Catchment context, challenges and values for Waikawa and Catlins

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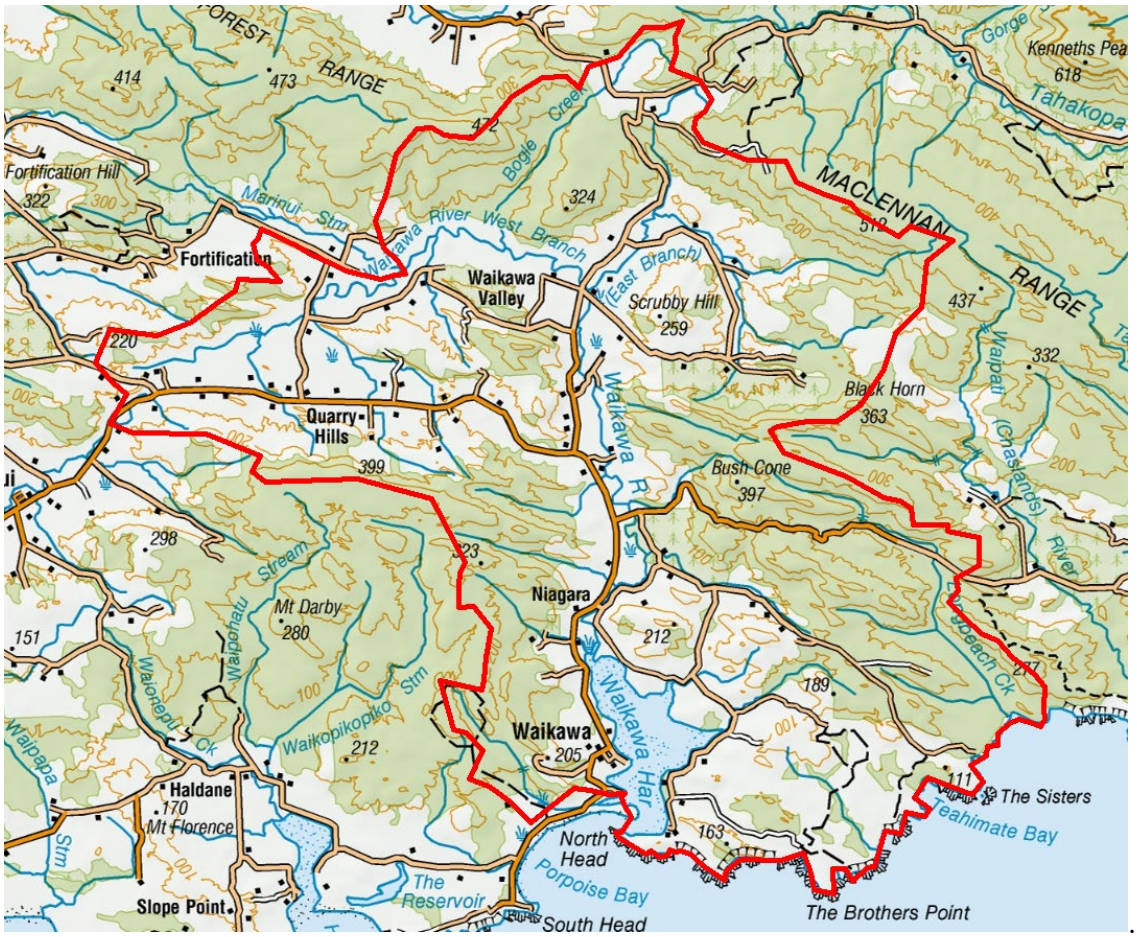
Te Ao Marama Inc.

environment SOUTHLAND REGIONAL COUNCIL
Te Taiao Tonga

Waikawa and Catlins



Ki uta ki tai (from mountains to sea)

In Southland, water shapes the landscape, the economy and the regions way of life. Water is a taonga (a treasure of the people, a sacred place). Southland has a diverse range of highly productive land uses that contribute to the region's prosperity, but ongoing intensification, both urban and rural, brings challenges to the environment and communities. The Ngai Tahu philosophy "Ki uta ki tai" recognises that water is important in a variety of ways, including for customary and recreational uses. This approach recognises that there are connections between people, land and waters, such as the effects of changes to water quality and quantity on the health and function of estuaries and coastal lagoons.

