

**42<sup>nd</sup> MEETING OF THE  
REGIONAL WATER MANAGEMENT COMMITTEE**

**Tuesday 12 April 2016 at 1:30-6pm**

**TO THE CHAIR AND MEMBERS OF THE  
REGIONAL WATER MANAGEMENT COMMITTEE**

**MEMBERSHIP OF THE COMMITTEE**

Andy Pearce (Chair)

<b>Community Representatives</b>	
Hugh Canard	Hamish Cuthbert
John Donkers	Rochelle Hardy
Jane Demeter	Hugh Logan
<b>Zone Representatives</b>	
Matt Hoggard	Kaikoura
Michele Hawke	Hurunui-Waiau
Claire McKay	Waimakariri
Steve Lowndes	Banks Peninsula
Vacant	Christchurch-West Melton
Ron Pellow	Selwyn-Waihora
Ben Curry	Ashburton
John Talbot	Orari-Opihi-Pareora
Barry Shepherd	Upper Waitaki
Bruce Murphy	Lower Waitaki-South Coastal Canterbury
<b>Christchurch City Council</b>	Phil Clearwater
<b>District Council Representatives</b>	
Winton Dalley	North Canterbury
Angus McKay	Mid Canterbury
Peter Scott	South Canterbury
<b>Te Rūnanga o Ngāi Tahu</b>	Rebecca Clements
<b>Ngā Rūnanga</b>	Vacant
	Vacant
	John Wilkie
<b>Commissioners</b>	David Caygill
	Tom Lambie
<b>Central Government Observer</b>	Nick Vincent Kevin Steel
<b>CDHB Observer</b>	Alistair Humphrey

**VENUE:** Lincoln Event Centre, Meijer Drive, Lincoln  
<http://www.eventfinda.co.nz/venue/lincoln-event-centre-selwyn-lincoln>

**BUSINESS:** As per Order Paper attached.  
Agendas are available on our website three days prior to the date of the meeting -  
<http://ecan.govt.nz/news-and-notice/minutes/Pages/Default.aspx>

*Everything is connected*

*Facilitating sustainable development  
in the Canterbury region*

P.O. Box 345, Christchurch 8013

P: 03 365 3828

F: 03 365 3194

[www.ecan.govt.nz](http://www.ecan.govt.nz)



**Environment  
Canterbury**  
Regional Council  
*Kaunihera Taiao ki Waitaha*

## COMPLIANCE WITH LOCAL GOVERNMENT ACT 2002 DECISION-MAKING REQUIREMENTS

Except as below, a statement of compliance and a completed decision checklist is required for any agenda item on a council committee or the council recommending that a decision be made. This will be the responsibility of the person signing off the agenda item.

### The compliance statement and checklist will not be used for:

- Recommendations that information be received or that the Council make a decision.
- Decisions taken under the Resource Management Act 1991 or the Biosecurity Act 1993 in relation to resource consents, decisions required when following the procedures set out in Schedule 1 of the Resource Management Act 1991, other permissions, submissions on plans, or references to the Environment Court.
- Decisions taken to proceed with enforcement procedures under various primary or secondary legislation or regulations, including procedures under the Resource Management Act 1991, the Biosecurity Act 1993, the Local Government Act 2002, and Environment Canterbury Bylaws.
- Administrative and personnel decisions that are entirely internal to Environment Canterbury.
- Other decisions where the procedures to be followed are set out in Legislation.

### COMPLIANCE STATEMENT

The council committee (or the council) must formally certify that:

- (a) It is satisfied that it has sufficient information about the options and their benefits and costs, in terms of the region's social, economic, environmental and cultural well-being and the effects on community outcomes, bearing in mind the significance of the decisions.
- (b) It is satisfied that it knows enough about and has given adequate consideration to the views and preferences of affected and interested parties bearing in mind the significance of the decision.

### INFORMATION CHECKLIST

(a)	A Statement of the Proposed Decision
(b)	A Statement of the Objective of the Proposed Decision and the Issue or Problem being addressed
(c)	A list of all reasonably practicable options, (including doing nothing).
(d)	For each option in (c): An evaluation of the Benefits and Costs, in terms of the region's social, economic, environmental and cultural well-being.
(e)	For each option in (c): A statement of the extent to which community outcomes would be promoted or achieved in an integrated and efficient manner.
(f)	For each option in (c): A statement of the Impact, if any, on Environment Canterbury's capacity to undertake its statutory responsibilities
(g)	If the Proposed Decision is a significant decision in relation to land or a body of water, a statement of how Maori values have been taken into account
(h)	A Statement of significant inconsistencies, if any, with any Existing Policy, Plan or Legislation arising from the Proposed Decision.
(i)	A statement how the views and preferences of affected or interested persons have been given adequate consideration during the definition of the problem or issue, the objective, the assessment of options and the development of the proposed decision, including the particular contribution of Maori to the decision-making process.

### Notes:

The significance of proposals and decisions determines how much time, money and effort is put into exploring and evaluating options and obtaining the views of affected and interested parties. The significance of proposals and decisions is determined through reference to criteria contained in the policy on significance.

The policy on significance together with Section 76 of the Local Government Act 2002 set out the Council's requirements in relation to decisions. Some decisions can only be made through the Long-Term Council Community Plan, or after the Special Consultative Procedures set out in the Act have been used, (refer to the policy on significance and the Act).

All decisions of Environment Canterbury are subject to the decision-making requirements of section 76 of the Act unless inconsistent with specific requirements of other legislation.

**CANTERBURY REGIONAL COUNCIL**  
**REGIONAL WATER MANAGEMENT COMMITTEE MEETING**

**ORDER PAPER**

		Page No.
	KARAKIA	
1.	APOLOGIES	
2.	CONFLICTS OF INTEREST ( <i>REFER TO REGISTER FOR AMENDMENTS</i> )	
3.	MINUTES FROM PREVIOUS MEETING – 9 FEBRUARY 2016	4
4.	MATTERS ARISING	
5.	CORRESPONDENCE <ul style="list-style-type: none"> <li>Letter from the South Island Eel Industry Association</li> </ul>	13
	<b>ITEMS FOR DISCUSSION</b>	
6.	REGIONAL INFRASTRUCTURE WORKING GROUP UPDATE <ul style="list-style-type: none"> <li>Briefing Papers and Notes from RIWG March 2016</li> <li>Infrastructure Update</li> </ul>	32
7.	DRINKING WATER UPDATE	41
8.	ECOSYSTEM HEALTH AND BIODIVERSITY	45
9.	RECOGNISING RECREATIONAL VALUES IN CANTERBURY	83
10.	LAND USE AND WATER QUALITY	84
11.	ANNUAL REPORT <ul style="list-style-type: none"> <li>Regional Committee Report to the Regional Council</li> </ul>	85
12.	ZONE COMMITTEE UPDATES	90
13.	GENERAL BUSINESS	
	KARAKIA CLOSURE OF PUBLIC MEETING	



**MINUTES OF 41<sup>ST</sup> MEETING OF THE REGIONAL WATER MANAGEMENT COMMITTEE  
HELD IN HABGOOD LOUNGE, LINCOLN EVENTS CENTRE,  
MEIJER DRIVE, LINCOLN  
ON TUESDAY 9 FEBRUARY 2016 AT 1.30PM**

**CONTENTS**

1. APOLOGIES
2. CONFLICTS OF INTEREST
3. MINUTES FROM PREVIOUS MEETING – 15 DECEMBER 2015
4. MATTERS ARISING
5. CORRESPONDENCE
- ITEMS FOR DISCUSSION**
6. ECOSYSTEM HEALTH AND BIODIVERSITY
7. FINANCING ENVIRONMENTAL INFRASTRUCTURE
8. ANNUAL REPORT
9. RECREATION
10. CANTERBURY REGIONAL PEST MANAGEMENT STRATEGY
11. RESOURCE LEGISLATION AMENDMENT BILL UPDATE
12. TARGETS REVIEW
13. ZONE COMMITTEE UPDATES
- 14.

KARAKIA  
CLOSURE OF PUBLIC MEETING

**PRESENT**

*Chair:* Andy Pearce

*Community:* John Donkers, Hugh Logan, Rochelle Hardy, Hugh Canard, Jane Demeter

*Zone Representatives:* Ben Curry, Claire McKay, Steve Lowndes, Ron Pellow, John Talbot, Barry Shepherd and Matt Hoggard

*District Councils:* Peter Scott, Mayor Winton Dalley

*Te Rūnanga o Ngāi Tahu:* Rebecca Clements

*Ngā Rūnanga:* John Wilkie

*Environment Canterbury Commissioners:* David Caygill and Tom Lambie

*Central Government Observer:* Nick Vincent (MfE)

**IN ATTENDANCE**

Bill Bayfield (Chief Executive Environment Canterbury), Christina Robb (Programme Manager CWMS), Barbara Nicholas (Team Leader Zone Facilitators), Dann Olykan (Principal Strategy Advisor Water), Ellie McNae (Senior Strategy Advisor Water), Peter Ramsden (Tangata Whenua Facilitator), Stephen Bragg (Tangata Whenua Facilitator) (and Therese Davel (Senior Administration Officer)

**WELCOME**

Andy Pearce opened the meeting at 1.30pm and welcomed everyone.

Stephen Bragg opened with karakia.

## ITEM 1 - APOLOGIES

Apologies were received from Dr Alistair Humphrey, Mayor Angus McKay, Bruce Murphy, Kevin Steel and Hamish Cuthbert. Christina Robb noted that Cr Phil Clearwater had been in contact and because of his workload, the Christchurch City Council is revisiting how it is represented on the Regional Committee.

## ITEM 2 - CONFLICTS OF INTEREST

Conflict of interest schedules were circulated.

## ITEM 3 - MINUTES OF THE PREVIOUS MEETING

Minutes of meeting of 15 December 2015

*(Refer pages 5-18 of agenda)*

### **Resolved:**

***That the minutes of the Regional Water Management Committee meeting held on 15 December 2015, amended to read:***

***Page 7, first paragraph: "Commissioners taking a lead beyond the CWMS"; and  
Page 15, first sentence "... a public consultation meeting ..."***

***be received and confirmed a true and accurate record.***

Andy Pearce / David Caygill

## ITEM 4 - MATTERS ARISING

Steve Lowndes noted the proposed NIWA presentation to the Committee on the issue of climate change (refer p 11, Item 12.7 of the minutes).

Andy Pearce and Barbara Nicholas assured the Committee there will be a presentation at a future Regional Committee meeting.

## ITEM 5 – CORRESPONDENCE

None.

## ITEM 6 – ECOSYSTEM HEALTH AND BIODIVERSITY

*(Refer pages 19 - 23 of the agenda)*

Steve Lowndes presented the item noting that a meeting was held on 9 February to discuss 5 year implementation outcomes for regional biodiversity. The meeting was constructive and Steve will report on this at the next Regional Committee meeting.

The Working Group was also engaged with a number of submissions, e.g. on eels. The Working Group will submit to MPI in support of long and short fin eel stocks in the South Island being managed separately.

Steve was asked about the reference in his report to the inclusion of biodiversity in Farm Environment Plans. It was agreed that including biodiversity into Farm Environment Plans will enable farmers to become familiar with issues of biodiversity and to become involved. It should be more of an information / enabling issue rather than one of compliance.

Peter Scott agreed, noting an example of river engineers clearing a river bed in an area which they would not have, had they been made aware of the significance of plants there. Mayor Dalley commented that there is need for a philosophy change, e.g. currently farmers

may see the issue of protected area as a liability where in reality it should be seen as an asset to their land. Biodiversity works best when it's voluntary and not regulatory.

Andy summarised that it was an issue of education to farmers; viewing protected areas as assets, rather than liabilities; and the interrelationship various initiatives including biodiversity in FEPs.

**Resolved:**

**That the Regional Committee**

- 1. *Receives the report of BEWG; and***
- 2. *Agree that the attached draft submission be sent to MPI on the separation of long and short fin eel stocks in the South Island.***

**ITEM 7 – FINANCING ENVIRONMENTAL INFRASTRUCTURE**

*(Refer pages 24 – 33 of the agenda)*

Ellie McNae presented the item, reporting back on the findings of the Funding Working Group Report. The brief of the Working Group was to consider the establishment of a regional funding mechanism for environmental infrastructure. The Working Group reviewed and agreed to use the term environmentally beneficial infrastructure rather than environmental infrastructure. They also determined that a key test would be to assess who the beneficiaries of a project would be, as well as the nature and scale of the benefits. Using potential projects as case studies, the group came up with potential criteria against which to test projects for public funding.

Ellie noted the recommendations from the Working Group and a robust discussion followed.

To test whether there was support in principle for the use of public funding in carefully defined circumstances, the Chairman tested with the Committee a counterfactual proposition that “there could never be a situation where it would be appropriate for public funding to be used”. No member of the committee was willing to support the counterfactual proposition.

**Key points made:**

- Need to clearly distinguish between private and public funding and private and public benefit;
- This was about significant benefits at a lesser cost over and above any alternatives;
- The CWMS has always been about progressing projects that achieve multiple outcomes;
- The Local Government Act that governs Environment Canterbury would avoid funding at will;

There was a discussion about including a 7<sup>th</sup> criterion with a number of proposals put forward for consideration. The discussion centred around means to ensure that only those elements of a project that provided a clear public/environmental benefit were funded, rather than elements that a project proponent was required to do through their duty to avoid, remedy or mitigate the adverse effects of a project. There was a tension around how to manage this risk, while still ensuring that projects that would benefit the greater good can proceed.

Two suggestions for criterion 7 were: ‘*not to be used to avoid, remedy or mitigate the effects of a development proposal*’ and ‘*not to be used as a mechanism to fulfil the requirements of consent*’.

**Resolved (as amended):**

**That the Regional Committee:**

1. Note the Working Group's conclusions that:

*While public funding should be a last resort, there **could** be a case for Environment Canterbury to provide public funding (through a rate) to **the** environmentally beneficial **elements of an infrastructure project** if the following criteria were satisfied.*

*The project:*

1. *delivers significant, demonstrable **ecological, social and cultural** benefits over and above the alternatives, **including doing nothing***
2. *requires only a one-off capital investment<sup>1</sup> **(not recurring)***
3. *is a cost-effective way to achieve goals*
4. *benefits a group wider than the immediate users (clear test of beneficiaries required in the assessment project)*
5. ***contributes to achieving** other governmental policies or strategies **(if relevant)***
6. *addresses a legacy issue **(if relevant)***

and that:

*Good investment principles should be followed when assessing the projects (including a risk assessment and cost-benefit analysis). In addition, an assessment of the scale of the benefits and the affordability of the project, including the ability of a local community to meet the costs, would help to determine the mix of funding and how to rate (targeted or regional).*

2. Ask the Regional Infrastructure Working Group to review the proposals for inclusion of a 7<sup>th</sup> criterion and report back at the next Regional Committee meeting.

**ITEM 8 – ANNUAL REPORT**

*(Refer page 34 of the agenda)*

The Committee broke into their Working Groups to discuss what they thought were the key messages to be included in the annual report to Environment Canterbury. The areas they were asked to review were achievements to date; current and emerging strategic issues; and future work programme. They were all required to consider kaitiakitanga as well.

Andy Pearce and the various Working Group Chairs would review the draft report once Barbara Nicholas and the team have prepared it.

Feedback will be given at the next Regional Committee meeting.

**ITEM 9 – RECREATION**

*(Refer pages 35 - 36 of the agenda)*

Ellie McNae presented the proposed scope for a report into swimming values in Canterbury. One of the recreation and amenity targets of the Canterbury Water Management Strategy included the aim to see 'a positive trend in the availability and/or quality of recreational opportunities in each zone' by 2015/2020. Research was commissioned on jet-boating, kayaking and angling, however, swimming in freshwater still presented an information gap.

---

<sup>1</sup> The Working Group determined that other funding mechanisms, such as the use of operational expenditure, would be more appropriate for ongoing activities i.e. the maintenance of stock-water races for ecological values.



The report and data would be accessible to a wide range of users including hydrologists; planners; regional and zone committees; recreational user-groups; hearings commissioners and the public.

The scope includes factors such as identification of swimming locations; flow rates; scenic values; accessibility; and water quality monitoring.

In a brief discussion the following points were raised: to include testing for cyanobacteria; where swimming areas are remote consider public toilets, camping facilities and accessibility; and the physical creation of swimming holes where possible.

Ellie also updated the Regional Committee on the establishment of an independent Recreation Interest group, including membership from Fish and Game, jetboaters, kayakers and other recreational representatives. The group have been developing a mission and proposed work plan, which they will present to the Regional Committee at their meeting in April.

**Resolved:**

**That the Regional Committee**

- 1. *Note Environment Canterbury's intention to commission a swimming research report; and***
- 2. *Suggest additional factors (if any) that they would like the research report to assess.***

**ITEM 10 – CANTERBURY REGIONAL PEST MANAGEMENT STRATEGY**

*(Refer pages 37 - 39 of the agenda)*

Barbara Nicholas presented the item for information only. She informed the Committee that significant changes to regional pest management would happen as a result of changes to the Biosecurity Act, amongst others.

The Biodiversity and Ecosystem Health Working Group supported the inclusion of Russell lupins as a new pest. On this note, John Talbot informed the Committee that the Department of Conservation commented that it could not be classified as a pest because it was considered trade – the seeds are bought and sold.

**Resolved:**

**That the Regional Committee**

***Notes the Regional Pest Management Strategy Review***

**ITEM 11 - RESOURCE LEGISLATION AMENDMENT BILL UPDATE**

*(Refer page 40 of the agenda)*

Ellie McNae presented the item, updating the Regional Committee that the Resource Legislation Amendment Bill is currently before the select committee for Local Government and the Environment. She noted that Environment Canterbury will submit on the bill, both independently and as part of the Canterbury Regional Policy forum, by the middle of March 2016. The Committee requested that a link to Environment Canterbury's submission be provided at their next meeting.

**Resolved**

**That the Regional Committee**

***Receive an update on the preparation of Environment Canterbury's submission on the Resource Legislation Amendment Bill.***

**ITEM 12 – TARGETS REVIEW**

*(Refer page 41 of the agenda)*

Dann Olykan presented this item, noting that a review of the CWMS Targets – Measures & Indicators will begin soon. The aim of the review is to ensure measures and indicators are appropriate and reportable; identify data and knowledge gaps; and encourage partner organisations to review their programmes and projects so that appropriate data will be available by 2020.

The project will involve a desktop review; focus groups and a final report which will be shared with stakeholder groups, Regional Committee as well as the Canterbury Mayoral Forum. The project is due to be completed by 22 April 2016 and he will be contacting members of the Committee quite soon to take part in the review.

**ITEM 13 - ZONE COMMITTEE UPDATES**

*(Refer page 42)*

Verbal updates were given during the meeting.

#### **Orari-Opihi-Pareora Zone Update (John Talbot)**

- "Orari Opihi Temuka Pareora" ("OTOP") is now formalised as the name of what used to be "OOP".
- We are now starting into the processes for preparing a ZIP addendum and sub regional plan. We are using different language - "The OTOH Healthy Catchments Project is to come up with recommendations about limits (such as rules) and actions (such as practical projects) to achieve healthy catchments in the zone"

#### **Ashburton Zone Update (Ben Curry)**

- The first meeting for the Committee of 2016 was held on 26<sup>th</sup> January. New member Bill Thomas who farms at Longbeach, was welcomed.
- The Committee received a letter from the local representative of Forest & Bird who amongst other issues, raised what she saw as an imbalance in the committee's membership, strongly representing the farming / primary industry sector.
- The letter was discussed at some length and the chairwoman Donna Field suggested that the Committee needed to do more to engage with community groups.
- Donna Lill, the new Ashburton Team Leader, spoke briefly about her role and that of the team. The team has yet to be established.
- Variation 2 (or Plan Change 2) decisions were published on 4 February. The main points were the move away from a catchment load limit to a groundwater target (6.9mg/L).
- All farming activities are required to reduce the N leaching by a minimum of 35% by 2035.
- In the space of irrigation expansion the BCI consent was effectively prevented from further development in the Hinds area.
- The socialisation of the decisions has begun with several briefings scheduled over the coming weeks.

### **Hurunui – Waiau Zone Update (Vacant)**

### **Lower Waitaki–South Coastal Canterbury Zone Update (Bruce Murphy)**

Plan change 3 is currently in Technical caucusing with the view to simplify the planning provisions to better support the community's wishes recommended to the Zone Committee. Narrative options are being explored for the flexibility and maximum caps that would better accommodate changes in nitrate loss figures in future overseer versions.

On the 13<sup>th</sup> of February plan change 5 to the Canterbury land and regional plan was notified. This includes region wide rules these do not have legal effect, rather they take effect when they are made operative following a full consultation and hearing process. There is a further round of community meetings scheduled for 22<sup>nd</sup> and 23<sup>rd</sup> of February and submissions close on March 11<sup>th</sup> with hearings scheduled likely for August. Also community members are starting to get a look at GMP farm portal and how it integrates into the subregional plan and the likely effects it may have on their farming operation.

We are in the process of looking at the Waitaki integrated monitoring framework for water quality so we can measure the effectiveness of our plan by coordinating data collection along the Waitaki valley.

Our last meeting saw Robin Murphy stand down as Chairman with a huge vote of thanks and Kate White elected our new Chairperson and Mark Giles elected Deputy Chairman.

### **Selwyn-Waihora Zone Update (Ron Pellow)**

The Selwyn-Waihora Zone Committee met last week, 2 February 2016 for its inaugural 2016 meeting and the only meeting held since the last report to the Regional Committee [15<sup>th</sup> December 2015].

#### **Key aspects from this meeting and related activities include:**

##### **1. Appointment of Officers and working groups:**

- a. Allen Lim was reappointed as Chair, Bill Lambie has replaced Charles Crofts as Deputy Chair.
- b. Ron Pellow has been reappointed as Regional Committee Representative.
- c. Allen Lim will also join the Te Waihora Agencies group on behalf of SWZC
- d. The bio-diversity working group was reconfirmed, and two new groups were established, a group to aid refinement of the 5-year delivery Outcomes and Milestones, and a PC1 Implementation Working Group.
- e. Victor Mthamo was welcomed to the zone committee as a new community member. He is a water engineer and environmental consultant operating across Canterbury.

##### **2. Selwyn Waihora Plan Change (PC1):**

- a. As noted at the December regional committee meeting, appeals to the Selwyn Te Waihora sub-regional section have been resolved and the plan became operative on 1 February 2016.
- b. After various name changes, including Variation 1 and PC1, the Selwyn – Te Waihora subregional section is to be known as Selwyn-Te Waihora Plan Change (PC1).

- c. Public meetings are likely at the end of February / beginning of March to inform the community of the outcomes, requirements, and timeframes. A meeting is also proposed for the 'Focus Groups' that contributed to the scenario discussions early in the Zone Committees deliberations.
  - d. The Zone Committee and ECAN are working closely with a range of predominantly Agricultural sector organisations on communication and implementation. This includes a Zone Committee working group (as above)
  - e. ECAN have been asked to promptly compare the N-load of farming at 'GMP' as defined in PC1 with GMP as defined in PC5 via the ECAN portal. The timing of PC1 prevented it directly referring to GMP as now defined in PC5.
3. Two immediate steps projects at Lake Lyndon were funded. This is a popular high country lake on the main road heading from Christchurch to Arthurs Pass.
  4. A presentation on the draft Muriwai / Coopers Lagoon Management Plan was provided. This is a small lagoon south of Te Waihora.

