

ASHBURTON WATER MANAGEMENT ZONE COMMITTEE AGENDA

A **Meeting** of the Ashburton Water Management Zone Committee will be held as follows:

DATE: Tuesday 23 May 2023

TIME: 1:00 pm

VENUE: Staveley Camp, 133 Sawmill Road, Staveley

MEETING CALLED BY: Hamish Riach, Chief Executive, Ashburton District Council
Stefanie Rixecker, Chief Executive, Environment Canterbury

ATTENDEES: Chris Allen
Adi Avnit
Clare Buchanan
Angela Cushnie
Genevieve de Spa
Bill Thomas
Sidinei Teixeira
TBC (Te Runanga o Arowhenua)
Arapata Reuben (Te Ngai Tuahuriri Runanga)
Les Wanhalla (Te Taumutu Runanga)
TBC (Tangata Whenua Facilitator)
Councillor Richardd Wilson (Ashburton District Council)
Councillor Ian Mackenzie (Environment Canterbury)
Mayor Neil Brown (Ashburton District Council)

Zone Facilitator

Dave Moore

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Environment Canterbury

Committee Advisor

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Ashburton District Council

Tangata Whenua Facilitator

TBC

Environment Canterbury



Ashburton Zone Committee Meeting

Tuesday 23 May 2023

Meeting Commences: 1.00pm

Order of Business

- 1 Welcome, Karakia
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4 Register of Interests

Chris Allen	Farm owner of sheep, beef, lambs, crop Water resource consents to take water from tributary of Ashburton River and shallow wells Member of Ashburton River Liaison Group
Adi Avnit	Mid Canterbury Community Vehicle Trust - Treasurer
Clare Buchanan	Head of Environment & Innovation at Align Farm Align Farms holds an irrigation resource consent to take water from shallow wells hydraulically linked to the Ashburton river Align Farms holds MHV water and Fonterra Shares Align Farms suffered significant flood damage on their support block
Neil Brown	Mayor Acton Irrigation Limited - Director Irrigo Centre Limited - Director Acton Farmers Irrigation Co-operative Limited - Director Browns Farm Limited – Director and Shareholder
Angela Cushnie	Owner of Country Copy, a communication and promotion business based in Mid Canterbury Freelance writer for Latitude Magazine Kanuka Mid Canterbury Regeneration Trust - Trustee Hinds Reserve Board Committee member Mid Canterbury Catchment Collective - Coordinator
Genevieve de Spa	Owner of Kakariki Camps focusing on ‘Head, Hands, Heart’ approach to biodiversity education Contractor and member of Staveley Campsite Committee (Previous recipient of Immediate Steps Funding) Rakaia Environmental Enhancement Trust
Ian MacKenzie	Environment Canterbury Councillor
Arapata Reuben	Trustee – Tuhono Trust Trustee – Mana Waitaha Charitable Trust Member - National Kiwi Recovery Group Rūnanga Rep – Christchurch – West Melton Water Zone Committee
Bill Thomas	Farm owner of Longbeach Estate Ltd (sheep, beef, lambs, arable, dairy) Member of Eiffelton Irrigation Scheme Hekeao/Hinds Water Enhancement Trust – Settler Director of Longbeach Estate & Longbeach Dairies
Sidinei Teixeira	Chemistry Teacher at Christ’s College Masters student at Lincoln University Studying Masters in Water Resource Management Intern at MHV Water (groundwater scientist) Past Head of Scient at Mt Hutt College Passionate about use of natural resources sustainability
Les Wanhalla	Returning good health and mauri O Te Waihora/Lake Ellesmere Kaitiakitanga, Whakapapa Rugby league, life member, honorary south Kiwi Trustee – Central Plains Water for Selwyn District Council
Richard Wilson	

5 Confirmation of Minutes

Unconfirmed Minutes

Minutes of a meeting of the **Ashburton Water Management Zone Committee** held on Tuesday 28 March 2023, commencing at 1.00pm in the Council Chamber, 137 Havelock Street, Ashburton.

Present

Councillor Richard Wilson, Chris Allen, Adi Avnit, Clare Buchanan, Angela Cushnie, James Meager, Sidinei Teixeira, Bill Thomas (Chair) and Les Wanhalla

In attendance

Environment Canterbury: Dave Moore (Facilitator), John Benn (DOC) and Carol McAtamney (minutes)

2 members of the public in attendance

1 Welcome

Dave Moore opened the meeting with a Karakia.

2 Apologies

That apologies for absence be received on behalf of Mayor Neil Brown, Councillor Ian Mackenzie and Genevieve de Spa and for lateness on behalf of Chris Allen.

Meager/Buchanan

Carried

3 Extraordinary Business

Nil.

4 Register of Interests

Nil.

5 Confirmation of Minutes

That the minutes of the Ashburton Water Management Zone Committee meeting held on 24 January 2023 be taken as read and confirmed.

Avnit/Buchanan

Carried

6 Correspondence

Inward:

Nil.

Outward:

Nil.

7 Public Contributions

Nil.

8 Boundary Drain Variable Flow Trial – Five Year Review

Adrian Meredith, Kimberley Dynes, Maria Captein

Outline

- Background to the trial and hinds drains context
 - Hinds drains Working Party Established in 2014
 - Identified 4 drain series
- Summary of monitoring data

- Assessment of Flow Trial Environmental Objectives
- Other considerations for the trial in 2023
- Review by Te Rūnanga o Arowhenua
- Next Steps

Chris Allen joined the meeting at 1.23pm

Key Messages

- Only two years of the 5 year trial were relevant to the new flow regime.
- Fish migration and recruitment, spawning, and habitat outcomes of the Boundary drain Variation Flow Consent trial were 'maintained' but in a poor condition – not enhanced.
- Flow variability alone is unlikely to only controlling factor of maintaining fish migration, recruitment, spawning or available habitat.
- The survivability of fish populations may be influenced by lack of preferred habitat, the effects of poor water quality and/or a limited macroinvertebrate food source.

Next steps

- Consent application – continuation of trial? Same monitoring or new emphasis?
- Any adjustment to the flow regime?
- Habitat enhancements an integral step
- Water quality improvements must be a factor
- Parallel processes (Nitrate reductions, enhancements) – gains will be made in parallel
- Cultural monitoring
- Incorporation of Runanga's comments into future trial
- Overall 'health' of the waterway – Te Mana o te Wai

9 Social Media Guidelines

Kim Whitwell

Discussions were held on best practices of communicating and engaging with the community across all of the Zone Committee Action Plan priorities and specifically to the Action Plan objective.

An approach is to be made to the ADC to see if there is a willingness for Zone Committee updates to be included on their Facebook page and other media outlets, to enable a more local focus to be publicised.

10 Committee Updates

Upcoming events:

31 March: South Zone Committees Hui, Waihao Marae Morven

1 May: Rakitata Revival Field Trip

23 May: Meeting/working bee at Staveley Camp

11 Mid Canterbury Catchment Collective – Water Science Update

Romy Van Der Boom (Summer Student)/Phill Everest (MCCC)

Romy Van Der Boom, University of Canterbury MSc student, was engaged on a summer scholarship to collate historical water quality and quantity data over the summer of 2022/23. A summary report was presented to the committee.

Part two of his project is to be the analysis of the available water quality metrics and the relationship between the water quality changes and land use changes in the region.

12 Action Plan Fund

A table detailing possible projects that may required funding in the 2022/23 financial year was tabled. In addition a funding matrix has been prepared which identifies various funding organisations/options that are available. A copy of the application form, along with the funding matrix is to be circulated to the groups that were identified as possibly requiring funding this year

13 Other Business

Rakaia Catchment Environmental Enhancement Society

Gen de Spa is the current Zone Committee representative on the Rakaia Catchment Environmental Enhancement Society. An alternative representative is required in the case of Gen not being able to attend the meetings.

That Angela Cushnie and Adi Avnit be appointed alternative representatives on the Rakaia Catchment Environmental Enhancement Society.

Thomas/Wanhalla

Carried

Ashburton Biodiversity Advisory Group

That Adi Avnit replace Angela Cushnie as the Zone Committee representative on the Ashburton Biodiversity Advisory Group.

Thomas/Allen

Carried

14 Resignation

James Meager tendered his resignation as the Te Runanga o Arowhenua representative. The Arowhenua Committee are seeking a replacement. James thanked the Committee for the opportunity and wished them all the best for the future.

The Chair expressed thanks to James for his time and commitment to the Committee and wishedhim well for his new ventures.

Next meeting

The next meeting of the Ashburton Water Zone Committee will be held in the Ashburton District Council Chamber at 1:00pm on Tuesday 23 May 2023.

The meeting closed at 3.36pm with a Karakia by James Meager.

Dated this 23rd day of May 2023 _____ (Chair)



Ōtūwharekai Update Ashburton Zone Committee

May 2023

This is a progress update from the Ōtūwharekai Working Group, which aims to work collectively to halt and reverse the degradation of Ōtūwharekai ecology and values. This group meets monthly to share progress on individual and collective actions; discuss emerging issues; and explore the opportunities to progress new initiatives.

Membership of Working Group:

- Rūnanga: Te Rūnanga o Arowhenua; Te Taumutu Rūnanga; Te Ngāi Tūāhuriri Rūnanga
- Te Rūnanga o Ngāi Tahu (TRoNT)
- Ashburton District Council (ADC)
- Department of Conservation (DOC)
- Toitū Te Whenua Land Information New Zealand (LINZ)
- Central South Island Fish & Game (CSIF&G)
- Ministry for the Environment (MfE)
- Environment Canterbury
- Ministry for Primary Industries (MPI)
- Farmers: Castleridge, Arrowsmith, Mt Possession and Lake Heron Stations

Update on work programmes:

There is extensive work taking place at Ōtūwharekai across all the organisations, agencies and individuals that have a role to play in protecting and restoring the health of this unique and important environment.

This update is to provide you with visibility and understanding of the range of activities that are underway. It is important to note that some of these activities relate to an agency's normal business-as-usual work, while others are additional activities that go above and beyond.

If you would like to know more about a specific workstream then feel free to make a request to the relevant lead agencies.

A summary of key workstreams occurring within Ōtūwharekai is presented in the table below. This is work that is delivered by a range of agencies and organisations.

