Agenda

Monday 8 May 2017

5.00pm

Function Room
Rangiora Town Hall
303 High Street
Rangiora

Members:
David Ashby (Chair)
Grant Edge (Deputy Chair)
Carolyne Latham
Judith Roper-Lindsay
Gary Walton
Clare Williams (Te Ngai Tūāhuriri Rūnanga)
Cherie Williams (Te Ngai Tūāhuriri Rūnanga)
Sandra Stewart (WDC Councillor)
Claire McKay (ECan Councillor)
Recommendations in reports are not to be construed as Council policy until adopted by the Council

BUSINESS PAGES

KARAKIA

1 APOLOGIES AND INTRODUCTIONS

REGISTER OF INTEREST

Conflicts of interest (if any) to be reported for minuting.

2 CONFIRMATION OF MINUTES

2.1 Minutes of the Canterbury Water Management Strategy Waimakariri Zone Committee meeting – 10 April 2017

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) Confirms the circulated minutes of the Canterbury Water Management Strategy Waimakariri Zone Committee meeting, held 10 April 2017, as a true and accurate record.

3 DENITRIFICATION WALL PILOT STUDY IN SILVERSTREAM RESERVE – BRIEFING - L Burbury (Senior Scientist, ESR) Groundwater team) and M Close (Principal Scientist, Waters, Waste and Social Systems Group)

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) Receives this briefing with consideration to the issues and options being considered as part of the development of the Waimakariri Land & Water Solutions Programme.
4 COMMITTEE UPDATES – Zone Committee Members, A Arps (Waimakariri Zone Delivery Team Leader, ECan) and M Griffin (Facilitator, ECan)

- Priority Project Meetings
- CWMS Regional Committee Meeting – 9 May 2017
  - Recreation and Amenity Working Group
- Waimakariri Zone Delivery – Update
  - Communications
- Towards a Draft Waimakariri Land & Water Solutions Programme
- Action List

4.1 CWMS Target: Recreation and Amenity Opportunities River and Lake Swimming in the Canterbury Region – D Olykan and A Fulton

4.2 CWMS Target: Recreation and Amenity Opportunities Priority Recreation and Amenity Restoration Sites – D Olykan and A Fulton

4.3 Waimakariri Zone Delivery Quarterly Update - May 2017

4.4 Waimakariri Water Zone Committee April Update

RECOMMENDATION

THAT the CWMS Waimakariri Zone Committee:

(a) Receives these updates for its information and with regard to the committee’s 5 Year Outcomes and 2017 community engagement priorities.

5 GENERAL BUSINESS – D Ashby and Zone Committee members
## WAIMAKARIRI ZONE COMMITTEE

**Register of Interests – at February 2017**

<table>
<thead>
<tr>
<th>Name</th>
<th>Committee Member Interests</th>
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| David Ashby           | - Director/shareholder: Pineleigh Farm Limited  
- Director/shareholder: Dave Ashby Rural Consultants Limited  
- Shareholder: Waimakariri Irrigation Limited  
- Member: Cust Main Drain Water User Group                                                                                                                                 |
| Grant Edge            | - Director: Edge Landscape Projects Ltd, Edge Plants Ltd, and Edge Products Ltd  
- Member: NZ Institute of Landscape Architects  
- Member: Urban Design Forum  
- Member: QEII National Trust  
- Member: NZ Forest & Bird  
- Member: Heritage NZ  
- 1ha property Fernside (shallow bore user)                                                                                       |
| Carolyne Latham       | - Farmer: Sheep, beef and racehorse agistment  
- Director of Latham Ag Ltd Consulting  
- Shareholder: Silver Fern Farms, Farmlands  
- Registered Member: New Zealand Institute of Primary Industry Management  
- Member: Canterbury Ice Hockey Association                                                                                       |
| Claire McKay          | - Dairy Farmer  
- Irrigator and shareholder: Waimakariri Irrigation Ltd  
- Holder of Groundwater take and use consents in Cust groundwater allocation zone  
- Holder of Effluent discharge consents  
- Member: Federated Farmers  
- Member: DairyNZ Dairy Environmental Leaders forum  
- Member: P21 Canterbury Industry Advisory Group                                                                                       |
| Judith Roper-Lindsay  | - Director/ecologist: JR-L Consulting Ltd.  
- Land-owner/small-scale sheep farmer, Ashley downs  
- Fellow: Environment Institute of Australia and New Zealand (EIANZ)                                                                                                                                 |
| Sandra Stewart        | - Self-employed journalist  
- Land-owner, 4ha Springbank – sheep & dogs                                                                                                                                 |
| Gary Walton           | - Director, Walton Farm Consulting Ltd  
- Director & Shareholder, Loburn Irrigation Co  
- Trustee, Rugby World Heritage Trust  
- Ashley Rugby Football Club (Inc.)  
- Farmer, sheep & cattle, Loburn                                                                                                                                 |
| Cherie Williams       | - Member: Mana Whenua Working Party  
- Tangatiaki / Kaitiaki  
- NZTA Northern and Southern Bypass Rūnanga Representative                                                                                       |
| Clare Williams        | - Chair, Te Ngāi Tūāhuriri Rūnanga Inc.  
- Selwyn/Waihora Zone Committee – Te Ngāi Tūāhuriri Rūnanga representative  
- Member: Mana Whenua Working Party  
- Trustee: Central Plains Water Trust                                                                                       |
MINUTES OF THE MEETING OF THE CANTERBURY WATER MANAGEMENT STRATEGY WAIMAKARIRI ZONE COMMITTEE HELD AT THE TUAHIWI MARAE, 219 TUAHIWI ROAD, TUAHIWI ON MONDAY 10 APRIL 2017 AT 4.10PM.

PRESENT
David Ashby (Chair), Grant Edge (Deputy Chair), Carolyne Latham, Judith Roper-Lindsay, Gary Walton, Sandra Stewart (WDC Councillor), and Claire McKay (Environment Canterbury Councillor).

IN ATTENDANCE
Murray Griffin (CWMS Facilitator, ECan), Jill Atkinson (Strategy & Planning Director, ECan), Geoff Meadows (Policy Manager, WDC), Matt Dodson (Hydrogeologist, ECan), Stephen Bragg (Tangata Whenua Facilitator, ECan), Jason Butt (Biodiversity Officer, ECan), Gina McKenzie (Real Communications), Meredith Macdonald (Senior Planner, ECan), Jason Holland (Planning Team Leader, ECan), Adrian Meredith (Principal Scientist, ECan), Owen Davies (Engineering Design Team Leader, WDC), Greg Bennett (Land Drainage Engineer, WDC), Michael Bate (Kaiapoi), Penny Wright, Cameron Henderson (Oxford), Richard Stalker (Rangiora), Grant Davey & Geoff Swailes (Ashley/Rakahuri Rivercare Group) and Louise Courtney (Governance Secretary, WDC).

