



THE WEST COAST REGIONAL COUNCIL

To: Resource Management Committee Meeting
From: Hokitika Freshwater Management Unit Group
Date: 9 November 2021
Subject: Recommendations from the Hokitika Freshwater Management Unit Group

1. Executive summary

The National Policy Statement for Freshwater Management (NPSFM), versions 2014, 2017 and 2020, require regional councils to identify freshwater management units (FMU's), establish community representative groups for each FMU, and make changes to freshwater regional plans. Under the NPSFM 2020, current water quality and stream health must be maintained or enhanced.

The Hokitika FMU Group consisted of seven selected community members, one representative each for Te Rūnanga o Ngāti Waewae and Te Rūnanga o Makaawhio, one representative each for the West Coast Regional Council (WCRC or the Council) and the Westland District Council, and WCRC support staff. This Group worked through issues associated with water quality and quantity, from June 2020 to August 2021, and produced recommendations to the Regional Council's Resource Management Committee.

The Group identified a range of values associated with freshwater that were important to the Hokitika FMU community. These values, combined with water monitoring results and policy requirements, shaped discussions and subsequent recommendations. The Group was aware that Te Mana o te Wai is a fundamental concept in the NPSFM. The needs of Tai Poutini/West Coast hapū, Ngāti Waewae and Ngāti Māhaki, will be at the forefront of policy development, and integrated management, ki uta ki tai, is imperative when managing freshwater. The Group acknowledged that there are waterbodies within the Hokitika FMU that require improvement, particularly in regard to faecal contamination and amenity.

The Group took part in a number of field trips, to learn more about a range of relevant activities, and heard several presentations from non-Council staff. A list of these is in Appendix 1.

The Hokitika FMU encompasses a small community. While the Hokitika FMU covers only a part of the Westland District, to give some context to the FMU area, according to government statistics, the resident population of Westland District in 2020 was 8,920. In 2020, GDP for the Westland District was dominated by tourism (21.4%), agriculture, forestry and fishing (17.8%), and electricity, gas, water and waste services (11.3%). GDP in Westland District was provisionally down 9.4% for the year to March 2021 compared to a year earlier. Growth for this period was lower than that over the whole West Coast Region (-4.4%), and New Zealand (-3.0%), due largely to the Covid-19 Pandemic.

Many people within the community feel strongly about the quality and health of water resources within this FMU and would like to see improvements where required. At the same time the small community depends significantly on primary industries for their economic survival, so balanced approaches, utilising methods that are less economically disruptive, were deemed favourable by many of the Group members.

Just prior to the Covid-19 Pandemic, tourism was the largest industry in terms of employment and GDP. It is assumed that the economic importance of tourism will return in future. Tourism depends on healthy, appealing waterbodies but its impacts must also be managed like any other industry.

While scarcity of water is currently not a significant issue in the Hokitika FMU, changes to the allocation and consenting of water takes were recommended in order to make things fairer and future proofed for both consumptive and non-consumptive use.

2. List of recommendations

1. **The Group recommends targeted regulation for specific areas in the future where required, providing the Council works on the provisions with Poutini Ngāi Tahu and consults the community and stakeholders prior to development of policy.**
2. **NPSFM national bottom line numerical objectives should be observed for all attributes consistent with the NPSFM concept of “maintain or improve”.**
3. **Include provisions in the Regional Land and Water Plan to ensure freshwater is managed so that: Mahinga kai is safe to access, harvest and eat; species are plentiful enough for long term harvest; and the range of species is present across all life stages.**
4. **Include provisions in the Regional Land and Water Plan to protect and enhance where degraded the mauri of freshwater bodies so that freshwater is available for Poutini Ngai Tahu cultural use.**
5. **Include provisions in the Regional Land and Water Plan that ensure cultural allocations for the values of Te Rūnanga o Ngāti Waewae and Te Rūnanga o Makaawhio are provided for in the allocation of water.**
6. **Council to support Te Rūnanga o Ngāti Waewae and Te Rūnanga o Makaawhio to increase their capacity to undertake cultural monitoring of waterbodies.**

7. **The Group proposes that Rule 55 should be amended within the existing (operative) Regional Land and Water Plan, that is, the conjunction between (i) and (ii) should be "and", not "or".**
8. **Amend timeframes of water permits for consumptive water takes to 10 years from 35 years. Amend consent status to controlled for renewal of water take permits for the first and second renewals of 10 year water permits.**
9. **Community drinking water supply permits may be issued with consent durations of up to 35 years.**
10. **When managing sediment effects on freshwater, efforts need to be made to differentiate between those caused by human activity, and those associated with natural events.**
11. **The Group supports the use of farm plans to manage problematic additions of sediment to waterways.**
12. **The Group supports the Council strengthening regional rules to prevent discharges containing faecal contaminants directly to water. They also supported the use of treatment via constructed wetlands, and land-based systems, providing they are effective.**
13. **Te Rūnanga o Ngāti Waewae supports the Council implementing requirements for stock exclusion fencing and farm plans, and promoting riparian planting, to limit faecal contaminants entering waterways.**
14. **The Council dedicates resources to support Enviroschools as funds permit.**
15. **The Council promotes educational initiatives aimed at enabling the community to better understand and protect their freshwater resources. When doing this, consider opportunities to work in partnership with other organisations e.g., Department of Conservation, Westland District Council, Poutini Ngāi Tahu, Dairy NZ, Beef and Lamb.**
16. **The Council works with training providers including Tai Poutini Polytech to ensure that students undertaking earthworks and agriculture courses learn about freshwater values and how to ensure their activities protect and/or enhance them.**
17. **The Council encourages the local community to be involved in the monitoring of environmental quality within the Hokitika FMU.**
18. **Water clarity is maintained or improved in waterbodies valued for their natural character.**
19. **Waterbodies are above the bottom line for any relevant attribute, and if not, ensure that they are improved to above the bottom line by 2030.**
20. **Promote the provision of public toilets in popular scenic areas to ensure that the amenity value and natural character of waterbodies are maintained.**
21. **Freshwater biosecurity risks are adequately managed within the Council's jurisdiction and the spread of aquatic pest fish and plants is mitigated as much as possible.**

- 22. Council considers emerging science around the health impacts of nitrate when managing nitrogen loss within drinking water catchments.**
- 23. The Council monitors water quality in the Hokitika River.**
- 24. Future monitoring of cultural indicators includes the Hokitika River in any assessments.**
- 25. Council seeks funding from central government to assist with resourcing the additional monitoring stipulated in the NPSFM 2020.**
- 26. The Council ensures that onsite wastewater treatment systems are situated, installed, and maintained properly in the Hokitika water supply catchment.**
- 27. The Council promotes investigation of municipal sewerage treatment options for Lake Kaniere residents, including a potential land-based discharge downstream of the water supply intake.**

3. Long term vision for freshwater

The Hokitika Freshwater Management Unit group developed a long-term vision to sum up the Hokitika FMU's aspirations:

In the Hokitika FMU, freshwater is valued and will be managed utilising the ki uta ki tai (mountains to the sea) philosophy. The mauri of the water is protected for our community's future wellbeing.

This Vision will be achieved, no later than 2032, by the following goals:

- a) utilise the ki uta ki tai (mountains to the sea) philosophy to manage freshwater;*
- b) the mauri of the water has been protected or has been enhanced where it was degraded;*
- c) supports freshwater ecosystems that are healthy and resilient;*
- d) supports healthy and diverse populations of mahinga kai species that are safe to access, harvest and eat;*
- e) freshwater is used efficiently and overallocation is avoided;*
- f) freshwater is managed to ensure that it is of a quality suitable for the community's drinking water and recreation; and*
- g) commercial and industrial activities, including agricultural and tourism are supported where these do not compromise a) to f).*

4. Background

The 2014 NPSFM, amended in 2017, guided the Hokitika FMU Group initially. The NPSFM 2020 came into force on 3 September 2020 and provided guidance from that point onwards.

The NPSFM provides regional councils with a certain degree of flexibility in how they go about identifying FMUs.

The WCRC suggests that the scale of the FMU needs to be appropriate for objective and limit-setting, freshwater accounting, and monitoring.

An FMU should not be so large that it prevents the setting of objectives that are specific enough to be effective. Equally, an FMU should not be so small that it results in undue complexity and cost in either the planning process or in the management of the FMU.

The West Coast FMUs took into account existing monitoring sites and community boundaries, combined with catchment boundaries which have an overarching influence on the distribution of water and people. A range of water resource monitoring is undertaken by the Council in the Hokitika FMU (Figure 1).

The Hokitika FMU includes the takiwā of Ngāti Waewae and Ngāti Māhaki. The area between the north bank of the Poerua River and the south bank of the Hokitika River is a shared takiwā area between the two hapū.

The NPSFM seeks to ensure that what is valued about each FMU will be maintained or enhanced. To understand what is valued, and therefore what needs to be achieved in each FMU, the Council worked with Te Rūnanga o Ngāti Waewae and Te Rūnanga o Makaawhio (Poutini Ngāi Tahu), and engaged the local communities.