#### **Waimakariri Zone Update (Claire McKay)**

- 2016 is underway with the first meeting held last week. The Committee changed its name to the Waimakariri Water Zone Committee.
- Four IMS funding applications were approved by the committee.
- The Te Kohaka o Tuhaitara Trust manages two of the projects being stage 6 funding Tutaepatu Lagoon weed control, and Stage 2 weed control of the Pines Beach wetland.
- The Ashley Rakahuri Rivercare group received funding for predator control – both four and two legged variety! – to assist braided river bird nesting. Funding was for trapping, creating predator proof islands, signage and restriction of 4 wheel drive access to the river.
- The fourth project sought funding for restoring a spring fed wetland in the Oxford foothills. Funding is to be applied to fencing to exclude stock replanting with natives, weed control and creating a habitat suitable for mudfish.
- The committee considered its work programme of mid-year. It was acknowledged that as sub-regional process is due to start then, member workload and commitment will increase.
- It was agreed to schedule a regular workshop between meetings for working groups and updates from science team.
- The committee received briefings on Overseer and consent planning and processes.

#### **Upper Waitaki Zone Update (Barry Shepherd)**

- The Zone Committee has met once since the last report.
- The Meeting consisted of a workshop / field trip to look at developments over the last 12 months in the lower part of the Zone and how they fit with the Zones targets.
- Two storage and two centre pivots developments were viewed along with one immediate steps project and a sewage disposal improvement, Environment Canterbury staff explained some of the consenting issues.
- Members concluded the projects viewed fitted well within their expectations.
- The next ZC meeting is on the 19<sup>th</sup> February and there will be community meetings on the 22<sup>nd</sup> February to explain the process of the LWRP from here.
- A meeting was held with the Lake sensitive zones farmers (9 properties) to explain the Plan and the help available to them to obtain consents to farm in the Lake sensitive zones by March 2016.

**Kaikoura Zone Update (Matt Hoggard)**

Kaikoura Zone Committee had its first meeting in 2016. Later this week farm environment plan workshops will be held for the dairy, sheep and beef farmers. Continued support exists from Kaikoura Youth Council and Fonterra for Lyell Creek restoration.

**Banks Peninsula Zone Update (Steve Lowndes)**

Banks Peninsula ZC 1st meeting of the year will be at Living Springs, Whakaraupō/Lyttelton Harbour Tuesday 16 February.

The ZC will be catching up on what has been happening around the Peninsula over summer including;

- The latest water quality monitoring results from Wairewa/Lake Forsyth – warning of cyanobacteria were issued for
  - Anabaena bloom from early October to early December
  - Current Anabaena and Nodularia bloom from mid-January
- A new Wairewa Drainage Rating District was established in July 2015. Work to remove willows along a stretch of the Okana river is this month getting underway.
- An outcome of the Lyttelton Port Recovery Plan was to develop a catchment management plan by December 2016. The first step was to undertake a stock take of traditional and scientific knowledge. The committee will be reviewing progress on the stocktake and provide feedback. The stocktake will be accessible through the committee's website.
- Freedom campers, stock access and community drinking water supplies are all “hot issues” for the zone committee this summer.

**Christchurch-West Melton Zone Update (Vacant)****Resolved:**

**That the Regional Committee accept verbal updates from representatives.**

**ITEM 14 - GENERAL BUSINESS**

None.

**CLOSURE**

The meeting closed at 4.55pm.

Peter Ramsden closed with karakia.

**Date:** \_\_\_\_\_

\_\_\_\_\_ **Chairperson**





South Island Eel Industry Association

Email: [bill@chisholm.co.nz](mailto:bill@chisholm.co.nz)

Chairperson - Regional Committee,  
Canterbury Water Management Strategy,  
Environment Canterbury,  
PO Box 345,  
Christchurch 8140.

P O Box 1673, Invercargill.

telephone 03 230 4608

mobile 021 732 122

31<sup>st</sup> March 2016

Dear Sir/Madam

**Re:**

**– Long fin eel Paper**

We are in receipt of a letter dated 16<sup>th</sup> October 2015 from the Chairman of the Upper Waitaki Zone Committee (Mr Barry Shepherd) to the CWMS Regional Committee. The letter supports a Total Allowable catch (TAC) of zero for longfin eels, on the basis of a “progress report” circulated to Zone Committees on longfin eels. We requested a copy of this “progress report” (the Report) on 15<sup>th</sup> February 2016 and, over a month later and after some prompting, a copy was provided to us on March 22<sup>nd</sup> 2016. The Report is undated and has the title: Biodiversity and Ecosystems Working Group – Long fin eel paper” along with the citation “Item 8, attachment 3”.

In our opinion, the Report is severely deficient in characterising issues relating to longfin eel populations in Canterbury, and contains a disturbing bias against one group of harvesters (commercial harvest) in favour of another group of harvesters (customary harvest). This is disappointing, given that the South Island Eel Industry Association (SIEIA) has participated in all meetings and provided a considerable amount of information to the BEWG, only to find our industry unjustifiably pilloried by the Report.

We would remind the Regional Committee of the undertaking given to us at the BEWG workshop on 8 September 2015:

*That the Environment Canterbury Commissioners lead a process to develop a sustainable management approach for longfin eel/tuna in Canterbury by October 2015 and is jointly agreed upon by Environment Canterbury, Papatipu Rūnanga, MPI, commercial eel fishermen, local communities etc.*

SIEIA has fully participated in this process, at its own cost, on the basis of this undertaking. We note that the Report does not refer to this undertaking given on September 8<sup>th</sup>. There is no way that SIEIA would agree to any plan of action emanating from the Report. Yet it would appear that the Report has been circulated

amongst Zone Committees in the guise of a “progress report”, and has been used by them to justify a course of action (TAC reductions) that we never agreed to. We have not seen the Report before, were not made aware of it, and have never been asked to provide feedback or comment on it.

In our opinion the Report contains errors and omissions too numerous to mention. For example, the Report states:

*There is now widespread concern, from scientists, fishery managers and Iwi, that longfin eels are increasingly at risk of collapse due to habitat modification, large scale dam construction and overexploitation by commercial fishing.*

There is no “widespread concern” from fishery managers that longfin eels are at risk of collapse due to overexploitation. As we outlined to the Regional Committee, the Fisheries Act 1996 provides strong mechanisms to prevent commercial (and customary, and recreational) overexploitation. SIEIA members comply with all requirements under the Fisheries Act 1996 and work closely with fishery managers to maintain a sustainable commercial harvest of longfin eels in Canterbury. Collaboration with fishery managers to explore options to enhance eel fisheries does not equate to “widespread concern”.

The Report implies that commercial harvest of longfin eels is presently a problem, but other harvest (customary and recreational) is not. We make the point that harvest is harvest, regardless of who is doing it. Further, the commercial eel catch reporting to the Ministry for Primary Industries (MPI) is impeccable, whereas catch reporting by other harvesters is not. Therefore, any adverse effects of commercial harvest can be closely monitored and managed. The same cannot be said for other harvesters.

The Report also states:

*In recent years the Ministry of Fisheries has spent hundreds of thousands of dollars on managing and researching this problematic fishery – effort not in keeping with the low value of the fishery itself.*

This statement is absurd, as are the accompanying costings. Much of the funding for longfin eel research has come from levies on commercial eel quota. Additional research funding comes from MPI funds set aside for customary fisheries research, as well as private funding from water users (e.g. hydro companies). The Report’s costings are ten years out of date, they are incorrect, and the above statement is but one among many statements which reflect a bias against those ratepayers who have invested considerable amounts in developing and marketing the commercial longfin eel fishery in Canterbury.

It is our opinion that the bias shown in this Report exhibits a behaviour which is inconsistent with the CWMS Targets and ECAN’s own Code of Practice. It is not the intention of this letter to provide a further detailed critique of the Report, other than to say that we are very disappointed with all of it. We are also unhappy that the Report was not pre-circulated for comment to those of us who participated in good faith at the CWMS meetings and forums. We would have been able to correct its errors and



provide additional information from more recent reports than Jellyman (2012), the DoC Threat Classification System and the Freshwater Fish Database.

The Report should be set aside and re-drafted by an independent researcher with more expertise in the field of eel fisheries management, with the full input of all participants, and in the light of more recent information.

This more recent information includes:

**(i) Ongoing CPUE analyses.** Currently, Catch Per Unit Effort (CPUE) data shows that South Island shortfin and longfin populations have been either stable or increasing since their introduction into the QMS in October 2000. These analyses concluded that the present level of fishing is consistent with a sustainable fishery.

**It is SIEIA policy to continue to maintain the present levels of fishing as outlined in the QMS, when CPUE and recruitment monitoring indicate stable or increasing eel populations. This recommendation is to be reviewed on an annual basis.**

Where data is available, CPUE analyses demonstrate that no areas have had any sustained decrease since the introduction of the eels into the Quota Management System.

**(ii). Recruitment of freshwater eels.** Reported from the MPI Eel Working Group meetings that monitoring of longfin eel populations from elver captures below hydro dams are extremely variable, and require additional corrections for age frequency before this information can provide reliable assessment of longfin eel population trends. At hydro dams where more robust data can be collected, these indicate that elver returns have been reasonably consistent since eels were first brought into the QMS in 2000.

**(iii). Site specific selectivity of electric fishing gear – Stop Nets.** The MPI Eel Working Group reports that use/non use of stop nets in electric fishing surveys prevented comparison between these electric fishing surveys. In our opinion, the conclusions of the Parliamentary Commissioner for the Environment Report were therefore erroneous, because they were largely based on trends from electric fishing surveys which were not comparable.

**(iv). Proportions of longfin eel habitat unfished:** Reported from the MPI Eel Working Group that the area of longfin habitat fished ranged from 13 to 18% for lakes and rivers. This excluded areas upstream of hydro dams. It was also reported from the MPI Eel Working Group that the area fished in the last five years was considerably smaller than the areas that fishermen had fished prior to that, yet the level of harvest remained the same.

These studies are being reported on at a MPI Eel Science Working Group on 21<sup>st</sup> and 22<sup>nd</sup> April 2016. We strongly suggest that you attend this meeting and take heed of its findings in your revised Report.

The revised Report might care to mention that the South Island Eel Industry Association is working closely with MPI on measures to further improve longfin eel fisheries for all harvesters (commercial, customary and recreational). These include:

(i) Reduce the maximum LFE size limit below 4 kg. This option would improve spawner escapement, and rapidly increase the number and size of eels available for customary and recreational fishers. Indeed, it is probably the quickest way to increase the number of larger eels in commercially fished areas. Information on the success of such a measure would be readily available from the SIEIA datalogging records, as happens now with our records of >4kg eels released from fished areas. Approximately 1000 >4kg eels are released from commercial fishing nets every year in the South Island.

(ii) Commercial eel fishermen are closely involved with hydro power companies in transferring small eels upstream to better habitats. In the Clutha catchment, Contact Energy Ltd and commercial eel fishermen have agreed to undertake upstream transfer of small eels to re-establish an eel fishery upstream of the Clutha hydro dams.

(iii) Commercial eel fishermen are also closely involved with hydro power companies in allowing migrating longfins to escape to sea to breed. In the Waiau catchment (Southland), Meridian Energy Ltd has engaged commercial eel fishermen to catch and transfer downstream migrating longfin eels. Over 5400 mature longfin female eels were released last year. At an average of 80 million ova per female, this means that an additional 432,000,000,000 (432 billion) ova were added to the longfin recruitment pool as a result of this initiative.

(iv) SIEIA already has a policy that at least 20% of all eels caught in each Quota Management Area should be shortfins. SIEIA policy is also to comply with voluntary restrictions on the longfin harvest, if it is agreed amongst all major harvesters that there are sustainability problems in a particular area.

(v) SIEIA has produced its Eel Plan, which is updated annually. This Plan provides all the activities which we believe Councils should get involved in to maintain and enhance the sustainability of longfin eel populations, their habitats and their harvest. The section from this Plan which is most relevant to Regional Council activities is provided in Appendix 1.

Further to our disappointments with the Report itself, we are outraged that ECAN has reneged on its written undertaking to lead a process which was to be jointly agreed by all parties, including commercial fishermen. It is not acceptable for a Regional Council to produce substandard reports which actively seek to disadvantage a sector of ratepayers and penalise their lawful business. It is even less acceptable for Regional Councils to circulate such reports (draft, progress or otherwise) in direct contravention of a written undertaking that the management approach would be jointly agreed upon. Such behaviour will not be tolerated by SIEIA. If it continues then legal proceedings may result.

Yours faithfully

A handwritten signature in black ink, appearing to read 'W.P. Chisholm', with a stylized, cursive script.

W.P. Chisholm

pp: Vic Thompson, Chairman, South Island Eel Industry Association Inc.

cc:

- Chairman, Upper Waitaki Zone Committee
- Minister for Local Government



**Appendix 1 – Extract from “South Island Eel Industry Plan”**  
**(Updated September 2015)**

**8. HABITAT AND ENVIRONMENTAL ISSUES**

The sustainability of the eel fishery is dependent on the sustainability of the habitat, and how it is managed. There have been a large number of pressures put on eel habitat, principally in lowland waters of the South Island. These pressures are in part caused by increased nutrient inputs from agricultural industries, and excessive abstraction of waterways through irrigation development. SIEIA supports all Regional Council measures to mitigate these pressures on eel habitats.

Issues requiring management include flood control works, obstacles to eel migration (upstream and downstream), drain clearance, general discharges and biosecurity.

**8.1 Discharges**

Regional Councils manage point-source and non point-source discharges, through the Resource Management Act and associated Regional Water Plans. These Plans are updated from time to time. Consultation on Regional Water Plan development is essential to ensure that eel habitats are not compromised. Regional Councils are charged with obtaining monitoring and compliance information on discharges. This information should be forwarded (on request) to the SIEIA, to ensure that eel fisheries are not adversely affected by excessive pollution. In addition, any accidental pollution incident needs to be immediately reported to the SIEIA.

Pollution from non-point discharges includes all harmful changes in water quality caused by the diffuse discharge of toxic substances into the waterway from the surrounding lands. These may include excess heat, salinity, silt, pesticides, oxidising agents and oxygen consuming materials. The effects of these can range from subtle alteration of the instream habitat to the detriment of eel stocks, to the direct mass deaths of eels and other fish. Further problems are encountered through the contamination of eel flesh.

Management of non-point source pollution of waterways requires a close relationship between SIEIA and territorial authorities (Regional and District Councils). In particular, proposed Regional and District Plan changes will need to be closely scrutinised to ensure their provisions do not adversely affect water quality, through a permissive attitude towards non-point discharge activities (e.g. subdivisions). SIEIA shall assist Councils in the promotion of statutory Plans and catchment management Plans; which may be developed to assist in improving water quality, particularly for Waihora/Lake Ellesmere.

SIEIA shall also advocate that territorial authorities:

- a) Identify priorities for enhancement of water quality, including research priorities.

- b) Set as a minimum environmental standard the maintenance and enhancement of water quality in waterways.
- c) Apply monitoring and enforcement procedures to ensure pollution from non-point source discharges is minimised.
- d) On request, provide SIEIA with information from water quality monitoring and research.

**SIEIA policy is that it shall:**

- 1. Advocate for no direct discharge of contaminants to waterways, except where this may to enhance the habitats of those waterways (e.g. for biosecurity purposes).**
- 2. Request that SIEIA is informed whenever an accidental pollution event occurs**
- 4. Advocate that Regional Councils, through the Regional Planning process:**
  - a) Set as a minimum environmental standard the maintenance and enhancement of water quality through the strict regulation of point source discharge in accordance with MFE water quality guidelines.**
- 5. Promote industry-based “polluter pays” research into point-source discharges and the effects they have on water quality.**

## **8.2 Land Use**

Water quality (and consequently eel habitat) can be adversely affected through changes in land use, especially the felling of native or exotic forests, and intensive agricultural development. An objective of this Plan is to minimise the adverse effects of these changes on eel habitat.

The felling of native and exotic forests can significantly change the character of the eel habitat. A forest canopy shades the water, providing generally cooler and more stable water temperatures. Nutrients are captured by the vegetated riparian margins and erosion rates are generally slower. Branches and logs in the waterway can provide additional habitat for eels and their prey. The effects of shading on algal masses and aquatic weeds is beneficial for eels.

Agricultural development of catchments has resulted in marked changes in stream ecology, especially in lowland streams. These are the most productive areas for eels, especially shortfin, so these effects have been significant. Pollution from point and non-point discharges, channelization's and stop-banking, sediment inputs, wetland

drainage and riparian vegetation change have all contributed to the serious degradation of eel habitat in agricultural areas.

The recent popularity of dairy farming, especially in lowland areas, has the potential to seriously affect eel habitat. Horticultural development in the South Island (e.g. vineyards) is also very popular, but can have serious effects on water quality if not properly managed. SIEIA will liaise with industry representatives on the development of guidelines and oversight of Codes of Practice which minimise the impact of agricultural development on eel habitat.

**SIEIA policy is that it shall:**

- 1. Liaise with Fonterra and other agricultural industry representatives to ensure that Codes of Practice are developed and implemented, which ensures that agricultural development does not adversely affect eel habitats.**
- 2. Encourage better forestry practices which ensure that forestry operations do not adversely affect eel habitat. These may include:**
  - a) Methods for ensuring that eel habitat is not damaged during the harvesting of exotic forests. These need to be encouraged as far as possible.**
  - b) Where exotic forests are not being replanted (e.g. for dairy conversion), riparian plantings should be established to ensure that no long-term damage is done to the eel habitat.**
  - c) Methods for protection and conservation of native forests and tussock land will be encouraged.**
- 4. Encourage better farming practices which ensure that stock do not have access to riparian margins.**
- 5. Provide advice and support to farmers who are contemplating agricultural development, either through the resource consent process, or through individual advocacy, to ensure that eel habitats are not adversely affected.**

### **8.3 Agrichemicals and fertilisers**

Pesticides, herbicides and animal remedies are used throughout New Zealand to improve agricultural productivity. Some of these compounds are highly toxic and can bioaccumulate through the food chain. Eels are a high-end predator in the food chain, so are more likely to bioaccumulate toxic compounds than other instream species.

Anthelmintic drenches and pour-on formulations for stock parasites are one of the most insidious groups of chemicals which can find their way into waterways. Animals excrete these chemicals in their urine, and through soil runoff they can remain toxic to aquatic invertebrates. For example, “Southland Plains Syndrome” was coined to describe the complete absence of aquatic insects in some waterways on the Southland Plains, in the 1970’s. This was later found to be largely caused by sheep dips and other animal remedies being discharged into these waterways.

Thus, habitat loss for eels can occur with little evidence to show how it is happening, apart from the presence of stock nearby. It is important that these insidious agents of habitat loss are halted and reversed to ensure the eel fishery remains sustainable.

The presence of pollutants in the flesh of eels can exclude them from export markets. This can also affect New Zealand’s “clean, green image”, which would have knock-on effects for other export foodstuffs. It is important that waterways are not contaminated with agrichemicals which may bioaccumulate and persist in the flesh of eels.

**SIEIA policy is that it shall:**

**1. Advocate that:**

**a) The use of agrichemicals near streams and waterways should cease, if there is any possibility that they may enter that waterway through direct or diffuse discharge.**

**b) If agrichemical use is necessary (e.g. for aquatic weed control), then only those chemicals which are non-toxic to vertebrates, and do not persist nor bioaccumulate in the food chain, are used.**

## **8.4 Riparian Areas**

The riparian margins are the strips of land adjacent water bodies, and may include berms, stopbanks and floodways. They are the interface between the water body and dry land. Maintenance and enhancement of riparian areas is a major objective of this Plan. This is because the riparian area is as a major controller of habitat quality for eels. It is important for food supply, shelter, bank stability, nutrient control temperature control and flood control.

Many areas have had their riparian vegetation removed and are now farmed right to the water’s edge. This has adverse effects on eel habitat and the instream ecosystem. A well-planted riparian margin increases the storage of water, changes the distribution of flood flows, decreases flooding downstream, decreases erosion, increases bank



stability, decreases instream sediment load and improves the overall habitat for eels. The enhancement of the riparian zone is therefore a priority of this Plan.

Different water bodies require different plant species in the riparian zone, and there is a change in habitat preference and species as you move further away from the waterway. The preference is for the planting of native species such as flaxes, sedges and rushes for bank stability. Native species recreate the natural ecosystem and are less obtrusive and simpler to control than many exotics. If exotics must be used then they should provide shade and bank stabilisation to act as protection for native plantings, and where possible, should be removed later on.

It is recommended that the following species are used where possible as they are the most appropriate for riparian planting:

- Flaxes, sedges and rushes should be planted closest to the water. Flax has an excellent ability to bind the soil on the bank, thus preventing erosion, and providing habitat amongst the roots. Flaxes are also dense enough to prevent stock from pushing through them and entering the waterway.
- Shrub willows (pohangina, kumiti, glenmark, tiritea) will also provide bank stability and shade. They are best situated behind species like flax and raupo on the slope of the bank because they have larger root systems that stabilise soil.
- On the top of the bank it is best to plant larger native species like kowhai, manuka and kahikatea. These large trees will provide excellent shade for the water when they are established. Their large root systems will also stabilise the bank.

It is recognised that removal of trees and their root systems from within the channel is sometimes necessary for flood control. In some areas willows have become so prolific that they are a flood hazard. However, willows can provide excellent eel shelter, and their root systems provide excellent eel habitat. They can also help stabilise daytime water temperatures through their shading effect. Depending on the willow species involved, their removal can physically destroy this habitat. Those species listed above (pohangina, kumiti, glenmark, tiritea) are preferred for future use in river control systems.

**SIEIA policy is that it shall:**

- 1. Encourage District and Regional Councils to place a higher regard on monitoring and compliance of activities in the riparian area.**
- 2. Advocate that District and Regional Councils restrict development of any kind within a waterway, or situated on the riverside of flood banks where flooding will periodically inundate the area.**
- 3. Advocate the exclusion of stock from access into waterways and drains because of the damage they cause to the substrate and the direct contamination of the water.**
- 4. Encourage fencing and planting (preferably native plant species or preferred willow species) of riparian strips to protect the stream bank and prevent access to the stream by grazing stock.**
- 5. Work with District and Regional Councils and DoC to develop a programme for restoring the riparian vegetation to its natural state. This will include the use in riparian plantings of the native plant species described above.**

## **8.5 Water Abstraction**

Water abstraction has the potential to adversely affect eel habitat through habitat loss, and also through the reduction in upstream and downstream eel passage. The reduction in summer flows particularly affects eel habitat through elevated water temperatures and deoxygenation of waterways.

Irrigation demand is increasing, especially in South Island east coast areas, as a result of the dairying boom. Further demands for water abstraction for hydro-electric power generation are also being created by the desire to move away from global warming-inducing thermal electricity generation. As a consequence, many waterways have exceeded an allocation of water which would result in minimal environmental impacts. In many summers, South Island east coast waterways have dried up and/or their mouths have closed off, which has serious impacts on eel habitat and elver migration. The setting of minimum flows is required with a buffer or cap to ensure the protection of the instream values and sustain residual flows.

There is the potential for mitigating the loss of habitat in waterways through the enhancement of irrigation canals with eels. Liaison with irrigation companies is essential to achieve this.

