

# CCCV for Hokitika Freshwater Management Unit

## Introduction- Freshwater Farm Plans

*The recently announced changes to the National Policy Statement on Freshwater Management do not affect Freshwater Farm Plans, which are continuing to be implemented.*

Freshwater Farms Plans were introduced as part of the Government's Essential Freshwater package of policies and regulations as a practical way for farmers and growers to identify, manage and reduce the impact of farming on freshwater and freshwater environments.

The main goal of your freshwater farm plan is to minimise losses of contaminants, particularly of nitrogen, phosphorus, sediment and bacteria such as E. coli, from your farming or growing operation as much as possible.

Your freshwater farm plan must:

- Identify risks of contaminant loss to freshwater from farming or growing activities
- Set out actions to manage the risks so that impacts on freshwater and freshwater ecosystems are avoided or minimised
- Set a timeframe for each management action clearly stating when they will be implemented on your farm.

In developing your freshwater farm plan, you will need to be aware of and to demonstrate compliance with the rules within the [West Coast Regional Land and Water Plan \(2014\)](#), [National Environmental Standards for Freshwater \(2020\)](#), and the [Stock Exclusion Regulations \(2020\)](#).

Factsheets and guidance to help you to understand and comply with these rules can be found here:

[Essential Freshwater Information Sheets - The West Coast Regional Council \(wrc.govt.nz\)](#)

## Catchment Context, Challenges and Values

A catchment is an area of land with natural boundaries formed by ridges, hills or mountains where water drains to a common waterbody, such as a stream, river, lake or wetland. Land uses within a catchment will impact the quality and quantity of water as it flows through the catchment.

The information on Catchment Context, Challenges and Values (CCCV) below is provided to support you to consider your farming or growing operation within the context of your wider catchment.

You will need to consider how your farming and growing activities impact the waterbodies and freshwater habitats in your catchment and identify how you will manage or reduce those impacts to protect the health of your catchment for present and future generations.

Catchment Context is the key information about your catchment. This includes:

- Land, soil and climate data
- freshwater monitoring data
- freshwater bodies and habitats

Challenges are the threats and issues facing freshwater and freshwater environments in your catchment. They could include:

- key contaminants of concern - E. coli, nitrogen, phosphorus, sediment
- loss of freshwater habitat
- degradation or loss of sites and/or species of cultural or community significance.

Values are the things about your catchment that are important to the community. They could include:

- catchment freshwater objectives, priorities, or outcomes identified in regional and/or iwi plans
- sites and/or species of cultural or community significance and matters of importance to Poutini Ngāi Tahu.

## The Hokitika Freshwater Management Unit (FMU) Catchment Context, Challenges and Values (CCCV)

The Hokitika Freshwater Management Unit (FMU) extends from Taramakau River Catchment boundary in the north, to the Waiho River Catchment boundary in the south (Figure 1). In an east-west direction, the FMU extends from the regional boundary along the Southern Alps to the Mean High Water Spring Mark at the coastline.