The FMU community groups were established for each FMU. These groups consult with the local community and work together to understand the issues in that FMU, identify values and provide a package of recommendations to Council for consideration (including recommended objectives and limits where required). Those recommendations, if agreed, will influence the Regional Land and Water Plan. The FMU Group's composition is tailored to suit the circumstances in each FMU.

The NPSFM – Regional Implementation Strategy was approved by Council in May 2018. In accordance with the Strategy, two public information sessions were held, on 21 January 2020 in Hokitika, and on 23 January 2020 in Hari Hari, for the Hokitika FMU community. Following this, community member applications were considered and brought to the Council's Resource Management Committee for approval.

The Hokitika FMU Group convened in June 2020 and consisted of seven community members:

Kees van Beek (Chair), Mark Birchfield, Mark Turner, Tom Gledhill, Catherine Chagué, Chris Windley, and Merryn Bayliss. Community members came from a range of backgrounds representing a broad array of professional and personal interests. The Te Rūnanga o Ngāti Waewae representatives on the FMU Group were Francois Tumahai and Philippa Lynch, and the Te Rūnanga o Makaawhio representative on the FMU Group was Jackie Douglas. The Westland District Council (WDC) was approached to provide a representative, with Jane Neale nominated to attend by the WDC, with Planning Manager Fiona Scadden initially attending in support. The Regional Council representative was Debra Magner.

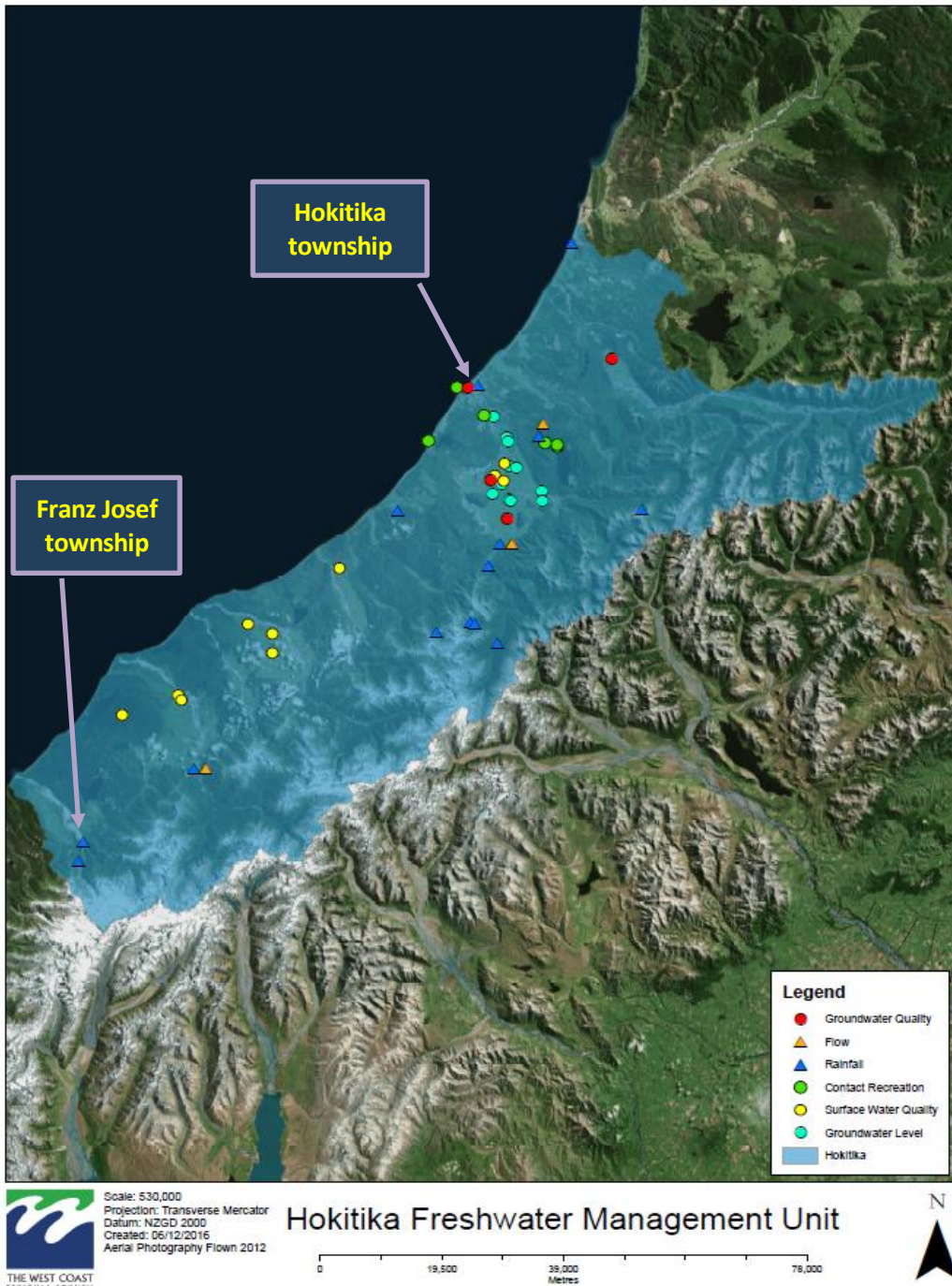


Figure 1: Location of Hokitika FMU boundary and monitoring locations within the FMU

4.1 Hokitika FMU meetings

Over the period for which this Group has met, it has covered a variety of topics during their monthly meetings. Through this process, and in accordance with the NPSFM, the Group has identified values that are important to the community, and which are affected by water quantity and quality.

The state or condition of these values can be measured using attributes (numeric, narrative or both), with target attribute states set within a framework containing outcomes, objectives, limits and methods (Figure 2).

Te Mana o te Wai
National objectives framework –
a process undertaken to achieve the long term vision

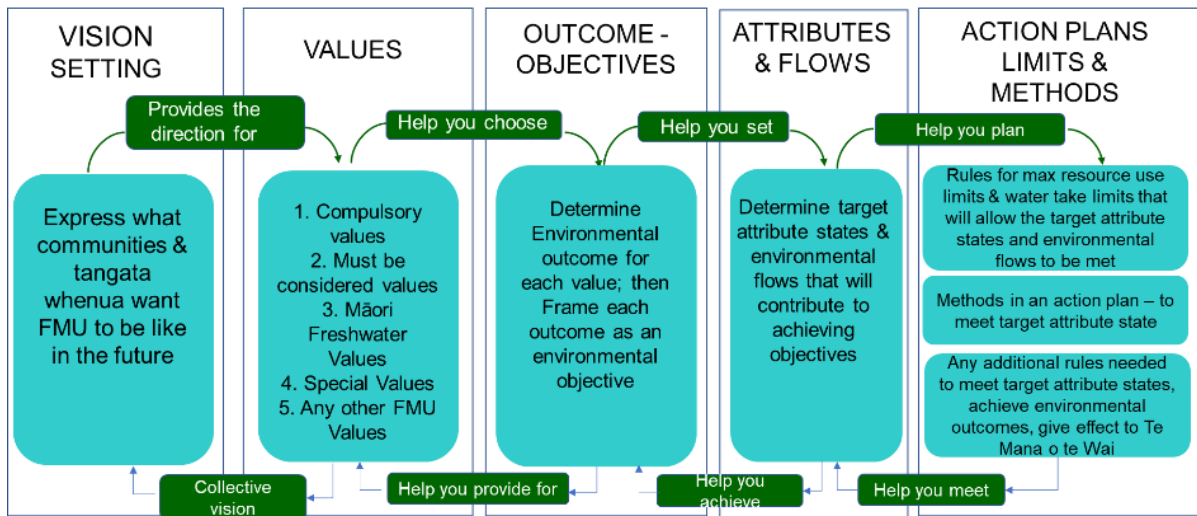


Figure 2: National objectives framework – a process undertaken to achieve the long-term vision.

Regular updates from the FMU have been posted on the WCRC’s website and Facebook. Updates have also been provided to the Council’s Resource Management Committee. Recommendations on values that will assist with Council’s efforts to meet the requirements of the NPSFM 2020 follow.

Note that there are mandatory actions and limits in the NPSFM 2020, which regional councils must undertake and adopt. This report recommends some values which may already be required by the 2020 NPSFM, hence they are an endorsement. Other values are recommended that are specific to the Hokitika FMU.

5. Values

An important part of the process was to identify community values pertaining to freshwater environments. The Group members each provided a range of values that they considered to be important to the Hokitika FMU community. These were generated as part of an initial brainstorming session and aimed to include all possible values that might exist across the FMU. They are not formal recommendations. These are listed in the table below (Table 1).

Table 1: Hokitika FMU values as stipulated by the Hokitika FMU community group members.

