

**BEFORE THE CANTERBURY REGIONAL COUNCIL**

**UNDER** the Environment Canterbury  
(Temporary Commissioners and  
Improved Water Management)  
Act 2010

**IN THE MATTER** of the proposed Hurunui and  
Waiau River Regional Plan

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**STATEMENT OF EVIDENCE OF TONY HAWKER  
ON BEHALF OF  
THE NORTH CANTERBURY FISH AND GAME COUNCIL**

**12 October 2012**

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## 1. INTRODUCTION

### Qualifications and experience

- 1.1 My name is Tony Hawker. I have been employed with North Canterbury Fish and Game (**Fish and Game**) as the Environment Officer since 2008. I hold the qualification of Diploma in conservation and a National Certificate in Environmental Science. I have 12 years' experience in the environmental field with the Department of Conservation, Environment Canterbury and Fish and Game.
- 1.2 I was part of the working group that formed the "targets" under the Canterbury Water Management Strategy (**CWMS**). I am also a community appointment on the Hurunui Waiau Zone Committee (**Zone Committee**). In 2009, I presented evidence at the Special Tribunal hearing of the application for a Water Conservation Order for the Hurunui River on behalf of Fish and Game.
- 1.3 During my time with Department of Conservation I was the field supervisor for the Hurunui Mainland Island and was based in the headwaters of the Hurunui catchment for two years. Since my time at Fish and Game I have completed various surveys in both the Hurunui and Waiau catchments including salmon spawning, trout spawning, drift diving, lake trout population surveys and fish salvages.

### Scope of evidence

- 1.4 My evidence will address the following topics:
  - a. Functions of Fish and Game and involvement in previous planning processes for the Hurunui and Waiau catchments;
  - b. A summary of the values of the Hurunui catchment;
  - c. A summary of the values of the Waiau catchment;
  - d. The degradation of other fisheries in our region (North Canterbury);

- e. Fish and Game's view of the Zone Implementation Programme (ZIP);
- f. A summary of the changes sought by Fish and Game to the proposed Hurunui and Waiau River Regional Plan (HWRRP); and
- g. Response to Section 42A reports

## 2. EXECUTIVE SUMMARY

- 2.1 Fish and Game has been involved with various planning matters for the Hurunui catchment and has built up a wealth of knowledge and expertise in this area.
- 2.2 The Hurunui is a highly regarded fishery that is of national importance for brown trout habitat and angling. Salmon angling on the Hurunui is at least of regional importance. The high values of the Upper Hurunui catchment need to be protected by a no damming provision through the entire mainstem and the entire catchment above the confluence with Surveyors Stream.
- 2.3 The trout fishery values of the Waiau are also outstanding and are at least of regional importance. The salmon fishery on the Waiau is of regional importance. Fish and Game supports the no damming provision for the Upper Waiau catchment (above the Hope River confluence) and all of the Waiau mainstem.
- 2.4 Other fisheries in the North Canterbury Region have become severely degraded. These include the Lake Ellesmere fishery, Hororata, Hawkins, Selwyn, Ashley and Waipara Rivers. This places even more significance on the Hurunui and Waiau as outstanding fisheries.
- 2.5 The HWRRP relies heavily on the recommendations contained in the ZIP. Although the effort put in to formulate the ZIP is admirable, Fish and Game does not believe that the ZIP entirely gives effect to RMA Part 2 principles. This is due to a number of flaws in the collaborative process.

- 2.6 The flow regime notified in the HWRRP is of concern to Fish and Game. In particular the C block allocation creates significant flat lining of both the Hurunui and Waiau Rivers. Fish and Game seeks that the C block be removed from the HWRRP at this time and that allocation of additional water above the B allocation block be reconsidered through a further Plan Change process once assessment of an appropriate level of further allocation has been completed.
- 2.7 In the event that the C block is not removed from the HWRRP at this time, Fish and Game seeks that any abstraction from the C block be classified as a non-complying activity. Fish and Game also seeks several detailed changes to the flow regime in those circumstances.
- 2.8 Fish and Game agrees with the intent to introduce nutrient load limits for the Hurunui River. Fish and Game submits that land use controls need to be put in place to ensure that the nutrient load limits are not breached. For any new changes in land use these controls need to take effect immediately.

### 3. FISH AND GAME

- 3.1 The North Canterbury Fish and Game Council is one of 12 regional Fish and Game Councils established under section 26P of the Conservation Act 1987 for the purpose of the "...management, maintenance and enhancement of sports fish and game...".
- 3.2 The functions of Fish and Game Councils are set out in section 26Q of the Conservation Act. Fish and Game Councils are required to discharge their functions "...in the recreational interests of anglers and hunters" and, in relation to planning:
- i. "To represent the interests and aspirations of anglers and hunters in the statutory planning process"; and*
  - ...
  - vii. "To advocate the interests of the Council, including its interests in habitats" (section 26Q(1)(e) Conservation Act).*

- 3.3 The North Canterbury Fish and Game Council manages the fish and game resources and their associated recreational use in the area between the Rakaia and Waiau catchments, and the Southern Alps.

**North Canterbury Fish and Game Management Plan 2011-2021  
(NCF&GMP)**

- 3.4 The purpose of the NCF&GMP is "to establish objectives for the management of sports fish and game" within the North Canterbury region (section 17L(1) Conservation Act) and thereby set the framework within which the North Canterbury Fish and Game Council will meet its statutory functions and obligations.
- 3.5 In preparing the NCF&GMP, Fish and Game is required to have regard to:
- a. The sustainability of sports fish and game in the Fish and Game region;
  - b. The impact that the management of fish and game resources will have on other natural resources and users of the environment; and
  - c. Any provisions necessary to maximise recreational opportunities for anglers and hunters (section 17L(4) Conservation Act).
- 3.6 The NCF&GMP is an overarching document which identifies issues, objectives and strategies. From these a policy manual will be developed which will provide the detail on how to meet the objectives.
- 3.7 The introductory chapters (page 12) describe the Hurunui as "considered by many to be the best trout river fishery in the region, with most recreational attention focused on the reaches above the Mandamus confluence". Lake Sumner is also specifically mentioned in the same section as "a popular recreational lake which also provides an important rearing and breeding habitat supplying fish to

the productive Hurunui River trout fishery". The NCF&GMP also recognises the landscape values of the lake describing it as a "pristine environment of montane landscape and beech forest which is highly regarded by many of those who fish its waters".

- 3.8 The NCF&GMP recognises that the region is large with limited staff resources. As a result the NCF&GMP identifies high priority habitats for our RMA advocacy and species research. Both the Waiau and Hurunui catchments are recognised as primary sports fish habitats (page 17). The issues identified for these catchments include access, hydro-electric or water storage development, abstraction and land use impacts. The Waiau catchment also has the additional issue identified of potential overfishing.
- 3.9 The most relevant objective identified for habitat issues is to represent the interests and aspirations of anglers and hunters in the statutory planning process. Some of the key methods of implementation identified to meet this objective include (page 14):
- a. Seek to have the maintenance and enhancement of fish and game habitats considered in regional and territorial plans and other management documents;
  - b. Maintain close working relationships with the Department of Conservation and Environment Canterbury; and
  - c. Advocate for habitat protection through statutory and non-statutory processes.

**Involvement of Fish and Game in planning processes related to the Hurunui and Waiau catchments**

- 3.10 Fish and Game has been involved in a number of planning processes for the Hurunui and Waiau Rivers, including regional plan development, an application for a water conservation order, and the CWMS.

#### *Variation 1 to the NRRP*

- 3.11 In June 2004 Environment Canterbury notified Variation 1 to the Proposed Natural Resources Regional Plan (NRRP). Variation 1 included Chapter 5, which contained provisions controlling the taking, damming, diverting and use of water in the Hurunui and Waiau catchments. Hearings were conducted in 34 stages between September 2006 and June 2009. Fish and Game was a submitter on Variation 1 and presented evidence at the hearings.
- 3.12 Variation 8 was notified in August 2007 and included the flow and allocation limits for the Hurunui River to be inserted into Chapter 5. Submissions and further submissions were received but no officer's report was prepared or hearing date set. Variation 8 was withdrawn in October 2010.
- 3.13 The Environment Canterbury (Temporary Commissioners and Improved Water Management) Act 2010 (**ECan Act**) came into force on 13 April 2010. As a result, appeals on regional plan decisions can only be made to the High Court. It also requires decision makers to have "particular regard" to the vision and principles of the CWMS.
- 3.14 Decisions on a number of NRRP Variations, including Variation 1, were notified in October 2010. Those decisions were appealed to the High Court by a number of parties including, in relation to the Hurunui and Waiau catchments, Hurunui Water Project and Meridian Energy. Fish and Game became a party to both appeals, which were ultimately resolved by consent in May 2011. At that time all parties were aware that a further planning process was underway through the CWMS, and that the outcome of that process would be likely to ultimately replace the NRRP Variation 1 outcome.

#### *Application for water conservation order*

- 3.15 In parallel to their involvement in regional plan development, Fish and Game jointly applied for a water conservation order in respect of the Hurunui River (together with Whitewater New Zealand Incorporated).

That application was made in August 2007 and was heard by a Special Tribunal in March 2009. Fish and Game presented evidence from 17 witnesses in relation to hydrology, water quality, fisheries values, instream habitat values, fish passage, angling values and usage, landscape and planning. In August 2009, the Special Tribunal recommended that a water conservation order be confirmed for the Hurunui River.

- 3.16 That decision was the subject of ten appeals to the Environment Court, including an appeal by Fish and Game in relation to the outstanding characteristics to be recognised and the level of protection to be afforded to them. Evidence exchange and expert witness caucusing was to commence in April 2010.
- 3.17 The ECan Act specifically removed the jurisdiction of the Environment Court to hear and determine appeals in relation to the application for a water conservation order for the Hurunui River. At the time the ECan Act was introduced in April 2010 evidence preparation for the Environment Court hearing was underway, with evidence exchange and expert caucusing to begin within the month.
- 3.18 The ECan Act provided that a revised water conservation order application should be submitted to Environment Canterbury, addressing the new statutory requirement to have "particular regard" to the vision and principles of the CWMS.
- 3.19 Fish and Game and Whitewater New Zealand submitted a revised application in July 2010, and the period for making revised submissions closed in October 2010. However, the application was subsequently withdrawn in December 2010 to enable parties to focus on the CWMS process for the Hurunui Waiau Zone.



#### *CWMS process*

- 3.20 The Hurunui Waiau Zone Committee was the first zone committee to be established as part of the CWMS process. It was established in early 2010 and I was appointed as a community representative.
- 3.21 The Zone Committee met every three weeks and was charged with making recommendations on how to implement the targets of the CWMS. These meetings were open to the public and presentations by various parties and stakeholders were made at each meeting.
- 3.22 The formulation of the ZIP was a dominant part of the Zone Committee's discussions. The Zone Committee used a consensus approach to determine what the recommendations in the ZIP should contain. The recommendations are meant to lay the foundation for the implementation of the targets of the CWMS. Most of the recommendations were to ECan to be implemented in the HWRRP.
- 3.23 Because I was a community representative on the Zone Committee rather than a Fish and Game advocate, it was considered appropriate that the Zone Committee consulted separately with Fish and Game. There were three occasions when this took place. The first round of consultation involved a meeting between Zone Committee and Fish and Game staff members before the ZIP was drafted. The second round of consultation occurred when Fish and Game were invited to meet with the Zone Committee to give feedback on the draft ZIP. Thirdly I presented an overview of the fisheries resources in the Hurunui Waiau Zone at a Zone Committee meeting. This presentation was only an overview of the values and did not give feedback on how the ZIP or Zone Committee's recommendations may affect those fishery values.
- 3.24 The ZIP was finalised in July 2011. I discuss particular recommendations within the ZIP and my reservations about the ZIP process further in section 7 of my evidence.

#### **4. VALUES OF THE HURUNUI CATCHMENT**

- 4.1 Throughout my evidence a number of reaches will be consistently referred to. The Upper Hurunui refers to all parts of the river, the lakes and contributing waters, above the confluence of the Mandamus River. The North Branch refers to that section of the river above Lake Sumner. I note that in the HWRRP and other evidence the section of the mainstem from the outlet of Lake Sumner to the confluence with the South Branch is also referred to as the North Branch. The Lower Hurunui refers to all parts of the catchment below the confluence with the Mandamus River.
- 4.2 The Upper Hurunui Waters (including lakes) remain largely in their natural state. These waters are widely recognised as having nationally significant habitat, fishery, wild and scenic, ecological, recreational and cultural values. Many of these waters are readily accessible from Christchurch and contribute to amenity values at regional, national and, through tourism, international levels. Other parts of these waters are remote and inaccessible, for which they are also highly valued. Fish and Game's position is that the Upper Hurunui should be preserved in its natural state above the confluence with Surveyors Stream.
- 4.3 While the Lower Hurunui River is not considered to be in its natural state, it contributes to the outstanding brown trout habitat and fishery in the Upper Hurunui by providing rearing habitat and fish passage. Fish and Game believe that this contribution needs to be protected.
- 4.4 The values of the Hurunui catchment have been assessed and recognised through a range of reports, plans and decisions. My evidence will specifically focus on salmonid habitat, angling, recreation and landscape values.