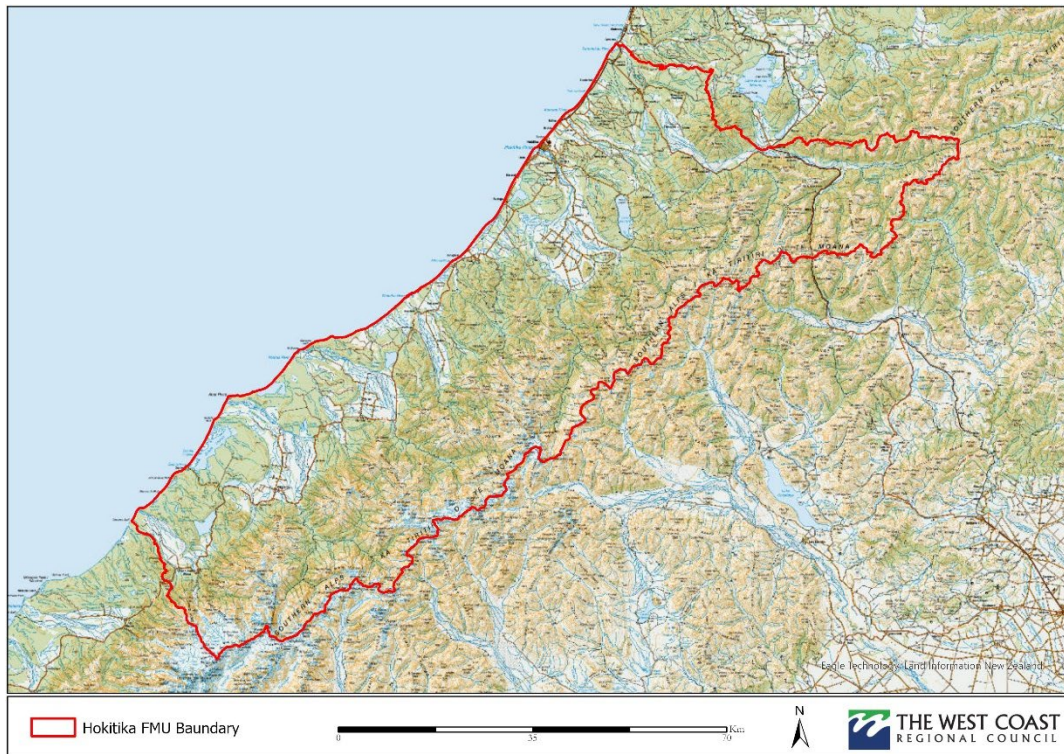


Figure 1: Extent of the Hokitika FMU.

### **Hokitika Freshwater Management Unit Working Group**

In June 2020, a Hokitika FMU Group was formed which included community members, representatives for Te Rūnanga o Ngāti Waewae and Te Rūnanga o Makaawhio, and representatives from the West Coast Regional Council and the Westland District Council. Over a 14 month period, as required by the National Policy Statement for Freshwater Management (NPSFM 2020), the Group worked through issues associated with freshwater quality and quantity within the Hokitika FMU area and identified values for freshwater that are important to the Hokitika FMU community. Further background information on why the FMU group was formed, Hokitika FMU values, outcomes and recommendations for the Hokitika FMU can be found [here](#).

### **Long-term vision for freshwater**

The Hokitika FMU Group was required to develop a long-term vision to summarise the Hokitika FMU 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 the community's future wellbeing.*

The vision is to be achieved no later than 2032 through delivery of the following goals:

- a) The ki uta ki tai (mountains to the sea) philosophy is used to manage freshwater;
- b) The mauri of the water has been protected or has been enhanced where it was degraded;
- c) Freshwater bodies in the Hokitika FMU support freshwater ecosystems that are healthy and resilient;
- d) Freshwater bodies in the Hokitika FMU support healthy and diverse populations of mahinga kai species that are safe to access, harvest and eat;
- e) Freshwater in the Hokitika FMU is used efficiently and overallocation is avoided;
- f) Freshwater in the Hokitika FMU 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 goals a) to f) above.

## Catchment Context

### Land and Soil

#### Slope

The topography, or steepness and slope of your farmland will affect the way water and contaminants are able to move on your property and the risk of contaminants reaching and entering waterbodies including groundwater and depending on your location, into estuarine or coastal environments.

The NZ land Atlas's landscape layer is a tool that can be used to identify a property's slope steepness, slope direction and erosion severity. The site is free to use but you will need to register here [Steepness of Slope » Maps » Our Environment \(scinfo.org.nz\)](#).

#### Soils

There are limited areas of mapped soils within the Hokitika FMU and these can be found within the S-Map Online Tool. This tool is free to use but requires registration [Maps | S-Map Online | Manaaki Whenua - Landcare Research](#) You may also have site specific soil information you wish to include.

Farmed soils in the Hokitika FMU are predominantly formed from fluvial (river) and glacial outwash deposits and tend towards poor drainage, particularly at the base of slopes and in low lying areas. Limited soil drainage reduces the susceptibility of soils to leaching nitrates into groundwater, but increases the risk of overland flow of phosphorus, sediments and pathogens into surface waterways.

A simple field observation key to assess soil drainage was developed at Landcare Research in 2020. This key allows drainage class to be assigned simply and easily in the field and can be a useful way to classify and map the soil areas in your farm plan. It is available at [this link](#).

#### Land Use Capability

The land use classification system (LUC) categorises land into classes for production use based on physical limitations and site-specific management needs. LUC provides a broad land categorisation based on risk factors such as slope, erosion and climate and is a useful starting point for identifying risks for the farming activities undertaken on your farm.

You can find the LUC classifications and sub classes of your farmed areas online here [Maps » Our Environment \(scinfo.org.nz\)](#). The site is free to use but you will need to register.

