

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

on

Monday 3 April 2017

1.30pm

**Council Chamber
Mackenzie District Council
Main Street
Fairlie**

ORARI-TEMUKA-OPIHI-PAREORA WATER ZONE MANAGEMENT COMMITTEE

Notice is hereby given that an Orari-Temuka-Opihi-Pareora Water Zone Management Committee meeting will be held on Monday 3 April 2017 at 1.30pm in the Council Chamber, Mackenzie District Council, Fairlie.

Committee Members:

John Talbot (Chairman), David Anderson, Kylee Galbraith, John Henry, Mandy Home, Ivon Hurst, Richard Lyon, Hamish McFarlane, Anne Munro, James Pearce, Lan Pham, Ad Sintenie and Mark Webb

ORARI-TEMUKA-OPIHI-PAREORA WATER ZONE MANAGEMENT COMMITTEE

3 APRIL 2017

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| 1 | | Apology – Clr Richard Lyon |
| 2 | | Register of Interests |
| 3 | 1 | Confirmation of Minutes |
| 4 | | Community Forum |
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| 7 | 7 | N-Check |
| | | Upper Catchment Management |
| 8 | 9 | Flow Sensitive Catchments |
| 9 | 15 | Tussock Cover and Water Yield |
| 10 | presentation | Learning About COMAR Flows |
| | | Afternoon Tea |
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| 11 | 18 | Feedback from March Community Engagement |
| 12 | Verbal update | Saltwater Creek |
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**ORARI-TEMUKA-OPIHI-PAREORA WATER ZONE MANAGEMENT COMMITTEE
FOR THE MEETING OF 3 APRIL 2017**

Report for Agenda Item No 3

**Prepared by Joanne Brownie
Secretary**

Confirmation of Minutes – Committee Meeting 6 March 2017

Minutes of the March 2017 Committee meeting.

Recommendation

That the minutes of the Committee meeting held on 6 March 2017, be confirmed as a true and correct record.

ORARI-TEMUKA-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE

MINUTES OF AN ORARI-TEMUKA-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE MEETING HELD IN THE WAIHI LODGE FUNCTION CENTRE, 16 SHAW STREET, GERALDINE, ON MONDAY 6 MARCH 2017 AT 1PM

PRESENT John Talbot (Chairperson), Clr David Anderson, Kylee Galbraith (from 1.10pm), Mandy Home, Ivon Hurst, Clr Richard Lyon, Clr Anne Munro, James Pearse, Lan Pham, Ad Sintenie and Mark Webb (until 4.05pm)

APOLOGY Hamish McFarlane

IN ATTENDANCE Suzanne Eddington (Waihao Marae), Nic Newman (Facilitator), Dan Clark (Senior Hydrology Scientist and Technical Lead), Raymond Ford (Principal Planner), Alexia Foster-Bohm (ECan), Dr Tim Davie (Chief Scientist), Katherine Trought (ECan Director Communications), Barbara Nicholas (Regional Committee Facilitator), Helen Risk (ECan Land Management Advisor), Ian Lyttle (ECan Land Management Advisor), Craig Davison (ECan), Lyn Carmichael (Senior Planner and Community Lead), Shirley Hayward (Senior water Quality Scientist), Tony McCormick (Opuha Water Ltd), Julia Crossman (Opuha Water Ltd), John Benn (Department of Conservation), Chanelle O'Sullivan (Landcare Trust), Rhys Taylor (Community Engagement Coordinator), Grant Hall (Timaru District Council Drainage and Water Manager), Kyle Nelson (Tipa and Associates), Lionel Hume (Federated Farmers), Peter McIlraith (Territorial Authority representative), John Harman (Timaru Rowing Club), Jan Finlayson, Ad Hendriks (farmer), Helen Tatham (media).

1 REGISTER OF INTERESTS

There were no additional interests advised.

2 FACILITATOR UPDATE

The meeting was invited to take a copy of ECan's draft Annual Plan for perusal.

3 CONFIRMATION OF MINUTES – COMMITTEE MEETING 30 JANUARY 2017

Proposed Clr Anne Munro
Seconded Ad Sintenie

“That the minutes of the Committee meeting held on 30 January 2017 be confirmed as a true and correct record.”

MOTION CARRIED

4 ELECTION OF CHAIRPERSON, DEPUTY CHAIRPERSON, AND REGIONAL COMMITTEE REPRESENTATIVE

The Committee noted the report by the Facilitator on the need to appoint the Committee Chairperson, Deputy Chairperson and Regional Committee representative.

The Chairperson stood down from the Chair.

Chairperson

The Facilitator called for nominations for the position of Chairperson of the Committee.

Proposed Mark Webb
Seconded Richard Lyon

“That John Talbot be appointed as Chairperson of the OTOP Committee.”

There being no further nominations, the motion was put and CARRIED and John Talbot was declared Chairperson of the OTOP Committee, and resumed the Chair.

Deputy Chairperson

The Facilitator called for nominations for the position of Deputy Chairperson.

Proposed Lan Pham
Seconded Mandy Home

“That Hamish McFarlane be appointed as Deputy Chairperson of the OTOP Committee.”

There being no further nominations, the motion was put and CARRIED and Hamish McFarlane was declared Deputy Chairperson of the OTOP Committee.

Regional Committee Representative

The Facilitator called for nominations for the position of Regional Committee Representative.

Proposed Ivon Hurst
Seconded Lan Pham

“That John Talbot be appointed as Regional Committee representative for the OTOP Committee.”

There being no further nominations, the motion was put and CARRIED and John Talbot was declared the OTOP Committee’s Regional Committee representative.

Territorial Authority Representative

Peter McIlraith, local territorial representative for the CWMS, introduced himself to the Committee.

Waihao Marae Representative

Suzanne Eddington introduced herself to the Committee as the appointee to represent the Waihao Marae on the OTOP Committee.

5 UPDATE ON THE MINISTRY FOR THE ENVIRONMENT’S CLEAN WATER ANNOUNCEMENT

Dr Tim Davie (Chief Scientist) gave a brief summary on the recent announcement by the Minister for the Environment involving macro invertebrate monitoring (which ECan is already doing), dissolved inorganic nitrogen and phosphorus

being considered as part of periphyton, national stock exclusion rules, intermittently closed and open lagoons (ICOLS), tightening up of Te Mana O Te Wai and the announcement of the freshwater improvement fund. The issue which has hit the headlines is the swimmability of rivers – Dr Davie advised that there is some confusion around this proposal, especially in regard to cyanobacteria and ecoli. ECan is seeking clarification on the issue.

