“HWRRP” or “the Plan”) became operative in December 2013.*** This report has been prepared in response to Section 35 of the Resource Management Act 1991 (“RMA”), which requires councils to monitor the efficiency and effectiveness of policies, rules, or other methods in policy statements and plans and to make the results of such monitoring available to the public at intervals of not more than 5 years. ***The purpose of this report is to provide the first such efficiency and effectiveness evaluation.***

## ***Structure of this Report***

The evaluation undertaken in this report has used the following five simple plan monitoring questions<sup>1</sup> which are designed to ‘prove’ the Plan’s policy intervention logic and therefore test the efficiency and effectiveness of the Plan’s provisions:

1. Have we done what we said we’d do?
2. Have we achieved what we said we’d achieve?
3. How do we know our actions led to the outcomes observed?
4. Have we achieved the outcomes at reasonable cost?
5. Are we focussed on the right issues?

This report is divided into seven sections and includes an appendix. The Introduction is followed by five sections, one for each of the five plan evaluation questions set out above. The Conclusions section then summarises evaluation findings for all five evaluation questions.

## ***Executive Summary***

This report has identified that the policies and rules in the HWRRP have generally been implemented through the consent process. However, there are two main areas of the HWRRP that have not been fully implemented. The first is that a review of all existing consents under Section 128(1)(b) of the RMA has not been undertaken to bring all existing consents into line with the minimum flow regime set in the HWRRP. The minimum flow regime is, however, being implemented incrementally as new consents are issued or existing consents expire and are renewed. The second is that the permitted activity rules for land use are largely unimplemented, as a result of concerns identified with the requirements that suggest the provisions are not efficient. Instead, Environment Canterbury have set in place a Compliance Strategy aimed at achieving the water quality outcomes in the HWRRP by more targeted means.

Further assessment of the efficiency and effectiveness of the Plan provisions that have not been implemented cannot be undertaken. In addition, the ability to assess whether the Plan’s outcomes

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<sup>1</sup> Sourced from Willis, G. July 2008. *Evaluating Regional Policy Statements and Plans: A guide for regional councils and unitary authorities.* New Zealand Regional Councils Ministry for the Environment, Local Government New Zealand. Wellington, New Zealand, and further developed for use through Canterbury Regional Council’s plan monitoring system.

have been achieved is also hindered by the inability to identify longer-term trends given the limited timeframe within which the Plan has been operative, or because the effects of consented developments cannot yet be assessed, particularly where they have not yet been implemented. Where assessment can be made, it has been concluded that the Plan's outcomes are being, at least partly, achieved. However, limitations on the information available mean it is not possible to evaluate the extent to which it is (or is not) the actions within the HWRRP that have led to the outcomes observed.

While there are limitations in the ability to assess the efficiency of the HWRRP, in an overall sense, the cost of the interventions in the HWRRP are comparable to in other catchments. This, however, takes into account that the Plan's land use provisions are not being fully implemented, and it is acknowledged that if they were, it would likely come at a greater cost, both in terms of compliance and consenting.

A range of other factors are also considered in this report, in order to examine if the HWRRP is focused on the right issues. External factors, such as earthquake and drought have the potential to influence water quality and quantity, but it is too early to determine what these effects and their extent might be. The NPSFM has also been amended, which in time will necessitate changes to the HWRRP to fully give effect to it. Through the Zone Committee, some Plan implementation issues have also been identified. Some of these relate to aspects of the Plan that have not been implemented and mean that the effectiveness and efficiency of those provisions cannot be evaluated. However, in one instance (the '10% rule'), the Council has considered the potential for inefficiency in how it has chosen to target compliance efforts. This indicates the Plan framework in this area is inefficient and ineffective (or at the very least, there is a perception that this is the case).

Various concerns have also been raised with aspects of the current Plan approach, including the equity of the land use provisions, the differences between water quality limits for the Hurunui and Waiau Rivers, the approach taken to smaller catchments, and the boundaries of the Development Zones. However, it must be noted that this report is limited to evaluating the efficiency and effectiveness of the existing provisions within the HWRRP. This focus means that the report does not evaluate the potential efficiency and effectiveness of any alternate provisions. As such, the analysis of the identified concerns does not indicate that the current Plan provisions are inefficient or ineffective, but rather that there is some support for alternate approaches, and if these are to be pursued, further investigation would be required to ultimately assess if they might be more appropriate than the current provisions.

The Council is required to review the provisions in the HWRRP 10 years after it became operative. The Council will also need to revisit the HWRRP in terms of its obligations to give effect to the NPSFM, and any requirements introduced through the National Planning Standards. While this provides the Council with the opportunity to reconsider aspects of the HWRRP that are not as efficient or effective, there is also the opportunity for the Council to address any matters that are considered more urgent through a plan change process.

## **Part 1 – Introduction**

### **Purpose and Scope of this report**

The Resource Management Act 1991 (RMA) confers a duty on the Council under Section 35 to gather such information, monitor and keep records to the extent that it is necessary to effectively carry out its functions under the Act. This includes the requirement to specifically monitor the efficiency and effectiveness of policies, rules, or other methods in its plans (s35(2)(b)). Local authorities must compile and make available to the public, at intervals of not more than 5 years, the results of reviews of the monitoring (s35(2A)).

The HWRRP became operative in December 2013. This report has been compiled to meet the RMA requirements under Section 35. It comprises an evaluation of:

- (i) Whether plan implementation has been efficient and effective to date;
- (ii) Whether state of the environment and consent and compliance monitoring results are in line with the Objectives set in the Plan; and
- (iii) Issues that have arisen through plan development and implementation.

### **Plan Development**

A recognition of the importance of the region's water resources, the increasing pressure on these resources and acknowledgment that "...continuing along the present path for managing water will lead to unacceptable environmental, social, cultural and economic outcomes", led to the development of the Canterbury Water Management Strategy (CWMS).<sup>2</sup> The CWMS outlines a vision for the region's water resources, sets principles and establishes targets for achieving the vision, and sets out new governance structures for achieving integrated management, including the establishment of 10 Water Management Zones, each with a Committee.

In accordance with the direction in the CWMS, the Waiau-Hurunui Zone Committee released its Zone Implementation Programme (ZIP) in July 2011. The ZIP included recommendations as to how water management issues in the Waiau-Hurunui Zone should be addressed, and where the recommendations required a statutory response through the RMA, they were responded to within the HWRRP.<sup>3</sup>

The overall purpose of the HWRRP is to promote the sustainable management of rivers, streams and groundwater resources in the Hurunui, Waiau and Jed river catchment.<sup>4</sup> It is intended that the HWRRP will compliment and work alongside a range of non-statutory actions identified in the ZIP. For the purposes of this efficiency and effectiveness review, only the provisions contained within the HWRRP itself have been evaluated.

### **Plan Implementation**

#### *Resource Consents*

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<sup>2</sup> Canterbury Mayoral Forum (2009). *Canterbury Water Management Strategy*.

<sup>3</sup> Environment Canterbury (2013). *Hurunui and Waiau River Regional Plan*, p. 1.

<sup>4</sup> Environment Canterbury (2013). *Hurunui and Waiau River Regional Plan*, p. 1.

A number of resource consents have been applied for and granted since the notification of the HWRRP.

#### *Review of existing consents*

The HWRRP sets minimum flows for the Hurunui and Waiau rivers that are different from the minimum flows on resource consents issued prior to the introduction of the HWRRP. A review of existing consents under Section 128(1)(b) of the RMA to bring their minimum flow conditions into alignment with the HWRRP minimum flows has not yet been undertaken.

#### *Zone Delivery Team*

The Zone Delivery Team is a group of Environment Canterbury staff who are responsible for delivering work related to the recommendations of the zone committee. This includes matters relating to compliance with the HWRRP, but this compliance work is undertaken as part of a wider implementation function that is focussed on delivering results on-the-ground. This wider delivery function includes providing advice to farmers, which includes advice about compliance with the HWRRP.

#### ***Measuring efficiency and effectiveness***

Measuring efficiency involves the evaluation of whether the costs of the policies, rules and other methods are reasonable for the benefit gained. Costs and benefits are evaluated in monetary and non-monetary terms.

Measuring effectiveness involves the evaluation of whether the objectives and anticipated environmental results sought by a plan's policies have been achieved.

A conceptual framework of integrated monitoring and measuring policy intervention is used by Environment Canterbury as the basis for efficiency and effectiveness evaluations.

Five simple questions are used to apply the framework, carry out data analyses, and to report on evaluation findings. These questions are:

- *Have we done what we said we'd do?*
  - That is, have we implemented all the policies and rules in the Plan?
- *Have we achieved what we said we'd achieve?*
  - That is, have the policies and rules implemented resulted in the Plan's Objectives being met?
- *How do we know if our actions led to the outcomes observed?*
  - Or, can we demonstrate that any achievement of the Plan's Objectives is attributable to the rules in the Plan?
- *Have we achieved the outcomes at reasonable cost?*
  - Or was the (relative) cost of implementing the Plan's rules the lowest for the (relative) benefit gained?
- *Are we focused on the right issues?*
  - That is, are the Plan's policies still appropriate (5 years on) and, has anything changed in relation to the Plan's stated resource management issues?

These questions are designed to 'prove' a plan's policy intervention logic: To assess observed cause and effect relationships between a plan's outputs (policies) and actions (in this case, the application of the rules), compared to observed outcomes 'on the ground' measured through Council monitoring programmes. Progress towards the Plan's objectives and anticipated environmental results can then be assessed.

### ***Data Sources and Methodology***

This report provides a desktop evaluation of the effectiveness and efficiency of the HWRRP. It draws on data and information from various sources. This includes:

- Resource consent decision reports, including conditions imposed on resource consents
- Compliance and complaints information
- State of the Environment reporting
- Anecdotal evidence from Environment Canterbury staff
- Zone Committee minutes and agenda items

## **Part 2 – Have we done what we said we’d do?**

### **Introduction**

The response to the resource management issues identified in the HWRRP are reflected in the HWRRP’s objectives and responded to in the policies and rules. While the HWRRP does not include an explicit list of ‘anticipated environmental results’, there is a list contained in section 1.4 of the HWRRP (“1.4 How this Plan Responds to the Resource Management Issues and the Hurunui Waiau Zone Implementation Programme”) that essentially outlines what these are, and which correspond with the Plan’s overarching objectives. The policies and rules in the Plan are therefore those actions which are intended to achieve the HWRRP’s objectives and result in these outcomes. This section summarises the policies and rules that are intended to achieve each of the Plan’s objectives and evaluates whether they have been implemented. These have been grouped into the following topics:

- Flows
- Water Allocation
- Water Quality

### **Consent Examination**

An examination of consents (‘Consent Examination’) was undertaken as part of assessing whether and how the policies and rules have been implemented. The outcomes of the Consent Examination are reported on in relation to each topic. The detail regarding the Consent Examination is contained in Appendix 1.

### **Anecdotal Evidence**

Discussions with Environment Canterbury staff were also undertaken to provide further detail on what aspects of the plan have been implemented and what actions are being undertaken on the ground.