KARAKIA
The meeting was opened with a karakia conducted by S Bragg.

1 APOLOGIES
Moved D Ashby seconded C McKay
Apologies were received and sustained from Clare Williams and Cherie Williams for absence.

CARRIED

REGISTER OF INTEREST
The Committee noted the Register of Interest.

2 OPPORTUNITY FOR PUBLIC TO SPEAK
2.1 Grant Davey and Geoff Swailes – Ashley-Rakahuri Rivercare Group
G Davey presented a PowerPoint with photographs showing the current state of the Ashley River (Rakahuri). The presentation included a graph showing the open gravel area in the Okuku Confluence at State Highway 1 (SH1). It revealed a significant drop in open gravel area since its highest recording in January 2011, which has resulted in increased weed growth. The reason cited was a lack of large seasonal floods, at 300-400 cubic meters per second (cumecs), which would usually minimise weed growth. He commented that a 100 cumecs flood along the river would be the minimum required for effective, natural weed control.
G Davey stated that the weeds present included lupins, gorse, broom and willow which are all difficult to remove.
G Davey referred members to a graph showing how the number of Wrybill nests over the same period follow the drop in open gravel area. There were concerns that if birds could not nest at the usual sites, that they may not return the following season. He added that the drop in the number of nests was paralleled in other types of birds that nest along the riverbed.

G Davey proposed that the riverbed, an approximate area of seven hectares, be cleared of weeds with the use of machinery, in order to reinstate the open gravel area for birds’ nesting sites.

Geoff Swailes commented on bird surveys that are carried out annually between the Groynes, Christchurch to the Cones Road Bridge, Rangiora. This he has participated in over the previous six years. G Swailes stated that the last time the survey was carried out, he found himself wading through shoulder-height lupins. He noted the lack of braided river birds in these areas, however birds were found in areas that had been cleared of weeds. He observed significant drop in the diversity of riverbed birdlife.

J Roper-Lindsay commented that heavy, woody weeds increase flood risk and queried whether G Davey had received any recommendations on how to remove them. G Davey replied that the Ashley-Rakahuri Rivercare Care Group (ARRCG) did have some recommendations which would include the use of heavy machinery.

C McKay queried consents and funding for the proposal. G Swailes replied that the ARRCG would like the issue acknowledged and for action to be undertaken. The ARRCG had calculated a cost of approximately $600-$700 per hectare to clear the vegetation. D Ashby clarified that the ARRCG cannot act without a consent from ECan. More information was required, however he recommended that ARRCG follow up with ECan staff. S Stewart requested a report to the Zone Committee on the matter outlining whether funding could be utilised to address the issue. J Butt confirmed that staff would follow up the matter with the Regional Biodiversity group to see how it could be supported or resolved.

G Swailes advised that if the ARRCG could support for the work to be completed, that it needed to be completed by the end of July 2017.

2.2 Michael Bate

M Bate tabled a paper outlining his recommendations for ‘Common Sense Solutions to the Current Pollution in our Waterways’. He commented that the Central Government’s approach to the district’s waterways was unacceptable.

M Bate added that he had video footage of the Kaiapoi River which he would forward to ECan staff and Committee members. He stated that the nitrate levels in the river were too high and the Plan Change 5 would be ineffective.

3COMMITTEE UPDATES – Zone Committee Members, A Arps (Waimakariri Zone Delivery Team Leader, ECan) and M Griffin (Facilitator, ECan)

J Roper-Lindsay advised of the upcoming meeting (19 April 2017) for the Biodiversity Stakeholder group to further explore biodiversity matters.

- Regional Committee Meeting – 11 April 2017
  o C Latham advised that the Zone Committees would be asked to list the top five Recreation and Amenities sites.
  o C McKay, regarding the upcoming Regional Committee meeting, advised that each member would present in-depth reports to the committee on a bi-monthly basis outlining what work each Zone Committee was undertaking as well as working group updates.
• **Waimakariri Zone Delivery – Update**
  - Waimakariri Good Management Practice Campaign
  - Zone Committee Engagement & Communications
  - Action List

  M Griffin distributed the current Action List to members. G Bennett (WDC) provided a brief update on herbicide investigations.

  Regarding action 10: G Edge asked if he could receive a hardcopy of the Land and Water Regional Plan (LWRP). J Holland advised that the LWRP was already operative and Plan Change 5 would be incorporated into the plan once adopted, as per previous plan changes. Given these successive plan changes, hard copies of the plan were not printed.

  Regarding action 18: S Stewart advised the Cam River report, commissioned by the subcommittee, was now ready. A meeting of the Cam River Subcommittee would be held to discuss the findings of the report prepared by Dr Henry Hudson. She would forward copies of the report to the Committee members. S Stewart also raised an interim report from WDC’s Utilities and Roading Committee regarding Pond C, a storm water catchment pond on Flaxton Road and Fernside Road. O Davies (WDC) clarified that it was not a formal report, but an update on matters the Committee members should be aware of. S Stewart advised that she would keep the Committee members updated on its progress.

  3.1 **Response to concerns regarding Ngāi Tahu Farms and Biodiversity**

  Regarding correspondence from Nick Dickinson, Professor of Ecology at Lincoln University: P Wright expressed concern that her comments at the Committee’s March 2017 meeting had been recorded inaccurately and, therefore, the response from Professor Dickinson misinformed. P Wright forwarded her amendments to the minutes to staff for action.

  P Wright outlined and clarified some of the matters raised in the correspondence.

  There was discussion regarding the correspondence and it was agreed that P Wright would formulate a response that would then be directed to Professor Dickinson directly.

  It was clarified that ECAn staff received the correspondence directly from Professor Dickinson to forward to the committee, and had not requested it.

  3.2 **Waimakariri GMP Campaign**

  M Griffin referred members to the table in the agenda

  J Atkinson advised that there were 67 farms that would require direct consultation and that once all farms had been contacted, Zone Delivery would then continue with the follow up process.

  J Atkinson advised that the GMP toolkit was extensive, and should not be new concepts to most farmers.