##### **Salmonid habitat**

- 4.5 Dr Roger Young and Mr Ross Millichamp provide detailed evidence on the Hurunui trout and salmon habitat. An overview follows.

- 4.6 The Hurunui lakes provide habitat for juvenile and adult brown trout, in addition to providing additional spawning habitat. The lakes also provide passage for trout from the mainstem to tributaries of the lakes. The exceptions are Lake Marion, which is known to not support any trout, and Lake Mary and Raupo Pond, which are considered unlikely to support any trout.
- 4.7 As a reflection of the quality of the lake habitat, Fish and Game does not currently stock any of the Hurunui lakes. Stocking lakes is common practice in other areas in Canterbury and is a necessary requirement in the high county lakes of the Rakaia and Waimakariri to keep up with angler harvest. The Hurunui lakes however, rely totally on wild stocks for recruitment. Fish and Game believes that the wild populations are adequate to provide the current level of angler harvest despite the high use.
- 4.8 All tributaries are considered to provide important juvenile rearing habitat and spawning habitat, while larger tributaries such as the North Branch and the South Branch also provide holding water suitable for large adult trout.
- 4.9 The contributing creeks and streams serve as trout nurseries for the wider Upper Hurunui fishery. These waters provide many kilometres of clean gravels suitable for trout spawning and Chinook Salmon while particularly high numbers of juvenile trout reside in small feeder creeks, indicating they are of significance as juvenile rearing habitat. It is considered these smaller creeks also provide refuge for adult trout during high flow periods.
- 4.10 The mainstem of the Hurunui River from the Lake Sumner outlet to immediately above the confluence with the Mandamus River supports high numbers of brown trout, particularly in the stable environment at and below the Lake Sumner outlet.
- 4.11 The aquatic habitat for brown trout at and below the Lake Sumner outlet is thought to be optimal due mainly to water clarity and to the

flow-stabilising influence of Lake Sumner, which acts as a natural buffer against the effects of floods on downstream river flow<sup>1</sup>. The lake may also enrich the reach immediately below the outlet with plankton, thus benefiting invertebrate production. The presence of numerous riffles in this reach also suggests superior conditions for the production of invertebrates, which are likely to be the primary food source for trout in the Upper Hurunui River.

- 4.12 The Special Tribunal concluded that there was strong and consistent evidence to find that the North Branch (and contributing waters), Lake Sumner and Lock Katrine and the Hurunui mainstem from the Lake Sumner outlet to the South Branch confluence collectively provided outstanding habitat for brown trout, an outstanding brown trout fishery and outstanding angling (paragraph 162). The Special Tribunal recommended that these waters be preserved in their natural state. The Special Tribunal found that the other waterways upstream of the Mandamus confluence provided excellent opportunities for angling or supported high populations of trout (paragraph 164).
- 4.13 It is considered likely that trout in the Upper Hurunui waters will travel throughout the river system at various stages of their lifecycle. The Lower Hurunui River therefore contributes to the habitat in the Upper Hurunui waters by increasing the available rearing habitat.
- 4.14 The Special Tribunal considered that the contribution the lower river made to the upper river trout fishery warranted measures to ensure fish passage throughout the mainstem, concluding:

166. *...the Tribunal finds that the movement of trout through the Hurunui catchment is extensive and contributes to the sustainability of the fishery, and that the Hurunui River downstream of the South Branch confluence contributes to the outstanding trout fishery of the Hurunui mainstem upstream of*

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<sup>1</sup> Bonnett, M.L. & C.R. Docherty (1985). "An assessment of trout stocks in the upper Hurunui River." *Fisheries Environmental Report No. 57*. N.Z. Ministry of Agriculture and Fisheries: Wellington.

*the South Branch confluence. In recognition of this finding, a prohibition on dams from the South Branch confluence downstream to the Hurunui river mouth, excluding tributaries, would be consistent with achieving protection of the recognised outstanding trout fishery values of the Hurunui catchment above the South Branch confluence.*

### **Angling values**

- 4.15 Fishing is one of the most common recreational pursuits on the Hurunui River. The Hurunui supports an internationally recognised trout fishery and a significant salmon fishery (fifth most fished salmon run in New Zealand). Angling effort is generally evenly spread between trout and salmon with numbers of salmon anglers being highly dependent on the size of the year's run. With the dwindling size of salmon runs in Canterbury rivers, the stable trout population in the Hurunui River is gaining even more significance for the anglers of the Canterbury region and wider.
- 4.16 Mr Peter Robinson, Mr Malcolm Bell, Mr Murray Rodgers, Mr Les Hill, Mr Ross Millichamp and Mr Martin Unwin provide evidence on the trout and salmon angling values of the Hurunui River. Angling values, by reach, are summarised below.

#### *North Branch (above Lake Sumner) and South Branch*

- 4.17 Angling values in the North Branch and the South Branch of the Hurunui River are both classified as trophy headwater brown trout fisheries<sup>2</sup>. Each support populations of large brown trout, with catch information from one fishing guide, Chappie Chapman, who keeps a comprehensive catch diary, suggesting the average size of fish caught in these waters may be over 6lb (2.7kg) in weight and 25 inches in length<sup>3</sup>.

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<sup>2</sup> Jellyman, D.J. and Graynoth, E. (1994). "Headwater Trout Fisheries in New Zealand." *New Zealand Freshwater Research Report No. 12*. NIWA: Christchurch.

<sup>3</sup> Chappie Chapman pers comm, 2006

- 4.18 Anecdotal evidence suggests most users are either guides and their clients, or discerning expert anglers. One angling guide stated that over 90% of his clients who fished the headwaters were overseas visitors (Chappie Chapman, pers. comm., 2007).
- 4.19 The headwater fisheries are likely to be preferred by anglers seeking a 'wilderness' experience, who value the high scenic values of the river and its surrounding landscapes.
- 4.20 The North Branch provides an outstanding trophy backcountry fishery opportunity for anglers. The river is a freestone river generally providing stable water with the occasional very large pool when the river runs along the edge of a hill or stable bank.
- 4.21 Trout numbers can be variable in this part of the river. Anglers have reported some outstanding days when there are many large fish present in the river. It is believed that fish migrate up the North Branch from elsewhere in the catchment boosting numbers.
- 4.22 As referred to above, the Special Tribunal which considered the application for a water conservation order found that North Branch and contributing waters provided nationally outstanding habitat for brown trout, supported a nationally outstanding brown trout fishery and provided outstanding angling<sup>4</sup>, noting that<sup>5</sup>:

*The North Branch is claimed to offer an outstanding headwater or backcountry, remote fishing experience. A key characteristic of this type of fishery includes the ability to observe and target large actively feeding fish, outstanding scenery and clear water. The ability to target individual fish compensates for the comparatively low number of fish. Expert evidence by anglers supported this claim...".*

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<sup>4</sup> Recommendation of the Special Tribunal on an application for a water conservation order for the Hurunui River, paragraph 162

<sup>5</sup> Paragraph 144

- 4.23 Fish and Game considers that the South Branch also offers outstanding backcountry fishing. Fish numbers are more reliable in the South Branch than in the North Branch above Lake Sumner. The river is also slightly smaller and more stable than the North Branch. The larger fish that inhabit the South Branch also migrate there from other areas in the catchment.
- 4.24 The South Branch also offers outstanding variety in different water. There is the gorge that extends from the confluence with the Mainstem which offers many pools holding fish. There is a section in the upper reaches where the river becomes more open and braided. This still offers good fishing as there is stable water holding trout wherever the river runs along a bank.
- 4.25 The South Branch also contains the Lake Mason fishery. These shallow lakes offer some very challenging lake fishing. Lake Mason holds good numbers of large trout.

#### *Hurunui Lakes*

- 4.26 Lake Taylor would be the most popular for angling out of the Hurunui Lakes. This is demonstrated by the results of angler surveys which will be presented in Mr Martin Unwin's evidence. There is public access via a road all around the South Western edge. There is also a DOC campground on the shores of the lake. Water clarity is exceptional offering fly or spin fishing to sighted trout. There are good numbers of medium to small fish.
- 4.27 Lake Sheppard lies fairly close to Taylor, and is regarded by Fish and Game as a better fishery producing more fish in better condition. This assessment has been made by Fish and Game staff. The exact reason for this is still unclear as it could be related to less angling pressure or lake productivity. Access is by private farm track through the Lakes Station. Lake Sheppard also offers exceptional clarity.
- 4.28 Loch Katrine is also a popular fishery as there is public access right to the shore. Anglers can take their boats from Loch Katrine through to

Lake Sumner. Lake Sumner is more popular for trolling techniques due to its size. As referred to above, the Special Tribunal found that Lake Sumner and Loch Katrine were nationally outstanding for habitat for brown trout, brown trout fishery and angling, and for their contribution to the brown trout fishery. In respect of the contribution to the brown trout fishery, the Special Tribunal stated:

147. *Lake Sumner clearly makes a major contribution to the outstanding characteristics of the mainstem of the Hurunui downstream from Lake Sumner to the South Branch confluence. Lake Sumner is one of only six lakes greater than 10 km<sup>2</sup> on the South Island that retains a natural lake outlet (Dr Young's evidence). Mr Stewart's evidence clearly demonstrated that the lake has a significant moderating influence on downstream river flows. Numerous anglers commented that sediment carried down the North Branch in floods settles out in the lake, allowing both the lake and river downstream to the South Branch confluence to remain fishable in almost all weather. Evidence presented by Dr Young indicates water clarity downstream of Lake Sumner is consistently high. Dr Young also presented bioenergetic and otolith microchemical evidence that Lake Sumner provides an important rearing and growth habitat for trout.*

- 4.29 All the Hurunui lakes (excluding Marion, Mary and Raupo Pond) offer a very scenic fishing experience with exceptional water quality and clarity. Trout stocks are excellent and the lakes provide ideal rearing habitat for juvenile trout.

*Mainstem from Lake Sumner outlet to immediately above the confluence with the Mandamus River*

- 4.30 The main stem below Lake Sumner offers superb fishing in fast clear water. The river is reasonably large with plenty of runs, riffles and pools for holding water for trout. As the substrate is a mixture of bed rock, fine gravels and large boulders it offers many trout lies making the fishing interesting.



- 4.31 The mainstem of the Hurunui River from the Lake Sumner outlet to immediately above the confluence with the Mandamus River supports high numbers of brown trout, particularly in the stable environment at and below the Lake Sumner outlet.
- 4.32 The aquatic habitat for brown trout at and below the Lake Sumner outlet is thought to be optimal due mainly to water clarity and to the flow-stabilising influence of Lake Sumner, which acts as a natural buffer against the effects of floods on downstream river flow (Bonnett & Docherty, 1985). As mentioned earlier, the lake may also enrich the reach immediately below the outlet with plankton, thus benefiting invertebrate production.
- 4.33 It is also likely that anglers value the reliability of the angling experience in the mainstem above Mandamus. The flow moderating effect of Lake Sumner creates unusually stable flows in the mainstem above the confluence with the South Branch. This is likely to minimize the frequency of time that an angler will encounter unacceptably high or low flows in this reach. The extent of fishable water in the mainstem above Mandamus also reduces the possibility of user conflict.
- 4.34 Only a short walk is required to the river where the Lake Sumner Road passes close to the river between the Sister's Stream confluence and the top of Maori Gully. Above that reach, more walking is required which reduces the risk of user conflict. Access is more restricted to the wild, remote and scenic gorged reaches from Maori Gully to immediately above the Mandamus River confluence. However, these difficult to reach waters can be accessed by kayaking or raft, while foot access may be possible overland to certain reaches with the permission of the landowner.
- 4.35 The reach of the Hurunui River mainstem downstream from the outlet of Lake Sumner to the Mandamus confluence has been subjected to regular drift diving surveys. Dr Roger Young will discuss the results of these surveys in greater detail. The results of drift dive surveys were considered by the Special Tribunal, who found:

151. *The river conditions in the Hurunui River between Lake Sumner and the South Branch confluence clearly support an exceptional abundance of large brown trout as described in the evidence presented by Dr. Young. Drift dive surveys completed as part of the 100 Rivers Survey (Teirney & Jowett 1990) found that this reach of the river ranked it amongst the rivers supporting the highest densities of trout in the country (second highest after the Buller in 1988). Nationally, of the rivers for which long term (>10 years) drift-dive surveys of trout abundance are available, the Hurunui at the Lake Sumner outlet ranked first of the 24 rivers for which this type of data was available. The Hurunui at Jollie Brook ranked third in this list. The detailed summary of drift-dive surveys completed downstream of the Lake Sumner outlet presented by Mr Ross also supported the argument that the number and average size of trout at this location is exceptional. Both Drs Burrell and Keesing concurred that, on the basis of the evidence presented, trout densities downstream of Lake Sumner could be regarded as nationally outstanding.*

- 4.36 The Special Tribunal found that the mainstem from the Lake Sumner outlet to the South Branch confluence provided outstanding angling.