**SIEIA policy is that it shall:**

- 1. Advocate that Regional Councils set sustainable minimum flows in waterways to ensure that the source of water is not overexploited.**
- 2. Establish policies with local government authorities, landowners, irrigation and power companies to apply the following guidelines so as to allow the establishment of eel fisheries in irrigation canals and connecting waterways:**
  - a) If a race is accessible to fish then maintenance of a residual flow is essential.**
  - b) Large races that are operating continuously should have provision for fish passage both in and out.**
  - c) Regional Councils should quantify the amount of water to be abstracted from waterways and aquifers, to determine a limit on the amount able to be abstracted at any given time, and so to protect sustainable instream flows and values in the mainstream and the residual flow in the irrigation channel.**

## **8.6 Weed clearance and drainage**

The removal of weeds from streams by mechanical diggers has serious detrimental impacts on aquatic communities, and eels in particular (Young *et al* 2004). While aquatic weeds can cause problems with flood control and drainage, there are many cases where their clearance should not be carried out using mechanical methods. In particular, mechanical diggers can damage the stream substrate, and result in stream bank and riparian vegetation damage. Recent advances in chemical weed control now allow this to be the preferred method of aquatic weed control over the use of mechanical diggers.

If mechanical control needs to be used, the following guidelines should be promoted:

- a) Operators should use a bucket design (e.g. grab buckets) that take only weeds, and not the substrate.
- b) Approved operators should be used wherever possible.
- c) Diggers with pressure-sensitive hydraulics should be used as they will cause less damage to the bed and margins of the waterway.
- d) Operators should be educated on the values associated with the waterway so they respect these when they are clearing them.
- e) Selective removal of weeds that impede water flows in drains, such as clearings of only half-width, alternating sections, or only the weed from the middle of the waterway, will allow for sufficient remaining habitat for freshwater fish.
- f) Debris from clearing is to be removed from the channel to avoid anoxia caused by decomposition and the clogging of areas downstream.

- g) Summer is the best time for any clearing as eels are more active and likely to escape.
- h) Monitoring of the clearing activity should be encouraged to ensure that live fish are released back into the stream.

**SIEIA policy is that it shall:**

- 1. Support manual and/or approved herbicide control for aquatic weeds in waterways.**
- 2. Require the above guidelines to be used for mechanical weed control.**
- 3. Request Regional Councils to publicly notify any instream works programmes using mechanical methods.**
- 4. Oppose the introduction of exotic fish and plant species for biological control of weeds e.g. grass carp.**
- 5. Oppose the further lowering of water tables through drainage of wetlands and rivers.**

## **8.7 Wetland protection and enhancement**

Massive losses of eel habitat occurred when swamps were drained for pasture production. This happened on a grand scale in earlier times, particularly on the East Coast of the South Island. Wetlands provide excellent eel habitat. Shortfin eels have adapted specifically to live in wetlands and thrive in this environment. The retention and enhancement of remaining wetland is therefore important to sustain the eel fishery.

The practice of eel fishing does not damage the wetland ecosystem. It is non-invasive, does not damage other flora and fauna, and can aid the productivity of the wetland through the sustainable removal of a top predator. Therefore, wetland protection and enhancement plans should include provision for all forms of eel fishing (customary, recreational and commercial) as a matter of course.

It is an objective of this Plan to encourage and support the restoration, enhancement and protection of existing wetlands, and the creation of new wetlands, while ensuring that this does not impede the ability to harvest eel from these areas

**SIEIA policy is that it shall:**

- 1. Participate in planning forums and processes to ensure that eel fishery values are accommodated in the management of existing and new wetlands.**
- 2. Advocate to DoC, LINZ, landcare groups and territorial authorities to ensure that wetlands are able to be accessed for the harvesting of eels and are available for providing food and an area for eels to grow and mature.**
- 3. Maintain and enhance oxbow lake systems that have been isolated through natural and human-induced processes, as areas for habitat enhancement. These areas are open to eel recruitment through flooding of creeks leading to them.**
- 4. Advocate for Regional and District Councils to control activities (such as drainage and extraction bores closed to recognised wetlands) that may have an adverse effect on the eel fishery and their habitats.**
- 5. Encourage the creation of wetlands on publicly owned and private lands.**

## **8.8 Channelling and flood protection works**

The natural process of a river is to meander and flood. These processes are essential in maintaining the natural diversity of habitats within the waterway. Channelling and straightening changes the natural character of the waterway to the extent that it is not as suitable for fish.

Channelling, straightening and stopbanking will lead to increased floodwater flows and velocities. This leads to increased stream bed and bank erosion through removal of the armoured stream substrate, and hence may cause a streambed to become permanently unstable. This streambed instability adversely affects eel habitat.

Floods are an important time for eel feeding. Eels are opportunistic feeders, and utilise freshly inundated areas during floods as major feeding areas. Stopbanking and channelling reduces the flooded areas, and also reduces the eel ability to gain access to them.

There is the potential to recreate a considerable area of waterway by redirecting rivers down their original path and placing a weir at the beginning of the flood channel to ensure it is used only during flood events. This will return the river to its natural state and substantially improve the aesthetic and biological characteristics of the river, while maintaining flood control capacity.

SIEIA will work with local government authorities to ensure that:

- a) Stabilisation and flood control methods do not disturb the rivers natural channel are used, and that channelling the waterway is used as a last resort for flood control.

- b) Recreated river channels that do not have a uniform shape are supported.
- c) Bends in the rivers are preserved as important habitat.
- d) If there is a need to construct channels for flood prevention then they are to be dry channels that only fill when the river rises to a certain point. This may be done by placing a weir at the start of the channel.
- e) Wide fairways are maintained to avoid adverse effects from floods. Constrained channels are more likely to burst their banks and cause scouring.
- f) Where possible, rivers are allowed to flood and not be constrained by channels and flood banks.
- g) If possible, a preference for rock stabilisation of banks. These can provide a stable substrate that is difficult to move, even in foods. They can also provide shelter for many fish species.
- h) Channelization of smaller streams should be discouraged. There is normally very little need for this and it can severely affect the instream values
- i) SIEIA should be consulted on any application for consent to alter a riverbed, to

**SIEIA policy is that it shall:**

**2. Ensure that flood control mechanisms and flood protection works are designed so that they retain the quality and diversity of habitat in waterways while providing for flood control.**

**3. Assist in any local government authorities plans for the development of artificial wetlands and flood channels.**

ensure the eel fishery and habitat needs are recognised and provided for.

## **8.9 Gravel and sand removal**

This can have adverse effects on eel habitat through general disturbance, increased turbidity, and removing the armouring of a streambed. It is important that gravel and sand removal is only from dry areas of watercourse so as to avoid adverse effects on

**SIEIA policy is that it shall:**

- 1. Advocate for the removal of gravel and sand from dry water courses only.**
- 2. Advocate for the designation of areas for the removal of sand and gravel, to avoid the disturbance of significant eel areas. Liaise with local government to prohibit extraction at known eel/elver migration times and from settling sites for juveniles.**
- 3. Encourage the creation of ponds and backwaters where gravel extraction has taken place. These may be permanently connected to the main waterway by a channel or rely on flooding or seepage for their renewal.**
- 4. Encourage taking gravel from smaller areas using deeper holes, rather than over large areas, to ensure less land disturbance and allow the opportunity for wetland creation.**

aquatic ecosystems and organisms. However, gravel extraction has the opportunity to create new eel habitats, through creation of ponds and backwaters, and retirement of sediment settling ponds.

## **8.10 Barriers to Eel Migration**

These include, dams, weirs, pump stations, control gates and culverts. While it is recognised that flood control structures are needed during floods, if they are operational continuously they could affect fish trying to pass through them. Floodgates in many catchments can hinder the progress of elvers to the wider catchment. They operate on a free-moving hinge mechanism. When the tide is receding they are forced open by a downstream flow and when the tidal influence pushes upstream they are forced closed to avoid salinity and flooding damage to the catchment's upper reaches.

It is thought that elvers migrate on incoming tides. At high tide during elver migration there is a mass congregation of elvers at the floodgate but, with the opening of the gate at the drop of the tide, most are swept back into the lower reaches of the river. Other similar structures may block elver access because of excessive water velocity.

Culverts with free-fall have the potential for cutting off large areas of catchments from recruitment, and eventually removing this area from the fishery. The culverts usually occur under bridges and are often on private land. The same effects can be caused by piped coastal outfalls. These may be a method of ensuring drainage over mobile beaches, but are unacceptable because they prevent eel migration.

A far-reaching cause of habitat loss is dams, especially large hydro dams. Graynoth & Booker (2008) estimated the total loss of longfin habitat through hydro development in NZ could support 6000 Tonnes of longfin eels. For example, at present the eel populations upstream of the Aviemore dam and Roxburgh Dam are mostly remnants. The continued presence of eels above these dams is mainly due to the great longevity of longfin eels, or because eels have been artificially transported there. Most of the eels are older than the dams. Furthermore, recruitment above other dams is severely curtailed. For example, elver recruitment upstream of the Waitaki dam and Mararoa Weir is considerably reduced by these structures.

This problem is compounded by the fact that few eels survive passage back downstream through the turbines. This means that any spawning contribution from eels living above the dams is lost. Fortunately, groups of commercial eel fishermen have become involved with projects to transport elvers from below dams for release upstream. Adult returning eels have also been trapped from above dams and released downstream.

Elver passes have been installed on some hydro dams. While these allow the passage of some elvers, recruitment into upstream areas remains severely curtailed by the dams, as the elver passes are not capable of attracting enough elvers to use them.

**This Plan has two paramount objectives associated with the problem of dams and other structures blocking fish passage:**

- 1. The provision of upstream and downstream fish passage is required wherever possible, on all structures identified as blocking eel passage.**
- 2. Where eel passage (upstream and/or downstream) is curtailed, and suitable remedies to the problem cannot be implemented, the catchment upstream of the dam should be declared an open “put and take” eel fishery, with direct management input from SIEIA. The management of this fishery should include the following provisions:**
  - a) An active programme of artificial elver transfer into the upstream catchment shall be put in place, overseen by SIEIA. The costs of this should be borne by the consent holder.**
  - b) The entire upper catchment shall be declared open to all fisheries (customary, recreational and commercial). All usual rules and regulations applying to these fisheries should apply, including existing QMS catch limits.**
  - c) All eels caught larger than 4kg shall be released downstream of the fish barrier. The cost of this should be borne by the consent holder.**
  - d) All regulations preventing eel fishing in Conservation areas (e.g. National Parks Act, Reserves Act) should be rescinded.**



Allowing eel fishing in Conservation areas upstream of intractable migration barriers will release fishing pressure from other waterways, and allow commercial fishermen to fulfil their quota. In addition mature eels in these Conservation areas will be caught for downstream release, which will improve their ability to migrate to sea to spawn.

**Additional SIEIA recommendations are as follows:**

1. Request that, as an affected party, it is consulted on all applications for resource consent to dam or divert water, or for placement and/or operation of structures in waterways which might be a barrier to eel migration. This shall include renewal of existing consents.
2. Promote research into stocking rates and the sustainability of removing larger eels (up to 220g) from downstream areas and moving them above barriers. The re-stocking of areas must be done carefully because of high potential mortality, and the long-term effects from over-stocking.
3. Suggest a conservative estimate of stocking density in the re-stocking of areas so as to avoid any long-term effects on the host environment.
4. Advocate that dam owners implement research on the effects of dam maintenance on eel habitat and survival, in particular sediment flushing and sediment deposition.
5. Consult with dam owners over the effects of lake level fluctuations on eels and their habitat.
6. Advocate to the NZ Conservation Authority and Department of Conservation that any ban on customary, recreational and/or commercial eeling is lifted in those waterways where upstream recruitment and/or downstream migration is significantly affected by damming or diversion.

**For floodgates and pump stations, additional SIEIA recommendations are as follows**

1. Advocate that Regional Councils continue to ensure that SIEIA is consulted as part of the consents process for the erection and use of these structures.
2. Encourage Regional Councils to review the placement and effectiveness of existing structures, and to look at their removal or modification where they are found to be unnecessary or faulty.
3. Advocate that all new structures proposed are designed to allow for fish passage, and to avoid capturing freshwater fish.
4. Request that tide gates are left open to allow fish passage when flood conditions are unlikely.

5. Request a catch and transfer operation from those Councils which are operating structures which are preventing elver passage.

**For culverts, additional SIEIA recommendations are as follows:**

1. Recommend to Regional Councils that:
  - a) Culverts should have no free-fall so eel passage is not interrupted.
  - b) Flaps on culverts for flood control should only be deployed during flood events.
  - c) Care should be taken to ensure that water velocities through pipes are not too strong so as to prevent elver passage. High water velocities restrict the ability of fish to pass and the majority of elver movements occur at times of high flow. Where necessary, baffles may be installed on culverts to reduce velocities.
2. Encourage local government authorities to consider the effects of culverts and pipes when developing plans, and dealing with these issues with farmers.

END

<b>AGENDA ITEM NO: 6</b>	<b>SUBJECT MATTER: REPORT FROM REGIONAL INFRASTRUCTURE WORKING GROUP</b>
<b>REPORT:</b> Regional Water Management Committee	<b>DATE OF MEETING: 12 April 2016</b>
<b>REPORT BY:</b> Barbara Nicholas, Dennis Jamieson, Brett Painter – Environment Canterbury	

## PURPOSE

To report on the work of the Regional Infrastructure Working Group

## BACKGROUND

### 1. Update on regional infrastructure

The committee spent some time considering the update on infrastructure work across the region, with attention to any funding dimensions for each area of work (See Attachment). The chair will provide a verbal update at the meeting.

### 2. Request for advice on funding public benefit projects

At the February 2016 meeting of the Regional Committee a report was received the Infrastructure Funding Working group report. This was a response to the Commissioners' request for advice on the funding of environmentally beneficial infrastructure.

After considerable discussion

- A number of those recommendations were accepted, and
- The Infrastructure Working Group was asked to review the proposals for some additions and to report back to this next meeting.

The attached meeting papers report on the discussion, and the recommendation to bring back to the full committee. Key points raised were:

- The advice only covers proposals that would not proceed without public assistance
- Any rate would be raised *after* the project is consented. If the rate is unable to fund a consent requirement it may well
  - not be able to help with those aspects of the project that may deliver the necessary environmental benefits.
  - exclude the possibility of a rate funding projects that almost entirely for public benefit, (e.g. Wairewa)
- Any rating money would be limited, and hence need to be prioritised. First order priorities should be more highly valued than second order priorities.
- Note: any decision is case by case.
- There will be a need for tools to separate out the private and public benefits of any infrastructure scheme.
- In a context of falling prices it may be difficult to fund new water to improve environmental flows through private schemes. In the future a consent could be held by a public body as it seeks solutions that deliver on all CWMS targets.

Changes in the wording of the recommendation to Commissioners were agreed as detailed in the recommendation below.

There was some subsequent email correspondence that raised some additional issues:

- a. Clarifying language. There was a the proposal to change the naming from 'infrastructure' to 'projects' or 'capital projects', to make it clear that this advice covers a wider range of situations than is traditionally understood as 'infrastructure'. For instance, projects such as Wairewa wetlands or managed aquifer recharge (MAR).
- b. Whether or not funding environmentally beneficial infrastructure is a regional or national matter.

## RECOMMENDATIONS

That the committee note:

- Receive the report of BEWG
- Agree that the Regional Committee provides the following advice to the Environment Canterbury Commissioners

*"While public funding should be a last resort, there could be a case for Environment Canterbury to provide public funding (through a rate) to ~~environmentally beneficial~~ **for only the public benefit elements** of an infrastructure project if the following criteria were satisfied. The project*

- 1. delivers significant, demonstrable ecological, social and cultural benefits over and above the alternatives (including doing nothing)*
- 2. requires only a one-off capital investment (i.e. other funding mechanisms are appropriate for ongoing activities)*
- 3. is a cost-effective way to achieve goals*
- 4. benefits a group wider than the immediate users (i.e. clear identification of beneficiaries is required)*
- 5. **Environment Canterbury should not help underwrite private gain i.e. it should fund (if at all) only after any private gains are paid by private contributors***
- 6. contributes to the achievement of other public policies or strategies (if relevant)*

*Good investment principles should be followed when assessing the project (including a risk assessment and cost-benefit analysis). In addition, an assessment of the scale of the benefits and the affordability of the project, including the ability of a local community to meet the costs, would help to determine the mix of funding and how to rate (i.e. targeted or regional)."*

## ATTACHMENTS

- Briefing papers and notes from the 9 February meeting of the Regional Infrastructure Working Group

## Regional Infrastructure working group meeting notes, 12 March 2016

---

Present: David Caygil, Jane Demeter, Andy Pearce, Barry Shepard, Bruce Murphy, John Wilkie, Claire McKay., Peter Scott, John Talbot, John Donkers.

Staff: Dennis Jamieson, Brett Painter, Barbara Nicholas

Apologies: Ben Curry, Stephen Lowndes, Rebecca Clements, Hamish Cuthbert, Winton Dalley

### 1. Funding environmentally beneficial infrastructure

David Caygill introduced the pre-circulated paper *Note to infrastructure Working Group re financing of Environmentally Beneficial Infrastructure*. This paper was prepared following the previous regional committee meeting that agreed some criteria for such funding but asked the working group to consider a possible seventh criterion – relating to conditions that are specified in a resource consent.

The discussion noted the following:

- We are only considering proposals that would not proceed without public assistance
  - not be able to help with those aspects of the project that may deliver the necessary environmental benefits.
  - exclude the possibility of a rate funding projects that almost entirely for public benefit, (e.g. Wairewa)
- Any rating money would be limited, and hence need to be prioritised. First order priorities should be more highly valued than second order priorities.
- Note: any decision is case by case. Public processes involved are the annual hearings to set rates, and the LTP process that requires local government to signal coming rate changes.
- There will be a need for tools to separate out the private and public benefits of any infrastructure scheme.
- In a context of falling prices it may be difficult to fund new water to improve environmental flows through private schemes. In the future a consent could be held by a public body as it seeks solutions that deliver on all CWMS targets.

It was agreed that it is not appropriate to include a criterion tied to consent conditions. However, it is important to be clear that rating dollars should not fund private gain. The group agreed to recommend the following changes to the text of the recommendation as discussed at the last regional committee meeting.

*“While public funding should be a last resort, there could be a case for Environment Canterbury to provide public funding (through a rate) ~~to environmentally beneficial~~ for*

*only the public benefit elements of an infrastructure project if the following criteria were satisfied. The project*

- 1. delivers significant, demonstrable ecological, social and cultural benefits over and above the alternatives (including doing nothing)*
- 3. is a cost-effective way to achieve goals*
- 4. benefits a group wider than the immediate users (i.e. clear identification of beneficiaries is required)*
- 5. Environment Canterbury should not help underwrite private gain i.e. it should fund (if at all) only after any private gains are paid by private contributors*
- 6. contributes to the achievement of other public policies or strategies (if relevant)*
- 7. addresses a legacy issue (if relevant);*

*Good investment principles should be followed when assessing the project (including a risk assessment and cost-benefit analysis). In addition, an assessment of the scale of the benefits and the affordability of the project, including the ability of a local community to meet the costs, would help to determine the mix of funding and how to rate (i.e. targeted or regional)."*

This recommendation will be pre-circulated to the full committee (prior to the meeting papers being prepared) so there is time for wider consideration.

## **2. Regional updates**

The regular update on infrastructure work across the region was tabled, and discussed with particular reference to funding issues.

### **Attachments**

- Note to infrastructure Working Group re financing of Environmentally Beneficial Infrastructure
- Cc CWMS infrastructure briefing paper to commissioners (2 March 2016)

## **Note to Infrastructure Working Group**

### **Re Financing of Environmentally Beneficial Infrastructure**

#### Background

At the Regional Water Management Committee on 9 February the Committee agreed that:

*“While public funding should be a last resort, there could be a case for Environment Canterbury to provide public funding (through a rate) to environmentally beneficial elements of an infrastructure project if the following criteria were satisfied. The project*

- 1. delivers significant, demonstrable ecological, social and cultural benefits over and above the alternatives (including doing nothing)*
- 2. requires only a one-off capital investment (i.e. other funding mechanisms are appropriate for ongoing activities)*
- 3. is a cost-effective way to achieve goals*
- 4. benefits a group wider than the immediate users (i.e. clear identification of beneficiaries is required)*
- 5. contributes to the achievement of other public policies or strategies (if relevant)*
- 6. addresses a legacy issue (if relevant);*

*Good investment principles should be followed when assessing the project (including a risk assessment and cost-benefit analysis). In addition, an assessment of the scale of the benefits and the affordability of the project, including the ability of a local community to meet the costs, would help to determine the mix of funding and how to rate (i.e. targeted or regional).”*

In addition a seventh criterion was proposed: *“7. funding should not be used to meet the requirements of a resource consent, or (in an alternative formulation) to avoid, remedy or mitigate any adverse effects of a development project.”<sup>1</sup>*

Essentially this additional criterion would mean that ECan funding could not be used where the environmentally (or ecologically/culturally/socially) beneficial elements of an infrastructure project had already been encapsulated in a resource consent. This is likely to mean in practice that such a funding policy is unavailable to assist most CWMS infrastructure projects.

---

<sup>1</sup> The alternative formulation refers to the final limb of the definition of “sustainable management”, which is part of the purpose (s5) of the Resource Management Act.

## Analysis

Typically project consents are sought before funding. This is so that funders, both public and private, can know that a project is lawful, i.e. entitled to proceed, before they commit to assist or invest in it. Otherwise the project might be thought to be purely speculative.

Typically any community/environmental benefits from the project are likely to have been identified by the project applicant before its resource application, or to have emerged from any public hearing process. This is because applicants, as well as wider communities, face clear incentives to identify such benefits.

Moreover, it is in the interests of the wider community to seek to have any such benefits included in any resource consent by way of obligatory condition. For example, CPW agreed (at the behest of Ngāi Tahu amongst others) as part of its resource consent process to enforceable nutrient limits that would apply to its customers. This was before such limits were included in ECan's Land and Water Regional Plan as a general requirement.

Wider public benefits are often not severable from the parts of an infrastructure project that are intended to deliver private, or purely financial, gains. This should not come as a surprise to proponents of the CWMS. It has been fundamental to the CWMS from the outset that the Strategy aims to achieve multiple objectives simultaneously.

Another way of thinking about the various forms of benefit inherent in the CWMS is that they are not zero-sum. That is, private gains do not have to be at the expense of the wider community. Correspondingly, community (or ecological/cultural/social) gains do not necessarily have to come at a private cost. For example, by encouraging more efficient, environmentally-friendly modes of production the CWMS seeks to address ecological, cultural and community objectives that also make economic sense. Storage and distribution infrastructure is a key component of this multi-pronged strategy.

We have already agreed (in the principal resolution) that to qualify for any form of ECan financial assistance infrastructure projects would have to deliver significant demonstrable ecological, social and/or cultural benefits. The fact that some or all of these benefits may have been "captured" and required in a project's resource consent(s) seems irrelevant. What matters is that wider than merely private benefits exist. If the project can afford to proceed without assistance then it should do so (condition 3 and the cost/benefit analysis). But if the project cannot afford to proceed without ECan's assistance then the wider benefits will be lost irrespective of whether they are covered by resource consent conditions.