  J Roper-Lindsay queried how this related to urban communities. J Atkinson clarified that there was a misconception of environmental impacts being caused exclusively by farms, however urban communities were also having an impact on the environment. C McKay added that this issue had been discussed at the Regional Council level. J Atkinson emphasised that this process was only at an initial stage and that a targeted campaign for urban communities would also have to be developed.
G Walton highlighted the importance to communicate to the community what was going on, so they could feel informed and so the process was transparent.

D Ashby queried whether N-Check could be utilised. J Atkinson replied it was not intended for that purpose.

Regarding the Good Management Practice (GMP) toolkit: J Roper-Lindsay queried whether riparian management could be added to it. D Ashby responded that it would be added to the small block management workshops, adding it was still at a pilot stage which, if successful, would be rolled out to the other small block owners.

G Edge raised that it was critical to use language that the public could follow and understand. S Stewart supported the use of simple, clear language. G Edge added that it needed to be linked to the Zone Committee’s priorities and CWMS targets.

Moved D Ashby seconded C McKay

**THAT** the CWMS Waimakariri Zone Committee:

(a) **Receives** these updates for its information and with regard to the committee’s 5 Year Outcomes and 2017 community engagement priorities.

**CARRIED**

### UPDATE ON PROGRESS WITH KAIAPOI RIVER WATER QUALITY MONITORING AND INVESTIGATIONS – UPDATE – A Meredith (Principal Surface Water Quality Scientist, ECan)

A Meredith provided background to the investigations and outlined the nature of the Kaiapoi River, noting its uniqueness as a waterway, which therefore meant no national guidance on its management.

A Meredith commented on conceptual understandings of the waterway which varied but also reflected its different water sources. Investigations were underway to confirm what the water quality and processes in the river really were. He presented graphs showing river flows at SH1 over summer periods between 2012 and 2016. It was noted that low flows generally occur over February, and is when the Kaiapoi River is more influenced by other waterways.

A Meredith outlined the tide charts which run at 1.5-1.9 vertical metres of movement, noting salinity was highest from late February to mid-March. During March it was recorded at 35 parts per 1000. In summary when the river flow was low, salinity was high.

C McKay queried whether the differences in salinity corresponded with fluctuations in the weather, noting times when there was a lot of rain along the coast but not in the mountains. A Meredith replied that it was a complex situation, which could explain why not the river had not been as regularly monitored in the past. He added it would require modelling from the National Institute of Water and Atmospheric Research (NIWA) to investigate that relationship.

N Harris asked whether there was any influence from waterways to the north. A Meredith commented on the influence of flood gates, which can hold freshwater rather than flushing it out.

M Bate queried whether raising the minimum flow would mitigate the issue. A Meredith replied that further investigation would be required to confirm this.
N Harris asked whether any cultural monitoring had been considered. A Meredith replied it had not but could be integrated into the investigations. N Harris suggested that the Committee consider how this information was distributed or conveyed.

J Roper-Lindsay queried whether biota monitoring was being carried out. A Meredith responded that past monitoring may have been anecdotal, adding that investigations have focused on water quality, rather than biological monitors. He added the investigation would include the effect of nitrates.

Regarding Kaiapoi River Rehabilitations and Enhancements: A Meredith outlined the planting undertaken along the river bank, with initial observations that plantings have been successful.

Regarding the swimability of the Kaiapoi River: A Meredith explained there were consistently high levels of bacterial contamination in Canterbury waterways but clarified that these included agricultural catchments, town stormwater, waterfowl populations, Waimakariri River wading birds, marine sources and pigeons. Staff have utilised Environment Science Research (ESR) to monitor faecal source tracking contaminants. The results of that research are still being analysed.

A Meredith noted that travelling along the Kaiapoi River he encountered approximately 200 pigeons under the Williams Street Bridge, and considered whether the pigeon droppings could be part of the contamination of the river. Pigeons are an issue that may be able to be mitigated quickly and suggested any beautification of the Williams Street Bridge could include design elements or barriers to address this issue with pigeons. He added that the reasoning for listing the sources allows for discussions on how to mitigate them.

Moved G Edge seconded C McKay

THAT the CWMS Waimakariri Zone Committee:

(a) Receives this update with regard to future water management options for the Kaiapoi River and the Waimakariri Land and Water Solutions Programme.

CARRIED

5 RIVER MAPPING AND TYPOLOGY IN THE WAIMAKARIRI WATER ZONE – A Meredith (Principal Surface Water Quality Scientist, ECan)

A Meredith updated the Committee on progress, noting Waimakariri and Opihi are the two catchments in Canterbury which have not been mapped for their waterway typology. He provided background on the maps and their value. He advised that these two catchments had not been mapped because they already had plans in place (e.g. the Waimakariri River Regional Plan). ECan staff took their planning approach from NIWA River Environment Classification (REC) maps for Canterbury. A Meredith commented that there were errors in the existing maps for the Waimakariri, so part of the process has been to produce a base map and include a proofing process so that inaccuracies can be removed and waterways clarified. It is planned that the work should take about three to four weeks to complete and will be presented to the Committee at a future meeting.

G Edge was pleased with the project which will inform further discussions at a District Council level, as well as waterway management and opportunities for COMAR and cultural values to be incorporated. N Harris added that the Rūnanga would need to be involved and for a cultural layer to be incorporated into the base map. A Meredith agreed and clarified a second stage of proofing the base map would involve Rūnanga representatives, alongside other parties, to help consolidate the base map.
THAT the CWMS Waimakariri Zone Committee:

(a) Receives this update with regard to future water management options for the Zone and the Waimakariri Land and Water Solutions Programme.

CARRIED

6 FEEDBACK FROM ALTERNATIVE PATHWAYS COMMUNITY MEETINGS
MARCH 2017 – M Macdonald (Senior Planner, ECan)

6.1 Community Feedback – Key Issues March 2017
M Macdonald advised that staff would investigate the results and provide greater detail to the Committee at a future meeting, adding that public meeting discussions had centred on solutions rather than issues.

C Latham commented the explanations on stream depletion were not well understood by residents. Simple explanations were required as well as clear indications as to which set of rules should be adhered to. It was suggested that the breadth of understanding across the audience be considered when presenting information in a public forum. It was also acknowledged that a diverse range of users have an impact on the District’s waterways.