### **Flows**

<b>Anticipated Environmental Result – Environmental flows are set to sustain environmental, recreational and cultural values present within the Hurunui, Waiau and Jed river systems.</b>	
<b>Outcomes</b>	<b>Interventions</b>
<p><b>Objective 2 - Water levels and flows in the Hurunui, Waiau or Jed rivers and their tributaries are sustainably managed to avoid significant adverse effects on, and avoid, remedy or mitigate other adverse effects of abstraction activities on:</b></p> <p><b>(a) the mauri of the waterbodies;</b></p> <p><b>(b) instream aquatic life;</b></p> <p><b>(c) upstream and downstream passage of native fish, salmon and trout;</b></p> <p><b>(d) existing landscape and amenity values;</b></p> <p><b>(e) breeding success of riverbed nesting birds;</b></p> <p><b>(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 kai by tangata whenua;</b></p>	<p><b>Policies 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.8, 2.9, 2.10, 2.11 (and links with Policies 4.2, 6.2 and 6.3)</b></p> <p><i>These policies set minimum flow levels, or directions on how they are to be calculated, and provide direction for compliance with these levels, including through pro-rata reductions or formation of water user groups.</i></p> <p><i>Beyond the minimum flow levels, they also provide direction for consenting of takes, dams and diversions in relation to retention of flow variability between 1.5 and 3 times the median flow and protection of mauri; and specific matters for consideration in the Jed River catchment.</i></p> <p><i>There are a range of rules (in Section 3.1) that implement these policies (and those relating to allocation), including permitted takes, diversions and damming of a minor nature; and a prohibited activity</i></p>

*(g) the extent of periphyton and cyanobacteria accumulations and the impact of those accumulations on recreational values and activities; and, (h) existing recreational values in the mainstem of the Hurunui and Waiau rivers for activities including salmon and trout fishing, kayaking, jetboating and swimming.*

*status for takes that do not comply with the Environmental Flow and Allocation Regime in Table 1.*

***Have we implemented the policies and rules in the HWRRP in relation to flows?***

The Council has not yet undertaken a full review, under Section 128(1)(b) of the RMA of existing consents to impose the minimum flows in the HWRRP. Similarly, for some transfer consents, the minimum flows contained in the existing consents have been retained, rather than imposing the Plan’s minimum flows, on the basis that this is better done at the time that all consents are reviewed. As such, this aspect of the Plan has not been fully implemented.

The Consents Examination confirmed that all new consents to take and use surface water granted comply with the minimum flow requirement set out in the Environmental Flow and Allocation Regime in Table 1 of the HWRRP or when calculated in accordance with Policy 2.2. An application<sup>5</sup>, lodged before the HWRRP was made operative, was also declined by hearing commissioners on the basis (in part) that the application did not comply with the environmental flow and allocation regime in the HWRRP.

As at October 2017, approximately 44% of consents for the Waiau River main stem A Allocation Block have conditions tied to the HWRRP minimum flows, and a further 33% are due to expire by the end of 2020, with the HWRRP minimum flows to be imposed at renewal.<sup>6</sup> Approximately 12.5% of consents for the Hurunui River main stem A Allocation Block have conditions tied to the HWRRP minimum flows, and a further 52.5% are due to expire by the end of 2020, with the HWRRP minimum flows to be imposed at renewal.<sup>7</sup>

All consents considered in the Consents Examination applied a pro rata reduction in accordance with Policy 2.3 or 2.4.

For applications seeking to change the conditions of existing surface water abstractions, the Council may only consider the effects of the change of the conditions, meaning that there is limited scope to change the minimum flow restrictions on the existing consents as part of an application to vary a condition of consent that is unrelated to flow restrictions. Notwithstanding this, three applicants

<sup>5</sup> Bundled consents CRC142964 – Water permit to take, divert and use; CRC142965 – Water permit to take, divert and use; CRC142966 – land use consent; CRC142967 – Water permit for damming and impoundment; CRC142968 – discharge permit for discharge of water to water.

<sup>6</sup> Clarke. G., et al. *Assessment of consequences to a range of environmental values of continuing to delay implementation of the HWRRP minimum flows of all consented water users.* Agenda item 6 (a) for HWZC, 16 October 2017.

<sup>7</sup> Clarke. G., et al. *Assessment of consequences to a range of environmental values of continuing to delay implementation of the HWRRP minimum flows of all consented water users.* Agenda item 6 (a) for HWZC, 16 October 2017.

sought to align the conditions of their existing water permits with the new minimum flow restrictions (as set out in Part 4 – Table 1 of the HWRRP).

In terms of Policy 2.5, which relates to ensuring that any take, dam, or diversion of water provides flow variability above the minimum flows, particularly in relation to flows between 1.5 and 3 times the median flow (to provide for the matters and processes outlined in the policy), there were no specific conditions relating to this imposed on any consents examined, except for Ngāi Tahu Forest Estates Limited<sup>8</sup>. In the decision on this application, the Panel noted that the condition proposed in relation to flushing flows for that consent would have little effect on its own, but that *“if all other permits were subject to a similar restriction, the effect on flows would be considerably greater and additional periphyton scouring may occur. For that reason we support the condition, and hope that it sets a benchmark for future consents and the review of existing consents.”* The other consents examined appear to assume that allocation within the A & B blocks is consistent with the flow variability sought in Policy 2.5. This is on the basis that the minimum flow and allocation blocks have been set to implement the Plan’s policies, and therefore it is assumed that compliance with minimum flows and pro-rata reductions will therefore maintain flow variability. Notwithstanding this, these decisions record that as the takes are for irrigation purposes (and not to storage), water is unlikely to be taken at the times when flushing flows occur.

Policy 2.10 also provides for a reduction in the minimum flow of particular drains, if a nutrient management system is developed to improve water quality. No consent applications have been received seeking a lower minimum flow.

### Summary

While all new consents have implemented the HWRRP’s direction in relation to flows, full implementation of the minimum flows set in the HWRRP has not yet occurred, and is being implemented progressively, as existing consents expire.

### *Water Allocation*

<b>Anticipated Environmental Result – Existing and additional community and/or stock drinking water supplies are provided for.</b>	
<b>Outcomes</b>	<b>Interventions</b>
<b><i>Objective 1 - People and communities of North Canterbury have ready access to high quality and reliable supplies of human and stock drinking water.</i></b>	<b><i>Policies 1.1, 1.2, 1.3, 1.4 &amp; 1.5 (and links with Policies 2.1, 6.2(c), 6.3(f) and 6.7)</i></b> <i>These policies relate to enabling renewal of existing community and/or stock drinking water takes and allocating 200l/s from each of the Hurunui and Waiau mainstems, for new community and/or stock drinking water supplies, and providing for the use of Water Supply Asset Management strategies to enable takes to continue below minimum flow levels.</i>

<sup>8</sup> CRC132458 to take and divert water; CRC147370 to divert water (fish bypass); CRC 147369 to use water for irrigation; CRC142438 to discharge water to water; CRC144606 to change the use of land which may result in the discharge of nitrogen or phosphorus.



	<p><i>They also provide for such takes from tributaries of the Hurunui and Waiau Rivers, and within the Jed catchment, subject to these meeting some bottom line flow requirements.</i></p> <p><i>These are implemented through specific rule for the taking, use or diversion of water for a community and/or stock drinking water supply (Rule 2.2)</i></p>
<p><b>Anticipated Environmental Result – Water is allocated to ensure existing abstractors retain access to water at a similar reliability to that which they currently enjoy, while also providing access to additional water at higher flows to support further irrigation development.</b></p> <p><b>Hydroelectricity generation is enabled, provided this is consistent with the irrigation, environmental, recreational and cultural objectives of this Plan.</b></p>	
<p><b>Outcomes</b></p>	<p><b>Interventions</b></p>
<p><i>Objective 3 - Water is allocated so as to enable further economic development, while:</i></p> <p><i>(a) protecting the mauri of the waterbodies;</i></p> <p><i>(b) achieving the water quality outcomes described in Objectives 5.1 and 5.2;</i></p> <p><i>(c) providing for flow variability as described in Policy 2.5;</i></p> <p><i>(d) ensuring that the water temperature is not unnaturally increased to levels which are unsuitable for native fish, salmon and trout;</i></p> <p><i>(e) protecting the ability of native fish, salmon and trout to traverse the river from the marine environment to upstream habitats;</i></p> <p><i>(f) protecting the existing reliability of supply for existing abstractors;</i></p> <p><i>(g) maintaining the ability to navigate the river by Jet Boat and kayak; and</i></p> <p><i>(h) protecting the natural character of braided rivers.</i></p> <p><i>Objective 9 - 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.</i></p>	<p><b>Policies 1.4, 3.1, 3.2, 3.4, 3.5, 3.6, 9.1, 9.2 and 9.4 (and links with Policies 4.2, 6.2 and 6.3)</b></p> <p><i>These policies provide direction on the allocation of water within each of the A, B and C Blocks; and for discharges associated with non-consumptive uses. They also provide direction on consent duration, and enable the sharing of water between different uses within allocation limits.</i></p> <p><i>There are a range of rules (in Section 3.1) that implement these policies (and those relating to AER 2), including permitted takes and diversions of a minor nature; and a prohibited activity status for takes that do not comply with the Environmental Flow and Allocation Regime in Table 1.</i></p>
<p><b>Anticipated Environmental Result – Groundwater is managed in an integrated way with surface water</b></p>	
<p><b>Outcomes</b></p>	<p><b>Interventions</b></p>
<p><i>Objective 4 - Groundwater abstraction occurs in a sustainable manner preventing a long term decline in groundwater levels and surface water flows.</i></p>	<p><b>Policies 4.1, 4.1A, 4.2, 4.3, 4.4 &amp; 4.5</b></p> <p><i>These policies set allocation limits within each Groundwater Allocation Zone and provide direction of the calculation of hydraulic connection to surface water; management of interference effects; and penetration of aquifers. They also direct, in relation to geothermal water resources, that its long-term water temperature does not decline. These are implemented through a suite of rules (in Section 3.2), and include a prohibited activity rules for taking and use of groundwater beyond the specified allocation limits.</i></p>

<b>Anticipated Environmental Result - 'More water' for irrigation is delivered in the areas preferred for water storage, while also setting out the preferred outcome of deferring options in other locations until further investigation has been undertaken</b>	
<b>Outcomes</b>	<b>Interventions</b>
<p><b>Objective 6 - Infrastructure for out of stream uses of water is developed in a manner which:</b></p> <p><b>(a) protects areas with high intrinsic, cultural and recreational values;</b></p> <p><b>(b) avoids areas with significant natural hazards;</b></p> <p><b>(c) considers demand for community and/or stock drinking water supplies; and</b></p> <p><b>(d) gives effect to Objectives 2 and 3.</b></p>	<p><b>Policies 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.11.</b></p> <p><i>These policies provide direction on, including a priority order for, the damming and storage of water and outline requirements for what water use and/or storage proposals must demonstrate or provide. It also outlines requirements for any transfer of water across catchments.</i></p> <p><i>There are a range of rules relating to the damming or impoundment of water (in Section 3.1) that implement these policies, including the use of different activity status' to reflect the priority order for different areas.</i></p>
<b>Anticipated Environmental Result – Water is used more efficiently</b>	
<b>Outcomes</b>	<b>Interventions</b>
<p><b>Objective 7- Surface and groundwater resource consents are transferred efficiently, maximising efficient water use in a way that mitigates any additional effects on surface and groundwater levels.</b></p> <p><b>Objective 8 - Water taken for out of stream purposes is used efficiently.</b></p>	<p><b>Policies 7.1, 7.3, 8.1</b></p> <p><i>These policies provide for surface water and groundwater take transfers, within defined parameters; and outline how water take and use efficiency will be achieved, including through requirements relating to efficiency, annual volumes and rates and metering. The transfer policies are implemented through the rules in Section 3.4 which are specific to resource consents transfers. The efficiency requirements are expected to be implemented through resource consents.</i></p>

### ***Have we implemented the policies and rules in the HWRRP in relation to allocation?***

The Consent Examination identified that the relevant policies pertaining to allocation were identified in the evaluation of each consent application and that the water allocated was within the allocation that was identified as being available (as known at the time the consent was processed). This includes groundwater takes of less than 30m within the HWRRP's River Zone and those otherwise identified as having a direct, high or moderate connection. Only one consent application was received and granted (CRC154223 to the Hurunui District Council) for the taking of water for a community and stock water supply. The relevant community water supply policies were identified.