Workstream	Description
<p>Lake Monitoring</p> <p>Lead: ECAN</p>	<p>LakeSPI (aquatic plant) surveys carried out in February 2023 by NIWA for Environment Canterbury.</p> <p>Lake seasonal helicopter monitoring concluded in April for 2023. Recreational water quality monitoring finished in March for 2023.</p> <p>Monthly monitoring of Lake Clearwater and Lake Heron is ongoing.</p> <p>Continuous monitoring stations at Lake Clearwater and Gentleman Smith Stream working well. In preparation for Lake Heron. Plans to upgrade Lake Emma water level to include turbidity.</p>
<p>Stream Monitoring</p> <p>Lead: DOC and ECAN</p>	<p>Ongoing (monthly sampling).</p>
<p>Groundwater Monitoring</p> <p>Lead: ECAN and ADC</p>	<p>Sampling still underway, will be concluded in June 2023 and then summary report will be prepared. One Piezometer damaged and out of action.</p>
<p>Farm Environmental Management</p> <p>Lead: ECAN</p>	<p>Landowners have been working toward on farm mitigations to reduce runoff and leaching to water. The recommendation suite of mitigations was put into a 5-year plan. IWG planning was setup for this winter season. AgResearch is planned to visit at the end of May to collect data for economics procurement. NIWA is working on the wetland recommendation suite at the individual farm level currently.</p>
<p>Mātauranga Māori and Cultural Health Assessment</p> <p>Lead: Aoraki Environmental Consultancy and mana whenua</p>	<p>No update.</p>
<p>Oversight of LINZ-leased land</p> <p>Lead: LINZ</p>	<p>No update.</p>
<p>Clearwater Settlement Area Enhancements</p> <p>Lead: ADC</p>	<p>Replacement Lake Camp toilets (settlement end) are nearing the end of construction. These are a dry vault design.</p> <p>Rocks and other barriers have been installed to restrict unauthorised vehicles from accessing the rear of Lake Camp and work is being undertaken to remediate the effects of previous traffic by physically releveling existing tracks. This work is ongoing.</p>

	<p>A new shingle vehicle track and turnaround has been formed in the freedom camping area at the eastern end of Lake Camp. This is to define the edge of the camping area and to provide a defined area for vehicles to use, thus reducing damage to surrounding areas.</p>
<p>Game Bird Survey Lead: Central South Island Fish and Game</p>	<p>Black swan and paradise shelduck monitoring was completed late January. Black swan (821) numbers were up on the 344 counted last year but just below the long term average (2000-2023) of 840 birds, long term trend is negative for this species within the basin. Paradise shelduck numbers (1,370) were up slightly on the 1,135 counted in 2022 but still below the long term average of 1,524 (1991-2023), long term trends for shelduck are also negative within the basin.</p> <p>Canada geese were also counted across the basin and 201 birds were observed that compared to 80 at a similar time in 2022. It is important to note that a control operation was conducted in the weeks prior to the survey. DOC reports that this years control operation removed 403 geese which is down on the 1,110 removed in Jan 2022.</p>
<p>Geese Population Management Lead: DOC and LINZ</p>	<p>See above.</p>
<p>Collective approach to managing inappropriate 4WD use in area LEAD: Multiple agencies</p>	<p>No update.</p>
<p>Pest Plant control on DOC land Lead: DOC</p>	<p>DOC's weed control programme in Ōtūwharekai is complete for the season. Just over 250ha surveyed and weeds controlled – especially willow, gorse and broom. Includes 40ha of willow control at Maori Lakes.</p>
<p>Clearwater Settlement long drop decommissioning Lead: ADC</p>	<p>Completed.</p>
<p>Joint Agency Communications Group LEAD: Multiple agencies</p>	<p>The communications group continues to discuss and share information about the programme with the community through local media and collaborative channels, including a Facebook video and recent articles on the community day pop up day.</p>

HUI/MEETING: Ashburton Water Management Zone Committee	
AGENDA ITEM NO: 9	KAUPAPA/SUBJECT: 2022-2023 Season Water Quality update for Ōtūwharekai/Ashburton Lakes area
KAITUHI/AUTHOR: Dr Tina Bayer Senior Scientist – Water Quality and Ecology	WĀ/MEETING DATE: 23 May 2023

Purpose

To update the Zone Committee on the 2022/2023 seasonal water quality monitoring in the Ōtūwharekai Ashburton Lakes area.

Recommendation

That the Ashburton Water Management Zone Committee receives this update.

2022/2023 Season Water Quality update for Ōtūwharekai/Ashburton Lakes area

Key points

1. Summary of 2022/23 monitoring
 - Ongoing monitoring of water quality in Ōtūwharekai shows:
 - All lakes continue to fail to meet LWRP TLI objectives in 2022/2023
 - Te Puna-a-Taka/Lake Clearwater has improved compared to 2020 & 2021
 - Continued decline in water quality of Ōtūroto/Lake Heron
 - LakeSPI (aquatic plants surveys) show that most lakes are in moderate but stable condition for aquatic plants except for Ōtūwharekai/Māori Back Lake (declining), Te Puna-a-Taka/Clearwater (declining) and Lake Denny (improving).
 - Continuous monitoring stations in Ōtūroto/Lake Heron and Te Puna-a-Taka/Lake Clearwater shows low oxygen levels occur for periods in both lakes during summer which raises concerns for aquatic life and potential for nutrient release.
 - Continuous nitrate monitoring of Gentleman Smith Stream indicates that nitrate concentrations are high during base-flow conditions and are diluted by rainfall driven high flows, which also suggests that lag times are likely short.
 - Lake Clearwater Village groundwater investigation indicates high variability in groundwater quality. Since the long-drop toilets were decommissioned in the settlement, no or very low *E. coli* concentrations were found in shallow groundwater but there is evidence of a source of organic material and nutrients.

Background

2. Monitoring of water quality of the lakes of Ōtūwharekai is ongoing to assess drivers of water quality deterioration and effectiveness of interventions. Key concerns for the

health of lakes are increasing nutrients and algal growth and the risk of 'regimes shifts'. That is, the risk of lakes 'flipping' from clear water, macrophyte (aquatic plant) dominated systems to turbid, phytoplankton dominated lakes, with detrimental impacts on lake ecosystems.

3. Monitoring programme consists of (see Figure 1)

- Long-term regular water quality monitoring across eight lakes (monthly from December to April every year via helicopter)
- Monthly water quality monitoring at Ashburton River
- Aquatic Ecosystem health monitoring of macroinvertebrates at three river sites annually
- Recreational water quality monitoring at Ōtautari/Lake Camp and Te Puna a Taka/Lake Clearwater weekly over the summer swimming season (Dec-March)
- Short term water quality investigations which are designed to answer a specific question or fill gaps in our knowledge:
 - Continuous nitrate monitoring in Gentleman Smith Stream
 - Year round monthly on-lake (by boat) water quality monitoring of Ōtūroto/Lake Heron and Te Puna a Taka/Lake Clearwater
 - Continuous water quality monitoring stations in Ōtūroto /Lake Heron and Te Puna a Taka/Lake Clearwater
 - Monitoring of lake water levels of Te Puna a Taka/Lake Clearwater, Kiriuhonuhonu/Lake Emma and Ōtūroto/Lake Heron
 - Monitoring of the water quality of the shallow groundwater at Lake Clearwater Village (February 2022 to June 2023).

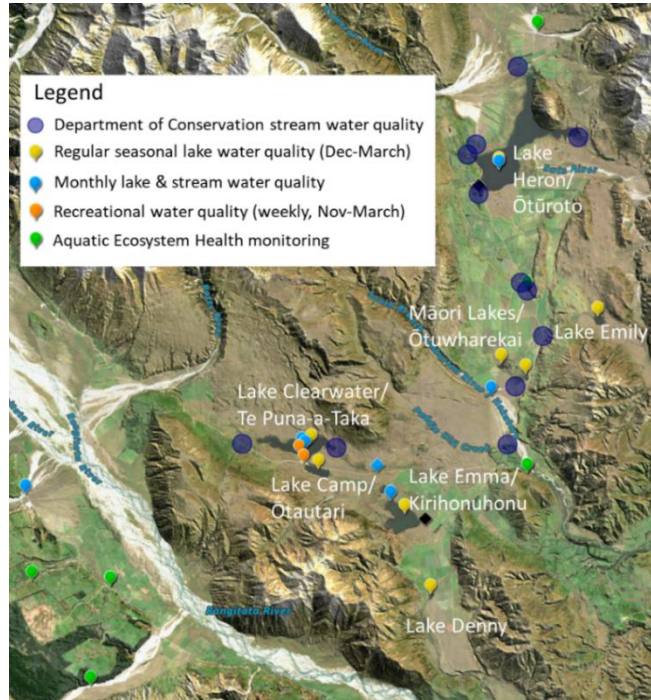


Figure 1: Map showing locations of sites monitored by Environment Canterbury and the Department of Conservation in Ōtūwharekai

Current trophic state of lakes

- The Trophic Level Index (TLI) is annual summary indicator of nutrients and phytoplankton biomass. The Canterbury Land and Water Regional Plan (LWRP) sets objectives for lake TLI.
- Routine summertime monitoring of lake water quality (via helicopter) ended in mid-April. In 2022/2023, none of the monitored lakes in Ōtūwharekai met the LWRP TLI objective. Most lakes were in the 'eutrophic' band in 2022/2023.