Values - Hokitika FMU		
		Verbatim values
Amenity and natural character	Amenity	Ability to appreciate natural beauty of streams and surrounds
		Aesthetic views - R&R
		Amenity and natural character
		Clarity
		Clear streams
		Natural beauty, scenic value
		Recreation
		Scenic value
Commercial use	Agricultural use	Animal pollution e.g., stock pollution
		Agriculture
		Farming
		Farming e.g., stock water
		Stock control
		Stock Water
	Horticulture	Horticulture
Tourism	Commercial ecotourism e.g., kayaking, guided trips	
Poutini Ngāi Tahu cultural and spiritual values	Cultural and spiritual values	Cultural
		Cultural and spiritual values
		Cultural use - ceremonies
		Cultural values for Tangata Whenua and the community
		Green stoning
		Mauri of the water
		Spiritual / Cultural values
		Te mana o Te Wai
		Upholding Cultural values
Domestic use	Domestic use	Household water (off grid)
		Water garden irrigation
	Efficiency	Encourage homes to be fitted with rainwater water storage tanks, to minimise use of current water infrastructure and supply
Drinking water	Drinking	Access to clean drinking water
		All waterways to be drinkable, safely, year-round
		Drinking Water/ Right to our own supply
Ecological health	Ecological health	Freshwater quality, not only maintain but improve
		Healthy ecosystem
		Healthy macroinvertebrates and instream fauna
		Improving quality
		Limit N+P
		No waterway to be contaminated with industrial waste on any scale
		Protection of wetlands and margins
		Reduce or halt discharges into water
		Rivers supporting healthy ecosystems and biodiversity
	Toxin free	Low nitrates

Values - Hokitika FMU		
		Minimal chemicals
		Poison free drinking water
		Protect from toxins - no toxic discharge
		Spraying with herbicides, pesticides and other man-made chemicals, not allowed within 10 metres of any waterway
		We want pure clean water. No man-made products of any description in our streams, creeks, rivers or lakes
Flow regime	Flood mitigation	Clean out flow
		Flood risk / hazard mitigation
	Hydro power	Electricity Generation
		Hydro
		Hydro- Power
		Micro & mini hydro
	Renewable energy from hydro electricity	
Food	Food gathering	Fishing
		Fishing for food
		Food gathering
		Use for food production (via agriculture) without negative impacts
	Mahinga kai	Kai moana and fishing
		Mahinga Kai
		Kai moana
		Places to gather kai (keep clean)
	Shellfish gathering	Keep shellfish beds healthy and clean
	Whitebaiting	Whitebait
Industrial and commercial values	Fire fighting	Fire fighting
	Industrial use	Economic prosperity from industry e.g., Mining
		Percent of water and level taken for commercial use
	Mining	Gravel Extraction
		Mining
Recreation	Contact recreation	Recreational mining and fossicking
		All waterways to be swimmable, year-round, without fear of being made sick while
		Contamination of water by onsite wastewater treatment systems facility
		Eliminate sewage outflow from Franz Josef
		Swimming / contact recreation
		Swimming safely in the rivers and streams
		Swimming
	Secondary contact	Boating, canoeing, white-water rafting
		Fishing
		Fishing as recreation
		Recreational activities
		Recreational opportunities

6. Attributes, outcomes and objectives

Regional councils must work with tangata whenua and engage with communities to identify all values for each FMU and set environmental outcomes for each value that fulfils the long-term vision, the NPS objectives, and any additional community objectives.

All attributes relevant to the values must be identified and their baseline states determined.

There are a number of attributes that must be measured, many of which have compulsory attribute states (Figure 23).

An attribute is a measurable characteristic (that is, numeric, narrative, or both), that can be used to assess the extent to which a particular value is provided for. For example, the NPSFM has an objective around maintaining/improving swimmability.

The attribute measured for this is the bacteria *Escherichia coli* (*E. coli*). Target attribute states are required – for *E. coli*, target attribute states are provided in the NPSFM National Objectives Framework tables and range from A (best) to E (worst)¹.

The Council must set target attribute states at or above the bottom line and plan what actions should be taken to meet these targets. They are required to improve or at the very least maintain the current state of waterways. FMUs can choose to add additional attributes or set higher targets.

The Group became familiar with the relationship between community values (which included Poutini Ngāi Tahu values), and the attributes/objectives required to safeguard these values (Figure 3). The Group supports in principle the attributes prescribed under the current NPSFM, where they are relevant to the Hokitika FMU community and environment, as long as they do not create an impractical or unreasonable financial burden for members of the community.

While the focus in the Hokitika FMU discussions has been on improving a number of key attributes (*E. coli* and sediment), NPSFM national bottom line numerical objectives need to be observed for all attributes consistent with the NPSFM concept of “maintain or improve”.

¹ This categorisation is stipulated for all compulsory attributes, all of which have a bottom line that requires improvement if transgressed.

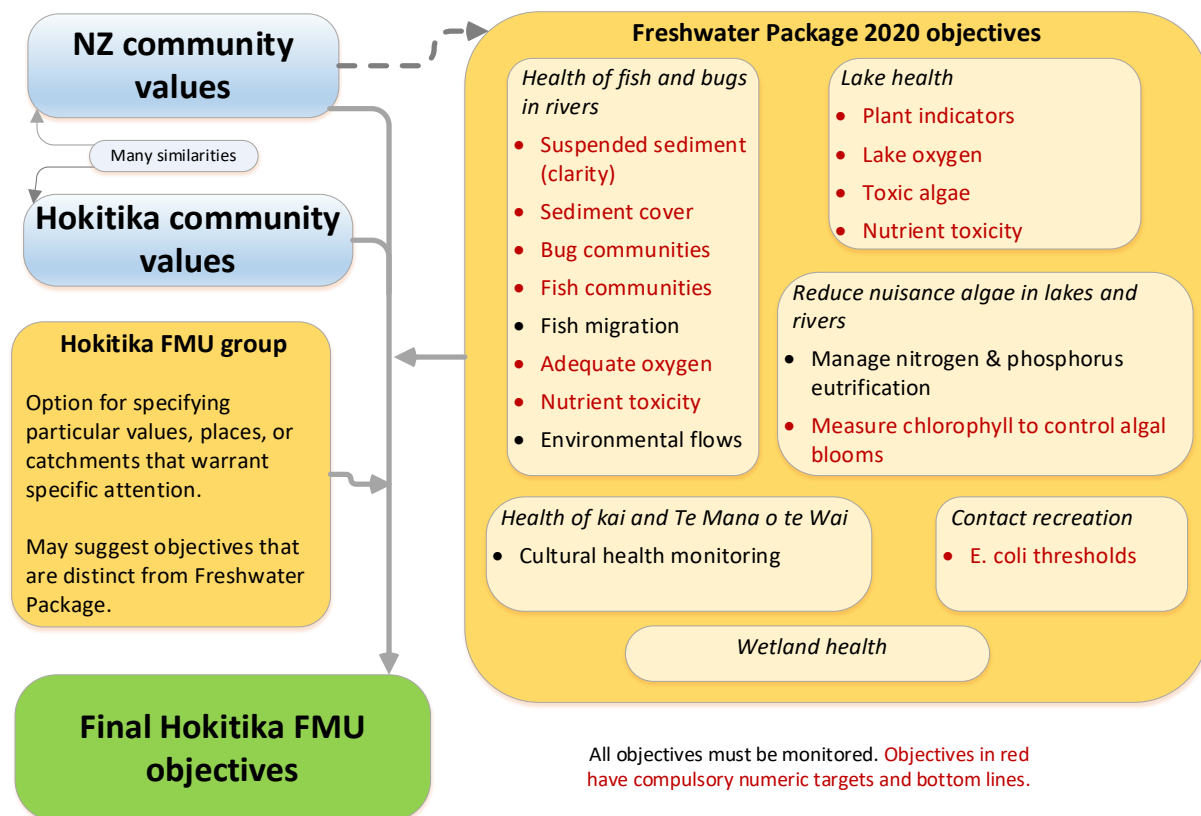


Figure 3: Community values and objectives combine with the compulsory attributes and measures contained within the NPSFM 2020 to reach a final list of objectives for the FMU.

7. Recommendations' framework

The recommendations are listed throughout the remainder of this report under headings which capture the topic areas covered by the FMU Group. All recommendations are numbered from one onwards.

Recommendations

1. **The Group recommends targeted regulation for specific areas in the future where required, providing the Council works on the provisions with Poutini Ngāi Tahu and consults the community and stakeholders prior to development of policy.**
2. **NPSFM national bottom line numerical objectives should be observed for all attributes consistent with the NPSFM concept of “maintain or improve”.**

When preparing the recommendations, the Group was aware of the Council’s limited ability to financially resource modelling complicated environmental processes and undertaking large scale environmental monitoring programmes, due to the regions size and small rating population. Council staff advised the Group that the work needed to create and maintain the tools required to underpin sophisticated regulatory measures and monitoring programmes is expensive. The Group was made aware that large investments in science were required to robustly estimate what impact land management changes can have on water quality on the West Coast. These matters were at the forefront of the Group’s minds and

the need to be realistic about what could be achieved when the Group was preparing their recommendations. Council staff explained to the Group that current water quality-related objectives and policies in Council plans apply over the entire region, except for the Lake Brunner catchment (in the Grey FMU) where there are stricter provisions due to concerns over aspects of lake health. There was discussion amongst the Group over setting unique objectives and methods for a specific area within the Hokitika FMU. It was decided that objectives and methods that apply equally across the FMU will achieve the improvements required. This approach will also create an even regulatory playing field that is fairer and easier for the community to understand.

The Group considered that the NPSFM 2020, other government policy and rules, and recommendations made by the Group will provide good protection for freshwater values overall, and specific limits can be set for specific areas if needed in the future. This is reflected in Recommendation 1.