As noted above in relation to flows, an application<sup>9</sup>, lodged before the HWRRP was made operative, was also declined by hearing commissioners on the basis (in part) that the application did not comply with the environmental flow and allocation regime in the HWRRP, and would include impoundment of water in an area deemed inappropriate for this by the HWRRP provisions.

<sup>9</sup> Bundled consents CRC142964 – Water permit to take, divert and use; CRC142965 – Water permit to take, divert and use; CRC142966 – land use consent; CRC142967 – Water permit for damming and impoundment; CRC142968 – discharge permit for discharge of water to water.

### Consent Duration

For the majority of consents considered in the Consents Examination, the common catchment expiry date of 2025 was imposed, in accordance with the policy direction. For applications for changes to conditions, existing expiry dates were retained. In consents where an alternate date was included: for Hurunui District Council's community and stock water take, a 35 year expiry was applied due to the type of the take; for Ngai Tahu Farming, consent duration was aligned with the existing expiry dates for the AIC consents, due to interrelated nature of the consents.

### More water

The Consents Examination showed that the majority of surface water and groundwater decisions considered the direction in Policy 6.5. However, despite it being expressly listed as a matter of discretion, two of the groundwater take and use consents examined did not.

### Transfers

Transfer consents: 23 applications to transfer the take of groundwater were granted. Of 15 consents that were looked at, 100% were transfers to a new owner, rather than site to site transfer, and therefore were not looked at further. 12 applications to transfer the take of surface water were granted. Four were full site to site transfers, while 8 were part transfers. Of those examined, the relevant rules and policies relating to transfers were identified.

### Efficiency

In all consents examined for new surface water and groundwater takes, the annual volume and application rates were assessed in terms of whether they were considered reasonable and allocatively efficient.

### Summary

The granting of consents has generally implemented the HWRRP's direction in relation to allocation.

## **Water Quality**

<b>Anticipated Environmental Result – The cumulative effects from non-point source discharges from existing and new land uses are managed through best nutrient management practises, to ensure nutrient concentrations in the mainstems of the Hurunui and Waiau rivers are appropriate to maintain the current water quality.</b>	
<b>Outcomes</b>	<b>Interventions</b>
<b>Objective 5.1 - Concentrations of nutrients entering the mainstems of the Hurunui, Waiau and Jed rivers are managed to:</b> <b>(a) protect the mauri of the waterbodies;</b> <b>(b) protect natural biota including riverbed nesting birds, native fish, trout, and their associated feed supplies and habitat;</b> <b>(c) control periphyton growth that would adversely affect recreational, cultural and amenity values;</b> <b>(d) ensure aquatic species are protected from chronic nitrate toxicity effects; and,</b> <b>(e) ensure concentrations of nitrogen do not result in water</b>	<b>Policies 2.10, 5.1, 5.2, 5.3, 5.3A, 5.3B, 5.4, 5.4A (Links to Policy 3.6(d))</b> <i>These policies outline a collective approach to water quality and nutrient management and require all existing and new land use activities in rural areas to have best nutrient management practices in place by 2017. This is implemented through land use rules (10.1) which require that existing land uses (that result in a discharge of nitrogen or phosphorus) are subject to one of four collective management agreements by 1 January 2017; and that annual average N &amp; P losses for the 4 previous years are submitted to the Council by 1 October 2016.</i>

**Objective 5.2 - Concentrations of nutrient entering tributaries to the Hurunui, Waiau and Jed rivers are managed to ensure they do not give rise to:**  
**(a) chronic nitrate toxicity effects on aquatic species; and,**  
**(b) water being unsuitable for human consumption**

*The following limits are also set and land use changes only allowed where these limits will not be breached:*

- *95th percentile of monthly periphyton biomass measurements:*
  - *in the mainstem of the Hurunui River and Waiau River do not exceed 120 mg/m<sup>2</sup> chlorophyll a or 20% cover of filamentous algae more than 2 centimetres long*
  - *in the Pahau and Waitohi Rivers do not exceed 200 mg/m<sup>2</sup> chlorophyll a or 30% cover of filamentous algae more than 2 centimetres long*
- *Average annual dissolved reactive phosphorus concentrations in the mainstem of the Hurunui River do not exceed 0.0044 mg DRP/L;*
- *Annual median and 95th percentile nitrate-nitrogen concentrations in the mainstem of the Hurunui River and its tributaries (a), and the mainstem of the Waiau River and its tributaries(b):*
  - *above the Mandamus (a)/ Marble Point (b) flow recorder site shall not exceed 1.1 and 2.0 mg NO<sub>3</sub>-N/L respectively*
  - *below the Mandamus (a)/ Marble Point (b) flow recorder site shall not exceed 2.3 and 3.6 mg NO<sub>3</sub>-N/L respectively*

*The policies also set out monitoring requirements and directions in relation to review of the Plan's water quality parameters.*

*Policy 2.10 also provides for a reduction in the minimum flow in Lowry Peaks, Hermitage, Mount Palm and St Leonards Drains if a wetland or nutrient management system is developed.*

***Have we implemented the policies and rules in the HWRRP?***

Consents

The Consents Examination showed that the relevant water quality policies in the Plan were considered in consent decisions for changes in land use, as well as water take and use consents. For most land use consents, conditions were included relating to the leaching of nitrogen and phosphorus, and requiring the consent holder to sign up to a collective management agreement, that also includes audited Farm Environment Plans.

Of particular relevance (refer to Appendix 1 for further detail) an application by Ngai Tahu Farming Ltd for a change in land use for a highly developed dairy farm proposal was only granted on a reduced basis, due to concerns regarding effects on water quality. The decision of the Panel concluded that the effects of the full proposal in terms of nutrient losses and the effects of such losses on surface water quality were such that they were contrary to the HWRRP's objectives and policies.

### Permitted Activities – Existing Land Use

Under Rule 10.1, any existing land use (that results in the discharge of nitrogen or phosphorus which may enter water and is in the rural area) is required to meet four standards in order to be permitted:

- (a) the land must be subject to one of four “collective management agreements” by 1 January 2017;
- (b) four years of Overseer data must be submitted to ECan by 31 Oct 2016.
- (c) The nitrate-nitrogen water quality limits in Policy 5.3 and 5.3A must be met; and
- (d) The water quality limits for drinking water must be met.

There is relatively low compliance with requirements (a) and (b), with Council officers identifying a number of reasons for this. As a result of the low compliance, the Council (through the Zone Committee and officers) has put in place a targeted approach to compliance, which is set out in a Compliance Strategy, which outlines an agreement to enforce the Plan in a certain way. Specifically, the document sets out a zone committee recommended approach to compliance monitoring within the zone, and the monitoring of the nutrient management provisions of the Hurunui-Waiiau Plan. The issues with each of requirements (a) and (b), and the response taken in the Compliance Strategy, is expanded on below.

### Overseer Budgets

There is relatively low compliance with the requirements to submit Overseer data, which Council officers consider is due to the practical and financial difficulties in requiring all farms, regardless of size or type, to prepare Overseer budgets. In particular, this relates to the cost of preparing individual Overseer budgets and the lack of capacity within the industry to prepare these. Another difficulty is the impact of three dry years (drought) within the catchment on Overseer outputs. This is because even though the climate inputs within the Overseer model will not be greatly affected by short term climate events, the farm inputs have been reduced (i.e. less grass grown, less stock on farm), meaning that the modelled Overseer outputs (namely, N) will be much lower than what is typically produced on that property. There is also a risk that a return to normal production might result in an increase in modelled N outputs, that would technically be a “change in land use” under the Plan, resulting in a consent being required for what is effectively the same farming activity (see further below).

Rather than targeting compliance of the requirement to submit Overseer data, the Compliance Strategy proposes that a co-ordinated data collection programme be developed and implemented. This includes involvement from dryland and irrigated farmers, the zone team and science providers, and the inclusion of any Overseer information submitted by landowners. The data collection programme would then be used to inform any Plan review process.

### Collective Management Agreements

There are currently two ECan-approved Collectives: Amuri Irrigation Scheme; and Cheviot Irrigators Group. There is also the Hurunui District Landcare Group (approximately 130 members), who administers farm environment plans on behalf of farmers, but do not yet have an environmental management strategy approved in accordance with the HWRRP.

The Compliance Strategy seeks to target compliance with the Plan’s collective requirements to farming activities with more than 50ha of irrigation (i.e. require them to join an approved collective, or seek a

resource consent). For those under the 50ha of irrigation threshold, the Strategy is for an FEP to be prepared if they have not joined a collective, and for the zone team to assist as required with FEP preparation. In addition, the Strategy focusses on assisting and encouraging Landcare Group efforts to improve environmental outcome, and ensuring that forage crops intended for the winter grazing of cattle are appropriately managed so that the environmental impacts of this activity are minimised.

#### Permitted Activities – Changes in Land Use

Rule 10.2 provides for a “change in land use” as defined in the Plan, subject essentially to the same conditions outlined in relation to Rule 10.1 (see earlier), and provided that the load limits specified in the Plan are met. Where the other conditions are not met, but the load limits are not exceeded, consent is required for the land use change, as a restricted discretionary activity.

The effect of the definition of “change of land use”, is that it allows for an increase in the long term average N or P losses (per property) of up to 10% as an existing land use, with an increase beyond the 10% threshold becoming a “change”.

A key issue raised by those within the catchment is that the 10% fluctuation provision for an “existing” activity is not appropriate for dryland farming activities on the basis that the inputs and outputs on each property are subject to more change on an annual basis than a typical irrigated property (particularly dairy). It has been assumed by the ZC, land advisors and the community that if all dryland farmers supplied four years of Overseer data then they would fall within the definition of “change in land use” when the primary land use has not changed.