### Recommendation

That the RIWG **recommend** to the Regional Committee that it reject the proposed additional funding criterion.



## CWMS briefing paper

<b>Briefing date</b>	2 March 2016	<b>Portfolio commissioner</b>	David Caygill
<b>Portfolio</b>	CWMS	<b>Portfolio director</b>	Ken Taylor
<b>Programme</b>	Regional Water Infrastructure	<b>Programme Manager / Author</b>	Christina Robb / Brett Painter, Dennis Jamieson

### Purpose

To provide updates regarding CWMS infrastructure activities and opportunities.

**Key region wide challenge:** Scheme funding contribution challenges due to low investment priority for hydro-generation, low dairy payout and economic effects of recent droughts.

#### 1. HURUNUI-WAIAU/KAIKOURA

- The Environment Court appeal (AIC/NTP) on Hurunui Water Project (HWP) Waitohi Irrigation Scheme consents has been withdrawn following a High Court decision. Consents confirmed on 18 December 2015.
- Ngāi Tahu Forest Estates have lodged new water take consents for the Waiau River, and requested several changes to the partially granted Balmoral Irrigation Project consents (subject to mediation). They have also withdrawn their appeal on the Balmoral Irrigation Project consents.
- Kakapo Brook Hydro and Irrigation Project consent applications were declined and have not been appealed.
- AIC shareholders have voted in favour of a piping concept and NTP are progressing their Glenrae assessments. A key Glenrae issue identified to date is the DOC land with prohibition on storage in the upper section of the proposed reservoir.
- HWP/IAF are confirming the content of the next stage of their IAF supported work.
- Waiau independent irrigators and AIC are supporting scoping of a piped scheme for 3,500 ha of potential irrigation development on Emu Plain (north Waiau).
- New on-farm storage for multiple properties in the Mendip Hills (north of the Waiau River and east of Emu Plain) is under consideration.

#### 2. WAIMAKARIRI

- Waimakariri Irrigation Limited (WIL) has building and resource consents for their proposed 8.2 M m<sup>3</sup> storage. An Environment Court hearing on the resource consent appeal is awaiting identification of a date suitable to all parties. ECan and WIL are engaging to ensure clarity over the recently granted 5 year nutrient consent.
- Project Raindrop is still on hold until final feasibility funding is confirmed.
- The Loburn Irrigation Scheme are progressing a small scheme storage concept.

#### 3. SELWYN-WAIHORA

- Central Plains Water Sheffield Scheme (3,500-4,000 ha and 2M m<sup>3</sup> storage) and Stage 2+ (~33,500 ha) are progressing to consenting. Stockwater delivery for all CPW stages is under active discussion. Electricity disconnections now total 4MW. The average power load across Stage 1 in the second half of Dec was 22MW in 2014 cf 14MW in 2015. Perhaps another 4MW connected at this stage but not used.
- An experiment to test the upper Irwell Targeted Stream Augmentation (TSA) concept is in the final stages of consenting processes. A solar powered pumping concept has been identified for highly targeted stream augmentation.

#### 4. ASHBURTON ZONE

- BCI have commissioned their new lower Rakaia Barrhill scheme. They are working with ADC on delivery of stock water through this scheme, though expect this to require a variation to the Rakaia River WCO due to point-of-take definition. They have also continued in-fill irrigation near Valetta, though new irrigation in this area is affected by Plan Change 2 to the LWRP. BCI are investigating storage near the Rakaia River.
- Ashburton Lyndhurst Irrigation completed stage two pipeline 1 by the end of October 2015 as expected, with the remainder of their ~30,000 ha scheme expected to be complete by September 2017.
- Ashburton-Hinds MAR project: Consenting processes are complete. Final funding component being sought from MPI/IAF (16 March 2016) following endorsement of approach and personnel from Rūnanga representatives.
- ADC are in negotiations with irrigation companies regarding the potential for them to take over delivery of stock water where possible.
- In December 2014 the RDR Board decided to progress the Klondyke storage scheme to consenting. RDR are currently concluding consent investigations including the potential for new high flow consents. Consent lodgement is expected in mid-2016 for a maximum volume of 53 M m<sup>3</sup>. RDR are also developing concepts to update fish exclusion and sediment trap systems.

#### 5. SOUTH CANTERBURY

- Rangitata South Irrigation Scheme construction is complete though sediment sealing is expected to continue for up to 5 years (no code of compliance yet). Individual farms plans have been audited. An ECan investigation has identified significant groundwater dilution in the lower catchment and groundwater mounding near the main race. Unexpected surface flooding has also occurred in the lower south Rangitata.
- Waihao Downs Irrigation expects to have their new ~3300 ha scheme operational early in 2016. A second stage of ~2500 ha is under consideration.
- The Hakataramea Valley irrigation scheme (~1200 ha) is operational.
- The two south Canterbury water resource model scenarios are focusing on distribution of potentially available RDR Rangitata River water and the opportunities created by in-zone Opuha/Opihi adjustments. The coastal Orari/Opihi demand study, also supported by IAF, is complete. The Water Resource Study will be completed by end of June 2016.
- Consent application for Opuha downstream weir upgrade is expected in March 2016 (+6 M m<sup>3</sup> reservoir capacity plus peak flush increase from 30 to 45 m<sup>3</sup>/s).
- 400k m<sup>3</sup> on-farm storage under construction on north bank of Pareora River. Four 110k m<sup>3</sup> on-farm storages are consented on Ashwick Flats. One completed.

<b>File reference</b>	<a href="http://intranet/workspaces/portfolios/cwms/regwaterinfras/CWMS_briefing_InfrastructureUpdate2Mar2016.docx">http://intranet/workspaces/portfolios/cwms/regwaterinfras/CWMS_briefing_InfrastructureUpdate2Mar2016.docx</a>
<b>Peer review</b>	Brett Painter, Dennis Jamieson

<b>AGENDA ITEM NO: 7.</b>	<b>SUBJECT MATTER: DRINKING WATER UPDATE</b>
<b>REPORT:</b> Regional Water Management Committee	<b>DATE OF MEETING: 12 April 2016</b>
<b>REPORT BY:</b> Ellie McNae, Senior Strategy Advisor, Environment Canterbury	

## PURPOSE

To provide the Regional Committee with an update of work on the drinking water targets.

## KEY POINTS

1. Access to safe drinking water is a fundamental requirement for public health, with the maintenance of community supplies a first order priority of the CWMS.
2. In the 2015 Targets report, progress was noted under the target for protecting source water quality, although eight water supplies (three in communities under 500 people and three in communities of 500-5000 people) had lost compliance with the Drinking Water Standards (DWSNZ) since 2011/2012. Progress in the target areas of 'emerging contaminant risk' and 'catchment nutrient load' were both assessed as 'achieving'.
3. Environment Canterbury and the Canterbury District Health Board have a joint work programme with key work streams being drinking and recreational water targets. The joint work programme has resulted in more collaborative and proactive approach to identifying, mitigating and managing issues in this area.
4. Since 2009 more than 140 recommendations have been made in the Zone Implementation Programmes to set catchment load limits and improve nutrient management to protect drinking water quality. Environment Canterbury Zone Implementation Teams are now establishing programmes and targets to further advance this work.

## Recommendations

That the Regional Committee:

1. **Note** the work currently underway on the drinking water targets
2. **Agree** to receive a quarterly update on work on the drinking water targets
3. **Suggest** any areas that they would like further information on.

## Background

Access to safe drinking water is a fundamental requirement for public health according to the Ministry of Health, and a human right as declared by the United Nations in 2010. To qualify as 'safe' drinking water in New Zealand must comply with the Drinking Water Standards, set by the Ministry of Health. These standards specify maximum acceptable standards for various

contaminants, compliance criteria and reporting requirements, and remedial actions. The National Environmental Standard for Sources of Human Drinking Water also sets requirements for protecting sources of human drinking water from becoming contaminated. This requires regional councils to ensure that effects of activities on drinking water sources are considered in decisions on resource consents and regional plans.

The majority of Canterbury's drinking water supplies are sourced from groundwater, with the remainder coming from surface water. These surface water supplies, and those coming from shallow groundwater, are highly vulnerable to contamination by human or animal faeces, while those supplies coming from a secure groundwater source are safe to drink without any treatment.

## **The CWMS Drinking Water Targets**

The maintenance of community drinking water supplies is a first order priority of the CWMS. Within the strategy there are also targets that aim to increase the percentage of the population with access to drinking water that complies with the Drinking Water Standards, including a specific target for marae and papakāinga. The strategy also lists requirements to achieve nutrient efficiency targets and decrease nitrate concentrations in groundwater wells. Finally, there is a requirement to understand and manage emerging contaminant risks.

The 2015 CWMS Targets report noted that work on protecting source water quality amounted to 'progress', with over 140 recommendations made in Zone Implementation Programmes to set catchment load limits and to improve nutrient management specifically to protect drinking water.

By 2020 the CWMS targets stipulate that there will have been an increase in the percentage of the population supplied with drinking water that meets the New Zealand standards, that all marae and associated papakāinga will have access to high quality drinking water, and that nutrient efficiency targets will be met in 100% of all *newly* irrigated land and in 80% of *all* land in major rural land uses. A demonstrable decrease also needs to be achieved in nitrate concentrations in shallow groundwater in priority areas.

Environment Canterbury and the Canterbury District Health Board are currently examining the various metrics used to assess and report levels of progress around the drinking water targets. This work programme, previously discussed with the Regional Committee, won't amend the targets themselves but will ensure that the metrics used to assess are appropriate.

### ***Managed Aquifer Recharge***

Managed Aquifer Recharge (MAR) is a general term used to describe a wide range of tools aimed at artificially recharging a targeted aquifer with water from another source. In Canterbury, this concept could be useful in alleviating issues related to climate variability, over-allocation and high nutrient levels. To test the concept, a pilot project covering the area from the eastern end of the Valetta Irrigation Scheme through Tinwald to the coastal drain system south of the Ashburton River has been developed. One of the reasons this area was selected is that it has some of the highest levels of shallow groundwater and surface water nitrate-nitrogen levels in the region. The MAR pilot project aims to test whether the augmentation water can be tracked,

and also what level of impact this augmentation water has on groundwater levels and quality in the target area. Understanding the potential of diluting this groundwater while balancing other potential benefits and risks is crucial to developing its future water management role in the Ashburton-Hinds catchments. Consents for the pilot project (up to 5 years duration) have been granted and funding is being provided through community contributions, as well as from central and local government.

### ***Nitrate communications plan and risk maps***

Under the Health (Drinking Water) Amendment Act 2007, Environment Canterbury is required to warn users of self-supplied water supplies about contamination. Through the joint work programme with the Canterbury District Health Board, the Council has engaged in range of outreach and communication activities advising pregnant women and parents of bottle-fed babies to have their groundwater wells tested for nitrates. In 2014 this extended to a pilot awareness campaign “Safe Water for Private Wells” targeting the rural population in South Canterbury to encourage testing of wells and promoting the need for bore head protection and maintenance. An awareness raising pamphlet was sent to approximately 5000 households, resulting in at least two private wells being tested for nitrate levels.

This awareness raising work was continued in June 2015 with updates to the risk maps, and summary report, of nitrates in Canterbury groundwater. Canterbury District Health Board is continuing this communications effort, adding alerts on nitrate risk areas into Health Pathways and providing information to midwives and GPs. These alerts mean that a GP or midwife will be notified when a pregnant or breastfeeding patient may be in a nitrate risk area, prompting them to ask questions about water supplies, and to suggest options to get any at-risk supplies tested.

### ***Community Drinking Water Protection Zones***

Requirements under the Land and Water Regional Plan stipulate the need for protection zones for all sources of water associated with Group and Community Drinking Water Supplies. In particular, schedule 1 of the plan states that “in any resource consent application for a new group or community drinking-water supply take and replacement of any existing group or community drinking-water supply take, the need for, and extent of, a specific protection zone will be considered”. To facilitate this process, a team at Environment Canterbury updated the current database containing information on the location and details of groundwater wells and surface water intakes. This work was carried out in collaboration with Canterbury District Health Board, with the resulting information now visible as map layers on the Canterbury Maps website.

### ***Limit Setting Processes***

Setting minimum flows, allocation and nutrient load limits through the sub-regional process is a key tool to help achieve the CWMS targets. In the area of drinking water, this will assist in achieving the nutrient efficiency targets, and decreasing nitrate concentrations in groundwater.

A number of zones have already progressed through the limit setting process with the most recent being the Hinds Plains, which was notified on 13 February 2016. Water resources in this area have been showing signs of stress, with nitrogen levels already high and increasing, and water availability decreasing. The plan rules that have now been notified are particularly stringent and will assist in achieving the drinking water targets for the CWMS. As already publically acknowledged, these measures alone may not be sufficient to meet the 2040 targets. Council staff are continuing to explore other options to achieve these, such as the MAR trial discussed earlier.

Ensuring that the public health perspective is incorporated from the outset is particularly important. For this reason, Canterbury District Health Board and Community and Public Health are very involved in the limit-setting process— both in the scientific and community stages. In 2015 they were involved in the Coastal South Canterbury, Hinds, Waitaki and Wairewa limit setting processes, and are currently contributing to the scientific elements of the Waimakariri process.

### ***Zone Teams***

All Zone Implementation Teams have 5-year outcomes set, or in development, to ensure delivery of the Zone Implementation Programmes and CWMS Targets. These outcomes have been set in collaboration with the relevant territorial authorities and the Zone Committees, and include specific targets for drinking water. For example, the Selwyn-Waihora Zone has draft outcomes to ensure bacterial and protozoal compliance within the Selwyn District Council Long term Plan community outcome performance levels.



<b>AGENDA ITEM NO: 8.</b>	<b>SUBJECT MATTER: BIODIVERSITY AND ECOSYSTEM HEALTH WORKING GROUP</b>
<b>REPORT:</b> Regional Water Management Committee	<b>DATE OF MEETING: 12 April 2016</b>
<b>REPORT BY:</b> Barbara Nicholas, Facilitator	

## PURPOSE

To receive an update on the work of Biodiversity and Ecosystem Health Working Group (BEWG).

## BACKGROUND

The Biodiversity and Ecosystem Health Working Group met on 23 March. The meeting

**a. Hosted a meeting to discuss a joint approach to developing agreed priority five year outcomes for biodiversity across the region.**

Staff were invited from each of the national institutions with responsibilities for biodiversity (Department of Conservation, Land Management New Zealand) as well as individuals from District Councils, zone committees, Forest and Bird, Lincoln University, and Landcare Research. Commissioners Rex Williams and David Bedford also attended.

There appeared to be broad agreement that five year priority outcomes were a good thing to progress (with some gaps identified in the initial draft version tabled), and a number of additional issues were identified for consideration by the working group.

**b. Considered an update on regional biodiversity initiatives**

The report was received and noted.

**c. Considered a report and recommendations for future Immediate Steps Funding.**

The first five years of immediate steps funding were used by the committee to support three Flagship projects – Te Waihora, Wainono, and Rangitata/Rakaia braided rivers. Immediate Steps funding is committed to June this year and decisions are now needed for subsequent funding years

The working group had reviewed the Rakaia/Rangitata Flagship project in late 2015 and there was strong support for its continuation for a further five years to ensure the considerable gains that have been made are not lost or compromised.

## PROPOSAL

- Operational planning for next year is on hold awaiting guidance
- It is desirable to maintain momentum, and that it takes several months to a year to implement new programmes

The working group were also mindful of the work underway to agree five year priority outcomes for biodiversity across the region and this might highlight some additional opportunities and priorities.

The committee agreed that

- Funding should roll over for five years for the Rangitata/Rakaia Braided rivers project. This was reviewed last year, significant gains have been made and need to be sustained. There should be annual review of funding on the basis of risk to those gains.
- Funding for the other two projects should be rolled over for 2016/17, and then retained to the level necessary to maintain the investment already made.

## **RECOMMENDATIONS**

That the regional committee

- Receive the report of BEWG
- Agree that
  - Funding for the Braided River project (Upper Rangitata and Rakaia) be rolled over for 5 years, subject to annual review on the basis of risk to the gains that have been made.
  - Funding for the Wainono and Te Waihora projects should be rolled over for 2016/17, and then retained to the level necessary to maintain the investment already made.

## **ATTACHMENTS**

Notes from March 23 meeting

# BEWG meeting notes: 23 March 2016

---

## Present:

**Committee:** Stephen Lowndes; John Wilkie, John Talbot, Tom Lambie, Hugh Logan  
[apologies: Jane Demeter, Peter Scott]

**External parties** (for first part of meeting): Jackie Van Hal (DOC) David Newey (DOC), Jeremy Severinsen (DOC), Ian Hyde (ADC), Jen Miler (F&B), Ines Stager (F&B), Grant Edge (Waimakariri Zone Committee), Ted Howard (Kaikoura Zone Committee), David Bedford (ECAN Commissioner), Rex Williams (ECAN Commissioner), Mick Abbott (Lincoln University), Fiona Carswell (Landcare Research), Miles Giller (QE2), Ash Parish (LINZ), Karen Lee(LINZ), Murray Mackenzie(LINZ),

**Staff:** Chris Keeling, Don Chittock, Barbara Nicholas, Frances Schmechel (til 12.00), Jean-Marie Tompkins (from 11.50)

## 1. Biodiversity five year outcomes

Steve Lowndes welcomed the visitors to the meeting, and following a round of introductions Chris Keeling introduced the proposal that there be agreement between parties across the region to work to a set of 5 year priority outcomes for action on the ground.

There was a wide ranging conversation that touched on a number of issues:

- We are still losing biodiversity. Need to protect what we have left (i.e. remnants)
- Lots of waka going different directions, want to align them; need for new work streams to be identified and implemented
- This meeting discussed the use of the terms 'collaboration' or 'cooperation', noting that collaboration across the community would require a wider range of people in the room and an extensive conversation
- What we do needs to be aligned with Biodiversity Strategy, so people can see 'line of sight'
- Issue is one of people and place
- need to find ways to think differently
- importance of stewardship and education
- importance that agencies be aligned
- Gaps in draft 5 year outcomes of coastal spring-fed streams, and sensitive lake zones

The visitors left at 11.30. The committee continued with additional agenda items, but also agreed in response to the morning's discussions to recommend:

- That Environment Canterbury needs to demonstrate stronger leadership around biodiversity, and initiate a wide community discussion about future funding for biodiversity
- Continue to work with a wider network of people so explore how we can better deliver biodiversity outcomes in Canterbury.

Key issues noted were:

- Value of stronger leadership around biodiversity particularly from commissioners, and need for a wide community discussion about future funding for biodiversity
- Importance of addressing the diffuse loss of biodiversity on river margins and on remnants on farm land
- Opportunities to explore ways to work with communities

Frances Schmechel presented her update on Immediate Steps projects and recommendations for the next phase of Immediate Steps investment.

The committee agreed to recommend option 2 to the regional committee, that

- Funding for the Braided Rivers project (Upper Rangitata and Rakaia) be rolled over for the next five years, subject to annual review on the basis of risk to the gains that have been made
- Funding for the Wainono and Te Waihora projects be rolled over for 2016/17, and then retained to the level necessary to maintain the investment already made.

### **3. Regional initiatives updates**

Jean-Marie Tompkins presented the update on the regional initiatives – fish habitat, wildings control, regional braided rivers, and regional pest control.

There was a request for a further update on how best to deliver regional initiatives and programmes.

#### **Attachment**

- Briefing papers to working group
- Draft 5 year outcomes as tabled at the meeting

<b>SUBJECT MATTER: Regional Biodiversity Initiatives Project Update</b>	
<b>REPORT:</b> Biodiversity and Ecosystem Health Working Group of the Regional Committee CWMS	<b>DATE OF MEETING:</b> 23 <sup>rd</sup> March 2015
<b>REPORT BY:</b> Jean Tompkins, Special Projects Officer Frances Schmechel, Principal Biodiversity Advisor Kennedy Lange, Special Projects Officer	

## **PURPOSE (NO DECISION REQUIRED)**

To provide an update on the progress of the four Regional Biodiversity Initiatives.

1. **Regional Fish Habitat Remediation Initiative**
2. **Regional Wilding Conifer Initiative**
3. **Regional Braided River Initiatives**
4. **Regional Pest control**

See Appendix 1 for the Regional Initiative Project Management Overview.

## **Regional Initiative Project Updates**

### **1. Regional Fish Habitat Remediation Initiative**

This initiative provides a coordinated region wide approach to identifying, prioritising and remediating fish habitat. This work contributes to Canterbury Water Management Strategy (CWMS) and CWMS zone committee goals and targets for ecological health in Canterbury rivers, including an increase in the distribution and abundance of fish species.

The initiative currently has three focus areas which include general fish passage, inanga habitat and mudfish conservation. While initially this funding initiative was primarily concerned with fish passage, habitat for fish species became a focus for the initiative following catchment surveys in 2014/15. The catchment surveys in Saltwater Creek (Waimakariri) and Wairewa/Little River found only two minor fish passage barriers and consequently the survey report recommendations centred on habitat enhancements. A post-drought mudfish surveys in 2015 similarly found that the critical issue for the species was habitat quality and security (from drought & predators).

In December 2015 a call for projects was made through key stakeholders, the focus group and relevant networks. Learning from the 2014/15 programme, where projects approved for support came with limited project management and required intensive management by biodiversity officers, requirements for 2015/16 project proposals included defined work plans and an identified project management lead. In March, eight project proposals to address fish habitat and passage issues were received and approved for funding, totalling \$159,146. Key feedback from the focus group was to ensure these projects have long-term landowner support and monitoring. Table 1 of Appendix 2 summarises these 2015/16 approved projects alongside ongoing and completed projects.

The 2014/15 budget for this initiative was significantly underspent, however this underspend and the 2015/16 budget has subsequently been fully allocated.

#### **Work Programme Updates**

*Project and Catchment Investigations* (refer to Table 1, Appendix 2)

Final details for the 8 recently approved project's implementation plans will be confirmed with landowners over the coming month. Once an agreement contract is signed by parties, the on-the-ground works will be able to begin.

Of the twelve 2014/15 projects prioritised, three continue to be implemented. Recent works for these projects include the remediation of the Taumatakahu Wool Scour Weir fish passage barrier (located in Temuka) and the installation of a barrier at the Coach Stream site (Selwyn Zone, approaching Porters Pass) (see Appendix 3).

All 2014/15 catchment investigation surveys were completed with a set of recommendations either being provided directly to landowners or provided to Council Biodiversity Officers to determine the provision of advice and funding assistance offers.

Photographs of recent work sites are shown within Appendix 3.

#### *Policy and Planning Initiatives*

The mussel spat rope global consent has been utilised at the Waipopo floodgate and planned for installation in another three locations upstream of the Taumatakahu barrier remediation site in Temuka. The success of these installations to assist fish passage is being monitored.

Seventy Īnanga spawning sites are now listed within the Land and Water Regional Plan (LWRP) which provides greater protection to these sites by managing works within these areas. Signs to mark out these locations are currently being installed for the purposes of ongoing monitoring by Council and both contractor & public awareness. Signage has been installed for Waimakariri zone Īnanga spawning sites while Biodiversity Officers have been supplied with marker posts for installation in other zones.

