

CULTURAL IMPACT ASSESSMENT WASTEWATER OVERFLOW DISCHARGES



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Acknowledgement

This cultural impact assessment on Wastewater Overflow Discharges was prepared on behalf of Te Rūnanga o Ōtākou as Tāngata Whenua of the receiving environments. The wastewater overflow discharges may also affect the rohe of Kāti Huirapa Rūnaka ki Puketeraki. Therefore, this cultural impact assessment was undertaken with the assistance of Kāti Huirapa Rūnaka ki Puketeraki.

The assistance of Karen Sannazzaro, Regulation and Policy Team Leader, Water and Waste Services, Dunedin City Council, is also acknowledged.

Front Cover Photograph: The outfall where the Harbour Terrace - Union Street East overflow discharges to the Water of Leith.

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	Report 1 of 1 Dunedin City Council

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Appendix 1: Statutory Acknowledgement for Te Tai O Arai Te Uru (Otago Coastal Marine Area)

1. Introduction

Dunedin City Council (DCC) has contracted Kāi Tahu ki Otago Limited (KTKO Ltd) to prepare a cultural impact assessment (CIA) to identify the impacts of discharges from five wastewater overflows in Dunedin on Tāngata Whenua.

During heavy rainfall events, surface run-off and elevated groundwater cause Dunedin's wastewater network to exceed its capacity and overflow. Overflow pipes were installed historically to allow wastewater to be discharged to the environment in times of high flow, preventing flooding and damage to infrastructure. Some overflows discharge directly to water, while others enter the stormwater system before being discharged into water.

The DCC requires resource consent for the discharges from five overflows. This CIA covers the impacts of these overflows, listed in the table below.

Table1: DCC Wastewater Overflow Sites

Overflow site name	Affected water body	Consent term sought
Kaikorai Valley	Kaikorai Stream	10 years
Shetland St / Nairn St "Duckpond"	Kaikorai Stream	10 years
Lindsay Creek	Lindsay Creek	20 years
Harbour Terrace and Union Street East	Water of Leith / Harbour Basin	15 years
Sawyers Bay pumping station	Harbour (Sawyers Bay)	25 years

This CIA should not be seen as all the consultation required with Te Rūnanga o Ōtākou (Te Rūnanga), but as a basis for ongoing consultation and discussion between DCC and Te Rūnanga.

2. Project Description

The DCC maintains the wastewater network that services Dunedin city. During high rainfall events, surface run-off and elevated groundwater cause the network to exceed its capacity and overflow. Because these overflows contain untreated wastewater – a component of which is sewage – they degrade water quality and affect the ecosystem health and cultural health of the receiving environments.

The DCC has a capital expenditure programme for wastewater which focuses on minimising and eventually avoiding overflow discharges. This will be done by minimising inflow and infiltration, resizing sewers and evaluating other network management options.

In the interim, DCC requires resource consent for the discharges from five overflows. DCC has been collecting information on the nature of individual flows, including how often they occur and under what conditions, and the rate and duration of discharge. The overflows are listed in the table below.

Table1: DCC Wastewater Overflow Sites

Overflow site name	Affected water body	Consent term sought
Kaikorai Valley	Kaikorai Stream	10 years
Shetland St / Nairn St “Duckpond”	Kaikorai Stream	10 years
Lindsay Creek	Lindsay Creek	20 years
Harbour Terrace and Union Street East	Water of Leith / Harbour Basin	15 years
Sawyers Bay pumping station	Harbour (Sawyers Bay)	25 years

Each overflow is unique in terms of how frequently it discharges and the size or intensity of a rainfall event that will cause it to discharge. Table 2 below gives information on the frequency of overflow events and the volumes discharged by overflows during these events.

Table 2: Summary data of recorded overflows

	Kaikorai Valley	Nairn Street	Lindsay Creek	Union Street	Sawyers Bay
Total events*	77	24	36	7	9
2012 events	13	6	7	2	2
2013 events	14	6	11	2	3
2014 events	31	8	12	2	3
2015 events	18	3*	7	1	1
Minimum (m³)	0.1	1.8	1	0.1	9
Average (m³)	516	1125	1056	993	604
Maximum (m³)	5824	5827	7280	3393	1643
Events <10 m³	26	3	2	3	1
Events 10-100 m³	22	4	13	-	3
Events 100-1000 m³	19	11	16	1	3
Events 1000< m³	10	6	8	3	2

DCC found that the catchments most affected by inflow and infiltration, and with the greatest public health risk, are the Kaikorai Valley, Shetland St/Nairn St and Lindsay Creek overflows. These overflows have been prioritised for remedial work as a result. This is reflected in the terms of consent sought for each overflow discharge.

Ryder Consulting was engaged by DCC to evaluate the ecology and water quality of the receiving water bodies. Key findings of this report included:

- The overflows all discharged primarily due to heavy rainfall events. This means that when they do discharge, the discharge is diluted within the stormwater network and/or within the receiving environment.
- Rainfall events lead to an increase in contaminants in stormwater even when overflows do not operate, and it is difficult to differentiate between contamination due to an overflow or other sources.
- The overflows discharged into highly modified environments that are relatively tolerant of degraded water quality.

