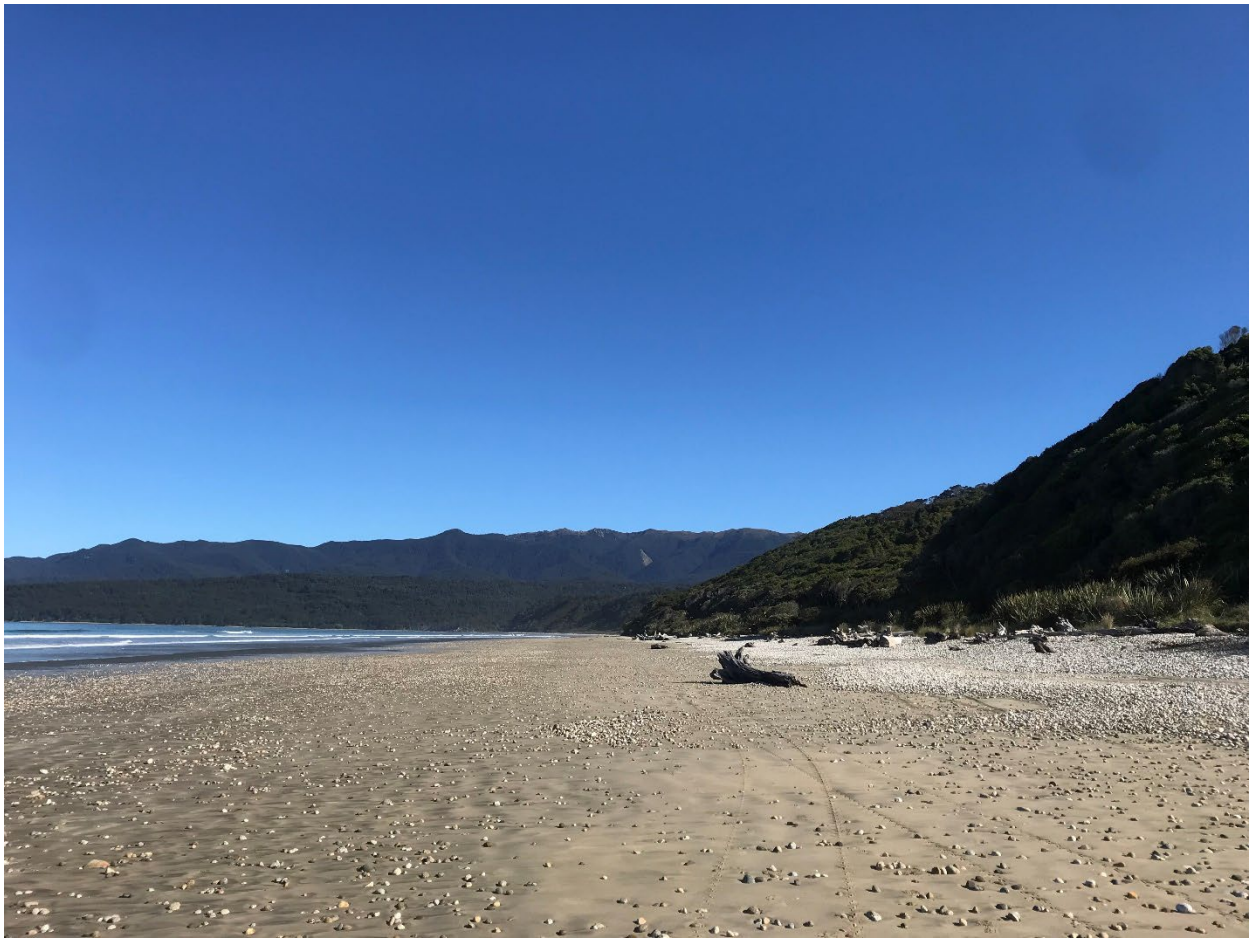


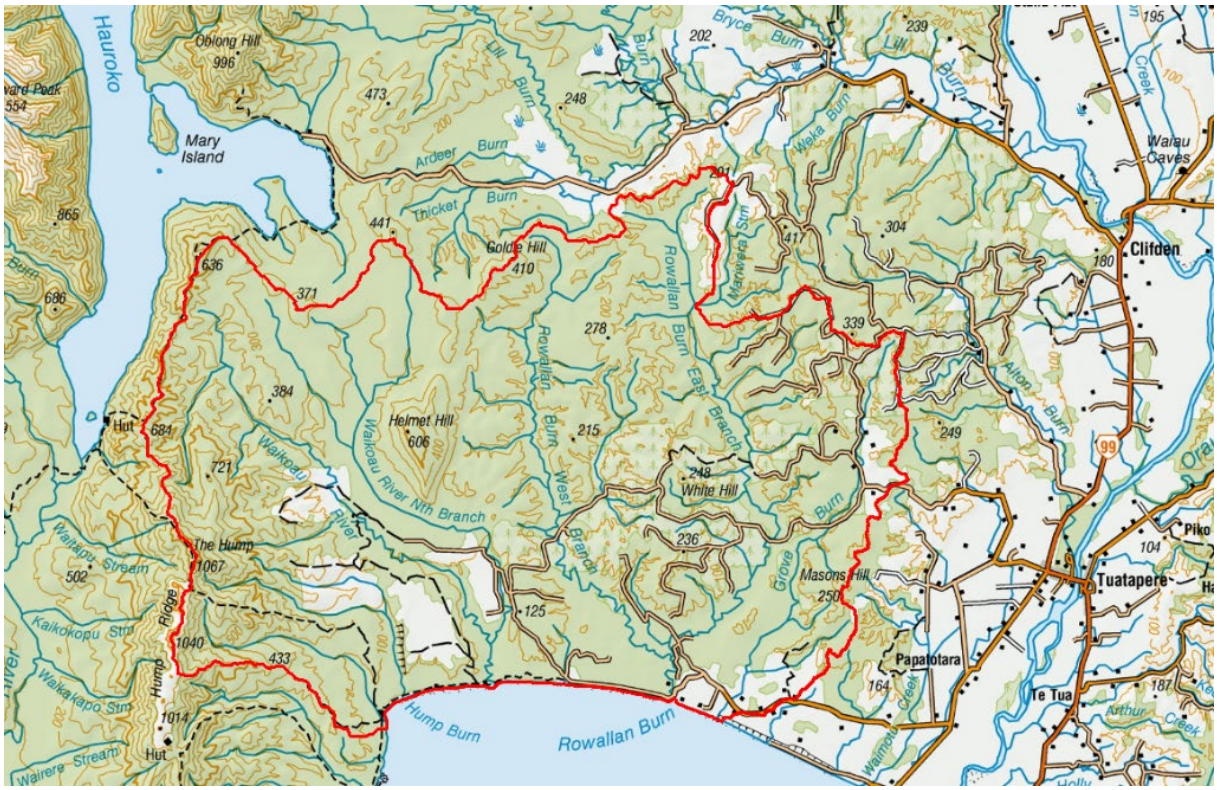
Catchment context, challenges and values for Te Waewae Bay

Version 1.1 November 2024

Te Ao Marama Inc.

environment SOUTHLAND REGIONAL COUNCIL
Te Taiao Tonga

Te Waewae Bay



Ki uta ki tai (from mountains to sea)

In Southland, water shapes the landscape, the economy and the region's 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 Ngāi Tahu philosophy "ki uta ki tai" recognises that water is important in a variety of ways, including for customary and recreation uses. This approach also recognises that we are managing the 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.

Te Waewae Catchment

The Te Waewae Bay western coastal zone originates in the Rowallan Forest to the south of Lake Hauroko. The catchment drains the north-eastern flanks of the Hump Ridge, extends across elevated forest in the north, southward towards three river estuaries and into Te Waewae Bay.

Te Waewae Bay, unlike other catchments across Southland, has not experienced significant historical clearance and altered drainage of land for farming and settlements. The areas of wetlands have remained relatively constant since pre-European times. Sediment from natural erosion and

harvesting of commercial forestry, as well as human waste (e.g. septic systems), livestock and wildfowl are the main potential sources of contaminant loss to water.