#### *Lower Hurunui River*

- 4.37 Below the Mandamus confluence, the Hurunui River mainstem supports a regionally significant trout fishery, but also a regionally significant salmon fishery. The Hurunui salmon fishery is the most significant in New Zealand outside of the nationally significant “big four” (being the Waitaki, Rangitata, Rakaia and Waimakariri).
- 4.38 As referred to above, the lower river also supports the nationally significant upper river trout fishery. This is because many trout which spawn in the upper catchment are likely to use the lower river to mature, and may also return to and from the lower river as adults.

*Flows required for angling on the Hurunui River*

- 4.39 Flows cater for all styles of anglers. The difference in flows in the Hurunui represent different opportunities. Anglers are a sensitive recreational group when it comes to river flows.
- 4.40 Flows of above  $15\text{m}^3/\text{s}$  make it very difficult to fish the reach of river immediately above the Mandamus confluence. Anything higher than this makes the river hard to negotiate as it is quite confined in this area. Wading and negotiating the river becomes too dangerous above these flows as the crossing are too deep and swift. Fishing requires walking upstream, sometimes for many kilometres. If you cannot negotiate the river you have very limited fishing opportunities. Flows above  $15\text{m}^3/\text{s}$  also make it hard to negotiate the gorge upstream from SH1 for the same reasons.
- 4.41 It is **not very often that the Hurunui does flow below  $15\text{m}^3/\text{s}$** . It is usually around late summer when this occurs. **When it does this it offers a brief opportunity to explore some gorgy reaches of the river that do not get fished over as much.**
- 4.42 The mainstem below Lake Sumner is considered fly fishable when it is under  $30\text{m}^3/\text{s}$ . Any more than this and the river starts to become too "heavy" for optimal fly-fishing. The water becomes too fast and too big to fish effectively with the fly. It also makes it very hard to spot fish. Once the river is too high for fly-fishing there is the option of fishing the Hurunui Lakes or changing to spin fishing techniques.
- 4.43 Spin anglers will favour higher flows and a bit of turbidity in the river. It is during higher flows that the river is more productive for spin angling. This technique can also be very effective after a fresh has gone through the river and it is starting to recede.
- 4.44 It is worth noting that the flows I have mentioned above are probably a reflection of my own experience on the river. This is the information that I would give to stakeholders enquiring about ideal flows. It is not representative of all anglers' views. In fact I would encourage you to

ask our expert anglers what flows they prefer if they have not mentioned it. You would probably get a variety of answers. This would also demonstrate the importance to anglers of keeping a natural state flow to ensure this variety is catered for.

- 4.45 To modify the river in any way and try to produce a flow to suit any particular style would very hard to do. The Hurunui offers great variety for all ages and skill levels and keeping the natural flow of the river is vital to ensure that this opportunity continues.

### Recreation values

- 4.46 The Hurunui River mainstem – from Lake Sumner to the Mandamus confluence – has been consistently described as of national significance for recreation, particularly angling and kayaking, in relevant publications<sup>6</sup>. Regional publications have repeated or supported these findings, and have added more consideration of the Hurunui Lakes<sup>7</sup>. Other documents describe the general importance of the Hurunui River mainstem to angling and kayaking<sup>8</sup>. Many of these documents refer to the regionally important opportunities to tramp, picnic, camp, boat and drive in the upper Hurunui catchment.

<sup>6</sup> Greenaway, R. (2001). *Hurunui River Recreation Study 2000/01*. Report to Environment Canterbury and North Canterbury Fish and Game Council. ECan report no. U01/19. Christchurch., Ministry for Environment (2004). *Water Bodies of National Importance – Potential Water Bodies of National Importance for Recreation Value*. MfE: Wellington., Ministry of Tourism. (2004). *Waters of National Importance for Tourism*. Ministry of Tourism: Wellington., Grindell, D.S., Guest, P.A. (1986). "A list of rivers and lakes deserving inclusion in a schedule of protected waters: Report of the Protected Waters Assessment Committee.", Teirney, L.D., Unwin, M.J., Rowe, D.K., McDowell, R.M., and Graynoth, E. (1982). Submission on the draft inventory of wild and scenic rivers of national importance, *Fisheries Environmental Report No. 35*. NZ Ministry of Agriculture and Fisheries: Wellington.

<sup>7</sup> Department of Conservation (1994). *Recreation Strategy for Canterbury Conservancy*. DOC: Christchurch.  
Department of Conservation (2002). *Canterbury Conservation Management Strategy*.  
Bonnett, M.L., Davis, S.F., and Unwin, M.J. (1991). *Angler Surveys of the Hurunui River, 1979/80 – 1981/82*. N.Z. Freshwater Fisheries Report No. 123.  
Teirney, L.D., Richardson, J. and Unwin, M.J. (1987). *The Relative Value of North Canterbury Rivers to New Zealand Anglers*. NZ Freshwater Fisheries Report No. 89. MAFFish: Wellington.

<sup>8</sup> Galloway, S. 2008. *New Zealand Recreational River Use Study: Specialization, Motivation and Site Preference*. School of Physical Education University of Otago. Charles, G. 2006. *New Zealand Whitewater, 125 great kayaking runs*. Craig Potton Publishing. Egarr, G. 1995. *New Zealand's South Rivers, A Guide for Canoeists, Kayakers and Rafters*. Nikau Press. Daly, A. 2004. *Inventory of Instream Values of the Rivers and Lakes in Canterbury*. Environment Canterbury U04/13. Environment Canterbury 2004. *Proposed Canterbury Natural Resources Regional Plan (NRRP)*. ECan, Christchurch.

- 4.47 There is clearly a historical consensus regarding the scale of importance to recreation of this part of the Hurunui River mainstem and the Hurunui Lakes. That is, the various lakes and reaches of the river are considered nationally important for angling and kayaking specifically, and the ability to do a variety of activities in an accessible setting with notable natural features, justifies a general classification of the Upper Hurunui River, as being of national importance for recreation.
- 4.48 I will provide a summary of the relevant sections of these various publications below.

*Assessments completed in the 1980s*

- 4.49 Teirney et al.<sup>9</sup> focused on angling values and considered the upper Hurunui, above the Mandamus confluence but excluding the South Branch. They concluded that the upper Hurunui had "all the attributes of a nationally important scenic river fishery". In reaching this conclusion, they noted that the river was "by far the most highly regarded trout fishery in the region" and also supported a salmon fishery of regional or local importance. Scenic beauty and solitude were considered outstanding, and "an unusually high proportion of anglers (60%) noted camping as an associated activity, with tramping, shooting, canoeing, and picnicking each being listed by 25-30% of the survey respondents".<sup>10</sup>
- 4.50 Grindel (1984)<sup>11</sup> and Grindel and Guest (1986)<sup>12</sup> considered a range of recreational, cultural, biological and scenic values and both identified the upper Hurunui River as nationally important.

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<sup>9</sup> Teirney, L.D., Unwin, M.J., Rowe, D.K., McDowall, R.M., Graynoth, E. 1982. *Submission on the draft inventory of wild and scenic rivers of national importance*. Ministry of Agriculture and Fisheries. Fisheries Environmental Report No. 28

<sup>10</sup> See pages 44-45

<sup>11</sup> Grindel, D.S. (ed) 1984. *A national inventory of wild and scenic rivers*. Water and Soil Directorate, Ministry of Works and Development. Water and Soil Miscellaneous Publication No. 68

<sup>12</sup> Grindel, D.S. Guest, P.A. (eds) 1986. *A list of rivers and lakes deserving inclusion in a Schedule of Protected Waters*. Report of the Protected Waters Assessment Committee. Water

- 4.51 Grindel (1984) considered only rivers in their 'natural' state, in the sense that they were 'outside the effects of water control or use'. The assessment considered scenic, recreational, wild, and biological / scientific / cultural values, with the latter identified as the primary reason for defining the Hurunui River above the Mandamus confluence as nationally significant. Recreational values associated with shooting, camping, tramping and fishing were also noted.
- 4.52 Grindel and Guest (1986) considered lakes as well as rivers, and included modified waterways. They classified the Hurunui River from its source to the confluence of the Mandamus, including Lake Sumner, as a 'Group one' waterway, being the highest in a three tier system for classification of importance. This classification was based on a finding that the upper Hurunui was outstanding for its wilderness, scenic, recreational, fishery, wildlife and cultural values. Recreational values were recorded as including salmon and trout fishing, shooting, camping, tramping, canoeing, rafting and jet boating.

#### *New Zealand Freshwater Fisheries Reports*

- 4.53 In the 1980s a series of New Zealand Freshwater Fisheries Reports was issued with the aim of identifying and assessing the local and regionally significant angling rivers of each region. These studies complemented the *Submission on the draft inventory of wild and scenic rivers of national importance* (Tierney et al 1982, discussed above).
- 4.54 The Fisheries Environmental Report No. 89<sup>13</sup> reported on findings of a postal survey about North Canterbury rivers. Of the 869 anglers who responded from the North Canterbury Acclimatisation Society district<sup>14</sup>, 111 had fished the Hurunui River for trout and 104 had fished for

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and Soil Directorate, Ministry of Works and Development. Water and Soil Miscellaneous Publication No. 97

<sup>13</sup> Tierney et al. 1987

<sup>14</sup> A target population of 1557 was randomly selected from 11,325 holders of whole season adult licence holders

salmon. Twenty-nine percent of respondents on the Hurunui River fished for salmon only, 34% fished for trout only, and 37% fished for both. The average annual number of trips for trout anglers was 5.3 and for salmon 5.7. The upper and middle reaches were most popular for trout fishing, while the lower and middle reaches were most popular for salmon fishing.

- 4.55 Trout anglers assessed the Hurunui River on a 5 point scale as being very remote, having average access, above average fishable area, high scenic beauty, high solitude, an average catch rate and average size of fish. Overall, the river was rated as of 'very high' importance for trout (5 on a 5 point scale).
- 4.56 Salmon anglers assessed the Hurunui River as being moderately remote, having average access, average fishable area, above average scenic beauty, above average solitude, a low catch rate but very large size of fish. Overall, the river was rated as of 'high' importance for salmon (4 on a 5 point scale).
- 4.57 In relation to wider recreational interests, the report found<sup>15</sup>:

*Respondents rarely confined their recreational activities on the Hurunui to fishing. This river was extraordinarily popular with anglers for a range of activities. More than 40% of the salmon respondents enjoyed the scenery, camped, or picnicked, and more than 20% combined fishing with swimming. Almost 60% of the trout respondents specifically mentioned enjoying the scenery, and, in contrast to salmon anglers, preferred camping to picnicking, particularly in the headwaters. Hunting and tramping were more often combined with trout angling than with salmon angling, but swimming was equally popular with both groups.*

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<sup>15</sup> Pages 39

4.58 The authors concluded<sup>16</sup>:

*The upper Hurunui qualifies on all counts as a scenic river fishery of national importance, worthy of being protected in its existing state, and it is also noteworthy for hosting a wide range of other recreational activities. Like the Waimakariri and Rakaia trout fisheries, the Hurunui salmon fishery is regionally significant.*

#### *Summary of Angler Surveys*

4.59 Postal surveys of Hurunui River anglers were carried out over three seasons between 1979 and 1982. Questionnaires were sent to 3825 license holders within the North Canterbury Fish and Game region, with an average of a 90% response rate over the three periods.

4.60 The results of those surveys were summarised by Bonnet et al<sup>17</sup>, with an estimate of angler effort, in angler days, and total number of anglers made for each season as follows:

- a. 1979/80: 19,700 ± 6392 angler days, 2665 ± 335 anglers;
- b. 1980/81: 15,900 ± 3980 angler days, 2646 ± 317 anglers;
- c. 1981/82: 23,657 ± 7026 angler days, 3094 ± 357 anglers.

4.61 The river was divided into seven zones and a summary of the distribution and effort of anglers at that time provided<sup>18</sup>:

**Zone A (river mouth)** attracted the most angling effort, was the most popular area for salmon fishing, and accounted for the greatest proportion of the salmon catch. It was moderately popular for trout fishing, and contributed a modest proportion of the trout catch. The popularity of the river mouth area for

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<sup>16</sup> Page 64

<sup>17</sup> Bonnett, M.L., Davis, S.F., Unwin, M.J. 1991. *Angler surveys of the Hurunui River, 1979/80 – 1981/82*. New Zealand Freshwater Fisheries Report No. 123. MAF Fisheries, Christchurch.