### **How to consider land and soil information in your freshwater farm plan**

In your freshwater farm plan, you will need to map your land units based on the soils and topography of your farm. You will then identify the risks to water quality from the farming activities you are undertaking on each land unit and the actions you will take to reduce those risks as much as possible.

It is particularly important to identify and manage critical source areas - features in the landscape such as gullies and swales (natural or constructed e.g. hump and hollows) that can accumulate surface water runoff and contaminants from surrounding areas and deliver it to streams, drains, rivers, lakes and wetlands.

## **Freshwater**

### **Surface water quality data**

There are 10 river water monitoring sites sampled by WCRC throughout the year in the Hokitika FMU. Some of these are sampled monthly, while more remote sites are sampled quarterly. You can view the current water quality status for the sites and whether this is improving, degrading or staying much the same at the Land, Air and Water Aotearoa (LAWA) website [here](#). The LAWA website also contains factsheets on water quality monitoring and why it is important.

Lake Māhinapua and sites on the Kaniere River are monitored for E. coli levels for summer bathing. Other Lakes are monitored less frequently. Monitoring results for Lake Māhinapua can be viewed [here](#) and the Kaniere River [here](#).

### **Groundwater quality data**

The West Coast Regional Council monitors 4 groundwater quality bores quarterly in the Hokitika FMU. Groundwater data can be found [here](#).

Groundwater within the FMU is generally of good quality compared to other regions of New Zealand. However, the shallow depth of bores and likely unconfined nature of aquifers makes groundwater vulnerable to contamination. In places, bacterial contamination can be an issue and several wells show increasing nitrate trends.

### **How to consider freshwater quality information in your farm plan**

Water quality monitoring results at the monitoring site nearest to your farm can be viewed on the LAWA website. If you have property specific water quality monitoring results you can use this information as well.

If there are no monitoring data of direct relevance to your farming operation, pathogens and sediment in surface water run-off and nitrogen are known to be the key contaminants of concern for the Hokitika FMU.

## **Freshwater Habitats**

Rivers, lakes and streams, have obvious importance as habitat for the various indigenous and introduced aquatic species that live in them, as well as for the various terrestrial species which are dependent on them for stages of their life cycles or food.

Wetlands, small spring-fed streams and low gradient reaches of rivers and streams are freshwater habitats of concern in the Hokitika FMU:

### **Wetlands**

Wetlands are important biodiversity hotspots and highly valued for cultural and recreational reasons. They perform a valuable role in providing habitat for native plants and animals and can be sites used for gathering of mahinga kai (for example, eels and gamebird hunting)

They can also offer a lot of potential to improve water quality by removing contaminants before water leaves the farm. Even small, boggy seepage areas can reduce nitrogen, phosphorus, sediment and E. coli levels significantly.

### **Streams and creeks**

Small spring-fed streams are extremely important as habitat and in the life cycles of native and introduced species. These streams are inherently stable with cool temperatures, high clarity and abundant macroinvertebrate food supply. Spring fed streams are often important for juvenile rearing and spawning because they have more stable conditions than steeper, hill fed streams. Small spring-fed streams are susceptible to accruing fine sediment, for example from run off from earthworks. This sediment deters adult fish from spawning, adversely affects juvenile fish, and smothers and kills eggs. This sediment deters adult fish from spawning, adversely affects juvenile fish, and smothers and kills eggs. These streams are waterbodies of particular concern in the Hokitika FMU.

Low gradient reaches of creeks and rivers where water slows and fine sediment drops out are also of concern in the Hokitika FMU. Light and water temperature is generally higher, and when combined with nutrients in overland flow from surrounding farmland, these conditions can promote excess aquatic plant and algal growth. This reduces habitat quality and leads to low oxygen levels at night. Low gradient reaches have less turbulence, which reduces re-oxygenation.

### **Threatened Species**

Schedule 7A of the West Coast Regional Land and Water Plan lists water bodies where threatened species are known to be present. Schedule 7A can be found [here](#).

This list is not exhaustive, and there are other water bodies in the Hokitika FMU where threatened species may be present.

### **Inanga (whitebait) Spawning Sites**

Schedule 11 of the West Coast Regional Land and Water Plan lists stretches of lowland rivers and streams where inanga are known to spawn. Schedule 11 can be found [here](#).

Inanga use the same spawning sites each year, laying their eggs in the base of long grasses and other vegetation along the edges of waterways. Fencing waterways and controlling large weeds like blackberry and willow will help protect these areas.