Te Waewae Bay is the largest bay along the Southland coast. It is identified as a marine mammal sanctuary, as it provides a valuable habitat for the endemic Hector's dolphins and southern right whales. None of the estuaries in the Te Waewae Bay western coastal zone are regularly monitored, however a coastal risk assessment undertaken in 2008 found the Waikoau, Rowallan Burn, and the Grove Burn estuaries at that point in time to be in "very good" ecological condition. This "very good" condition reflects an absence of the key typical contributors to lower ecological conditions in estuaries that can include elevated levels of sediment and nutrients from intensively developed catchments and scarce vegetated terrestrial margins.

History of the area

Māori nohoanga (seasonal camps) used to be common on the banks of the Waiau River and Te Waewae, with people moving along the Foveaux coast into Fiordland and the Waiau district to the kaika (villages) and nohoanga of the inland lakes. The area was rich in resources and includes many favoured mahinga kai areas. The inland lakes were an important stopping point between te ara tawhito (traditional routes) in Te Waipounamu (South Island). Large and significant archaeological and artefact collections have been found throughout this catchment, which has a rich and long oral history, beginning from the shaping of the land by Rākaihāutu and the sinking of Tākitimu, the waka of Tamatea, at the mouth of the Waimeamea River in Te Waewae Bay

In the 1920s and 1930s the Rowallan Forest was an essential timber source for sawmilling centres operating in the catchment area. The Rowallan Forest area in the Te Waewae Bay western coastal zone is now under conservation protection. Today, domestic and international tourism visitors explore the recreational and scenic opportunities that the catchment offers, such as access to prominent tourist attractions for Southland and the wider Waiau Freshwater Management Unit, including the South Coast and Hump Ridge walking tracks.

There are no mapped groundwater zones in the Te Waewae Bay catchment.

There are no major settlements within the Te Waewae Bay western coastal zone. The zone is, however, situated close to one of the main settlements in the Waiau catchment, Tuatapere. It is estimated that less than 50 people live in the Te Waewae Bay western coastal zone and most live rurally, working in the agricultural sector.

Of the approximately 29,700 ha of land in the Te Waewae Bay western coastal zone, the majority is in conservation or equivalent (71%) and commercial forestry (20%). Approximately 2,500 ha is used for farming, consisting of sheep, beef, dairy and mixed livestock. Approximately 11,800 ha is Department of Conservation estate and approximately 12,600 ha 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, while protecting and restoring estuary margins

Hauora

A state of hauora and healthy resilience in the Te Waewae Bay catchment 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, 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

Te Waewae Bay catchment – key freshwater issues

(not in order of priority)

- Some intensive agricultural use of rolling and sloped land resulting in high risk of contaminant loss via overland flow pathways.
- Large areas of plantation forestry relative to catchment size, increasing risk of sediment issues in small surface water-receiving environments during harvest and reestablishment forestry phases.

Assessment of degradation

As part of regional plan development an assessment of which catchments are degraded has been undertaken for the Southland Region. The 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. Not 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.

Te Waewae Bay contaminants

Supporting hauora outcomes

Modelling suggests that some reductions are required to nitrogen, phosphorus, sediment loads, and a large *E. coli* load reduction is required to support a state of hauora in the Te Waewae Bay catchment.

There are uncertainties associated with the exact percentage 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

- Minimise nitrogen, phosphorus, sediment and reduce *E. coli* loss as much as possible.

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 focusing mitigation efforts on your property. Considering your property's location and physiographic information, we consider that these contaminants and loss pathways must be given particular attention when choosing mitigation actions.

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 Te Waewae Bay catchment spans the coastal and intermediate climate zones. The coastal zone is subject to cold, salt-laden winds from the south and

[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)].

west. The intermediate zone has a generally temperate climate with few severe frosts. It is subject to both southwest and northwest winds.