C Latham referred to comments made by a member of the public regarding the water storage component of the Alternative Pathways scenario, commenting on its value in relation to the Ashley River. M Macdonald responded that water storage had received the most comments, as part of the community feedback sessions, from the meetings on this scenario.

G Edge would like to see Urban and Small-block Holdings separated in relation to their critical issues, and queried whether environmental issues were raised. M Macdonald clarified that environmental issues were not raised.

THAT the CWMS Waimakariri Zone Committee:

(a) Accepts the feedback from the community meetings held on the 15, 20 and 22 March 2017, on the Alternative Pathways Scenario.

CARRIED

7 CONFIRMATION OF MINUTES

7.1 Minutes of the Canterbury Water Management Strategy Waimakariri Zone Committee meeting – 13 March 2017

THAT the CWMS Waimakariri Zone Committee:

(a) Amends the minutes of the Canterbury Water Management Strategy Waimakariri Zone Committee meeting, held 13 March 2017, as below:

- Item 1: that the minutes reflect that G Edge moved a motion that the election of Chair, Deputy Chair and Regional Committee Representative be deferred. This motion was seconded by S Stewart.
- Item 1, first paragraph: replace with “G Edge suggested that the Committee consider deferring the elections until the Rūnanga
representatives, Clare Williams and Cherie Williams, were present.

- Item 3.2, paragraph two, final sentence: correct two thirds to one third.
- Item 3.2, paragraph six, first sentence: replace “updates on ECan publications” with “when the GMP would be updated”.
- Item 4.3, paragraph three: replace with “Regarding Issue 5: C Latham believed that it had not been accurately identified or interpreted. The issue was not about amalgamation of farms but about two things; firstly, whether there should be any future irrigation permitted in Lees Valley; and secondly whether it was fair that a farm should be subject to the rule (or possible rule) requiring consent to farm (in relation to winter feed area) purely on the physical size of the farm and not for any water related matters or even the identification of water issues associated with the farm.”
- Item 5.2, paragraph three, sentence two: replace “an Environment Court” with “a prosecution”.
- Item 5.3, sentence three: amend with “S Stewart advised the possible cause was ducks”.

(b) Confirms the circulated minutes of the Canterbury Water Management Strategy Waimakariri Zone Committee meeting, held 13 March 2017, as a true and accurate record.

CARRIED

MATTERS ARISING

Nil.

8 GENERAL BUSINESS AND FUTURE MEETING PRIORITIES – Chair and M Griffin (Facilitator, ECan)

8.1 Regarding ECan timeframes: G Edge recommended that reports are brought to the Committee for discussion and approval. He noted that there are a number of matters that need to be actioned or decided on, and would like more focus on progressing the actions of the Committee.

There was discussion regarding the timing of the workshops and how members could provide input if they couldn’t attend the meeting.

THERE BEING NO FURTHER BUSINESS, THE MEETING WAS CLOSED WITH A KARAKIA, CONDUCTED BY N HARRIS, AT 6.10PM.

WORKSHOP (Held Prior To Meeting)

9 TUAHIWI VALUES - BRIEFING

10 HURUNUI/WAIAU AND WAIMAKARIRI ZONE COMMITTEES COMBINED WORKSHOP
PURPOSE
To provide the Water Zone Committee with a briefing on a pilot field study of a denitrification wall to be conducted in Silverstream Reserve.

BACKGROUND
The Institute of Environmental Science & Research (ESR) is a Crown Research Institute, wholly owned by the NZ Government. One of the Institute’s undertakings is scientific research aimed at improving the safety of freshwater and groundwater resources. Examining the fate and transport of nitrate in NZ groundwater systems has been a key topic of ESR’s groundwater research over the last decade. We have found that NZ’s alluvial gravel aquifers have negligible ability to naturally attenuate nitrate and, in many locations, groundwater systems have reached the limit of mitigating nitrate pollution through natural dilution. To remedy this and to provide potential means for farming within water quality limits, ESR is researching and developing a way to enhance denitrification of groundwater.

One ESR approach will use an underground ‘denitrification wall’ tailored to gravel aquifer systems. The intention is to make a reliable assessment of whether such technologies represent a viable nitrate mitigation option. We have reached a stage where the next step in our scientific assessment is to conduct a pilot study whereby we will construct a denitrification wall and make direct long-term study of it under field conditions.

Silverstream Reserve has been identified as a good field study location in the Waimakariri Water Zone. This briefing will provide an overview of the field study.

- For a more detailed overview on this pilot field study please refer to agenda item 3-1.

WHO
This update will be provided by:

- Lee Burbery – Senior scientist within ESR’s groundwater team and
- Murray Close – Principal scientist within ESR’s Water, Waste and Social Systems Group

RECOMMENDATION
The committee receive this briefing with consideration to the issues and options being considered as part of the development of the Waimakariri Land & Water Solutions Programme.
Denitrification wall: overview of ESR’s field pilot study

Contact: Lee Burbery, ESR Christchurch, lee.burbery@esr.cri.nz, DDI: 03 351 0087

1. Background

The Institute of Environmental Science & Research (ESR) is a Crown Research Institute, wholly owned by the NZ Government. One of the Institute’s undertakings is scientific research aimed at improving the safety of freshwater and groundwater resources. Examining the fate and transport of nitrate in NZ groundwater systems has been a key topic of ESR’s groundwater research over the last decade. We have found that NZ’s alluvial gravel aquifers have negligible ability to naturally attenuate nitrate and, in many locations, groundwater systems have reached the limit of mitigating nitrate pollution through natural dilution. To remedy this and to provide potential means for farming within water quality limits, ESR is researching and developing a way to enhance denitrification of groundwater. One ESR approach will use an underground ‘denitrification wall’ tailored to gravel aquifer systems. The intention is to make a reliable assessment of whether such technologies represent a viable nitrate mitigation option. We have reached a stage where the next step in our scientific assessment is to conduct a pilot study whereby we will construct a denitrification wall and make direct long-term study of it under field conditions.

2. What is a denitrification wall?

A denitrification wall, also known as a denitrifying permeable reactive barrier (PRB) works like a groundwater filter. In practice it involves emplacing some solid porous organic substrate within an aquifer that is contaminated with nitrate. The organic matter fuels microbial activity that leads to stripping out nitrate from any groundwater passing through the wall (Figure 1). We intend to construct our wall using woodchip, mixed with gravel aggregate dug from the aquifer as part of building the wall (Figure 2). The gravel is required to provide both structural support to the PRB and maintain its hydraulic integrity.