<sup>18</sup> Page 14



*salmon fishing is typical of Canterbury salmon rivers, most of which provide good access for fishing. This area caters for other recreational activities (such as whitebaiting), and there is a small "holiday home" community;*

**Zone B (mouth to SH1)** *was popular for salmon and trout angling, but received only a moderate proportion of the total effort; although many anglers fished there, few did so often, which may account for the modest proportion of the salmon and the low proportion of trout caught there;*

**Zone C (SH1 to Mandamus)** *was popular for salmon and trout angling, and attracted more effort than any other zone, with the exception of Zone A. The proportion of the salmon catch taken there was high, but the proportion of the trout catch was only average. Its popularity may be a reflection of its size (it was by far the largest zone in the survey) and its relatively good access;*

**Zone D (Mandamus to the confluence of the North and South Branches)** *was only moderately popular for salmon and trout angling. It received relatively little effort (possibly because access to much of the zone is difficult), but accounted for reasonable proportions of the salmon and trout catch;*

**Zone E (the South Branch, including Lake Mason)** *was the least popular zone for either salmon or trout fishing, and attracted the lowest proportion of the angling effort. It contributed the lowest proportion of the salmon catch (during the 1981/82 fishing season, no salmon were caught in Zone E by the anglers surveyed), and almost the lowest proportion of the trout catch. Access to much of Zone E is more difficult than to any of the other zones, and this branch of the river is relatively unstable, being more prone to flooding and water discolouration;*

**Zone F (the North Branch from the confluence to, but not including, Lake Sumner)** was popular for trout angling, but not for salmon angling. It received a moderate proportion of the total effort, and produced the second highest proportion of the trout catch. This area is most likely to appeal to dedicated anglers, because access to much of the zone is difficult. The area is highly regarded by trout anglers, because it supports a high quality lake-outlet fishery. Its unpopularity for salmon fishing is reflected in the low catch of salmon;

**Zone G (North Branch above, and including, Lake Sumner and Loch Katrine)** was similar to Zone F; it was popular only for trout angling, and attracted a moderate proportion of the total effort. Access to this area is quite difficult. It contributed the highest proportion of the total trout catch (note that this zone included Lake Sumner), but a low proportion of the total salmon catch.

- 4.62 Mr Martin Unwin will discuss the results of National Angler Surveys undertaken in 1979/81, 1994/96, 2001/02 and 2007/08 in his evidence.

*Department of Conservation*

- 4.63 The Department of Conservation (DOC) manages the Lake Sumner Conservation (was Forest) Park within the Hurunui and Waiau catchments. The Recreation Strategy for Canterbury Conservancy<sup>19</sup> addresses the significance of the recreation opportunities managed by the DOC Hanmer Field Centre<sup>20</sup>.

- 4.64 In relation to regionally significant activities, the Strategy noted:

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<sup>19</sup> Department of Conservation. 2004. *Canterbury Conservancy recreation opportunities review submissions analysis and decisions*. DOC, Wellington.

<sup>20</sup> Pages 34-36

*The Upper Hurunui Lakes and Lake Sumner Forest Park is a highly significant outdoor adventure playground, particularly for local people from Hawarden/Waikari, but also for people from Rangiora, Kaiapoi and Christchurch. There is a huge range of activities in this area, because of the diverse natural resource base, the lakes and Hurunui River and their joint fish resource, the proximity of Lake Sumner Forest Park and its recreational hunting area, and the existence of the 4WD access roads. The most popular activities are water and boat based recreation such as waterskiing, fishing, motorboating and canoeing, and traditional backcountry recreation such as tramping, hunting and camping. Other activities include walking, photography, nature appreciation, picnicking, horse riding, windsurfing, sailing and gamebird shooting. The off-road vehicle and mountain biking opportunities are better and more readily available here than in most other parts of Canterbury. However conflicts with other visitors need to be resolved.*

4.65 In relation to activities of 'national and international' significance, the Strategy noted:

*The Hurunui River has a national grade slalom course. It is very popular with canoeists from throughout Canterbury, as well as having hosted the South Island and national slalom champs. It has highly significant trout fishing opportunities, with a high use and notable scenic beauty and solitude (Teirney et al. 1989).*

*The track up the Hope River to Kiwi Stream, Lake Sumner, Hurunui River and Harper Pass to the Taramakau in Arthur's Pass National Park has potential for development as a significant named tramping track popular with both international and domestic backpackers.*

*Environment Canterbury / Fish and Game study – 2001*

4.66 Greenaway<sup>21</sup> completed a survey of recreational use of the Hurunui River for Environment Canterbury and Fish and Game over the 2000/01 summer period. Some key findings of this study were:

- a. One out of every 5 visitors to the Hurunui River described angling as their main activity and 11% as their secondary activity. This meant that 30% of the respondents participated in angling when visiting the river.
- b. The greatest angling effort was in the mainstem of the Hurunui between the Lake Sumner outlet and the Mandamus confluence.
- c. Loyalty was high among Hurunui anglers. An average of just over 40% of respondents' annual angling effort was spent in the Hurunui River area.
- d. Recreationist using the Hurunui are flow sensitive. 70% of kayakers checked the flow of the river prior to the visit. 47% of jetboaters and 25% of anglers checked the river flows prior to the visit.

4.67 Greenaway used the results of the survey, literature review and stakeholder interviews to summarise the significance of each recreational activity within each section of the river. The findings for national significance were:

- a. Above Lake Sumner:
  - i. Tramping of national significance, with medium levels of use.
  - ii. Horse riding of national significance, with medium levels of use.
- b. Hurunui Lakes:

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<sup>21</sup> Greenaway, R. (2001). Hurunui River Recreation Study 2000/01. Report to Environment Canterbury and North Canterbury Fish and Game Council. ECan report no. U01/19. Christchurch.

- i. Trout fishing of national significance with high levels of use.
  - ii. Tramping of national importance and of medium use.
  - iii. Horse riding of national significance.
- c. Lake Sumner outlet to Mandamus (including South Branch):
- i. Trout fishing of national significance with high levels of use.
  - ii. Kayaking of national importance and with high levels of use.
  - iii. Horse riding of national significance.

4.68 Recreational activities of regional significance included:

- a. Above Lake Sumner – trout fishing and mountain biking;
- b. Hurunui Lakes – camping, sightseeing and mountain biking;
- c. Lake Sumner outlet to Mandamus (including South Branch) – camping and rafting;
- d. Mandamus to Pahau – trout fishing, camping, swimming and rest stop;
- e. Pahau to SH1 – trout fishing, jet boating and kayaking;
- f. SH1 to Stoneyhurst – trout fishing, swimming, rest stop and salmon fishing; and
- g. River Mouth – camping, swimming, relaxing/ holidaying/ picnic/ sightseeing, salmon fishing and whitebaiting.

*Ministry of Tourism and Ministry for the Environment studies - 2004*

- 4.69 In 2004 the Ministry of Tourism released analysis of waters of national importance for tourism<sup>22</sup>, using the results of their International Visitor Survey (2002 data) and Domestic Travel Survey (2001 data) to describe how tourists use freshwater resources in New Zealand, and to locate tourism activities.

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<sup>22</sup> Ministry of Tourism. 2004. *Waters of national importance for tourism*. Ministry of Tourism, Wellington

- 4.70 For international tourists, the Ministry identified the top eight locations of importance for freshwater-based activities undertaken by international visitors, including those where more than 20,000 visitors participated in the activity in 2002. The Hamner Springs region ranked seventh, with the Hurunui Lakes (Sumner, Sheppard, Taylor, Katrine and Mason) identified as one of the 'water bodies of importance in the Hamner Springs area'.
- 4.71 Also in 2004, the Ministry for the Environment released several documents as part of its Water Bodies of National Importance programme, two of which attempted to identify rivers and lakes of potential national importance to recreation<sup>23</sup>.
- 4.72 The Ministry for the Environment assessment relied on several benchmarks, such as 10,000 angler days in a waterbody reported by the national angler surveys<sup>24</sup>, practitioner reports of whitebaiting importance, the results of internet and telephone surveys<sup>25</sup> and the Ministry of Tourism review of national tourism values<sup>26</sup>.
- 4.73 The Ministry for the Environment assessment identified the Hurunui River as potentially nationally significant for recreation due to whitebaiting, angling and canoeing or kayaking values.

#### **Landscape values**

- 4.74 The landscape values of the Upper Hurunui were considered by the Special Tribunal on a national comparative basis. They recorded that the expert evidence they had received was in agreement that the upper North and South Branches, and Lake Sumner from Charley's Point to the outlet, have outstanding natural character<sup>27</sup>. The Tribunal went on to find that *"Lake Sumner and the North Branch of the Hurunui should be assessed as a whole and so assessed their natural*

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<sup>23</sup> Ministry for the Environment. 2004a. Potential Water Bodies of National Importance for Recreation Value. MfE number 559. Wellington; Ministry for the Environment. 2004b. Sustainable Water Programme of Action: Potential water bodies of national importance. Technical Working Paper. MfE number 562. Wellington.

<sup>24</sup> Unwin & Image 2003 and/or Unwin & Brown 1998

<sup>25</sup> Fink-Jensen et al. 2004a and 2004b

<sup>26</sup> Ministry of Tourism 2004

<sup>27</sup> Paragraph 76

*character is outstanding on a national comparative basis*<sup>28</sup>. Lake Marion was found to be in natural state and pristine, having outstanding natural character on its own and as part of the whole Lake Sumner and North Branch waters<sup>29</sup>.

4.75 In relation to the section of river immediately below Lake Sumner, the Tribunal concluded:

88. *The Lake Sumner outlet is part of the Lake we have assessed as having outstanding amenity values and the outlet has a special character of its own. The lake waters flow rapidly out through the natural gravel embankment into a section of the mainstem of the river with native forest on its banks. It is unrealistic to separate this top section of the mainstem from the lake's waters. We assessed the outlet as having an outstanding natural character down the Hurunui River to its confluence with Gabriels Stream.*

4.76 The Tribunal also found that the section of the mainstem known as Māori Gully had nationally outstanding natural character, recording:

90. *The waters in Maori Gully down to Surveyors Stream are in their natural state and unquestionably have a wild quality. The steep banks of the gully are unmodified and natural. However, there are many such gorges in New Zealand so these attributes on their own may not meet the rigorous test for a water conservation order. Despite that Maori Gully has the additional characteristics of its history and that its waters are highly valued for kayaking. While these are separate characteristics, it would be artificial not to take them into account when assessing the natural character of the waters in Maori Gully. From an historical perspective the wild waters and steep sides of the gully are the outstanding features which caused Maori to use ropes to traverse the gully and which in*

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<sup>28</sup> Paragraph 78

<sup>29</sup> Paragraph 84

*turn resulted in the name "Maori Gully". From the perspective of the kayakers who use Maori Gully the wild and scenic waters and gully are outstanding and have a natural character which is outstanding on a national comparative basis.*

## **5. VALUES OF THE WAI AU CATCHMENT**

### **Angling values**

- 5.1 Although it does not attract the large number of anglers that the Hurunui does, the Waiau catchment also offers some outstanding angling opportunity. Although the overall fishery would not be considered to be as nationally significant as the Hurunui is, there are specific reaches of this catchment that would surpass any river in New Zealand for the size of the trout.
- 5.2 Mr Les Hill, Mr Malcolm Bell, Mr Martin Unwin and Mr Ross Millichamp give evidence on the trout and salmon angling values of the Waiau River. A summary follows.

### *Nina, Doubtful and Lewis Rivers*

- 5.3 These are all tributaries of the Boyle River. Apart from the presence of State Highway 7, these catchments are almost entirely in their natural state. The Doubtful and Nina are contained within the Lake Sumner Forest Park and the Lewis is one of the country's only National Reserves. These are reserves which have values of national or international importance<sup>30</sup>.
- 5.4 They are all highly scenic and are popular with both anglers and trampers alike. Brown trout numbers can be quite low in some years. However, the large size of these trout is well known amongst fly anglers and is highly valued.

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<sup>30</sup> Reserves Act 1977, Section 13(1)



- 5.5 All of these tributaries will make some contribution to brown trout spawning for the Waiau fishery. There is also a limited amount of salmon spawning that occurs in these tributaries. They are not considered to be significant salmon spawning sites however.

*Boyle River*

- 5.6 The Boyle River is a very popular fishery. Trout numbers are reasonable, particularly in the reach from the engineer's camp up to the Boyle village. This reach is also highly accessible as it is adjacent to State Highway 7. A fine day in this area will see many anglers' cars parked on the side of the road.
- 5.7 I have personally seen as many as 30 large brown trout in the river between the Doubtful confluence and the Boyle village during November 2011. This was very productive considering the size of the trout observed.
- 5.8 Once again there is limited salmon spawning in the Boyle catchment, but it is not considered to be a significant spawning reach.