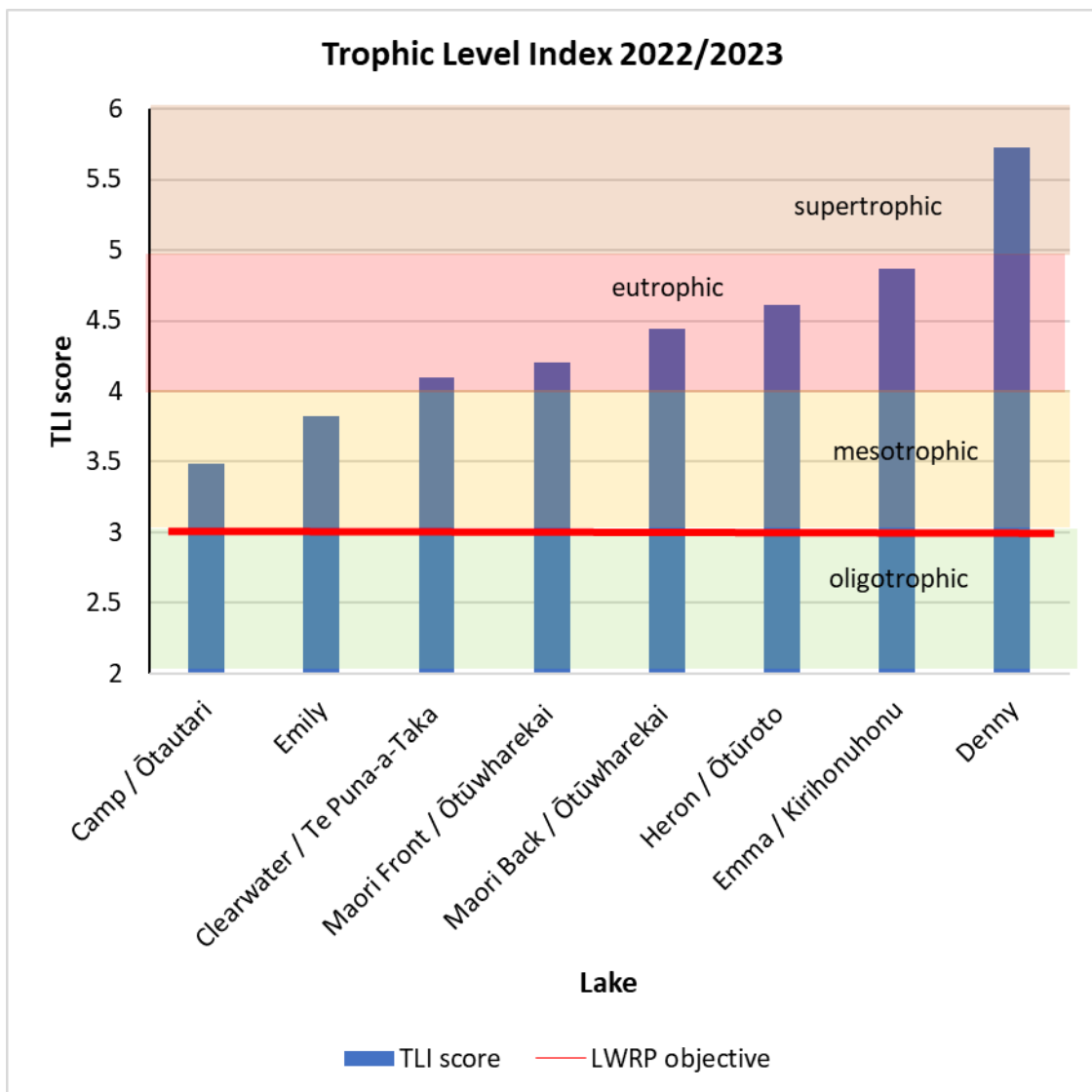


Figure 2: Trophic Level Index for the lakes in the Ōtūwharekai in the 2022/2023 season

- Figures 3 and Figure 4 show the individual sample results up to April 2023 for Te Puna-a-Taka/Lake Clearwater and Ōtūroto/Lake Heron. Chlorophyll a concentration (a measure of phytoplankton biomass) showed high algae biomass in Te Puna-a-Taka /Lake Clearwater in 2020 and 2021. In summer 2022/2023, biomass of algae and concentrations of nutrients were markedly lower than in 2020/2021, and close to pre-2019 levels.

- Chlorophyll a concentrations in Ōtūroto/Lake Heron have shown marked increases in concentrations since 2016, and results for this summer show that algal biomass mass remains high.

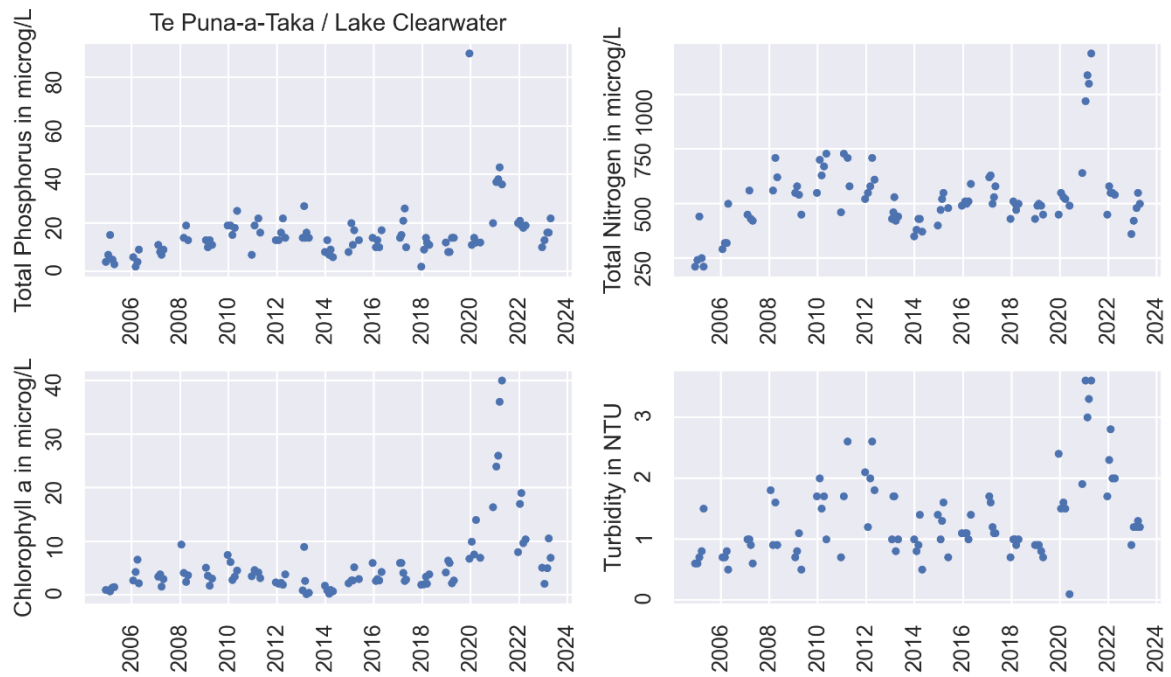


Figure 3: Water quality from summertime helicopter sampling of Te Puna-a-Taka/Lake Clearwater

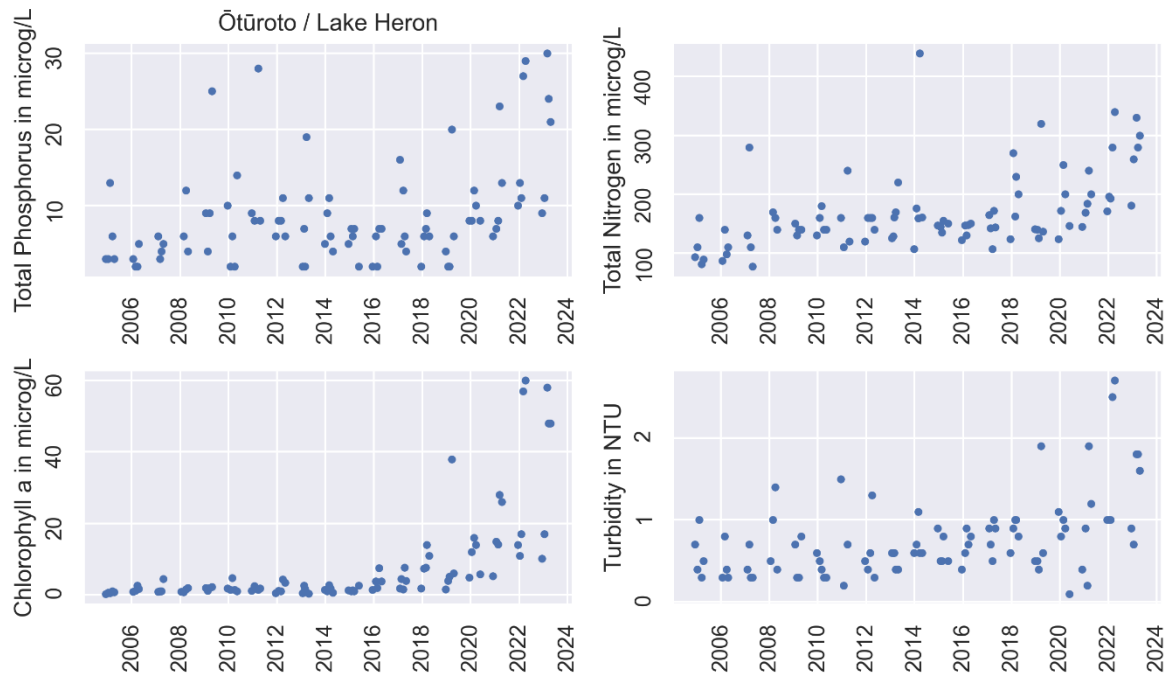


Figure 4: Water quality from summertime helicopter sampling of Ōtūroto/Lake Heron

LakeSPI surveys in February 2023

8. LakeSPI (aquatic plants surveys) are conducted by NIWA (National Institute of Water & Atmospheric Research) on behalf of Environment Canterbury approximately every 5 years. Preliminary results for February 2023 surveys show lakes in stable condition, except for Ōtūwharekai/Māori Back Lake and Te Puna-a-Taka/Clearwater (declining) and Lake Denny (improving).
9. Te Puna-a-Taka/Clearwater decline is due to lower water quality & clarity and associated reduction in light availability for aquatic plants.

Table 1: LakeSPI summary table for February 2023 (preliminary data from NIWA)

Lake	Condition	Change 2017 to 2023
Ōtautari/Camp	high	Stable
Te Puna-a-Taka/Clearwater	moderate	Declining , due to native plants growing to lesser depth extend (4.8 m in 2023 vs 7.7m in 2017) because less light available.
Denny	moderate	Improved from poor condition in 2017 when extensive vegetation loss was reported. High proportion of the invasive weed elodea.
Emily	moderate	Stable. Dominance by the invasive weed elodea
Kirihonuhonu/Emma	moderate	Stable. Dominance of invasive weeds
Ōtūroto/Heron	moderate	Stable
Ōtūwharekai/ Māori Front Lake	moderate	Stable. No change from 2017. Improved from 2007 & 2012 where there was very little vegetation cover (<10%). High proportion of elodea, but grazing by waterfowl prevents its dominance.
Ōtūwharekai/ Māori Back Lake	moderate	Declining, loss of native vegetation. Dominance of the invasive weed elodea

Continuous monitoring stations in Te Puna-a-Taka/Lake Clearwater and Ōtūroto/Lake Heron

10. Continuous monitoring of water quality in a lake allows us to collect information on the impact of climatic and other drivers of lake ecology. It allows us to see changes in thermal layering (stratification)¹ and dissolved oxygen near the lakebed.
11. Dissolved oxygen at depth is important for lake ecosystem health as it indicates the level of stress on fish and other aquatic organisms such as kākahi (freshwater mussels).
12. The red line in panel 2 of Figure 5 shows the concentration below which ecological integrity of a lake is considered severely compromised under the National Policy Statement for Freshwater Management (NPS-FM).
13. The purple line in panel 2 of Figure 5 indicates the concentration where there is a potential for the re-release of nutrients already locked in the lake sediments. For example, phosphorus bound to sediment can be redissolved into the water column and become available to algae.