8. Poutini Ngāi Tahu cultural considerations

Recommendations

3. **Include provisions in the Regional Land and Water Plan to ensure freshwater is managed so that: Mahinga kai is safe to access, harvest and eat; species are plentiful enough for long term harvest; and the range of species is present across all life stages.**
4. **Include provisions in the Regional Land and Water Plan to protect and enhance where degraded the mauri of freshwater bodies so that freshwater is available for Poutini Ngāi Tahu cultural use.**
5. **Include provisions in the Regional Land and Water Plan that ensure cultural allocations for the values of Te Rūnanga o Ngāti Waewae and Te Rūnanga o Makaawhio are provided for in the allocation of water.**
6. **Council to support Te Rūnanga o Ngāti Waewae and Te Rūnanga o Makaawhio to increase their capacity to undertake cultural monitoring of waterbodies.**

The NPSFM recognises that tangata whenua are to be actively involved in freshwater management (including decision making processes), and that cultural values are identified and provided for.

Water is a taonga (treasure) to Poutini Ngāi Tahu and having the ability to exercise tino rangatiratanga over water within their takiwā is of utmost importance to them. The representatives of Poutini Ngāi Tahu on the FMU Group emphasised that the Ngāi Tahu ki uta ki tai (from the mountains to the sea) practice recognises the connections between land, groundwater, surface water and coastal water. Water and land are interrelated resources, and a holistic approach is needed to their management. Land and water are not separate entities, because what happens on the land affects water. The representatives highlighted that all water is important and valued by Poutini Ngāi Tahu, and the whole community, whether it is groundwater, coastal water or water flowing in rivers or drains.

The representatives explained the importance of maintaining the mauri - the life-giving essence - of water. If water is degraded it impacts mana as it reduces the ability for both hapū to collect and provide safe mahinga kai so they can manaaki their visitors. The representatives explained that mana whenua, as kaitiaki, have an inherited responsibility to pass healthy water onto future generations.

Ngāti Waewae and Ngāti Māhaki consider that cultural and public health uses of water and the ecological values of water need to be recognised and provided for before consumptive uses of water are provided for.

The Poutini Ngāi Tahu representatives outlined why water is a taonga to them and highlighted some of the ways in which they use water (Figure 4). Some of the reasons why it is a taonga and some of the ways they use water are listed below:

- Role in creation stories
- Role in identity
- Connections through historical accounts
- Navigational routes – traditional travel routes
- Wāhi tapu – sacred places, sites and areas
- Cultural purposes e.g., ceremonies
- Mahinga kai
- Cultural materials e.g., weaving and medicines
- Gathering of pounamu - it is not taken from areas with poor water quality.

The representatives emphasised that mahinga kai is not just the gathering of food. It includes a range of natural materials along with the places that they are gathered from, and the practices used for collection. Sometimes water quality issues have reduced mahinga kai abundance which has meant that harvests are not possible and intergenerational traditional knowledge can consequently be lost.

The NPSFM 2020 requires regional councils to develop monitoring plans which are also informed by Mātauranga Māori (traditional Māori knowledge). The Poutini Ngāi Tahu representatives explained how they determine the cultural health of a waterway. While traditional western science measurements can help inform their assessment, the collection of this information alone is not sufficient for mana whenua to be able to determine the cultural health of a waterway. The Cultural Health Index (CHI) is an example of a cultural method for determining the health of a waterway which was explained to the Group. The representatives emphasised that traditional knowledge (Mātauranga Māori) is required to utilise this method, and therefore cultural health monitoring assessments to determine the cultural health of waters within the Hokitika FMU can only be undertaken by rūnanga-mandated Poutini Ngāi Tahu whanau.

The current WCRC science programme needs to be more in line with the NPSFM 2020 to ensure their monitoring plan is informed by Mātauranga Māori. The FMU Group is aware that cultural health monitoring can only be undertaken by mandated Poutini Ngāi Tahu whanau in the Hokitika FMU catchment. The Council needs to support and work with Te Rūnanga o Ngāti Waewae and Te Rūnanga o Makaawhio to enable cultural monitoring to occur.

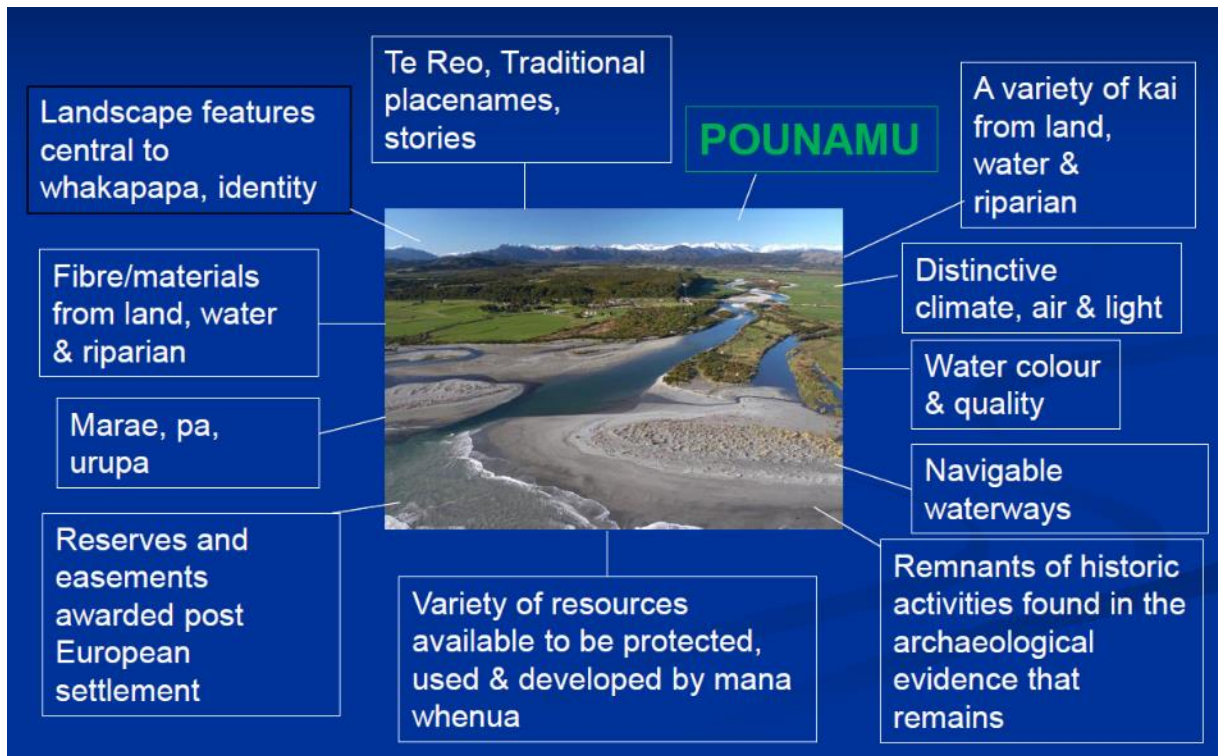


Figure 4: An overview of some of the eco-cultural attributes of a catchment

9. Water quantity

Recommendations

7. **The Group proposes that Rule 55 should be amended within the existing (operative) Regional Land and Water Plan, that is, the conjunction between (i) and (ii) should be "and", not "or".**
8. **Amend timeframes of water permits for consumptive water takes to 10 years from 35 years. Amend consent status to controlled for renewal of water take permits for the first and second renewals of 10 year water permits.**
9. **Community drinking water supply permits may be issued with consent durations of up to 35 years.**

9.1 FMU Overview

Community values are underpinned by a range of attributes as diverse as the selection of values themselves. The Group considered water quantity as fundamental, interacting with other attributes and underpinning all values.

While the West Coast has a reputation for abundant water, low flows and droughts can come about relatively quickly in the region. Given a higher frequency and quantity of rain, the depth and energy stored within grass roots are less than grass in other drier areas of the country. Therefore, West Coast grass can

be more susceptible to dry periods. Solutions such as irrigation can be required for relatively short, dry periods to ensure continuity of production.

Pasture irrigation is not currently occurring in the Hokitika FMU. However existing land use practices may need alteration to future proof them in the face of climate change, which predicts wetter spring/winters and drier summer/autumns overall.

There are 48 consents designated for water takes within the Hokitika FMU. While drinking water drives the majority of resource consents for water takes (Figure 5), it accounts for a relatively small quantity compared to that used by hydroelectric power generation (Figure 6). While hydroelectric use is often considered as non-consumptive, this is complicated where water is diverted from one catchment to another.



Figure 5: Number of consents for water takes by type, and the quantity of water used by type, in the Hokitika FMU.

The majority of large takes occur east of Hokitika township (Figure 6), most of which relate to hydroelectric power generation (Figure 5).