*Hope River*

- 5.9 The Hope River is the most heavily fished out of the Waiau tributaries<sup>31</sup>. The Hope is considered to be one of the gems of the North Canterbury Fish and Game region. It is well known for producing good numbers of large fish particularly from the halfway shelter to the St Jacobs Hut.
- 5.10 I have personally observed 40 large trout in a reach approximately three kilometres long during a low flow in February 2012. I consider this to be quite reasonable numbers compared to other high country rivers.

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<sup>31</sup> Unwin, M (2009). Angler usage of lake and river fisheries managed by Fish & Game New Zealand: results from the 2007/08 National Angling Survey.

- 5.11 There are a reasonable amount of salmon that spawn in the Hope, particularly in the spring-fed tributary, the Kiwi River. Although the Hope provides for more salmon spawning than the other tributaries mentioned for the Waiau fishery, so far it is still not considered a significant salmon spawning site in terms of Environment Canterbury planning schedules.

*Upper Waiau River*

- 5.12 The upper Waiau in the vicinity of the St James Conservation Area is regarded as one of the best “trophy waters” in the Canterbury region. There is a short stretch of the Waiau below the Ada confluence nick named by local fishing guides as the “Golden Mile”. This reach was almost exclusively fished by guides and their clients while the surrounding area was under the management of St James Station. It is this reach where one lucky overseas client caught five trophy (a trout weighing 10lbs or over) brown trout in one day<sup>32</sup>.
- 5.13 The “Golden Mile” has been subject to drift dives for the last four years as summarised by Dr Young. I have taken part in all of the drift dives. The first one was particularly memorable as the large fish observed were all estimated to be 8lbs or over with the biggest being estimated at 18lbs. This stretch of river is considered by North Canterbury Fish and Game staff to be the best stretch of trophy brown trout water in the region and possibly the country.
- 5.14 The Upper Waiau is also the most significant salmon spawning stream and is listed as such in the current NRRP. The majority of salmon spawning occurs upstream of the Ada confluence

*Mid and lower reaches of the Waiau River*

- 5.15 The mid to lower reaches of the Waiau River have been modified and water abstraction is common. There is a reasonable amount of interest from anglers on these reaches for salmon and for trout in

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<sup>32</sup> Giles, R. Where to Catch a Trophy Trout. [www.newzealand.com](http://www.newzealand.com)

lower stable summer flows. The mouth is popular for both sea run trout and salmon but receives less attention than the Hurunui because it is not accessible by road.

#### **Flows required for angling on the Waiau River**

- 5.16 It is much harder to determine angling flows on the Waiau for trout anglers. The Hurunui has a more confined catchment and anglers can recognise the correlation between flows in the upper reaches and the Mandamus flow recorder. The same cannot be said for the Waiau.
- 5.17 The Waiau is a much larger river with more tributaries. These tributaries are varied in terms of rainfall, meaning the contribution of water they offer is not that predictable. In my view the flow recorder at Marble Point offers little guidance to trout anglers targeting the upper reaches of the Waiau and its tributaries.
- 5.18 The same principle does apply, as for the Hurunui, that clear running lower flows will be preferred by fly fisherman while the spin angler can target the receding side of a fresh. Lower flows also offer the ability to access the gorge at Marble Point and the gorge above Hanmer Springs. It is doubtful however that the river would ever drop low enough to allow unhindered foot access along the river in the lower gorge above Parnassus.
- 5.19 For salmon angling it is generally accepted that preferred angling flows are between 55 and 75 m<sup>3</sup>/s. This will be related both to clarity of the water and the amount of flow that triggers or allows salmon to move through the river.

#### **6. DEGRADATION OF OTHER FISHERIES IN THE REGION**

- 6.1 Anglers in the North Canterbury region have been frustrated in recent years by the degradation of rivers such as the Selwyn, Hororata, Hawkins and the Waipara. All these rivers are now subject to extremely low flows and extended periods of drying. This is thought to be from a mixture of over extraction of surface and hydraulically

connected groundwater, and the ongoing effects of dryer eastern weather patterns due to climate change. What little water is left in our lowland streams is subject to poor water quality due to lower flows and land use intensification.

### **Ellesmere-Te Waihora catchment**

- 6.2 The most spectacular collapse of a fishery in the Canterbury region and nationally would have to be that of the Ellesmere-Te Waihora catchment. The Lake Ellesmere-Te Waihora brown trout fishery is one of the most degraded in New Zealand. There are fisheries with fewer fish, but Ellesmere-Te Waihora stands alone in terms of the extent to which the fishery has changed<sup>33</sup>.
- 6.3 Brown trout were introduced to the Ellesmere-Te Waihora system in 1868 and a very productive fishery quickly became established. Hardy (1989)<sup>34</sup> proposed that *"arguably, nowhere in New Zealand has the brown trout thrived better, and been more successful in establishing a large population of large sized fish than in the Ellesmere catchment-particularly in Ellesmere itself."*
- 6.4 Such was the productivity of the Ellesmere-Te Waihora brown trout fishery that it was used as a hatchery for stocking other fisheries. Professor Percival was quoted in Lamb (1964)<sup>35</sup> as saying *" enough fish could be salvaged from the Selwyn in a season to stock all rivers in the South Island".*
- 6.5 Most estimates of the size of the Ellesmere trout fishery have been obtained by counting spawning trout in the lower Selwyn River. Regular fish trapping of the brown trout "run" in the lower river (at or about Coes Ford) has been undertaken since the 1940s. The fishery was probably at its peak during the 1940's when the North Canterbury

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<sup>33</sup> Millichamp, R (2007). The Demise of New Zealand's Greatest Brown Trout Fishery

<sup>34</sup> Hardy. C.J., Fish Habitats, Fish and Fisheries of the Ellesmere catchment. New Zealand Freshwater Fisheries report No 104, 1989.

<sup>35</sup> Lamb. R.C., Birds, Beasts and Fishes, The First One Hundred years of the North Canterbury Acclimatisation Society (1964).

Acclimatisation Society (the predecessor of Fish & Game New Zealand) estimated the spawning population of the Selwyn River at 65 000 trout. This dramatically dropped to 3000 trapped in 1977, to 562 in 1987, to 87 spawning fish in 2004, and finally the 2007 trap caught 265 brown trout. This trap had to be constructed downstream of Coes Ford, as the river did not have enough water flow upstream, where previous fish traps were located.

6.6 Millichamp (2007) describes the decline of the Ellesmere Te Waihora fishery as having two stages. The first phase of fishery reduction which took place after 1968 is presumed to relate to the devastating effects of the Waihine Storm which destroyed beds of aquatic macrophytes such as *Ruppia* and *Potamogeton pectinatus*. The loss of permanent weed beds led to increased erosion of the lake shore due to a loss of the "breakwater" effect, increased erosion of the lake bed by wave action and an increase in the amount of suspended sediment in the water column.

6.7 The effect of this is well demonstrated in Figure 1 below. Figure 2 gives a better indication of the change in trout returns in the second phase of the decline.

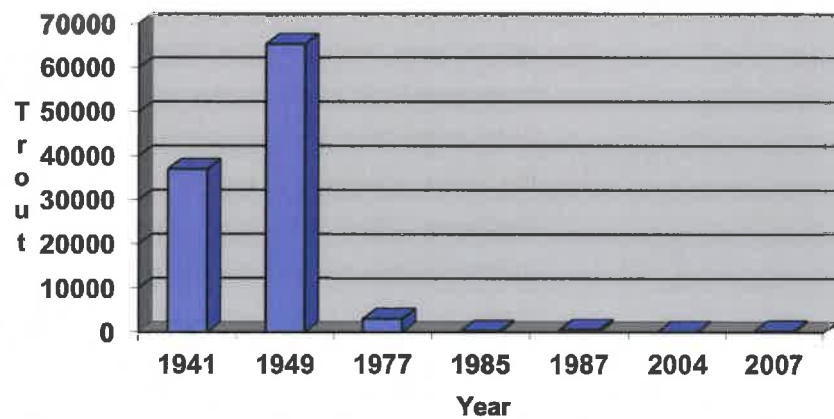


Figure 1: Estimates of the Selwyn River brown trout spawning runs from census traps, 1941-2007.

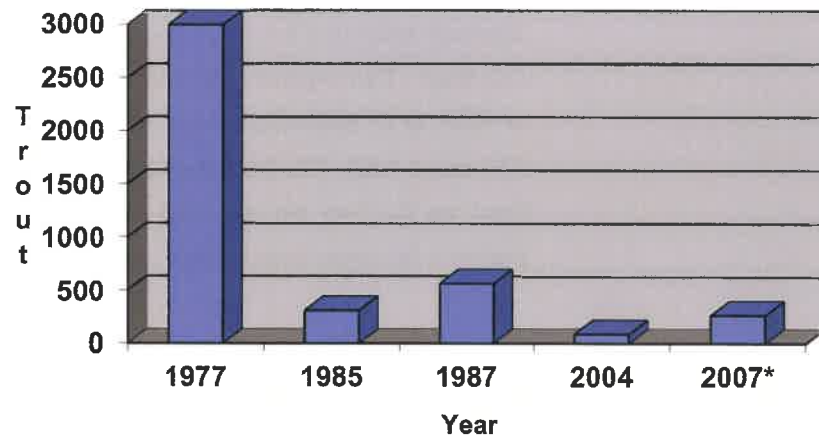


Figure2: *Estimates of the Selwyn River brown trout spawning run from census traps, 1977-2007. Please note that the 2007 census was conducted downstream of previous sites and reflects close to total spawning escapement for the Selwyn River.*

- 6.8 Millichamp (2007) thought it was important to demonstrate that there were two distinct phases because although the second phase of reduction in the trout fishery was less spectacular in terms of absolute numbers, it may be more significant in terms of its impact on anglers.
- 6.9 I tend to agree with this theory. The post Waihine Storm phase appears to have reduced the number of trout available to anglers but not to have destroyed the fishery altogether. Figure 3 shows the Ellesmere-Te Waihora fishery still attracted very considerable angler effort at this time and was still in fact the most popular trout fishery in the North Canterbury region. The fishery continued to provide significant (albeit reducing) angler opportunity as late as the mid 1990's but has now declined to being of local significance only. The major factors in play during the second phase of fishery reduction have been a reduction in tributary flows and increased intensification of land use in the catchment.

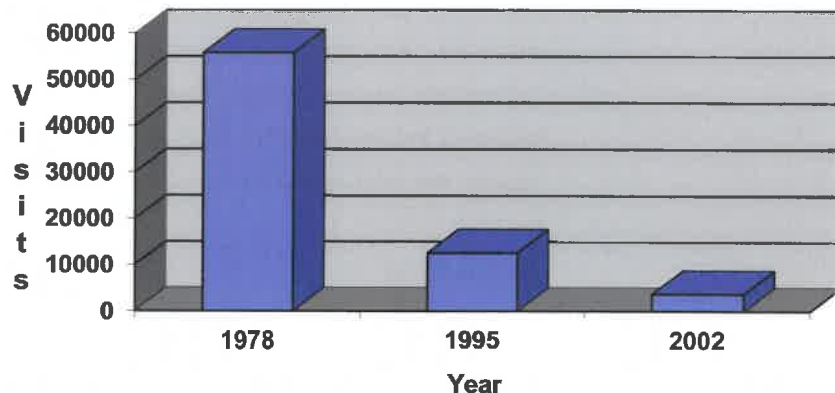


Figure 3: *Estimates of angler days spent in Ellesmere-Te Waihora and its tributaries in the 1977/78, 1994/95 and 2001/02 seasons (Teirney et al 1987), (Unwin & Brown 1998) and (Unwin & Image 2003).*

6.10 In 2003 NIWA conducted a study of anglers' perceptions of changes in the state of lowland river trout fisheries throughout New Zealand over the previous twenty years and concluded that Canterbury's fisheries were amongst the most degraded in the country. The Selwyn River was identified by the authors as being a "river showing a marked decline in angling quality" which the anglers put down to "low flows due to excessive water abstraction for irrigation"<sup>36</sup>. Anglers also indicated that they had observed deterioration in spring fed Canterbury streams where flows had remained stable but water quality had deteriorated.

6.11 Although I have talked a lot about the Selwyn River, the decline of the lower Selwyn brown trout run has also meant the decline of the Hororata and Hawkins Rivers as viable fisheries. Both of these rivers were classed as regional fisheries in their own right. They now have no significance at all, due to the amount of time they are dry or disconnected from the Selwyn River.