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, coastal erosion is also occurring over time. For many but not all areas, the lowest monthly rainfall occurs in winter. Annual rainfall ranges from around 1000 – 1500mm across the catchment. [2] Coastal areas do not typically experience dry spells, they are more common inland. Te Waewae Bay has approx. 0-20 soil moisture deficit days annually, which is relatively low compared to the rest of New Zealand. [3] 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 websiteHYPERLINK "https://www.lawa.org.nz/explore-data/southland-region/air-quality/invercargill/invercargill-at-pomona-street" HYPERLINK "https://www.lawa.org.nz/explore-data" You can also look at Southland's Water Story[4] for more information. for more information.

Sites of community significance

There are no major settlements within the Te Waewae Bay western coastal zone. It is estimated that less than 50 people live in the Te Waewae Bay western coastal zone.

Significant species or ecosystems

Taonga species

- Tuaki – cockles
- Pātiki – flounder
- Kūtai – mussels
- Tuna – longfin eel
- Kakakana – lamprey
- Īnaka – whitebait

[2] See NIWA report - The Climate and Weather of Southland, G.R. Macara, 2nd edition https://niwa.co.nz/static/Southland%20ClimateWEB.pdf
[3] See NIWA report - The Climate and Weather of Southland, G.R. Macara, 2nd edition https://niwa.co.nz/static/Southland%20ClimateWEB.pdf
[4] 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.

The lagoon at Te Waewae Bay is treasured by Ngāi Tahu ki Murihiku and has provided reliable mahinga kai resources for many generations. Shellfish such as tuaki (cockles), pātiki (flounder), kūtai (mussels), tuna (eels), kanakana (lamprey) and īnaka (whitebait) were once regularly and safely harvested and consumed. Protecting and restoring the health of the lagoon is a priority for Ngāi Tahu ki Murihiku.

Named during the southern voyages of Tamatea Ure Haea, and his waka Takitimu, which was wrecked at Te Waewae Bay. The survivors named the river Waiau due to the swirling nature of its waters. Wāhi ingoa associated with the Waiau are indicators of the range of resources the river provided: Waiharakeke (flax), Papatōtara (tōtara logs or bark), Kirirua (a type of eel found in the lagoon), Te Rua o te Kaiamio (a rock shelter that was a designated meeting place, similar to a marae) and Ka Kerehu o Tamatea (charcoal from the fire of Tamatea).

The Waiau River, especially around the river mouth, was a major source of mahinga kai for Ngāi Tahu, with some 200 species of plants and animals harvested in and near the river. Rauri (reserves) were applied to the mahinga kai resources so that people from one hapū or whānau never gathered kai from areas of another hapū or whānau.

The area was also a major travel route connecting Murihiku and Te Ara a Kiwa (Foveaux Strait) to Te Tai Poutini. Summer was historically a time for expeditions to Manapōuri for mahinga kai, which along with access to pounamu were the main motivations for movement up and down the Waiau. Numerous archaeological sites and wāhi taonga attest to the history of occupation and use of the river by Ngāi Tahu and Ngāti Māmoe. An important nohoanga site at the mouth of the river was called Te Tua a Hatu, the Rangatira Te Waewae had his Kāinga nohoanga on the left bank of the river mouth and the bay is named after him.

Catchment context, challenges and values for Te Waewae Bay Today, Te Waewae is regarded as culturally degraded due to a reduction in water flows changing the identity, movement and characteristics of the river and its plume; it can no longer do the job it was naturally supposed to do. The decline in water quantity and quality has diminished the mauri of the river mouth and barriers have restricted movement up and down it. The culmination of effects diminishes cultural uses, particularly mahinga kai, and cultural identity. Many of the cultural redress provisions in the Ngāi Tahu Claims Settlement Act 1998 are associated with water use, availability and access. Water should be in a state for Ngāi Tahu to undertake mahinga kai.

Many of the cultural redress provisions in the Ngāi Tahu Claims Settlement Act 1998 are associated with water use, availability and access. Water should be in a state for Ngāi Tahu to undertake mahinga kai. The effects of various impacts on water diminishes cultural uses, particularly mahinga kai, and cultural identity.

Ngāi Tahu ki Murihiku identified a range of priorities in 2020 relevant to freshwater management in Te Waewae Bay. 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 proposed 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.