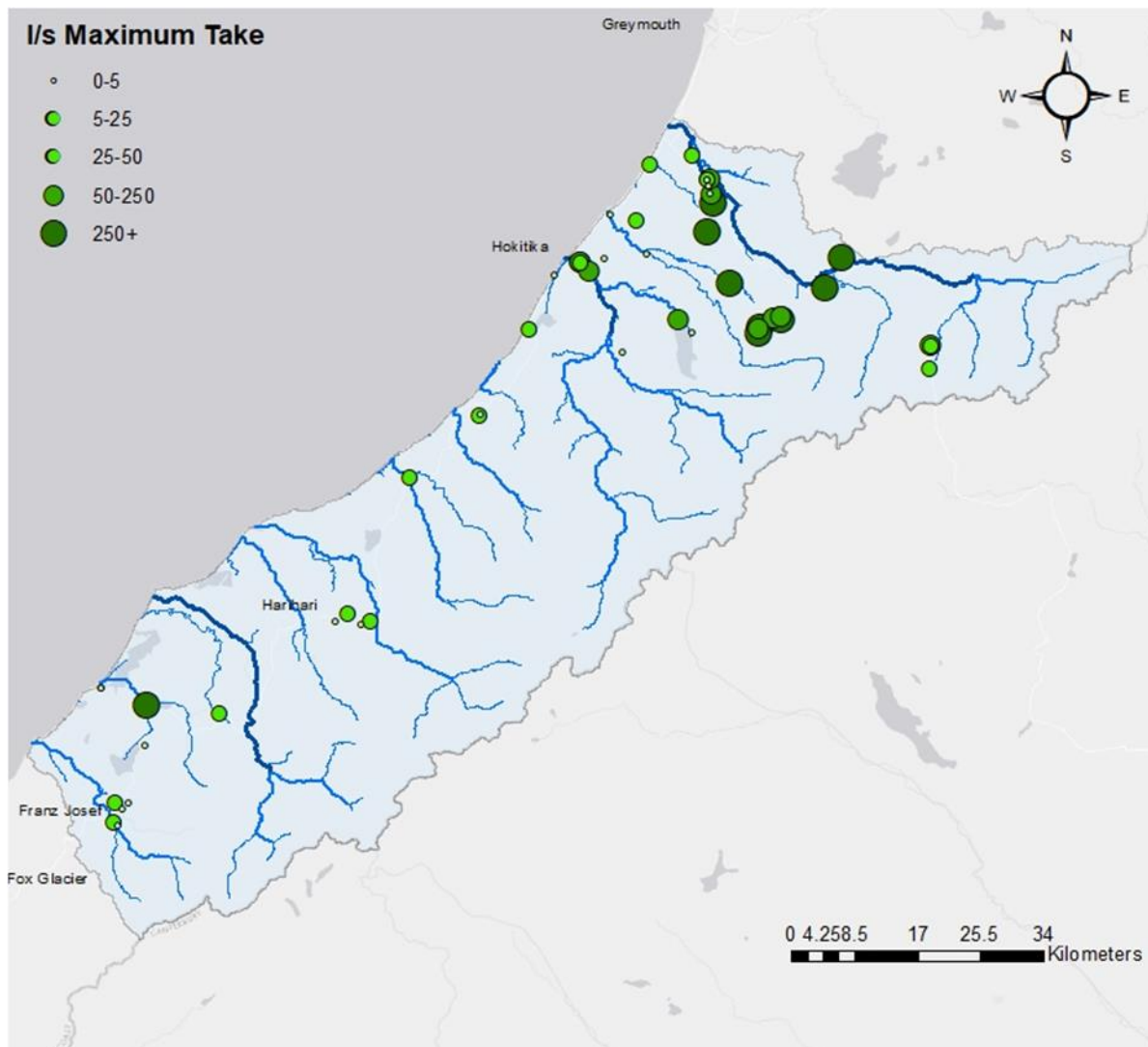


Figure 6: Current allocation framework within the Hokitika FMU, based on consented water takes as of 2019.

9.2 Consumptive and non-consumptive takes

Water takes fall into two categories: consumptive and non-consumptive. A consumptive water take occurs when the water is consumed, or it is removed from the immediate catchment without being returned. Examples of this would be irrigation where water is lost to the atmosphere via evapotranspiration, or a water bottling plant. Non-consumptive takes are those where all, or almost all, of the water is kept within the immediate system. An example of this would be a 'run of the river' hydro scheme, where water might be diverted over a short distance before re-entering the natural channel. An example of a consumptive hydroelectric take would be where water from the Kawhaka River is diverted into the Taramakau River via the Kapitea Lakes.

9.3 Consents and permitted activity rules for water takes

Most consumptive water take permits currently issued by the WCRC are granted for 35 years. The Group considered a national review of timeframes allocated to water take consents. Reducing the timeframes as much as some other regions may not be necessary in certain areas due to the consistent rainfall

received and investment that hinges on water permit continuity. Most of the Group considered the current lifespan of permits in the Hokitika FMU to be largely adequate as there was no shortage of water in the FMU. The Poutini Ngāi Tahu representatives considered the current 35 year consent duration for consumptive water take permits on the West Coast could be too great to respond to changes in resource use and future climate variability. They consider that amending timeframes for most new permits to 10 years from 35 years is appropriate. Poutini Ngāi Tahu also consider that community drinking water supply permits are a critical public service, and a 35 year duration is still appropriate for these water takes.

The recommendation to reduce the timeframe for consumptive water take permits to 10 years is not intended to prevent future water takes, but does have cost implications for more frequent reviews of permits. This matter was considered by Council for the Grey and Kawatiri FMU Groups' recommendations to reduce the timeframe to 10 years. Council and both of these FMU Groups agreed to make renewal of consumptive water take permits, excluding takes for community drinking water supplies, to occur every 10 years, and also change the rule so that renewal of the permit is a controlled activity. This means that the permit must be granted, and the Council only has discretion of certain controls listed in the relevant plan which could be developed around water availability and allocation. The controlled activity renewal is limited to two renewals. This allows for an adaptive approach. Poutini Ngāi Tahu representatives support having the same recommendation as the Grey and Kawatiri FMU Groups.

9.4 Rule 55 within the existing Regional Land and Water Plan

Rule 55 within the existing Regional Land and Water Plan contains an error. The conjunction between (i) and (ii) should be "and", not "or". The Group was supportive of amending Rule 55 in the Land and Water Plan in order to make it more sensible and meaningful.

The Group proposes that Rule 55 should read as follows:

18.3.3 Restricted Discretionary Takes, Uses, and Diversions of Water

Rule 55. Take and use of surface water

Unless permitted by Rules 39, 40, or 42, or controlled by Rules 52 or 53, the taking and use of surface water where:

- (i) The total volume of water allocated from the river is less than 20% of the mean annual low flow (MALF) of the river; ~~or~~ and*
- ((ii) The applicant accepts a minimum flow based on 75% of the mean annual low flow (MALF) of the river; is a **restricted discretionary** activity.*

In considering any resource consent under this rule the council will restrict the exercise of its discretion to the following:

- (a) The amount of water to be taken;*
- (b) The flow available in the source water body;*
- (c) The current allocation from the source water body;*
- (d) The minimum flow to be applied to the take, if required;*
- (e) Any adverse effect on any existing lawful take of water, if consent is granted;*
- (f) The instream values supported by the source water body and related waterbodies, and any potential adverse effect of the taking on those values, if consent is granted;*
- (g) Any need to prevent fish and eel entering the intake;*
- (h) The means and timing of the take, and the rate of take;*
- (i) The quantity of water required for the intended use;*
- (j) The duration of the resource consent;*

- (k) The information and monitoring requirements; and
- (l) The review of conditions of the resource consent.

An application for resource consent under this Rule does not need to be notified.

For smaller streams with high instream values the location and rate of take and the seasonal timing of the take can be controlled by conditions on the consent as set out in the explanation to Policy 7.3.1.

10. Water quality

10.1 FMU Overview

WCRC stream monitoring data was used as a baseline to investigate state (Table 2) and trends (Figure 7) for water quality within the Hokitika FMU. These results, in conjunction with the communities' priorities and NPSFM objectives, were instrumental in determining which objective/attribute combinations were the highest priority to address in the Hokitika FMU.

Council has 10 river surface water quality monitoring sites visited throughout the year in the Hokitika FMU. Some of these sites are sampled monthly while others further south are sampled quarterly. All but one site are located in intensively farmed catchments. Council intentionally biases sampling towards areas that are likely to be impacted.

Of the summer bathing beach monitoring sites, two are located in freshwater environments in the Hokitika FMU (Lake Mahinapua and Kaniere River). There are also four groundwater bores assessed quarterly for quality.

Nutrient enrichment and toxicity, algal blooms, faecal contamination, macroinvertebrates (fauna health), sediment, and habitat quality are some key main characteristics that Council measures. The NPSFM requires councils to monitor many of these under its list of compulsory attributes/objectives. Attributes that were in the D and E categories did not meet the NPSFM standards.

Faecal contamination (*E. coli*) was below the bottom line and increasing at several sites that had catchments dominated by intensive agriculture. This is likely to be associated with agricultural intensification, and processes like earthworks, livestock pugging, and surface runoff.

Clarity has deteriorated at some of these sites but is reasonably good overall. An exception is the Okutua Stream in Okarito Forest which was below the bottom line for clarity, although it is a reference site. The reason for this is the heavily brown stained water, caused by large quantities of dissolved organic matter (DOM). This occurs naturally as a result of leaching from the surrounding forest and wetlands. While DOM reduces clarity, quantities of suspended and deposited sediment are minimal, and water quality is very high. The NPSFM allows for exemptions when there is a completely natural cause. Nutrients were typically low with no sites below bottom lines.