The announcement relates to proposals which are currently out for consultation, with the closing date being 28 April. Environment Canterbury will be submitting on the proposals once it has received further clarification.

6 EMERGING ORGANIC CONTAMINANTS (EOCS)

The Committee considered a report by Dr Tim Davie, Chief ECan Scientist, on issues around emerging organic contaminants and the monitoring being done for emerging contaminants by Environment Canterbury. He explained that if ECan is to monitor some EOC's, the suggested approach would be to choose individual markers of different types of EOC's then do a broadscale survey across the region to see if there are any hotspots and then consider how to address these. However this work would be beyond what can be achieved within the normal budget and it would need to be included in ECan's Long Term Plan in order to be budgeted for.

The Committee agreed that it does have concerns about this issue and would like to see funding included in ECan's Long Term Plan to enable more broadscale surveying across the region for EOCs.

In order to progress this in the right way, the Committee decided to include in the OTO Solutions Package, a recommendation that provision be made in the ECan Long Term Plan for Emerging Organic Contaminants surveying and analysis based on a risk assessment, and including identification of hotspots.

7 ADAPTIVE MANAGEMENT WORKING GROUP (AMWG): INTRODUCTION AND UPDATE

The Committee considered a report by Opuha Water Ltd introducing the Adaptive Management Working Group (AMWG) and its work in developing an adaptive river management regime for the Opihi River, for consideration as part of the Healthy Catchments Project. OWL's Chief Executive Tony McCormick and Environmental Manager Julia Crossman further explained the proposal and answered questions from the Committee. The proposal is seen as a way to establish a process that is adaptive and flexible to achieve 2 key outcomes – to preserve lake storage for the purpose of retaining continuity and reliability of supply, and to improve river health. The regime proposes to move from a 2 tiered approach to a 3 tiered regime i.e. full availability, conservative low flow and extreme low flow, to meet the desired outcomes for the river and its users. It is hoped that the regime will improve on the current management in that it would be more adaptive.

The group's work will help to provide data to feed into the modelling being undertaken, this will be tested through the project and will assist the committee with its recommendations in regard to the river's management/operation. Dan Clark advised that he is in the process of modelling these regimes and will report back to the Committee at its May meeting.

Proposed Kylee Galbraith
Seconded Lan Pham

“That the Committee endorses the Adaptive Management Working Group (AMWG) to continue work to develop an adaptive river management regime to be modelled as part of the Healthy Catchments Project.”

MOTION CARRIED

Mandy Home abstained from voting.

8 WAITARAKAO WASHDYKE TASKFORCE REPORT

The Committee considered a report updating the Committee on the actions of the Waitarakao Washdyke Taskforce.

The Committee noted that the actions will need to be included in the Healthy Catchments Project solution package.

Proposed Anne Munro
Seconded Mark Webb

“That the report be received and noted and the action plan be endorsed.”

MOTION CARRIED

9 SALTWATER CREEK WATER LEVEL MANAGEMENT

The Committee considered an update from the Senior Hydrology Scientist and Technical Lead on the water level management issues in Saltwater Creek. John Harman spoke on behalf of the Timaru Rowing Club, further explaining the problems the club has with the creek being unsuitable for rowing training at times. He favoured option 2 – setting up a working group - as the preferred option for addressing the problems. The Committee said the timeline and brief for the working group would need to be clear. The meeting was advised that there is information already available to help the group work towards a recommendation by August.

Proposed Mark Webb
Seconded Ad Sintenie

- a “The Committee recommends Option 2 – establish a working group to investigate Saltwater Creek issues and how to integrate these into the wider project.
- b The working group to comprise representatives of the Timaru District Council, local runanga, Timaru Rowing Club, Environment Canterbury Engineering, Water Quality Scientist, Hydrologist, Fish and Game/Department of Conservation, Otipua Wetland Trust and the consent holder.
- c Noting that the establishment of the group is subject to adequate resources being available.”

MOTION CARRIED

10 MANAGING RISKS IN COMMUNITY DRINKING WATER PROTECTION ZONES

The Committee considered a report on managing risks in Community Drinking Water Supplies (CDWS). Ian Lyttle, Land Management Advisor, spoke to the report to further explain the risks and proposed actions.

The Zone Committee endorsed the practical actions outlined in the table in the report and sought further information on potential statutory actions that could strengthen the effectiveness of community drinking water protection.

The meeting concluded at 4.45pm.

Chairperson

ORARI-TEMUKA-OPIHI-PAREORA WATER ZONE MANAGEMENT COMMITTEE
FOR THE MEETING OF 3 APRIL 2017

Report for Agenda Item No 7

Prepared by Tami Woods
Regional Implementation

NCheck

Purpose

To provide the Zone Committee with information about the use of NCheck in the Selwyn Te Waihora catchment and provide a demonstration of NCheck.

Background

The current farming activity rules in the Canterbury Land and Water Regional Plan require many landowners to model nitrogen loss below the root zone using OVERSEER® or an equivalent model approved by Environment Canterbury's Chief Executive.

OVERSEER® is the most commonly used and best tool for measuring nitrogen leaching on Canterbury properties.

Last year the Selwyn Waihora Zone Committee however identified challenges in implementing the catchments new farming activity rules. A key focus was determining how to improve the speed of implementation of the operative Plan Change to the LWRP in the Selwyn Te Waihora catchment.

The committee sought the use of NCheck to help farmers determine:

- whether a farm was above or below the nitrogen loss threshold in the Plan and therefore required a consent; and
- In the consent process and during on farm audits for:
 - Horticultural¹ and arable² farms in the short term; and
 - Farms with losses below 15kgN/ha/yr in the catchments phosphorus and sediment risk area and/or cultural landscape values management area.

For the Selwyn Waihora Zone Committee, it meant people would quickly gain certainty around whether they needed a consent or not. OVERSEER® use could be focused on higher risk farming activities in the catchment. Low risk farming activities could focus their resources on managing their on farm practices to address phosphorus and sediment risks and/or cultural values.

¹ Defined as farms with intensive vegetable rotations 80% of the time.

² Defined as farms with cropping rotations on more than 50% of the property.

