KAIKOURA ZONE WATER COMMITTEE MEETING HELD AT 12.30PM ON WEDNESDAY 24 FEBRUARY 2016 AT MEMORIAL HALL SUPPER ROOM, ESPLANADE, KAIKOURA.

AGENDA

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2. Apologies	
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	Karakia	
	E Te Atua	O Lord
OPENING	Tiakina teora	Guard our wellbeing
KARAKIA (one)	Manaakitia mai te oranui	Bless us
	Homai he kakano kiatipu ake ai	Give us a seed so that it may grow
	Tiakina teora	Guide and protect us
	E Te Atua	O Lord
	Amene	Amen
	E Te Atua	O Lord
OPENING	Manaakitia mai mātou	Bless us
KARAKIA (two)	E kimi nei i tenei taonga	Seeking this treasure
	mo te hapori o Kaikōura	For the community of Kaikōura
	Amene	Amen
	Kia a tau kia tatou katoa,	Let it be with us all
CLOSING	te atawhai o to tatou Ariki a Ihu Karaiti	The grace of our Lord Jesus Christ
KARAKIA	Me te aroha o te Atua	The love of God
	Me te whiwhinga tahitanga	The fellowship
	ki te wairua tapu	Of the Holy Spirit
	Ake	Forever more
	Amene	Amen

AGENDA ITEM NO: 6	SUBJECT: Immediate Steps				
REPORT TO: Kaikōura Wate	r Zone Committee DATE OF MEETING: 24 February 2016				
REPORT BY: Jess Hill, Biodiversity Officer					

Purpose

To update the Zone Committee on the progress of approved Immediate Steps projects.

Recommendation

That the Zone Committee receives this update and support funding the three new Immediate Steps Projects.

Funding

The Zone Committee has \$100,000/year for five years. To date 16 projects have been funded by Immediate Steps. The total amount committed to projects to date is just over \$383,420 leaving approximately \$116,580 of IS funds yet to allocate given a \$500,000 (5 year) funding programme. Regionally, the Immediate Steps programme has been extended by another year, therefore, the Kaikōura Zone Committee has until the end of June 2016 to allocate the original \$500,000 worth of Immediate Steps funds.

Applications for Funding

The Zone Committee has received **three new applications** for funding for approval at this meeting. The total funding requested is \$14,568 funds.

Project 1:

Project Name	Funds Requested from the Zone Committee	Funds Provided by Other Sources	Total Fund
Smith Lyell Creek Planting Stage 2	\$5,678	\$6, 720	\$12,398

Project Aim:

Restoration of the riparian margins of Lyell Creek.

Project Summary:

The current project is a native planting project on Lyell Creek. The project site supports several native fish species such as the short-fin eel, long fin eel and torrent fish. The current project looks at protecting/restoring the riparian margin, associated springs, drainage tributaries and a wet/boggy area.

This project is a natural extension of Smiths Lyell Creek Stage One Immediate Steps Project, which received \$4,700 of Immediate Steps funding, with a total project cost of \$13,225. The stage one plantings are thriving and are well established, providing excellent stream shade along the riparian margin as shown in image one below.

The project is an excellent stream-side restoration project along Lyell Creek with willing landowners, which has received a low-moderate ecological score of 16/39 (41%).





Left: Completed riparian plantings at Smiths Lyell Creek Stage 1. Right: Section of Lyell Creek to be restored as part of the proposed project.

Proposed activities:

- 1. Stock proof fencing
- 2. Planting of native eco-sourced plants
- 3. Ongoing maintenance

Outcomes sought:

Increased native riparian vegetation cover within the riparian margin of Lyell Creek and the associated spring-fed wetland and drainage area.

Ecological score: 16/39 (41%)

Project 2:

Project Name	Funds Requested from the Zone Committee	Funds Provided by Other Sources	Total Fund
Lyell Creek – Fonterra Restoration	\$3,230	\$2,438	\$5,668

Project Aim:

To restore and enhance the riparian zone of Lyell Creek.





Photos of the project site, Lyell Creek – Fonterra Restoration. Note the width of the riparian margin to be planted.