¹ For more information on lake stratification see: www.lawa.org.nz/learn/factsheets/lakes/

14. The continuous monitoring station at Te Puna-a-Taka/Lake Clearwater shows several periods of thermal stratification occurred this summer. During the longest period of thermal stratification, dissolved oxygen concentrations near the lake bed declined for a short period to levels that pose a risk of stress to aquatic fauna. Low wind speeds and warm weather temperatures were primary drivers of the thermal stratification events.
15. Periods of lake stratification usually only last for a number of days in Te Puna-a-Taka/Lake Clearwater. But there is a risk of total oxygen loss with longer calm periods. Should this happen, we can expect to see nutrient release from the lake sediments.
16. Ōtūroto/Lake Heron had a stable thermal stratification between early December 2022 and early February 2023. By early January, the threshold for stressful conditions for aquatic life was crossed and by mid-January oxygen levels were so low that nutrients previously bound in the sediment were likely released from the sediment to the lake. This process is called 'internal loading' and can prolong the recovery of lake ecosystems long after external nutrient loads have been reduced.

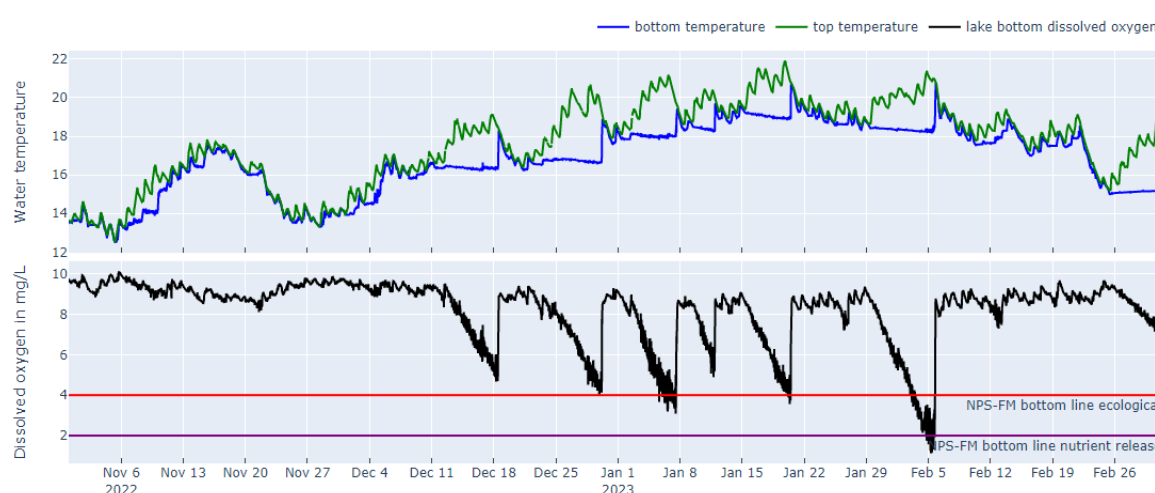


Figure 5: Continuous monitoring data for Te Puna-a-Taka /Lake Clearwater station over the 2022/23 summer (October 2022 to March 2023) showing temperature at 2m depth (top) and 18m depth (bottom) and dissolved oxygen at 18m depth.

Continuous monitoring station of nitrate concentrations in Gentlemen Smith Stream

17. A continuous nitrate recorder was installed at Gentleman Smith Stream (stream flowing into the Māori Lakes) in October 2021 (plus a stream level recorder and a rain gauge in summer 2022). Generally, the nitrate recorder data agrees well with discrete sample analysis (laboratory analysis of grab samples).
18. Nitrate-nitrogen concentrations show seasonal variations, with highest concentrations occurring in late summer/early autumn.
19. Rainfall events impact on nitrate-nitrogen concentrations in the stream: After heavy rainfall there appears to be an immediate (short-lived) decrease in concentration (reflective of flows dominated by surface run-off), followed by a steady and continuous increase in concentrations.

20. Transport time of nitrate leaching from soils through shallow groundwater to the stream in the Māori Lake catchment is indicated (to the best of our knowledge) as “weeks to months”. This contrasts with the Canterbury Plains where the nitrates in groundwater can take “years to decades” to arise in surface waters.
21. Sampling of springs and streams in the Māori lakes catchment in November and December 2022 also indicate that the springs have higher nitrate concentrations than streams. This means nitrate concentrations are highest where groundwater emerges in springs, and it is attenuated (reduced slightly) through plant uptake downstream.
22. Together results suggest that shallow groundwater is a major pathway of nitrogen to the streams and lakes in the Māori lakes catchment. In addition to reducing N loss to shallow groundwater, there may be opportunities to use denitrification walls or constructed wetlands to intercept and treat groundwater.

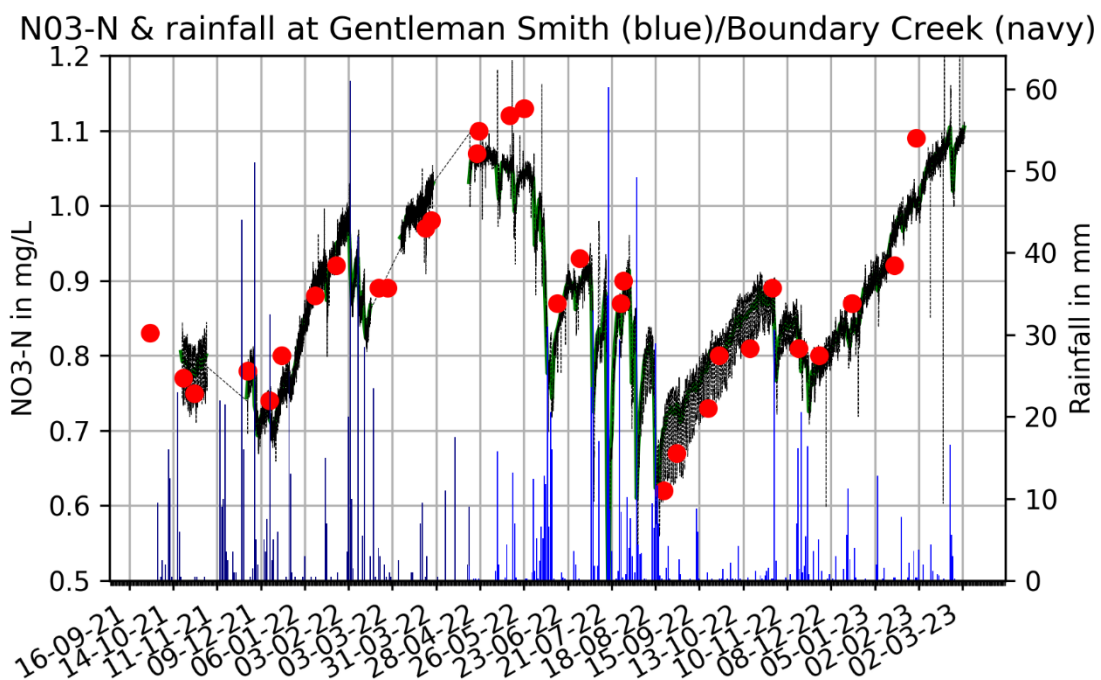


Figure 6: Continuous nitrate monitoring data for Gentleman Smith Stream (October 2019 – February 2023). Blue bars are rainfall; red dots are grab samples; black line is 15min Nitrate-N concentration.

Lake Clearwater Village groundwater sampling

23. The purpose of this investigation was to establish the characteristics of any groundwater flow path between Ōtautari/Lake Camp to Te Puna-a-Taka/Lake Clearwater and under the huts settlement, and the potential effect of nutrient loads being transported from the shallow groundwater to Te Puna-a-Taka/Lake Clearwater.
24. It should be noted that the investigation commenced in February 2022, after the ADC deadline for decommissioning long-drops in the village had passed, but before full compliance had been achieved.
25. Environment Canterbury installed six piezometers and collected groundwater level and quality data since February 2022. Further data will be collected to June 2023. We

compared this data to Ōtautari/Lake Camp and Te Puna-a-Taka/Lake Clearwater levels and water quality and rainfall events.

26. During the period of investigation, preliminary results indicated the following:
 - a. Similar to Te Puna-a-Taka / Lake Clearwater levels, groundwater levels in the piezometers fluctuated - rising and falling - corresponding closely to rainfall events.
 - b. The groundwater flow direction and gradient showed some variation over the investigation period but generally indicated a groundwater flow direction towards Te Puna-a-Taka / Lake Clearwater.
 - c. Of the 30+ groundwater samples collected during the investigation, *E. coli* was detected at very low concentrations in only 4 samples, otherwise it was not detected in samples.
 - d. Nitrate-N values varied between the piezometers, with the highest value seen at 0.4mg/L. Total Nitrogen varied, with the highest value of 2.5 mg/L.
 - e. Total Nitrogen concentrations in the groundwater during this investigation were on average similar to the concentrations in the lakes but spanned a wide range - with some results much higher than in-lake concentrations.
 - f. Total Nitrogen in the inflow stream (data 2021/2022 summer season) and in Lake Camp / Ōtautari was lower than in Lake Clearwater / Te Puna-a-Taka.
 - g. There was a lot of variability between piezometers and sampling dates, but results indicate some presence of organic material in the groundwater (nutrients, low oxygen and high total coliform bacteria) at times, but not consistently.
27. Data collection for this investigation is ongoing to June 2023. We are working on a science advisory note - summarising results and our analysis, which will be finalised after data collection ends.

HUI/MEETING: Ashburton Water Zone Committee	
AGENDA ITEM NO: 10	KAUPAPA/SUBJECT: Zone Committee updates
KAITUHI/AUTHOR: Dave Moore	WĀ/MEETING DATE: 23 May 2023

Purpose

To update the Committee on actions from the previous meeting, relevant information and upcoming engagement opportunities.

Recommendation

The Zone Committee receive the update and provides Feedback.

Report

1. Upcoming events

27 June –Workshop - Zone Committee Action Plan review

I would like to hold a workshop to review the Zone Committee’s Action Plan ahead of the new financial year. This will be a chance to review what has been achieved in the first two years of the Action Plan and discuss any changes in priorities or focus for the 2023/24 financial year.

HUI/MEETING: Ashburton Water Zone Committee	
AGENDA ITEM NO: 11	KAUPAPA/SUBJECT: Zone Committee Action Plan Budget
KAITUHI/AUTHOR: Dave Moore	WĀ/MEETING DATE: 23 May 2023

Purpose

For the Zone Committee to formally recommend funding to support its Action Plan.