## **Fish passage**

Inanga, other whitebait species and trout need unimpeded access from the sea to their spawning sites and freshwater habitats. Culverts and dams, fords or other structures can prevent this access and may need to be modified, retrofitted or removed to allow fish passage.

## **Aquatic Pest Plants**

Invasive aquatic weeds and pests have the potential for catastrophic impacts on West Coast water bodies. Please ensure any machinery brought in from other sites to work on drains on your property is checked for fragments of aquatic plants to avoid them spreading. New species of aquatic pest plant can be introduced at any time and the visual guide at [this link](#) will help you identify any suspected issues.

The species currently of most concern in the Hokitika FMU can be found [here](#). Please contact the Regional Council Biosecurity Team for advice in controlling aquatic plant pests. Any herbicide use in or around water bodies is subject to rules in the West Coast Regional Land and Water Plan.

## **How to consider freshwater habitat information in your farm plan**

Protecting and enhancing freshwater habitat and biodiversity on your farm can lead to better water quality, cultural and community outcomes. Actions to consider include:

- fencing off waterways, wetlands and remnants of native bush
  - stabilising eroding streambanks and planting riparian margins
  - planting and/or protection of wetlands and boggy areas
- removing barriers to fish passage.

## **Catchment Challenges**

### **Contaminants of concern**

E.coli is a type of bacteria commonly found in the guts of warm blooded animals and is monitored as an indicator of faecal contamination of waterways. E. coli levels above [national bottom lines](#) have been recorded at several monitoring sites in the Hokitika FMU and there are indications of a trend towards increasing faecal contamination at some sites.

These sites all occur in catchments dominated by agriculture, and it is very likely that the contamination is primarily from livestock sources. Faecal contamination gets into the waterways in surface run off, discharges from oxidation ponds and poorly managed effluent irrigation.

Phosphorus is an element that is naturally present in waterways in low concentrations. Phosphorus binds strongly to soil particles and moves with sediment in surface runoff to waterways. Sources of phosphorus include weathering of rocks and minerals, animal effluent, and phosphorus applied in fertiliser. Concentrations of phosphorus above national bottom lines have been recorded at sites within the Hokitika FMU and there are indications of a trend towards increasing concentrations of phosphorus at some sites. Phosphorus is the limiting nutrient in most Hokitika FMU water bodies and very high concentrations of phosphorus in a waterbody are likely to increase weed growth and may contribute to algal blooms, which can cause long term damage to species composition and the health of freshwater environments.

Some level of sediment in a stream is natural, but at high levels has a range of negative effects. As well as contributing phosphorus as described above, sediment can harm aquatic species and smother aquatic habitat important for feeding and spawning and increase temperature and aquatic plant growth.

Drainage can be a key source of all these contaminants. Altered drainage of land for farming including drainage channels, contouring and reduced areas of wetland and riparian habitat often creates greater and faster water run off increasing the loss of contaminants to waterways.

## Cultural Catchment Values

### Poutini Ngāi Tahu

The statutory requirements recognise the importance of freshwater and freshwater habitats to mana whenua, consequently cultural values must be identified and provided for within freshwater farm plans. The information below has been put together to support you with preparing this section of your freshwater farm plan.

The Hokitika FMU is located within the area (takiwā) of both Ngāti Waewae and Ngāti Māhaki. Both are sub-tribes (hapū) of the Ngāi Tahu iwi and are collectively known as Poutini Ngāi Tahu.

- Te Rūnanga o Ngāti Waewae is the mandated representative body of Ngāti Waewae. Their area (takiwā) is centred on Arahura and Hokitika and extends from the north bank of the Pouerua River to Kahurangi and inland to the main divide.
- Te Rūnanga o Makaawhio is the mandated representative body of Ngāti Māhaki. Their area (takiwā) is centred at Makaawhio (Jacobs River) and Mahitahi (Bruce Bay) and extends from the south bank of the Hokitika River to Milford Sound (Piopiotahi) and inland to the main divide.
- Ngāti Waewae and Ngāti Māhaki have a shared interest in the area between the south bank of the Hokitika River and the north bank of the Pouerua River.

You can find out which Rūnanga is mana whenua in your farm's location by viewing [the CCCV map here](#).

### The significance of water to Poutini Ngāi Tahu

Poutini Ngāi Tahu have a deep and spiritual association with water. Culturally, water plays a central role in creation stories, links to their ancestors and identity (pēpeha), the gathering of food and cultural materials (mahinga kai), sacred sites (wāhi tapu), traditional travel routes (ara tipuna), cultural ceremonies and pounamu gathering.