<sup>36</sup> Jellyman, D.J., Unwin, M.J. and James, G.D. (2003). Anglers' Perceptions of the Status of Lowland Rivers and their Trout Fisheries Throughout New Zealand. NIWA Client Report CHC2002-046.

- 6.12 From my own observations undertaking spawning surveys in the Hororata, the trout populations there are highly dependent on connection to the Selwyn River. In years where the connection between the two rivers is good at the time of year when trout want to spawn, the redd counts are significantly higher.

### **Ashley River**

- 6.13 The Ashley River is yet another example of a once abundant, self supporting Brown trout fishery, and a small but self sustaining Chinook salmon fishery, which is now degraded to a point where the salmon run is almost extinct. In 2010 I personally observed one salmon redd in a survey of the entire Lees Valley catchment. The failure of salmon to successfully spawn for three or four years in a row would effectively cause the extinction of that species there.
- 6.14 The reason for this decline is quite simply the lack of connection to the sea the Ashley now experiences. In most summers there is now a dry reach extending from just above State Highway One to just below Rangiora. This effectively cuts off recruitment for both salmon and sea run trout.
- 6.15 This area usually requires fish salvage operations by Fish & Game on an annual basis, and it is not uncommon to have to relocate several hundred mostly adult Brown trout up to 4kg to permanent waters upstream.
- 6.16 Anglers used to highly rate the Ashley and reported high fish numbers throughout its length (refer to Mr Bells evidence). I have fished it extensively myself over the last few years and have explored its entire length and tributaries.
- 6.17 I have personally observed many kilometres of optimal trout habitat that is devoid of fish. There is good adult holding water above Rangiora right through to the middle of the Ashley gorge at middle bridge. However fish numbers are very low in these reaches. There are better numbers in the upper half of the gorge. Fish and Game drift



dives in 2010 revealed 65 large fish in an 8km drift dive. This is still not high numbers but the trout observed would have offered quality angling.

- 6.18 My own observations of trout numbers in the gorge suggest that in years of good flow there is a noticeable increase of numbers in the months of November to December. This is generally around 3 to 6 weeks after good catch reports at the mouth. This suggests to me that the Ashley is heavily influenced by the ability of trout to migrate from the sea and estuarine environment. Successive years of no connection with the sea will significantly degrade this fishery.
- 6.19 The reduced flows in this river is believed to be due to extensive wetland drainage and development in Lees Valley, in the early 1970's (Brian Ross pers. comm. Fish and Game), where the huge wetland there acted in much the same way as a sponge, releasing the water contained therein at a controlled and gradual rate. There are now only small scattered remnants left of the original wetland area.
- 6.20 Since that time, there has also been further ground water abstraction for mostly agricultural use, from aquifers connected to the river. Water quality has also been compromised, due to continual low flows and increased nutrient input. Phormidium outbreaks are now common on this river (and many other lowland rivers), rendering the river unsuitable for contact recreation and killing domestic dogs.

#### **Waipara River**

- 6.21 Mr Bell also mentions the decline of the Waipara as a brown trout fishery. I cannot offer anymore expertise on what this fishery used to be like but I can offer some recent observations.
- 6.22 I usually fish the Waipara every season sometime in the month of October. I have explored many fishless miles of this river to find a small stretch that holds approximately 10 adult fish. Like the Ashley there are many kilometres of good adult trout holding water that are devoid of fish.

- 6.23 My observations are similar to that of the Ashley, in years of good continuous flow the fish stocks are visibly improved in the upper reaches. Unfortunately, good continuous flow is something of a rarity for the Waipara. In my opinion, this river has been severely mismanaged. It has been over-allocated by 1260%<sup>37</sup>, and large portions of the gorged section have been planted in exotic forestry. Environment Canterbury has continually denied the significance of the Waipara as a fishery and therefore has provided very weak protective measures in the flow regime for this river.
- 6.24 The complete collapse of the Ellesmere Te Waihora fishery and the degradation to other fisheries such as the Ashley of Waipara has meant that anglers have either had to reduce the amount of time they go fishing (in some cases give up entirely) or focus their effort on other waterways that have become less degraded and are still viable.
- 6.25 In my view the degraded state of Canterbury lowland rivers has resulted from either having no or very poor planning frameworks in place. Despite a growing awareness in the scientific community, Environment Canterbury still does not have adequate flow regimes or appropriate land use controls for any of these catchments.
- 6.26 In turn this puts more pressure on the high country fishery of North Canterbury. As the Upper Hurunui offers outstanding angling water with an abundant trout population, it is reasonable to assume that more and more anglers will fish this part of the river.
- 6.27 The Upper Hurunui River is also very accessible, with good road access upstream from Maori Gulley right to the confluence with Sisters Stream. This reach is only one hours drive from Christchurch, making it more accessible than most back country fisheries in North Canterbury. Because it is so close to Christchurch, it offers a large population an area to fish that has remained unmodified and has not

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<sup>37</sup> Lincoln Environmental, (2002) Canterbury Strategic Water Study. Report No 4557/1.

degraded at all, which is more than can be said for most Canterbury rivers.

## 7. ZONE IMPLEMENTATION PLAN

### Fish and Game's position on the ZIP

7.1 As discussed above, the ZIP was developed by the Zone Committee over a period of approximately 12 months. It is not a statutory document but rather an implementation strategy that is meant to achieve the "targets" of the CWMS.

7.2 Environment Canterbury planning officers have relied heavily on the recommendations of the ZIP as justification for the most of the objectives, policies and rules contained in the HWRRP, claiming that the consensus approach used during Zone Committee deliberations means that the ZIP is a fair and balanced reflection of what the community wants in regards to water management.

7.3 Fish and Game remain wary of the process used to formulate the ZIP. There are some limitations in the collaborative process that need to be highlighted.

7.4 The Zone Committees are mostly made up of community members with various backgrounds. The Zone Committees lack the scientific expertise that technical panels have had in the past when making water management recommendations.

7.5 The Zone Committees also lack regional and national perspective and so far the collaborative process used seems unable to consider issues of national importance. This is no fault of any of the committee members but rather a consequence of managing water issues at a very local level of governance.

7.6 The biggest issue facing the Zone Committee was the lack of time to consider important issues in a robust scientific manner. This has led

"informs how  
1. purpose of L. RMA  
is to be achieved in  
the context of the  
particular zone, its  
communities

No, value judgement  
by Committee on various  
community values

to some recommendations in the ZIP being made in haste with more political consideration than anything else.

7.7 Although the amount of consultation undertaken by the Zone Committee was impressive, the submission process lacked proper structure when it came to dealing with individual submissions. Unfortunately the draft notified ZIP failed to make recommendations on some key issues. As a result 90% of the submissions received on the ZIP focused on this.

7.8 I identify issues with some specific recommendations of the ZIP that have influenced the HWRRP below:

**The goal of irrigating 100,000 hectares**

7.9 Recommendation 10.1.7 of the ZIP states:

*The Hurunui Waiau Regional Plan should ensure water would be available (including through storage) to irrigate the approximately 100,000ha (net) irrigable area in the Zone.*

7.10 The rationale for this recommendation explains that the 100,000 ha figure is the amount of irrigable area in the Hurunui and Waiau catchments. The Zone Committee expressed a strong desire to “future proof”, meaning the HWRRP should allow for allocation to irrigate all the available area and continue delivering environmental, social and cultural outcomes into the future.

7.11 Unfortunately no modelling was provided to assess the effects of irrigating 100,000ha on water quality and quantity. Instead, in my opinion, this untested “have your cake and eat it too” recommendation became a perverse driver for the HWRRP to propose large amounts of allocation from both the Hurunui and Waiau Rivers. Rather than simply advocating for irrigation of all available irrigable land, in my opinion the ZIP should have started with what the bottom lines in terms of water quality and quantity are, to determine how much water

is available for use, and therefore realistically how much land can be irrigated.

- 7.12 The HWRRP has given primacy to irrigation needs and has shifted the responsibility of managing the environmental risk to the consent applicants. This contradicts the visions and principles of the CWMS which gives the environment elevated priority over the needs of out of stream users. *- This doesn't say how you give it priority though.*
- 7.13 In respect of Hurunui flows, the ZIP identifies that "more water" options will require substantial water takes, and accordingly the proposed flow and allocation regime includes a large C block allocation. The ZIP also acknowledges that there were no technical investigations available to assess the in-river impacts of large C block water takes. The ZIP concludes that if a "more water" proposal was to proceed it would need to meet a number of in-river outcomes.
- 7.14 Fish and Game does not support the C allocation block approach recommended by the ZIP and is concerned that identification of an allocation block within the HWRRP will result in a presumption that the water is to be allocated. Allocation blocks should only be set following robust assessment to confirm that abstraction from those blocks is sustainable. I address Fish and Game's submission on the C block in more detail below.

#### **Identification of locations for water storage**

- 7.15 In relation to water storage, the ZIP identifies Waitohi as a preferred option for water storage, but retains potential for a weir on Lake Sumner or a dam on the South Branch as a "Plan B". The ZIP states that Plan B options would be required to meet clear environmental, recreational, and cultural outcomes at the reservoir locations as well as flow-related outcomes for the Hurunui River. Although the ZIP briefly identifies concerns related to development in the Upper Hurunui, there is very limited identification of significant values in this area or the effect that water storage development could have on those values.

- 7.16 The approach of the ZIP to water storage in the Hurunui is in stark contrast to its approach in respect of the Waiau. The ZIP recommends that damming be prohibited in the upper Waiau and tributaries above the Hope confluence, including the Boyle River, because those areas<sup>38</sup>

*"...have high biodiversity values, include significant salmon spawning sites and high valued trout fishing locations, and are highly valued as natural rivers and landscapes. The upper catchment is highly natural and is a key kayaking area. The upper part of the Waiau main stem and the key tributaries of the Hope, Boyle, Lewis and Doubtful are trophy trout fishing areas. The upper part of the Waiau is also a key salmon spawning area. The landholding in this area is primarily publicly owned and administered by the Department of Conservation and is extensively used by hunters and trampers. The opening of the St James National Cycleway Trail has also resulted in this area being extensively used by mountain bikers. The river provides a key backdrop for these activities. Recreational groups, including kayakers and fisherman, have identified the unregulated nature of these flows as being important in this area."*

- 7.17 Fish and Game considers that identification of preferred areas for development should be based on an assessment of the values and significance of a waterbody. The Upper Hurunui is nationally outstanding for a range of ecological, recreational and landscape values and warrants similar protection to that afforded to the Upper Waiau.

*But how is that enabling ppl?*

#### **Water quality**

- 7.18 Recommendation 11.1.2 of the ZIP is:

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<sup>38</sup> Page 58

*"The goal for water quality in the Hurunui River at the SH1 bridge will be at or about the same or better standard as present, in terms of nitrate and phosphorus loads."*

7.19 In respect of existing land use, recommendation 11.1.7 provides:

*"The Hurunui and Waiau River Plan should require land/water users in the Hurunui Basin to adopt good nutrient management practices with a reasonable time if voluntary farmer based approach is not achieved required uptake of good nutrient management practice. The Committee will engage with land users and others to determine what is a "reasonable" time."*

7.20 Recommendation 11.1.8 relates to new development and provides:

*"The Hurunui and Waiau River Plan will include a requirement for new irrigation development to adopt good nutrient management practice and achieve their own load limits for Hurunui River and other catchment load limits as these are set."*

7.21 Fish and Game supports the recommendations of the ZIP in respect to water quality. Fish and Game considers that the date of 2017 contained in the HWRRP for existing land use to adopt nutrient management practices is a reasonable time. The ZIP anticipates (Recommendation 11.1.1) that nutrients will decrease over time at a sufficient rate and to a level such that additional irrigation development can occur without compromising water quality outcomes for the river (i.e. reduce current loads to create "headroom" for new irrigation development). The ZIP also identifies that trust needs to be built so that non land users gain confidence that farmers will take water quality seriously and modify their farming practices if that is what is required to improve river water quality. In Fish and Game's view these objectives are seriously compromised by the notified HWRRP provisions for water quality which enable nutrient limits to be exceeded prior to 2017. Fish and Game's submission on the HWRRP water quality provision is addressed in more detail below.

## **8. FISH AND GAME SUBMISSION ON HWRRP -SUMMARY**

### **8.1 Fish and Game's submission has three main objectives:**

- a. To ensure that the outstanding values of the upper Hurunui are given adequate protection;
- b. To ensure that the flow regime for the Hurunui and Waiau Rivers is sustainable from an ecological and recreational perspective; and
- c. To maintain or improve water quality in the Hurunui catchment.