Recommendation

The Zone Committee recommends allocation of funds to support the implementation of its Action Plan.

Report

\$50,000 has been allocated by Environment Canterbury to support the Ashburton Zone Committee's Action Plan initiatives in this financial year (1 July 2022 – 30 June 2023).

Below are a summary of funding options to date and the corresponding application forms.

Requester / Recipient	Detail	Amount (Ex. GST)	Fits Action Plan priority areas	Fits Action Plan targets
Hekeao Hinds Water Enhancement Trust	Contracted maintenance of these plants at NRR1 (South Hinds) 2022/23 is \$20,000+GST. Zone Committee contribution of \$10,000+GST requested , remainder funded by HHWET's targeted rates	\$10,000	<ul style="list-style-type: none"> • Hekeao Hinds 	<ul style="list-style-type: none"> • Improving Ecosystem Health and meeting biodiversity targets. • River Margins
Carters Creek Enhancement Project	Targeted water monitoring including faecal source tracing \$10k compilation and analysis of data and report production \$5k	\$15,000	<ul style="list-style-type: none"> • Hakatere / Ashburton River and tributaries 	<ul style="list-style-type: none"> • Improving Ecosystem Health and meeting biodiversity targets. • Enhance recreational and amenity targets (the creek flows into Lake Hood) • Community Engagement/Education
Hekeao Hinds Lowlands Catchment Group	Nitrate sensor for constructed wetland	10,000	<ul style="list-style-type: none"> • Hekeao Hinds 	<ul style="list-style-type: none"> • Mahinga kai enhancement, collaboration with rununga and community, improving ecosystem health and creating habitat for native fish and other wildlife. • Inspire and grow support and resources to achieve the 2025 target goal covering all freshwater ecosystems through increased riparian management to protect aquatic ecosystems.
Ashburton District Council	Pudding Hill Stream weed control along the axis of the riverbank up to 5 km - wilding willows, alder and poplar seedlings and sycamore trees	11,880	<ul style="list-style-type: none"> • Hakatere / Ashburton River and tributaries 	<ul style="list-style-type: none"> • Enhance recreational and amenity targets • Improving Ecosystem Health and meeting biodiversity targets. • River Margins
Mt Hutt College	Weed control at school's ecological garden \$2,000 per term	2,000 – 8,000	<ul style="list-style-type: none"> • Hakatere / Ashburton River and tributaries 	<ul style="list-style-type: none"> • Improving ecosystem health and meeting biodiversity targets • Enhance recreational and amenity targets • community engagement and education
Adele Webb	Clearing and native planting on the Northwest river bank of the Hakatere river (Melrose Rd), contributing to a corridor of native vegetation. Funding is for spray, plants, guards, stakes, grubber and fertiliser tabs. <i>Note request is from an individual, not a legal entity. Would have to be funded through another organisation.</i>	1,000	<ul style="list-style-type: none"> • Hakatere / Ashburton River and tributaries 	<ul style="list-style-type: none"> • Enhance recreational and amenity targets • Improving Ecosystem Health and meeting biodiversity targets.

HUI/MEETING: Ashburton Water Management Zone Committee	
AGENDA ITEM NO: 11.1	KAUPAPA/SUBJECT: HHWET Biodiversity funding request
KAITUHI/AUTHOR: Brett Painter (HHWET)	WĀ/MEETING DATE: 23 May 2023

Purpose

To request a funding contribution of \$10,000+GST from the Zone Committee for 2022/23 native plant maintenance at NRR1 (South Hinds), MAR12 (Maronan Ealing Rd) and MAR17 (Lennies Rd) sites.

Recommendation

That the Ashburton Water Management Zone Committee receives this request for a \$10,000+GST funding contribution towards 2022/23 native plant maintenance at NRR1 (South Hinds), MAR12 (Maronan Ealing Rd) and MAR17 (Lennies Rd) sites and provides a response in due course.

Introduction

The Hekeao Hinds Water Enhancement Trust (HHWET) was formed in 2019 to facilitate a coordinated approach to water management in the Ashburton District in order to enhance its water systems for the environmental, recreational, cultural, domestic and agricultural benefit of the community. HHWET Trustees include representatives from local farming, business, recreational, cultural, and community groups. HHWET inherited the Managed Aquifer Recharge (MAR) pilot project from the Hekeao Hinds MAR Governance Group (set up by the Ashburton Water Management Zone Committee - AWMZC). This pilot project was one of the recommendations of AWMZC's Zone Implementation Programme.

In addition to the MAR pilot project, HHWET are currently leading and/or supporting other water enhancement initiatives including Near River Recharge (NRR), Targeted Stream Augmentation (TSA), Irrigation Nutrient Recycling, Bioreactors and Constructed Wetlands. Since Central Government funding (through the Provincial Growth Fund) concluded in June 2022, HHWET's sole funding source has been from a targeted environmental infrastructure rate to Hekeao Hinds Plains landowners.

Biodiversity Planting

Biodiversity planting is being undertaken at key NRR and MAR sites as a value-add. To-date, approximately 10,000 native plants have been added at or near NRR1 (South Hinds), 65 native plants at MAR12 (Maronan Ealing Rd) and 1300 native plants have been added at MAR17 (Lennies Rd). Further planting areas at NRR1 have been agreed with the landowner, to be progressed as funding permits. The most noticeable response to the new native plantings at NRR1 has been the arrival of bird species not previously seen nearby. In the last year, these species include Australasian Bittern, Marsh Crake, Bellbird and White Heron.

HHWET also have plans for new site plantings (e.g., NRR3 at Winslow Rd), however these are reliant on a current consenting process concluding. Given anticipated delays in processing of consents by Environment Canterbury, HHWET are not including these sites in current funding requests.

Funding Request

HHWET's contracted maintenance of these plants for 2022/23 equates to \$20,000+GST. An Ashburton Water Management Zone Committee contribution of \$10,000+GST for 2022/23 is requested, with the remainder funded by HHWET's targeted rate funding. \$7500+GST funding has also been confirmed by the Rabo Community Fund, however this is tagged to new plantings at NRR3 (Winslow Rd), so has been moved into the 2023/24 financial year.



11.2 Application for funding - Zone Committee Action Plan Budget 2022/23

Applicant details

Organisation (if applicable):	Carters Creek Catchment Group – operating under the umbrella of the Mid Canterbury Catchment Collective (MCCC)
Contact name:	Janine Holland, Facilitator of Carters Creek Catchment Group and Lead Facilitator of MCCC
Contact email:	jr holland@xtra.co.nz
Contact phone number:	0274604940

About your project

The amount of information and detail we would like you to provide is in proportion to the amount of funding you are requesting. If it is smaller amount, then a simple description of your project, who's involved and what you will be doing, along with a simple budget is sufficient.

Project name:	<i>Carters Creek Enhancement Project</i>
CWMS zone where the activity will occur:	<i>Ashburton</i>
Provide a brief project summary:	
<p>Carters Creek, is known across Mid-Canterbury as a waterway under pressure from both urban, and lifestyle/rural environments. The Ashburton Zone Committee identified the need for this catchment to improve its water quality by working with the community and key stakeholders. The Carters Creek Catchment Group recently formed with the support of the Mid Canterbury Catchment Collective. An interim steering group of eight individuals met in April to commit to working together to improve the health of the catchment. They are particularly concerned about potential impacts on Lake Hood. The group includes lifestyle and farming, Lake Hood Extension Trust and Lake Hood Trust representatives. Two focal areas have been identified to start with. These are identifying and mitigating the cause/s of poor water quality in Carters Creek/Lake Hood. The second focus is identifying and mitigating the cause/s of flooding concerns affecting properties in the catchment. The catchment group approached Environment Canterbury to discuss these issues, and will meet staff to discuss on 29 May 2023. The catchment group is applying for funds to support investigations into the first focus area. Environment Canterbury staff are keen to support investigations as part of their business as usual (BAU). The catchment group wants to accelerate delivery by commissioning an external science resource to complement what Environment Canterbury can resource. It is proposed that funds are held by the regional council, until a working group of catchment group and Environment Canterbury representatives can determine methodology to commission the science support.</p>	

Describe the outcomes or impacts of this project:

Outcomes or impacts are what will change or who will benefit from this work, including enduring benefits. For example, fencing off springheads will improve biodiversity and improve stream health.

As Carters Creek feeds into Lake Hood and the Hakatere/Ashburton River, it is an important catchment to improve the water quality across the wider zone. The outcomes sought are improving water quality, flood protection, drainage and on-farm practices in the catchment. The primary outcome that will be met by this project is around improved water quality, but the catchment group believes that the other outcomes will be met over time as the science support will provide a platform for greater engagement, public awareness and stakeholder involvement which will contribute to the other outcomes.

List the key outputs of the project:

An output describes what your group is proposing to do and is measurable. For example, install 250 m of fencing, or train 25 volunteers. Outputs are important and may be used as milestones in a funding agreement.

Water quality monitoring to date suggests faecal contamination in Carters Creek is widespread and from several sources including livestock, avian sources and human sources. A stream walk in 2020 identified areas of the catchment that require further stock exclusion. Environment Canterbury have explained delays for following up with these properties, and we understand that they will address this shortly. However, additional investigation is required to narrow down potential human sources of faecal contamination. Further faecal source monitoring is proposed for a narrowed down area in the proximity of known septic tanks. As well as undertaking monitoring, the science resource will be tasked to review all available science data for the catchment, including that held by Environment Canterbury and other parties to fully understand the water quality issues.

Please state how the project aligns with the relevant Zone Committee's 2021-24 Action Plan:

All action plans can be found as a link at the bottom of the ["What's happening in my zone" page on the Environment Canterbury website.](https://www.ecan.govt.nz/your-region/your-environment/water/whats-happening-in-my-water-zone/) (<https://www.ecan.govt.nz/your-region/your-environment/water/whats-happening-in-my-water-zone/>)

This project aligns with the following Zone Committee Action Plan goals:**We will focus on several waterbodies:**

- Hakatere/Ashburton River and its tributaries (including **Carters Creek** and Wakanui hāpua)

We will work towards improving ecosystem health and meeting biodiversity targets by:

- Supporting the Carters Creek Enhancement Project Group by assisting with community engagement, education and communications, to encourage behaviours that positively impact water quality in Carters Creek

We will support measures to enhance recreation and amenity targets by:

- Identifying waterways that do not meet contact recreation standards, and supporting and encouraging catchment groups and community groups to implement actions that achieve water quality improvements for contact recreation.

