

**ORARI-OPIHI-PAREORA ZONE WATER MANAGEMENT
COMMITTEE MEETING**

**Commencing at 12noon
(lunch available from 11.45am)**

on

Monday 14 May 2012

**Opuha Dam offices
875 Arowhenua Road
Pleasant Point**

ORARI-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE

Notice is hereby given that a meeting of the Orari-Opihi-Pareora Zone Water Management Committee will be held at the Opuha Dam Ltd premises, Arowhenua Road, on Monday 14 May 2012, at 12noon.

**** A working lunch will be available from 11.45am**

LOCAL AUTHORITIES (MEMBERS' INTERESTS) ACT 1968

Committee members are reminded that if you have a pecuniary interest in any item on the agenda, then you must declare this interest and refrain from discussing or voting on this item, and are advised to withdraw from the meeting table.

ORARI-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE

14 MAY 2012

AGENDA

	Time	Page	
1			Apologies
2		<i>Page 1</i>	Confirmation of Minutes 2 April 2012 Meeting
3		<i>Page 5 Page 6 Page 7</i>	Correspondence Outward - Submission on ECan Long Term Plan Submission to Upper Waitaki Zone committee Inward – Reply to submission on the Upper Waitaki Zone Implementation Programme
4		<i>Page 9</i>	Exclusion of the Public
5	12.10pm		Pareora Flow Plan – Vin Smith, ECan
6		<i>Page 10</i>	Readmittance of the Public
7			Public forum
8	12.30pm		Regional LAWP briefing – Vin Smith, ECan
9	1.30pm	<i>paper separately attached</i>	Water Use Report – Judith Earl-Goulet
10	2pm		BREAK
11	2.20pm		Briefing on Waitaki Plan – Christina Robb
12	2.35pm	Page 11	Regional Infrastructure update – Dennis Jamieson
13	2.50pm		Regional Committee update – John O’Neill
14	3pm		OWT floodplain strategy investigation – Philip Lees
15	3.25pm		Orari Catchment Plan – Jo Stapleton
16	3.50pm	Page 22	Immediate Steps funding recommendations – Emma Coleman
17	4pm		Update on implementation of ZIP and future work plan – Judith Neilson and Barbara Nicholas
18	5pm		Close of meeting

**ORARI-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE
FOR THE MEETING OF 14 MAY 2012**

Report for Agenda Item No 2

**Prepared by Joanne Brownie
Secretary**

Confirmation of Minutes – Committee Meeting 2 April 2012

Minutes of the 2 April 2012 Committee meeting.

Recommendation

That the minutes of the Committee meeting held on 2 April 2012 be confirmed as a true and correct record.

ORARI-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE

MINUTES OF THE ORARI-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE MEETING HELD IN MEETING ROOM 1, TIMARU DISTRICT COUNCIL, 2 KING GEORGE PLACE, TIMARU ON THURSDAY 2 APRIL 2012 AT 11AM

PRESENT Dermott O’Sullivan (Chairman), Tom Lambie, David Henshaw, Michael Oliver (from 1.10pm), John O’Neill (until 1.15pm), Mokai Reihana, John Talbot, Ad Sintenie, Tony Howey (until 11.50am and from 1.10pm), Mark Webb and Evan Williams

APOLOGY Michael Oliver (for lateness)

IN ATTENDANCE Barbara Nicholas (OOPs facilitator), Jo Stapleton (ECan), Julia Crossman (ECan), Christina Robb (ECan), Jason Evered (ECan) and Judith Neilsen (ECan)

1 CONFIRMATION OF MINUTES

Proposed David Henshaw
Seconded Mark Webb

“That the minutes of the Orari-Opihi-Pareora Zone Water Management Committee meeting held on 19 March 2012 be confirmed as a true and correct record.”

MOTION CARRIED

2 FEEDBACK ON ZONE IMPLEMENTATION PROGRAMME – PETER SHUTT

Peter Shutt addressed the committee on his views of the ZIP, in addition to his written submission. His key points were –

- The ZIP is difficult for the general public to read – poorly phrased, with too many cross references and duplications. It needs to be a document that encourages “Joe public’ to be on board
- The targets are all equally important
- The watersheds of the three rivers are all independent of each other and should be considered separately
- Need references to other groups such as SC Water Enhancement Group, Forest and Bird, Federated Farmers
- Concern that there are a number of directives in the document but money and manpower will need to be resourced to implement them
- He is grateful for the work of OOP committee
- The book entitled ‘Water’ has had a lot of work put into it, yet it is only words.

The Committee acknowledged his comments and explained that some of his suggestions have already been actioned. This is a first attempt at the ZIP and has been carefully thought about in its preparation, however it will be reviewed. Cost is an issue and it will take some time to achieve the ZIP’s aims. The book ‘Water’ was an attempt to collate all water resource management issues under the CWMS, in one document.

3 PLANNING WORK PROGRAMME UPDATE – ORARI FLOW PLAN

Jo Stapleton updated the Committee on the Orari Environmental Flow and Allocation Regime. Copies of the presentation were tabled at the meeting. A recent workshop proved successful in reaching agreement on policy options for the Plan. The presentation included an update on the policy options, water efficiency, water metering, water allocation, water permits, augmentation, water use restrictions, stream depletion, damming, flow sensitive catchments, variable options and the next steps. Members of the Committee raised issues relating to allocation and the importance of water metering and telemetry. The group is working well to progress through the significant amount of work required before notification on 28 July 2012.