## **2. Regional Wilding Conifer Initiative**

### **Work programme 2014/15 (see Appendix 4)**

The fast-tracked one-year work programme fully allocated the \$100,000 budget towards wilding conifer control work at five operationally feasible, high value biodiversity sites including:

1. Ferintosh Station – completed
2. Glenthorne Station – completed (follow-up scheduled)
3. Glenhope Station – completed (follow-up TBD)
4. Lake Taylor Station – completed (Now a priority area)
5. Amuri Range landowners (Waiau Group) – completed (support extended into 2015/16).

### **Work programme 2015/16 (see Appendix 5)**

From an initial list of 13 areas the application of focus group-agreed criteria generated a ranked list of four 2015/16 work programme priority areas which have subsequently generated the seven operational projects listed below. A total of \$92,717 of the 2015/16 budget has been allocated.

A number of relatively small projects of high ecological value are being scoped to allocate the remaining budget (\$7,300) prior to June 2016.

1. Upper Ahuriri Priority Area
  - Quail Burn Saddle
2. Sumner Lakes Priority Area
  - Jollie Brook (includes Lake Taylor Station)
  - Sister Stream
3. Lake Coleridge – Mt Barker /Big Ben Range Priority Area
  - Acheron Station
4. Ashburton Lakes Priority Area
  - Lake Camp
  - Ashburton Lakes (multiple areas)

Engagement with relevant partners for each of these areas continues, developing work plans for the 2016/17 year which will consolidate the current work programme. Wilding conifer management requires a long-term commitment to ensure today's control actions have ongoing effect.



**Above:** Aerial herbicide application over block Douglas Fir trees located at Quail Burn Saddle, Upper Ahuriri, February 2016.



### 3. Regional Braided River Initiatives

This program includes three large regional-scale projects and three smaller projects. It is focused on region-wide strategy programmes for braided river ecosystem health and breeding bird habitat to help meet the Braided River CWMS goals and targets.

#### A) Clarence river predator control for black-fronted tern habitat

**Background:** The aim of this project is to improve breeding habitat for threatened braided river birds in the upper Clarence River by removing weeds and controlling pest animals on selected islands. The key target is black-fronted tern breeding habitat as this species only breeds in eastern south island braided rivers. The population is declining on almost all rivers where it is found and its conservation status is 'nationally endangered'. This project is managed by the Department of Conservation and co-funded by the Kaikōura Zone Committee.

**Update:** This season hand clearing of weeds and the predator trapping was undertaken. A resource consent for mechanical scrapping and shaping of islands has been obtained. (The mechanical work will be undertaken this month.)

A large number of predators were captured. This is expected to improve as the traps 'weather in'.

The hatching success of the managed and unmanaged colonies was similar (about 30% for both). The fledging success (number of chicks that survived to flying) at the managed colonies was a slightly higher than the unmanaged colonies – but both were low this season.

The hatching success rates are 'uncorrected' for when the nest were found – this may change the final numbers somewhat. (There is a bias because some nests disappear before they are found. A correction factor can adjust for this bias.) However, this is unlikely to significantly change the overall picture.

The other, potentially very significant factor, was the exceptionally low rainfall and river flows in the Clarence (the lowest since records began in 1905). These very low flows meant that mammalian predators had easier access to the islands, as was demonstrated when a cat reached one of the colonies killing a large number of chicks that were close to fledging.

A final report for this work is due from the contractor in the next month. An informal update is included in Appendix 6.

Clarence black-fronted tern habitat restoration	2014/5	2015/6	2016/7	2017/8	2018/9	2019/20
BRRI portion	90,190	36,880	36,880	36,880	36,880	36,880
Kaikoura contribution Clarence	40,000	10,000	10,000	10,000	10,000	10,000
DOC contribution	52,800	52,500	52,500	52,500	52,500	52,500

Note: the DOC contribution is actually higher because of an additional component was added to the outcome monitoring.

#### B) Upper Rangitata predator control

**Background:** The aims of this project are to improve the breeding habitat for braided river birds by reducing predator levels across the project area. This project complements two

other ongoing projects in this catchment – the Regional Committee IMS funded Braided River flagship (including weed control) and southern black-backed gull control. (Southern black-backed gulls are a known predator of braided river birds. This work is led by the local landcare group and supported by DOC.)

This predator control project is a collaboration with DOC and the upper Rangitata Gorge Landcare Group. Both the Ashburton and OOPS zones have committed funding to this project.

Outcome monitoring for this project is focused on wrybill and black-fronted tern. Wrybill depend entirely on South Island braided rivers for breeding, with the upper Rangitata River being one of the key breeding rivers for wrybill nationally. The population is estimated at around 5,000 in total and evidence suggests it is in slow decline. Several black-fronted tern colonies also breed in the project area.

As part of the pre-control outcome monitoring (2014/15) there were 165 black-fronted tern nests checked regularly. Only 10% of nests hatched any eggs successfully; and of the 16 chicks that did hatch, none survived to fledging. Video monitoring (100 night's equivalent) showed the reason was mainly predation (by cats, stoats and rats).

**Update:** A large infrastructure of different traps has been established which stretches from Mt Sunday 30km down to White Rock Station. The 1,154 traps target a range of predators – stoats, ferrets, feral cats, hedgehogs and rodents. There are about 100 traps still to go in to complete the base trap layout that covers both sides of the Rangitata.

'High country farmer support has been overwhelming', with the layout including high country tenure and private farmland as well as public lands. The predator tally for June-Dec 2015 is: 48 feral cats, 46 stoats, 18 weasels, 39 possums, 35 rats, 228 hedgehogs.

Monitoring is also underway to determine the breeding success of selected braided river birds. The results of this will be included in the next update. (See Appendix 6 for the full update.)

Upper Rangitata	2014/5	2015/6	2016/7	2017/8	2018/9	2019/20	2020/1
BRRI portion	10,000	7,958	7,958	39,458	39,458	39,458	39,458
OOPS portion	0	20,000	20,000	0	0	0	0
Ashburton Zone portion	0	11,500	11,500	0	0	0	0
DOC contribution	131,380	136,633	136,633	136,633	136,633	136,633	136,633

### C) Lower Waitaki River habitat restoration programme: islands and mudfish

**Background:** This project seeks to address the issue of lower stretches of braided rivers in Canterbury which are often heavily infested with weeds, which removes much of the safe breeding habitat for native birds (such as wrybill, black-fronted terns, black stilt and black-billed gulls) and crowd out native plants and animals as well as provide cover for introduced predators.

Clearing islands of weeds, or creating islands, has often been suggested as a way to restore these habitats, however little systematic work has been done to trial this technique. This project aims to: undertake different weed removal techniques on several targeted islands within the Lower Waitaki River; show which method or combination of methods is the most cost-effective; and make recommendations about how the methods can be applied across other braided rivers to benefit braided river birds.

The outcome monitoring is focused on black-fronted tern colonies and predator numbers and movements.

Additionally, the Lower Waitaki River holds the southernmost population of Canterbury mudfish. Its entire habitat in the margins of the Lower Waitaki River is threatened by

invading weeds. A variety of management activities will be undertaken to improve their habitat including: hand removal of small areas of woody invasive weeds; planting low-growing native vegetation in margins of ponds and streams; raise the profile of mudfish in the region by providing access and signage at appropriate sites; and identify future potential sites for mudfish in the Lower Waitaki River margins and restore these sites and translocate mudfish into them.

This project is being done in collaboration with the Waitaki River Management Society and the Department of Conservation.

**Update:** This season (October 2015 - January 2016) baseline monitoring was undertaken of black-fronted tern colonies. A total of 78 nests in 4 colonies were monitored for breeding success and predators which is summarised here (see Appendix 6 for the full report).

Colony 1 (9 nests monitored, 18 birds) was flooded out early in the breeding season (and birds may have re-nested elsewhere). Colony 2 (22 nests monitored, 80 birds) had 16 fledglings and 10 chicks. Five nests failed due to flooding or predation late in the season. Colony 3 (30 nests, 250+ birds) was near a large black-BACKED gull colony (not to be confused with its smaller endemic cousin the black-BILLED gull). This colony slowly disappeared throughout the season due to disturbance and predation. Four fledglings were seen earlier in Dec. By late Dec only a few adults remained and no fledglings were seen. Colony 4 (18 nests monitored, 70 birds) shared an island with a large black-BILLED gull colony. In early Dec young chicks were observed in the colony as well as broken eggs, dead chicks and fledglings. The colony was gone by late Dec.

Overall about half of the nests monitored across the four colonies hatched at least one egg. An unknown number of the chicks survived to fledging (flying age), but some chicks are known to have not survived to fledging.

Predator monitoring with cameras and tracking tunnels showed mustelids, mice, rates and a possum on the islands. All were only accessible to humans via jet boat, however during low flows sometimes they were connected to other, larger areas. All the islands were vegetated with a mix of grassy and woody weeds. On the river banks cats, ferrets and hedgehogs in addition to rats, stoats, mice and possums were detected.

In April and May (2016) vegetation removal on the islands is planned. An update on the project is being presented to the Lower Waitaki Zone Committee on 16 March 2016.

Lower Waitaki island and mudfish habitat restoration	2015/6	2016/7	2017/8	2018/9	2019/20
BRRRI portion	85,800	101,300	76,300	38,800	16,800
DOC/ LWRMS contributions	43,600	19,800	19,800	7,800	7,600

Note: the contributions for this project are an underestimate due to additional funding and volunteer time being provided by BRaid and the LWRMS and also contributions by the University of Otago.

#### **D) Three smaller projects have been approved and are in various stages of progress.**

- 1) Black-billed gull survey for management
- 2) Braided river habitat management investigation (black-billed gulls)
- 3) Braided River habitat enhancement trial (robust grasshoppers)
-

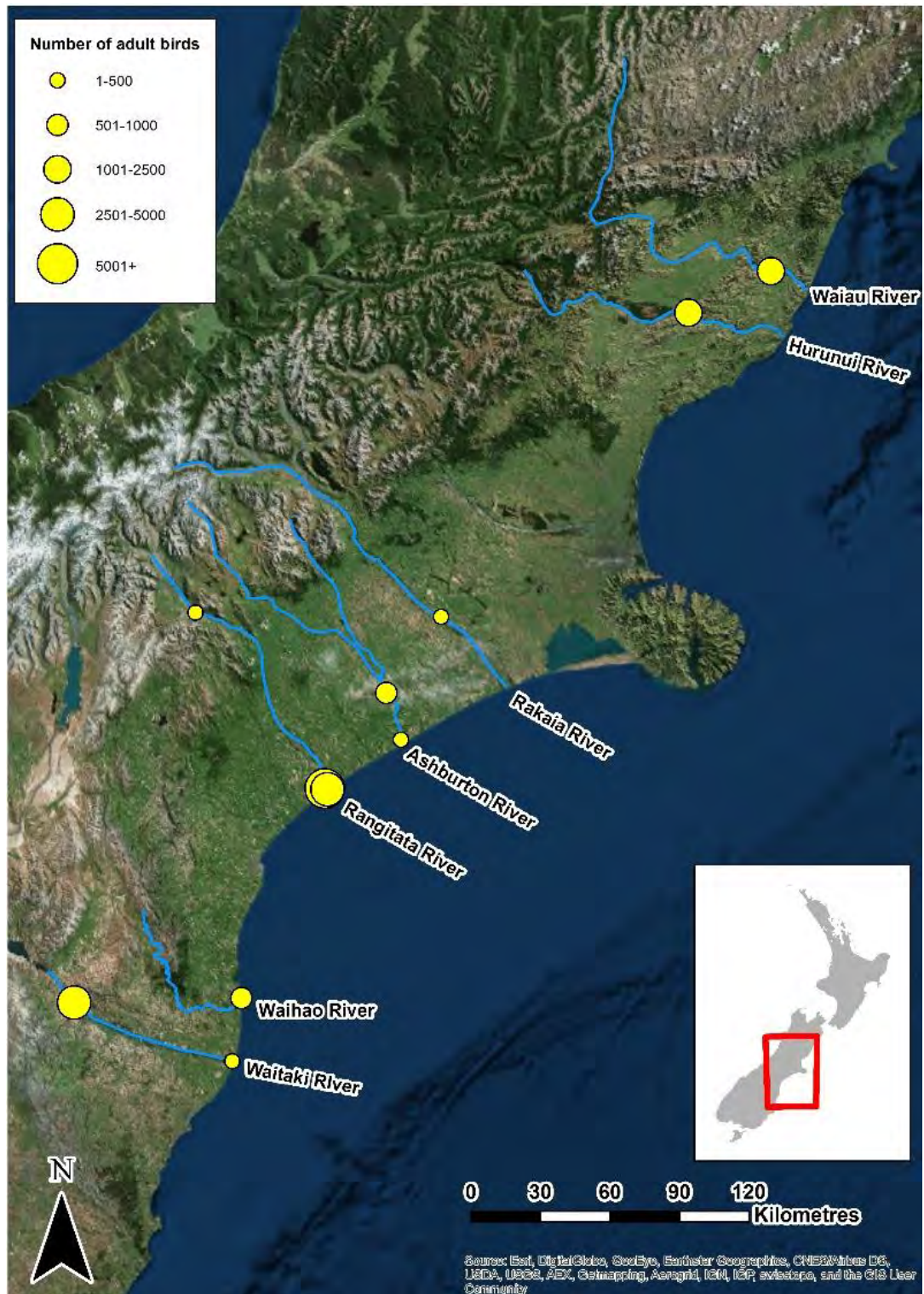
BRI allocation	2014/5	2015/6	2016/7	2017/8
Black-billed gull survey	20,000	6,950	7,828	0
Robust grasshopper habitat	23,000	0	6,000	0
Black-billed gull movements/ popln structure	13,334	0	20,000	6,667

*Note: the contributions for these projects not included in above table*

#### **1) Black-billed gull survey for management**

- A region-wide survey of the endangered black-billed gull was conducted again this season (year 2) and provides the best baseline information available for the population status of this species - which is crucial for informing habitat management. The draft report has been submitted, with the final report due mid-April.
- 
- The flights were undertaken in late November and high resolution photographs taken. A total of 17 rivers were flown and 11 colonies found. Initial results indicate numbers were roughly similar to last year (about 21,000 vs 18,500). A copy of the final report and maps will be made available later this year.
- 
-





**Figure 3.** Map showing size and location of colonies found during the flight on 22-23 November 2015. Size determined from aerial photograph counts. (Note: the Mackenzie basin was not included in these flights, and is reported via a separate map in the report).

- 
- 
- 2) **Braided river habitat management investigation (black-billed gulls)** - recruitment is underway for a student.
-

- 3) **Braided River habitat enhancement trial (robust grasshoppers)** - better described as a 'gravel hopper' this nationally endangered species is found only on riverbeds in the Mackenzie Basin. It is cryptic, specialised to its riverbed habitat and known populations are declining.
- - The first five milestones have been completed for this project including setting up a student, completing a translocation proposal, establishing gravel experimental areas, collecting and releasing grasshoppers into the experimental sites, and monitoring survival and breeding attempts
  - 
  - Project Highlights May 2015-March 2016 include:
    - Successful overwintering at translocation site
    - Development to maturity and first observation of mating at translocation site
    - Full season of population mark-recapture monitoring at translocation site
    - Implementation of additional predator tracking for skinks and mammalian predators
    - Monitoring experiment initiated at Patterson's terrace (wild population)
    - Construction of in situ rearing cages to track life history characters at Patterson's Tce
    - Two oral presentation abstracts accepted to present preliminary results at the Society for Conservation Biology Oceania Congress in Brisbane, 5-9 July 2016
  -



- 

#### **4. Regional Pest control – update**

Wallaby control operations are currently being planned for a number of QEII covenants in the Waimate and Hook river catchments. Most areas previously poisoned are still showing well reduced wallaby densities but one site has had rapid re-invasion due to adjoining land use change.

##### **Hunters Hills Animal Pest Control**

A poison operation was undertaken on two large QEII covenant sites in land from Makikihi. The operation covered 400 hectares and involved three land owners, and the Department of Conservation. Encapsulated cyanide baits (feratox) on stakes was the only methodology used for this operation with main ridges, tracks and bush pasture margins deemed as ideal locations for baits. During the first round of pre-feed six High Country Contracting staff established 401 stakes with 8 non-toxic baits. Please see the attached map.

It was noted wallaby sign was very heavy throughout the higher altitude areas. All stakes were left for a week with a second pre-feed round being undertaken with another 8 baits stapled to stakes. All baits from the initial pre-feed were taken. Five days following the second pre-feed, staff revisited the stakes and stapled on toxic baits, up to 10 baits in some areas where sign was deemed very heavy. Five days after the toxic bait was laid, staff over two days re visited all baiting sites. All remaining toxic bait was removed and all kills were counted. A total of 641 wallabies and 91 possums were totalled. This was a much higher kill rate than expected with some stakes having up to 8 dead wallabies around. Kill total numbers aren't 100% accurate as carcass searches are only conducted in a 5-10metre radius of the stake. Some wallabies can travel some distance from the stakes on steep slopes and it was evident feral pigs had been eating carcasses.

In general there was very strong support and good communication from land owners and neighbours throughout the project.

Overall this was a great result in significantly lowering the wallaby and possum population in these important native forest remnants.





## **Appendix 1: Regional Initiative Project Management Overview**

### **Project Leaders**

Four initiatives have been approved for funding via the Regional Initiatives Fund as outlined below.

<b>Initiative</b>	<b>Approved Budget</b>	<b>Timeframe</b>	<b>Leader</b>
Regional Fish Habitat	\$100,000/yr	3 yrs from 14/15	Jean Tompkins
Regional Wilding Conifers	\$100,000/yr	annually from 14/15	Jean Tompkins
Regional Braided River	\$135,000/yr	annually from 14/15	Frances Schmechel
Regional Pest control	\$50,000/yr	annually from 14/15	Kennedy Lange

### **Focus Group**

Each initiative will be overseen by a focus group. The role of the focus group is to provide high level guidance to the project and advice on prioritisation of work streams, locations and opportunities within the project. The focus groups will likely meet 1-2 times a year, or as required for approximately 3 hours.

Focus group members will be expected to:

- Inform the focus group of what areas the community/organisation they represent considers priorities for the funding
- Participate in assessment and prioritisation (to an agreed set of criteria) of workstreams and/or locations
- Where appropriate assist with the development and/or implementation of management plans – such as assisting with contacting stakeholders and coordinating with other habitat enhancement opportunities

The focus group will be made up of appropriate internal and external members, such as:

- Ngāi Tahu or Papatipu Runanga representations
- Agency staff – such as Department of Conservation, District Councils
- NGO representatives – such as Fish and Game or relevant landcare groups
- Academics – such as University or Landcare Research
- CWMS Regional Committee representative
- Environment Canterbury Ecologists, Biodiversity or Biosecurity Staff

For the Braided River project, the existing DOC Braided Rivers Technical Advisory Group will be used in place of establishing a specific focus group (and a CWMS Regional Committee representative will be invited to attend relevant sessions).

### **Call for Suggestions**

- Each initiative will contact relevant stakeholders to inform them of the overall goals and offer them the opportunity to provide suggestions of relevant work/locations to be considered for funding.
- This call for suggestions will be repeated as required. Because of the nature of some of these initiatives funding will be committed over several years, and so an annual call for suggestions may not be required.
- Project suggestions will be prioritised by the Focus Group.

**Management Plan Development, Funding Allocation & Implementation**

- Following prioritisation of suggested projects by the focus group, management plans will be developed for each project in priority order by staff. These management plans will provide further details of the project including timeframes and costings.
- Funding will be allocated through the existing Environment Canterbury Biodiversity Strategy process, which includes relevant checks with CWMS Tangata Whenua Facilitators/consents/compliance/etc and development of agreements with third parties receiving funding to outline project milestones required for payments and other funding conditions.

**Updates**

- Six monthly written progress updates will be available

## Appendix 2: Regional Fish Habitat Remediation Initiative Updates

Table 1: Barrier/habitat remediation projects & catchment investigations – Current project updates and status

<b>BRI allocation (Other party contribution)</b>	<b>Zone</b>	<b>Summary of work to be completed (in association with landowners &amp; project partners)</b>	<b>Current Status / Update</b>
2015/16 Projects			
Taiko Stream – Mudfish Habitat \$22,405 (\$20,000)	OOP	Willow poisoning (some removal), fencing, planting	Allocated funding March 2016 – Funding Agreement Development Stage
Elmwood – Mudfish Habitat \$8,874 (\$8,411)	Selwyn	Willow poisoning, fencing, planting, minor earthworks	Allocated funding March 2016 – Funding Agreement Development Stage
MacLean Mudfish Sanctuary \$35,800 (\$15,008)	Waimakariri	Fencing, planting, earthworks, maintenance, education sessions	Allocated funding March 2016 – Funding Agreement Development Stage
Mudfish protection – Kirkstyle \$16,100 (\$5,800)	Selwyn	Fencing and planting	Allocated funding March 2016 – Funding Agreement Development Stage
Mudfish protection - Morven (Blacks Stream) \$26,200 (\$7,800)	Selwyn	Fencing and planting	Allocated funding March 2016 – Funding Agreement Development Stage
Mudfish protection - Sandown (Blacks Stream) \$21,000 (\$11,300)	Selwyn	Fencing and planting	Allocated funding March 2016 – Funding Agreement Development Stage
Benzies Wetland – Inanga Habitat \$8,607 (\$4,303)	Waimakariri	Fencing and planting	Allocated funding March 2016 – Funding Agreement Development Stage
Corbies Creek - Lowland longjaw \$20,160 (\$10,080)	Upper Waitaki	Barrier installation, predator removal & fencing	Allocated funding March 2016 – Funding Agreement Development Stage

## 2014/15 Projects

Project Name (Current Status & \$allocations)	Zone	Summary of work to be completed (in association with landowners & project partners)	Update
Coach Stream \$27,210 funding	Selwyn	(1) Design and installation of trout barrier to large road culvert (2) Removal of trout Monitoring	A large roading culvert requires remediation to protect an upstream population of Canterbury galaxias from predatory trout. The stream reach connects to a large DOC protected area, and will protect a source population of Canterbury Galaxias. Project in collaboration with NZTA, F&G, University of Canterbury and the Selwyn CWMS Zone Committee. Culvert remediation works completed March 2016.
Mounseys Stream \$1,725 consent application \$2,000 material est.	Waimakariri	(1) Design and installation of trout barriers (2) Eradication of trout above barriers	Biodiversity Officer completed site visits with Leanne O'Brien. Trout barrier design drafted. Landowner engaged and positive. Consent required for works – granted. Area surveyed as part of Canterbury mudfish post-drought response survey August 2015 and sites protected through current IMS works (fencing and QEII covenanted areas). Consent for works received. Awaiting landowner implementation of works.
St Andrews Lyalldale Springs	Lower Waitaki	Investigation, design and installation of: (1) Excavation and meandering of straightened watercourses (2) strengthening of gravel bar at beach to protect catchment /mudfish habitat from eels	Leanne O'Brien engaged in February to complete design work. Eel barrier at confluence of main Mudfish water way and Lyalldale Stream is also now included in the proposed work. Discussions held with river engineering staff regarding beach barrier and gravel extraction. Site access being addressed for consultant – access work has been undertaken to assist consultant survey (dense gorse/broom).
Waipopo Flood gate & upstream culvert. Completed. \$1,450 – materials. Monitoring Due.	OOPs (2 <sup>nd</sup> priority zone)	(1) Design and installation of mussel spat rope to provide passage through 10m long culvert. (2) Investigate alterations to floodgate.	Mussel spat rope installed. Monitoring of effectiveness due 2015/16 season. A consent is now held by Ecan allowing installation options to be scoped with certainty for upstream culvert. Liaison and site visits with river engineers indicated floodgate alteration may not be possible due to site factors.
Taumatakahu Stream \$21,000 funding. Works Underway	OOPs	(1) Landowner engagement (2) Investigation, design and remediation at weir (3) Investigation, design and remediation for several upstream culverts	Works scheduled for December 2015 with River Engineers. Biodiversity staff have visited the site on four occasions to engage with the landowner and district council staff (also adjacent landowners). Ecan river engineers drafted a remediation design to augment the current structure with a ramp and rubble fill. Two structures upstream of the wool scour are identified for progressing mussel spat rope installation
Limestone Creek/Gawler Stream (Resolved – no	Ashburton (2 <sup>nd</sup> priority in this zone)	(1) Investigate ADC stock water take above weir is passage for exotic fish; (2) design & installing an eel pass at weir; (3) removal of brook char to Lake	Biodiversity staff are in liaison with Fish and Game, DOC and ADC to determine which of the proposed works should be actioned. Concurrent Immediate Steps works occurring in the catchment. Following discussion with DOC staff and information supplied by ADC the weir and removal of trout or brook char is no longer a priority action for the