Tell us what activities you're intending to do and when you intend to have the project completed (timeline):

Next steps for consultation include:

- Use Faecal Source Testing to narrow down the area of human contamination further by summer 2024
- Testing of septic tanks within that hotspot area to identify any leakages by summer 2024
- Potential for an updated stream walk to confirm any land management practices that may be contributing to water quality concerns by summer 2024
- Review and analyse all available science data for the catchment/produce report by June 2024

Tell us about the project management, including leadership and financial oversight:

The Carters Creek Catchment Group will work closely with Environment Canterbury's Ashburton Zone Delivery, Science and Rivers staff to implement the project. A working group will be established with representation from both parties to provide financial oversight, structure regular meetings and ensure communication back to the community.

List any other groups or organisations you are partnering with on this project, such as community groups, schools, etc:

The Carters Creek Catchment Group will also work closely with Ashburton District Council regarding stormwater, rubbish collection and reserve maintenance, as well as Lake Hood management. An ADC representative Cr Leen Braam joined the establishment meeting of the catchment group in April 2023. The Lake Hood Trust and Lake Hood Extension Trust are engaged and part of the catchment group. Alongside a focus on adjacent landowners to the creek, we intend to build relationships with businesses, community groups and schools/preschools in the catchment.

How will you engage the community on the project:

The initial stages of this project will be gathering science to help understand the impacts on Carters Creek and Lake Hood.

Do you know of any cultural values associated with this site?:

YES / NO

If yes, what engagement has occurred or is planned (if any) with local Papatipu Rūnanga about this project?:

Environment Canterbury will make contact with Arowhenua Runanga regarding cultural values in the catchment and to determine how they would like to be involved.

Please provide an accurate location with grid reference and/or map (if relevant to your project):

Attached
Who owns the land?: <i>Attach evidence of permission from the landowner, or their representative.</i>
Private landowners, Ashburton District Council and Lake Hood Extension Trust

Funding details

Please attach a budget to your application if one has been prepared. Your budget should include estimates of income and expenditure, including other funding and in-kind contributions. You should show clearly what you are planning to spend the Action Plan funds on if successful. We would like more detail if your application is for a larger amount

How much funding are you requesting?	\$15,000
If you are successful with this application, what components of your project will you spend the money on?* <i>If you have a project budget, please attach it to your application.</i>	
\$10,000 (approx) for targeted water monitoring (including faecal source tracing). \$5K for compilation and analysis of data and report production.	
Have you applied to or received funding from other organisations for this project?: If yes, please provide details below or note if it is included in your attached budget.	NO
Is the project receiving any other monetary or “in-kind” contributions from your organisation or others e.g. manpower, use of resources, facilities and equipment? If yes, please provide details below:	YES
In kind contribution from MCCC – facilitator is fully funded by MCCC to support the newly established Carters Creek Catchment Group with this project. Inkind contribution from Lake Hood Extension Trust in data sharing/analysis.	

Working with us and Environment Canterbury

In the last three years have you received funding or other support from Environment Canterbury for this, or any other project?* If yes, what was the funding/support for, and when did you receive it?:	NO
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<p>Are you intending on applying to another Environment Canterbury fund this financial year for this, or any other project?</p> <p>If yes, what fund are you applying to?</p>	<p>NO</p>

Additional information

Do you have supporting information you would like to provide (optional)?:

Please attach any supporting information with your application.

Once completed, please send this application form to dave.moore@ecan.govt.nz

11.3 Application for funding - Zone Committee Action Plan Budget 2022/23

Applicant details

Organisation (if applicable):	Hekeao Hinds Lowlands Catchment Group
Contact name:	Phillip Everest - facilitator
Contact email:	p.everest@xtra.co.nz
Contact phone number:	0274323965

About your project

The amount of information and detail we would like you to provide is in proportion to the amount of funding you are requesting. If it is smaller amount, then a simple description of your project, who's involved and what you will be doing, along with a simple budget is sufficient.

Project name:	<i>Wairuna run off development</i>
CWMS zone where the activity will occur:	<i>Ashburton – Hekeao/Hinds catchment</i>
Provide a brief project summary:	
<p><i>We are establishing a ‘constructed wetland’ area consisting of 3 ponds covering 1340m², taking water from Montgomery’s drain – located on the SE side of the Hinds river near the coast.</i></p> <p><i>The Hekeao Hinds Lowlands catchment group (HHLCG) wish to monitor the reduction in Nitrate (and possibly other nutrients) from this site to demonstrate how such a construction can be completed ‘off stream’.</i></p> <p><i>There is already a ‘real time’ Nitrogen sensor installed in the drain above the proposed site to provide a baseline. Thank you to the Zone Committee who funded this sensor.</i></p> <p><i>We now wish to install another sensor in the outflow form the wetland to quantify the Nitrate reduction.</i></p>	
Describe the outcomes or impacts of this project:	
<p><i>Outcomes or impacts are what will change or who will benefit from this work, including enduring benefits. For example, fencing off springheads will improve biodiversity and improve stream health.</i></p> <p><i>If successful, the constructed wetland – ‘run off’ area - will clearly demonstrate a replicable and cost effective mitigation to reduce the Nitrate load in streams and rivers – the Montgomery drain is spring-fed and feeds directly into the Hinds/Hekeao River. As well as</i></p>	

enhancing stream health the added improvement in biodiversity through native plantings, in and around the area, will increase residence sites for macroinvertebrates, fish, insects and birds.

List the key outputs of the project:

An output describes what your group is proposing to do and is measurable. For example, install 250 m of fencing, or train 25 volunteers. Outputs are important and may be used as milestones in a funding agreement.

Construct 3 settlement ponds, covering approx. 1340m², and plant these areas with wetland species which will reduce the nitrate level of the drain water. The estimate we have received from our design engineer (Dr Lee Burbery – water quality scientist) is that we could reasonably expect a reduction of at least 5mg/l with a flow rate of 2l/s from a well constructed ‘run off’ area as proposed.

Please state how the project aligns with the relevant Zone Committee’s 2021-24 Action Plan:

All action plans can be found as a link at the bottom of the [“What’s happening in my zone” page on the Environment Canterbury website.](https://www.ecan.govt.nz/your-region/your-environment/water/whats-happening-in-my-water-zone/) (<https://www.ecan.govt.nz/your-region/your-environment/water/whats-happening-in-my-water-zone/>)

1. The Hekeao/Hinds catchment is a waterbody focus in the AZC action plan.
2. Mahinga kai enhancement, collaboration with rununga and community, improving ecosystem health and creating habitat for native fish and other wildlife.
3. Inspire and grow support and resources to achieve the 2025 target goal covering all freshwater ecosystems through increased riparian management to protect aquatic ecosystems.

Tell us what activities you’re intending to do and when you intend to have the project completed (timeline):

The area was previously fenced off. HHLCG have been working alongside very engaged and willing landowners (the McKenzie family) completing the background, baseline monitoring and design work over the last 12 months. This included a site visit with Arowhenua representatives Karl Russell and Sally Reihana.

Construction is scheduled for 15 May – 19 May and planting 22nd May. Additional wetland planting will be planted in early spring once the risk of frosts has diminished.

Tell us about the project management, including leadership and financial oversight:

HHLCG has its own committee functioning under Mid Canterbury Catchment Collective. We have joint chairs (Hamish Mackenzie & John O’Connell), treasurer (Dion Gordon) and secretary (Angela Cushnie). Landowner Angus McKenzie is an HHLCG committee member and project lead.

We do not have a fixed price contract for the construction but indicative pricing only due to the variability of the soils in the project zone. We do have firm costs for the monitoring equipment.

List any other groups or organisations you are partnering with on this project, such as community groups, schools etc:

HHLCG currently has 48 members – being those landholders mainly in the Hinds/Hekeao Drainage district (roughly contained in an area main road to sea, Ashburton to Rangitata

rivers) – joint funder of construction with MHV Water, providing project management, additional materials and labour in construction, planting the wetland plants and associated biodiversity plantings.

MHV Water – joint funding of construction with HHLCG.

Hinds Hekeao Water Enhancement Trust – applying for and funding the resource consent.

Synlait Milk – provision of 4500 plants, guards and stakes

How will you engage the community on the project:

The site is directly accessible from a public road with a 50m walk through private property – the McKenzie family have agreed to provide restricted access (adhering to appropriate Health and Safety guidelines) for viewing.

HHLCG are fully involved in the project and will be getting regular updates on progress.

Arowhenua rununga have visited the site and will be kept up to date about progress. They have shown particular interest in the opportunity to replicate this approach across the catchment if successful. (via Karl Russell at a previous AZC meeting)

MHV and HHWET as part funders will be provided with regular updates on progress as results come to hand and will have the opportunities to visit the site to watch progress (over 250 farmers involved)

Mid Canterbury Catchment Collective will be informed at the monthly meetings which will keep all Mid Canterbury catchment groups informed of progress.

Do you know of any cultural values associated with this site?:

YES

If yes, what engagement has occurred or is planned (if any) with local Papatipu Rūnanga about this project?:

We have had a site inspection from Karl Russell and Sally Reihana from Arowhenua and they indicated they wish to complete some cultural monitoring at the site.

Please provide an accurate location with grid reference and/or map (if relevant to your project):

E 1491737 N 5116141 193 Bryants Road, Lowcliffe, Canterbury7773

Who owns the land?:

Attach evidence of permission from the landowner, or their representative.

Wairuna Farm Ltd – John and Angus McKenzie

Funding details

Please attach a budget to your application if one has been prepared. Your budget should include estimates of income and expenditure, including other funding and in-kind contributions. You should show clearly what you are planning to spend the Action Plan funds on if successful. We would like more detail if your application is for a larger amount

How much funding are you requesting?	\$10,000
If you are successful with this application, what components of your project will you spend the money on?* <i>If you have a project budget, please attach it to your application.</i>	
<p>The funding from the Zone Committee will be used to fund the purchase of a nitrate sensor which will be used to monitor the outflow nitrate levels from the wetland.</p> <p>Having 'real time' sensors both before the wetland and after the wetland will allow the effectiveness of the wetland to reduce nitrates to be clearly identified. This will give us the opportunity to make a comparison with other systems (eClean, MAR for example) to determine cost effective tools for nitrate removal in the catchment.</p>	
Have you applied to or received funding from other organisations for this project?: If yes, please provide details below or note if it is included in your attached budget.	YES
Included in attached budget.	
Is the project receiving any other monetary or "in-kind" contributions from your organisation or others e.g. manpower, use of resources, facilities and equipment? If yes, please provide details below:	YES
Included in attached budget.	