![Figure 1: Concept of a denitrification wall. Carbon substrate within the wall provides a food source for denitrifying microorganisms that respire nitrate (NO3-) in lieu of oxygen. Any nitrate in groundwater passing through the wall is converted to innocuous di-nitrogen gas (N2).](image)

Denitrification walls are passive treatment systems in the sense that once in the ground they require no on-going maintenance. Existing case-studies that have been undertaken in sandy (not gravel) aquifer systems have shown that woodchip denitrifying PRB’s continue to function for 30 years or more. An assessment of this performance for gravel aquifers is an objective of our field pilot study.
3. Challenges

Denitrification walls are a tried and tested concept in slow moving sandy aquifer systems where they have proven effective at treating nitrate from point pollution sources. There are no examples however of these remediation systems having been installed in gravel aquifers. In this regard, our PRB pilot study represents a world-first.

There are socio-political challenges we are addressing in our project too. Namely, issues around resource consenting and the topic of cultural and social acceptability. For example, even though our intended outcome is to improve water quality, the matter of deliberately altering the chemical state of the groundwater system conflicts with rules in the Canterbury Land and Water Regional Plan.

4. Risks, and how these can be mitigated

4.1. Resource consent

Execution of the pilot study depends on gaining resource consent to build a PRB. ESR are continuing to work through the consenting process with Environment Canterbury. A robust assessment of environmental effects can only be made once the local hydrogeological conditions have been characterised at the preferred field site.
4.2. Adverse pollution swapping outcomes

Although the aim of a denitrifying PRB is to clean groundwater of nitrate, there is a small chance adverse pollution swapping phenomenon will occur, most likely in the initial stages of operation when the woodchip is fresh and at its most reactive. Leaching tests conducted in the lab to examine the likelihood of this occurring have so far not highlighted any significant risks. The scale at which such phenomena will occur will be evaluated by the field tests. The PRB will be sited sufficiently far from any surface waterway and potable groundwater supply wells to ensure its operation will not adversely impact on them.

4.3. Site accessibility

Our current research project has guaranteed funding until June 2019, however we envisage the PRB will be a permanent structure. There is scientific value in monitoring its performance indefinitely. Because of the high resolution site investigation we intend to do, there is a prospect the site will be the most rigorously studied portion of gravel aquifer in the region. Having on-going access to the site to enable long-term monitoring is beneficial to our research goals. The degree of success for the PRB pilot study partly rests with finding an accommodating land owner who is willing to provide on-going long-term access to the site, beyond 2019.

Figure 4: Photo of field site at Hautapu, Waikato region, where Louis Schipper installed another experimental denitrification wall in the mid 1990’s. A rough outline of the buried PRB structure, which measures 35 x 1.5 x 1.5 m is marked on the image in orange. The array of monitoring wells (outlined with black dotted line) used to monitor groundwater quality at the site are the only physical indication of the wall’s existence (image provided by Louis Schipper, University of Waikato).

5. Silverstream Reserve

In terms of geographic properties, Waimakariri District Council’s (WDC) East Silverstream Reserve at Woodfield represents our favoured prospective field site for locating the PRB pilot trial (Figure 5). Reasons being:

i. shallow alluvial gravel aquifer known to be impacted with nitrate;
ii. nitrate is a contaminant of concern in the groundwater-fed Silverstream and the local community are interested to learn of what viable ‘solutions packages’ (such as the denitrifying PRB potentially represents) are available;
iii. the land is undeveloped and has good site access;
iv. the site is within commutable distance from ESR’s offices in Christchurch;
v. the land is undeveloped and Waimakariri District Council and the Silverstream Reserve Advisory Group have agreed to grant ESR access for the purpose of conducting research that is targeted at improving water quality.
Figure 5: Topo map showing location of Silverstream reserve at Woodfield and groundwater nitrate concentrations, as recorded by Environment Canterbury (top); aerial photo of the same area (middle); photograph of prospective site for a PRB within the reserve taken November 2016 (bottom).
PROPOSAL
This agenda item provides the committee with an overview of updates as tabled. For this meeting, with the emphasis on the committee workshops to follow the formal meeting, all papers are presented as read-only. The committee are encouraged to note any points of follow-up or questions they may have for the facilitator.

RECOMMENDATION
The Zone Committee are asked to receive these updates for its information and with regard to the committee’s 5 Year Outcomes and 2017 community engagement priorities.

COMMITTEE UPDATES
The following updates are tabled for the committee:

- **Priority Project Meetings**
  - Biodiversity Stakeholders Working Group workshop – 19 April

- **CWMS Regional Committee Meeting – 9 May 2017**
The next Regional Committee meeting will be held on Tuesday 9 May 2017. The link to the Regional Committee papers is provided below:


- **CWMS Regional Committee – Recreation and Amenity Working Group**
  Two papers are provided for the committee’s information and feedback from the Regional Committee’s Recreation and Amenity Working Group.

    - Agenda item 4-1: River and Lake Swimming in the Waimakariri Zone
      The Regional Water Management Committee’s Recreation and Amenity Working Group (RAWG) is seeking feedback from Zone Committees on the rivers and lakes across Canterbury that have been identified as their local freshwater swimming sites in the ‘River and Lake Swimming in the Canterbury Region’ draft report.

      **Action Required**
      1. The Zone Committee is asked to check the accuracy of the local freshwater river and lake swimming sites identified for their region (Appendix 1) and using local knowledge provide details of any omissions from the list, including the characteristics of the site (refer to the primary attributes in Appendix 2).
      2. Feedback is required by early June to enable RAWG to present the final report to the Regional Committee on 13 June 2017.
Agenda item 4-2: Priority Recreation or Amenity Sites in the Waimakariri Zone

The Regional Water Management Committee’s Recreation and Amenity Working Group (RAWG) is seeking from each Zone Committee a list of up to five of their top priority recreation or amenity restoration sites for action in their region. This list is requested by the end of June 2017.

Action required

Zone Committees are asked to provide RAWG with a list of up to five of its top priority recreation or amenity restoration sites in its region.

Information that RAWG is seeking includes:

- The name and location of the recreation or amenity restoration site;
- A brief description of its importance to the community;
- Outcomes the community would like to see achieved; and
- Proposed actions to achieve these outcomes.

Information can be forwarded to Anita Fulton by the end of June 2017. The Regional Committee will then work with Zone Committees on how it can best support the implementation of these actions.