## **9. DAMMING**

### **Upper Hurunui (from source to Surveyors Stream confluence)**

- 9.1 The values of the Upper Hurunui have been well covered in my evidence along with the evidence of the expert anglers, Mr Millichamp, Mr Unwin and Dr Young. Fish and Game believe that we have demonstrated that the Upper Hurunui is nationally significant. Unfortunately national significance is something that has been overlooked by the Zone Committee and is something that is poorly represented generally in the CWMS.
- 9.2 In order to manage natural resources sustainably under Part 2 of the RMA, there has to be some areas that are off limits for development. Fish and Game considers that a catchment that has been recognised as nationally significant for various values should be fully protected. Even minor alterations can displace large numbers of recreationists or have significant impacts on the ecosystem.
- 9.3 It is Fish and Game's position that there should be no damming in the Upper Hurunui above Surveyors Stream. As referred to earlier, there is a lot of reference to the Upper Hurunui as being described as from the Mandamus confluence up. This is a logical reference as there is a change from a modified environment to a predominantly natural landscape above the Mandamus confluence. However, under the



HWRRP Fish and Game is seeking a higher level of protection for the Hurunui catchment above the confluence of Surveyors Stream, as this is the area which various reports, studies and the Special Tribunal report conclude possesses values of national importance.

- 9.4 The HWRRP currently classifies all areas above the Mandamus confluence as Zone C 'Areas not identified as High Value or Infrastructure Development'. Fish and Game considers this classification is inappropriate given the consistent recognition of high values in the Upper Hurunui. Fish and Game seeks that the Upper Hurunui, above the Surveyors Stream confluence, be classified as Zone A 'High Value Area'.
- 9.5 Policy 6.1 will then apply to the Upper Hurunui prohibiting the damming or impoundment of the water in this area. Fish and Game therefore also seeks amendments to rule 5.1 to clarify that all damming or impoundment of water in the Upper Hurunui is a prohibited activity (as currently drafted this rule only prohibits damming or impoundment in the mainstem of the Hurunui below the South Branch confluence and in tributaries of the Hurunui in Zone A).

#### **Upper Waiau**

- 9.6 Fish and Game agree with Environment Canterbury that the Hope and Upper Waiau River catchments should be Zone A and prohibited from damming. These areas are high in their intrinsic, cultural and recreational values. The Waiau/Hope fishery provides outstanding backcountry trout fishing that is at least of regional importance. Therefore that part of Policy 6.1 that deals with the Waiau catchment is supported.

## Mainstems

- 9.7 It is critical to the fisheries in both the Hurunui and Waiau Rivers that fish passage through the mainstem is maintained. One factor in maintaining fish passage is ensuring that there are no physical barriers to impede passage. Fish and Game supports the intent of the HWRRP to prohibit damming on the Hurunui and Waiau mainstems, however the drafting of the provisions introduces some confusion over the extent to which this prohibition applies.
- 9.8 Central to this issue is the definition of "mainstem". The HWRRP provides that mainstem *"has the same meaning as that in the Proposed Canterbury Regional Policy Statement 2011"*. The PCRPS provides that mainstem *"in relation to braided rivers refers to that stem of the river which flows to the sea, and applies from the source of that stem to the sea, but excludes any tributary"*. Fish and Game supports that definition, but considers that it should be incorporated directly in the HWRRP, without reference to the PCRPS. Fish and Game considers that this definition of mainstem includes Lake Sumner.
- 9.9 Fish and Game seeks that the prohibition on damming of the mainstems applies to the entire mainstem as reflected in the definition, not just below the South Branch confluence for the Hurunui River and the Hope confluence for the Waiau River, as currently provided for by rule 5.1. This is consistent with Policy 6.1 which seeks to *"prohibit damming or impoundment of water...on the mainstem of the Hurunui or Waiau Rivers"* and the acknowledgment in the HWRRP that the mainstems *"are iconic and regionally important features and they have very high social, cultural and environmental values which would be significantly impacted if ... dammed"* (page 10).
- 9.10 In the Hurunui, fish passage through the mainstem from the sea to the upper tributaries is critical to enable salmon spawning. The most significant salmon spawning sites in the Hurunui are the upper South Branch and Landslip Stream (above Lake Sumner) and are listed as such in Schedule 17 of the Proposed Land and Water Plan. For trout,

fish passage between the sea or the lower reaches of the river and the upper catchment, particularly Lake Sumner, is linked with the abundance and size of fish which make the Hurunui an outstanding fishery and angling location. The Waiau has similar issues in that the significant salmon spawning sites (Upper Waiau, Henry, Ada) are all in the headwaters. The trophy trout observed in the Upper Waiau and Hope rivers also need to migrate to lower reaches to reach the sizes observed (refer to Dr Young's evidence on fish migration). The prohibition on damming of the mainstems of these rivers sought by Fish and Game protects this fish passage.

## 10. **FLOW REGIME**

### **Considerations when setting a flow regime**

#### 10.1 Key considerations for Fish and Game when setting a flow regime are:

- a. **Minimum flows that enable fish passage.** These are addressed in more detail in the evidence of Mr Ross Millichamp and Mr Richard Montgomerie.
- b. **Seasonal angling requirements for flows.** The trout fishing season for the upper reaches of both rivers is from October to April (inclusive). As referred to above trout anglers prefer low clear flows for sighted fly fishing and slightly higher flows for spin fishing. The most important months for salmon angling run from December to April (inclusive). ECan has stated in the HWRRP<sup>39</sup> that the preferred salmon angling flows are 30 to 50 cumecs in the Hurunui and 35 to 75 cumecs in the Waiau. In my opinion optimal salmon angling is in the higher ends of these flow ranges.
- c. **Seasonal biological requirements for flows.** Salmon make their upstream migrations to the upper reaches of both rivers from December to April (inclusive). Trout migration triggers are less

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<sup>39</sup> Page 7

well known and are covered in the evidence of Dr Roger Young. It is hard to define any seasonal requirement for trout.

- d. Flow variability and the frequency and duration of flood and fresh events. The importance of flow variability for salmon migration is covered in the evidence of Mr Ross Millichamp. Mr Richard Montgomerie covers the importance of flow variability for trout and salmon condition and numbers.
- e. Maintaining water quality. This is addressed in more detail in the evidence of Dr Roger Young and Mr Richard Montgomerie.

#### **Flow regime in HWRRP**

- 10.2 The flow regime as notified in the HWRRP contains pre and post storage flow regimes for both rivers.
- 10.3 In summary, the Hurunui pre storage flow regime has different A block minimum flows depending on the month of the year ( $15\text{m}^3/\text{s}$  for Sep to Jan,  $12\text{m}^3/\text{s}$  for Mar to Jul, and  $13\text{m}^3/\text{s}$  for Aug). The A block allocation is  $11\text{m}^3/\text{s}$  for the catchment,  $6.2\text{m}^3/\text{s}$  for the Amuri Reach and  $2\text{m}^3/\text{s}$  for the Domett Reach. For the Amuri Reach there is a gap between A and B blocks of  $5\text{m}^3/\text{s}$  for September to January,  $8\text{m}^3/\text{s}$  for February to April and  $0\text{m}^3/\text{s}$  for May to August. The B block is  $10\text{m}^3/\text{s}$  all year for the catchment and the Amuri Reach. There is no C block available pre storage.
- 10.4 Once  $20,000,000\text{m}^3$  of storage is developed, several aspects of the flow regime change. The A block minimum flow increases in February to April to  $15\text{m}^3/\text{s}$  and decreases in August to  $12\text{m}^3/\text{s}$ . There is also a  $10\text{m}^3/\text{s}$  minimum flow for non consumptive (e.g. run of river hydro) from June to August. The gap between A and B blocks reduces by  $3\text{m}^3/\text{s}$  on the Amuri Plains Reach from February to April. The C block allocation of  $33\text{m}^3/\text{s}$  becomes available with no gap between B and C blocks.

- 10.5 The same methodology is used for the Waiau with pre storage A block minimum flows being 20m<sup>3</sup>/s for January and April, 15m<sup>3</sup>/s for February and March and 25m<sup>3</sup>/s for May to December. The A block allocation is 18m<sup>3</sup>/s. There is a 2m<sup>3</sup>/s between A and B blocks. The B block allocation is 11m<sup>3</sup>/s. There is no C block pre storage.
- 10.6 Once again when 20,000,000m<sup>3</sup>/s of storage is developed, aspects of the flow regime change. The A block minimum flow is 20m<sup>3</sup>/s for all months of the year. The C block allocation of 42m<sup>3</sup>/s becomes available with no gap between B and C blocks.

#### **Removal of the C block**

- 10.7 The C block for both rivers is of major concern to Fish and Game. At the time of notification, Environment Canterbury had not undertaken any analysis to determine what the effects of allocation of the C block may be. Modelling undertaken for Fish and Game and presented in the evidence by Mr Stewart and considered in the evidence of other Fish and Game experts demonstrates that allocation of C block will have significant adverse effects on the trout and salmon fisheries .
- 10.8 C Block allocation will result in extensive flatlining of both rivers. The rivers will be held at minimum flows for extended periods of time and this raises concerns for Fish and Game that salmon passage on both rivers will be compromised. In addition C Block allocation removes the moderate to high flows that trigger and enable salmon migration. C Block allocation will also drastically reduce the days when the rivers are suitable for salmon angling. These issues are addressed in the evidence of Dr Young, and Mr Richard Montgomerie.
- 10.9 C Block allocation will significantly increase the risk of nuisance algal growths occurring on a more frequent basis. This will reduce the food producing capacity of both rivers and increase the risk of decline in the trout and salmon fisheries. This is addressed in the evidence of Richard Montgomerie.

- 10.10 A number of the ECan officer reports also demonstrate that full or even part allocation of C Block will not enable the environmental objectives of the HWRRP to be met.
- 10.11 The major adverse effects of C block are obvious. At this time, Fish and Game seeks that C block be removed from the plan for both rivers. Monitoring of actual effects of the full utilisation of A and B blocks in the years before the next plan review will better inform decision makers of a potential C block at that time. Fish and Game seek deletion of the C block and retention of the pre-storage flow regimes for the A and B allocation blocks.
- 10.12 For both the Hurunui and Waiau rivers the full utilisation of A block still offers natural flow variability and a limited amount of time of artificially induced flow to or below a sub optimal level for salmonids. With the addition of B block the effects become more noticeable. During summer months (October – April) flows above 20 cumecs are reduced and there is some increased flat-lining at 20 cumecs, however flows below 20 cumecs are unchanged as these are a result of the A block abstraction. In winter months (May – September) flows are generally reduced, with increased instances of minimum flows and some flat-lining, particularly during dry years. However, flow variability is generally maintained.
- 10.13 Although there are some periods where flows are below that considered necessary to ensure fish passage, this is largely a result of the current A block minimum flow regime. Fish and Game would prefer minimum flows that ensure fish passage at all times, and has previously been supportive of increases to minimum flows on the Hurunui. However, having assessed the effects of proposed C block it is clear that the benefits derived from increasing minimum flows are significantly outweighed by the detrimental effect of the C block. For an A and B block regime with current minimum flows, Fish and Game's assessment is that periods where flows are below the level which would ensure fish passage are not usually prolonged and the maintenance of flow variability should assist in limiting stress on fish or the ecology of the river.

### **Alternative option of retaining C block**

- 10.14 In the event that the Commissioners are not minded to remove the C block from the HWRRP at this time, Fish and Game has identified alternative amendments which would improve the notified regime for the Hurunui and Waiau Rivers. However, even with these amendments Fish and Game consider the resulting flow regime is likely to have unacceptable effects on the ecological values of the river. For this reason, it is not Fish and Game's preferred option.

### ***C block abstractions – non-complying***

- 10.15 Fish and Game is concerned that the inclusion of a C allocation block as a discretionary activity will create a presumption that the water will be allocated. Although there are objectives and policies which address the ecological health of the river, for example Objective 3 which relates to maintenance of flushing flows, Fish and Game does not have enough confidence that those matters will be appropriately addressed when resource consent applications are assessed on a case by case basis. Accordingly, if the C block is to be retained, Fish and Game considers that abstractions should have non-complying activity status and that the rule, objectives and policies should be strengthened to clearly require that ecological bottom lines are met.

### ***Hurunui – A and B block minimum flows***

- 10.16 Based on information regarding inadequacies in the current minimum flow, referred to above, Fish and Game are obviously keen to see an increase in minimum flows in the Hurunui in the months of January to April. However, in our submission we have supported the proposed flow regime to have a minimum flow of 12m<sup>3</sup>/s in these months until the storage trigger is reached. Although Fish and Game do not believe that 12m<sup>3</sup>/s is adequate for fish passage, the current amount of time that the Hurunui spends at that minimum flow is low because of the natural variation of flows and freshes and the limited amount of current abstraction. Accordingly, Fish and Game can live with the

proposed A block minimum flow as long as there is not significant further abstraction from the river.