Project Summary:

This project requests \$3,230 of Immediate Steps Funding, for a stream-side restoration project on a tributary of Lyell Creek. Native fish species, such as the short and long fin eel have been recorded upstream of the project site. This project is a joint initiative between the landowner, Fonterra and Environment Canterbury staff. The local Fonterra staff will assist with the planting day, while the landowner will undertake the fencing, site preparation, and ongoing maintenance for three years. The project has received a low-moderate ecological score of 12/39 (31%).

Like all riparian planting projects, the proposed project occupies a small area of the Lyell Creek catchment. However, this project aligns well with the Zone Committee's larger objectives and vision to restore Lyell Creek, along with an extremely willing landowner and a generous set-back distance with the riparian margin (4-5 m). This is a great restoration project, requesting a small amount of Immediate Steps Funding.

Proposed activities:

- 1. Stock proof fencing.
- 2. Native, eco-sourced riparian planting.
- 3. Ongoing maintenance.

Outcomes sought:

Permanent stock proof fencing to exclude stock from Lyell Creek.

Planting of the riparian zone to provide stream shade and filter runoff from the surrounding land.

Ecological score: 12/39 (31%)

Project 3:

Project Name	Funds Requested from the Zone Committee	Funds Provided by Other Sources	Total Fund
Waimangarara River Restoration Project	\$5,660	\$4,260	\$9,920

Project Aim:

To restore the terrestrial vegetation present along the banks of the Waimangarara River



Native forest surrounding the Waimangarara proposed planting area which is currently exotic pasture grass.

Project Summary:

This project is a native planting project, proposed by Forest and Bird members in the Waimangarara River catchment. The funding requested is \$5,660 for the purchase of native eco-sourced plants, combiguards and some labour assistance from a specialised contractor.

The Waimangarara River is a special ecosystem, because along with the Kowhai River it contains some of the few remaining examples of native forest on aggraded river gravels in the eastern South Island. The Waimangarara River reserve contains a range of native, mixed and exotic vegetation (and weed species). The native vegetation present is primarily dominated by Kanuka and some broad leaf species such as Five-finger, Ngaio, and Pittosporum. The Waimangarara also provides important habitat for native birds and invertebrates. Although the planting sites are dominated by exotic grasses, there is native vegetation around the periphery of all sites. Overall the proposed project has received a low-moderate ecological score of 14/39 (36%).



Looking north over the proposed planting site. The planting site is currently dominated by grass, the native forest along the Waimangarara River can be observed in the background.

Proposed activities:

- 1. Native eco-sourced planting
- 2. Ongoing maintenance

Outcomes sought:

Intact, dense native bush along the banks of the Waimangarara River

Ecological score: 14/39 (36%)

AGENDA ITEM NO: 7	SUBJECT: Kaikōura Zone monitoring results 2014-15				
REPORT TO: Kaikōura Wate	r Zone Committee DATE OF MEETING: 24 February 2016				
REPORT BY: Kimberley Robinson, Ecology Scientist (II), ECan					

PURPOSE

To provide more detail on water quality and ecosystem health monitoring results in the Kaikōura zone from 2014-15.

ACTION REQUIRED

- Committee members receive the summary of monitoring information.
- Committee members recommend these monitoring results be part of the knowledge base that
 informs sub-regional planning in Kaikōura and also to inform decisions on any intervention
 projects to improve water quality and/or ecosystem health.

BACKGROUND

The Canterbury Water Management Strategy (CWMS) Targets Report (2015) gives an overview of monitoring results across Canterbury. This paper presents more detail on the results from water quality and ecosystem health monitoring in the Kaikōura zone.

WATER QUALITY INDEX

The water quality index used in the CWMS targets reporting is used to summarise routine physical and chemical water quality results into five-categories for river or stream sites. The water quality index compares raw water quality data to recommended water quality guidelines; taking into consideration the number of parameters that don't meet water quality guidelines, the frequency these guidelines are not met, and by how much to derive a score from 1-100. This score is divided into five categories and ranked to give a single grade from very poor to very good.

The water quality index is intended to provide a summary of key water quality parameters; however it does not provide a detailed analysis of water quality data and should be used only as an indicator of overall water quality. Parameters included in the index are: nitrate-nitrite nitrogen, ammonia-nitrogen, dissolved inorganic nitrogen, dissolved reactive phosphorus, total suspended solids and *Escherichia coli*.