Waimakariri Zone Delivery – Update

Zone Delivery Manager, Andrew Arps, has provided a concise update for the committee on current team priorities and actions which is provided as agenda item 4-3.

Communications – April Communications/Media Report

- April 26th – monthly media meetings held with Matt Salmons (Northern Outlook) and David Hill (North Canterbury News)
- April 26th – article, photos and video on Scott Evans and Paul Reese provided to Irrigation NZ magazine – irrigation tips and how new technology can help farmers achieve GMP
- April 29th – 5 edited videos on the Alternative Pathways series of meeting sent to ECan to upload to the Waimakariri-water.nz website and links provided to WDC staff.
- April 29th – 3 edited videos provided to Dave Ashby to review – these videos introduce Dave as the WZC chair and explain the priorities for the WZC for 2017. They will be used for social media and traditional media.
- May 1st – WZC monthly newsletter for April emailed to mailing list

The April Water Zone Committee E-newsletter is provided as agenda item 4.4

Towards a Draft Waimakariri Land & Water Solutions Programme

At their 24 April 2017 workshop, the WWZC provided direction for the technical team regarding groundwater allocation limits for the five Groundwater Allocation Zones. A summary of the initial draft recommendations from this workshop will be tabled for the committee for review in advance of finalising the draft groundwater allocation recommendations in June.
Action List
- An updated list of action points from previous meetings will be tabled with the committee to confirm completed items and ongoing follow-up.

RECOMMENDATION
The Zone Committee are asked to receive these updates for its information and with regard to the committee’s 5 Year Outcomes, drafting of Land and Water Solutions Programme recommendations, and 2017 community engagement priorities.
AGENDA ITEM NO: 4-1

SUBJECT MATTER: CWMS Target: Recreation and Amenity Opportunities
River and Lake Swimming in the Canterbury Region

REPORT BY: Dann Olykan, Anita Fulton, CWMS

DATE OF MEETING: 8 May 2017

Purpose

1. The Regional Water Management Committee’s Recreation and Amenity Working Group (RAWG) is seeking feedback from Zone Committees on the rivers and lakes across Canterbury that have been identified as their local freshwater swimming sites in the ‘River and Lake Swimming in the Canterbury Region’ draft report.

Background

2. The recreation and amenity targets in the Canterbury Water Management Strategy (CWMS) aim to see “an increase in the percentage of the lake and river sites used for contact recreation that meet recreational water quality guidelines”, and “a positive trend in the availability and/or quality of recreational opportunities in each zone”.

3. Some progress has already been made in quantifying the extent and state of recreational opportunities in Canterbury, including comprehensive reports on jet-boating and kayaking on Canterbury rivers, and data from Fish and Game’s annual angling surveys that inform our progress on monitoring.

4. The River and Lake Swimming in the Canterbury Region draft report further builds on understanding the availability, characteristics and quality of recreational opportunities across the region.

Action Required

5. The Zone Committee is asked to check the accuracy of the local freshwater river and lake swimming sites identified for their region (Appendix 1) and using local knowledge provide details of any omissions from the list, including the characteristics of the site (refer to the primary attributes in Appendix 2).

6. Feedback is required by early June to enable RAWG to present the final report to the Regional Committee on 13 June 2017.
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Ashley</td>
<td>Gorge*</td>
<td>0.5km Either side of picnic spot</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>Other values:</td>
</tr>
<tr>
<td></td>
<td>Waimakariri River</td>
<td>Upper to &amp; Including gorge bridge</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>salmon, fishing,</td>
</tr>
<tr>
<td></td>
<td>Waimakariri lakes</td>
<td>Lake Lyndon</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>bathing hazards,</td>
</tr>
<tr>
<td></td>
<td>Waimakariri lakes</td>
<td>Lake Pearson</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>bathing hazards,</td>
</tr>
<tr>
<td></td>
<td>Lake Pegasus</td>
<td></td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>other values:</td>
</tr>
<tr>
<td>Ashley</td>
<td>Upper above gorge</td>
<td>No data but assumed to be of the same high quality as the gorge site?</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>salmon and trout</td>
</tr>
<tr>
<td>Waimakariri River</td>
<td>Otukakino River</td>
<td>Based off Otukakino River at Dickeys Road. Groynes is now longer swimable.</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>fishing hazards,</td>
</tr>
<tr>
<td>Ashley</td>
<td>Below Gorge to Rangiora</td>
<td>Rangiora/Sorubum Bridge</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>salmon and trout</td>
</tr>
<tr>
<td>Ashley</td>
<td>Below Rangiora to SH1</td>
<td></td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>fishing hazards,</td>
</tr>
<tr>
<td>Waimakariri River</td>
<td>Below OHB to Sea</td>
<td></td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>other values:</td>
</tr>
<tr>
<td>Waimakariri River</td>
<td>Styx River</td>
<td></td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>other values:</td>
</tr>
<tr>
<td>Waimakariri River</td>
<td>Kaipai River &amp; tribes</td>
<td>Water clarity - at island Road</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>trout and salmon fishing hazards, other values:</td>
</tr>
</tbody>
</table>

**Note:** This is not an exclusive list of either.
## Appendix 2

**River and Lake Swimming in the Canterbury Region: Application of the river values assessment system (RIVAS)**

The set of primary attributes used, their indicators, and thresholds of importance for assessing freshwater swimming sites in Canterbury are shown in the following table.