Waikawa and Catlins Catchment

The Waikawa and Catlins zone extends from the Maclennan Range in the north to the Waikawa River Estuary at Waikawa township. The Waikawa River drains the northern slopes of the Maclennan Ranges and is a short, steep catchment that discharges into the Waikawa River Estuary.

The Waikawa River mouth, its estuary and coastal area are part of Te Ara a Kiwi - Ngāi Tahu Statutory Acknowledgement Area - which recognises the relationship of Ngāi Tahu with specific sites and areas. Environment Southland works with Ngāi Tahu about any matters to do with these areas.

Historical clearance and altered drainage of land for farming has made the area more prone to erosion, with greater and faster water runoff and river flood flows, reduced area of wetlands and

riparian habitat, and increased loss of contaminants to waterbodies (e.g. sediment, nutrients and microorganisms).

The Waikawa and Catlins catchments, in combination with the Waituna catchment, Matāura catchment and Tokanui coastal zone make up the Matāura–Toetoes Harbour Freshwater Management Unit for the purposes of Environment Southland's management of land and water resources.

Estuaries like Waikawa are complex ecological systems comprised of a diverse range of habitats such as shallow open water, sandy beaches, salt marshes, intertidal sand and mud flats, coastal wetlands and riparian and landward vegetation. In the Waikawa Estuary, detailed ecosystem health monitoring is available for all these indicators, but in highly summarised terms it shows the overall condition of the estuary as "good to fair" but with a muddy upper estuary. Some indicators, such as mud content and oxygen in sediment are "poor" or "fair" in certain locations. Other indicators are "good", such as macroalgae cover and the extent of eutrophic zones within the estuary.

Waikawa Harbour, the surrounding coastline and inland forested areas have long been valued by Ngāi Tahu ki Murihiku. Interest in the broader Catlins area extended mainly through the resources that could be gathered from the sea and land. Small permanent settlements (kaika) and seasonal settlements included nohoanga and wāhi tapu/tūpuna are located throughout the catchment. These sites and mahinga kai were linked through a network of te ara tawhito (traditional routes), both land and water-based, that crossed Southland and along the eastern coastline into the neighbouring districts. The Catlins was and continues to be a popular mahinga kai for Ngāi Tahu ki Murihiku.

The main town centre in this catchment is Waikawa, which acts as a service centre and agricultural hub at the foot of the Catlins Conservation Park. The first European settlers in the region were the Haldane family, who established a sawmill at Waikawa. The catchment supported other activity such as whaling, gold mining, stone quarrying, flax milling and early farming enterprises. From the 1920s, however, interest in the area outside of farming began to wane and shipping in the Waikawa Harbour ceased. The area is a popular tourist and holiday destination, with fishing and dolphin tours operating out of the harbour, and access to other natural attractions in the area.

There are no mapped groundwater zones within the Waikawa and Catlins catchments.

Approximately 200 people now live in the Waikawa and Catlins catchment. Outside Waikawa, most people live rurally, working in the primary production sector. Invercargill is dependent on the economic activity that is produced from the surrounding farming hinterland across Southland.

Of the approximately 28,300 ha of land in the Waikawa and Catlins catchments, around 53% (15,120 ha) is now used for farming, of which the majority (92%) is used for sheep and/or beef farms. Commercial forestry makes up around 1,320 ha (5%). Approximately 9,280 ha (32%) is Department of Conservation estate and around 850 ha (3%) is Māori freehold land.