4 PLANNING WORK PROGRAMME UPDATE – OPIHI REVIEW

Julia Crossman gave a presentation updating the Committee on work with the Opihi River review. The draft plan is due at the end of June 2012. Julia outlined current work being carried out and the methods being used for investigations, information and education, use of Water User Groups, river mouth openings, resource consents, and rules.

The benefits of looking at the OOP Zone rivers in an integrated way rather than river by river were pointed out. Some of the same concerns are shared by all three rivers and it would be better to engage with the community once, rather than at three separate times, to address the issues. The timeline for the various plans was outlined and how they fit with the Regional Implementation Plan, the Land and Water Regional Plan and ECan's Long Term Plan. There is a great deal of work required which needs to be balanced with the resources available to achieve the desired outcomes within the timeframes set out. The Opihi Plan may not be reviewed until 2018/19, if so other initiatives need to be put in place to address the river issues.

Proposed David Henshaw
Seconded Michael Oliver

"That a submission be made to ECan's Long Term Plan to request that ECan make resources available to ensure that Pareora consents can be reviewed before the 2012 irrigation season and Orari consents when the Plan is operative."

MOTION CARRIED

5 ORARI-OPIHI-PAREORA ZONE IMPLEMENTATION PROGRAMME

The Committee reviewed the final ZIP and noted 2 minor changes to be made before the main print run is done.

Proposed Mark Webb
Seconded Evan Williams

"That the Orari-Opihi-Pareora Zone Implementation Programme be adopted for recommendation to the Timaru District and Mackenzie District Councils and ECan."

MOTION CARRIED

6 DRAFT REGIONAL IMPLEMENTATION PROGRAMME

The Committee discussed the draft Regional Implementation Programme and noted the opportunity to meet with members of the Regional Committee on 11 April.

The OOP Committee members identified a number of queries/comments in relation to the dRIP –

- Suggest flagship projects be more prominent
- Environmental indicators – query why areas of high biodiversity/cultural significance from the OOP zone are not included (eg Kakahu Forest, Peel Forest, Claremont bush), query why entire Rangitata is highlighted
- Hunter Downs not mentioned
- Clause 5.4 (page 27) RI.1.7 OOP committee want to be included
- Clause 5.4 (page 27) RI.1.8 should include South Canterbury as well as mid-Canterbury
- The Committee stressed that the RIP needs to focus on what is feasible and affordable.

Committee members are to email the facilitator with issues they want raised.

7 ACTIVITIES ‘ON THE GROUND’

Jason Evered gave a brief update to the Committee on activities he has been involved in such as progressing with farmers regarding improved on-farm practices and developing important working relationships with industry and organisations in the farming sector.

8 ENVIRONMENT CANTERBURY RESPONSE TO ZIP

Christina Robb talked to the committee on ECan’s overall programme in relation to the CWMS, the RMA water framework programme and the Regional Water Infrastructure programme. She explained the on the ground programmes such as water quality and quantity monitoring, urban waterways programme, water use efficiency programme and biodiversity. The priorities and resources for how these programmes would be delivered were also outlined, together with how they all fit with ECan’s Long Term Plan 2012-22.

9 NEXT MEETINGS

Committee meetings for the next three months were agreed to –

Monday 23 April 1.30-3.30pm at Fish and Game rooms, Temuka

Monday 14 May 12noon – 5pm at Opuha Dam offices

Friday 8 June 1-6pm at Timaru District Council.

The meeting concluded at 3pm.

Chairman

ORARI-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE
FOR THE MEETING OF 14 MAY 2012

Report for Agenda Item No 3

ENVIRONMENT CANTERBURY LONG TERM PLAN

LTP submission from the Orari-Opihi-Pareora zone committee

The Orari-Opihi-Pareora Zone Committee was appointed under the CWMS in early 2011, and completed its initial Zone Implementation Programme in April 2012. This programme reflects considerable engagement with the local community and identification of local priorities.

The Orari-Opihi-Pareora Zone Committee notes in the draft Long Term Plan the programme of works for Water Quality, Quantity and Ecosystems (p.106-119), and in particular notes the 'Levels of Service: set environmental limits for water quality and quantity in Canterbury'. We notice that this is focussed on delivering the Regional Land and Water Policy and the sub-regional chapters of that policy.

In our zone implementation programme (finalised April 2012), the committee's recommendations included

1. Review consents in the Orari catchment as soon as possible after the Orari flow plan is operative (rec 2.1.4)
2. Review consents within the Pareora catchment that have a minimum flow condition as soon as possible after the Plan is operative (rec 2.1.8), and the committee has also noted in discussion that it would be preferable for this to happen before the 2012 irrigation season.

We see no provision in the plan for resources to do this, but believe it critical that these consents are reviewed as soon as possible to implement the community intent to make changes to the river. We submit therefore that resources be re-prioritised to enable these recommendations to be implemented.

Regards

Dermott O'Sullivan, chair
Orari-Opihi-Pareora Zone Committee

16th April 2012

Re: Submission for the Upper Waitaki Zone Committee Zone Implementation Programme:

To the Chairman:

We have read your Zone Implementation Programme with interest and note the priorities for your zone and the initiatives you are proposing.