<table>
<thead>
<tr>
<th>Primary attribute</th>
<th>Indicator</th>
<th>Indicator significance thresholds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of use</td>
<td>Number of swimmers on a peak use day – separated into categories</td>
<td>0= typically no one&lt;br&gt;1= &lt;10 (low)&lt;br&gt;2= 10-20 (medium)&lt;br&gt;3= &gt;20 (high)</td>
</tr>
<tr>
<td>Origin of users</td>
<td>Three categories (other than 'no known users):&lt;br&gt;- Family/ friends&lt;br&gt;- Locals&lt;br&gt;- Tourists</td>
<td>0= no known users&lt;br&gt;1= family/ friends and locals (low)&lt;br&gt;2= tourists (medium)&lt;br&gt;3= locals and tourists (high)</td>
</tr>
<tr>
<td>Presence of facilities</td>
<td>Presence/absence of facilities: toilet(s), camping area, BBQ, playground, swimming hole</td>
<td>1= nothing + Other (if not a toilet) (low)&lt;br&gt;2= toilet only (medium)&lt;br&gt;3= toilet + other (high)</td>
</tr>
<tr>
<td>Public access</td>
<td>Public or private access and type</td>
<td>0= no public access&lt;br&gt;1= access across private land (low)&lt;br&gt;2= public walking (medium)&lt;br&gt;3= public road and walking (high)</td>
</tr>
<tr>
<td>Surrounding environment</td>
<td>Perception from a user perspective of surrounding environment.&lt;br&gt;Scores: Low = odour issues and/or significant presence of rubbish and/or highly modified; Moderate = slightly modified; High= high naturalness, biodiverse</td>
<td>1= low/ poor&lt;br&gt;2= medium/ moderate&lt;br&gt;3= high/ excellent</td>
</tr>
<tr>
<td>Swimming holes</td>
<td>Maximum water depth (m)</td>
<td>1= &lt;2 m (low)&lt;br&gt;2= 2-3 m (medium)&lt;br&gt;3= &gt;3 m (high)</td>
</tr>
<tr>
<td>Variable water depth</td>
<td>Morphological variability</td>
<td>1= Low&lt;br&gt;2= Medium&lt;br&gt;3= High</td>
</tr>
<tr>
<td>Algae and or weed (aesthetic appeal)</td>
<td>Compliance with national periphyton guidelines:&lt;br&gt;1= &gt;50%, 2= 25-50%, 3= &lt;25% (maximum coverage)</td>
<td>1= &gt;50% (low)&lt;br&gt;2= 25-50% (medium)&lt;br&gt;3= &lt;25% (high)</td>
</tr>
<tr>
<td>Blue-green algae: toxic algae</td>
<td>Likelihood of toxic algae present (above 20% coverage)&lt;br&gt;0= 100%&lt;br&gt;1= either 2-4 times in 5 year period, or more than 2 months in swimming season (low)&lt;br&gt;2= either once in every five years, or short bloom affecting &gt;1month of swimming season (medium)&lt;br&gt;3= never been observed above 20% coverage (high)</td>
<td>0= 0&lt;br&gt;1= low&lt;br&gt;2= medium&lt;br&gt;3= high</td>
</tr>
<tr>
<td>Water clarity</td>
<td>Compliance with ANZECC (2000) guidelines:&lt;br&gt;1: &lt;1.6 m horizontal visibility when river is below median flow (low)</td>
<td>1= low&lt;br&gt;2= medium</td>
</tr>
<tr>
<td>Primary attribute</td>
<td>Indicator</td>
<td>Indicator significance thresholds</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------</td>
<td>----------------------------------</td>
</tr>
</tbody>
</table>
|                   | 2= 1.6-3.0 m horizontal visibility when river is below median flow (medium)  
3= >3.0 m horizontal visibility when river is below median flow (high) | 3= high |
| Overall water quality | Combination of science monitoring, EP and survey perceptions leading to:  
0= consistently very poor or poor (5/5 years)  
1= at least 4/5 years fair  
2= consistently fair  
3= consistently good or very good | 0= very poor  
1= low  
2= medium  
3= high |
Purpose
The Regional Water Management Committee’s Recreation and Amenity Working Group (RAWG) is seeking from each Zone Committee a list of up to five of their top priority recreation or amenity restoration sites for action in their region.

Background
At its March meeting, RAWG discussed the CWMS targets for recreation and amenity opportunities and progress being made towards meeting these targets. One of the outcomes from this discussion was a desire to gain a better understanding of what the priority recreation or amenity restoration sites are within each zone. Priority recreation or amenity restoration sites include those sites that the local community sees as having outstanding cultural or natural importance that need to be protected or enhanced for future generations.

RAWG is asking each Zone Committee to identify up to five of its top priority recreation or amenity restoration sites within its zone and identify key actions to better protect or enhance each site.

RAWG will consider the list of priority sites across the region and present it to the Regional Committee so that they can understand the diversity of the priority sites that require action and advise the Zone Committee on how it can best support the implementation of these actions.

Action required
Zone Committees are asked to provide RAWG with a list of up to five of its top priority recreation or amenity restoration sites in its region.

Information that RAWG is seeking includes:

- the name and location of the recreation or amenity restoration site;
- a brief description of its importance to the community;
- outcomes the community would like to see achieved; and
- proposed actions to achieve these outcomes.

Information can be forwarded to Anita Fulton by the end of June 2017.

The Regional Committee will then work with Zone Committees on how it can best support the implementation of these actions.
### Biodiversity Update

**Cam Plan**

Henry Hudson’s Cam River Report has been received by the Cam River Enhancement Sub-Committee.

The committee met on the 28th March and allocated $50k to a section of the upper Tuahiwi Stream. A primary driver for this project is removal and future control of sediment. This will dovetail with Manpower’s plans to protect and enhance the springheads on their property on the corner of Rangiora-Woodend Rd and Greens Rd.

Up to a further $50k was allocated to the Southbrook west of Townsend Rd. Work plans for both of these projects are to be developed and presented back to the committee.

**Silverstream Draft Plan**

The editing of data collected from the stream walk is almost complete. The scoping of an overall plan for further engagement with the community is underway. This will include maps and a summary of the data in the format of The great, the good, the bad & the ugly.

**First 500**

$30K approved by ZC.

Nine significant spring heads in the Silverstream - Burgesses catchment have been identified from map layers and the stream walk. These are distributed across four properties:

- Wai-Eyre Stud has three known springs, two are adequately fenced. They have been approached and are keen to proceed. This will be being processed within the next fortnight.
- Holton Farm has been approached. The property has three known significant spring heads, two of which are well suited to this programme. Stock do not have access to the springs on the property. They are interested but want to investigate re-shaping of the channel… this will take a little longer to process.
- Kirin Brown will be approached in the next couple of weeks. The property has one identified spring that is not fenced – this site is where the greatest gain is to be had.
- A fourth property neighbouring Silverstream Reserve has two significant spring heads on it. The owners are yet to be approached.

