Catchment context, challenges and values for Tokanui

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Te Ao Marama Inc.

environment SOUTHLAND
REGIONAL COUNCIL
Te Taiao Tonga

Tokanui

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 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 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.

Tokanui Catchment

The Tokanui zone extends from the Mataura catchment in the west from Fortrose estuary to the Waikawa catchment about five kilometres east of the Tokanui township. The Tokanui River drains the catchment from the northern boundary to the south-east coast. Other streams drain the hill range around Mount Darby to the south coast.

The Tokanui River Mouth – Haldane Estuary is part of the Te Ara a Kiwa Ngāi Tahu Statutory Acknowledgement Area - which recognises the relationship of Ngāi Tahu with specific sites and areas, providing for this to be reflected in their management.

Historical clearance and altered drainage of land for farming and settlements 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 Tokanui coastal zone catchment, in combination with the Waituna catchment, Matāura catchment, Waikawa catchment and Catlins 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 the Haldane Estuary are complex ecological systems comprised of a diverse range of habitats such as shallow open water, sea grass beds, tidal pools, sandy beaches, salt marshes, intertidal sand and mud flats, coastal wetlands and riparian and landward vegetation. In the Haldane Estuary, detailed ecosystem health monitoring is available, but in highly summarised terms it shows that the estuary is in "very good" condition regarding macroalgae and eutrophic zones but is in "fair" or "poor" condition for the other measures - sediment oxygen level and mud extent. None of the other estuaries in the Tokanui coastal zone catchment are regularly monitored, however, a coastal risk assessment undertaken in 2008 found the Tokanui and Waipapa estuaries to be in "fair" ecological condition.

Kaika (small permanent settlements) and nohoanga (temporary camps) used to be common on the coast and waterways throughout the catchment zone, with people moving along the Foveaux coast to Ruapuke Island and the eastern areas. These sites and mahinga kai were linked through a network of land and water based te ara tawhito (traditional routes). Wāhi tapu/tūpuna and significant archaeological and artefact collections have been found throughout this catchment. The catchment was, and continues to be, a popular mahinga kai for Ngai Tahu.

Today, the main town centre in the coastal zone catchment is Tokanui, a service centre and agricultural hub. Europeans first settled at Tokanui in the 1880s, and the town expanded due to growth in the timber, flax milling and dairying industries. From the 1920s, however, interest in industries other than farming began to wane. Tokanui was the Invercargill eastern rail line's furthest stop before the line closed in 1966. Today, Tokanui supports a school that caters to a large part of the catchment area. It also lies on the Southern Scenic Route, which is popular among domestic and international tourists.

It is estimated that approximately 300 people live in the Tokanui coastal zone catchment. Outside of Tokanui, most people live rurally, working in the agricultural sector. Invercargill is dependent on the economic activity that is produced from the surrounding farming hinterland. This rural-urban

connection is a prominent feature of the Southland region, where town and city centres support the rural agricultural activity that exists within the majority of Southland's water catchment areas.

Of the approximately 22,600 ha of land in the Tokanui coastal zone catchment, approximately 69% (15,600 ha) is now used for farming. Approximately 6,000 ha is Department of Conservation estate and there is no Māori Freehold land.

There are no mapped groundwater zones within the Tokanui catchment.

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 Aparima and Pourakino 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, 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

Tokanui coastal zone – key freshwater issues

(not in order of priority)

- Sedimentation of streams and rivers. Sedimentation risk in Haldane Estuary.
- Intensive agricultural use of land that is sloping and susceptible to sediment loss.
- Eutrophication risk in coastal lakes (Lake Brunton and The Reservoir).

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. 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.

Tokanui Coastal Zone contaminants

Supporting hauora outcomes

Modelling suggests that a large E. *coli*, moderate sediment and some nitrogen and phosphorus load reductions are required to support a state of hauora in the Tokonui Coastal Zone.

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

- Reduce nitrogen, phosphorus, sediment and *E. coli* loss as much as possible.
- Building resilience into the catchment system to move towards hauora – a healthy state. 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. 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.

[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)].

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 Tokanui catchment spans the coastal and Intermediate climate zones. The coastal zone is subject to cold, salt-laden winds from the south and west, while the intermediate zone has a generally temperate climate with few severe frosts 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 approximately 900 - 1200mm in the Tokanui Catchment.[2] Coastal areas do not typically experience dry spells; they are more common inland. 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 website https://www.lawa.org.nz/explore-data/southland-region/river-quality/tokanui-river. You can also look at Southland's Water Story[2] for more information.

Sites of community significance

The Tokanui village is the main settlement in the Tokanui River catchment. Approximately 300 people live within the settlement.

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 – eels
- Kanakana – lamprey
- Waikakahi – freshwater mussels
- Kōkopu – galaxiids
- Wai kōrua – freshwater crayfish
- Īnaka – whitebait

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

Cultural matters of importance to tangata whenua

Ngai 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 Tokanui River and its associated tributaries, lakes and estuaries contained in this catchment are treasured by Ngai Tahu ki Murihiku as source of mahinga kai, and linkages of te ara tawhito (traditional routes) to and from the coast. The levels and types of contaminants present in this catchment have compromised the health of the waterbodies, and the Tokanui catchment is regarded as culturally degraded. The continued wellbeing of the mauri and wairua of the water is dependent on the physical health of the water, and this in turn supports the cultural practices and cultural identity of Ngai Tahu ki Murihiku.

Ngāi Tahu ki Murihiku identified a range of priorities in 2020 relevant to freshwater management in the Tokanui Catchment. 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.