- Sampling during heavy rainfall events found no meaningful change in contaminant levels downstream of the discharge points for several of the overflows.
- Ecological values in waterways examined are not particularly high and discharges from overflow conduits on their own appear to have little impact on biological communities.

Each overflow and its receiving environment are described below.

Kaikorai Valley

This overflow is located under the Kaikorai Valley Road bridge near Kaikorai Valley College. When operating, it discharges into the Kaikorai Stream. The term of consent sought for this overflow is 10 years.

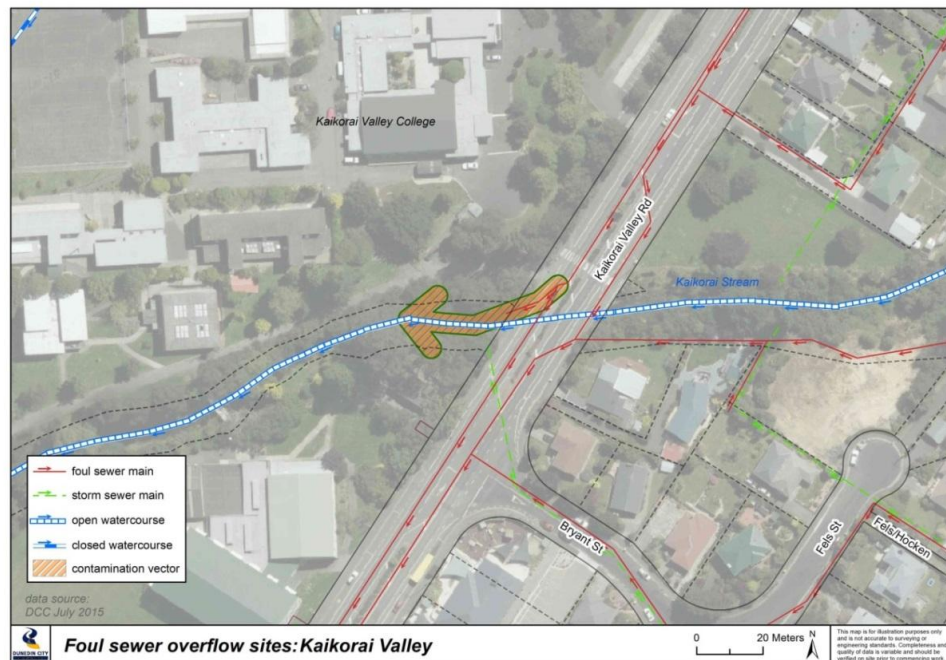


Figure 1: Kaikorai Valley overflow site



Figure 2: Kaikorai Valley overflow site. The overflow is located on the left side under the bridge.

Shetland St / Nairn St

This overflow is located on the true right bank of the Kaikorai Stream just north of the duck pond and discharges into the Kaikorai Stream. The term of consent sought for this overflow is 10 years.



Figure 3: Shetland St/Nairn St overflow site



Figure 4: Shetland St / Nairn St overflow pipe.

Lindsay Creek

This overflow is located on Lindsay Creek near Dunedin North Intermediate. When operating it discharges into the Lindsay Creek. The term of consent sought for this overflow is 20 years.