<i>further RFHRI action or funding planned)</i>		Emily; (4) surveillance &/or removal of trout; (5) issuing of non-enforcement order to ADC for consent condition to require fish passage on weir; (6) riparian/wetland enhancement;	initiative. Observations by ADC staff confirm eel passage is not impeded by the weir, while removal of exotic fish is not seen as a priority action by agencies when alternative catchment work is considered.
<b>Project Name (Current Status)</b>	<b>Zone</b>	<b>Summary of work to be completed (in association with landowners &amp; project partners)</b>	<b>Update</b>
Glenariffe Stream  (Resolved – no further RFHRI action or funding planned)	Ashburton/ Regional Flagship	(1) Investigate water take/fish screen consent to establish if it is possible to remove fish ladder. (2) Based on above removal of fish ladder	Biodiversity Officer completed site visit with Fish and Game and determined the fish screen was not a barrier. Fencing for habitat protection is being undertaken by the landowner in liaison with DOC & F&G. Stock access does not appear to be presenting any immediate threat to the sites values. Communication of outcomes between parties (inc. this initiative) ongoing. Note that works in this upper Rakaia area for fish habitat protection continues to also be facilitated and promoted through the Braided River regional initiative.
Mahinga Kai Exemplar Project (Lake Kate Sheppard) (Resolved – no further RFHRI action or funding planned)	CHCH-WM	(1) Investigation, design and alteration of tide gate (2) (New additional work) – Investigate site for spawning occurrence / habitat suitability and requirements for rehabilitation	Ecan Biodiversity Officers undertook a survey (in liaison with CCC, University Canterbury) finding abundant inanga within the lake. These observations confirm fish passage exists (reducing the need to address the floodgate) and spawning/eggs observed by Shane Orchard (UC). Habitat enhancement options may be pursued via alternative funding programmes.
Chain Hills (Formerly Corbies Creek prioritised – now managed by DOC) (Resolved – no further RFHRI action or funding planned)	Upper Waitaki	(1) Protect stream/wetland complex with <i>G. cobitinis</i> (1) Landowner communication (2) Site fenced (3) Barrier installed (4) Trout removed	Landowner consultation was undertaken and determined that progress at these sites is currently not able to occur during the term of this 2014/15 work programme. Discussions between DOC and landowner are yet to progress.  BDO is being updated on any opportunities to support.
Old Orari Lagoon Floodgate (Resolved – no further RFHRI action or funding planned)	OOPs	(1) Design and installation of remediation to provide passage through flood gate	Floodgate is scheduled for replacement by Ecan River Engineering in short-medium term (Engineers anticipate replacing w appropriate gate). Currently gate provides for fish passage and therefore no remediation required. Habitat enhancements continue through IMS fund.
Lake Road Barrier Sites (funded via WTW)	Selwyn- Waihora	Investigation, design and remediation of passage to barriers identified on Hammer Road Drain, Drain Road Drain	Investigation undertaken by Ecan and consultants of habitats (including passage) upstream of these barriers (to determine the benefit of remediation). WTW postponed resourcing until 2015/16 year.

<i>(No further RFHRI action or funding planned)</i>		and Templeton Drain	
<b>Catchment Investigations</b>	<b>Zone</b>	<b>Summary of work to be completed (in association with landowners &amp; project partners)</b>	<b>Update</b>
Muriwai/Coopers Lagoon <i>(Completed)</i>	Selwyn-Waihora	<p>(1) Design, implementation &amp; assessment of fish sampling programme in partnership with TWMB &amp; SDC</p> <p>(2) Based on above results, design &amp; installation of remediation to barrier (with consideration of existing consent requirements)</p>	<p>Leanne O'Brien met with relevant parties' onsite in April.</p> <p>Investigative surveys at four sites have been scheduled from August-December 2015.</p> <p>Memo of recommendations from consultant over-due.</p>
Old Orari Lagoon <i>(Formally referred to as Horseshoe Lagoon) &amp; Waipopo Catchments</i> <i>(Completed)</i>	OOPs	<p>(1) Landowner &amp; stakeholder engagement</p> <p>(2) Catchment survey to assess barriers and identify opportunities for habitat improvement</p> <p>Support implementation of improvements as appropriate</p>	Field survey work has been undertaken within the Orari Horseshoe lagoon. Results indicate fish passage is occurring. Floodgates due for replacement. River Engineering & Biodiversity staff are working together to ensure new structures provide for passage. Habitat enhancements at Orari 'Horseshoe' lagoon are underway via IMS project work.
Saltwater Creek <i>(Completed)</i>	Waimakariri	<p>(1) Landowner &amp; stakeholder engagement</p> <p>(2) Catchment survey to assess barriers and identify opportunities for habitat improvement</p> <p>(3) Support implementation of improvements as appropriate</p>	<p>Leanne O'Brien completed catchment investigations from February to May 2015.</p> <p>Two project sites were identified for remediation/enhancement works. Engagement with landowners underway; project to be put forward for 2015/16 consideration.</p> <p>An opportunity for trout habitat enhancement was also identified and details of this was forwarded to F&amp;G.</p>
Mathias Upland Longjaw Site <i>(Completed)</i>	Regional Flagship	<p>(1) Site visit with fish expert and landowner to develop action plan to protect site</p> <p>(2) Support implementation of action plan as appropriate</p>	Biodiversity staff have visited the site in February, confirmed with a brief survey fish presence and engaged with the landowner and managers. A recommendations document for remediation works (habitat protection) were prepared by Richard Alibone and provided to the landowners and manager. No works are anticipated within the project site. Liaison with landowners continue through Ecan's Braided River Initiative.
Wairewa/Little River <i>(Completed)</i>	Banks Peninsula	<p>(1) Landowner &amp; stakeholder engagement</p> <p>(2) Catchment survey to assess barriers and identify opportunities for habitat improvement</p>	Leanne O'Brien undertook catchment investigations from February to May 2015. One potential barrier identified – noted for scoping in 2015/16 work programme. Key aspect of catchment is lake outlet openings to allow for white bait and lamprey migrations (Data on lake openings attained).

			(3) Support implementation		
--	--	--	----------------------------	--	--



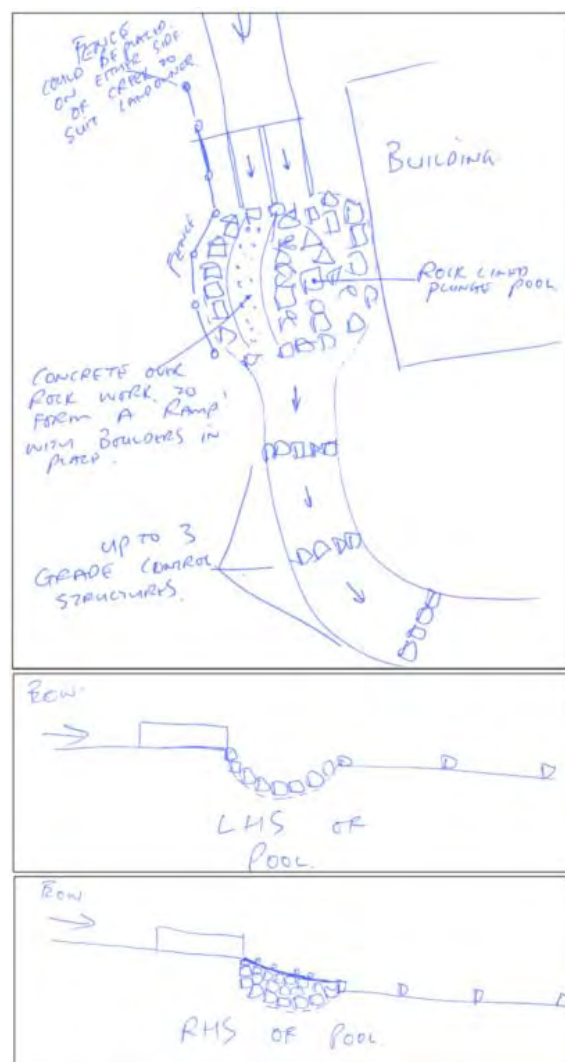


### Appendix 3: Regional Fish Habitat Remediation Initiative Photographs – Out & About



**Above:** The Taumatakahu wool scour weir, photographed prior to remediation.

**Below:** Remediation design for Taumatakahu weir





**Above:** Inanga marker post installed at Saltwater Creek, Waimakariri Zone. One of 70 sites scheduled for marker installation across Canterbury.

**Below:** Remediation works (trout barrier) currently underway at Coach Stream culvert, Selwyn Zone

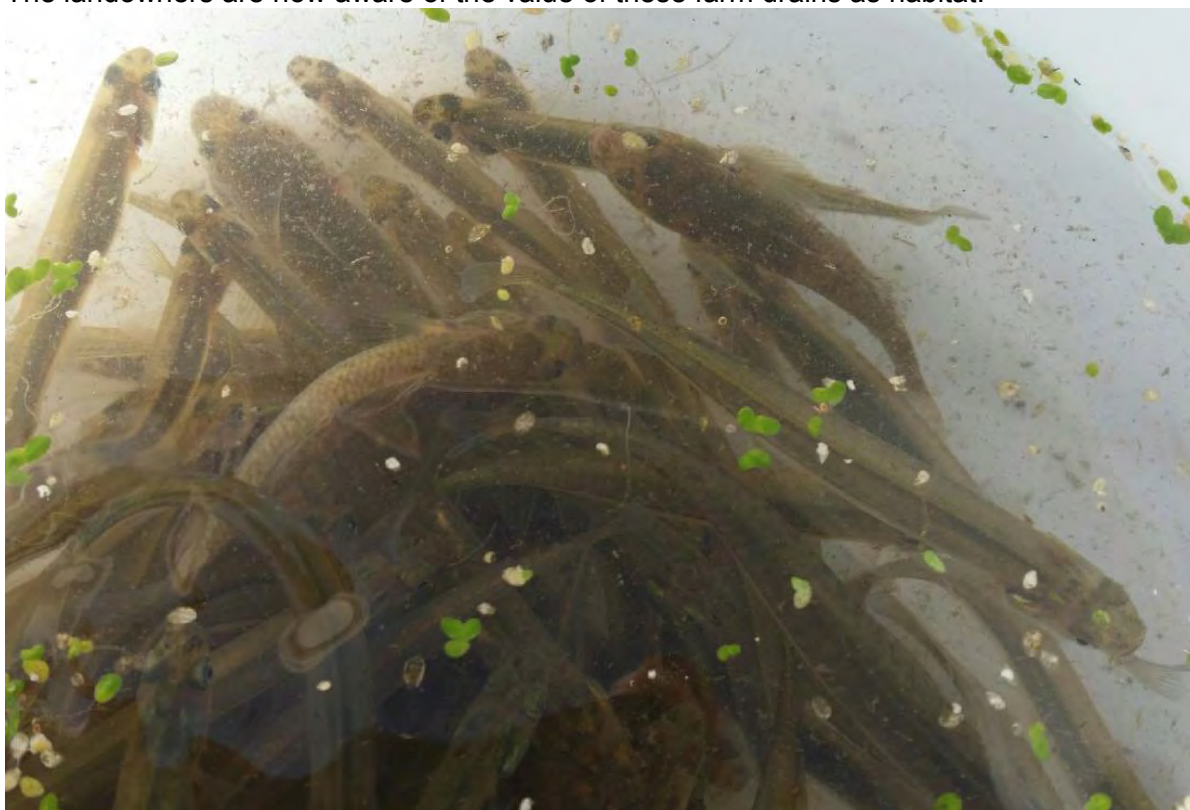






**Above:** Muriwai Coopers Lagoon fish survey work (Nov 2015) with Leanne O'Brien

**Below:** Abundant īnanga found in a non-descript farm drain leading into Coopers Lagoon. The landowners are now aware of the value of these farm drains as habitat.

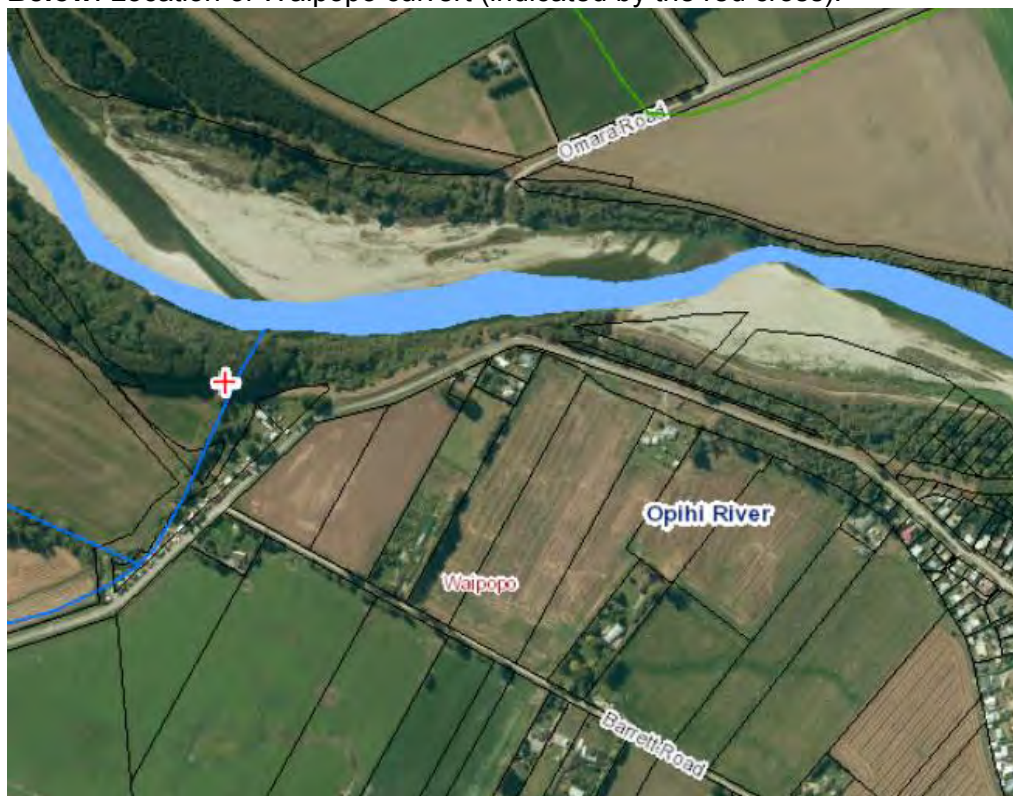






**Above** – Biodiversity Officer Rob Carson-Iles installs mussel spat rope to assist fish passage at a Waipopo culvert.

**Below:** Location of Waipopo culvert (indicated by the red cross).



#### Appendix 4: Wilding Conifer Initiative – Year 1 Fast-tracked work programme 2014/15

These projects were selected due to each operations feasibility & practicality, long-term security/sustainability and ecological criteria. This follows the same process as for projects funded under the Canterbury Biodiversity Strategy fund.

All projects have been completed.

Table 1: Work programme 2014/15 wilding conifer control projects\*\*

Project Name	Site values	Description of works	Grant (Other Contrib.)
(Collaboration with Landowner and LINZ)	High quality tall tussock, tarns, shrub-land and beech forest communities. Ecological Score 33/39*	Aerial and ground control of scattered conifers specifically within or directly threatening the high ecological areas.	\$45,000 (LINZ \$165,000)
Glenhope (North Canterbury) (Supplementing existing Ecan Biosecurity work programme)	Manuka/kanuka /Beech tree-land within high country. Ecological Score 23/39*	Aerial and ground control of scattered conifers specifically within or directly threatening the high ecological areas.	\$20,000 (Biosecurity \$20,000)
Lake Coleridge/Glenthorne (Supplementing existing landowner and Ecan Biosecurity work programme)	Lake Ida wetlands and Basin Hut beech forest environs. Ecological Score 30/39*	Ground control operation to complement works within Glenthorne Station targeted to high ecological value areas.	\$20,000 (Landowner & Biosecurity \$20,000)
Waiau Wildings – Amuri Range (Collaboration with Landowners and Ecan Biosecurity work programme)	Modified extensive farmland with gullies of Beech/Kanuka/Podocarp cover. Ecological Score 18/39*	Continuation of ground control operations across three properties in the NE Amuri Range.	\$10,000 (Landowners \$10,000)
Lake Taylor Station	Modified extensive farmland with gullies of Beech/Kanuka/Podocarp cover. Adjacent to high value conservation estate forest park. Ecological Score 18/39*	Highly scattered infestation across Gunn property. In liaison with biosecurity work, will assist with understanding of wider priority area requirements.	\$5,000 (In-kind operational support).

\* Ecological Score determined utilising criteria adapted from Wildlands Consultants (2013) – available on request.



**Appendix 5: Wilding Conifer Initiative 2015/16 Work Programme**

All projects are within the initiatives priority areas.

<b>Project Name</b>	<b>Description of works</b>	<b>Grant (Other Contrib.)</b>
Quail Burn Saddle (Collaboration with Landowner and DOC)	Aerial and ground control of scattered conifers specifically within or directly threatening the high ecological areas.	\$14,000 (\$16,000)
Lake Taylor & Jollie Brook (Collaboration with Landowner and DOC)	Priority area - ongoing aerial and ground operations co-ordinated with DOC and Landowners.	\$13,260 (\$23,880)
Sisters Stream – Lake Sumner (Landowners)	Priority area – discrete ground operation to remove high risk spread conifers.	\$3,955 (\$1,508)
Mt Barker (Landowners)	Priority area - ongoing aerial and ground operations across the Big Ben Stration – co-ordinated with control at Glenthorne, Coleridge, Korowai -Torlesse and Big Ben.	\$16,440 (\$6,940)
Acheron Station – Big Ben (Landowners)	Priority area - ongoing aerial and ground operations across the Big Ben Stration – co-ordinated with control at Glenthorne, Coleridge, Korowai-Torlesse and Mt Barker.	\$8,875 (\$4,438)
Lake Camp (Territorial Authority – ADC & DOC)	Ground operations to remove high spread risk conifer species from around Lake Camp. Works in association with interested parties (hut holders assn, F&B, boaties & other recreationalists)	\$16,187 (\$8,093)
Ashburton Lakes (DOC)	Aerial and grounds operations across Clent Hills, Harper and Big Hill and Wild Mans Brother Ranges	\$20,000 (\$25,000)
Total		\$92,717 (\$85,859)





**Appendix 6 – Braided River Regional Initiatives Reports**  
**Update from Mike Bell, Wildlife Management International for the Clarence River Project**

Pests captured throughout the season -

Cats: 26  
 Ferrets: 41  
 Stoats: 34  
 Weasels: 16  
 Hedgehogs: 102  
 Possums: 19  
 Rabbits: 5  
 Hares: 2  
 Mice: 12  
 Harriers: 58

I felt the trapping went well, the traps are effective at catching predators. I do feel that as the traps weather in, we might get a better capture rate. The number of weasels is unusual, very high.

The tern season didn't really go as well. We monitored a total 476 nesting attempts. With the difference between treatment and non-treatment below.

	Number of nests monitored (known outcomes)	Number of nests that survived to hatching	Proportion of nests that survived to hatching		Number of chicks fledged per nest
'Treatment' colonies	79	24	30.4%	7	0.09
'Non-treatment' colonies	397	125	31.5%	24	0.06

...So not a resounding success in terms of providing an early demonstration of the effectiveness of this management regime. Or at least, no difference in hatching success, but interesting to see that fledging success appears to be higher among our 'treatment' colonies. With numbers that small though, it's hard to know whether the difference is significant or not at this stage.

There are a couple of points worth keeping in mind. Firstly, these results are the observed nest success rates, so will be biased high to varying degrees. Because nests that fail relatively early have a lower chance of being detected, the apparent hatching success figures will be overestimates. Furthermore, there may be a difference in the degree to which these treatment and non-treatment figures have been overestimated. That said though, I'd be surprised if these biases were large enough to change our result in any significant way. In our report, I will compare these observed nest success rates with 'true' nest success rates derived from modelling daily nest survival rates but I haven't quite got these models working yet to be able to provide this info to you yet.

The second, and probably hugely important is that this breeding season was rather exceptional in that in 2015 Hamner Springs recorded its lowest annual rainfall figure since records began in 1905 (according to NIWA's 2015 annual climate summary). This translated

into exceptionally low flows in the Clarence River, particularly during the latter stages of the black-fronted tern breeding season, possibly reducing nest success rates by allowing mammalian predators to gain easier access to island colonies. We saw this happen when a cat got to one of our treatment colonies and wreaked havoc, killing many chicks close to fledging.

---

#### **Update on Upper Rangitata 4 Feb 2016**

....Just a quick update on the season's progress with the Upper Rangitata project. Dave Anderson is running the predator control aspect to the programme, and I have the brief over the threatened species monitoring, and we are based together here in the Geraldine District Office.

Dave's trapping team have established a large infrastructure of different trap designs (to target different predators) stretching from Mt Sunday 30km down to White Rock Station. The 1,154 traps set up are targeting a range of predators –stoats, ferrets, feral cats, hedgehogs and rodents, and we have only about 100 traps still to go in to complete the base trap layout that covers both sides of the Rangitata. High country farmer support has been overwhelming, with the layout including high country tenure and private farmland as well as public lands.

Our predator tally for June-Dec 2015 is; 48 feral cats, 46 stoats, 18 weasels, 39 possums, 35 rats, 228 hedgehogs.

Additionally, black backed gull control was undertaken using pesticide baits, but I don't have the results on hand.

We have also been monitoring the wrybill and black fronted tern nesting in the Upper Rangitata. These results are preliminary and indicate a better than average breeding season has occurred. It's pretty hard to build a picture from a single season's results as the breeding success is highly variable year to year, and long term trend monitoring will show the full picture.

Wrybill: 56 wrybill nests located of which 40 hatched at least 1 chick. From those 40 hatched chicks 34 had fates determined, 21 were observed to have survived to fledge(fly). This is a much higher success rate than our pre trapping wrybill monitoring was showing, so positive indications here!