We appreciate the comment in the ZIP (p.4) that you are very aware of the Orari-Opihi-Pareora zone committee and will work closely with us the future. This has also been recognised in our own Zone Implementation Programme and we too look forward to working together with yourselves and the Lower Waitaki South Coastal Canterbury zone committee around issues that will impact on us all. At this stage we wish to:

- a. Draw to your attention that we are a zone with limited access to alpine water, yet we may need access to more water if we are to meet some of the CWMS targets within our zone
- b. Note that while we are working closely with the regional infrastructure project and hope to be able to find solutions that will not draw on any Upper Waitaki water, there is no guarantee that such a solution will be found, and hence we are not ready to close the door on the future possibility that we would benefit from water taken from Lake Tekapo.

In light of that, we request that you make no decisions that close the door on that option being revisited at some stage in the future.

We and look forward to further conversations about this, and on other matters where we can work to further the targets of CWMS.

Regards

Dermott O'Sullivan
Chair, Orari-Opihi-Pareora Zone Committee

5/3/2012

Chair
Orari-Opihi-Pareora Zone Water Management Committee
C/O Secretary
Joanne Brownie
Timaru District Council
PO Box 522
Timaru 7940

Dear Chair,

Thank you for your submission on the Upper Waitaki Zone Implementation Programme (ZIP), and/or your attendance at one of the public or stakeholder meetings. We appreciate the support shown and the useful suggestions made.

The draft ZIP was released on the 27 February 2012 with submissions closing on 23 March. The ZIP was available online, at public meetings and at Council offices. Public meetings were held in Tekapo, Twizel and Omarama. Presentations were made to Waitaki District Council, Mackenzie District Council, the CWMS Regional Committee and Environment Canterbury. Twenty- eight people or organisations provided written feedback.

Summary of feedback

In general the feedback was constructive and very supportive of the Draft ZIP and there was general acknowledgement of the committee in putting the ZIP together, particularly given the wide and varied feedback received throughout the process. There were suggestions on how to improve the content, recommendations and implementation of the draft ZIP. A recurring theme was about ensuring all relevant parties were included in the responsibility columns, with many submitters wishing to be added to the responsibility of the recommendations. A few of the submitters seemed to approach their submission as if the ZIP was a highly developed statutory/RMA document rather than a strategy or programme for implementation.

Overall there was strong support for the approach advocated in the ZIP of integrated management across agencies and for a local catchment-based approach.

The need to address cross-boundary issues with the Lower Waitaki South Canterbury Coastal Zone and Orari- Opihi- Pareora Zone was highlighted in the feedback.

Feedback on the sections was as follows:

- *Water Quality, Supply, Nutrient and Effluent Management.* Acknowledgement of the high evapotranspiration, high growth rates and short growing season in the zone. Many submitters wished to be added into the responsibility of the recommendation regarding point source or source contaminants. The need to avoid or remedy adverse impacts on water was a strong point. Recognition of issues for the lower zone water extractors and the economic viability of agriculture in the zone. Setting of nutrient limits is critical alongside better scientific data and collaboration in centralising outcomes of data currently collected.
- *Braided Rivers:* Very strong support of protecting and enhancing the braided rivers, strong support of Project River Recovery. Suggestions in efforts involving weed and pest control and supporting the existing work of DOC, particularly in identifying and eradicating new species of weed coming into the zone. Many submitters wished to support projects in the zone and to be further involved.
- *Biodiversity:* To recognize the effects of flows, lake levels and river controls on fish species. Enhance and protect existing wetlands and develop new wetlands. Need to note relationship between biodiversity related enhancement and hydro electricity generation, Very strong support and wish for involvement in developing Management Enhancement Plans (MEPs) in the zone. Support initiatives to prevent and control high risk weed species and illegal coarse fish and other pest fish.
- *Prosperous and vibrant communities:* Strong desire to strengthen the ZIP by identifying the importance of farming to the region. Almost all submitters agreed that there is a lack of good data on externalities and economics of the zone. All supported developing sustainable and balanced economic growth. Clarification sought for "externalities".

Feedback received from the community provided added value to the development of the final ZIP and the zone committee agreed a number of changes to the draft as a result of this feedback.

A copy of the final ZIP is available by contacting Bronwyn Hardaker at Bronwyn.hardaker@ecan.govt.nz or 03 353 9007 or at

<http://ecan.govt.nz/publications/Plans/cw-upper-waitaki-zip.pdf>

We thank you again for the time and effort you have taken to be involved, and we look forward to continuing to work together on water management in the Upper Waitaki Zone.

Yours sincerely



pp

Meri Gibson
for the Upper Waitaki Zone Committee

**ORARI-OPIHI-PAREORA WATER MANAGEMENT COMMITTEE
FOR THE MEETING OF 14 MAY 2012**

Report for Agenda Item No 4

Exclusion of the Public

Recommendation

That the Council resolves to exclude the public on the grounds contained in Section 48(1) of the Local Government Official Information and Meetings Act:

Pareora Flow Plan

Section 7(2)(g)

The withholding of the information is necessary to maintain legal professional privilege.

**ORARI-OPIHI-PAREORA WATER MANAGEMENT COMMITTEE
FOR THE MEETING OF 14 MAY 2012**

Report for Agenda Item No 6

Readmittance of the Public

Recommendation

That the public be readmitted to the meeting.