Table 1: Water quality index for sites in the Kaikōura zone

Station	2008-2010	2009-2011	2010-2012	2011-2013	2013-2014	2014-15
Blue Duck Creek Above SH1	Poor	Fair	Fair	Fair	Poor	Fair
Clarence River above mouth				Very Good	Very Good	Very Good
Clarence River at Molesworth Station				Very Good	Very Good	Very Good
Hapuku River SH1	Very Good	Very Good	Very Good	Good	Very Good	Very Good
Kahutara River Above Ford Dairy Farm	Fair	Good	Good	Good	Poor	Very Good
Kowhai River SH1	Very Good	Very Good	Very Good	Very Good	Fair	Very Good
Okarahia stream SH1	Fair	Good	Good	Good	Good	Good
Lyell Creek SH1	Poor	Fair	Fair	Fair	Fair	Good
Lyell Creek Lagoon	Poor	Fair	Fair	Fair	Good	Fair
Lyell Creek Mills Road	Poor	Fair	Fair	Good	Good	Fair

Middle Creek Beach Rd	Poor	Fair	Fair	Fair	Poor	Poor
Warren Creek Rorrisons Road	Poor	Fair	Fair	Fair	Good	Good

In general there has been an improvement in the water quality index during this past year. Low rainfall conditions during 2014-15 meant run-off and land drainage containing water quality contaminants was limited.

LAKE TROPHIC LEVEL INDEX (TLI)

Canterbury lakes are monitored for water quality parameters including, but not limited to, nitrogen, phosphorus and chlorophyll a. These three parameters are combined into a single index: the trophic level index (TLI).

The TLI scores are categorised onto different trophic states (see table below). In very general terms the higher the TLI the poorer the water quality.

Table 2: Description of trophic states

TLI	Tropic state	General Description
<1	Ultra-microtrophic	practically pure, very clean, often have glacial sources
1-2	Microtrophic	very clean, often have glacial sources, very low nutrient enrichment
2-3	Oligotrophic	clear and blue, with low levels of nutrients and algae
3-4	Mesotrophic	moderate levels of nutrients and algae
4-5	Eutrophic	green and murky, with higher amounts of nutrients and algae
5-6	Supertrophic	very high nutrient enrichment and high algae growth
>6	Hypertrophic	saturated in nutrients, highly fertile, excessive algae growth

Lake Rotorua, located near the Kahutara River is generally considered to be of supertophic-hypertrophic state, typical of high nutrient enrichment and excessive algal growth. Small lakes like Lake Rotorua can be greatly affected by warm summers and wind action. The shallow nature of Lake Rotorua means the lake is frequently mixed, and nutrients settled out in sediments are re-suspended. Algal blooms including cyanobacteria species are common in Lake Rotorua, which are supported by elevated nutrient concentrations. These cyanobacteria blooms are often considered potentially toxic to humans and animals, and a permanent public health warning is advised for this lake.

Table 3: Trophic level index for lakes monitored in the Kaikoura zone

Location	2009	2010	2011	2012	2013	2014	2015
Lake Rotorua	8.00	7.54	7.78	7.93	6.98	6.78	7.37

CONTACT RECREATION

The microbial quality of popular swimming sites around Canterbury is assessed each summer. Freshwater (rivers and lakes) and coastal (beaches and bays) sites are monitored each year to assess baseline conditions, trends and public health risks from contact recreation. This monitoring consists of the routine weekly collection of a water sample from each site, with the water then analysed for faecal indicator bacteria concentration. The results are reported to Public Health agencies and Territorial Local Authorities (TLAs) at the end of the bathing season. During the bathing season, results that exceed single sample guidelines are reported as soon as possible to the relevant Public Health agency and TLA

environmental health staff. In addition, the results are reported on Environment Canterbury's website, which is updated daily with the most recent results.

Site	2008/09 SFR Grade	2009/10 SFR Grade	2010/11 SFR Grade	2011/12 SFR Grade	2012/13 SFR Grade	2013/14 SFR Grade	2014/15 SFR Grade
Lyell Creek Lagoon	Very Poor						
Kahutara River at SH1	Fair*						
Mangamaunu Beach	Fair	Good	Poor	Poor	Very Good	Very Good	Very Good
Gooches Beach	Good	Good	Good	Good	Fair	Fair	Fair
Armers Beach	Poor	Fair	Fair	Fair	Fair	Fair	Fair
South Bay Beach	Good						
Peketa Beach		Good	Good	Good	Good	Good	Good

^{*} excludes rainfall data

Any site graded fair or better is considered suitable for contact recreation. Lyell Creek Lagoon is consistently graded very poor, therefore is not considered suitable for recreation. The Kahutara River at SH1 is generally suitable for recreation, with the provision that the site may not be suitable for up to 48 hours following rainfall. All marine sites are considered suitable for recreation.