The Chief Executive approved NCheck as an alternative to OVERSEER® for use in the Selwyn Te Waihora catchment as he was satisfied that it met the outlined criteria and was to be utilised in limited circumstances. It was also understood that OVERSEER® remained the primary tool for land owners to determine their nitrogen losses.

What is NCheck

NCheck is one of the outcomes from the Matrix of Good Management project. It has been developed as part of the MGM/Farm Portal Project. It is a web based application that sources property soil and climate information and retrieves a nitrogen loss rate that best matches a farm based on a number of representative farms modelled with OVERSEER®.

How does someone access NCheck?

NCheck can be accessed at www.canterburywater.farm. The website notes that its use has only been approved in the Selwyn Te Waihora catchment.

ORARI-TEMUKA-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE

FOR THE MEETING 3 APRIL 2017

Report for Agenda Item No 8

Prepared by: **Raymond Ford**
Principal Planner

Management of Plantation Forests in Flow Sensitive Catchments in the OTOP Zone – A Review

Action Required

The Zone Committee considers the current level of protection provided for flow sensitive catchments in the OTOP Zone as part of the Healthy Catchments Project.

Overview

- Trees are very effective at intercepting rainfall. A mature tree cover will reduce runoff compared to pasture and shrubland. The change in runoff is proportional to the area of forest cover. However, at below 20 percent of forest cover, this effect becomes difficult to understand.
- The Land and Water Regional Plan (LWRP) identifies eight sub-catchments within the Pareora and Opihi River catchments as 'flow sensitive catchments', and controls new forest plantings in these areas.
- There has been no technical work undertaken to assess whether plantation forests in the Upper Orari catchment could affect the water yield from this catchment.

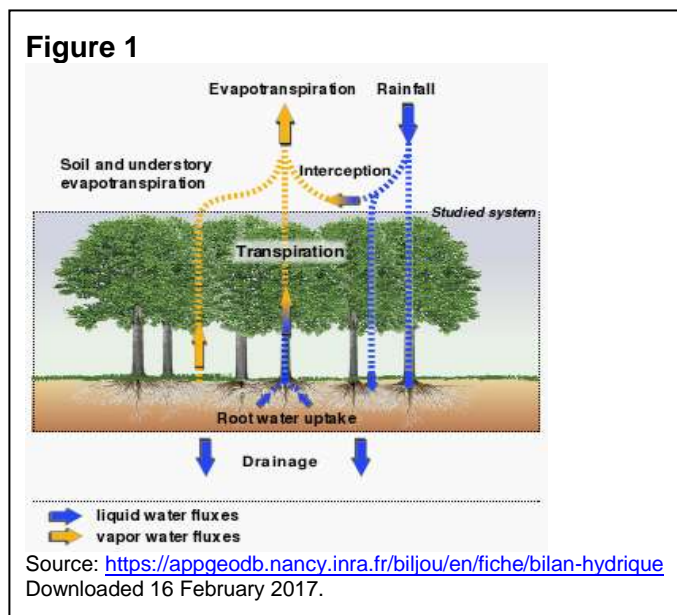
Recommendations

- The existing controls in the LWRP for managing the introduction of new forestry in the Healthy Catchments Project area are maintained;
- Further work is undertaken in the Orari Catchment to establish whether this should be a flow sensitive catchment;
- If this work proves that the Orari is flow sensitive, then the LWRP is amended to include the Orari as a flow sensitive catchment.

Background

Concern was expressed at public meetings held by the Zone Committee about the potential effects of plantation forests on river flows in the Healthy Catchments Project area (Appendix One). This paper briefly summarises the effects of plantation forests on water yield from catchments, and describes the Land and Water Regional Plan's policies and rules that regulate new forestry in flow sensitive catchments.

Effects of Plantation Forestry on Water Yield



The introduction of tussock grassland, scrub or pasture can reduce the amount of water (water yield) within a catchment. Trees reduce water flows by intercepting rainfall and transpiring water that would otherwise enter the soil and eventually flow into a waterbody (Figure 1).

Research has shown that an increase in forest cover will reduce:

- Low and annual flows, with intermittent reaches and ephemeral streams likely to be drier for longer periods.
- Flood flows, with the greatest effect on peak flows from smaller storms.

Various catchment studies (summarised in Fahey et al 2004; Davie & Fahey 2005; Quinn & Phillips 2016) have shown that a change in land use from pasture to forestry can reduce the annual water yield from a catchment between 30 to 80 percent. These percentages are lower where plantation forests have replaced scrub vegetation.

The effects of forestry on water yield vary from catchment to catchment. The planting of new forestry areas where most of the runoff is generated, such as valley floors and riparian zones, will have a disproportionate effect on stream flow.

The interplay of local factors, including the type of soil, climate, the area of forest plantings, the extent of canopy cover, and forestry management practices, all influence how much water leaves a catchment. The harvesting of trees for example can result in higher flows from a catchment, compared to a similar pastured catchment, but these flows will begin to decline after a short period once new forestry plantings become established (Quinn & Phillips 2016).

In dry catchments with limited water storage, the effects of forestry on river flows, instream values and downstream abstractors can be significant. The effects are similar to multiple water takes – with one important difference – unlike abstractions, water yield reductions from plantation forests cannot be stopped once a minimum flow restriction is reached.

Plantation Forestry in the Healthy Catchment project area

Plantation forests are defined as trees that are specifically planted and managed for harvesting and producing timber and other wood based products, or as a carbon sink regardless of whether they are exotic or indigenous species³. While these forests may significantly reduce river flows, they also have many potential benefits, such as erosion control, protection and improvement of water quality, sequestration of carbon dioxide,

³ Land and Water Regional Plan, Section 2.9, pg 46

and provide economic returns on land that has low productive potential for agriculture. Currently, forest plantings occupy 29.5 percent (171.3 hectares) of the land in the Healthy Catchments project area, with the largest plantings occur in the Temuka River catchment.

Flow sensitive catchments in the OTOP zone

A flow-sensitive catchment is defined as a catchment where:

“... a river which is dependent on rainfall as its main source of flow, has limited ability to store water, and where evapotranspiration can be expected to exceed precipitation between December and April resulting in very low flows in summer and autumn compared with mean flows.”⁴

A long list of potentially flow sensitive catchments in the Canterbury Region has been investigated over the past 17 years. Nine catchments or sub catchments in the OTOP Zone are mapped as flow sensitive catchments in the LWRP⁵ (Appendix One) on the basis of a series of technical studies carried out between 2004 and 2008 by National Institute of Water and Atmospheric Research (NIWA) (Appendix 2).