AGENDA ITEM NO: 12	SUBJECT MATTER: OOP water demand and regional infrastructure update
REPORT BY: Dennis Jamieson, Brett Painter	
DATE OF MEETING: 14 May 2012	

ACTION REQUIRED

Discuss memo on water demand in the OOP zone and the update on the regional infrastructure project.

ATTACHED

1. Memo: Water demand in the OOP zone
2. Memo: Update on regional infrastructure programme

BACKGROUND

The Orari-Opihi-Pareora zone Zip identifies the importance of securing more water in order that it can deliver the CWMS targets in the zone. This includes both understanding the demand in the zone to achieve all the targets, and contributing to the regional work to design an integrated infrastructure solution.

In 15 February 2012, a draft demand report was presented to the water resources working group, and this has now being further developed for consideration by the whole committee.

In parallel, work on the infrastructure solution has been developing, and an update is here provided.

16 April 2012

MEMORANDUM



FROM: DENNIS JAMIESON

SUBJECT: ORARI-OPIHI-PAREORA (OOP) ZONE WATER DEMAND

Purpose of this paper

This paper has been produced to meet some specific information needs as requested in the OOP Zone Implementation Programme (ZIP). It is primarily to inform the Regional Committee of background flow demands in the OOP Zone to enable delivery of CWMS targets to assist in the development of a regional infrastructure solution that includes the OOP zone. The report is intended to help the OOP Zone Committee articulate and promote their case.

In order to understand the dynamics of the OOP Zone water situation economic, policy & environmental drivers will be identified and put into context as the CWMS process proceeds. This involves a balancing between demands for irrigation, water to restore flow regimes in waterways and opportunities for better water use.

This paper will make use of previous reports and existing information to estimate flow demands for a variety of uses in the OOP zone. It identifies assumptions and has responded to local information during its drafting to fill information gaps to inform the regional strategy. It is not expected that information this will be perfect, but rather the emphasis will be on communicating the key challenges affecting this water short zone for use in the regional process.

Introduction

The OOP zone is a water short zone which faces a series of challenges and opportunities with water. These are related to the desire to expand the positive effects of irrigation in the zone while also improving environmental outcomes. The former implies increased water to irrigation while the latter implies more water for the environment.

Increased efficiency of water use and water transfer into the zone are two options for consideration. However before considering solutions, the flow demands to enable delivery of the CWMS is required. This paper is a step towards that, but it is also important to acknowledge that as opportunities to increase water supply, make better use of water and improve the environment are identified, the demand will also respond to the cost and other attributes of any proposed water infrastructure solution.

Irrigation

The area considered irrigable in this zone has been strongly influenced by the costs and configuration of previously proposed supply systems. Previous estimates of irrigable area for the zone are relatively simplistic and appear to be generally based on what is best described as "unlimited water, low cost scenario". For context the CWMS stage 1 study estimated an irrigable area of 132,000ha for the Opihi-Orari area alone,

based on a simple slope criteria (<15°) and excluding some categories of land considered unsuitable.

The topography in this zone is complex and hilly, compared to CWMS zones to the North. It contains many pockets of land that could be considered for irrigation depending on the convenience and cost of water supply and effects of water use.

The hilly terrain contains many areas of steeper dryland which are managed together with existing areas of irrigation. It has been noted in an economic report on the Pareora (Harris 2010) that:

“The irrigation has been treated as a standalone unit on each farm. However in each case the irrigation is part of a complex farm system which in most cases combines a larger dryland operation with a much smaller area of irrigation. As was shown in the study of the Opuha, the impact of irrigation on profitability extends beyond the production from the irrigated block and in that study total impacts on cash farm surplus and profit were approximately double those on the irrigated area alone. These impacts arise because the irrigated block is integrated into the farming system, allowing the farmer to increase returns from the dryland block.”

This indicates that the pattern of irrigation development in the OOP zone may differ from zones to the north where favourable topography allows a much greater proportion of land to be considered for irrigation.

In a report on North Integrated South Canterbury Irrigation (NISC) Concept Development dated 16 October 2009, URS presented first order estimates of irrigable areas in South Canterbury. The estimates were considered first order as they were made without consideration of detailed soil type and topography information. The estimates were sourced from an earlier URS study (2004) and are based on 1:50,000 topographical map data (20m contours) and first hand observations by various members of the URS led team.

The irrigable areas estimates are for areas north of the Pareora River/Tengawai catchment boundary, which was assumed to represent the boundary of the Hunter Downs Irrigation (HDI) area. The most detailed information applies to two command areas, Opihi and Fairlie-Albury. A third command area, Timaru Downlands, is identified as having a net irrigable area (12,500ha) but is not a direct subject of the NISC study. Additional irrigable land lies between the Orari and the Rangitata, some of which will be irrigated by the Rangitata South Scheme described below.

The URS 2004 report allows for uptake factors on gross irrigable areas and is based on an average crop water demand of 0.45 l/s per hectare (gross allocation including off farm losses) or 350 mm/ha/year. These demand estimates are also assumed to apply to the Timaru Downlands command area. Net irrigable land allows for uptake of 60% to 75%. Information on the three areas is summarised in Table 1.

Irrigation Area Name	Net Irrigation Area (ha)	Peak Flow Demand (m³/s)	Annual Volume (million m³)
Fairlie-Albury	13,330	6.00	47
Opihi	30,840	13.88	108
Timaru Downlands	12,500	5.63	44
Total (Sum of above)	56,670	25.51	199

Table 1: Irrigable areas and water demand in three OOP command areas

The table above summarizes irrigable areas and demand without allowance for the Opuha scheme irrigation area or for additional individual consents. Information on the areas irrigable from the Opuha Dam (i.e. already supplied or earmarked for supply from the Opuha Dam) and the additional individual consents from URS 2009 is summarised in Table 2 below.