Because of the identified concerns regarding the definition of “change in land use” (colloquially referred to as the “10% rule”), the Compliance Strategy supports the approach to the implementation of the 10% rule set out in the “July 2015 advice note”. The essence of the advice note is that the change in land use rule requirements will not be actively enforced unless it is apparent that there has been a genuine change in the use of the land, with the advice note providing criteria as to how this will be determined, for example, where irrigation is increasing or conversion to dairy or arable cropping is being undertaken. This approach is being taken on the basis that it is not efficient or effective to allocate resources to scrutinising low emitting dryland farmers who are not making significant changes, at the expense of supporting Collectives, ASM, and farm environment plans.

It is estimated<sup>10</sup> that of the approximately 500 properties managed under the HWRRP:

- Approximately 45% either have resource consent or meet the provisions of Rules 10.1 and 10.2.
- Approximately 50% are not being actively pursued to obtain resource consent or to provide information that demonstrates they are compliant with Rules 10.1 or 10.2 (consistent with the Compliance Strategy).
- Approximately 5% of properties are non-compliant with both the HWRRP and the Compliance Strategy, however Environment Canterbury staff are actively working with all of the landowners to ensure these properties are compliant as soon as possible.

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<sup>10</sup> Pers. Comm., M. Bennett, Environment Canterbury Senior Land Management Advisor, May 2017.

### Summary

All new consents have generally implemented the HWRRP's direction in relation to water quality. This includes a large-scale proposal only being granted on a reduced basis, due to its anticipated effects on water quality.

However, the permitted activity rules are largely unimplemented. This has resulted from issues being identified with the requirements, which ultimately relate to concerns about their efficiency and effectiveness. As a consequence, Environment Canterbury has taken an alternate approach to compliance which is focussed on achieving the Plan's water quality outcomes via more targeted means. This suggests that this is an area of the HWRRP that can be improved.

### **Part 3 – Have we achieved what we said we’d achieve?**

#### **Have we achieved the Plan’s objectives?**

The Plan’s anticipated environment results and objectives are set out in full in Part 2 above. In order to measure whether the objectives are being met and the results achieved, relevant environmental indicators have been reviewed, for each of the topic areas, and an assessment provided.

The assessment uses the following rating scale for the level of achievement:

- Achieved – meaning that based on the information reviewed, the objective has been achieved.
- Partially achieved – meaning that either:
  - Progress has been made towards the achievement of objective, but only in part; or
  - There are aspects of the objective that have been achieved, but other aspects that have not.
- Not achieved – meaning that based on the information reviewed, the objective has not been achieved.
- Unknown – meaning that based on the limitations on available information, a conclusion is not able to be made.
- Not Assessed – meaning that for the reasons outlined, an assessment has not been made.

#### **Flows**

<b>Anticipated Environmental Result – Environmental flows are set to sustain environmental, recreational and cultural values present within the Hurunui, Waiau and Jed river systems.</b>	
<b>Outcomes</b>	<b>Comments</b>
<p><b>Objective 2 - Water levels and flows in the Hurunui, Waiau or Jed rivers and their tributaries are sustainably managed to avoid significant adverse effects on, and avoid, remedy or mitigate other adverse effects of abstraction activities on:</b></p> <p><b>(a) the mauri of the waterbodies;</b></p> <p><b>(b) instream aquatic life;</b></p> <p><b>(c) upstream and downstream passage of native fish, salmon and trout;</b></p> <p><b>(d) existing landscape and amenity values;</b></p> <p><b>(e) breeding success of riverbed nesting birds;</b></p> <p><b>(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 kai by tangata whenua;</b></p> <p><b>(g) the extent of periphyton and cyanobacteria accumulations and the impact of those accumulations on recreational values and activities; and,</b></p> <p><b>(h) existing recreational values in the mainstem of the Hurunui and Waiau rivers for activities including salmon and trout fishing, kayaking, jetboating and swimming.</b></p>	<p>The Council has not yet undertaken a review under Section 128(1)(b) of the RMA of existing consents to impose the minimum flows in the HWRRP. As such, the water levels and flows are not currently those that are anticipated by the Plan, and therefore an assessment of whether the anticipated flows are achieving the outcomes sought cannot be made.</p> <p><u>Rating:</u> Not assessed.</p>



## Allocation

Anticipated Environmental Result – Existing and additional community and/or stock drinking water supplies are provided for.	
Outcomes	Comments
<p><b>Objective 1 - People and communities of North Canterbury have ready access to high quality and reliable supplies of human and stock drinking water.</b></p>	<p>Some progress has been made towards this result, but as there has been only one new consent issued for a community and stock drinking water supply and no existing consents have been renewed over this period, it is difficult to measure further.</p> <p><u>Rating:</u> Partially achieved</p>
Anticipated Environmental Result – Water is allocated to ensure existing abstractors retain access to water at a similar reliability to that which they currently enjoy, while also providing access to additional water at higher flows to support further irrigation development. Hydroelectricity generation is enabled, provided this is consistent with the irrigation, environmental, recreational and cultural objectives of this Plan.	
Outcomes	Comments
<p><b>Objective 3 - Water is allocated so as to enable further economic development, while:</b></p> <p><b>(a) protecting the mauri of the waterbodies;</b></p> <p><b>(b) achieving the water quality outcomes described in Objectives 5.1 and 5.2;</b></p> <p><b>(c) providing for flow variability as described in Policy 2.5;</b></p> <p><b>(d) ensuring that the water temperature is not unnaturally increased to levels which are unsuitable for native fish, salmon and trout;</b></p> <p><b>(e) protecting the ability of native fish, salmon and trout to traverse the river from the marine environment to upstream habitats;</b></p> <p><b>(f) protecting the existing reliability of supply for existing abstractors;</b></p> <p><b>(g) maintaining the ability to navigate the river by Jet Boat and kayak; and</b></p> <p><b>(h) protecting the natural character of braided rivers.</b></p> <p><b>Objective 9 - 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.</b></p>	<p>The Consent Examination has identified that water has been allocated to enable economic development. In terms of irrigation, this has included consent being granted to two large-scale irrigation projects - Hurunui Water Project and Ngai Tahu Farming, with both limited by, or subject to strict water quality conditions.</p> <p>In terms of assessing whether the various matters set out in (a) – (g) have been achieved while enabling the allocation, it is considered too soon to meaningfully examine this. This is because a number of consents issued since the Plan was made operative, including the two most significant consents (for HWP and Ngai Tahu Farming) have yet to be fully implemented and therefore it is too soon to make an assessment of their impact on the matters identified.</p> <p>In terms of hydroelectricity generation, only one new consent for this type of development has been issued, and this forms part of HWP’s consents, rather than being an economic development in its own right. Another application that included a hydroelectricity generation component was declined.<sup>11</sup></p> <p><u>Rating:</u> Partially achieved/ Unknown</p>
Anticipated Environmental Result – Groundwater is managed in an integrated way with surface water	
Outcomes	Comments

<sup>11</sup> Bundled consents CRC142964 – Water permit to take, divert and use; CRC142965 – Water permit to take, divert and use; CRC142966 – land use consent; CRC142967 – Water permit for damming and impoundment; CRC142968 – discharge permit for discharge of water to water.

<p><b>Objective 4 - Groundwater abstraction occurs in a sustainable manner preventing a long term decline in groundwater levels and surface water flows.</b></p>	<p>The Council only have 4.5 years of monitoring data for groundwater levels. The trend analysis shows that groundwater levels have declined in 65% to 76% of bores monitored (depending on the analysis method used) in the Culverden-Hurunui Groundwater Allocation Zone and 67% in the Culverden-Waiiau Groundwater Allocation Zone. However, 4.5 years of data is not considered a long enough time period to establish whether this decline is part of a “long term decline”. In addition, the decline is most likely due to the 3-year drought that occurred during that period. To establish the long term trend, a minimum of 10 years of data would be required, however this may still not be enough given the large impact of the drought, as it will take more than one wet winter for the groundwater levels to recover.<sup>12</sup></p> <p><u>Rating:</u> Unknown</p>
<p><b>Anticipated Environmental Result - ‘More water’ for irrigation is delivered in the areas preferred for water storage, while also setting out the preferred outcome of deferring options in other locations until further investigation has been undertaken</b></p>	
<p><b>Outcomes</b></p>	<p><b>Comments</b></p>
<p><b>Objective 6 - Infrastructure for out of stream uses of water is developed in a manner which:</b>  <b>(a) protects areas with high intrinsic, cultural and recreational values;</b>  <b>(b) avoids areas with significant natural hazards;</b>  <b>(c) considers demand for community and/or stock drinking water supplies; and</b>  <b>(d) gives effect to Objectives 2 and 3.</b></p>	<p>The areas identified as having high intrinsic, cultural and recreational values have been protected through the prohibited activity status within the Plan. As noted earlier, an application<sup>13</sup>, lodged before the HWRRP was made operative, was also declined by hearing commissioners on the basis (in part) that it would include impoundment of water in an area identified in the HWRRP provisions as having high intrinsic, cultural and recreational value.</p> <p>Consent has been granted for a large-scale infrastructure project (HWP) on the basis that it meets the matters specific. However, the consent has not yet been implemented. As such, whether this objective has been achieved through the implementation of the consent cannot be assessed at this time.</p> <p>Where alternate locations for storage have been identified, they are considered by interested stakeholders to have a high consenting threshold.<sup>14</sup> In addition, smaller on-farm storage solutions have not been pursued, with anecdotal evidence suggesting this relates to a lack of allocation beyond the ‘A’ block, (for example, to allow for the taking of flow flows from a tributary).<sup>15</sup></p>

<sup>12</sup> Pers. Comm., H. Graham, Hydrogeologist (II), August 2017.

<sup>13</sup> Bundled consents CRC142964 – Water permit to take, divert and use; CRC142965 – Water permit to take, divert and use; CRC142966 – land use consent; CRC142967 – Water permit for damming and impoundment; CRC142968 – discharge permit for discharge of water to water.

<sup>14</sup> Pers. Comm., I. Whitehouse, Zone Facilitator.

<sup>15</sup> Pers. Comm., I. Whitehouse, Zone Facilitator.