Te Mana o Te Wai

Mauri 1:	Maintaining the quality of water from the headwaters to the coast
Mauri 2:	Protecting and restoring springs and the quality of spring-fed waters to the coast
Mauri 3:	Protecting, restoring and re-establishing wetlands
Mauri 4:	Protecting groundwater quality
Mauri 5:	Protecting estuaries from contamination, protecting and restoring estuary margins

Hauora

A state of hauora or healthy resilience in the Waikawa and Catlins catchments will be supported when:

- sources of *E. coli* from human activity are prevented from reaching waterbodies as much as possible
- erodible lands and waterbody margins are stabilised
- sediment is prevented from reaching waterbodies as much as possible
- the flow of water is slowed by reintroducing sinuosity (curves/bends etc), pools and wetland margins to straightened and channelised waterbodies
- wetlands are protected and re-established or restored
- nitrogen and phosphorus have been reduced to levels that restore water quality to within the natural range for waterbodies
- natural habitat and biodiversity are abundant in riparian margins and instream

Waikawa and Catlins catchments – key freshwater issues

(not in order of priority)

Waikawa:

- Large areas of plantation forestry in close proximity to the Waikawa River creating high risk of sediment loss to surface water during times of harvest.
- Risk of sedimentation in Waikawa Estuary.
- Sedimentation and eutrophication risk in lowland streams.
- Animal faecal contamination in the Waikawa River.
- Observed deteriorating Macroinvertebrate Community Index (MCI) score trends.

Catlins:

- Stock access to waterways and sensitive coastal environments

Assessment of degradation

An assessment of which catchments are degraded has been undertaken for the Southland Region as part of regional plan development. The online mapping tool will have generated whether your boundary is within a degraded catchment or not and attached the map in the appendices. The below assessment of degradation is relevant to your location:

Your land may sit within a degraded catchment

Actions must be included in the Farm Plan to demonstrate a reduction in contaminants contributing to this degradation. This definition of 'degraded' was set using a lower bar than what would be considered necessary to help achieve a state of hauora. The coming Plan Change Tuatahi will likely raise this bar to the level of hauora. To future-proof your operation you should incorporate actions that strive for a state of hauora. By default, doing this will also ensure the requirements of the Southland Water and Land Plan are met. Whilst the catchment context information provided here may give some guidance on what contaminants to focus on at a catchment scale, it is critical to utilise farm specific information when assessing contaminant loss risk and appropriate on farm mitigation actions.

Schedule X Maps

Schedule X is a new method that shows where water quality is degraded within a catchment. Using the catchment context online tool, schedule X maps (which show the status of degradation) for the following parameters are available for your farm boundary.

- Total phosphorus
- Total nitrogen
- Suspended sediment
- E-coli

The water quality in all areas needs to be maintained or improved. Non-degraded catchments need farm plan actions that **minimise** contaminant losses to the smallest amount reasonably practicable. Degraded

catchments need farm plan actions that **reduce** contaminant losses so as to cause a reduction in adverse effects on water quality.

Waikawa and Catlins contaminants

Supporting hauora outcomes

Waikawa:

Modelling suggests that moderate reductions of phosphorus and large reductions of nitrogen, sediment and *E. coli* are required to support a state of hauora in the Waikawa catchment.

Catlins:

Modelling suggests that minimisation of nitrogen and phosphorus, moderate reductions to sediment, and large reductions to *E. coli* loads are required to support a state of hauora in the Catlins zone.

There are uncertainties associated with the exact percentage of reductions required.[1] What is clear is that the gap between current water state and hauora is large and that we need to take significant action to address this. Given we know these substantial catchment reductions are required, significant on farm actions are needed to head in the right direction towards achieving the desired outcomes for our freshwater. On your property these actions should focus on mitigating the specific contaminant loss risks that exist on your land.