10.17 If the C block is to be made available, Fish and Game considers that the minimum flows must rise. However, the notified HWRRP increases the minimum flow for the A block but not the B block, which results in a smaller B block gap. Fish and Game believe there is no justification for the gap between A and B block reducing once storage is built. The gap between A and B block provides some limited ecological and recreational benefit by providing longer recession after freshes and reducing the amount of time the river is below optimal flows for salmon angling and jetboating. Any reduction in this gap will increase flatlining at lower flows, especially if C block is utilised as well.

10.18 In terms of the timing of an increase in minimum flows, rather than linking the use of yet to be consented water (B and C blocks) to the condition of A Block minimum flows increasing, the HWRRP ties in the raising of A block minimum flows to the storage trigger being reached. The theory being that B or C block water would not be taken without storage anyway as the reliability is too poor for irrigation. However, this is not the case for hydro development which is why Environment Canterbury has made it mandatory for the taking of C block water to be conditional on building storage. In other words whoever takes C block water has to provide storage to offset the lost reliability of supply for A block users as a result of minimum flows being raised.

10.19 Fish and Game support the approach used to raise the minimum flows but submit that the trigger point of 20,000,000m<sup>3</sup> is too high for the intended purpose. There are currently staged irrigation schemes where the amount of storage provided is less than 20,000,000m<sup>3</sup> but allows the full utilisation of B block water.

10.20 If the minimum flows are to be raised, Fish and Game consider the effect of taking all of B block water without raising the A block minimum should be addressed. We submit that the most practical way to rectify this is lower the trigger point of A block minimum flows



rising to once 10,000,000m<sup>3</sup> is built. This will then ensure that once significant further abstraction from the Hurunui starts taking place, the A Block minimum flow is adequate to cope with more flat lining.

## **11. WATER QUALITY**

- 11.1 Fish and Game has made a significant compromise by accepting the current water quality in the Hurunui. Water quality is noticeably degraded in the lower reaches. Although at times periphyton growth occasionally exceeds the NRRP objectives, the Hurunui still supports a highly valued fishery. There has only been one occurrence of a toxic algae (Phormidium) outbreak which occurred earlier this year. While current nutrient levels within the river are at a level that we can accept, Fish and Game considers that any increase in nutrient levels would result in adverse effects in terms of increased periphyton cover which will disrupt higher value (Deleatidium) invertebrate species that are important to maintain population of brown trout. Increased nutrients will also increase the risk of phormidium outbreaks in the mainstem and increase nitrate concentrations where there is a risk to spawning trout in the tributaries (a nutrient increase in the mainstem will be via the tributaries that run through farm land).

### **Policy in relation to water quality**

- 11.2 Fish and Game was opposed to some of the original policy, particularly Policy 5.3, notified in the HWRRP. It was a great relief to Fish and Game that Environment Canterbury submitted on behalf of the Zone Committee in recognition that the original policy and rules did not meet the overall objective of ensuring that water quality in the Hurunui did not get any worse.
- 11.3 Fish and Game is largely in agreement with the suggested relief of the Zone Committee submission, but there are areas where our submission differs. I will explain these differences in more detail below.

- 11.4 Fish and Game's submission supports Environment Canterbury's submission in regards to the environmental standards specified in Policies 5.1 to 5.3. Stating levels of protection in measurements of nitrate toxicity thresholds, phosphorous concentrations, and percentage of periphyton cover is something that is both measureable and meaningful. It also aligns with Environment Canterbury's current monitoring in the mainstream of the Hurunui. There is some minor variation between the two submissions that needs further explanation.
- 11.5 In the relief sought for Policy 5.2, Fish and Game has only named two streams (Pahau and Waitohi) that would have a standard for periphyton cover. This seems appropriate as not all streams are appropriate for periphyton standards. The gravelly nature of these two named streams means that they are well suited to this form of measurement whereas stable spring-fed streams are not. Environment Canterbury has also included Dry Stream and the Waikari. Fish and Game agree that these streams are also appropriate for the imposition of periphyton standards.
- 11.6 The nitrate toxicity limit for 95% level of protection is considered appropriate for tributaries. This is consistent with recommendations from Hickey and Martin (2009)<sup>40</sup> for Canterbury waterways and should ensure the protection of the vulnerable life stages of brown trout such as alevin and fry. This applies the commonly used approach of protecting brown trout as an indicator species which should also protect most if not all of the indigenous species by default as well. Fish and Game maintains that nitrate toxicity needs to apply to all streams and not just the named tributaries in the relief sought for Policy 5.2 in Environment Canterbury's submission as trout and other nitrate sensitive species inhabit a far greater range than just the named tributaries

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<sup>40</sup> Hickey CW, Martin ML 2009. A review of nitrate toxicity to freshwater aquatic species. NIWA client report HAM2009-099. Prepared for Environment Canterbury.

### **Rules in relation to Water Quality**

- 11.7 Fish and Game supported rule 10.1 as notified to recognise a reasonable phase in period for existing land users that are not intensifying their current land use. The risk from current land use is reasonably well understood and there are no significant long term lag effects from the nutrient loss from the farm to surface water as there is in many other parts of Canterbury (estimated to be 7 years at the most in the Culverden Basin for nitrates). As current water quality is considered generally acceptable, that level should be maintained with current land use and improved as existing land users adopt nutrient management practices.
- 11.8 This provision also reflects HWZC discussions about phasing in land use controls for existing land uses. It was generally agreed amongst HWZC members that existing users need to be given time to phase in measures to reduce their nutrient discharge. Non-statutory measures were favoured for existing land uses with the intention that this would create some nutrient "headroom" for further irrigation development to keep within the Hurunui load limits.
- 11.9 Fish and Game supports rule 10.2 in principle but has two suggested changes. Firstly, the reference to "resulting in an increase to a discharge of nitrogen or phosphorous which may enter water" should be removed if a definition of land use is going to be provided under Part 5 of the HWRRP. The current wording of this rule is inconsistent with the amended definition sought by Environment Canterbury's submission.
- 11.10 Secondly, Fish and Game submits that rule 10.2 needs to become operative from the date of notification (1 October 2011). If a change in land use will result in the loads listed in Schedule 1 being breached, then controls on that land use need to be implemented straight away. The biggest risk to Hurunui water quality is land use change.
- 11.11 Fish and Game does not believe this will be an onerous requirement to landowners, as a consent for land use change would only be

required if Hurunui load limits were being breached. Surely this would be appropriate action to take if the receiving environment is being adversely affected. The current proposed framework leaves a five year gap where load limits can be breached by any amount and no statutory measures would be taken until 2017. This seems hard to justify given the objectives and policies in this plan and the environmental standards that are to be met. As stated by Dr Young in his evidence, it is hard to claw back nutrients after additional intensified land use has been developed.

11.12 Fish and Game believe that the reason why the HWRRP proposed a delay in requiring consents for changes in land use is a misinterpretation of Zone Committee discussions about phasing in land use controls for existing land uses. I do not recall any discussions regarding a phase in period for rules on intensifying land use. Unfortunately all this does is create a gold rush to change land use before 2017, before consents to do so are required. This will undo any good progress made by the existing users to lower the overall catchment load.

11.13 It is interesting to note that environmental groups have not pushed for tougher requirements on existing users. I believe the only reason environmental groups have not challenged Environment Canterbury's reasonably relaxed rules on existing land users is that they can live with the current situation as long as water quality does not get any worse.

11.14 Fish and Game has submitted to have thresholds of nutrient loads in the Hurunui that determine activity status. To be a discretionary activity under rule 11.2 we have submitted that these thresholds should be 110% of the Schedule 1 load limit for phosphorous and 125% of the threshold for nitrogen. The tighter threshold on phosphorous of only 10% seems appropriate given the focus on phosphorus management in the catchment as the limiting nutrient for periphyton growth. Limiting phosphorous is generally easier than nitrogen because phosphorous can be controlled using techniques to

limit surface runoff such as riparian planting/buffering of surface water and conversion of border dyke to spray irrigation.

11.15 Although it is a more “lenient” threshold for nitrogen, it is still important to have this threshold to ensure the mainstem does not have concentrations that reach a toxicity level of 1.0mg/l as specified in Policy 5.1. There is also research currently being carried out to determine if nitrogen plays more of a role in cyanobacteria which is responsible for toxic algae blooms in many Canterbury Rivers. These blooms can render contact recreation unsuitable and have been lethal to dogs.

11.16 Fish and Game’s relief in terms of the thresholds mentioned above is consistent with Environment Canterbury’s submission. Our submission does differ in that we believe this rule needs to become operative from the date of notification for the same reasons as rule 10.2.

11.17 Environment Canterbury have also proposed the inclusion of a new rule (rule 11.3 in the track changes version of the HWRRP attached to Ms Grace’s evidence) that would make land use change a non complying activity if the Schedule 1 limits are breached by over 110% for phosphorous and 125% for nitrogen. This is considered appropriate and is supported by F&G.

## **12. SECTION 42A REPORT – LIZ WHITE**

12.1 In paragraph 30 Ms White states that outcomes sought through the ZIP and advanced through the HWRRP are consistent with the purpose of the RMA.

12.2 In some parts the ZIP are consistent with Part 2 of the RMA. However, some of the recommendations in the ZIP are in my view inconsistent with Part 2. This includes recommendations to keep the Upper Hurunui open to large scale hydro and irrigation development in a nationally important ecological and recreation setting, and also to allocate large amounts of water on both the Hurunui and Waiau Rivers

where this will have significant effects on ecological and recreational values and on the life supporting capacity of the Rivers.

- 12.3 In addition, there are also some parts of the ZIP and Zone Committee discussion that have been misinterpreted in the transition to a statutory document such as the HWRRP. An example of this is the delay in addressing controls on any new land use change until 2017, which will allow water quality in the Hurunui to degrade.
- 12.4 At paragraph 32 Ms White states that the ZIP is a relevant consideration, and represents a consensus community approach to the best way to achieve section 5 RMA.
- 12.5 While I agree that consideration should be given to the outcome of the collaborative process, there are serious flaws in using a consensus approach to protecting environmental values. It is almost impossible to get consensus on no go areas for development in order to have sustainable development. For example on the Hurunui Waiau Zone Committee, it was not possible to reach consensus that the Upper Hurunui should be protected from development, even though it is well recognised in various studies and reports that the upper Hurunui is an nationally important ecological and recreational setting. In order to reach consensus the environment always has to be compromised.
- 12.6 The Zone Committee process was an entirely inappropriate format for making recommendations on nutrient limits and areas for storage development. The meeting agendas did not allow sufficient time for information to be presented in a level of detail required to make sound well reasoned decisions.
- 12.7 Most of the recommendations made by the Zone Committee are based on the individuals' own values rather than the findings and recommendations of various studies and surveys in the area.
- 12.8 At paragraph 33 Ms White states that the ZIP ultimately informs how the purpose of the RMA is to be achieved in the context of this particular zone, its people and communities.

- 12.9 As someone who has sat on the Zone Committee and has been involved RMA statutory process for a number of years I cannot agree with this statement. The ZIP is an extraordinary piece of work and represents a significant achievement, but we should not delude ourselves into thinking that it is a perfect representation of how to achieve Part 2 of the RMA. Fish and Game's evidence will demonstrate that many of the objectives, policies and rules for the HWRRP, which have been informed by the ZIP, fall far short of RMA requirements.
- 12.10 At paragraph 200 Ms White concludes that the current storage trigger for a change to minimum flows should be retained.
- 12.11 The current trigger point does not represent a fair balance. A proper balance is in my view similar to RMA Part 2 principles that water is allocated to out of stream uses as long as life supporting capacity is safeguarded. ECan have already made statements (Pages 6-7 of HWRRP) that the current minimum flows may not meet life supporting capacity requirements if all of the allocated consents were to be used. It is then very obvious to me that if we allocate even more water under B block without raising minimum flows we are increasing the risk of not meeting life supporting capacity even more. If ECan is not prepared to safeguard the life supporting capacity of minimum flows now because of the effect on existing users then there should not be any further allocation of water. This was also the position of the Zone Committee. However, the intent of the Zone Committees position was lost when the trigger point of 20,000,000 cubic metres was notified.
- 12.12 At paragraph 272 Ms White considers raising minimum flows while decreasing the B block gap for the months of February to April and concludes that "provision for salmon migration and angler amenity will be maintained at the same levels as those provided prior to storage", and accordingly recommends no change to the notified regime.
- 12.13 I cannot agree with Ms White's reasoning here. It has been identified that the minimum flows must increase to improve the ability of salmon migration, so reducing the B block gap and maintaining current levels defeats the purpose of increasing minimum flows.

12.14 The whole idea of raising minimum flows is to improve fish salmon passage (along with other values). One would have thought that it is in everyone's interest, particularly those existing irrigators whose reliability of supply may be affected, that the increase in minimum flow will provide some ecological benefit and will not be undermined by reducing the gap between A and B block.

**Tony Hawker**

**12 October 2012**