	<i>Rating:</i> Partially achieved/ Unknown
<b>Anticipated Environmental Result – Water is used more efficiently</b>	
<b>Outcomes</b>	<b>Comments</b>
<b>Objective 7 - Surface and groundwater resource consents are transferred efficiently, maximising efficient water use in a way that mitigates any additional effects on surface and groundwater levels. Objective 8 - Water taken for out of stream purposes is used efficiently.</b>	No specific measurement of these objectives is undertaken per se. It is assumed that they are achieved through the methods in the Plan being applied (for example, annual volumes applied to consents and conditions around checking for pipe leaks) and therefore where these conditions are complied with, it is assumed water use is efficient.  <i>Rating:</i> Achieved

### Water Quality

<b>Anticipated Environmental Result – The cumulative effects from non-point source discharges from existing and new land uses are managed through best nutrient management practises, to ensure nutrient concentrations in the mainstems of the Hurunui and Waiau rivers are appropriate to maintain the current water quality.</b>	
<b>Outcomes</b>	<b>Comments</b>
<p><b>Objective 5.1 - Concentrations of nutrients entering the mainstems of the Hurunui, Waiau and Jed rivers are managed to:</b></p> <p><b>(a) protect the mauri of the waterbodies;</b>  <b>(b) protect natural biota including riverbed nesting birds, native fish, trout, and their associated feed supplies and habitat;</b>  <b>(c) control periphyton growth that would adversely affect recreational, cultural and amenity values;</b>  <b>(d) ensure aquatic species are protected from chronic nitrate toxicity effects; and,</b>  <b>(e) ensure concentrations of nitrogen do not result in water being unsuitable for human consumption.</b></p> <p><b>Objective 5.2 - Concentrations of nutrient entering tributaries to the Hurunui, Waiau and Jed rivers are managed to ensure they do not give rise to:</b></p> <p><b>(a) chronic nitrate toxicity effects on aquatic species; and,</b>  <b>(b) water being unsuitable for human consumption</b></p> <p>•95th percentile of monthly periphyton biomass measurements:</p>	<p>As many of the Plan’s water quality outcomes are narrative (rather than quantitative) measures, the current state assessment provided by Environment Canterbury officers uses a range of indicators to assess these, including the equivalent quantitative measures for the relevant water bodies from within the Canterbury Land and Water Regional Plan (CLWRP), periphyton nutrient guidelines and attribute states from the National Objectives Framework.<sup>16</sup></p> <p>In terms of sub-clauses (a) and (b) of Objective 5.1, a water temperature of less than 20°C and dissolved oxygen of more than 90% saturation are considered to support aquatic species, particularly salmon and trout. In addition, while the Plan itself does refer to quantitative macroinvertebrate community index (QMCI)<sup>17</sup>, it is considered to be an appropriate measure for whether these outcomes are being met.</p> <p>In the Waiau River catchment, the water temperature in the mainstem generally achieves this, but is not achieved in hill-fed tributaries (Mason River at SH70 and Leader River at SH1). This is affected by lower flows</p>

<sup>16</sup> The following assessments are based on the “Hurunui catchment groundwater quality” – Presentation to the Science Stakeholder Group, presented by H. Graham, Groundwater Science (15 February 2017); “Surface Water Quality in the Waiau River Catchment” – Presentation to the Science Stakeholder Group, presented by A. Meredith, Principal Surface Water and Ecology Scientist & K. Dynes, Ecology Scientist, November 2016, and subsequent email correspondence with K. Dynes in June – August 2017.

<sup>17</sup> QMCI is an index used in New Zealand to measure the water quality of fresh water bodies, which is based on the presence (or absence) of macroinvertebrates in a river or stream, in order to give a biological indicator on the health of that waterway. The index assigns a number to each species of macroinvertebrate based on the sensitivity of that species to pollution, then calculates an average score.

<ul style="list-style-type: none"> <li>○ <i>in the mainstem of the Hurunui River and Waiau River do not exceed 120 mg/m<sup>2</sup> chlorophyll a or 20% cover of filamentous algae more than 2 centimetres long</i></li> <li>○ <i>in the Pahau and Waitohi Rivers do not exceed 200 mg/m<sup>2</sup> chlorophyll a or 30% cover of filamentous algae more than 2 centimetres long</i></li> <li>● <i>Average annual dissolved reactive phosphorus concentrations in the mainstem of the Hurunui River do not exceed 0.0044 mg DRP/L;</i></li> <li>● <i>Annual median and 95th percentile nitrate-nitrogen concentrations in the mainstem of the Hurunui River and its tributaries (a), and the mainstem of the Waiau River and its tributaries(b):</i> <ul style="list-style-type: none"> <li>○ <i>above the Mandamus (a)/ Marble Point (b) flow recorder site shall not exceed 1.1 and 2.0 mg NO<sub>3</sub>-N/L respectively</i></li> <li>○ <i>below the Mandamus (a)/ Marble Point (b) flow recorder site shall not exceed 2.3 and 3.6 mg NO<sub>3</sub>-N/L respectively</i></li> </ul> </li> </ul>	<p>(from drought) and the hill-fed sites having a larger surface area to volume ratio, meaning they are more sensitive to thermal radiation. All rivers are considered generally OK for dissolved oxygen. Sediment cover also affects aquatic species, as it smothers benthic habitats. The outcomes within the CLWRP are for a maximum fine sediment cover of 20% for spring-fed streams and 15% cover for hill-fed rivers. Sediment cover above these levels are becoming a concern in the Waiau catchment.</p> <p>The equivalent minimum QMCI score within the CLWRP for the majority of the types of rivers within the HWRRP area is 6. Within the Waiau Catchment all sites measured achieve a QMCI score of 6, except the Leader River at SH1, which is impacted by low flow, sedimentation/embeddedness, nuisance periphyton growth and warm temperatures. Within the Hurunui Catchment, the Mandamus and Pahau Rivers achieve a QMCI score of 6, but 2 Waitohi River sites, St Leonards Drain and Hurunui River at SH1 occasionally do not meet a score of 6. School Stream at SH7 does not meet a score of 6.</p> <p>Periphyton growth that might adversely affect recreational, cultural and amenity values has been considered by reference to the National Objectives Framework for benthic periphyton – chlorophyll ‘a’. In the Waiau catchment, there is only suitable data at two sites: Waiau River at Leslie Hills is considered generally good; while the Mason River is variable and not suitable all years. In the Hurunui Catchment, Pahau River at Top Pahau Road is considered generally good; while the Hurunui River at SH1 is variable and not suitable all years.</p> <p>In terms of long filament periphyton in the Waiau Catchment this is elevated in the tributaries (Mason River and Leader River), but negligible in the Waiau River. The limit for the mainstem of the Waiau River in Policy 5.3A(a) is met. In the Hurunui Catchment for hill-fed tributaries and Hurunui mainstem sites monitored, the plan limits, as per Policy 5.3(a) and (b), are met.</p> <p>Potentially toxic cyanobacteria (algae) mats can be potentially toxic to livestock, dogs and people, smell and taint food. This algae may have different drivers to filamentous green algae. In the Waiau Catchment, this is most problematic in the Leader River which exceeded the ‘Public Health Alert’ guidelines in both 2013/14 and 2014/15, and also the CLWRP Action Guideline in 2013/14. However, it is not a recognised bathing site. Growth in Waiau River is currently limited. Flood flows in the Waiau River play an important role in regulating periphyton and cyanobacteria establishment and growth. In the Hurunui Catchment, cyanobacteria mats are most problematic in the Hurunui River, where the</p>
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	<p>'Public Health Alert' guidelines have been exceeded 3 times for recreational bathing sites in the Hurunui River at both SH7 and SH1, with the former also exceeding the CLWRP Action Guidelines twice. Cyanobacteria is now the dominant periphyton in the lower Hurunui River. Freshes and floods are the greatest influence on limiting the growth of cyanobacteria, followed by nutrient concentrations.</p> <p>In the Hurunui Catchment, didymo is the dominant periphyton growth upstream of SH7 and appears to dominate under low nutrient conditions.</p> <p>In terms of ammonia and nitrate toxicity, all river sites in the Waiau catchment (Waiau, Mason and Leader rivers) monitored would be classed as within the A Band of the NOF, indicating no toxicity risk, and within the limits set out in Policy 5.3A(b) and (c). In spring-fed streams (Heritage Drain and Lowry Peaks Drain), recent monitoring indicates nitrate concentrations may have potential low level toxicity effects (on 20% of species) which exceeds the limits set out in Policy 5.3(c). Within the Hurunui Catchment, all river sites would be classed as within the A or B Band of the NOF for ammonia toxicity, indicating low ammonia toxicity risk. For nitrate toxicity, median concentrations indicate some toxic effects on species in Pahau Drain and St Leonards Drain, which exceed the limits set out in Policy 5.3(e). 95<sup>th</sup> percentile concentrations exceed the limits set out in Policy 5.3(e) in Pahau Drain, St Leonards Drain and Dry Stream.</p> <p>In the Waiau catchment, all sites monitored (2011-2016) would be classed in the A band of the NPS-FM for wadeability. In terms of swimmability Leader River and Waiau River at SH1 do not meet minimum acceptable state (the national bottom line within the NOF) for swimmability. In the Hurunui catchment, all sites monitored (2011-2016) would be classed in the A or B band of the NPS-FM for wadeability. In terms of swimmability, tributary streams frequently do not meet minimum requirements for swimmability and Hurunui River at SH1 did not meet the minimum requirements for the past four years and was accordingly given a 'poor' suitability for recreation grading.</p> <p><u>Rating:</u> Partially achieved</p>
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**Summary**

A number of the outcomes that the HWRRP seeks to achieve are being achieved in part. However, a fuller assessment of the achievement of these is limited by a number of factors, including:

- Aspects of the Plan that have not been implemented, meaning the effects of implementation cannot be measured;
- The short life span of the Plan so far, meaning that longer term trends have yet to be identified; and
- Two larger-scale consents have been issued under the HWRRP but are yet to be fully implemented, meaning that the effects of these developments cannot yet be measured.

## ***Part 4 – How do we know our actions led to the outcomes observed?***

### ***Can we demonstrate that achievement of the Plan’s objectives (or anticipated environmental results) is attributable to the rules in the Plan?***

There is a range of information that can assist in assessing whether the implementation of the HWRRP has led to the achievement of the Plan’s outcomes. The first is reviewing compliance monitoring of consents. It is anticipated that a high level of compliance will assist in meeting the objectives and environmental results anticipated by the Plan. Low levels of compliance may lead to the objectives being compromised in particular areas. Similarly, where enforcement actions have been undertaken, this indicates that objectives and environmental results anticipated by the Plan are likely to be under threat. Reviewing reports and complaints relating to environmental incidents that have occurred in the catchment can also highlight whether there are other reasons or causes for observed outcomes or issues arising that were not anticipated by the HWRRP. State of environment monitoring and anecdotal evidence can also identify other matters outside of Plan implementation actions that influence the outcomes observed.

#### *Compliance Monitoring and Enforcement Action*

Compliance monitoring is undertaken at the Hurunui-Waiiau zone level, meaning that compliance monitoring is undertaken for all consents within the zone boundary, rather than considering only those consents issued under the HWRRP. It is therefore difficult to ascertain the levels of compliance with consents issued under the HWRRP.

In 2013/14, it was reported that the levels of “significant non-compliance” had increased in relation to groundwater, with water being taken when on restriction, taken over the allocated amount, measuring devices being faulty or date not being submitted to the Council.<sup>18</sup> Similar non-compliances were reported in 2014/15.<sup>19</sup> A high number of groundwater abstraction consents (38% of consents monitored) were monitored in 2015/16.<sup>20</sup>

Where enforcement actions have been undertaken within the Zone, the reporting of such actions does not distinguish whether the enforcement action undertaken related to matters managed under the HWRRP or under other plans.

#### *Complaints*

201 complaints were received in the Hurunui zone during 2013/14. Very few of these (if any) appear to relate to matters managed under the HWRRP.<sup>21</sup> In 2014/15, there were 205 complaints, with some relating to water usage.<sup>22</sup> In 2015/16 120 complaints were received, with a small number relating to unauthorised diversions, take or uses.