Water is a taonga (treasure) to Poutini Ngāi Tahu and all water is important and valued in all forms and locations, whether it is water raining from the sky, frozen in glaciers or water in lakes, rivers, streams or drains, water in wetlands, estuarine water, coastal water or groundwater.

To help support the preparation of freshwater farm plans, Poutini Ngāi Tahu have created a table of particularly significant waterbodies within the Hokitika FMU. The tributaries/waterways that feed into these waterbodies are also important. Please note that this list is not exhaustive and there are many water bodies in the Hokitika FMU that contain important values. The table of significant waterbodies can be found here:

<https://www.wcrc.govt.nz/repository/libraries/id:2459ikxj617q9ser65rr/hierarchy/Documents/Envir>



[onment/Farmers%20Hub/SCHEDULE%20A-%20Waterbodies of Significance to Poutini Ngai Tahu within Hokitika FMU.pdf](https://www.wcrc.govt.nz/repository/libraries/id:2459ikxj617q9ser65rr/hierarchy/Documents/Environment/Farmers%20Hub/SCHEDULE%20A-%20Waterbodies%20of%20Significance%20to%20Poutini%20Ngai%20Tahu%20within%20Hokitika%20FMU.pdf).

### **Poutini Ngāi Tahu Values**

The long-term vision for freshwater in the Hokitika FMU includes Poutini Ngāi Tahu values, principles and practices that need to be considered when developing your Freshwater Farms Plans. While you may not have heard of some of the Māori terms used before, the principles and practices will likely be familiar to you. When developing your freshwater farm plan, the key matters that Poutini Ngāi Tahu would like you to consider are summarised below:

- ***Mahinga kai and Taonga species***

Mahinga kai is central to Poutini Ngāi Tahu culture and identity. Mahinga kai involves the gathering of food such as white bait (inanga) and eels and natural materials such as flax and kawakawa, the places where these resources are gathered from and the practices for harvesting them.

To continue the practice of mahinga kai and to ensure the long-term future of white baiting and fishing for the wider community, Poutini Ngāi Tahu are seeking that freshwater and freshwater habitats as well as downstream estuarine and coastal habitats are appropriately managed to ensure species are plentiful enough for long term harvest. They also seek that there is a wide range of native species in our waterbodies, that the species continue to be present across all stages of their lifecycle, and species that are eaten can be safely consumed.

Poutini Ngāi Tahu refer to native birds, plants and animals of cultural importance to them as taonga (treasured) species. Not all taonga species are utilised for mahinga kai. Poutini Ngāi Tahu have kaitiakitanga (guardian) responsibilities for these species and it is important to Poutini Ngāi Tahu to protect and provide healthy sustainable habitat for these taonga species.

Poutini Ngāi Tahu encourages you to be aware of mahinga kai species and other taonga species that live or may spawn and/or migrate within the waterbodies and wetlands on your farm. Waterways flow to the sea and estuarine and coastal environments are also important mahinga kai areas for Poutini Ngāi Tahu. Poutini Ngāi Tahu encourages practices to increase the health and abundance of mahinga kai and other taonga species and to improve habitats in waterways and wetlands. Such measures could include planting riparian margins, restoring wetlands, reducing run off into waterways to improve water quality and the removal of any fish passage barriers. To help support the preparation of freshwater farm plans, Poutini Ngāi Tahu have created a table of culturally significant species. The table of significant species can be found here:

[https://www.wcrc.govt.nz/repository/libraries/id:2459ikxj617q9ser65rr/hierarchy/Documents/Environment/Farmers%20Hub/SCHEDULE%20B-%20Species of Significance to Poutini Ngai Tahu within Hokitika FMU.pdf](https://www.wcrc.govt.nz/repository/libraries/id:2459ikxj617q9ser65rr/hierarchy/Documents/Environment/Farmers%20Hub/SCHEDULE%20B-%20Species%20of%20Significance%20to%20Poutini%20Ngai%20Tahu%20within%20Hokitika%20FMU.pdf).

- ***Mauri***

For Poutini Ngāi Tahu, mauri means the 'life force' or 'life-principle' of any given place or being. In this context it is a measure of the health and vitality of that place or being. Maintaining the mauri – the life-giving essence – of water is paramount to Poutini Ngāi Tahu to enable natural and physical resources to be used by present and future generations. Poutini Ngāi Tahu are seeking that the mauri of waterways is maintained or enhanced where waterways have been degraded by pollution.