ECOSYSTEM HEALTH

Aquatic ecosystem health is measured by what is living in a stream. Invertebrates are a good indicator of aquatic health because they live in the water throughout the year and respond over time to changes in water quality, surrounding land use and their physical habitat.

Different invertebrates have variable responses to water and habitat quality. Some species are more sensitive to degraded habitat and water quality and are therefore more likely to suffer from degradation; however other species are more tolerant and likely to be present in abundance when habitat and water quality is compromised. Analysis of the invertebrate data considers the numbers and types of taxa that are sensitive or tolerant to degraded water and habitat quality (Figure 1).



Figure 1: The invertebrate community gradually changes in response to degrading conditions. Invertebrates that are present in healthy streams are more sensitive to changes in water and habitat quality, than those that inhabit unhealthy streams

In general, spring-fed plains and urban streams which are often draining catchments dominated by either agricultural or urban land use often have the poorest stream health (e.g., see Fig 2). While in comparison alpine and hill-fed rivers have healthier macroinvertebrate communities. Changes in

macroinvertebrate health are typically related to changes to stream habitat, water quality and/or water quantity. For example, elevated nutrient (e.g., nitrogen and phosphate) inputs may affect stream macroinvertebrates through toxicity, excessive aquatic plant growth leading to oxygen depletion and channel choking, or sediment entrapment. Stream health may also be influenced by stock access to the stream and bank erosion.

River flow is also a strong influencing factor on macroinvertebrate health. For example in dry years low flows can limit the macroinvertebrate community and favour certain taxa due to their greater tolerance for instream conditions such as warmer water temperatures or excessive periphyton growth. In contrast, higher flows help keep water temperatures down, prevent the build-up of fine sediment and streambed periphyton and generally result in a greater range of instream habitat for macroinvertebrates. However, flood flows may temporarily reduce macroinvertebrate diversity and abundance due to displacement and mortality. Macroinvertebrate community composition is not typically driven by one factor but a variety of factors over time.

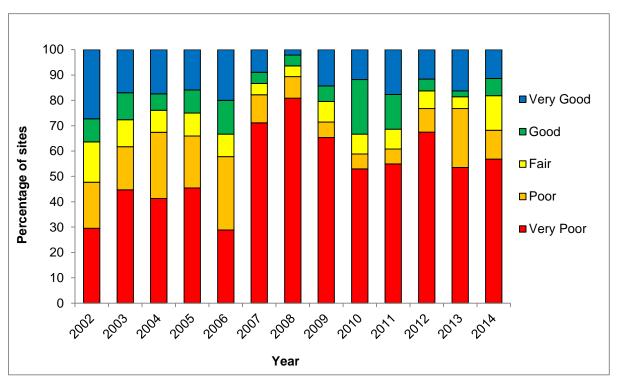


Figure 2: Grades for spring fed and urban streams across the region from 2002 to 2014. N.B. the year 2014 denotes the summer of 2014-15.

There are 14 long-term aquatic ecosystem health (AEH) sites within the Kaikōura zone, with alpine-fed, hill-fed and spring fed plains and urban flow types represented. Figure 3 shows the location of the monitoring sites, and stream macroinvertebrate and habitat health grades calculated for the 2014/2015 season. It is not uncommon for ecosystem health to vary between sites or over time within sites.

We used a time trend analysis to look for patterns in macroinvertebrate health grades calculated over time. Of the sites analysed we found three significant trends. A significant positive trend was detected for the hill-fed Blue Duck Stream, and perhaps more notably also at two spring-fed plains streams,

Warren Creek and Lyell Creek, indicating that there has been an improvement in macroinvertebrate health over time.

Generally health of macroinvertebrates and habitat is better towards the head waters of streams and rivers. This is probably due to less intense use of land in the foothill area and a high degree of native vegetation.