Six of these catchments are situated in the Opihi River catchment, and three in the Pareora River catchment. Several small catchments, e.g. Opawa River, Taiko Stream, which form part of larger flow sensitive catchments, were identified to protect specific instream values.

No flow sensitive catchments are listed for the Orari River catchment. During the Land & Water Regional Plan Hearings, ECan staff noted that identification of flow sensitive catchments was an ongoing process, and that the sensitivity of the Orari catchment is not known, but suggested that it could be reviewed by the Zone Committee during the sub region process⁶.

Managing forestry plantings in flow sensitive catchments

The LWRP must give effect to the Canterbury Regional Policy Statement (RPS). The RPS seeks to manage the adverse effects of land uses on the flow of water in surface waterbodies or the recharge of groundwater by managing the planting or spread of exotic vegetation species in catchments where the species are likely to have significant adverse effects on flows in surface water bodies⁷.

The LWRP controls the area, density and species of tree planted⁸. An exception is where tree-planting is required to control deep-seated soil erosion. Within a flow sensitive catchment, the regional plan rules⁹ allow replanting of an existing¹⁰ plantation forest, as a permitted activity, if an existing forest was harvested within the last five years. New areas of plantation forest would require a resource consent, as a controlled activity, provided that:

⁴ Land and Water Regional Plan, Section 2.9, pg 42

⁵ Land and Water Regional Plan, Table 14.7 Flow Sensitive Catchments, pg 333

⁶ Section 42A Report Volume 1 – Proposed Canterbury Land and Water Regional Plan`pg 300-303.

⁷ Canterbury Regional Policy Statement 2013 Policy 7.3.5, pg 78

⁸ Land and Water Regional Plan, Policy 4.75 , pg 42

⁹ Land and Water Regional Plan Rules 5.72 & 5.73.

¹⁰ The forest existed at 1 November 2010.

- The total area of planted forest does not exceed 20 percent of a small flow sensitive catchment ($\leq 50\text{km}^2$); or
- For larger catchments, new plantings¹¹ do not reduce 7 day MALF¹² by more than 5 percent and/or the mean flow by 10 percent.

The resource consent application must be granted, but conditions may be imposed on the location, density and timing of the species planted. If the above criteria are not met, new forest plantings are a restricted discretionary activity, and an application may be granted or refused. The potential effects on a broader range of matters¹³ would be considered, including river flows and associated uses and values, groundwater recharge, benefits for slope stability, erosion control, water quality, carbon sequestration, biodiversity, and the spacing, density and tree species.

Any increase in the area of new forestry plantings for commercial purposes in a flow sensitive catchment would require resource consent and the potential effects of river flows would be one of the matters that would be considered by a decision-maker.

The upper Orari River catchment is not currently subject to the flow sensitive catchment provisions. Many parts of this catchment are potentially suitable for plantation forestry, and some additional technical work should be undertaken to assess the potential effects on the 7 day MALF and mean flows of the Orari River and its tributaries. Depending on the results of this work, the Zone Committee could then decide whether to add all or part of the catchment to the list of flow sensitive catchments in Section 14 of the LWRP (Healthy Catchments Project area).

References

Davie, T., & Fahey, B. (2005) *Are low flows affected by vegetation change in the same way as annual yield?* Landcare Research.

Duncan, M., Dey, K. (2006). *The effect of vegetation change on water yield for flow sensitive catchments in Canterbury: Phase 3.* Environment Canterbury Report U06/69. September 2006

Fahey, B.D., Duncan, M.J., and Quinn, J. (2004) Impacts of forestry. In: Harding et al (eds); *Freshwaters of New Zealand.* NZ Hydrological Society and NZ Limnological Society. pp 33133.16.

MFE (2016) *A Way Forward for National Direction 2016.* Ministry for the Environment publication no INFO 766. September 2016.

MPI (2016a) *National Exotic Forest Description as at 1 April 2016.* Ministry for Primary Industries & New Zealand Forest Owners Association.

MPI (2016b) *Wood availability forecasts – Canterbury 2015.* Ministry for Primary Industries. June 2016

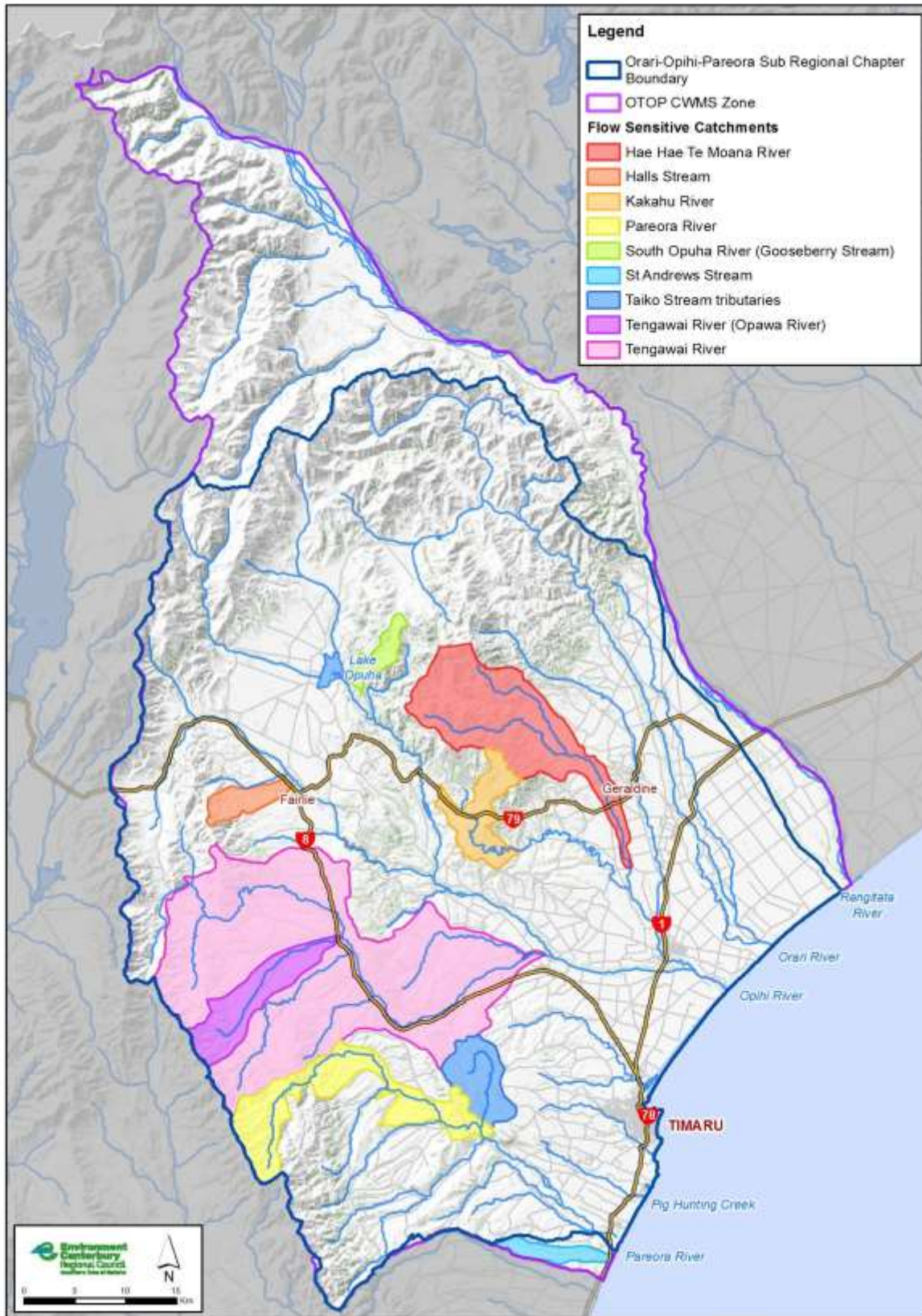
Quinn, J., & Phillips, C. (2016) *Production Forestry.* In: *Advances in New Zealand Freshwater Science.* NZ Hydrological Society and NZ Limnological Society