Poutini Ngāi Tahu supports farming practices and management that maintains the mauri of waterways and ways to enhance the water quality in waterways where point or non-point source

discharges may be degrading the mauri of the water. Such measures could include fencing and planting out the riparian margins of your waterways.

Poutini Ngāi Tahu is aware some farms within the Hokitika FMU still discharge animal effluent from sources such as dairy sheds and stock effluent ponds to waterways (including into drains) and encourage transition to a land-based disposal method by 2032.

- ***Ki Uta Ki Tai***

The principle of ki uta ki tai (from the mountains to the sea) recognises the connections between land, groundwater, surface water and coastal water. Water and land are interrelated resources and Poutini Ngāi Tahu consider that an integrated holistic approach is needed for their management. Land and water are not separate entities, because what happens on the land affects water. Poutini Ngāi Tahu encourages water to be managed in an integrated way from the mountains and hills that form the headwaters of many of our rivers and streams, down to the sea.

Your FWFP should identify any barriers to fish passage and determine ways to improve fish passage at these barriers. Your FWFP could also outline any practices being adopted that will contribute to improving the health and wellbeing of the land and water within the overall catchment.

- ***Wāhi Tapu and Sites of Significance to Poutini Ngāi Tahu***

Poutini Ngāi Tahu have historical and ongoing cultural connections with the whenua (land) and waterways throughout the Hokitika FMU. Wāhi tapu are places of cultural significance that are considered sacred and may have restrictions on their use due to their tapu nature. Water bodies that are wāhi tapu to Poutini Ngāi Tahu within the Hokitika FMU include the Arahura River, Lake Māhinapua, Māhinapua Creek and Ōkārīto Lagoon.

The Arahura River, ki uta ki tai (source to the sea) is owned by the Māwhera Incorporation on behalf of Poutini Ngāi Tahu. The health of this river (awa), and every tributary contributing to it, is of vital importance to Poutini Ngāi Tahu.

The management of the Lake Māhinapua area is covered by an iwi management plan available at [this link](#).

Your FWFP should identify any water bodies or sites of significance to Poutini Ngāi Tahu on or near your property and outline how any risks to water quality in them will be managed. A link to sites of significance will be provided by Council and entered into the online CCCV map at a later date.

### **Wider Community Catchment Values**

The Hokitika FMU Group identified waterways with values of particular significance to the wider community. Please note that this table is not an exhaustive list and application of local knowledge may result in identification of others.

<b>Water Body</b>	<b>Significance</b>
Grove Swamp	Australasian Bittern habitat.
Ōkārīto Lagoon and catchment	Feeding grounds for migratory birds, whitebait spawning, mountain to sea connecting waterway system, Ōkārīto Rowi, Giant Kahikatea - only 2% left in country; source of Ōkārīto community drinking water; wild river catchment is in the Westland Tai Poutini National Park.

Waitangirotto River	Kotuku/White Heron sanctuary
Water bodies within Waitangi Forest Conservation area	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, and important fishery.
Taramakau River	Historic value to the West Coast.
Franz Josef Glacier and the Waiho River	Important legends associated with it and ties in with the mountain to sea philosophy.
La Fontaine Stream	An important trout fishery
Kawhaka Creek and Kawhaka water race	Important recreation, fishing and swimming sites.
Shearer Swamp	Valuable biodiversity
Totara Lagoon	Concern around the historic and potentially current contamination arising from within the catchment. Totara Lagoon has important ecological and mahinga kai values.
Lake Kaniere	Hokitika town water supply.
Lake Mapourika	Aesthetic and overall amenity value, and important fishery

### Swimming and recreation sites

People swim and engage in other recreational activities such as sports fishing in many sites in the West Coast Region and swimming sites of particular importance to local communities are listed in Schedule 9 of the West Coast Regional Land and Water Plan. Some of these sites are located within the Hokitika FMU and can be found in Schedules 8 and 9 [here](#)

When contaminated by human or animal faeces, water can contain disease causing bacteria, viruses and protozoa (such as salmonella, campylobacter or gardia). These organisms can present a health risk in water used for recreational activities.

### How to consider community values in your farm plan.

In your farm plan you will need to identify any water bodies of significance to the community on or near your farm and within your catchment area. Think about how your farming activities might impact these sites and actions you could take to protect or enhance the values that make them important to the community.