The difference between the health of habitat and macroinvertebrate indicates that water quality or quantity may also be degrading macroinvertebrate community health. However, in general the main causes of poor ecosystem health are:

- high sediment inputs to the low gradient streams as a result of stock access and run off,
- lack of intact riparian vegetation,
- excessive in stream plant growth as a result of high nutrient inputs, reduced or intermittent flows for significant portions of the year
- low or intermittent flows.

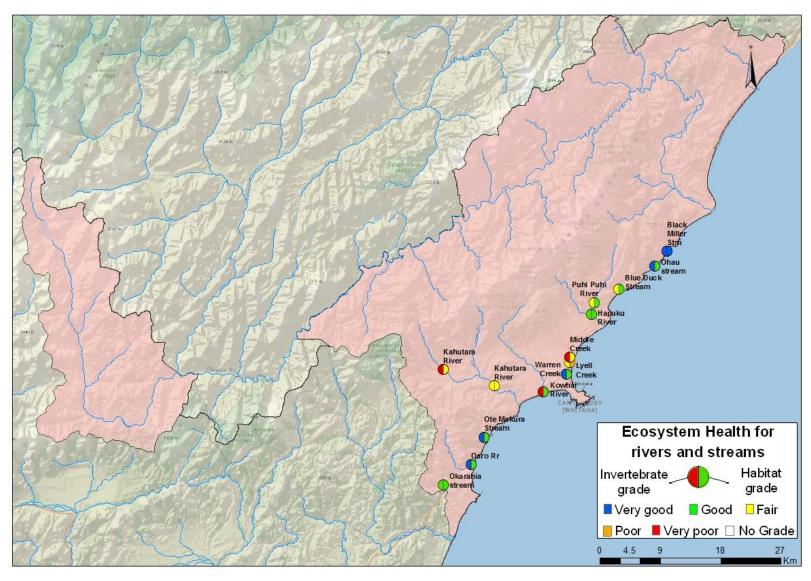


Figure 3: Map of the Kaikōura CWMS zone, showing macroinvertebrate and habitat health grades for the 2014/2015 season at 14 sites.

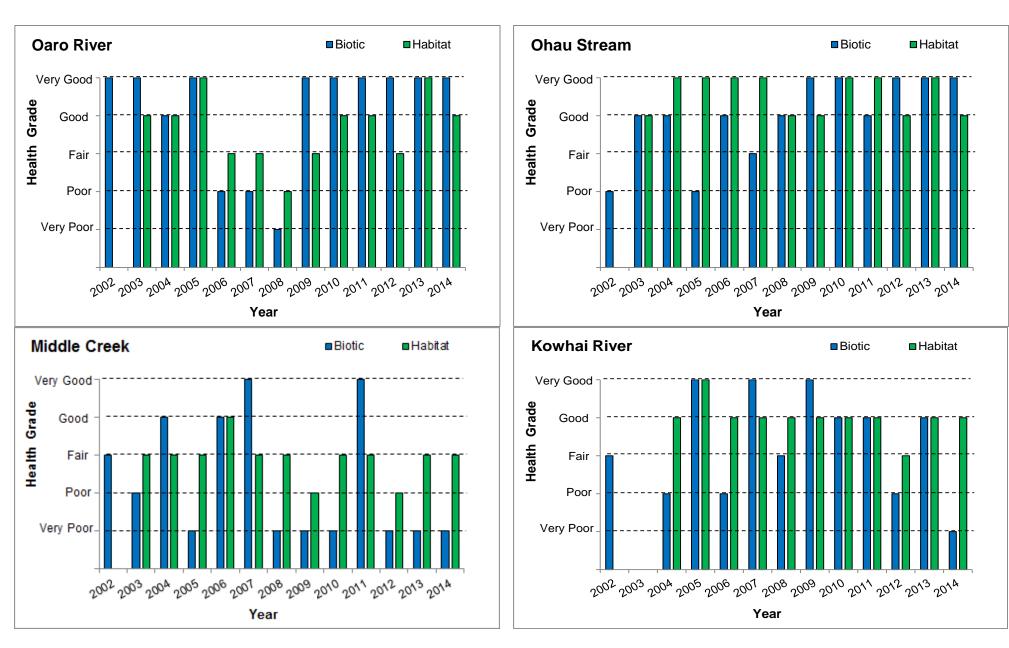
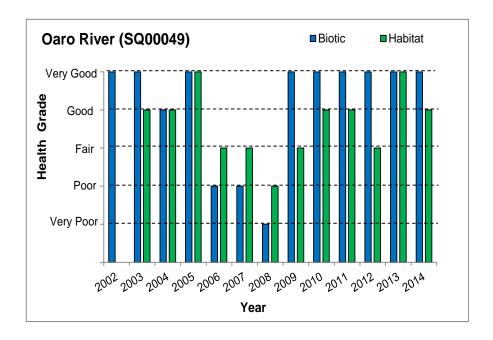
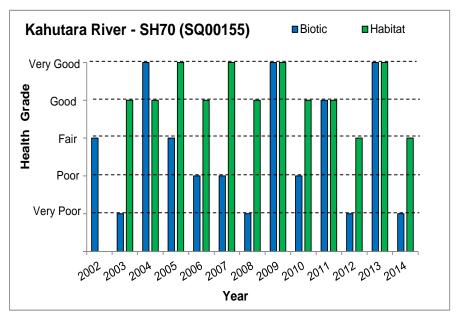
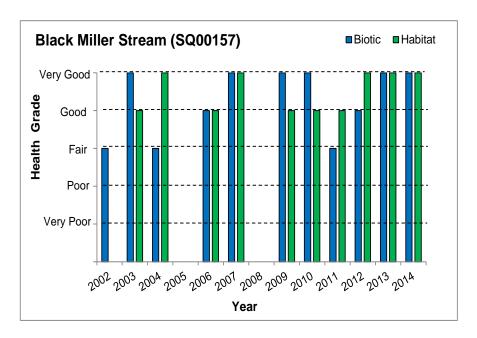