¹¹ New plantings are defined as plantings after 1 November 2012

¹² 7 day MALF = 7 day Mean Annual Low Flow


¹³ Council has reserved its discretion to these matters listed in the rule. Consent conditions may only be imposed on these reserved matters.

Appendix One – Healthy Catchments Project Area



Appendix Two: Summary of technical studies of flow sensitive catchments in the OTOP zone

Major catchment	Sub-catchment	Flow sensitive part of the catchments	References
Opihi	Opuha River	North Opuha river, catchment upstream from Clayton Road	Duncan (2004) Duncan & Image (2004)
		Gooseberry Stream above the inflow site to Lake Ophua	Duncan, Ponder-Suttin & Wech (2008)
	Opihi River	Halls Creek upstream from State Highway 8	
	Temuka River	Hae Hae Te Moana River above confluence with Kakahu River	Duncan (2004) Duncan & Image (2004)
	Kakahu River	Catchment upstream from Hall Road	Duncan, Ponder-Suttin & Wech (2008)
	Tengawai River (Te Ana a Wai)	Whole catchment upstream from Picnic Grounds Recorder site	Duncan & Image (2004)
		Opawa River upstream from Tengawai River (Te Ana a Wai) confluence	Duncan, Ponder-Suttin & Wech (2008)
	Pareora River	Pareora River	Catchment upstream from Pareora Huts
		Taiko Stream upstream from confluence with Pareora River	
St Andrews Stream		Whole Catchment	
Orari River			

 The catchments shaded blue are identified as flow sensitive in the Orari-Opihi-Pareora section of the Land & Water Regional Plan

ORARI-TEMUKA-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE
FOR THE MEETING OF 3 APRIL 2017

Report for Agenda Item No 9

Prepared by **Dan Clark**
 Environment Canterbury

Tussock Cover and Water Yield in the Upper OTOP Catchments

Action required: the committee considers the current level of protection provided for tussock cover and water yield in the upper catchments of the OTOP Zone, as part of the Healthy Catchments Project.

Overview

- Tussock cover provides higher catchment water yields than the same area would under pasture
- Existing district plan rules restrict the removal of tussock and other indigenous vegetation in upper catchments
- The areas which are not protected by these rules were assessed to find out how much water yield could be reduced if conversion occurred
- All major catchment water yield reductions would be less than 5% if vulnerable areas were converted.

Recommendation:

The current level of protection for tussock cover provided by the rules in district plans is maintained.

Background

The OTOP Healthy Catchments Project covers areas of high elevation tussock lands; the contribution these make to water quality and quantity in these catchments has been raised as an issue to investigate. Environment Canterbury has undertaken an assessment to evaluate the risk to rivers fed by these tussock lands, if they were converted to pasture.

Tussock is acknowledged to provide more water yield through increased interception and decreased evapotranspiration. If these catchments were converted to pasture there would be some effect on the water yield.

To quantify this change we first conducted a literature review looking at studies into catchments where this land use change had occurred. This provided information on the percent change in yield due to conversion. Studies both internationally and within New Zealand provided an estimate of 50% change in water yield with the conversion from tussock to pasture. Next we completed a GIS mapping exercise to quantify the tussock cover within each of the major catchments in the study area. These

catchments were delineated above each of the flow recorders in the catchments. This allowed us to calculate the proportion of the flow at each recorder which was generated by the tussock area.

Following the tussock cover being mapped, we identified the areas which were protected under the district plan rules for vegetation clearance, Department of Conservation (DOC) land, land undergoing tenure review and land which was unsuitable for conversion to pasture. The land unsuitable for conversion was based on advice from a farm advisor, who advised land on south facing slopes in the upper catchments was unlikely to be suitable.

The remaining tussock areas were considered to be the areas vulnerable to conversion. These areas are shown in Figure 1. The contribution of these areas to the 7 day Mean Annual Low Flow (7dMALF) was calculated and shown in Table 1. Applying the reductions in flow from the literature we were able to calculate the reduction in 7dMALF if all of these vulnerable areas of tussock were converted to pasture. This is shown in Table 1 as a reduction in flow (l/s) and as a percent change in 7dMALF.