Waterways in the Hokitika FMU are considered to be 'Cool and Wet' climatically when compared around New Zealand. Warm summer conditions are not normally prolonged but spells of hot, dry weather do occur, which is evident in Table 2. Riparian cover was lacking in Duck Creek (Hokitika) and Un-named Creek at Adamsons Road (Whataroa) where water temperatures were in the C category.

Table 2: Attribute states for monitored streams in the Hokitika FMU. Any site/attribute combinations that are a 'D' or an 'E' are below the bottom line and require intervention under the NPSFM. Blanks exist where there is no data for that site.

Site	Nutrient toxicity		Algal blooms		Faecal contamination	Fauna health	Sediment	Oxygen
	Nitrate toxicity	Ammonia toxicity	Dissolved reactive phosphorus*	Chlorophyll a	E. coli	SQMCI	Clarity	7 day mean summer min*
Berry CK	A	A	A	B	E	B	A	
Duck Ck	A	A	A	A	A	A	A	C
Ellis Ck	A	A	B	A	A	B	A	
Harris Ck	A	C	D	B	E	B	C	B
La Fontaine Stm A	A	A	A	C	B	B	A	A
La Fontaine Stm B	A	A	A	A	D	B	A	B
Murray Ck	A	A	C	A	B	B	A	
Okutua Stm	A	A	A	A	A	B	D	A
Unnamed Ck	B	A	A	B	D	C	A	C
Vickers Ck	A	A	A	A	A	B	A	B

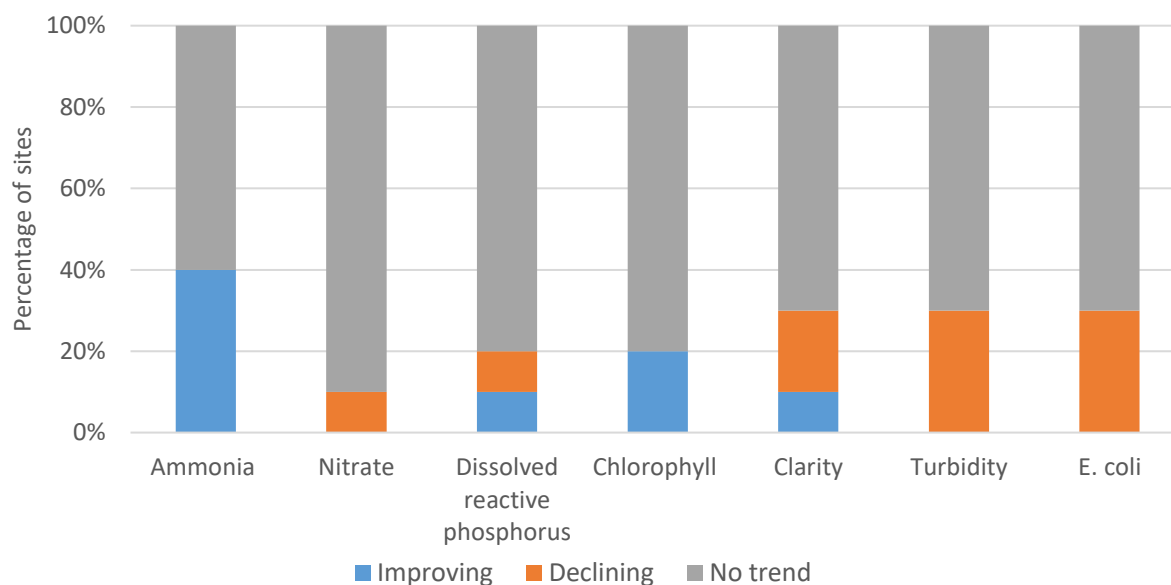


Figure 7: Attribute trends for monitored streams in the Hokitika FMU.

A small amount of data from 2009 and 2021 exists for several of the lakes within the FMU, which allows us to assess their state against some of the compulsory attribute states in the NPSFM (Table 3). Water quality was good for the majority of lakes that were measured.

The WCRC scientists have advised that it is unclear what has driven the low levels of dissolved oxygen in Lake lanthe or Lake Mapourika. These results do not align with other water quality measures or potential activity within the catchment. There may be natural processes occurring in these deep lakes that lead to low oxygen levels at the lakebed. A greater threat to all of these Lakes is the potential introduction of pest organisms like Rudd (an introduced pest fish), and the weed Lagarosiphon.

Table 3: Attribute states for lakes in the Hokitika FMU. Any site that is a 'D' is below the bottom line.

	Ammonia	Total nitrogen	Total phosphorus	Phytoplankton	Oxygen at lakebed
Lake lanthe	A	B	A	B	C
Lake Kaniere	A	A	A	A	
Lake Mahinapua	A	B	B	A	A
Lake Mapourika	A	A	A	B	D
Lake Wahapo	A	A	B	A	A

10.2 Faecal contamination and *E. coli*

As previously mentioned, Table 2 shows that faecal contamination (as indicated by *E. coli* concentrations) was below the national bottom line and contamination levels are increasing at several stream monitoring sites. There have also been exceedances of bathing beach bacteriological standards. Rivers tend to have the most exceedances, followed by beach sites, while lakes are normally good on a consistent basis (Figure 8). *E. coli* comes from the gut of warm-blooded animals and represents both the degree of faecal contamination to a waterbody, and levels of pathogens like campylobacter.

Recent analysis indicated a declining water quality trend due to increasing *E. coli* levels at some Hokitika sites (Figure 8) with some below the national bottom line. Sites within the FMU that have a "D" or "E" rating require intervention under the NPSFM. The Group discussed whether, a) they were happy with the NPSFM 2020 *E. coli* thresholds, b) there were any additional locations within the FMU that require special consideration, and c) there were any values that require special consideration in regard to pathogen contamination. The Group endorsed the implementation of the NPSFM 2020 target attribute states for *E. coli*, and no further recommendations for specific limits in specific areas were sought at this point in time.

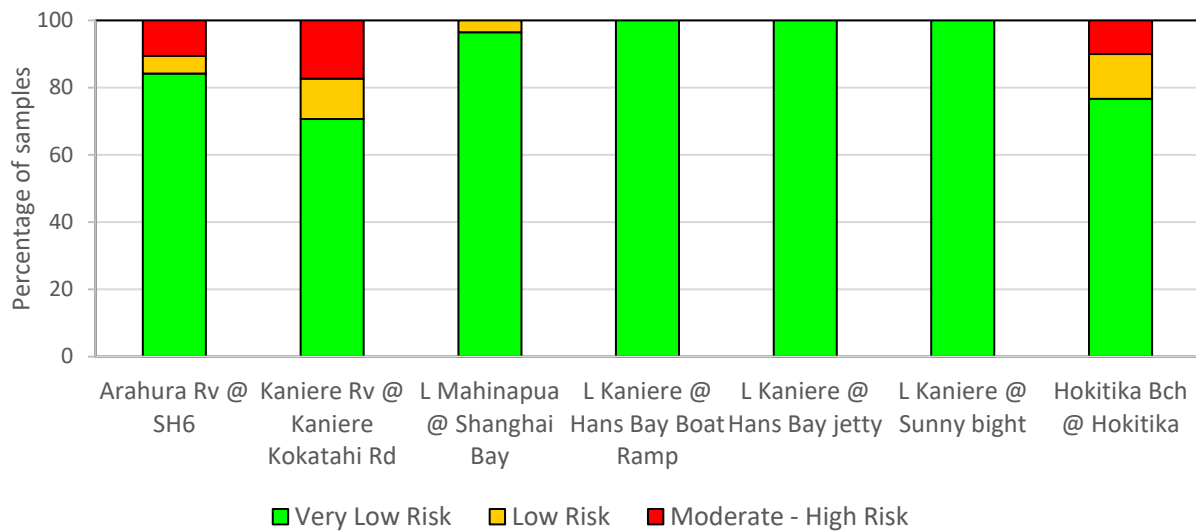


Figure 8: Percentage of times contact recreation sites in the Hokitika FMU are of a particular pathogen risk category.

10.3 Sediment

Recommendations

10. When managing sediment effects on freshwater, efforts need to be made to differentiate between those caused by human activity, and those associated with natural events.
11. The Group supports the use of farm plans to manage problematic additions of sediment to waterways.

The Group discussed how sources of sediment can originate from both natural events like slips, and anthropogenic activities like earthworks. If streams have high sediment loads it will be important to differentiate between sources. The NPSFM 2020 has compulsory numerical objectives for clarity (a proxy for suspended sediment), and deposited sediment. The numerical objectives are broken down into groups based on geology types, so intrinsic characteristics are considered when these sediment objectives are applied to specific waterways. This means that less stringent clarity standards will be applied in catchments with erodible geology.

What is not catered for well in these standards is the role of dissolved substances that reduce clarity but are completely unrelated to suspended sediment. The best example of this is Okutua Stream in the Okarito Forest. This catchment is surrounded by native forest and has no current human disturbance. Yet this site is below the bottom line because of high concentrations of dissolved organic matter. The substances that cause this naturally occurring brown colouration significantly reduce clarity but they are unrelated to human activity and not indicative of suspended sediment.