Working with us and Environment Canterbury

In the last three years have you received funding or other support from Environment Canterbury for this, or any other project?* If yes, what was the funding/support for, and when did you receive it?:	YES
<p>We have not directly received funding, but through MHV who received funding for another 'real time' nitrate sensor, which we are currently using to monitor water coming into the proposed wetland. (the sensor in this funding application is to measure the nitrate levels from the out-flow from the proposed wetland)</p>	
Are you intending on applying to another Environment Canterbury fund this financial year for this, or any other project? If yes, what fund are you applying to?	NO

Additional information

Do you have supporting information you would like to provide (optional)?:

Please attach any supporting information with your application.

Wairuna Run Off Project Budget

Updated 9 May 2023

Initial consultation - design

Function	Person	Hours	In Kind	Cash
Consultation and design	McKenzie,O'Connell,Mackenzie - Lowlands	43	2150	50
Bylaw and consenting requirements	Nick Vernon - Synlait	15	2250	150
Design	Lee Burberry - DairyNZ	48	12000	250
Trial holes	MHV - Justin Legg - Hydrologist/Engineer	3	600	200
Iwi site visit and consultation	Karl Russell - Arowhenua and Lowlands	4	200	
Bylaw application	McKenzie	1	75	
Design and construction discussions	Lowlands, Burberry, Tarbotton	52	2600	
Baseline water monitoring	Zone Cmte, MHV, HHWET, Lowlands	8	800	
	Nitrate water meter Ash Zone			10000

Construction

Earthworks Tarbotton estimate	50% MHV 50% Lowlands Catchment Grp.			13000
Wairuna digger		20	3700	
Wairuna tractor and trialer		15	1875	
Pre spray 2x			630	
Project management - facilitator		20		1500
Wiaruna - pipe, culverts, timber, fencing			4000	

Planting

Function	Person	Hours	In Kind	Cash
Wetland and surrounds - 4500 plants - supplied Synlait			27000	
Planting labour - Lowlands Catchment Group		120	5400	
Spray maintenance - 3 years		45	3150	
Chemical			1100	

Reporting and monitoring

Flowmeter installation				3000
Maintenance and monitoring 5yr			1500	
Reporting - facilitator 5yr		50	3500	
Nitrate sensor - from wetland outflow - Zone Committee - this application				10000

Totals		444	\$72,530	\$38,150
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Application for funding - Zone Committee Action Plan Budget 2022/23

Applicant details

Organisation (if applicable):	Environment Canterbury / Ashburton District Council
Contact name:	Christian Chukwuka/ Donna Field
Contact email:	Christian.chukwuka@adc.govt.nz Donna.field@ecan.govt.nz
Contact phone number:	027 245 6680

About your project

The amount of information and detail we would like you to provide is in proportion to the amount of funding you are requesting. If it is smaller amount, then a simple description of your project, who's involved and what you will be doing, along with a simple budget is sufficient.

Project name:	<i>Pudding Hill Stream Weed Control</i>
CWMS zone where the activity will occur:	<i>Ashburton</i>
Provide a brief project summary:	
<p>Pudding hill stream extends from Mt Hut forest and serves as a tributary to the Ashburton rivers. The surrounding riverbanks are made up of a mix of matai, podocarp and beech forest with native shrub undergrowth, extending into adjacent reserves and grasslands. The forest is managed by the Department of Conservation and adjoining land owned by Mt Alford Station and Ashburton District Council. The surrounding forested area along the riverbank is a healthy ecosystem with occasional landslides on the hills and weeds encroachment.</p> <p>Along the river and the native forestry is a vigorous regeneration of willows, sycamore trees, larches, Himalayan honeysuckle, and monkey musk. Recent flooding has also led to gravel deposition and clearing of the stream bed, resulting in downstream weeds dispersal, such as alders and poplars, and willows (grey, crack and basket willows).</p> <p>The exposed riverbanks are being colonised by a mix of natives and exotics plant species. Key colonising species are the native nitrogen-fixing tutu and native brooms which compete with exotic brooms and willows etc. Other native vegetation observed in the banks includes <i>Coprosma</i> sp., toi toi, native brooms/<i>Carmichaelia arborea</i>, wineberry, rauolias/mat daisies and Olearia shrubs. Tree tutu serves as a natural bank stabiliser but is poisonous to stock and humans; and has been replaced by willows as a preferred stabiliser. However, as stock</p>	

is being kept out of waterways, there may be a case for reintroducing tutu as a bank stabiliser.

To protect this pristine environment and prevent further weed dispersal into the native forest and regenerating scrub areas, there is a need for immediate control of all the weeds encroaching and competing with the native vegetation along the riverbank. These include the removal of wildings (larches and Douglas firs on the hillside and along the riverbanks, removal of the willows, alders and poplars seedlings on the riverbanks.

The proposed project would be to remove, along the axis of the riverbank up to 5 km as shown in the attached map,

- all wilding trees growing along the riverbanks and on adjacent hillside,
- all willows, (crack, grey and basket willows).
- all alder and poplar seedlings
- and all sycamore trees on the adjacent plantation forestry area that may potentially spread further to the riverbanks.

The weed removal would be undertaken by an approved contractor using chemicals (knapsack spray, drone application, cut & paste and drill & fill method) and basal bark methods. The drill & fill method involves boring holes into the base of the tree and then filling them with a chemical. Knapsack spraying would not be used where the open water body is less than 5 m from the weed trees to avoid drift to the water. The treated trees would remain standing until they decompose and there is no health and safety implication with this approach.

Describe the outcomes or impacts of this project:

Outcomes or impacts are what will change or who will benefit from this work, including enduring benefits. For example, fencing off springheads will improve biodiversity and improve stream health.

The proposed project is important to protect the natural environment around the river margin and prevent weeds infestation and further spread up and downstream. As weeds compete with native and smother trees/shrubs, this project will improve ecosystem process and sustainability of the riverbank and adjoining forest health.

List the key outputs of the project:

An output describes what your group is proposing to do and is measurable. For example, install 250 m of fencing, or train 25 volunteers. Outputs are important and may be used as milestones in a funding agreement.

Spray, cut and paste, or drill and fill weedy trees along 5 km of Pudding stream banks, including on the hilly slopes, as shown in the attached map.

Please state how the project aligns with the relevant Zone Committee's 2021-24 Action Plan:

All action plans can be found as a link at the bottom of the "[What's happening in my zone](https://www.ecan.govt.nz/your-region/your-environment/water/whats-happening-in-my-water-zone/)" page on the Environment Canterbury website. (https://www.ecan.govt.nz/your-region/your-environment/water/whats-happening-in-my-water-zone/)

Focus area of Ashburton River as Pudding Hill stream is a tributary of North Ashburton

- Protecting what we have is an important part of managing ecosystems as a whole for Mahinga Kai
- Will enhance the biodiversity corridor Ki Uta Ki Tai and protect downstream from weed invasion

We will work towards improving ecosystem health and meeting biodiversity targets by:

- Facilitating a collaborative process to agree and support priority projects within the **Hakatere / Ashburton River catchment... including a biodiversity corridor Ki Uta Ki tai.**

Tell us what activities you're intending to do and when you intend to have the project completed (timeline):

Weed Control - Possibly Spring 2023 and follow up in winter 2024

Tell us about the project management, including leadership and financial oversight:

The project would be managed by the Ashburton District Council Ecologist/Biodiversity Advisor and Environment Canterbury Land Management/Biodiversity Advisor. Ashburton District Council would lead the project including financial oversight.

List any other groups or organisations you are partnering with on this project, such as community groups, schools etc:

n/a

How will you engage the community on the project:

n/a

Do you know of any cultural values associated with this site?:

NO

If yes, what engagement has occurred or is planned (if any) with local Papatipu Rūnanga about this project?:

Please provide an accurate location with grid reference and/or map (if relevant to your project):

From 1481875.123120, 5173346.392157 to 1480398.933157, 5176794.020536 (NZTM 200 E N)

Map attached.

Who owns the land?:

Attach evidence of permission from the landowner, or their representative.

LINZ/ECan, ADC, Private landowners- Graham Harrison (Mt Alford Station) Steve Smith (Pudding Hill Homestead).

All land owners have been contacted and approved the project. No evidence from land owners required.

Funding details

Please attach a budget to your application if one has been prepared. Your budget should include estimates of income and expenditure, including other funding and in-kind contributions. You should show clearly what you are planning to spend the Action Plan funds on if successful. We would like more detail if your application is for a larger amount

How much funding are you requesting?		\$11,880
If you are successful with this application, what components of your project will you spend the money on?* <i>If you have a project budget, please attach it to your application.</i>		
Weed control cost using chemical or mechanical method by an approved contractor.		
Item	Description	Cost
Travel		\$ 2000
Mileage		
Labour	Labour unit for 2 persons \$75/hr for 5 days	\$ 6000
Consumables	Drill bits and Chemicals	\$2800
Miscellaneous	10% contingency	\$1080
Project Administration coast	To be covered by the respective staff organisation	
Total		\$11,880 + GST
Estimated Budget		
Have you applied to or received funding from other organisations for this project?: If yes, please provide details below or note if it is included in your attached budget.		NO
Is the project receiving any other monetary or “in-kind” contributions from your organisation or others e.g. manpower, use of resources, facilities and equipment? If yes, please provide details below:		YES

Ashburton District Council and ECAN will provide in kind staff time for the project administration.

Working with us and Environment Canterbury

In the last three years have you received funding or other support from Environment Canterbury for this, or any other project?* If yes, what was the funding/support for, and when did you receive it?:	YES
Removal of matured wilding at Wakanui Beach Creek	
Are you intending on applying to another Environment Canterbury fund this financial year for this, or any other project? If yes, what fund are you applying to?	NO
n/a	

Additional information

Do you have supporting information you would like to provide (optional)?:

Please attach any supporting information with your application.

Once completed, please send this application form to dave.moore@ecan.govt.nz

PHOTO GALLERY



Douglas fir, larches and willows along the riverbank



Larches growing within the beech and matai native forest with occasional landslide



Mix of broom, Himalayan honeysuckle alder and poplar weeds competing with native tutu on the riverbank



11.5 Application for funding - Zone Committee Action Plan Budget 2022/23

Applicant details

Organisation (if applicable):	Ecological Garden Mt Hutt College
Contact name:	Karin Lill
Contact email:	lillk@mthutt.school.nz
Contact phone number:	0276179727

About your project

The amount of information and detail we would like you to provide is in proportion to the amount of funding you are requesting. If it is smaller amount, then a simple description of your project, who's involved and what you will be doing, along with a simple budget is sufficient.