Irrigation Area Name	Net Irrigation Area (ha)	Peak Flow Demand (m³/s)	Annual Volume (million m³)
Totara Valley	1,400	0.63	4.9
Kakahu	3,200	1.44	11.2
Levels Plain	3,900	1.76	13.7
Additional individual consents	7,500	3.38	26.3
Total (Sum of above)	16,000	7.20	56.1

Table 2: Irrigable areas and water demand in Opuha and individual consent supplied areas

In order to correct for double counting the irrigable areas in table 2, they need to be subtracted from the Opihi Zone figures presented in Table 1. This results in the estimate of net new irrigable area shown in Table 3.

Irrigation Area Name	Net Irrigation Area (ha)	Peak Flow Demand (m³/s)	Annual Volume (million m³)
Fairlie-Albury	13,330	6.00	47
Opihi	14,840	6.68	52
Timaru Downlands	12,500	5.63	44
Total (Sum of above)	40,670	18.31	143

Table 3: Additional irrigable areas and water demand in South Canterbury (excluding HDI)

Methods of irrigation were not specified in the NISCI report. The nature of the land assessed as suitable suggests that contemporary methods of spray irrigation were envisaged.

The report "Review of the Hydrology, Water Allocation and Management of the Pareora Catchment water resources by de Joux and Scarf (Jan 2010) indicates that 1,360/s in total is currently consented to be taken from the surface and unconfined groundwater of the Pareora. Of this 940 l/s is deemed to directly impact river flow. This is considered to

represent irrigation of some 2,000 ha at the URS 2004 estimated water demand cited earlier in this report. Similar data for the Opihi and Orari are currently being assembled as part of planning processes. Part way through this process no estimate is available for the Opihi, while an unconfirmed preliminary estimate for the Orari is 2,800 l/s representing some 6,200ha.

An additional irrigable area in the OOP zone is that commanded by the Rangitata South Irrigation Scheme which is currently under construction. This has a command area of 30,000ha, a gross irrigable area of 12,000ha and a nett irrigable area of 7,000ha. Groundwater used to irrigate some areas within the scheme zone had not proved sufficiently reliable and will remain available to irrigators while augmented from surface supply from the Rangitata.

Deep groundwater, considered non-hydraulically connected, is also abstracted for irrigation in the OOP zone. Available information is shown in table 4.

Catchment	Peak Flow (l/s)	Area Irrigated (ha)
Orari	TBC	11,100*
Opihi	TBC	TBC
Pareora	400	941
Other	TBC	TBC
Total (Sum of above)	TBC	TBC

Table 4: Deep Groundwater consents used for irrigation in the OOP Zone

*Includes all land parcels in Orari with groundwater consents actively used in 2006/7 year

Urban communities

The Timaru drinking water is supplied from an intake in the upper Pareora gorge and from groundwater in the Opihi catchment. The Pareora is the preferred source due to better water quality and lower cost gravity supply as the Opihi source water is pumped. Waimate District Council takes water from the Pareora catchment for a rural water supply scheme and a number of small community water supplies. The Opihi provides surface and groundwater to water supplies in Mackenzie and Timaru districts. Both rivers supplying Timaru District and its industries struggle with reliability. Expansion of industry and increased urban populations associated with economic development will require access to more reliable water in the future.

Environmental

All three rivers are currently subject to processes reviewing planning documents. The Orari Plan is progressing towards notification in July 2012. The Opihi River Regional Plan is undergoing a 10-year efficiency and effectiveness review with a projected finish date of 30 June 2012. The decisions on the submissions and further submissions on the proposed Pareora Catchment Environmental Flow and Water Allocation Regional Plan and Variation 18 to the Proposed Natural Resources Regional Plan have been notified with a closing date of 15 February 2012.

Future environmental flows will be set under the National Policy Statement (NPS) on Freshwater that came into effect on 1 July 2011. A guide as to how interim environmental flows are likely to be set is contained in the proposed national Environmental Standard (NES) on Ecological Flows and Water Levels which is being considered as part of the Land and Water Forum process. Small rivers and streams with mean flows less than 5 m³/s have a proposed minimum flow level of 90% of Mean Annual; Low Flow (MALF).

However complex water systems with links and interactions between surface and groundwater such as is the OOP zone are candidates for level and flow regimes that need to provide flushing flows as well as minimums to preserve ecosystem processes. Hence the interim flows of the NPS/NES have little relevance hence other than to set an absolute minimum expectation.

The three rivers are perennial in their headwaters but intermittent in their mid sections which display the characteristic drying spells, with no or negligible surface flow, of intermittent (or ephemeral) hill-fed Canterbury rivers. Indigenous flora and fauna have evolved to these conditions, including diadromous indigenous fish. Trout are valued sport fish where present as are Salmon, which will colonise any available suitable waters.

Environmental flows set in the each river generally reflect the above values. An exception is in the Opihi catchment, where the Opuha Dam has provided reregulation of flows to supply sustained flows in some river sections. Experience with more stable and sustained flows has indicated the desirability of allowing for flushing flows in this type of river.