Table 1 OTOP catchments to the key flow recorders, area, naturalised 7day-MALF, area vulnerable to pasture improvement, and calculation of potential flow reduction

Catchment flow site	Area (km ²)	7day-MALF (naturalised) (l/s)	Area vulnerable to pasture improvement (km ²)	7day-MALF produced by vulnerable area (l/s)	Land use change 50% reduction to 7day-MALF (l/s)	Flow site potential reduction to 7day-MALF (%)
Orari at Gorge	524	2723.2	54.7	264.3	132.1	4.9
Opihi at Rockwood	412	1320.3	4.3	21.3	10.7	0.8
Opuha at Skipton	457	2576.8	22.8	83.2	41.6	1.6
Tengawai at Picnic Grounds	487	726.2	11.1	25.1	12.5	1.7
Temuka at Manse Bridge	523	1800	1.2	5.3	2.6	0.14
Paerora at Huts	424	648.2	15.5	58.6	29.3	4.5

Table 1 shows the change in 7dMALF at each of the flow recorders with tussock cover in the upper catchments. These changes are considered small and all catchments are likely to experience a maximum reduction in low flow of less than 5 %

As a change of less than 5% in flow would be within the uncertainty of measurement at this level, it would be expected that allowable changes in tussock cover would have minor effects on flows generated by the upper catchments.

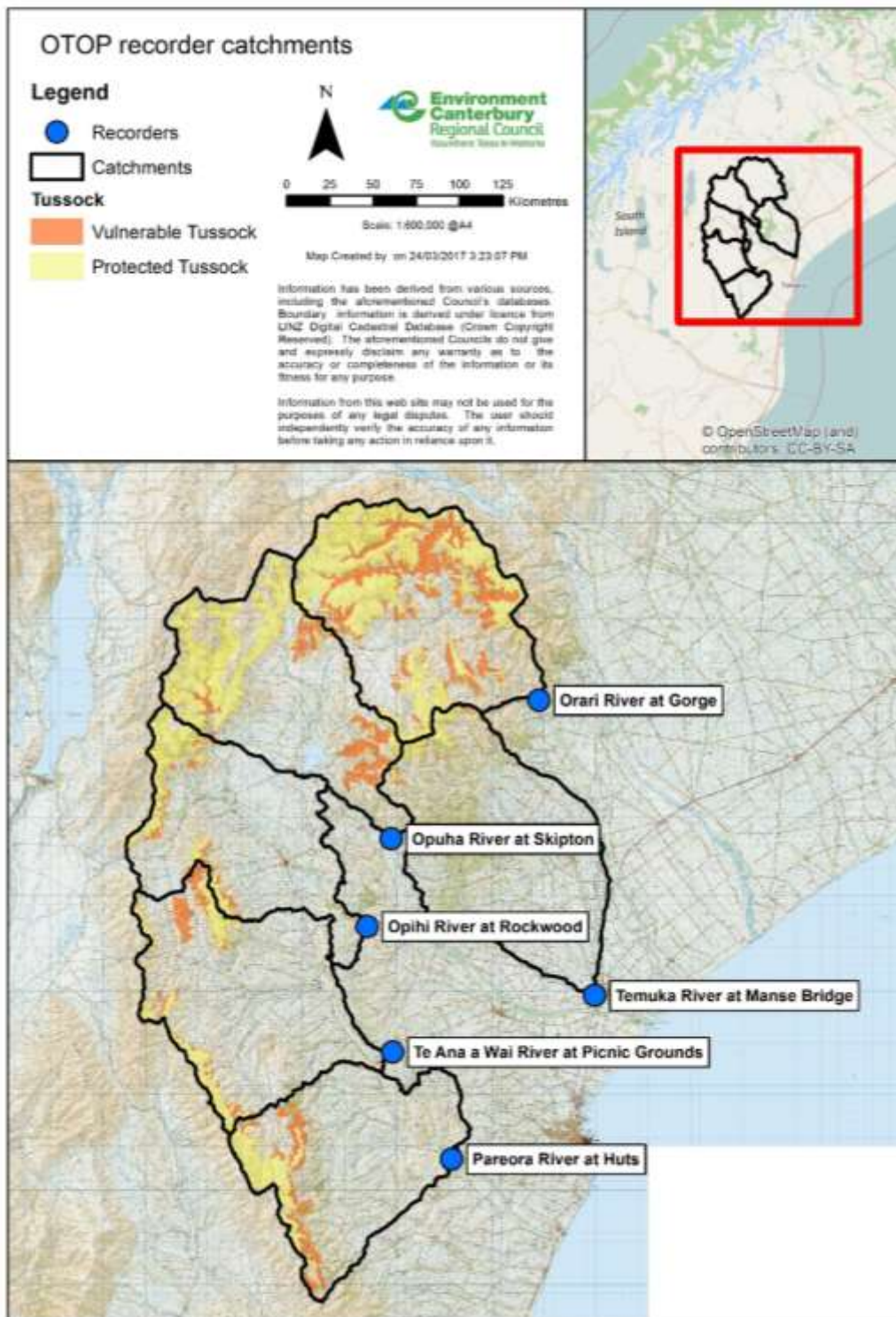


Figure 1 OTOP recorder catchments and tussock area. Yellow tussock is protected by district plan rules, conservation estate, or on south facing slopes and is unlikely to be developed. Orange tussock is vulnerable to improvement.

ORARI-TEMUKA-OPIHI-PAREORA ZONE WATER MANAGEMENT COMMITTEE
FOR THE MEETING OF 13 APRIL 2017

Report for Agenda Item No 11

Prepared by Alexia FosterBohm

Feedback from March Community Engagement

Purpose of Report

To update the Zone Committee on community workshops held in March, one hosted by B+LNZ and one hosted by Environment Canterbury on potential plan changes in relation to hydraulically connected groundwater takes.

Action Required

For the Zone Committee to consider the key messages and feedback when developing solutions and when thinking about future engagement options.

A) Beef + Lamb New Zealand Workshop

On Wednesday night 15th March Beef + Lamb New Zealand invited levy payers predominantly sheep and beef farmers from around the OTOP Zone to hear about the OTOP sub-regional planning process, encourage them to be involved and understand what support they needed from B+LNZ. Approximately 70 farmers attended the workshop based in Fairlie.

This workshop had three key elements:-

- 1) To tell farmers about the planning process that is underway, by introducing the Healthy Catchments Project, the Zone Committees community outcomes, the technical assessment findings and what is ahead of us;
- 2) Farmers from other zones talked about their own experiences and why it is important to be involved in the planning process; and
- 3) To provide farmers with an understanding of how they can be involved and understand what support from B+LNZ they want to enhance that understanding and involvement.