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<sup>18</sup> Environment Canterbury Regional Council. (March 2015). *Compliance Monitoring Annual Report 2013/14*, p. 10.

<sup>19</sup> Hurunui-Waiiau Water Management Zone Compliance Monitoring Annual Report and Plan.

<sup>20</sup> HURUNUI 2015-2016 Monitoring Results

<sup>21</sup> Environment Canterbury Regional Council. (March 2015). *Compliance Monitoring Annual Report 2013/14*, p. 11.

<sup>22</sup> Hurunui-Waiiau Water Management Zone Compliance Monitoring Annual Report and Plan.

### *Particular matters relating to water quality*

Some of the water quality outcomes in the HWRRP are influenced by a range of factors, and therefore meeting or not meeting the Plan's water quality objectives cannot be easily correlated to the actions implemented through the HWRRP.

For example, periphyton interactions with flow, nutrients and land use are complex. Essentially, a flow that allows for bed movement will restrict periphyton from establishing. When that flow reduces, periphyton can establish, providing nutrient concentrations that can support periphyton growth. Complicating this further, different periphyton species have different nutrient requirements, for example, didymo has low nutrient requirements, cyanobacteria requires elevated nitrogen but low phosphorus concentrations, with phosphorus obtained from fine sediment, and long filamentous algae generally requires both nitrogen and phosphorus to be elevated. Therefore, it is very difficult to simply determine a correlation between periphyton growth and a specific land use.

In-river nutrient loads reflect both the concentration of nitrogen in a water body and river flow. This means that in-river load estimates naturally vary in response to the climate (i.e. the variation in flow in wet and dry years, and the longer term influence of climate change) as well as to any change in land use in the catchment.<sup>23</sup> For example, the nitrogen load limit for the Hurunui Catchment at the Mandamus flow recorder is estimated to be 55 tonnes of DIN per year, exceeding the Plan load limit of 39 tonnes. However, there does not appear to be any change in land use for the area upstream of Mandamus, meaning that the increase is not related to an increase in DIN from land use activities. Any change in the "source" nitrogen load lost from land use in the catchment would be expected to appear in the "in-river" load estimates on top of the natural variability described above. The difficulty is that the large year to year natural variability makes any "real" increase in source loads very difficult to detect against the natural variability, and significant trends are only likely to be detected as quite large changes in source load over quite long time periods using this in-river monitoring method.<sup>24</sup> It is noted that in other zones, in order to manage to in-river load limits, some sort of source load(s) has been used to monitor nutrient losses from farms or irrigation schemes.

### *Non-regulatory methods*

The HWRRP is one of a suite of tools intended to assist in delivering the overall vision for the sustainable management of water resources in the Hurunui and Waiau Zone. Other non-regulatory tools intended to assist in the delivery of the Zone's vision are:

- The Immediate Steps Biodiversity Programme;
- The Land Use and Water Quality Implementation Programme; and
- Other industry and community-led initiatives.

Because the HWRRP is intended to work alongside and compliment a range of non-statutory actions, these latter actions should assist in meeting the Plan's objectives. It is therefore difficult to conclude what effect the plan framework alone has on meeting these objectives.

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<sup>23</sup> Based on Pers. Comm. N. Norton, 5 July 2017.

<sup>24</sup> Based on Pers. Comm. N. Norton, 5 July 2017.



*Is the intervention having consequences the council did not intend?*

As noted earlier, concerns were raised regarding the potential for the 10% rule to have unintended consequences. This is currently being addressed through the Compliance Strategy, but indicates a concern that the Plan is currently inefficient in this regard.

### **Summary**

- Compliance monitoring, enforcement, and complaints are currently reported at a zone-level, and a breakdown of information to ascertain which aspects of these relate to matters managed under the HWRRP (rather than under another regional plan) is not available. A conclusion therefore cannot be drawn in relation to this.
- As noted earlier, water quality outcomes are not being met in all cases, but there is limited information to be able to say that this relates to the HWRRP being ineffective, because of the factors identified above.

## ***Part 5 – Have we achieved the outcomes at reasonable cost?***

### ***Measuring Efficiency***

Efficiency in terms of plan monitoring is a measure of the relative benefits of a policy compared to its relative cost. Measuring efficiency involves assessing the ratio of benefit to cost in monetary and non-monetary terms. The interventions provided in the Plan (i.e. the policies and rules) are expected to provide a 'benefit', but such interventions have costs. In terms of evaluation, this means that the question to answer is whether the cost of the benefits is reasonable? Is it what we expected it to be?<sup>25</sup>

### ***Limitations***

A major constraint to analysing efficiency was the availability of data that directly attributed monetary costs, over the life of the HWRRP so far, to the activities undertaken by Environment Canterbury to implement it. This is because implementation of the HWRRP is one aspect of a number of interventions undertaken by Environment Canterbury that ultimately aim to result in the sustainable management of the zone's water resources. For example, there are various staff members who provide assistance to farmers on-the-ground (the Zone Delivery Team) and while aspects of these roles will include educating about and assisting with implantation of the HWRRP, the role extends beyond this. Also, given that the HWRRP is relatively young, there is insufficient information to conduct a fuller efficiency evaluation.

While historically Environment Canterbury's financial records do account for monetary costs attributable to the development and implementation of resource management plans (i.e. related investigations and monitoring, consents and compliance, and council activities related to nonregulatory methods), these have not been itemised to each individual plan. This means that monetary costs cannot be attributed solely to the HWRRP and its policy cycle.

Bearing in mind the limitations identified, the efficiency evaluation below considers:

- what the environmental, cultural, social and economic 'benefits' anticipated by the HWRRP are, by reference to its objectives;
- what the known costs of aspects of the HWRRP implementation is.

### ***Benefits***

- Economic benefits associated with water allocation, i.e. increasing productive capability of land, generation of renewable energy, tourism associated with recreational activities.
- Social benefits – flow-on effects from financial benefits, e.g. increased employment and community - continued recreational use of water bodies. Availability of community and stock drinking water supplies.
- Environmental benefits – protection of water quality, protection of various in-stream values of water.
- Cultural benefits – protection of the mauri of waterbodies.

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<sup>25</sup> Sourced from Willis, G. July 2008. Evaluating Regional Policy Statements and Plans: A guide for regional councils and unitary authorities. New Zealand Regional Councils Ministry for the Environment, Local Government New Zealand. Wellington, New Zealand.

## Costs

- Processing costs – the costs associated with processing<sup>26</sup> the non-notified resource consents that were included in the Consent Examination ranged from \$607.50 (for a change of condition application) through to \$10,859.20. The average cost for new takes (both surface and groundwater) was \$4656 and \$1048 for a change of conditions.
- Cost of compliance monitoring – the costs associated with compliance and monitoring of consents (as noted earlier, the compliance monitoring undertaken is at a zone-level and therefore costs attributable to HWRRP monitoring in particular are not able to be quantified).
- Cost of preparing an OVERSEER budget: The estimated cost of preparing an Overseer budget ranges from \$1,500 to greater than \$3,000, depending on the complexity of the farming system<sup>27</sup>.
- Cost of preparing Farm Environment Plans: Anecdotal evidence suggests that a consultant preparing an FEP on behalf of the farmer will take approximately 1 day (including a site visit) and cost up to \$2,000.00. The cost will be reduced for farmers who prepare their own FEPs. Industry organisations have also run workshops to assist people in preparing their own FEP.<sup>28</sup>
- Cost of implementing and auditing Farm Environment Plan: OVERSEER modelling is required on an annual basis, however if there are minimal on-farm changes from year to year, these costs will be much less than preparing the initial budget. There will be also be costs associated with mitigation measures required, such as upgrading infrastructure, fencing of waterways, stock crossings and planting of vegetation. While there is some funding available, riparian planting and stock exclusion will come at a cost to the farmers. The costs associated with the improvement of infrastructure (for example, upgrading irrigation, installing soil moisture probes, etc), are expected to be cost neutral in that the initial costs will be offset in cost savings over the longer term.
- Cost of Collectives: There are costs (membership fees) associated with joining a collective management agreement.

### ***Are the costs of the benefits reasonable?***

The ability to assess efficiency of the HWRRP has been significantly limited by:

- Not being able to assess those aspects of the Plan that are not implemented; and
- Not being able to separate out the costs of implementing the HWRRP from other costs;

However, in an overall sense, it can be noted that the interventions in the HWRRP, particularly in relation to water quantity and quality are generally similar to those in other catchments, and increasingly tighter controls around farming activities that affect water quality are being introduced across the country. Therefore, the costs associated with the HWRRP are considered to be comparative to similar costs incurred elsewhere. Those aspects of the HWRRP that may be less efficient (i.e. more costly), particularly those for dryland farms, are those that the Council have made a conscious decision not to enforce (i.e. requirement to submit Overseer budget, and requiring consent for greater than 10% fluctuations).

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<sup>26</sup> Note that this is the costs charged by the Council for the processing of the application and do not include costs incurred by the applicant in preparing the application.

<sup>27</sup> Pers. Comm., M. Bennett, Environment Canterbury Senior Land Management Advisor.

<sup>28</sup> Pers. Comm., M. Bennett, Environment Canterbury Senior Land Management Advisor.

## ***Part 6 – Are we focussed on the right issues?***

This question and the discussion which follows is aimed at identifying what has changed since the Plan’s stated resource management issues, including any resource management issues and gaps that have become evident.

### ***Changes to the planning framework***

The National Policy Statement for Freshwater Management (NPSFM) was amended in 2014, after the HWRRP was developed and made operative, and again in 2017. Of particular relevance, the amendments introduced additional requirements relating to the National Objectives Framework and how freshwater objectives and limits are to be set. The Council’s ‘Progressive Implementation Programme 2015’ commits to notifying plan provisions for the Hurunui-Waiiau sub-region by 2018/2019, to implement the relevant policies within the NPSFM. However, as a result of changes to the NPSFM in 2017, the Council must review and if necessary revise, their progressive implementation programme by 31 December 2018.<sup>29</sup>

The HWRRP was also one of the first catchment plans to explicitly seek to manage the effects of diffuse nutrient discharges associated with land use on water quality, and preceded the region-wide approach set out in the Canterbury Land and Water Regional Plan (CLWRP). The setting of catchment-specific water quality limits and rule regimes has also progressed across the region, and further refinements of the region-wide approach has been undertaken through Plan Change 5 to the CLWRP. The approach to nutrient management has, in a general sense, evolved from that taken in the HWRRP, and in particular is focussed on regulating “good management practises” across the rest of the Canterbury region. The framework for in-river water quality limits has also evolved with “source” load limits tending to replace “in-river” load limits.

### ***Significant events***

Since the introduction of the HWRRP, the Zone has experienced three years of drought. This has resulted in farm inputs having been reduced (less stock and less grass grown) meaning that any modelled Overseer N outputs will be much lower than what is more typically produced on properties. In November 2016, the District was also severely affected by an earthquake. Concerns have been raised that erosion following the earthquake may increase sediment and phosphorous in the Waiiau River and some tributaries.