Orari

The Orari River and its tributaries currently have ten minimum flow sites. Many are connected to water abstraction consent conditions as shown in Table 5.

Low flow location	Comment
Orari River Gorge	Minimum flows of 2106, 2166, 2203, 2950 l/s depending on consent
Orari River at Upstream of Ohapi confluence	Minimum flow of 200l/s
Coopers Creek at SH72	Minimum flow of 50l/s
Coopers Creek at upstream Orari confluence	Minimum flow of 100l/s
Ohapi Creek at Brown Road	Minimum flows of 570, 730, 1000 (50%), 1100 (50%) l/s depending on consent.
Canal (Rhodes) Drain at Parke Road	Minimum flow of 60l/s
Petries Drain at upstream of stopbank culvert	Minimum flow of 70l/s
Burkes creek at Milford Clandeboye Road	Minimum flow 160 and 200 (50%)l/s depending on consent
Hewson River at Locharbe Bridge	Minimum flow less than 830l/s
Dobies Stream	Actually tied to Temuka as Orari flows not affected

Table 5: Orari catchment current minimum flows

The lower section of the Orari is valued for recreational activities including fishing. This is reflected in the number of low flow sites in the lower catchment. The Orari Plan proposes some possible increases in flow during some seasons.

Groundwater allocation is considered to be near or above limits in the Orari catchment. Surface & ground water are closely connected. Rising nitrate levels have been measured in lower spring-fed creeks.

Opihi

The Opihi has a complex set of competing demands for water use. Augmentation from the Opuha dam has modified flow in parts of this system as well a supporting more intensive irrigated land use.

Minimum flows are set at 25 sites in the Opihi catchment. Of these eight are remotely monitored while the remaining 17 are assessed by manual gauging.

Environmental challenges in the system include increasing nitrate concentrations in groundwater in the Fairlie / Ashwick Flat area, nitrate concentrations exceed drinking-water standards in some wells, increasing nitrate concentrations in the Opihi (although possibly still below limit) and a flushing flow issue in Opuha.

The Opihi supplies a large number of water supply schemes. This includes a groundwater take of 329 l/s for the Timaru Urban supply. The Opihi supplies around 50% of the TDC take, with the Pareora River the other supply. While the Pareora take has a smaller peak flow, it is more heavily used as it does not require pumping and has better water quality than the Opihi water. The water supply for TDC from the Opihi and Pareora are critical for the social and economic wellbeing of the city's people and businesses.

Pareora

The usual state of the Pareora River is to have extremely low flows. From a water abstraction perspective, Environment Canterbury regards the Pareora River as being over-allocated both for groundwater and surface water. The ECAN officer's right of reply report on the Proposed Regional Plan (approx. August 2011) includes the following table and commentary summarising the challenges of balancing competing demands in the Pareora at 'the Huts' flow recorder site.

	<i>Current</i>	<i>Draft NES</i>
<i>Minimum Flow</i>	<i>300l/s</i>	<i>594 l/s (90% of MALF)</i>
<i>Allocation Block</i>	<i>1000l/s</i>	<i>198 l/s (30% of MALF)</i>

Table 6: Comparison of Pareora allocation and minimum flow against draft NES (n.b. Table 1 in original report)

Where you have an existing minimum flow which is less than half of the (naturalised) MALF, and an allocation block which is almost two times the size of MALF, making significant improvements to the river environment and its associated values in the short term becomes incredibly difficult. In addition to this, the Pareora River loses around 430 L/s of water between the huts recorder site and State Highway 1, and this must be factored into considerations too. That is, in order to have continuous flow in the lower river between the huts recorder and State Highway 1, taking into account the existing A Permit allocation downstream of the huts (~650 L/s) and the natural flow losses from the river (430 L/s), you require a flow at the huts in excess of 1000 L/s.

Another consideration that has to be borne in mind when considering the A Permit minimum flow recommendations of some submitters of MALF (660 L/s) at the huts, is that this figure is the naturalised MALF. That is, it does not take into account the abstractions (in excess of 200 L/s) occurring upstream of the huts.

There are problems with periphyton build up in summers which are considered to be influenced more by sustained low flows than water quality effects.

The Timaru District Council (TDC) is heavily reliant on the Pareora River as a source of water for households and industry in the city of Timaru. The TDC water take is the

largest in the catchment, with a maximum consented rate of take of 215 L/s. It accounts for around 50 percent of Timaru City's annual domestic and industrial water supply.

The Pareora Processing Plant owned and operated by Silver Fern Farms Ltd., is located near the coast on the northern bank of the Pareora River. The original minimum flow on the Pareora River (300L/s at the huts flow recorder site) was set in the early 1980s to ensure that there was sufficient flow in the lower river to enable the processing plant to abstract water from their infiltration gallery. Water is still abstracted from this gallery day at a maximum rate of 227 L/s. At this rate it has been assessed as having a stream depletion effect of 71.3L/s on the Pareora River. The processing plant uses two deep bores (both more than 100m deep), which are considered not hydraulically connected to the Pareora River, to abstract water when river levels are low and the infiltration gallery cannot keep up with demand.

The Pareora catchment Environmental Flow and water Allocation Regional Plan notified on 21 January 2012 proposes that current minimum flows in the Pareora be lifted from 400-300 l/s (Oct-Nov and Dec-Sept) to 470–370 l/s when the plan becomes operative, then 540-440 l/s five years later. These flow increases provide benefits to anglers while moving towards NES default levels. In addition the allocation limit for A Permits is proposed to be 198 l/s, consistent with the draft NES referred to above.