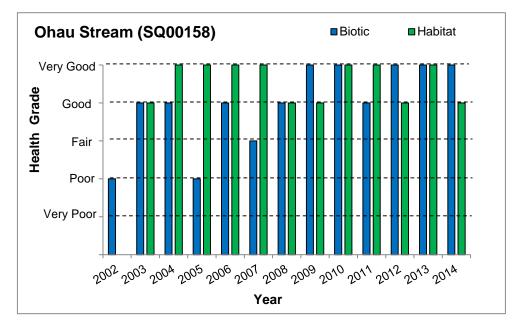
Figure 4: Selected sites from Kaikoura CWMS zone, showing variation over time in both biotic (invertebrate) and habitat grades.

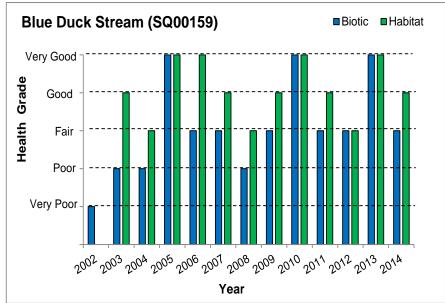
Appendix 1.2: Graphs showing macroinvertebrate (biotic) and habitat grades from 2002 to 2014 for the routinely monitored sites within the Kaikōura CWMS zone.