### ***Issues raised through Zone Committee***

The HWZC have identified a number of “priority land and water management issues” in the Zone, which a range of interested stakeholders have also provided feedback on.<sup>30</sup> Some of these relate to matters that sit outside the HWRRP, either in terms of being outside the area managed by the HWRRP (Waipara) or relating to activities managed under the Canterbury Land and Water Plan. Of those that relate more directly to the HWRRP, these have been summarised briefly and discussed below.

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<sup>29</sup> Policy E1(f), *National Policy Statement for Freshwater Management 2014*.

<sup>30</sup> *Responses to the Zone Committee’s initial list of priority land and water issues in the Hurunui Waiiau zone*, 1 May 2017 workshop agenda.

### **Plan Implementation Issues**

- The 'change of land use' definition, and associated rule package (the "10% rule") meaning that low-emitting (dryland) land uses may exceed the permitted threshold due to annual fluctuations, when the primary land use has not changed in substance. This has resulted in the Council not actively 'enforcing' the potential consent requirement.
- Consents have not been reviewed to implement the Plan's minimum flows for the Hurunui and Waiau Rivers.
- There is a perception that there is no strong regulatory backing to require all farms to be at good management practice. However, the current rules do require the adoption of good management practices through the requirement for farms to join a collective with an approved Environmental Management System. As such, it appears that there is regulatory backing for GMP, but the existing plan provisions have not been fully implemented in relation to this.

### *Comments*

The latter two issues relate to aspects of the Plan that have not been implemented, rather than demonstrating an issue with the efficiency and effectiveness of the Plan provisions themselves. The former issue arises because the HWRRP only permits a "change in land use" where certain conditions are met, including that within the Hurunui catchment above SH1, specified DIN and DRP load limits are not exceeded. The definition of "change of land use" is:

*For the purposes of this Plan, a change in land use, is calculated on a per property basis, and is determined as being an increase greater than 10% in the long term average release of Nitrogen or Phosphorus to land which may enter water, measured on a kg/ha basis, but calculated on the gross load per property from the date this Plan is made operative.*

Where the load limits are not met, any change in land use becomes a non-complying activity. Anecdotal evidence is that the inputs and outputs on low-emitting (dryland) properties (for whom the threshold of change is lower) are subject to more change on an annual basis than a typical irrigated property (particularly dairy) and as such they would meet the definition of "change in land use" when the primary land use has not changed. As a result of this concern, ECan staff, alongside the HWZC, devised a Compliance Strategy which outlines an agreement to enforce the plan in a certain way. In essence, the approach taken is not to consider "normal" dryland farming as a change in land use, given that dryland farmers typically have low nutrient losses and their contribution to the nutrient load is insignificant. Guidelines have been developed to identify what kinds of practises/changes will be considered a "change in land use", such as increasing irrigation, converting to dairy, conversion to arable cropping and wintering of cows.<sup>31</sup>

Rule 10.1(b) of the HWRRP requires, in order for current land uses to be permitted, a record of nitrate-nitrogen and phosphorus losses for the prior four-year period to be submitted to the Council by 1 October 2016. This aspect of the Plan has not been implemented, and therefore there is no data available to verify the extent of the issue with the current 10% threshold, i.e. to confirm how many properties technically do not comply with the threshold regardless of their land use essentially

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<sup>31</sup> Advice Note - July 2015.

remaining unchanged. The current advice note approach has been based on technical advice received that concluded that the approach (taking into account improvements resulting from irrigation efficiency) would not reduce water quality.<sup>32</sup> This suggests that the approach taken should still achieve the Plan's water quality objectives, and addresses the perceived concern that the current Plan regime is inefficient and targeted to activities with minimal effects.

### **Concerns with Plan approach**

- There is a perception that the 10% rule is inequitable because for high-emitting land uses, the actual 'amount' of change that is allowed is much greater than for low-emitting users (for example, a 90kgN/ha/yr activity can increase by 9kgN/ha/yr, but a 10kgN/ha/yr activity can only increase by 1kgN/ha/yr)
- The HWRRP currently contains more comprehensive water quality limits for the Hurunui River than for the Waiau River.
- Smaller catchment like the Jed and Blythe catchments are subject to the same provisions in the HWRRP as the larger Hurunui and Waiau catchments
- A potential water storage option has been identified that under the current zoning is considered very difficult to consent.

### *Comment*

Each of the concerns identified with the approach taken in the Plan indicate, at the very least, a perception that there may be more efficient and effective ways of achieving the Plan's objectives with respect to particular aspects of the Plan. However, the assessment of the current Plan provisions does not indicate that the current approach is not achieving the Plan's objectives in relation to these aspects. In addition, any change to the Plan in relation to the identified concerns would need to be thoroughly tested, in accordance with Section 32 of the RMA, as to whether it is the *most appropriate* approach, considering all the Plan's objectives. By way of example, a change to the current nutrient management approach to address inequality would still need to demonstrate that the Plan's water quality objectives would be achieved and take into account the effects of any change on all land users. Similarly, providing a more enabling approach to a particular water storage proposal would need to demonstrate that such a proposal would be able to achieve the aims set out in objectives 2, 3 and 6.

### **Summary**

There are a range of external factors that have changed since the development of the HWRRP. This includes significant earthquake and drought events, which of relevance, have the potential to affect water quantity and quality. At this stage however, not enough is known about the effects of these to establish if they will result in the current Plan provisions being inefficient or ineffective. A number of plan implementation issues have also been identified. Those that relate to aspects of the Plan that have not been implemented mean that the effectiveness and efficiency of those provisions cannot be evaluated and therefore a conclusion cannot be drawn as to their effectiveness and efficiency. In relation to the '10% rule', it is noted that there is a high level of non-compliance with the land use provisions within the HWRRP, but that compliance efforts have been targeted to those areas where intervention is considered to have the greatest impact, rather than targeting efforts to technical non-

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<sup>32</sup> Brown, P. (2015). *Hurunui River nutrient modelling: impact of dryland intensification*. Memorandum to Ben Ensor - Hurunui, Waiau and Jed Nutrient Working Group.

compliances. This indicates the Plan framework in this area is inefficient and ineffective (or at the very least, there is a perception that this is the case).

Concerns have also been raised with some aspects of the current Plan approach, but it is noted that these do not relate to the current Plan provisions being inefficient or ineffective, rather they indicate that there is some support for alternate approaches. Such alternate approaches would however need to be investigated further in order to establish if they are likely to be more efficient and effective than the current provisions.

The Council has committed to notifying provisions to implement the relevant directives in the NPSFM within the Hurunui-Waiau sub-region by 2018/2019. As well as ensuring that the water quality and quantity provisions in the Plan adequately give effect to the NPSFM, this also provides an opportunity to revisit a number of implementation and Plan approach concerns raised.

## ***Part 7 – Conclusions and Recommendations***

### ***Introduction***

The purpose of this report has been, in response to Section 35 of the RMA, to assess the efficiency and effectiveness of the HWRRP. This assessment has been undertaken using five simple plan monitoring questions, with the summary for each set out below.

### ***Have we done what we said we'd do?***

The policies and rules in the HWRRP have generally been implemented through the consent process. However, there are two key areas where the Plan provisions have not yet been implemented. The first area relates to the minimum flow regime set in the HWRRP, whereby no review under Section 128(1)(b) has been undertaken to bring the minimum flow regime for all existing consents into line with those in the HWRRP. Instead, the minimum flow regime is being implemented incrementally as new consents are issued or existing consents expire and are renewed.

The second area relates to water quality, whereby the permitted activity rules for land use are largely unimplemented. This has resulted from issues being identified with the requirements, which ultimately relate to concerns about their efficiency and effectiveness. As a consequence, Environment Canterbury has taken an alternate approach to compliance which is focussed on achieving the Plan's water quality outcomes via more targeted means. This suggests that this is an area of the HWRRP that can be improved.

### ***Have we achieved what we said we'd achieve?***

The assessment of the achievement of the Plan's outcomes indicates that some of the outcomes that the HWRRP seeks to achieve are being achieved in part. However, there are a number of areas where a full assessment cannot be undertaken. Firstly, as identified above, there are aspects of the Plan that have not been implemented, meaning the effects of implementation cannot be measured. Secondly, the HWRRP has been operative for less than five years, meaning that longer term trends have yet to be identified. Thirdly, two larger-scale consents that have been issued under the HWRRP are yet to be fully implemented. Therefore, the effects of these two large developments cannot yet be measured.

### ***How do we know if our actions led to the outcomes observed?***

The compliance monitoring, enforcement and complaints information is unable to provide a picture of what aspects of the HWRRP (if any) are contributing to compliance or enforcement issues. This limits the ability to identify where the HWRRP may not be efficient or effective. In relation to water quality, there are also other factors that sit outside the HWRRP which affect water quality, which means it cannot be conclusively determined if the achievement (or non-achievement) of water quality outcomes is a result of the implementation of the HWRRP.

### ***Have we achieved the outcomes at reasonable cost?***

While there are limitations in the ability to assess the efficiency of the HWRRP, in an overall sense, the cost of the interventions in the HWRRP are comparable to in other catchments, and in particular stem from increasingly tighter controls nation-wide around farming activities that affect water quality. However, there are aspects of the HWRRP that the Council have identified may be inefficient and lack



the benefit intended, and this is reflected in the decisions made around where compliance efforts are focussed.

***Are we focused on the right issues?***

There are a range of external factors that have changed since the development of the HWRRP, including earthquake and drought events, both of which have the potential to affect water quantity and quality. However, it is too early to determine what these effects and their extent might be. The NPSFM has also been amended, which in time will necessitate changes to the HWRRP to fully give effect to it.

A number of plan implementation issues have also been identified. Those that relate to aspects of the Plan that have not been implemented mean that the effectiveness and efficiency of those provisions cannot be evaluated. In one instance (the '10% rule'), the Council has considered the potential for inefficiency in how it has chosen to target compliance efforts. This indicates the Plan framework in this area is inefficient and ineffective (or at the very least, there is a perception that this is the case). In addition to this, there are various concerns that have been raised with aspects of the current Plan approach. Analysis of these do not indicate that the current Plan provisions are inefficient or ineffective, rather that there is some support for alternate approaches, and these require further investigation before being able to determine if they are more efficient and effective than the current provisions.

***Overall Conclusion***

The conclusions reached in this report are limited in a number of areas, due to aspects of the Plan that have not been implemented, the impact of other matters outside the Plan framework, the lack of information that is specific to the HWRRP alone, and the limited timeframe within which the Plan has been operative. Notwithstanding this, there are provisions in the Plan which appear to be efficient and effective, and others, particularly those relating to land use, which appear to be lacking.

The Council is required to review the provisions in the HWRRP 10 years after it became operative. The Council will also need to revisit the HWRRP in terms of its obligations to give effect to the NPSFM, and any requirements introduced through the National Planning Standards. While this provides the Council with the opportunity to reconsider aspects of the HWRRP that are not as efficient or effective, there is also the opportunity for the Council to address any matters that are considered more urgent through a plan change process.