Climate change effects

An analysis study of climate change effects on the Rangitata (NIWA, 2008) indicated that in addition to rainfall being expected to continue to fall in the wrong place at the wrong time there are additional effects expected.

The expected changes from the 1980-99 period to the 2030-49 period include:

- Minimal rainfall change on plains.
- Up to 400 mm/y increase in headwaters of the Rangitata.
- ~60 mm/y increase in PET on the plains down to small decrease in headwaters.
- ~1°C average annual increase in temperature.
- Average flow to increase in the Rangitata by ~8% but with seasonal variations:
 - ~18% increase from August to October.
 - ~1-2% decrease in December / January.
- Water supply reliability from surface and groundwater is expected to reduce.

Overall this indicates that water demand in the OOP zone will increase while water supply for local sources other than the Rangitata will decrease.

Important summary demand statistics

- Flow required to supply 132,000 ha: 60 m³/s (based on 0.45 l/s/ha)
- Flow required to supply 41,000 ha: 18 m³/s (based on 0.45 l/s/ha)
- Current consented flow from Pareora 1.36 m³/s (3,000 ha at 0.45 l/s/ha)
- Current consented flow from Orari: 2.8 m³/s (6,200 ha at 0.45 l/s/ha)
- Current consented flow from Opihi: TBC
- Pareora MALF: 640l/s (Huts flow site, naturalised)
 - Current Pareora minimum flow 300l/s
 - Pareora minimum flow under proposed NES: 576 l/s (90% of MALF)

3 May 2012

MEMORANDUM

FROM : BRETT PAINTER, DENNIS JAMIESON

SUBJECT : CWMS WATER INFRASTRUCTURE UPDATE

The CWMS identifies infrastructure as a means to contribute to all CWMS target areas, not just the supply of water for irrigation and hydro-electricity. In particular, infrastructure can address future-proofing issues such as ecosystem support in a changing climate and water quality management through enhanced reliability and distribution efficiency. The water infrastructure initiatives in this update are therefore being addressed in connection with complementary initiatives in other CWMS workstreams, government agencies and the private sector.

1. INTEGRATED OPTION FOR HURUNUI-WAIAU

The Amuri Integrated Water Project (Meridian Energy and Ngāi Tahu Property Holdings) are progressing their investigations for a hydro-generation, storage and distribution scheme involving water from the Waiau River and storage at Isolated Hill (or nearby). Current work includes Waiau River flow gauging, groundwater/surface water interactions, potential irrigation demand for stored water, and community liaison. The project is considering voluntarily and temporarily placing their consent applications on hold until the new Hurunui-Waiau Regional Plan is in place, as this new plan has been significantly influenced by recent Zone Committee and other community efforts.

Ngāi Tahu Property Holdings, Meridian Energy, Hurunui Water Project and Amuri Irrigation Corporation have been working together on developing an optimal integrated water solution for the Hurunui-Waiau Zone. The Canterbury Water Infrastructure team at Environment Canterbury have recently been invited to participate in this process. Key issues are the understanding of potential demand, the division of this demand between schemes, and flow on effects such as infrastructure design, staging and cost.

2. LEES VALLEY

The water supply working group of the Waimakariri Zone Committee have continued to be actively involved in water supply option consideration and landowner discussions. Following the confirmation of significant challenges with ideas to bring water in from the Waimakariri and Esk Rivers into a storage lake at the head of the Ashley River gorge, two new in-catchment ideas were considered. These have undergone strategic assessment and the Waimakariri Zone Committee have supported the progression of one of these options to full feasibility. Directly affected landowners have requested that this option remains confidential until initial discussions with the development entity have reached a satisfactory conclusion.

Additionally, a watching brief is being kept on Waimakariri Irrigation Limited, who are progressing into the consenting phase for their 8.4 M³ potential storage option.

3. MANAGED AQUIFER RECHARGE

Preliminary strategic assessment of Managed Aquifer Recharge (MAR) concluded that Canterbury aquifers were unlikely to provide alternatives to above-ground storage, but could provide other benefits if considered as part of integrated infrastructure design. A series of experiments are currently underway in mid-Canterbury to better understand the potential of different MAR approaches for coastal Canterbury.

4. SELWYN-WAIHORA

Trustpower's application to change the Rakaia River WCO is currently being heard. This process was expected to complete in May 2012, but may be delayed due to the health issues of one of the hearing commissioners. The application contains three key components:

- Define "stored water" and exempt its use from the WCO;
- Identify a mechanism for existing consent holders to utilise "stored water"; and
- Allowance for future infrastructure and discharge consents.

The Selwyn-Waihora ZIP has recommended collaborative progression of innovative water storage solutions to meet CWMS targets in the zone. Combined meetings to understand potential development options have been held and cultural, environmental and recreation information has been gathered. The next step in this process is a meeting with CWMS Rūnunga representatives on May 10 to consider potential cultural and ecological "showstoppers" in the upper catchment. This information will be taken back to development interests and CWMS committees. Any emergent options will then be taken to directly affected landowners and agreed options will be run through full strategic assessment.