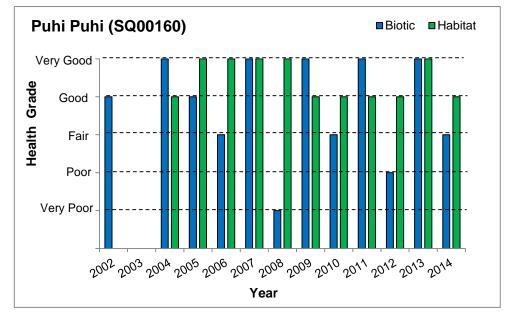


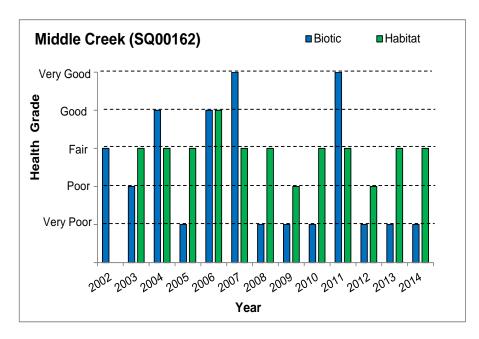


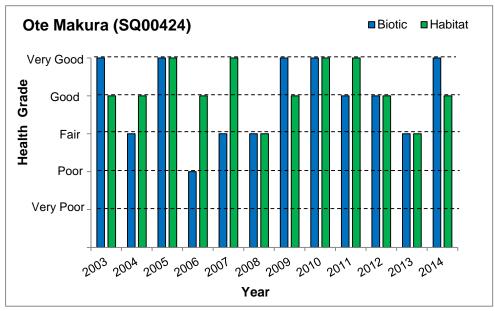


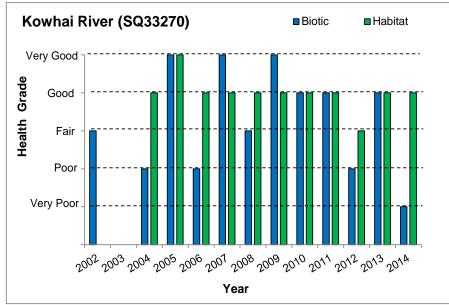


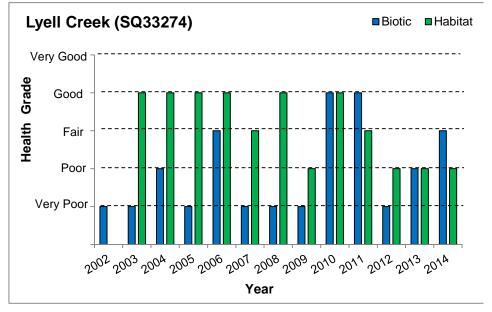


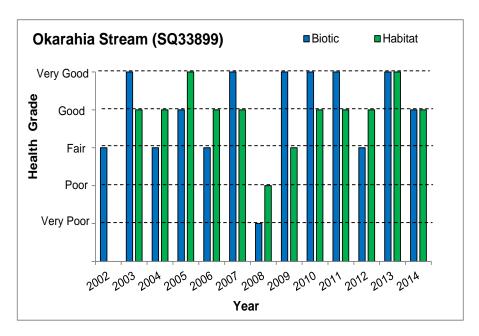


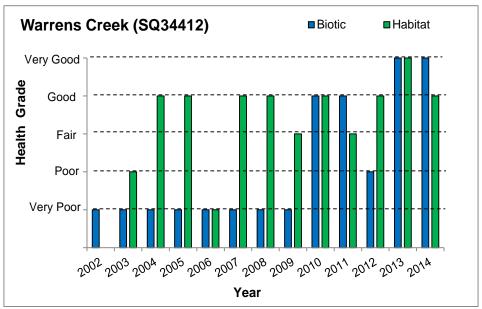


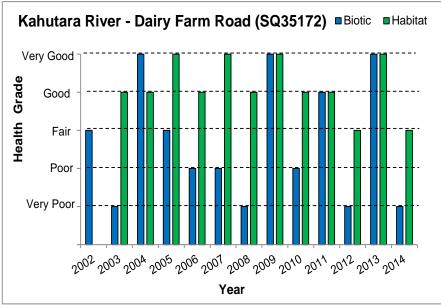


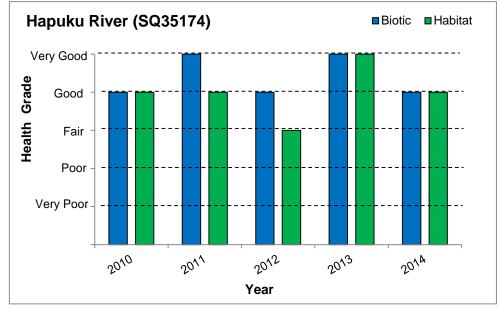












AGENDA ITEM NO: 8	SUBJECT: Committee Updates				
REPORT TO: Kaikōura Wate	r Zone Committee	DATE OF MEETING: 24 February 2016			
REPORT BY: Murray Griffin, Zone Facilitator					

PURPOSE

The purpose of the agenda item is to provide the Committee with an overview of updates to be tabled.

COMMITTEE UPDATES

The following updates will be addressed with the committee:

Action Points from previous meetings – an updated list of action points will be tabled.