It is intended to spread the funding across the three suitable properties,

**Riparian Guide and Zone Planting Matrix**

The Riparian Guide booklet is to be updated. This will include suitable planting lists for the zone. The progress on this project is not as fast as anticipated, however in the interim we are able to provide one on one advice.
## Upcoming Immediate Steps Applications

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutaepatu</td>
<td>Immediate Steps Application for Pines Beach wetland weed control project. Anticipate application for ~$25k this year and funding of approximately $50k for the next 2 years.</td>
</tr>
<tr>
<td>ARRG</td>
<td>Seeking further funds - meeting to discuss 10/4/2017. Report still to be done. Collating info and investigating consent/permit issues. Likely IMS funding of $20k</td>
</tr>
<tr>
<td>Waka Wetland</td>
<td>Species list, plant calculator and planting advice given to landowner. Quotes received, progressing assessment. Have asked for 2/3 $19.5k excluding plant protectors (another $3k).</td>
</tr>
<tr>
<td>Morriss Farm - Salt Water Creek</td>
<td>Awaiting quotes. Anticipate application for $10k-$15k</td>
</tr>
<tr>
<td>Tom Evans</td>
<td>Working towards IMS application for riparian restoration.</td>
</tr>
<tr>
<td>Baynons/Smiths Drain planting</td>
<td>Needs rūnanga approval $15k</td>
</tr>
<tr>
<td>Graeme Jones - Loburn</td>
<td>Developing planting plan for IMS application</td>
</tr>
<tr>
<td>Waikuku Inaka Enhancement</td>
<td>Approved through Regional Committee. Project progressing.</td>
</tr>
</tbody>
</table>

## Nutrient Management & Mater Use Efficiency

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waimakariri Primary Industry Network Group meeting</td>
<td>This meeting will be held on the 5th May. The purpose is to share information, promote coordination and efficient resource use to increase uptake of on-the-ground actions leading to GMP.</td>
</tr>
<tr>
<td>Irrigation Scheduling</td>
<td>Anna is working with Cust Water User Group and NIWA to scale up use of local climate information to improve irrigation scheduling</td>
</tr>
<tr>
<td>Engagement</td>
<td>Completed to date visits to 28 of 39 &gt;200ha &amp; 4 of 23 &gt;100ha &lt;200ha non-dairy farms in Orange Zone to inform re Nutrient Management requirements in Zone and encourage participation in community process.</td>
</tr>
<tr>
<td></td>
<td>Visits and discussions with the larger farms in the Eyre Catchment are also taking place to encourage participation in the Solutions Programme.</td>
</tr>
<tr>
<td>Waimakariri GMP Campaign</td>
<td>As per paper provided at ZC meeting 10th April: This campaign involves zone specific direct farmer communications to 70 identified farmers with &gt;50 hectares of irrigation who likely require consent now.</td>
</tr>
</tbody>
</table>
The campaign includes a direct mail pack, a follow up phone call, and information sessions, as well as online, planning officer, and call centre help. The direct mail is being sent on the 15th May. The advertising commences at the same time.

| Small Block Holder Workshops | Targeting late June/ early July dates. The program and content is at an advanced stage of development. Information about the workshops and invitations to attend will be being sent out in the second half of May. |
Welcome to your monthly e-newsletter for April. This update will let you know about zone committee activities, science work streams, and local or regional developments that could affect you.

Thank you to everyone who attended our Alternative Pathways meetings last month. It was fantastic to see so many of you sharing your ideas and feedback.

Your views and ideas on the future management of Waimakariri’s waterways are helping us understand what is important to the local community.

Alternative Pathways - What's Next?

- Thanks to everyone who attended the Alternative Pathways series of meetings. It was vital to hear your thoughts and ideas on the best ways to manage Waimakariri’s waterways.
- After engaging with the general public the zone committee will now meet with smaller interest groups throughout Waimakariri to get their feedback on various options for water management.
- The next stage of the process will see the zone committee create a series of draft recommendations for the Waimakariri Land and Water Solutions Programme,
- The draft recommendations should be ready for further consultation later this year.
- Stay connected to the process by visiting our website here and by attending our regular zone committee meetings which are held on the second Monday of each month from 2-6pm at the Rangiora Town Hall.
- We’d love to hear your thoughts and feedback on these meetings and your ideas on future water management options. To provide feedback please click here
- Videos from the meetings will be uploaded to the website next month.

Zone Committee News

New zone committee chair elected

New Waimakariri Zone Committee Chair David Ashby is a Fernside dairy farmer.
• David Ashby was elected as Waimakariri Zone Committee Chair at last month's committee meeting.
• David has been a member of the zone committee for the last 4 years and is passionate about taking action to improve Waimakariri's waterways.

Community committee member applications
• Thanks to all of those who submitted applications to become community members of the zone committee
• Applications are now being reviewed.

Joint workshop held at Tuahiwi Marae
• Earlier this month the Waimakariri Zone Committee joined the Hurunui-Waiau Zone Committee for a joint workshop at Tuahiwi Marae.
• The Hurunui-Waiau Zone Committee shared some of the learnings gained from their sub-regional planning process with the Waimakariri Zone Committee.
• This was a valuable learning experience for both zone committees.

Ongoing work  Kaiapoi River Study preliminary findings
• ECan scientist Adrian Meredith presented a report on the Kaiapoi River to the zone committee earlier this month.
• The Kaiapoi River has one of the highest levels of bacterial contamination in Canterbury.
• This is caused by a combination of sources - agriculture, town stormwater, waterfowl, marine sources and pigeons which nest under the Kaiapoi River bridge.
• The river is unique and complex environment which reflects the different sources of water which make up the river including streams, the sea and the Waimakariri River.
• Spikes in salinity were recorded in both February and March.
• Ongoing investigations will continue throughout the year.

News  Silverstream residents have their say

Biodiversity officer Jason Butt and Waimakariri zone manager Andrew Arps discuss Silverstream water issues with local resident David Birch.

• The Waimakariri zone team have been conducting stream walks along Silverstream and meeting with local residents whose properties border the waterway
• Residents have provided feedback and local knowledge to the zone team on ways to improve Silverstream's water quality.
• Action needs to be taken to reduce high nitrate levels at Silverstream.
• The zone committee will explore various options to reduce nitrate levels and expect to announce details of a trial to lower nitrate levels in the next two months.
• Learn more by watching a video on Silverstream [here](#).

Make sure you have your say by attending our community meetings. Water is an important resource and the decisions we make together will impact Waimakariri both now and in the future. Let us know what you think and get involved in the water management process.

If you can’t attend the meetings please visit our [website](http://www.ecan.govt.nz/canterburywater) or our [Facebook page](http://facebook.com) to share your thoughts and provide feedback.

If you or someone you would know would like more information on the Waimakariri Water Zone Committee or the Canterbury Water Management Strategy, please do not hesitate to contact Waimakariri Zone Committee Manager Andrew Arps.

For more information [www.ecan.govt.nz/canterburywater](http://www.ecan.govt.nz/canterburywater)