## Appendix 1 – Consent Examination

Since the HWRRP was notified, Environment Canterbury has granted various resource consents under the Plan. A number of these consents are associated with large scale irrigation projects (under Hurunui Water Project and Ngai Tahu Farming Ltd). These consents are yet to be implemented.

In order to assist in the assessment of the efficiency and effectiveness of the HWRRP's provisions, a selection of the s42A reports and decisions on resource consents were reviewed to determine whether the provisions of the HWRRP were appropriately considered and applied. This included:

- Whether the relevant objectives and policies of the HWRRP were considered.
- Whether the activity has been assessed under the most appropriate rule/classification and whether or not the matters of discretion have been appropriately considered if the activity is restricted discretionary.
- For water take and use applications, whether consideration was given to the requirement for a land use consent.

The following provides a summary of the type of consents and how these were examined.

### ***Surface water consents***

#### Dam water & Divert water

Only two new resource consents were granted for the damming of water and four for the diversion of surface water within the HWRRP area since the plan was notified. All of these consents are held by Hurunui Water Project and are part of a consent to construct and operate a community irrigation scheme with hydro generation capacity to irrigate 58,500 hectares of land in the Hurunui, Waipara and Kowai Catchments. The Project involves constructing four water-storage dams on the Waitohi River and on-plain storage and the scheme will operate as run-of-river, with water released from storage when run-of-river is unavailable. Water will be taken from the Hurunui River at four different locations, and from the Lower Gorge Dam on the Waitohi River. Given the scale of the consent, it was included in the evaluation undertaken.

An examination of the consent decision showed that applying a bundling approach, the consent was considered as a non-complying activity, but assessment was guided by the particular matters for discretion in the relevant rules. It also confirmed that all relevant objectives and policies were considered. While the consent did not include any change of land use consent (under the HWRRP rules), the decision extensively considered the potential effects on water quality from the change of land use that was expected to be enabled by the take and use of water, and in particular this was guided by the Plan's water quality objectives and policies.

The Hearing Panel considered that the decision as to whether to grant consent was finely balanced, but ultimately decided that the proposal was worthy of consent and should be granted. In particular, they considered that the scale of the adverse effects that would result raised serious questions about whether the proposal should proceed, but noted that many of these effects were simply unavoidable consequences of a large scale irrigation proposal of this sort, which they accepted provides positive economic benefits to the community. A critical factor in deciding to grant consent was that comprehensive conditions must be imposed and implemented to mitigate and offset the effects of the activity.

### Use surface water

One consent<sup>33</sup> was granted for the use of water (in isolation to any associated water take consent), relating to Amuri Irrigation Company Ltd's two existing irrigation schemes.

This resource consent provides for the use of water to irrigate up to 25,444 hectares within a command area, including allowing for an additional 5,000ha of irrigation within the command area, and conversion of remaining non-dairy land to dairy. The application was made (along with other applications) on the basis of consolidating the resource consents for, (some of which allowed for the 'take' but not explicitly the 'use' of water), and the irrigation areas of, AIC's two existing irrigation schemes.

An examination of the consent decision showed that applying a bundling approach, the consent was considered as a non-complying activity, but that the matters of discretion under Rule 2.3 were used as a guide for assessing the application for the use of water. It also confirmed that all relevant objectives and policies were considered. Consent was granted on the basis that increased nutrients from expansion of irrigation and intensification would be offset by irrigation efficiency improvements and therefore existing water quality would be maintained.

### Take and use surface water

Since the HWRRP was notified, 23 new consents to take and use surface water were granted by Environment Canterbury. The conditions of each of these consents were reviewed to determine whether or not they align with the flow restrictions and direction set out in the HWRRP. A selection of consents from each catchment (eight in total) were then randomly selected for detailed review to determine whether or not the relevant provisions of the plan were taken into consideration when assessing the application.<sup>34</sup> The review showed that:

- One application was determined as non-complying, with the remaining seven determined as restricted discretionary. However, it is not clear how the assessment of effects undertaken aligns with the matters of discretion, and in one instance, the matters considered extended beyond those specified.<sup>35</sup>
- The relevant objectives and policies of the Plan were identified and generally considered.<sup>36</sup>
- The assessment included consideration of the potential water quality effects resulting from the use of water, including whether a consequential land use consent was required, and assessment of the effects against the Plan's applicable water quality limits. In most cases, consent conditions included the requirement for a Farm Environment Plan to be prepared.

Environment Canterbury granted 18 applications to change the conditions of existing surface water abstraction consents. These were examined from the point of view of the application of the minimum flow restrictions. As the Council may only consider the effects of the change of the conditions, there is limited scope to change the minimum flow restrictions on the existing consents as part of an application to vary a condition of consent that is unrelated to flow restrictions. Notwithstanding this,

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<sup>33</sup> CRC153155.

<sup>34</sup> Waiau catchment: CRC090138 (Rutherford); CRC164213 (Parsons); CRC165671 (Robinson)  
Hurunui catchment: CRC132458 (Ngai Tahu Farming); CRC151811 (Huyton Farm); CRC165611 (Manuka Bay Farm); CRC154223 (HDC); CRC162764 (Earl).

<sup>35</sup> This consent was for a community and stock drinking water supply, for which the matters of discretion are more limited (Rule 2.2) from those for other take and use consents (Rule 2.3).

<sup>36</sup> Particular commentary around how Policy 2.5 was assessed is set out in Part 2.

three applicants sought to align the conditions of their existing water permits with the new minimum flow restrictions (as set out in Part 4 – Table 1 of the HWRRP).

Environment Canterbury granted 12 applications to transfer existing surface water abstractions from site to site.

### ***Summary of groundwater consents in the HWRRP area***

16 consent applications were granted for a change of conditions. Because the Council may only consider the effects of the change of the conditions (rather than considering the effects of the activity as a whole anew), only three of these were randomly selected for review.<sup>37</sup> In essence, consideration of the change was focussed around the potential effects on water quality and in all cases the change sought was not considered to trigger the requirement for a land use consent under the Plan's provisions.

23 applications to transfer water were granted. 15 of these consents were briefly looked at, and of these, all (100%) were transfers to new owner, rather than a site to site transfer, and therefore no further examination was considered necessary.

33 applications to take groundwater were granted. Six of these were randomly selected for review.<sup>38</sup> The review showed that:

- The applications were determined as restricted discretionary, discretionary or non-complying. Of those that with a restricted discretionary activity status, it is not clear how the assessment of effects undertaken aligns with the matters of discretion.
- The relevant objectives and policies of the Plan were generally considered, except as identified in the bullet point below. This included consideration of the potential water quality effects resulting from the use of water, assessment of whether a consequential land use consent was required, and assessment of the effects against the Plan's applicable water quality limits.
- For two consents, Policy 6.5 was not considered, despite these applications being restricted discretionary activities and the policy being expressly listed as a matter of discretion. In addition, one of the consents examined included a site to site transfer and the specific policies in the HWRRP relating to transfers were not identified or discussed.
- The degree of hydraulic connection was determined in accordance with the direction in the HWRRP, and where within the River Zone (less than 30m) or otherwise hydraulically connected, the relevant minimum flows, pro rata reductions and surface water allocation block was applied.

### ***Summary of Land Use consents in the HWRRP area***

Since the plan was notified, Environment Canterbury has granted 19 resource consents for farming activities.<sup>39</sup>

The total farmable land area within the jurisdiction of the plan is approximately 110,000ha. 16 of these consents are for individual farm properties, whereas three resource consents provide for the use of larger areas managed by Amuri Irrigation Company Ltd, Hurunui Water Project and Ngai Tahu Farming Limited.

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<sup>37</sup> CRC153518 (Hassall); CRC155118 (Smith); CRC162288 (Harrison).

<sup>38</sup> CRC091077 (Caithness Dairy Ltd); CRC092643 (Reklaw Farms Ltd); CRC122636 (Marle Vineyards Ltd); CRC144307 (NR Ensor Ltd); CRC144502 (Parnassus Dairy Ltd); CRC158120 (Medbury).

<sup>39</sup> As at the time of undertaking the Consents Examination.

A selection of the s42A reports and decisions on resource consents for farming activities were reviewed to determine whether the provisions of the Plan were appropriately considered and applied. As the relevant rules require compliance with limits in the Waiau catchment and in the Hurunui Catchment, with different limits applying upstream and downstream of the recorders on both mainstems, and again below SH1 on the Hurunui River, the following was undertaken:

- Consents were organised into “catchment area” (i.e. Waiau or Hurunui).
- Four consents were granted in the Hurunui Catchment upstream of SH1. Of these, three covered significant areas. Given the scale and significance of these consents, it was considered appropriate to review all four of these consents.<sup>40</sup>
- Seven consents were granted downstream of SH1 Hurunui, of which four were randomly selected for review.<sup>41</sup>
- Eight consents were granted in the Waiau Catchment, of which four were randomly selected for review.<sup>42</sup>

The review showed that:

- The applications were determined as restricted discretionary, or where determined as non-complying the matters for discretion were used in the assessment of the activity. The matters of discretion have all generally (but not always) been considered in the consents reviewed.
- The relevant objectives and policies of the Plan were considered.

Because of the scale of the application by Ngai Tahu Farming Ltd, it is summarised in more detail below.

The Ngai Tahu Farming Ltd consent is a water permit to divert, take and use water, a discharge permit to discharge water to water and a land use consent to change the use of land which may result in the discharge of nitrogen or phosphorus to water. Of particular importance, the change in land use application was for a highly developed dairy farm proposal - approximately 617 ha for dryland farming and up to 7,000 ha for irrigated dairy farming, with some 979 ha of Balmoral not grazed.

The overall application was considered as a non-complying activity. The relevant objectives and policies in the Plan were considered.

Ultimately, due to concerns about the effects on water quality, consent was granted for a reduced proposal. Despite the mitigation measures proposed, the Panel decided that granting consent to the highly developed farming proposal would have unavoidable and unacceptable adverse effects on the environment. This related to the nutrient losses expected from the land use change, and the effects of those losses on the quality of surface water. The Panel concluded that these effects would be contrary to HWRRP objectives and policies and higher order documents in relation to water quality.

However, in terms of application to take, divert and discharge water from and to the Waiau River, the Panel concluded that granting those consents, and allowing for a reduced development involving dryland farming and/or a limited dairying operation with a reduced or scaled back water take and limited irrigation area on Balmoral, was still possible. This was because the effects of that activity were acceptable and in accord with the objectives and policies relating to environmental flows, allocation

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<sup>40</sup> CRC153154 (Amuri Irrigation Company Ltd); CRC167980 (Shand); CRC172780 (Hurunui Water Project); CRC172842 (Ngai Tahu Farming Ltd).

<sup>41</sup> CRC171468 (Glenturret); CRC145201 (Grigg); CRC161747 (Le Pine); CRC165612 (Manuka Bay).

<sup>42</sup> CRC152775 (Apollo Dairy) (was previously CRC150677); CRC153324 (Chick); CRC164214 (Parsons); CRC164516 (Avondale Farm) (was previously CRC160896 and transferred to current holder).

of water, and efficient use of that water within the HWRRP and higher order planning documents. Because of the scale and nature of the consent, the consent duration was aligned with that in the existing AIC consents.