The National Environmental Standard for Plantation Forestry (NESP) has a web tool to calculate erosion risk and potential impacts on fish, based on geology and slope. These tools and approaches could have direct relevance to managing sediment loss and meeting the requirements of the NPSFM.

The Group supported the use of farm plans to manage problematic additions of sediment to waterways.

Catchment care groups have the potential to disseminate and share information. The scope of topics and support they provide is potentially very broad and could serve a wide range of participants needs. Care groups could tie in with farm planning to help minimise sediment entering waterways or could be independent of this if desired.

10.4 Nutrient and macroinvertebrate attributes

Council monitoring has indicated that nuisance periphyton growth is not an issue for most Hokitika FMU waterways. A predominantly cool, wet climate plays a large part in this. It is, however, possible to have occasionally high algal abundance in some waterways during warm, dry periods, particularly if this combines with a lack of shade and high nutrient levels.

Macroinvertebrates are useful bioindicators of aquatic health. The NPSFM 2020 provides a bottom line for macroinvertebrates, setting a minimum Macroinvertebrate Community Index (MCI) and Quantitative Macroinvertebrate Community Index (QMCI) score of 90 and 4.5, respectively. There is also a 'Macroinvertebrate Average Score Per Metric' (ASPM, which is calculated from a group of several metrics), with a bottom line of 0.3. Like other attributes, the NPSFM 2020 stipulates that these macroinvertebrate attributes shall not deteriorate beyond their current state. The Group considered that the constituents of the NPSFM 2020, other government policy and rules, and recommendations made by the Group, will provide good protection for ecological values. No recommendations are put forward on this matter.

11. Mitigating on-farm sources of faecal contamination to waterways

Recommendations

12. **The Group supports the Council strengthening regional rules to prevent discharges containing faecal contaminants directly to water. They also supported the use of treatment via constructed wetlands, and land-based systems, providing they are effective.**
13. **Te Rūnanga o Ngāti Waewae supports the Council implementing requirements for stock exclusion fencing and farm plans, and promoting riparian planting, to limit faecal contaminants entering waterways.**

There are many ways faecal contamination can enter waterways from a farm. Some are of a point source nature like farm dairy effluent (FDE). Others consist of many smaller 'diffuse' sources that accumulate. Many of these can be tackled by addressing the drainage pathways of contaminated runoff across the land.

The Group participated in a field trip looking at farms in the Arahura and Hokitika catchments, and discussed the issues that caused faecal contamination in them. Currently, only the Lake Brunner catchment has specific regulations that go beyond those which are standard in the rest of the region.

Treating effluent contaminated water involves retention or slowing down the flow in order to encourage settling, or filtration through vegetation or soil (vertical percolation). Concentrated sources of effluent,

for example, dairy shed effluent, require specific strategies and infrastructure to manage. An example of this is the low rate application of FDE to land, as required in the Lake Brunner catchment (Grey FMU), which is more effective for FDE disposal and grass growth. A combination of many small contaminant sources can accumulate to form a significant contribution. It is most effective and practical to tackle these sources near their origins. There is a wealth of guidance on how to achieve this, provided by the likes of Dairy NZ, AgResearch, and many regional councils.

Group members outlined the West Coast issue of high rainfall that causes problems on farms. They considered the conflicting needs – rapid drainage for flood mitigation and drier pasture (reduced pugging, higher growth) versus reducing or slowing drainage to improve contaminant assimilation. The Group did consider that stock should be carefully managed around waterways if there was potential for them to cause measurable degradation of waterbodies.

Dairy companies and WCRC already monitor dairy shed effluent and more could be made of this data for environmental reporting.

12. Discussion around recommendations based on values and specific locations

While the Group initially identified a lot of values for freshwater (see Table 1), those values outlined in this part of the Report were identified throughout the Group process as being the most important.

12.1 Education and monitoring

Recommendations

14. **The Council dedicates resources to support Enviroschools as funds permit.**
15. **The Council promotes educational initiatives aimed at enabling the community to better understand and protect their freshwater resources. When doing this, consider opportunities to work in partnership with other organisations e.g., Department of Conservation, Westland District Council, Poutini Ngāi Tahu, Dairy NZ, Beef and Lamb.**
16. **The Council works with training providers including Tai Poutini Polytech to ensure that students undertaking earthworks and agriculture courses learn about freshwater values and how to ensure their activities protect and/or enhance them.**
17. **The Council encourages the local community to be involved in the monitoring of environmental quality within the Hokitika FMU.**

Education is important to inform people what the local environmental issues are and why they are important. Monitoring of environmental quality is fundamental to understanding the health of our waterways. By incorporating the community into monitoring programmes we increase the overall monitoring effort (and subsequently our knowledge pool). But it serves a dual purpose as an education and awareness tool. The Group discussed these topics.

Enviroschools is a national initiative bringing a broad range of environmental issues into West Coast classrooms. Council staff periodically take part in Enviroschools programmes when invited, and could

continue to do so, bearing in mind the extent of engagement is dictated by the Enviroschools coordinator rather than the Council. Tai Poutini Polytechnic (TPP) is another educational institution offering a range of primarily practical courses. Again, the TPP make decisions on the content of their courses but it could be beneficial to have Council staff informing relevant courses on water quality, consenting, and compliance considerations to the likes of the digger students.

12.2 Amenity and natural character

Recommendations

18. **Water clarity is maintained or improved in waterbodies valued for their natural character.**
19. **Waterbodies are above the bottom line for any relevant attribute, and if not, ensure that they are improved to above the bottom line by 2030.**
20. **Promote the provision of public toilets in popular scenic areas to ensure that the amenity value and natural character of waterbodies are maintained.**
21. **Freshwater biosecurity risks are adequately managed within the Council's jurisdiction and the spread of aquatic pest fish and plants is mitigated as much as possible.**

Amenity and natural character are important freshwater values in the Hokitika FMU. Attributes that relate to these values are diverse, often complicated and hard to measure, but may also be straightforward e.g. clarity. Many freshwater attributes that relate to these values also relate to others, so improving them can have a dual benefit. Group discussion of these values did branch out into others like ecological and cultural health, drinking water, and commercial needs. Aquatic pest plants and fish such as Rudd and Lagarosiphon can reduce the amenity values of water bodies.

Te Rūnanga o Makaawhio are in favour of manual extraction of pest plants over chemical control means. It might be more expensive, but it is more culturally appropriate. However, it does need to be recognised that chemical control methods are often more effective.

12.3 Commercial Use

The Group discussed stock drinking water and ensuring water quality is adequate for stock use via reticulated networks. It was considered important for water quality to be suitable for other relevant commercial uses in order to maintain economic sustainability.

Regarding the use of water for hydro electricity generation, the Group suggested there should be a more robust permissions process associated with new hydroelectric power schemes that allows for greater local input and weighting of their values. No recommendations are put forward on these matters but note that they are addressed in the Long-term Vision.

12.4 Drinking Water

Recommendations

22. Council considers emerging science around the health impacts of nitrate when managing nitrogen loss within drinking water catchments.

Drinking water is an important value and widely rated as a top one by the Group. It is worth noting that drinking water quality is already protected by other legislation like the New Zealand Drinking Water Standards (NZDWS 2018). *E. coli* can be managed effectively by standard treatment methods but treatment such as chlorination is often unpopular with communities. Treatment (including chlorine) is important and normally a legal requirement for larger municipal supplies. The new Water Services Bill will significantly increase the degree of regulation that potable water supplies are subject to. Other points to note are:

- All waterways are unlikely to be drinkable, but those that are part of a potable supply require adequate protection.
- Storage facilities could in some circumstances be used to reduce cost associated with managing water treatment and supply. Storage is used on many dairy farms between plate cooling and washdown water. Storage also builds community resilience should a large earthquake disrupt municipal supply.

Recent international research has found links between nitrates and bowel cancer. Nitrate levels that have potential to cause cancer may be lower than the current levels of nitrate considered to be safe under existing health guidelines. This is recent research, and more studies are required to better understand potential links between nitrate and cancer.

Members of the Group expressed concern about potential increases in onsite wastewater treatment systems and human effluent discharges in the Lake Kaniere catchment. The reason for concern was that Lake Kaniere is the source of Hokitika's drinking water and its quality should not be jeopardised. This is further discussed under section 12.6 Lake Kaniere, with two recommendations.

12.5 Hokitika River

Recommendations

23. The Council monitors water quality in the Hokitika River.

24. Future monitoring of cultural indicators includes the Hokitika River in any assessments.

25. Council seeks funding from central government to assist with resourcing the additional monitoring stipulated in the NPSFM 2020.



Figure 9: Hokitika River at the Gorge.

Some Group members believe that the health of the Hokitika River (Figure 9) has deteriorated over the last 40 years in terms of water quality, availability of flounder, and recreational value. However, there is no empirical data to confirm this hypothesis.

The cultural health assessments could be a good vehicle for assessing the health of the Hokitika River. Cultural monitoring will complement conventional Council monitoring. The information that will be captured by each monitoring approach supports the NPSFM's fundamental concept of Te Mana o te Wai.