1) Overview of the planning process

Matt Harcombe (Environment Programme Manager) and Julia Beijeman (Environment Policy Manager- South Island) from B+LNZ set the scene by providing a high level overview of the planning process, from the beginning where the Zone Committee worked with the community to establish a set of outcomes, through to the point where the OTOP Zone would have a chapter in the Land and Water Regional Plan (LWRP).

Zone Committee members and Environment Canterbury staff were invited along to provide an overview of the Healthy Catchments Project to date. Dan Clarke provided an overview of the following technical work:

- The key findings from the current state technical assessment
- The key finding from the current pathways (scenario testing)
- What coming up next in terms of scenario testing.

2) Farmers experiences from planning processes in other zones

Two farmers were invited to share their experiences of previous plan changes in the South Canterbury region.

Lisa Anderson spoke first about her experience in the Upper Waitaki Zone. She emphasized the importance of being involved, and advised farmers in the OTOP Zone that:

- “If you are not at the table, you are on the menu, get involved and be a part of the discussion!”
- It’s an intense process but don’t be scared
- Look out for yourself- but keep the big picture in mind
- Keep a clear head- be open to options
- There is potential for great opportunities
- Get to know your ECan reps.

Lisa is now an active member of the Upper Waitaki Zone Committee.

Colin Hurst then spoke about his experience in the South Coastal Canterbury Streams Zone. Colin explained to farmers that there was little sheep and beef engagement during scenario testing and he only realised what was happening right before the ZIP Addendum was approved.

Colin was active in spreading the word to farmers and arranged for approximately 80 farmers to attend a Zone Committee meeting. This meeting resulted in a delay of putting together the ZIP Addendum in order to try and include an agreed primary sector/farmers position on nutrient allocation within the zone. Colin’s advice to farmers in the OTOP Zone was to “get involved early and get your neighbours involved!”

After hearing Lisa and Colin speak, farmers were asked to identify what their opportunities, challenges, ideas and questions were.

Themes that emerged from this feedback session included:

- **Opportunities:** Get involved; better understanding how we can improve our management practices;
- **Challenges:** understanding rules and data; conflict between groups; costs;
- **Ideas:** Farmers complete some water monitoring; tell others about our environmental stewardship; and
- **Questions:** will nitrate loss caps apply to dryland farmers; what is the best allocation method.

Refer to Appendix 1 for summary of feedback.

3) How farmers can be involved and feel supported

The final part of the evening was to promote involvement in the Healthy Catchments Project and to provide options for how farmers could get involved. This included an interactive session to help sheep and beef farmers identify:

- 1) What actions they can take to influence the ZIP Addendum and planning process; and
- 2) What tools and support they need in order to be successful.

Themes that emerged from this feedback session included:

- **Actions:** Attend catchment meetings; tell other farmers to get engaged; on-ground mitigations to prove we are addressing water quality issues; positive efforts put in the newspaper; and
- **Tools/ support:** More science/ data; field days to share information; OVERSEER improvements which can also better reflect dryland farming systems; professional support.

Refer to Appendix 2 for summary of feedback.

4) Key questions raised by B+LNZ

A key question raised by B+LNZ staff members in terms of providing farmers with further support was whether Dan, his team, and other experts could work with farmers in their catchments to help them to understand the trends in science.

Environment Canterbury suggests that we provide more data and information to farmers by engaging through the catchment groups and Zone Committee forum.

B+LNZ are also conscious of how we communicate information to farmers. They believe there are opportunities to make better use of graphics rather than words in order to break down complicated information.

5) Next steps

One of B+LNZ's key messages was that next steps must be farmer driven. B+LNZ will support farmers, but the lead must come from the farmers themselves.

To help farmers take these next steps, B+LNZ are willing to build on the information from the workshop and work to support the farmers, help ECan and the zone committee understand where the best use of resources and information can be made to fully inform farmer participation and get the best outcomes on the ground at a farm, sub catchment and zone level.

As a starting point B+LNZ is considering a 'draft menu' which essentially establishes each of the key steps of the planning process and ways in which:

- B+LNZ can provide support for farmers at each stage
- the Zone Committee will involve farmers at each stage of the process
- How Environment Canterbury staff can support farmers and B+LNZ.

Since the workshop, farmers have already started contacting B+LNZ with practical on ground actions to improve water quality for the Zone Committee to consider in the ZIP

Addendum. B+LNZ will work with these farmers to develop their ideas and asks the Zone Committee to:

- Provide an opportunity for these farmers to present their ideas at a future Zone Committee meeting; and
- Seriously consider the farmers recommendations as part of the ZIP Addendum.

B) Workshops on potential planning changes to hydraulically connected groundwater takes

On Monday 20th March and Wednesday 22nd March, the Zone Committee and Environment Canterbury staff invited hydraulically connected groundwater users in the Opihi and Temuka catchments and Levels and Seadown Plains Area to hear about the effects of shallow groundwater takes on river flows.

In these catchments the method to calculate the rate of stream depletion is based on a 30 day pumping test. Farmers were told that a 7 and/or 150 day calculation is applied to most areas in the Canterbury region (including the Orari and Pareora catchments). These meetings provided technical staff and zone committee members the opportunity to share information and discuss how this may play out in the OTOP Zone.

The session in Geraldine on Monday the 20th had a turnout of approximately 60 people, majority of which came from the Opihi and Temuka catchments and are currently subject to the provisions of the Opihi River Regional Plan (ORRP). Approximately 45 farmers attended the Wednesday night session. Hamish McFarlane (deputy chairman) welcomed farmers and explained that changes to the way that stream depletion is calculated is a potential tool that the Zone Committee will explore to help them achieve their community outcomes.

These meetings were broken up into five key parts:

1. Setting the scene:- introducing the Healthy Catchments Project and the community outcomes
2. Understanding what stream depletion is
3. What the current rules mean vs what Schedule 9 of the LWRP would mean if they were to come into effect
4. What the implications would be for hydraulically connected groundwater users
5. Where to from here:- the OTOP Infrastructure model overview and Opihi catchment demand study, how people can get involved in the Healthy Catchments Project.

A full copy of the presentation can be found on the Healthy Catchments Project website.