Blackfronted tern monitoring: is still to have the monitoring stats crunched, but we did a pair trial with a study area inside the predator trapping area and another downstream where no predator control was done. Anecdotally, I'd say there has been limited tern breeding success in both the Upper (trapped area) and Lower (control block) areas but significantly this has been due to flood timing rather than predation events. Last year we had a lot of abandonments and predator interactions in the Upper River area before the trapping started, and this year with the trapping underway we just haven't had the predator interactions occurring.

Here's another snippet that may interest your team, we have kept an eye on the Upper Ashburton riverbed as well where your trapping has a long history of predator control. Although not formerly monitored we noted large numbers of fledged banded dotterel (we estimate we saw 100 fledglings on a single walk through in January). We discovered two wrybill nests, one of which successfully fledged a chick, and another fledgling found where we'd missed finding the nest. There's been a good level of black fronted tern activity but

unfortunately not much productivity. We found a healthy colony of approximately 30 birds began nesting in Oct 2015 in the middle of the ecan project area but where washed out and for a while no real numbers of terns returned to the Ashburton, however since just before Christmas a number of nests re established under Buicks Bridge (once again washed out in floods since then). So, from my observations, I'd say the Ecan Upper Ashburton project has a good season with particularly strong recruitment amongst dotterels and wrybill, but little overall tern productivity which is primarily due to timing of flood events.

Please excuse some of the rather casual observances and comments, we are still doing the formal write up of the seasons trapping and bird monitoring results and will flick them on when complete.

Regards, Brad and Dave.

**Brad Edwards**

Ranger Biodiversity - O Tu Wharekai – Kaitiaki-Kanorau Koiora

Department of Conservation – *Te Papa Atawhai*

DDI: (03) 693 1075 | VPN: 5515

**Conservation for prosperity *Tiakina te taiao, kia puawai***

[www.doc.govt.nz](http://www.doc.govt.nz)

---

## Update on black-fronted tern project in the Lower Waitaki

After kick-starting the tern island project in the Lower Waitaki in October, we have now finished our monitoring for this breeding season. The aim of this project is to find alternative ways to improve the breeding success of black-fronted terns and other braided river birds by improving the breeding habitat for them. In many of the lower reaches of the braided rivers in Canterbury introduced weeds are a big issue. Braided river birds are adapted to nesting in clear gravel areas, however these are also areas where introduced weeds, such as lupins, broom and gorse and many others establish very quickly. Not only does it make breeding habitat unavailable to birds, but it also stabilises channels and provides habitat to introduced predators such as cats, stoats and hedgehogs. The project in the Lower Waitaki will look into ways of clearing weeds and keeping areas free of weeds to improve the breeding success and the habitat of braided river birds. This work will be undertaken this coming winter and the outcome for monitored over the next coming breeding seasons. This season we kept tabs on 78 nests in 4 colonies and used

inked tracking tunnels and cameras to detect predator species on the mainland and on 15 islands. This data together with the predator monitoring will lay the baseline to which future breeding success can be compared to.

No monitoring of the breeding success of black-fronted terns in the Lower Waitaki has been done for nearly 15 years and given the nature of a big river like the Lower Waitaki, it requires more logistics to be able to access breeding colonies. Out of the six colonies we found between Kurow and Duntroon, only one was



*From top to bottom: Black-fronted tern flying away, a chick running in the foreground and the adult sitting on the nest, an adult landing near its nest.  
(Photos: A. Schlesselmann)*



accessible by walking and all others required a jet boat. By using camera traps, we were able to follow the outcomes of nests, but also had the opportunity to observe the terns close up.

Here is some more detail about each colony from this current breeding season.

**Colony 1** (9 nests monitored, 18 birds) near the confluence of the Otiake river was unfortunately flooded out early on in the season in November. All nests with two eggs each were abandoned.

Above the Kurow bridge was **colony 2** (22 nests monitored, 80 birds). This was the most successful colony we monitored. Just before Christmas we counted 16 fledglings and 10 chicks. Nevertheless five nests failed due to being flooded or predated late in the season.

*Black-fronted tern used*



*Adult and two chicks at the nest at the colony above the Kurow bridge. (Photo: A. Schlesselmann)*

**Colony 3** (30 nests monitored, 250+ birds) was a large colony near Riverside Flats right next to a large black-back gull colony. This colony slowly disappeared throughout the season through disturbance and predation. We observed 4 fledglings in December, however by late December only a few adult terns remained and no fledglings were seen.



*From left to right: Adults feeding their chicks with a worm, one chick small gorse plant while the adult is warning, later a black-back gull in the background (Photos: A. Schlesselmann).*

No terns were observed in late December.

*Black-fronted tern flying from its nest. Despite not having any large woody weeds, this island and many of the others are still vegetated by introduced weeds not leaving much clear gravel (Photo: A. Schlesselmann).*



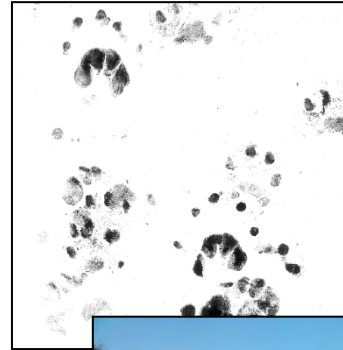
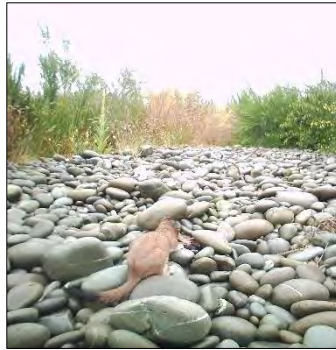
also



found another colony of black-fronted terns spread over 3 islands near Barton's Pond. Unfortunately it was not possible to monitor the nests closely in that colony. Also a new colony formed in early December just above the confluence of Kurow Creek, again of which the outcome is unknown. Overall about 50% of the nests we monitored hatched at least one egg,

however not all chicks survived to a fledgling stage.

Our monitoring of predators with cameras and tracking tunnels showed mustelids, mice, rats and even a possum on islands. All of these islands were only accessible via jet boat, however in low flows sometimes connected to other larger areas. All of these islands are vegetated with a mix of grassy and woody weed species. On the banks of the river we also detected cats, ferrets and hedgehogs as well as rats, stoats, mice and possums. We also detected skinks with the inked tracking tunnels.



This work is supported by Environment Canterbury through its Canterbury Braided River Initiative, the Department of Conservation, University of Otago, Lower Waitaki River Management Society and New Zealand Jetboating Association. A massive thank you to Brett Dann from the NZ Jetboating Association through whom it was possible to not only keep an eye out for terns, but also for the other birdlife in this river! Without a jetboat, none of this work would have been possible.



*On the way back to Kurow after a successful monitoring round (Photo: J. Cooper).*



<b>Biodiversity and Ecosystem Health working group</b>	
<b>SUBJECT MATTER:</b> Immediate Steps Funding	
<b>REPORT BY:</b> Frances Schmechel, Principal Biodiversity Advisor Jodi Rees, Senior Biodiversity Officer Kennedy Lange, Biodiversity Officer Special Project - Southern Zones	<b>DATE OF MEETING:</b> <b>23 March 2016</b>

## **PURPOSE**

To receive an update on the work of Biodiversity and Ecosystem Working Group (BEWG).

## **RECOMMENDATIONS**

That the committee:

- Note the updates on the interim update on FY 2015/16 Immediate Steps Regional Programme.
- Agree to option 2 for funding. That is to continue funding the Braided River Flagship at current levels for the next 5 years based on the review of the program, and continue to fund Te Waihora and Wainono Flagships at current levels for the next FY until further guidance is developed plus commit to minimum levels for additional years to maintain gains (e.g. weed follow up if needed).
- Note the other information to consider concerning the Regional Immediate Steps programmes and funding.

## **BACKGROUND**

The Regional Committee has three Immediate Steps flagship programmes across the region: Te Waihora, Wainono, and Braided Rivers (the upper Rakaia and Rangitata). This is the final year of the initial program.

The annual report for the program is due to the BEWG after the end of the financial year (June). This paper provides an interim update on the programmes.

Planning for next financial year is underway and funding recommendations from the CWMS Regional Committee are requested.

## **UPDATES**

### **Braided Rivers**

One of three regional IMS funded flagship programs, the regional committee Braided River Flagship (BRFS) program focuses on the upper catchments of the Rakaia and Rangitata Rivers (about 80% of the area of the rivers).

In its fifth year, this program continues to make progress in enhancing the health of the braided river ecosystems. This work includes enhancement and protection of wetlands, spring-fed streams and breeding habitat for specialist braided river birds. It is well supported by the local runholders, landcare group members, agencies and groups.

One of the focus CWMS targets is breeding habitat for birds such as wrybill and black-fronted terns. These species, which only breed in braided rivers, require clear open shingle for nesting. The upper Rangitata and Rakaia may contain up to 80% of the national breeding population of wrybill. A coordinated weed control program to enhance these breeding areas has progressively cleared weeds from a large portion of both catchments beginning with the upstream most extent and working down.

This season a new and unexpectedly large population of Russel lupin was found in the upper Rangitata River near Mount Sunday and controlled. This will require ongoing follow-up control work over several years to prevent further spread. DOC and the weed control contractor have been in contact with landowners further upstream, where there may be potential source populations.

Broom and gorse, plus other woody weeds (e.g. false tamarisk), were controlled across both catchments using both ground and aerial methods. After two years each area is revisited to control any new plants to prevent further seeding. Each year the control has been extended further downstream. The program is implemented in partnership with the local landcare groups and other agencies such as DOC and LINZ.

Collaboration between the groups includes annual weed planning meetings, a single agency administering all the contracts, and close cooperation with the local landcare group meetings.

Buddleia is an aggressive woody weed which was identified as a high priority for control under the Rakaia weed strategy. It is the only known population in the upper Rakaia and had started to spread aggressively. Control was undertaken last year with follow-up ground and aerial control currently underway this season. It is due to be completed by the end of March. Late summer is considered the optimal time for control. The project is led by the landowners with funding and support from the BRFS.

Other work underway this season includes the final stages of the Deep Stream project on the south side of the Rangitata managed by Fish and Game. This project included fencing and habitat restoration (through willow control and tussock planting) over several years of a large section of the spring-fed stream and a large wetland. This has been very success and results have included flushing of sediment and restoration of clear gravels and healthier riparian margins as well a healthier, less weedy wetland. This should benefit native fish and eels as well as salmon and the wetland habitat and its vegetation and wildlife. The removal of sediment and willows should also benefit the further river downstream.

A new project to fence several wetlands has commenced on Mount Algidus station in the upper Rakaia this year. The wetlands are also being considered by the QEII National Trust for covenanting as all have been identified as high value environmental areas. The BRFS is contributing funding (about 1/3rd) to the fencing project.

A review of the Braided River Flagship was undertaken in November (2015) by the Regional Committee Biodiversity and Ecosystem Health Working Group (BEWG). The Group heard from a variety of the partner groups and organisations about their perspectives on the program. Overall the program was broadly supported. Some additions to the program were suggested such as more publicity, education and monitoring.

### **Te Waihora Regional Flagship (TWFS)**

The Te Waihora/ Lake Ellesmere flagship has had \$540,000 allocated over five years. The scope of the Regional Immediate Steps projects has been guide by the Whakaora Te Waihora Joint Cultural and Ecological Restoration Plan. The two main strands are willow/ weed control and planting. A more detailed implementation strategy was jointly developed for the willow/ weed control portion of the funding.

Current funding agreements with DOC, a key partner in delivering the program, finish in June 2016. Discussions are underway for continuation of the program in future financial years.

#### Weed and willow control

The DOC-lead program on public conservation land is back on track after resourcing issues in the 14/15 financial year. They now have increased staff resources for delivery. It is anticipated that all current projects delivered by DOC will be completed in this financial year, but future projects are being discussed.

Initial control and follow up of female grey willows on private land was completed on the western side of L2. Follow up is likely to be needed at this site in the coming years. Further willow control work on private land continues to be limited by Environment Canterbury resources available for delivery. Discussions are underway to address this issue.



Reed canary grass control continues at priority sites, along with other site led weed control of priority weeds.

#### Planting on lakeshore

DOC is delivering the planting and maintenance of four sites: Irwell Conservation Area (Te Waiwhio), Harts Creek Reserve - 2 sites (Tramway & Timbervard Rd), Lakeside Reserve. This work is on track. Funding for maintenance of these sites concludes in June 2016.

The proposed project involving planting at Timbervard Point (in partnership with Ngāi Tahu and Selwyn District Council) to be funded through TWFS has been retracted as Ngāi Tahu is not in a position to fulfil their contributions. Environment Canterbury is in conversation with Selwyn District Council to reconsider the TWFS contribution at a smaller scale to allow SDC to meet its obligations to the community. The original budget was \$87,040 over two years, and it is proposed that a large proportion of this funding be redirected to high ecological value weed and willow control, with the remainder spent at Timbervard Point in consultation with SDC.

#### **Wainono Lagoon Regional Flagship**

There have been no activities for this reporting period as the work is programmed for March and will be occurring in the next couple of weeks. The Wainono Restoration Project that this Regional Flagship work contributes to has continued to deliver work on the ground to manage sediment and nutrient in the lagoon tributaries. This project, co-funded by the Ministry for the Environment finished at the end of December but work has been underway since April to secure additional funding through the Waihao Rūnanga and the Ministry's Te Mana o Te Wai fund. Though this fund we have had provisional approval of significant additional funding to further the protection and restoration work at Wainono through partnership with the Rūnanga.

#### **FUTURE FUNDING**

As this is the final year of the initial IMS program, Regional Committee guidance is sought for the next phase of the program. Operational planning for next year is currently on hold pending this guidance. To ensure the best outcomes for the programs planning should commence in the next two to three months.

Below are some options for the Regional Immediate Steps flagship for the next financial year (FY). These are designed to provide options for maintaining the current momentum and secure gains while also allowing options for changing program priorities for future years alongside the development of five year regional outcomes. See table below for summary of options.

- 1) Roll over all of the Regional Committee IMS funding for next the financial year (2016/17) and commit a minimum amount (amounts to be confirmed) to secure gains for the following four years (2017/18 – 2020/21). Rationale: to endure momentum is maintained and it is estimated to take several months to a year to implement any new programmes. Ensure gains made to date are secured (e.g. weed follow up) for all programmes.
- 2) Same option as 1, but for Braided River Flagship recommend ongoing funding at current levels (\$110k/yr) for next five years based on the workshop and feedback (rather than a minimum amount to maintain gains).
- 3) Put all funding on hold until guidance from the Regional Committee is received. The advantages of this approach are maximum flexibility in deciding on future programmes. The disadvantages are that the current programmes lose momentum and will be disrupted. There is a risk the funds for next year would be underspent and would need to roll over to future years and/or the funds would need to be spent

‘in a hurry’; and some current gains may be lost or set back (e.g. lack of follow up on weed work).

- 4) Roll over all of the Regional Committee IMS funding for next the financial year (2016/17), but await guidance from Regional Committee for the following financial years (i.e. no commitment to ongoing minimums past next FY).

**Table 1** – summary of options. FY – fiscal year (1 July – 31 June), BRFS – Braided River Flagship, TWFS – Te Waihora Flagship.

Option	FY	BRFS	TWFS and Wainono
1	2016	Continue same level	
		Minimum to maintain investment	
2	2016	Continue same level	
	2017 - 20	Continue same level	Minimum to maintain investment
3	2016	On hold until guidance received	
	2017 - 20		
4	2016	Continue same level	
	2017 - 20	On hold awaiting further guidance	

#### Other information to consider

The Regional Committee IMS Flagship Programmes are strongly collaborative and rely on partnerships to implement them successfully. Capacity has been reduced in some areas which has affected the ability to deliver some aspects of the programs. Other options are being explored to address this. However at least one of these options would probably function best if there was a security of funding for three years.

A number of other programmes support and align with the Regional Flagship Programmes and vice versa.

- All three of the Regional Flagships contribute significantly to Zone Implementation Programmes (ZIP) delivery in addition to Regional Implementation Program delivery and CWMS targets.
- The ‘Biodiversity Regional Initiatives’ programme contributes significantly to the Braided Rivers Regional Flagship as well as to Zone and Regional Implement Plans (ZIPs and RIP), CWMS Targets, and the Canterbury Biodiversity Strategy.
- Both Zone and Canterbury Biodiversity Strategy (CBS) programs and funding contributes to Regional Flagships and vice versa (e.g. Te Waihora, Wainono).
- Both Regional Flagships and Biodiversity Regional Initiatives are likely to contribute to the regional five year outcomes (in development).

The Immediate Steps programme was originally set up to include both policy input as well as funding (Annex I, Canterbury Water Management Strategy). There are opportunities to make further gains from early input of biodiversity advice to planning and other processes (e.g. consents, discussions with irrigators, consultation on river accretion).

## Draft Regional Biodiversity Outcomes with **example milestones** and measures – drafted for discussion

Outcomes	Measures	Notes
<b>By June 2021: (What we work on)</b>	These are the specifics of ‘what’ we want to work on. Outcomes are supported by milestones.	
<b>1. The protection, maintenance and restoration of Canterbury’s braided rivers is supported</b> a. Restoration plans are developed for all braided rivers in the region b. Support is provided to the direct management of three braided rivers	X no. restoration plans are developed X no. braided rivers are supported through projects / interventions X count increase in bird / plant species on the rivers (this would be a true measure of outcome)	Braided Rivers Regional Flagship, etc. This is also relevant in terms of biodiversity corridors.
<b>2. The protection, maintenance and restoration of wetlands is supported</b> a. All significant wetlands are mapped b. An action plan to support wetland protection is developed and implemented c. Support is provided to the direct management of x no. wetlands	X no. significant wetlands mapped (a complete regional map) An action plan has been developed and implemented X no. wetlands are supported through projects / interventions	Wetlands is an ecosystem where we’re seeing a significant decline, hence its inclusion here. Mapping needs to be completed (already occurring) and the development of an action plan.
<b>3. Mahinga kai: Longfin eel / tuna is managed in a sustainable way</b> a. Develop and implement an action plan to support habitat restoration b. Work with national and regional agencies to address policy issues c. Support is provided to the direct management of x no. habitats	An action plan has been developed and implemented Summary of work with national / regional agencies X no. habitats are supported through projects / interventions	This puts an outcome around longfin eel / tuna to continue ongoing work by BEWG.
<b>4. Mahinga kai: Improved fish passages is supported regionally</b> a. Develop and implement an action plan to support fish habitat b. Work with national and regional agencies to address policy issues c. Support is provided to the direct management of x no. habitats	An action plan has been developed and implemented Summary of work with national / regional agencies X no. habitats are supported through projects / interventions	Work is already being undertaken on fish passage regionally.
<b>5. Support the protection, maintenance and restoration of Canterbury mudfish habitat</b> a. Map all significant mudfish habitat across the region b. Develop and implement an action plan to support habitat restoration c. Support is provided to the direct management of x no. habitats	X no. habitats mapped (a complete map) An action plan has been developed and implemented X no. habitats are supported through projects / interventions	This is another proposed species-related outcome. Canterbury mudfish are a threatened species. Is there another species to target rather than Canterbury mudfish?
<b>6. Support the protection, maintenance and restoration of Te Waihora</b> a. Set specific milestones (see WTW work plan)	TBC	Ongoing work with Te Waihora.
<b>7. Support the protection, maintenance and restoration of Wainono Lagoon</b> a. Set specific milestones (see Wainono work plan)	TBC	Ongoing work with Wainono.
<b>8. Support is provided to the management of invasive weeds and pests in areas of biodiversity value</b> a. Develop and implement an action plan	An action plan has been developed and implemented	Link to biosecurity programme
<b>(How we work)</b>	These outcomes reflect the ‘how’ we work, setting the groundwork for a better process and achieving more. These are important enough to include as outcomes themselves.	
<b>9. Biodiversity management is addressed through a joined-up regional approach</b> a. A joint work programme is developed and implemented	A joint work programme is developed and implemented Summary of actions with partner agencies and others	This is to promote a regional approach to biodiversity.
<b>10. The wider community understands the importance of biodiversity and good biodiversity management</b> a. A communications plan is developed and implemented b. The % of community who are aware of biodiversity has increased	A communications plan developed % measure of awareness (social research)	Promoting awareness of biodiversity is important to achieve more in the long-term. While communications is an important part of all outcomes, a dedicated outcome makes this a focus.
<b>11. The \$ spend of Community Based Organisations has increased</b>	\$ spent Pest/weed control undertaken	This is included to promote more community action. Work under this outcome would be supporting these groups to do more.
<b>12. Biodiversity management is addressed through Farm Environment Plans</b>	5 no. FEP templates include biodiversity	A push to get biodiversity represented in FEPs.



<b>AGENDA ITEM NO: 9.</b>	<b>SUBJECT MATTER: RECOGNISING RECREATION VALUES IN CANTERBURY</b>
<b>REPORT:</b> Regional Water Management Committee	<b>DATE OF MEETING: 12 April 2016</b>
<b>REPORT BY:</b> Scott Pearson, Environmental Advisor, Fish and Game North Canterbury	

## PURPOSE

Fish and Game wishes to present to the Regional Committee a proposed pathway for better assessing and applying the values associated with freshwater recreation in Canterbury.

## PROPOSAL

Fish and Game propose that the Regional Committee support the establishment of a project to better assess and apply the values associated with freshwater recreation in Canterbury. Three key steps are required to achieve this:

1. Finalise a project pathway for achieving the milestones listed below and seek broad agreement from within the recreation sector. A revised draft project plan will be presented at the April meeting for discussion.
2. Prepare a Spreadsheet Inventory of freshwater recreation values & associated waterbody locations. This would be along the lines of Fish and Game's Schedule XX "Water Bodies of Significance" as submitted but not adopted under the Canterbury Land and Water Regional Plan. Where appropriate improvements would be made to ensure alignment with a possible future Schedule in the plan, but the wider applications for consent processing etc would also be considered.

The aim would be to comprehensively identify freshwater values and those representative groups/agencies that seek their maintenance and enhancement. The spreadsheet would provide a starting point for more detailed collation of recreation information in Canterbury.

3. Scope and source funding for an Omnibus Recreation Report, identifying recreation priorities in detail and carrying out associated research in order to prepare the report. Recreation activities and values would be linked to freshwater requirements such as flow, water quality and natural character, with actual and potential risks to these attributes assessed. This report would aim to provide an accessible and user friendly resource for consent officers, planners, Hearing Commissioners and others to better understand how recreation, in its most common forms, is reliant on and influenced by effective freshwater management. The report would be continually updated as further resources and information become available.

Input from a wide range of parties would be expected, with supporting leadership provided from within the recreation sector.

Key elements of the proposal were discussed with representatives from other recreational groups in Canterbury, but agreement is yet to be reached with all parties.

## RECOMMENDATIONS

That the Regional Committee:

1. **Endorse** Fish and Game's proposal
2. **Ask** Environment Canterbury staff to work with Fish and Game and other recreational groups to advance this work.



<b>AGENDA ITEM NO: 10.</b>	<b>SUBJECT MATTER: LUWQ REPORT</b>
<b>REPORT:</b> Regional Water Management Committee	<b>DATE OF MEETING: 12 April 2016</b>
<b>REPORT BY:</b> Barbara Nicholas, Environment Canterbury	

## **PURPOSE**

To update the Regional Committee on the work of the Land Use and Water Quality Working Group (LUWQ)

## **BACKGROUND**

In late 2015 the Regional Committee agreed that they wished to pay attention to urban water quality issues.