12.6 Lake Kaniere

Recommendations

- 26. The Council ensures that onsite wastewater treatment systems are situated, installed, and maintained properly in the Hokitika water supply catchment.**
- 27. The Council promotes investigation of municipal sewerage treatment options for Lake Kaniere residents, including a potential land-based discharge downstream of the water supply intake.**

The Group shared opinions on the recent subdivision development proposals at Lake Kaniere (also refer to section 12.4). There was interest in doing more monitoring at Lake Kaniere, as well as other lakes within the FMU.

The main threat to drinking water quality from urban activities are pathogens. Some Group members were concerned about the increasing numbers of onsite wastewater treatment systems within Hokitika's drinking water supply catchment.

Pathogens are effectively assimilated in discharges to land via retention and percolation, providing soils and systems are appropriate for the task. Hokitika's water supply is adequately treated to manage pathogen risks. When combined with the dilution offered by the Lake the pathogen risk to humans when drinking from the municipal supply is extremely low. However, there was still concern that:

- Onsite wastewater treatment systems could be installed inappropriately increasing the chances of contamination.
- There should be a limit to how much development occurs in a municipal water supply catchment.
- Other contaminants associated with urban septage could be present, mobile, and not easily accounted for, such as medications, and chemicals associated with cleaning products.

There are a number of regulations under the RMA and Building Code that control the use of onsite wastewater treatment systems. If these regulations are met then they may continue to be used in the catchment.

Concerns were raised by some members around 1080 entering Lake Kaniere during drops, including 1080 baits and carcasses in the catchment. Lake Kaniere is a Statutory Acknowledgment Area in the Ngāi Tahu Settlement Act 1998. The Group considered whether a recommendation was needed around the use of 1080 in the Hokitika FMU. Several members were either undecided or did not wish to make a recommendation on the use of 1080, therefore none has been added. Further to this, WCRC staff advised the Group that the Regional Council no longer has the role of managing approval for 1080 drops, but approval is still required from Community Public Health (CPH - Ministry of Health). CPH place conditions on approvals for buffer distances from waterways to avoid 1080 pellets entering water.

Given that the West Coast Regional Council no longer has any authority for 1080 drops, recommendations relating to the use of 1080 are outside the scope of this FMU Group project.

12.7 Outstanding water bodies (OWBs)

The NPSFM 2020 requires that: “The significant values of outstanding water bodies are protected” (Ref NPS-FW 2020, 2.2, Policy 8); and, “Every regional council must identify outstanding water bodies (if present) within each FMU” (Ref NPS-FW 2020, 3.8 (3) (d)).

The Group devoted time during several sessions considering which waterbodies might be nominated for assessment as OWBs, and why. Some nominations of OWBs were:

- The **Hokitika River**: put forward by Te Rūnanga o Makaawhio because of the historical value, spiritual value, mahinga kai and waka, industrial value, and recreation value. Grove Swamp would be a specific part of the catchment identified for mention – Grove Swamp has the rare Australasian Bittern.
- **Ōkārito Lagoon and catchment**: Feeding grounds for migratory birds, whitebait spawning, mountain to sea connecting waterway system, Ōkārito Rowi, Giant Kahikatea - only 2% left in country; source of Ōkārito community drinking water; wild river catchment is in the Westland Tai Poutini National Park.

The Group discussed if the Lagoon is in the coastal marine area because it has some tidal influence. Ōkārito is mostly a freshwater lagoon as it is fed by freshwater rivers, streams, and an aquifer. The aquifer could be put forward for consideration as an OWB. The Ōkārito Lagoon is identified in the Regional Coastal Plan as a coastal lagoon in the coastal marine area. The coastal marine area boundary (in the foreshore area) is determined by identifying the Mean High Water Spring line, which is worked out by calculating the average of high tides over 18 years. Other councils have included lagoons as OWBs.

- **Waitangiroto River**: White Heron sanctuary.
- **Waitangi Forest Conservation area – catchments within**: Scenic, unspoiled natural form and character.
- **Mahinapua** (creeks, lake, lagoons): A sanctuary for whitebait spawning, already protected under the Ngāi Tahu Lake Mahinapua Management Plan. It is a tapu lake.
- **Lake lanthe**: Aesthetic and overall amenity value.
- **Taramakau River**: This has historic value to the West Coast.

- **Franz Josef Glacier and the Waiho River:** This has important legends associated with it and ties in with the mountain to sea philosophy.
- **La Fontaine Stream:** This is an important trout fishery.
- **Kawhaka Creek and Kawhaka water race:** Used a lot for recreation, fishing and swimming.
- **Shearer Swamp:** Valuable biodiversity.
- **Totara Lagoon:** There is concern around the historic and potentially current contamination arising from within the catchment. Totara Lagoon has important ecological and mahinga kai values.
- **Lake Kaniere:** This is the Hokitika town water supply.

13. Conclusions

The Hokitika FMU Group has made recommendations for the consideration of the Council Resource Management Committee. The process has included familiarising the Group with the content and expectations of the NPSFM, and the health of waterbodies within their FMU. A broad range of values associated with freshwater were identified including those relating to recreation and amenity, Ngāti Waewae and Ngāti Māhaki cultural values, mahinga kai, drinking, ecological health and commercial/industrial applications.

In the Hokitika FMU, Te Rūnanga o Ngāti Waewae and Te Rūnanga o Makaawhio are partners with Council regarding water resource management, as underpinned by the NPSFM and the Mana Whakahono ā Rohe Iwi Participation Arrangement. As per Te Mana o te Wai, all water has value regardless of its location, for a range of purposes. It is important to consider the broad interconnectivity of factors affecting water quality under the ki uta ki tai philosophy. The current generation need to pass healthy water on to future generations.

The Hokitika FMU (and West Coast) is a large area with a small population, heavily dependent on a narrow range of industries, with tourism, agriculture, and mining being the main ones. All of these industries have potential to impinge on values of water that have been identified as important by the community. It is important to note that many of the values identified relate to the water's role in supporting people's livelihoods. So a balanced approach was at the forefront of the Group's collective consciousness when considering recommendations.

Another key consideration, associated with a small population/large area, is the Council's and Hokitika communities' limited means to develop and maintain extensive monitoring and regulatory frameworks. Full implementation of the NPSFM won't be possible without gaining resources and/or assistance from industry, central government, and volunteers. The need for balance combined with limited means have played a large part in shaping the nature and extent of the recommendations made.

The extent of emphasis the Group placed on the health of water resources was influenced by the nature of water state and trends within the FMU, the values of mana whenua, and the extent of emphasis placed on objectives in the NPSFM itself. Reducing faecal contamination and preserving the integrity of drinking water supplies were a high priority. Frequent and heavy rainfall is a fact of life in the Hokitika FMU, and the Group wanted to ensure that natural factors were considered when regulating activities.

While droughts can occur on the West Coast, these are of lower relevance in the Hokitika FMU and impacts from consumptive water takes were not considered important. The potential for non-consumptive use like hydro electricity generation is significant in this FMU and the Group wanted the local community to be able to have a major part in assessing new schemes.

Attempts have been made to make allocation fairer for a broader range of stakeholders, and to create greater adaptability if allocation needs change. There are already policies in place and data being collected that, with better implementation and refinement, could add value to our ability to monitor and manage water takes.

A number of water bodies were nominated for consideration as Outstanding Fresh Water Bodies.

Appendix 1: Field trips and external presentations

The Group took part in a number of field trips to learn more about a range of relevant activities (Figure 10). There were also several presentations given by non-council staff.

Field trips included:

- A farm visit in the Arahura catchment. Effluent and stock management were discussed, as well as the problem of dealing with high rainfall and frequent flood events.
- Popular swimming sites on the Kawhaka River and Kaniere River.
- A farm in the Kokatahi area, Hokitika Valley. Effluent and stock management issues were discussed.
- An alluvial gold mine just south of Hokitika. Matters included sediment and water management, duration of activity, and rehabilitation.
- A visit to Totara Lagoon. Historical activities in the catchment were covered included the Westland District Council landfill, sawmilling and timber treatment, goldmining and farming. A number of scientific investigations have been completed in this catchment and these were outlined to participants.
- A demonstration session on the Arahura River showing the different testing procedures undertaken when assessing water quality and stream health.

External presentations included:

- Mapping threatened aquatic species for all FMUs as is required under the NPSFM 2020.
- The Lakes 380 project, including West Coast examples <https://lakes380.com/> The 24 lakes on the West Coast include: Lake Poerua, Lake Rototekoiti, Skifington Swamp, Lake Brunner, Lake Kāurupātaka, Lady Lake, Lake Mahinapua, Lake Mapourika, Lake Moeraki, Lake Morgan, Lake Paringa, Lake Douglas, Lake lanthe, Kangaroo Lake, Lake Kaniere, Lake Eggeling, Lake Gault, Lake Greaney, L46774, and Alpine Lake.
- An outline of the work undertaken by Landcare Trust and opportunities for involvement.



Figure 10: Hokitika FMU Group members investigating macroinvertebrate fauna, visiting a farm in the FMU, and considering some of the environmental challenges faced by farmers like flooding.