5. SOUTH CANTERBURY

The Orari-Opihi-Pareora Zone Committee have engaged with development interests on new water infrastructure ideas and have supported the progression to pre-feasibility level of a new integrated option. Next step investigations require integrated progression with four other processes:

- The potential northern boundary of the Hunter Downs Irrigation Scheme;
- The sizing and distribution of water from the potential RDR storage site near Klondyke;
- Integration with Rangitata South Storage; and
- The potential redistribution of already consented water from the Rakaia and Rangitata River systems that could free up water for South Canterbury.

The Regional Distribution Model is expected to play a key role in the above considerations.

6. REGIONAL DISTRIBUTION MODEL

The Regional Distribution Model is a computer model to assist CWMS water management planning (environmental flows, groundwater allocation, water efficiency improvements and infrastructure planning). It focuses on systems level (i.e., not detailed) interactions between climate, surface water, groundwater and water infrastructure. Version 1.0 of the model covering the area between the Waimakariri and Rangitata Rivers is expected to be available by late May 2012. Work is about to start on Version 2.0 of the model, which will extend north to the Ashley River and south to the Pareora River. The model will initially be used to explore future potential water management scenarios with CWMS committees and development interests. The model runs very quickly, enabling a wide number of scenarios to be analysed.

7. WIDER RELEVANT ACTIVITIES

The ECan CWMS Infrastructure team is maintaining a close working relationship with the Irrigation Acceleration Fund (IAF) team at the Ministry for Primary Industries to ensure consistency between IAF and CWMS targets. An IAF application has been lodged by ECan to enable new options in the Regional Distribution Model as described above.

Contact has been initiated with government and private sector agencies active in other infrastructure sectors (Transport, Telco, Energy and (urban) water) identified in the National Infrastructure Plan (2011) to determine the capabilities needed for successful multi-objective project formulation and delivery. The objective is to learn from the experience of other agencies that have actual and relevant experience in initiating work and as the “owners” of the results of development.

The ECan CWMS Infrastructure team has engaged with additional irrigation related initiatives across Canterbury in proportion to their potential effect on delivery of CWMS targets. Examples include the proposed Hunter Downs Irrigation scheme (and its associated IAF application) and a strategic water study being formulated by the Waitaki Irrigation Collective for the area from Waitaki Dam to Duntroon on the South bank of the Waitaki River. As well as ensuring consistency with CWMS targets, engagement with such initiatives is a source of good practice examples to inform regional and national processes.

AGENDA ITEM NO: 16	SUBJECT MATTER: Immediate Steps (IMS) funding recommendations
REPORT BY: Emma Coleman	
DATE OF MEETING: 14 May 2012	

The biodiversity selection panel met on the 23rd April to discuss the first round of project applications and make their recommendations for the wider committee on IMS funding.

These recommendations are:

Projects to receive funding:

1. Old Orari Lagoon Enhancement
2. Deep Stream (second year of the project)
3. Pit Rd Reserve Lizard Sanctuary
4. Otipua Dune Restoration

Projects declined for funding:

5. Timaru South Beach Enhancement

The selection panel recommended the landowner would need to contribute more to this project and the values of this site were not as easily aligned with CWMS targets as the other projects.

This would amount to an allocation of \$61,005.70 which brings the total IMS funding allocation to \$117005.70.

The next selection panel meeting will occur in July 2012.

Project Details					Assessment Criteria		Overall Ranking
Project Name	Location	Target Water Resource	Immediate Steps Contribution	Landowner Contribution	Eco. Score	Other <i>e.g. priority area, within lower Orari catchment, catchment group initiative, cultural values</i>	
Old Orari Lagoon Enhancement	Orari mouth	Coastal lagoons	\$9500.00 (fencing materials) + ~\$2500.00 (alternative stock water) = \$12000.00	\$10000.00 (fencing labour) + ~\$2500.00 (alternative stock water) = \$12500.00	31	PA – Lowland streams and lagoons, wetlands, activities that enhance biodiversity habitat, mahinga kai and sports fisheries, remnant habitats Culturally significant Within lower Orari catchment	High Recommend funding; scores highly on all criteria, landowner is committed
Deep Stream	Mesopotamia	Wetlands, Braided rivers	\$20000.00	\$15000.00 (Fish & Game) \$10000.00 + labour (landowners)	34	PA – Wetlands, activities that enhance biodiversity habitat, mahinga kai and sports fisheries, remnant habitats	High Recommend funding; scores highly on ecological assessment, landowner's committed, proven project management
Pit Rd Reserve Lizard Sanctuary	Orari bridge	Drylands	\$20360.70	Timaru DC funds	27	PA – Remnant habitats and their unique flora and fauna, Activities that enhance biodiversity habitat Could act as a refuge for displaced lizards in Rangitata South area	Medium Recommend funding; high ecological score, addresses CBS goal – integration of indigenous species within modified envs.
Otipua Dune Restoration	South Timaru	Wetlands, Drylands	\$8645.00	Labour for planting and maintenance	18	PA – Remnant habitats, wetlands, activities that enhance biodiversity habitat Culturally significant Collaboration with NZ Sand Dune Restoration Trust	Medium Recommend funding; high value biodiversity project, strong community commitment and collaboration with external agencies, culturally significant
Timaru South Beach Enhancement	Prime Port Timaru	Drylands	\$19700.00	Labour for planting and maintenance	17	PA – Remnant habitats, activities that enhance biodiversity habitat	Low Difficult to link in with CWMS targets