Catchment Focus

- Reduce nitrogen, phosphorus, sediment and *E. coli* loss as much as possible.
- Building resilience into the catchment system to move towards hauora – healthy resilience. This could include actions such as planting, realignment of fences and roads, creating oxbows and pest management.

Property specific information

Each farm has its unique characteristics, such as soil type, topography, climate, land use, and management practices. Using farm-specific information allows for a tailored approach to environmental management.

To address the issue of contaminant loss, it is crucial to begin by assessing farm-specific information on potential loss pathways and associated risks. In the absence of more detailed farm specific information, there are resources that can assist in focusing mitigation efforts on your property. Taking into account your property's location and physiographic information, we consider that these contaminants and loss pathways must be given particular attention when choosing mitigation actions.

[1] Specific load reduction estimates can be found in: Snelder et al. (2021a) [Snelder et al. (2021b) [and Neverman et al. (2021) [LandCare Report (es.govt.nz)].

Soil

A soil breakdown and map are included for your property as a part of this report.

Climate

Southland is situated in the latitudes of the prevailing westerly winds and is the most southern and western part of New Zealand. The climate of the Waikawa and Catlins catchments sits within the coastal climate zone. The coastal zone is subject to fairly constant cold, salt-laden winds from the south and west. The Waikawa catchment experiences around 1500 millimetres of annual rainfall with higher totals in the ranges.

Spring is the windiest and winter is generally calmer. Typically exposed coastal sites experience higher average wind speeds and are frequently gusty compared to inland sites. For many but not all areas, the lowest monthly rainfall occurs in winter. Annual rainfall ranges from approximately 1200 - 1500mm in the Waikawa Catchment. Coastal areas do not typically experience dry spells, however in inland areas they are more common. In low elevation coastal areas, both air and soil temperature are typically lower in the summer and higher in the winter compared to low elevation inland areas. The average daily temperature range is greater in inland areas.

Freshwater data

Water quality results can be explored on the Land, Air and Water Aotearoa https://www.lawa.org.nz/explore-data/southland-region/estuaries/waikawa-estuary. You can also look at Southland's Water Story[2] for more information.

Sites of community significance

The Waikawa village is the main settlement in the Waikawa and Catlins catchments. About 50 people live within the settlement, however this number increases during the summer tourist season.

Significant species or ecosystems

Taonga species

Please refer to the list of taonga species outlined in Schedule M of the Southland Water and Land Plan and the Ngāi Tahu Claims Settlement Act 1998 which includes plants and birds. In this area, some of the commonly found water taonga species include:

- Tuaki – cockles
- Pātiki – flounder
- Kūtai – mussels
- Tuna – eel
- Kakakana – lamprey
- Īnaka – whitebait
- Waikakahi – freshwater mussels
- Pīpī
- Patiki – flounder

[2] https://waterstory.es.govt.nz/

Cultural matters of importance to tangata whenua

Ngāi Tahu ki Murihiku has an enduring connection and use of this area. Historical and contemporary relationships coupled with changes to the waters, land and ecosystem have helped define current cultural matters of importance.

There are nohoanga and mātaitai sites within the catchment zone. Nohoanga are specific areas of Crown owned land adjacent to lakeshores or riverbanks, which provide Ngāi Tahu Whanui the opportunity to have temporary, exclusive rights to pursue traditional food and other resource gathering activities, through the Ngāi Tahu Claims Settlement Act 1998. Mātaitai reserves are customary fisheries management areas developed and managed by tangata whenua. These mechanisms recognise and provide for traditional fishing through local management and are generally closed to commercial fishing. They may also have bylaws that affect recreational and customary fishing. Adjacent to Māngai Piri (Niagara Falls), there is a nohoanga site. The Waikawa Harbour/Tuma Toka mātaitai reserve covers most of Waikawa harbour, extending up the lower part of the Waikawa river, past Māngai Piri (Niagara Falls). There is a separate area that incorporates Curio Bay, South Head and the southern section of Porpoise Bay, which is part of the mātaitai reserve.