As a first step, the LUWQ held a field trip to Rangiora in March. They were joined by some members from each of the Christchurch-West Melton and Waimakariri zone committees. The field trip was hosted by the Waimakariri District Council, and provided the opportunity to see a range of stormwater management options – soakage to ground in new developments, drainage design where groundwater is high, the use of older infrastructure for new purposes, management of impacts on spring fed streams (In this case the Southbrook and Middlebrook), and management of the interface of rural and urban flows.

The working group also received an initial briefing on planning frameworks for urban water quality.

## **RECOMMENDATIONS**

That the committee note:

- Receive the report of LUWQ





<b>AGENDA ITEM NO: 11.</b>	<b>SUBJECT MATTER: ANNUAL REPORT</b>
<b>REPORT:</b> Regional Water Management Committee	<b>DATE OF MEETING: 12 April 2016</b>
<b>REPORT BY:</b> Barbara Nicholas and Ellie McNae, Environment Canterbury	

## **PURPOSE**

To confirm the Annual Report to Council

## **BACKGROUND**

The Regional Council's Long Term Plan requires the CWMS zone and regional committee to provide an annual report on their activities.

The February meeting of the Regional Committee included the development of some advice on what should be included, and delegated oversight to the chair, and the chair of working groups.

The report has now been drafted and is presented to the full committee for approval prior to submission to the Regional Council at its meeting on 21 April.

## **RECOMMENDATIONS**

That the committee note:

- Agree that the Annual Report as attached be approved for submission to the Regional Council.

## **ATTACHMENTS**

- Regional committee report to the Regional Council



# Annual Report for the Community 2015

## Working with the community to improve freshwater

The Regional Committee was established in 2010 as a sub-committee of Environment Canterbury to:

- Monitor the implementation of the CWMS across the Canterbury Region
- Provide advice to Environment Canterbury on regional issues associated with implementation of the CWMS.

The membership reflects these functions – there are representatives of the Regional Council (2), Christchurch City Council (1), District Councils (3), Te Rūnanga o Ngāi Tahu (1) Ngāi Tahu Rūnanga (3), the wider community (6), and one from each zone of Canterbury's ten committees. There are also central government observers from each of MPI and MfE, and an observer from the Canterbury District Health Board.

The committee published its Regional Implementation Programme in 2012, and then continued to structure its ongoing work programme around:

- Infrastructure development requiring significant investment and/or involving wider regional stakeholder involvement
- Regional biodiversity
- A co-ordinated approach to land use and water quality.

Kaitiakitanga is woven through these three areas, and recreation and amenity has emerged as an additional work stream. In addition the committee has been asked for specific advice on the 2011 changes to the Rakaia Water Conservation Order, reporting progress against CWMS Targets, and how to support the delivery of environmentally beneficial infrastructure projects.



### Key achievements 2010-2015

- Facilitating the sharing of freshwater information across the region
- Providing funding for biodiversity projects of regional significance in Lake Ellesmere/Te Waihora, Wainono Lagoon and the Rakaia and Rangitata braided rivers
- Supporting the development of the Biodiversity Regional Initiatives programme (fish habitat restoration, wilding pine management, braided river habitat protection, and Hunter Hills pest management pilot project)
- Alignment of water quality work across the zones and the simultaneous delivery of regulatory tools and on-the-ground actions
- Advising on the development of Environment Canterbury's policies and standards for managing the effects of water use on water quality

### Regional Committee – current membership

Andy Pearce (Independent chair)  
 David Caygill (Commissioner)  
 Tom Lambie (Commissioner)  
 Phil Clearwater (Christchurch City Council)  
 Winton Dalley (North Canterbury District Councils)  
 Angus McKay (Mid-Canterbury District Council)  
 Peter Scott (South Canterbury District Councils)  
 Rebecca Clements (Te Rūnanga o Ngāi Tahu)  
 John Wilkie (Rūnanga Rep – South Canterbury)  
 Vacant Rūnanga Rep – (Mid Canterbury)  
 Vacant Rūnanga Rep (North Canterbury)  
 Hugh Canard (Community rep)  
 Hamish Cuthbert (Community rep)

Jane Demeter (Community rep)  
 John Donkers (Community rep)  
 Rochelle Hardy (Community rep)  
 Hugh Logan (Community rep)  
 Ben Curry (Ashburton)  
 Steve Lowndes (Banks Peninsula)  
 Vacant (Christchurch West Melton)  
 Michele Hawke (Hurunui Waiau)  
 Matthew Hoggard (Kaikoura)  
 Bruce Murphy (Lower Waitaki)  
 John Talbot (Orari Temuka Opihi Pareora)  
 Ron Pellow (Selwyn Waihora)  
 Barry Shepherd (Upper Waitaki)  
 Claire McKay (Waimakariri)

### Land Use and Water Quality integral to CWMS targets

Water quality is integral to many of the CWMS target areas, and is directly affected by land use practices.

The Regional Committee's Land Use and Water Quality Working Group has taken a leadership role to align work programmes and deliver on-the-ground actions across the zones.

The Working Group ensures a holistic approach is taken to assessing and addressing land use and water quality issues.

It was closely involved in helping to shape Environment Canterbury's Land Use and Water Quality Review, which had a profound impact on the way the council works.

The review advocated the establishment of zone-based delivery teams which are now in place across the region and have developed five-year

strategic outcomes and delivery plans. This shift will enable more efficient, targeted, on-the-ground delivery of the CWMS.

The Regional Committee has supported the Christchurch-West Melton Zone Committee's work on the public stormwater network and in 2016 will extend its focus and explore opportunities to improve urban water quality across the region.

The Regional Committee has also considered the challenges around access to safe drinking water. They have been particularly supportive of the joint efforts of Environment Canterbury and the Canterbury District Health Board to address and raise awareness of issues in this area, such as through the joint work on nitrate levels in community drinking wells.



### Flagship biodiversity projects help restore ecosystem health

The Regional Committee identified three flagship biodiversity projects as initial priorities – Te Waihora, Wainono, and the Braided River Flagship (Upper Rakaia and Rangitata catchments) – and committed to funding the projects for five years (see story on braided rivers flagship on the back page).

The committee's Biodiversity and Ecosystem Health Working Group has led an additional workstream providing advice to infrastructure developers. This guidance aims to ensure infrastructure developments achieve ecosystem health outcomes.

The health of the longfin eel population has been a particular focus for the committee. The committee met with key parties interested in eels in Canterbury to better understand the issues and opportunities.

These meetings provided the committee with the necessary knowledge to make a submission to the Ministry of Primary Industries supporting the separate management of long and short fin eel stocks in the South Island. Further work to protect and enhance the health of eel populations will be an ongoing priority.

The committee has also initiated discussions with Merino NZ, Department of Conservation, Forest and Bird, and Ministry for Primary Industries about the potential use of lupins as a fodder crop in the high country. These have informed their support for the proposed approach in the draft Canterbury Pest Management Strategy and the identification of lupins as a pest, thus providing new means of control.



Te Waihora (Lake Ellesmere) is one of the Regional Committee's flagship biodiversity projects that has received a share of \$1.2m over five years



## Infrastructure development can deliver multiple benefits

The committee's Regional Infrastructure Working Group (RIWG) leads regionally significant infrastructure conversations and facilitates information sharing across agencies.

Early RIWG achievements include leading the Canterbury Regional Infrastructure Model project and providing the key infrastructure content for the Regional Implementation Programme. (See the story on Managed Aquifer Recharge on the back page).

The Canterbury Regional Infrastructure Model project showed how consented water from alpine rivers could be stored and distributed to take the pressure off lowland ecosystems. It also identified the importance of setting up Infrastructure Node Groups for each alpine river to ensure infrastructure solutions are integrated.

The Regional Implementation Programme develops and champions a regional 'big picture' for infrastructure, that can progress as an integral part of delivering the CWMS.

The Regional Committee has also overseen a series of studies which provide evidence-based information to inform wider thinking around complex regional and localised water management features.

The Ministry for Primary Industries Irrigation Acceleration Fund has been an important contributor to this effort through access to their staff expertise and funding up to 50 percent of project budgets, with the balance provided by Environment Canterbury. Projects supported by the Fund include regional water balance modelling to gain an understanding of the potential effect of efficient use.

In South Canterbury, work has included an updated investigation into the economics of transferring water directly from Lake Tekapo into South

Canterbury; a water resources study on the Orari-Temuka-Opihi-Pareora (OTOP) zone; and a Cultural Opportunity Mapping and Assessment (COMA) study on the Rangitata River.

In the Waimakariri zone, modelling of water quantity, water quality, integration of water infrastructure concepts and a COMA study on the Ashley River have been completed.



The Regional Committee is exploring options to transfer and distribute water south of the Rangitata into South Canterbury

## Addressing knowledge gaps around recreation

The Regional Committee has taken the lead in addressing knowledge gaps around recreation and amenity values in the Canterbury region. The publication of comprehensive research into kayaking values in 2014 was welcomed, and followed by subsequent research and publication of a report on jet-boating in Canterbury rivers.

The information contained in these two reports has proved invaluable to zone committees and council staff when developing planning packages, and in identifying key sites for targeted mitigation and restoration work.

Research into swimming values and sites is now underway, as is an assessment of other information gaps and how best to meet these.



The Regional Committee also established a temporary working group in 2014, which suggested some key areas a regional council recreational work programme would need to address. Elements of this programme are now flourishing, such as the establishment of a joint work programme with North Canterbury and Central South Island Fish and Game councils.

The committee is committed to strengthening work on the recreation and amenity targets, acknowledging that these have received less attention than some other areas of the CWMS. A particular focus on swimming resources is a key emphasis for the committee in 2016.

## Future work programme

In 2016 the committee plans to

- Progress the exploration and development of the integrated infrastructure options, with a focus on South Canterbury
- Commission a report into swimming values and sites in Canterbury
- Lead a collaboration with other CWMS partners to identify a 5-year work programme for biodiversity work in the region
- Review work on urban water quality
- Continue to develop a regional recreation and amenity work programme

# Braided River Flagship project delivers ecosystem benefits

The Regional Committee's Braided River Flagship (BRFS) programme has provided substantial funding to enhance the health of the braided river ecosystems in upper catchments of the Rakaia and Rangitata Rivers.

In its fifth year, this programme continues to make progress across a number of areas including improving breeding habitats for braided river birds, and the health of wetlands and spring-fed streams.

## Pest plant control

In 2015 a new and unexpectedly large population of Russel Lupin was found in the Upper Rangitata River near Mount Sunday and its spread has been effectively controlled. Ongoing control work over several years will be required to prevent further spread.

Broom and gorse, plus other woody weeds (e.g. false tamarisk), have been controlled across both catchments using ground and aerial methods. After two years, each area is revisited to control any new plants and prevent further seeding. Each year the control has been extended further downstream. The programme is implemented in partnership with the local land-care groups and other agencies such as DOC and LINZ.

Buddleia follow-up control is being undertaken in the Rakaia to prevent spread into the braided river system. This has been identified as a high priority under the catchment weed strategy as it is the only known population in the upper Rakaia and has started to spread aggressively. If allowed to spread, it would threaten the health of the braided river ecosystem downstream. This work is led by the landowners with funding and support from the BRFS.

The project has been well supported by the local land-mangers, land-care group members, agencies and interest groups.

The overall BRFS work is guided by a strategy which was developed in collaboration with the local landcare groups and a range of stakeholders. The strategy was reviewed by the Regional Committee Biodiversity and Ecosystem Health Working Group (BEWG) late last year, which heard the perspectives and received the broad support of a variety of partner groups and organisations.

## Braided River birds

River birds such as wrybill and black-fronted terns, which only breed in braided rivers, require clear open shingle for nesting. A coordinated weed control program to enhance these breeding areas has progressively cleared weeds from a large portion of both catchments beginning with the upper reaches and working down.

## Wetland protection and enhancement

Other work underway this season includes the final stages of the Deep Stream project on the south side of the Rangitata managed by Fish and Game. This project has included fencing and habitat restoration (through willow control and tussock planting) over several years of a large section of the spring-fed stream and a large wetland. This has been very successful, resulting in a flushing of sediment, restoration of clear gravels and healthier riparian margins as well a healthier, less weedy wetland.

A new project to fence several high value wetlands areas has commenced on Mount Algidus station in the upper Rakaia this year. The wetlands are also being considered by the QEII National Trust for possible covenanting. The BRFS is contributing funding (about 1/3rd) to this project.



## Managed Aquifer Recharge/ Targeted Stream Augmentation trials

Managed Aquifer Recharge (MAR) introduces additional water to depleted ground and surface water via seepage through the ground. This approach could enable the achievement of multiple CWMS targets. The Regional Committee has worked alongside the Ashburton and the Selwyn Waihora Zone Committees to ensure that investigations of Managed Aquifer Recharge (MAR) proceed in Canterbury, and that there is a coordinated approach to increasing information across the region.

In the Hinds Plains a pilot study is underway to soak surface water supply through a former gravel pit. The study is supported by a

range of private sector, central government and local government sources. It will explore what contribution adding water can make to meeting nutrient limits in groundwater, as well as managing flows in lowland streams.

In the Selwyn District a variation of MAR that is known as Targeted Stream Augmentation is being evaluated. This involves introducing extra water via a water supply introduced through shallow excavations near lowland streams with the intent of enhancing flows and ecosystem values in key streams.

Brought to you by the Regional Committee working with



<b>AGENDA ITEM NO: 12</b>	<b>SUBJECT MATTER:</b> <b>UPDATES FROM ZONE COMMITTEE REPRESENTATIVES</b>
<b>REPORT:</b> Regional Water Management Committee	<b>DATE OF MEETING:</b> 12 April 2016
<b>REPORT BY:</b> Therese Davel, Senior Administration Officer	

#### **PURPOSE**

To receive updated information on matters of regional interest from Zone Committee representatives on the Regional Water Management Committee.

#### **ATTACHMENT (SOME REPORTS TO BE TABLED/ CIRCULATED SEPARATELY)**



#### **Orari-Opihi Pareora Zone Update (John Talbot)**

- We now have new Chair (John Talbot) and Deputy Chair (Hamish McFarlane).
- Catchment group activities continue throughout the zone.
- As a first step in the OTOP Healthy Catchments Project we have been presenting draft Community Outcomes to catchment groups and seeking feedback.
- There was brief discussion of the Regional Committee consideration of funding infrastructure, with a range of views emerging. There was concern that such consideration be deferred until Tangata Whenua vacancies on the Regional Committee had been filled. Also a concern that rate money not be used to pay for any undertaking that had been made to a party as a condition of agreeing to a development - for example Hunter Downs where supply of water for the lake was agreed with tangata whenua as part of the development. There was also a questioning of how a zone committee representative could have a position on such an issue without the zone committee having a full discussion of it.

#### **Ashburton Zone Update (Ben Curry)**

(Update at the meeting)

#### **Hurunui – Waiau Zone Update (Michele Hawke)**

(Update at the meeting)

#### **Lower Waitaki–South Coastal Canterbury Zone Update (Bruce Murphy)**

(Update at the meeting)

#### **Selwyn-Waihora Zone Update (Ron Pellow)**

(Update at the meeting)

#### **Waimakariri Zone Update (Claire McKay)**

- Lowland waterways, Braided river and Biodiversity working group progressing its work to develop a strategy for protection and management of biodiversity in the Zone, in collaboration with interested stakeholders, by Dec 2017.
- Approved IMS funding for a trial planting of natives, in the wet margins of the Kaiapoi River. This forms part of the Kaiapoi Rehabilitation Working Group focus on enhancing riparian margins, developing a two stage low flow and flood channel.
- Briefed on the history and rationale of environmental flow and allocation regime on the Ashley /Rakahuri River
- Committee working on clearly articulating ZIP Priority Outcomes with narratives for the Sub regional process.
- Draft Annual Report reviewed and feedback provided, with final copy due mid - April.
- Science stakeholder groups meeting monthly now.
- Technical briefing on current work and preparations for a current state report due mid- year. To date, briefings focused on water quality work, and ecological work that have been done previously as well as work that was still in progress, and the preliminary findings of Conceptualisation of the Waimakariri Zone Hydrogeology project.



- Continued focus on establishing and growing the attendance to water management groups throughout the Zone.
- Dairy NZ hosted PC5 meeting in the Waimakariri which was well attended.

#### **Upper Waitaki Zone Update (Barry Shepherd)**

- The Zone has held two meetings since the last Regional Committee meeting. Two public meetings to inform the public of their opportunities to submit on PC5 have been held.
- Correspondence was received from stations on the shores of Lake Benmore about the behaviour of boaters and holiday makers and assistance requested from the Zone Committee. The Communications Section of Environment Canterbury has come up with signs to be erected at camping and boat ramp sites around the Lakes. The signs have been distributed for erection. Communications have also investigated signage for main Highways leading into the area. The cost for the three signs on the three main accesses is estimated to cost \$10k, largely made up of bureaucratic cost. The Committee resolve to involve DOC, Fish & Game, District Councils and LINZ further with this national problem. This is part of the Love your Lakes campaign.
- A report outlining the progress of the Mackenzie Futures Trust was received. It was resolved that both groups should meet to discuss their respective work plans as soon as possible.
- The Committee has resolved to improve the water quality in the Willowburn Stream and made this a priority. The Zone team has walked the stream and have identified critical areas. The main problem is stock access to the stream. The Zone Committee approved \$171,500 over three years to fence areas and remove willows that fit within the IMS criteria. This will be funded on a two thirds / one third basis for the first two years and one half subsidy for the third year. Farmers are being contacted by the Zone Team.
- A preventive weed control program has been approved for IMS funding of \$90,000 over the next three years to tackle species that have potential to adversely affect Eco systems in the Zone. It will cover weed species that have recently been found or found in new locations where currently there is no infestation and control is possible. DOC will be the key partner in this program. Cottoncane is an immediate problem.
- Lake Wardell is a small pond created by the Upper Waitaki Hydro Works at Pukaki which has achieved some press lately on its lack of water and a lot of opinion why it is dry, even dairy farming in the next district over seven km's away has been blamed. It was reported to the Zone Committee that it appears to be a combination of the dry weather, wilding pines and old unmaintained water races with natural seepage that's causing the problems. The solution is rain!
- The Community meetings were well attended and all went away with a better understanding of PC5 and how to submit on it.
- The work programme update was presented and is available in the March agenda.
- Our facilitator Nick Newman has recently presented a paper to the OCED at The Hague on the CWMS process, its progress and achievements. Nic used the Upper Waitaki as his case study. Well done Nic!
- The annual compliance report was received and noted that no abatement notices were issued for contaminants to land. We await further details.
- The Zone's next meeting is on 15<sup>th</sup> April in Twizel.

### **Kaikoura Zone Update (Matt Hoggard)**

Apologies for the April meeting, in my absence I have asked if Ted Howard our chair would like to sit in on the meeting.

#### **Lake Rotorua**

No change from last agenda.

#### **Lyell Creek / Waikoau**

Interest in Lyell Creek still remains strong and a further community planning day is planned for 16 April. The planting involves both infill planting and new areas.

Members of the community have suggested that it may be beneficial restricting fishing from the lower section of the Lyell. Discussions are currently occurring with Fish and Game and other key stakeholder about the possibility of a youth fishing area.

The closure of the Fonterra Cheese Factory in Kaikoura will leave a significant hole in the local community. The closure sees the loss of 22 full time staff and 8 part time staff and removes over \$2m in wages from the local community. Locally Fonterra has been a key stakeholder supporting restoration projects and providing keen staff for projects. A number of staff and their families will now be moving away from the district and this will have a big impact on a number of the voluntary organisations within Kaikoura, including Lyell planting days. The hard work of Fonterra staff today has been greatly appreciated by the Kaikoura Water Zone Committee.

#### **Clarence River / Waiau-toa**

The success of the collaborative approach for weed control has become the focus of a recent video of the Clarence. Watch the video here:

<https://www.youtube.com/watch?v=nrm676BICH4>

#### **Nutrient Management Group**

Two meeting have been held with local farms on the preparation of nutrient management plans.

### **Banks Peninsula Zone Update (Steve Lowndes)**

- Work is underway to clear willows from the Okana River as part of the new Wairewa Drainage Rating District. The Rating District came about after 3 significant floods in the autumn of 2014 when the community, Community Board and the Zone Committee got together to convene a process that would result in actions to mitigate future flooding. The Rating District was established in July 2015 and the first actions taken in November 2015. During March, willow trees were removed from the Okana River channel upstream at a point opposite the Little River Domain main gate and downstream from the Kinloch bridge. The overall expenditure to date is about \$40,000, compared with the overall budget of \$37,000.



**Willow Clearance – Okana River March 2016**

- Minimum flows, or lack of them, were highlighted by an example in Purau. Few streams on Banks Peninsula have minimum flows and the threshold for permitted takes can be significant in relation to the size of the streams. The discussion highlighted the fact that water supplies on Banks Peninsula generally rely on small, run of the stream systems that are increasingly under stress during peak summertime demand. The committee expects pressure to be exacerbated by climate change. Individual and community storage options may be an option. A priority for the committee is to facilitate discussions to improve the security and safety of community water supplies.
- Good progress has been made on a stocktake of scientific and historical information on Whakaraupō/Lyttelton Harbour Basin. This information will form the foundation of a “catchment management plan” - an action recommended as part of the *Lyttelton Port Recovery Plan*. The committee decided to make the stocktake available to the community early through the committee’s website and will invite the community to identify gaps and areas where further work is needed.
- Hearings on the proposed plan change to the *Land and Water Regional Plan* (Wairewa) commence 19 April. The main purpose of the plan change is to reduce sediment and phosphorous inputs into Te Roto o Wairewa/Lake Forsyth.

#### **Christchurch-West Melton Zone Update (Vacant)**

- Fine sediment from the Port Hills is a major problem for streams and rivers in the zone, smothering ecosystems and reducing their flood capacity. The committee has been working with the Cashmere Stream Care Group to undertake a trial of erosion and sediment control products on bare loess soils above Redmund Spur under simulated rain conditions. Results should be available in the next couple of months. The information from these trials will help improve products, applications and guidelines to help reduce sediment runoff from new subdivisions and road cuttings.
- In February the committee granted partial funding to four biodiversity projects;
  - Whaka Inaka Avon River = \$16,600 (news clip CTV)
  - Urban Forest Network = \$9,400 (news clip on CTV)
  - Thistledown Reserve = \$5,100
  - Worsleys Road Gully = \$3861.15

Further information on these projects can be found at <http://ecan.govt.nz/publications/Council/chwm-agenda-20160225.pdf> (p35 onwards)

- Arapata Reuben, Chair, was a speaker at the Southern Environmental Trust public discussion on Urban Waterways, 16 March Knox Church, along with Mike Bourke and Dr Belinda Margetts CCC.

- The committee discussed the recent ESR *E.coli* tracking study. The committee decided that there was much misinformation in the community about the state of the rivers. The committee has decided to facilitate the sharing of this information within the community, particularly with recreationalists, and encourage individuals and groups to take action to help reduce contaminants from dogs and wildfowl.
- The committee and the Papanui Shirley Community Board undertook a joint field visit to the Otukaikino Stream 31 March. The committee has granted \$130,000 for biodiversity funding along the stream and walkways are also being developed to link the area with the Waimakariri River Regional Park. The stream received a national award in 2014 for the most improved waterway.
- A summary report on the state of the groundwater protection zone is expected next month.