Working Group Updates

- Nutrient Management & Water Efficiency Chloe Armour has provided a copy of the meeting notes from the 28 January meeting (as agenda item 8-1). Chloe will also provide a verbal update on the Farm Environment plan workshops held in Kaikōura on 15 and 16 February.
- Love the Lyell/Waikōau Chloe Armour will provide a verbal update on the 23 February Working Group meeting.
- Regional Committee Matt Hoggard has provided a summary of the Regional Committee meeting, held on 9 February, which is included as agenda item 8-2.
 To review the February 2016 Regional Committee agenda papers, please follow the following link: http://ecan.govt.nz/publications/Council/reg-cttee-20160209.pdf

Zone Committee Chair and Deputy Chair Appointments for 2016

With the 2015 Committee refreshment now completed the Committee will elect/confirm its Chair and Deputy Chair for 2016, please refer to **agenda item 8-3**.

• Kaikōura Water Zone Committee Annual Report 2015

The final version of the inaugural Annual Report for the Water Zone Committee will be tabled for the committee to review at this meeting. From here on, all Zone Committee's will have annual reports prepared to be presented to their Local Authorities and then made available for the public.

Next Community Newsletter

The proposed stories in the next Community Newsletter will be discussed with the committee.

RECOMMENDATIONS

The Zone Committee are asked to receive these updates for their information, and with reference to the committee's 5 Year Outcomes and 2016 work programme priorities.

AGENDA ITEM NO: 8–2 SUBJECT: Regional Committee Update

REPORT TO: Kaikōura Water Zone Committee DATE OF MEETING: 24 February 2016

REPORT BY: Matt Hoggard, CWMS Regional Committee Representative – Kaikōura

Summary of 41st Regional Water Management Committee for Kaikōura Zone Committee

Items of interest

Item 6 - Ecosystem Health and Biodiversity

Discussions presently occurring on the opportunities for biodiversity to be included in Farm Environment Plans (FEPs) and potential for collaboration with primary sector over plantings to provide shade and shelter.

Such issues may be addressed in sub-regional plans as opposed to district plans. Intention would be to ensure biodiversity is seen as an asset as opposed to a liability.

Policy direction is very high level and fresh at this time, but could present some very good opportunities for Kaikōura.

Item 7 - Financing Environmental Infrastructure

The Funding Working Group Report discussed ensuring projects with environmental benefits are bankable.

It was agreed that some large scale projects, which provide environmental benefit, may not be able to be financed. There was a discussion on environmentally beneficial infrastructure and whether it should be funded at a regional level. It was considered that in some circumstances this would be appropriate.

The final structure of when funding should be considered was not resolved with the Working Group to review how funding should be addressed in relation to consenting requirements.

The following was agreed:

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

Those elements of a project:

- 1. Delivers significant, demonstrable ecological social cultural benefits over and above the alternative including doing nothing.
- 2. Requires only a one off capital investments
- 3. Is a cost-effective way to achieve goals
- 4. Benefits a group wider than the immediate users
- 5. Contributes to achieving other government policies or strategies, if relevant
- 6. Address a legacy issues, if relevant"

Item 9 – Swimming Report Scope

A report will be produced looking at swimming in Canterbury. The scope of the report was discussed. The key focus was looking at where people do and prefer to swim and barriers to swimming.

Item 10 - Regional Pest Management Review

Discussion document is presently out for consultation, feedback closes on 28 February 2016. http://ecan.govt.nz/get-involved/have-your-say/Pages/canterbury-regional-pest-management-strategy-review.aspx

Item 12 Review CWMS Measures and Indicators

A desk top review of the 2020 measures and indicators will occur. This is not a review of the ten CWMS targets but rather focus on the measures and indicators used to track progress against the 10 CWMS targets.

AGENDA ITEM NO: 8–3	SUBJECT MATTER: Appointments of Chairperson & Deputy for 2016				
REPORT TO: Kaikōura Wate	r Zone Committee	DATE OF MEETING: 24 February 2016			
REPORT BY: Murray Griffin, Zone Facilitator					

PURPOSE

The purpose of the agenda item is to assist the Zone Committee in the process of appointing a Chairperson and deputy Chairperson for 2016.

These appointments are in accord with the Zone Committee's Terms of Reference, which state that the committee make these appointments each year as part of the committee's refreshment process.

Both the current Chairperson (Ted Howard) and the Deputy Chairperson (Matt Hoggard) are happy to continue in these roles for 2016 should the committee be agreeable to this and there are no other nominees for these positions.

Should there be more than one nominee for either of these positions the appointment process shall be undertaken by a simple ballot vote.

RECOMMENDATION

That the Zone Committee appoints a Chairperson and Deputy Chairperson for 2016.