The decline in water quantity and quality and accumulated effects have diminished the mauri of the river and estuary. The culmination of effects diminishes the mauri of the river and estuary and aspects, particularly mahinga kai, and cultural identity. Many of the cultural redress provisions in the Ngai Tahu Claims Settlement Act 1998, such as nohoanga, are associated with water use, availability, and access. Water should be in a state for Ngāi Tahu to undertake mahinga kai.

In 2020, Ngāi Tahu ki Murihiku identified a range of priorities relevant to freshwater management in Waikawa and the Catlins catchments. Overall, Ngāi Tahu ki Murihiku seek to protect and enhance the mauri (life force) of freshwater resources so that future generations have the same or better access to healthy waterbodies, and that waterbodies are managed within a ki uta ki tai framework. This primary goal is supported by the fundamental concept of Te Mana o te Wai in the National Policy Statement for Freshwater Management and in the Southland Water and Land Plan.

Glossary

Ki uta ki tai (from mountains to sea)

Ki uta ki tai is a concept that refers to the interconnectedness of the natural world, including the relationships of water and land, from the coast up to the hills and mountains.

Environment Southland, in partnership with Te Ao Mārama, seeks to manage water and land resources in a way that reinforces the Ngāi Tahu philosophy ki uta ki tai (from mountains to sea). This integrated approach refers to the belief that all things are connected in the natural world and need to be managed that way. It is part of the foundation of regional planning in Southland, recognising the need to manage catchments as an integrated whole. This approach recognises the commitment of Environment Southland, in partnership with Te Ao Mārama, to manage the connections between people, water and land, including the impacts we have on the health of all types of waterbodies, including estuaries and coastal lagoons.

Te Mana o Te Wai

Te Mana o Te Wai is the fundamental concept that underpins all freshwater management.

Te Mana o te Wai recognises the fundamental importance of water in that protecting the health of freshwater protects the health and wellbeing of the wider environment. It is an approach that protects the mauri (life force) of the water.

Protecting mauri as a priority is already a foundation of regional planning in Southland.

Hauora

Hauora means a state of health that could be described as fit and well. It reflects a level of healthy resilience we all want for our waterways. In other words, a waterway can take a knock and bounce back and still be used without compromising people's health.

Users of water and land need to provide for hauora. By doing that, we acknowledge and protect the mauri of water. This is a foundation of regional planning in Southland.

Environment Southland and Te Ao Mārama have identified a range of attributes that in combination provide for hauora, the health and wellbeing of waterbodies.

A change to the regional plan that is being developed, Plan Change Tuatahi, will guide what is needed to support healthy waterbodies in the catchments of Waiau, Aparima, Ōreti, Mataura and Waituna.

Mahinga kai

Mahinga kai refers to the customary gathering of food and natural materials, and the places where those resources are gathered by tangata whenua.

For Ngāi Tahu, mahinga kai is about places, ways of doings things, and resources that sustain the people. It includes the work that is done (and the fuel that is used) in the gathering of all natural resources (plants, animals, water, sea life, pounamu) to sustain wellbeing. This includes the ability to clothe, feed and provide shelter.

Mahinga kai is a value that must be provided for when managing waterbodies.

Values

When we do a good job of managing freshwater then we honour a range of values that matter to the communities of Southland.

When managing freshwater we must provide for certain kinds of values; including ecosystem health (water quality, water quantity, habitat, aquatic life and ecological processes), threatened species, mahinga kai, Māori freshwater values and human contact. These are compulsory values.

There are a range of values that have already been identified by Southlanders and additional values that must be considered as well. Many of these values informed the current regional plan, and further values are being considered as part of Plan Change Tuatahi.

Document control

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Disclaimer: This catchment context contains key information to be included in farm environmental management plans. It should not be solely relied upon. The information contained is subject to change and updates.