Take home messages

The key messages raised throughout the sessions were:

How the plans manage stream depletion

- The Opihi River Regional Plan (ORRP) has a threshold of 5L/s over 30 days and if you trigger that threshold you require a minimum flow and you are treated as a surface water take.
- The Land and Water Regional Plan (LWRP) categorises stream depleting groundwater abstraction based on its calculated degree of connection (direct, high, moderate, or low). Minimum flow restrictions are imposed on abstractors

considered to have a direct or high level of effect on a stream. The 5L/s threshold still applies to stream depleting abstractions with a high degree of effect.

- A 30 day calculation uses your peak pumping over 30 days vs the 150 day calculation which uses a seasonal volume over 150 days (but limited to peak daily).

Matt Smith Examples:

- The calculation is based on your consented rate of take, not your actual use records
- The 150 day example better captures the long term effect of groundwater abstraction on streams
- When you are close to a stream (50m) there is not a dramatic shift from the 30 day to the 150 day assessment as most water will already be considered as surface water. When you are further away from the stream (2000m) there is a dramatic increase in the amount of water that is added to the surface water block
- The allocation counted within surface water blocks may increase and the allocation counted within groundwater blocks may decrease.

Where to from here

- It's important that we show options for new water in parallel with the Healthy Catchments Project technical modelling as the zone committee will be able to progress to a point where they have considered the components of the solutions package
- New contacts will be added to the Healthy Catchments Project contact list and will be informed of any upcoming zone committee workshops.

Concerns and Questions Raised

- The consent holders who attended these meetings drew the distinction between paper allocation versus actual use. For example, a number of consent holders stated that they don't actually abstract what they are consented to abstract, and could they surrender a portion of their water to alleviate their stream depletion effect and avoid a minimum flow.
- Landowners also expressed this should come with a proviso that any water surrendered for this purpose should not be reallocated to existing / new abstractions, but should stay in the river to improve the reliability for other abstractors;
- Existing water users also want to know that water is going to stay in the rivers to protect other values (ecological and cultural) if their reliability is going to drop.
- With regard to "new water" questions were raised around substituting their stream depleting takes for deep groundwater
- Annual volumes not being determined on actual use
- Concern about the Schedule 9 regime applying immediately, or whether it could be implemented through a staged approach, or would apply on change or renewal of an existing resource consent.

C) Healthy Catchments Project Scenario's 2+ 3 Community Workshops

Back in January, dates for Scenarios 2&3 were set for April. We can now confirm that there will be a delay due to the following reasons:

A large amount of technical work has been completed over recent years, this includes the Healthy Catchments Project and the Infrastructure projects. To ensure that the scenarios capture all of this work and are consistent, we need to delay, as a key piece of modelling has not yet been finished. The option of presenting without this information would mean that the engagement would be on incomplete information and this could affect the decisions made by the zone committee.

A verbal update will be given at the meeting

Orari-Temuka-Opihi-Pareora Catchment Project

Report to Zone Committee

24 March 2017

Progress

A number of activities have been held over the last period although some catchment groups haven't held meetings, instead waiting for the next round of Healthy Catchments meetings.

- 26 Jan- ECan/Janet Gregory; discussion on transition of project
- 2 Feb; Orari Catchment Group with Rhys Taylor, 13 attended
- 16 Feb; Introduction to Irrigation field day at Seadown Rd. 6.30pm with BBQ, run in conjunction with Lower Opihi Catchment Group. 24 attended.
- 27 Feb; Kakahu Catchment Group meeting, with Kennedy Lange talking about Wainono Lagoon Restoration.
- 28 Feb; deer industry Advance Party regional workshop at Clayton Station, Fairlie promoting GMP for deer.
- 1 March, Facilitators meeting to discussion last stages of project, planned activities and identify support needed to continue with catchment groups
- 1 March; Waihi & Te Moana Catchment Group field visit to Barkers Ck/Waihi Stream, Bennett's and McKeown's deer and beef farms and Te Moana and Waihi River management. 10 attended. Shirley Hayward and Hillary Fraser involved.
- 8 March; FEP workshop, Woodbury, 10 farmers attended.
- 15 March- B+LNZ/ECan, hosted farmer meeting to discuss importance of being involved in Healthy Catchment Project meetings, prior to next round of HCP meetings. 70 people attended.
- 15 March, NZ Landcare Trust hosted National GMP workshop at Christchurch with sector groups, catchment farmers, regional councils and central government.
- 17 March, Te Ngawai field trip looking at the river system; Te Ana Rock Art Centre guide to view special sites; Bats and their habitat requirements; GMP on farms; and benefits of farm environment plans.
- 23 March; Dairy NZ event to promote wintering programme.

Activities planned for next period

- 31 March; Biodiversity Smart map information, first draft of information from Mike Harding. Incorporate into ECan GIS system.
- Print catchment flyers
- Final report.

Catchment Groups

Caleb Strowger has resigned from Dairy NZ and so a meeting was held with Opuha and Upper Opihi catchment groups, where they agreed to combine, and have Julia Crossman as their facilitator. They recognise that sometimes they will have different issues.

The Lower Opihi Catchment Groups will continue as a group for dispersing information but will focus on providing information into the Healthy Catchments Project and Nicki Pridham will continue to be their link.

The Lower Orari group is also looking for a new facilitator as Sue Ruston has left Fonterra. Rhys is assisting them in the meantime.

All other groups have agreed to continue with the present facilitators.

Catchment Group flyers

Last adjustments for some flyers are being completed with Kakahu and Opuha ready for printing. This series of flyers for the catchment groups will be circulated in the local community and used to promote what they are doing.

National GMP Workshop

This is scheduled for 30 March and planned for Christchurch to allow for easier logistics.

The aim is to have representatives from catchment groups, industry bodies, agribusiness, regional councils and central government attend.

Discussions will focus on what is happening on farms, implementation programmes, auditing programmes and ways we can improve adoption.

Key learnings included

- Farmers need to drive catchment groups and involve wider community
- Communities need to know what the water quality is in their catchment to aid engagement
- Funding and support is required to support catchment groups long term
- There are lots of GMP written resources across the sector groups
- Need to continue discussions to see where we can work collaboratively on common issues supporting farmers and catchment groups to improve GMP adoption and improvement in water quality.

Biodiversity Smart map

Mike Harding is working on information for the proposed Smart map, outlining different habitat types that can be found in different landscapes in the zone, then stating what species are likely to be found there and management options. It will use a lot of photos as well. The first draft of information will be made available to us by 31 March and we are working closely with Robert Carson-Iles from ECan and GIS staff.

Janet Gregory
South Island Team Leader
NZ Landcare Trust