Project name:	<i>Ecological Garden Mt Hutt College</i>
CWMS zone where the activity will occur:	<i>Ashburton</i>
Provide a brief project summary:	
<p>The project aims to develop an educational native garden at the school. The area was used to dump rubbish within the school grounds. We managed to have the space cleared with the help of the Lions Club. A plan was drawn and work towards eco-sourcing plants began. A living laboratory would be the ideal tool to teach our rural students sustainability and ways to make farming less harmful to the environment.</p>	
Describe the outcomes or impacts of this project:	
<p><i>Outcomes or impacts are what will change or who will benefit from this work, including enduring benefits. For example, fencing off springheads will improve biodiversity and improve stream health.</i></p>	

The native garden at the school in Methven would be used as a tool to teach how to maintain a healthy ecosystem and preserve and proliferate native plants. It can be used to teach how plants can stop pollutants from reaching waterways. It will enhance the biodiversity of the area, and recreate the ecosystem **Ki-UTa-Ki-Tai** 'from mountains to the sea'. Plants will be selected to represent 3 of the Ecological Districts of Canterbury, Low Plains, High Plains and Mt Hutt.

Potential connections to the curriculum and our community:

- Opuke projects - lizard garden, bee houses, limitless opportunities here
- Science - learning about plants and animals, their environments, habitats, links across the curriculum from Year 7-9 in the Living World strand.
- Agriculture - links to horticulture, propagation, weed control.
- Social Sciences - braided river environments, geography zonation changes in vegetation with altitude, Our Stories (history of our area).
- Maori - Hine Paaka, tikanga, rongoa, potential naming of the garden, Pou structures.
- Establishing links to our community - bringing in community experts/businesses to help with learning opportunities for students.
- SSEP - Secondary School Employer Partnerships
- Trades Academy - design and build of the outdoor classroom structure

List the key outputs of the project:

An output describes what your group is proposing to do and is measurable. For example, install 250 m of fencing, or train 25 volunteers. Outputs are important and may be used as milestones in a funding agreement.

Outputs: (stage 1)

- Finish planting the foothills area of the garden - sourcing additional snow tussocks (150 plants already planted).
- Build a gazebo styled structure to use and an outdoor classroom, propagating space and potentially pou structures on the poles.
- Maintenance - ongoing weed spraying, weed removal and maintaining the planted spaces. (approx 2-3 hours per week)

Please state how the project aligns with the relevant Zone Committee's 2021-24 Action Plan:

All action plans can be found as a link at the bottom of the ["What's happening in my zone" page on the Environment Canterbury website.](https://www.ecan.govt.nz/your-region/your-environment/water/whats-happening-in-my-water-zone/) (<https://www.ecan.govt.nz/your-region/your-environment/water/whats-happening-in-my-water-zone/>)

The project would fit the action plan target "improving ecosystem health and meeting biodiversity targets, enhance recreational and amenity targets and community engagement and education".

Our guiding principles:

1. Education for all ages; living education laboratory, career opportunities.
2. Maturanga Maori; place to value native planting, rongoa.

3. Sustainable communities; biodiversity enhancement.
4. Ecological restoration; ecosourcing, creating taonga.
5. Clean energy and green technology; reduce school carbon footprint.
6. Diversity, integrity and respect.

Tell us what activities you're intending to do and when you intend to have the project completed (timeline):

This is intended to be a long term legacy project based at the school. It will require ongoing maintenance over time. The first stage of planting has been completed. It is a goal to get the gazebo structure up by next spring. Following that it will be the addition of the lizard garden, pou structures and signage that provides additional education information.

Tell us about the project management, including leadership and financial oversight:

The project was initially established by the Head of the Science faculty and a small group of interested community members. The proposal was submitted to the board of trustees where permission was granted for the ongoing use of the site. Funding for the projects sits with the committee and is not provided by the school (with the exception of small items from the Science faculty). The project is led by Karin Lill (HOF Science at Mount Hutt College), Kath Woodley and Val Clemens).

List any other groups or organisations you are partnering with on this project, such as community groups, schools etc:

We are partnering in this project with Mount Hutt College primarily. We have had donations of plants from other members of the community including from the Harris Reserve, and Awa Awa Rata Reserve. We have met with the Foothills Catchment Group who are newly established to see how we can build connections with them and also Methven Primary School.

How will you engage the community on the project:

Our project is in a space that is open for any members of the public to visit. We have a Facebook page and our community were invited to attend and share in the planting. As above we are connecting with other community groups that have shared interest.

Do you know of any cultural values associated with this site?:

YES/ NO

If yes, what engagement has occurred or is planned (if any) with local Papatipu Rūnanga about this project?:

We have had Tipene Phillip join our committee at several meetings when discussing the name of our space. He has provided valuable feedback about tikanga. In addition to this we have sought feedback from local community members Jenna Cheney and Juanita Richards.

Please provide an accurate location with grid reference and/or map (if relevant to your project):



Who owns the land?:

Attach evidence of permission from the landowner, or their representative.

Ministry of Education

Funding details

Please attach a budget to your application if one has been prepared. Your budget should include estimates of income and expenditure, including other funding and in-kind contributions. You should show clearly what

you are planning to spend the Action Plan funds on if successful. We would like more detail if your application is for a larger amount

<p>How much funding are you requesting?</p>	<p>\$2000 per term for ongoing maintenance of the space</p>
<p>If you are successful with this application, what components of your project will you spend the money on?*</p> <p><i>If you have a project budget, please attach it to your application.</i></p>	
<p>General maintenance of the space - in the form of spray/weed control</p>	
<p>Have you applied to or received funding from other organisations for this project?:</p> <p>If yes, please provide details below or note if it is included in your attached budget.</p>	<p>YES / NO</p>
<p>Methven Community Board Discretionary Grant - \$1480 for plant guards and spades</p>	
<p>Is the project receiving any other monetary or “in-kind” contributions from your organisation or others e.g. manpower, use of resources, facilities and equipment?</p> <p>If yes, please provide details below:</p>	<p>YES / NO</p>
<p>Contributions:</p> <p>Harmer Earthmoving - 4 large rocks</p> <p>Methven Trucking - gravels for the braided river and lizard garden</p> <p>Plants from Awa Awa Rata Reserve committee</p>	

Working with us and Environment Canterbury

<p>In the last three years have you received funding or other support from Environment Canterbury for this, or any other project?*</p> <p>If yes, what was the funding/support for, and when did you receive it?:</p>	<p>YES/ NO</p>
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<p>Are you intending on applying to another Environment Canterbury fund this financial year for this, or any other project?</p> <p>If yes, what fund are you applying to?</p>	<p>YES / NO</p>

Additional information

Do you have supporting information you would like to provide (optional)?:

Please attach any supporting information with your application.

Once completed, please send this application form to dave.moore@ecan.govt.nz

Application for funding - Zone Committee Action Plan Budget 2022/23

Applicant details

Organisation (if applicable):	— N/A.
Contact name:	Adele Webb
Contact email:	kimadele@xtra.co.nz
Contact phone number:	0279023264

About your project

The amount of information and detail we would like you to provide is in proportion to the amount of funding you are requesting. If it is smaller amount, then a simple description of

My goals are to:

- 1 attract more native birds and insects
- 2 improve the appearance of the area along the west Ashburton riverbank for — local walkers and joggers
 - mountain bike riders
 - Campervan visitors to Ashburton using the new 'Caravan Club's' camping area nearby
- 3 — contribute to creating a corridor of native vegetation to eventually link with other native plantings eastwards in the Trevor's Road — Chalmers Avenue area.
4. discourage an ongoing problem of fly tipping in part of this area.
5. leave an area of native plantings for future generations to enjoy.

s of the area enclosed.

Tell us what activities you're intending to do and when you intend to have the project completed (timeline):	
clearing and planting native trees and plants along the north west riverbank. Expect planting over 2-3 years. maintenance ongoing.	
Tell us about the project management, including leadership and financial oversight:	
So far I'm just a one man band. My husband has helped clearing land. I'm a former teacher, now retired.	
List any other groups or organisations you are partnering with on this project, such as community groups, schools etc:	
Have approached Ashburton Intermediate teacher in regards to students helping to plant. Looks promising	
How will you engage the community on the project:	
Family, friends & volunteers welcome. Hoping to get an article in the local newspaper "The Guardian" seeking volunteers, if needed.	
Do you know of any cultural values associated with this site?:	YES / NO
If yes, what engagement has occurred or is planned (if any) with local Papatipu Rūnanga about this project?:	
Please provide an accurate location with grid reference and/or map (if relevant to your project):	
It's the area past the Rugby League Rooms, past the campervan park along the river, to the east, part of the mountain bike track area and	
Who owns the land?: riverbank. Not on the stopbank - below it.	
Attach evidence of permission from the landowner, or their representative.	

Funding details

Please attach a budget to your application if one has been prepared. Your budget should include estimates of income and expenditure, including other funding and in-kind contributions. You should show clearly what you are planning to spend the Action Plan funds on if successful. We would like more detail if your application is for a larger amount

How much funding are you requesting?	\$1,000
If you are successful with this application, what components of your project will you spend the money on?* spray, plants, guards, stakes, grubber	
If you have a project budget, please attach it to your application. fertiliser tablets.	

<p>Have you applied to or received funding from other organisations for this project?:</p> <p>If yes, please provide details below or note if it is included in your attached budget.</p>	<p>YES / NO</p>
<p>Is the project receiving any other monetary or "in-kind" contributions from your organisation or others e.g. manpower, use of resources, facilities and equipment?</p> <p>If yes, please provide details below:</p>	<p>YES / NO</p>
<p>I received some second hand plant guards, mats + stakes from Environment Canterbury, Ashburton.</p> <p>* Hoping to get some plants from Trees for Canterbury. Working with us and Environment Canterbury</p>	
<p>In the last three years have you received funding or other support from Environment Canterbury for this, or any other project?*</p> <p>If yes, what was the funding/support for, and when did you receive it?:</p>	<p>YES / NO</p>
<p>Are you intending on applying to another Environment Canterbury fund this financial year for this, or any other project?</p> <p>If yes, what fund are you applying to?</p>	<p>YES / NO</p>

Additional information

Do you have supporting information you would like to provide (optional)?:

Please attach any supporting information with your application.

Once completed, please send this application form to dave.moore@ecan.govt.nz

NB. The area I'm working on is relatively small, a few hundred metres only as I'm basically unable to deal to a larger area. ie keeping it ~~maint~~ maintained until it grows. So far I have funded sprays and plants myself. I'm also raising over 100 Kowhai seedlings to plant out, and some native grass. I have helped plant native trees east along the riverbank with other people.