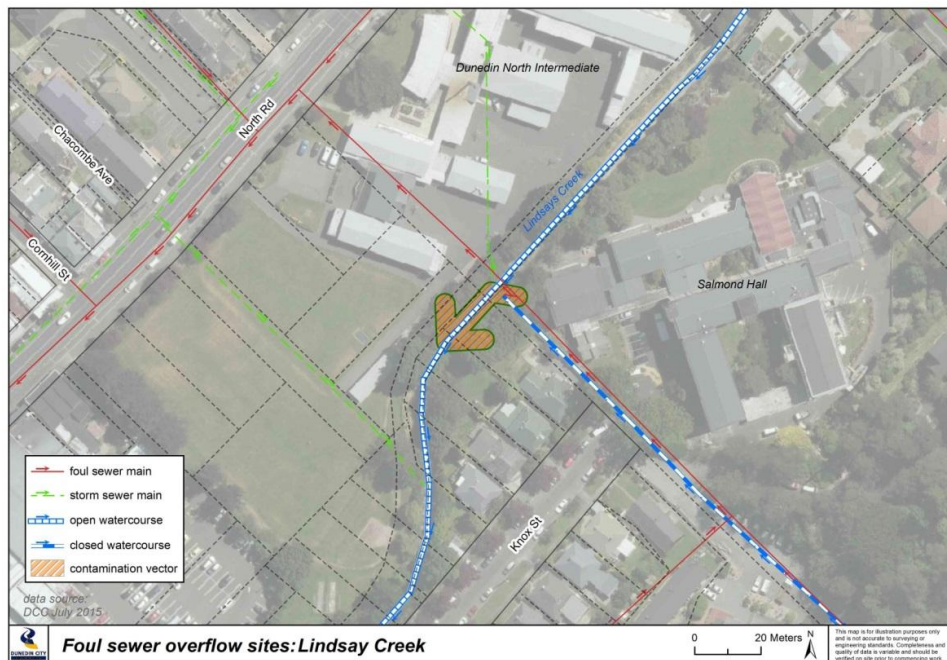


Figure 5: Lindsay Creek overflow site

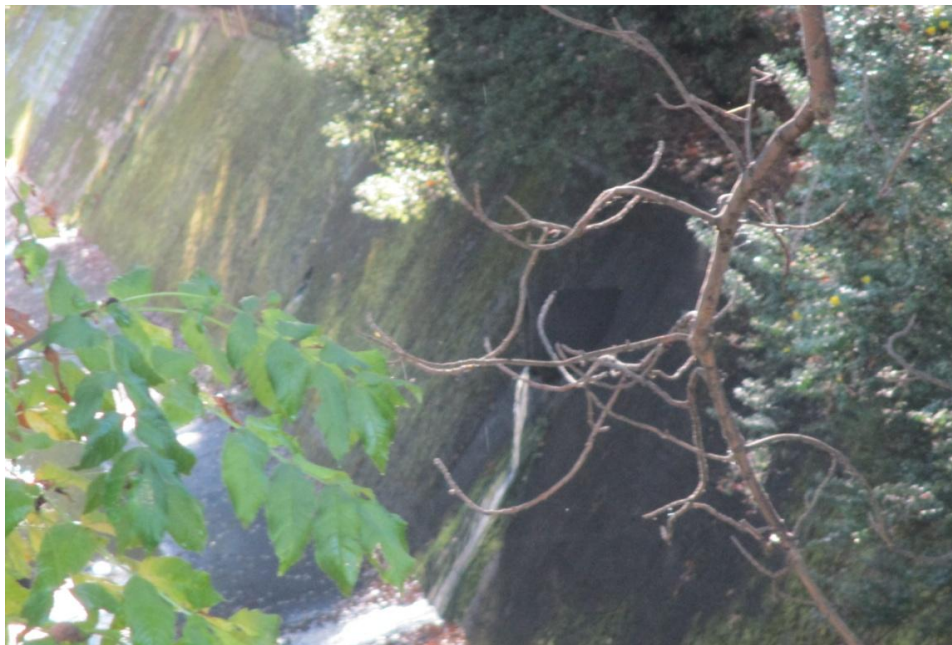


Figure 6: The Lindsay Creek overflow pipe. Lindsay Creek is a concrete lined channel at the overflow site and is fenced on both sides.

Harbour Terrace and Union Street East

This overflow is located underground at the intersection of Harbour Terrace and Union Street. The discharge is piped underground and eventually enters the Water of Leith just before it flows into the Otago Harbour. The term of consent sought for this overflow is 15 years.

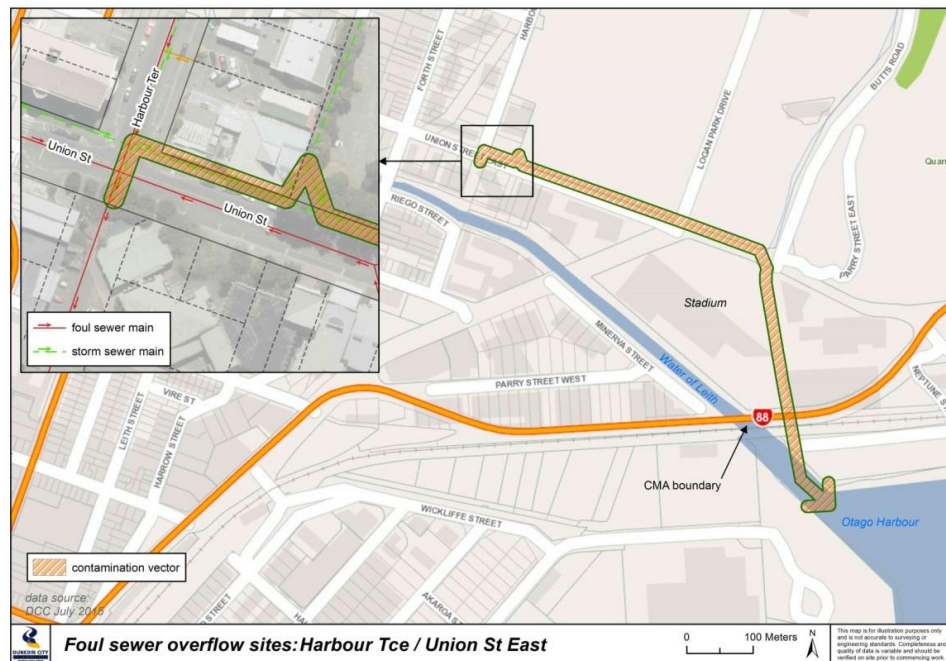


Figure 7: Harbour Tce/Union St East overflow site

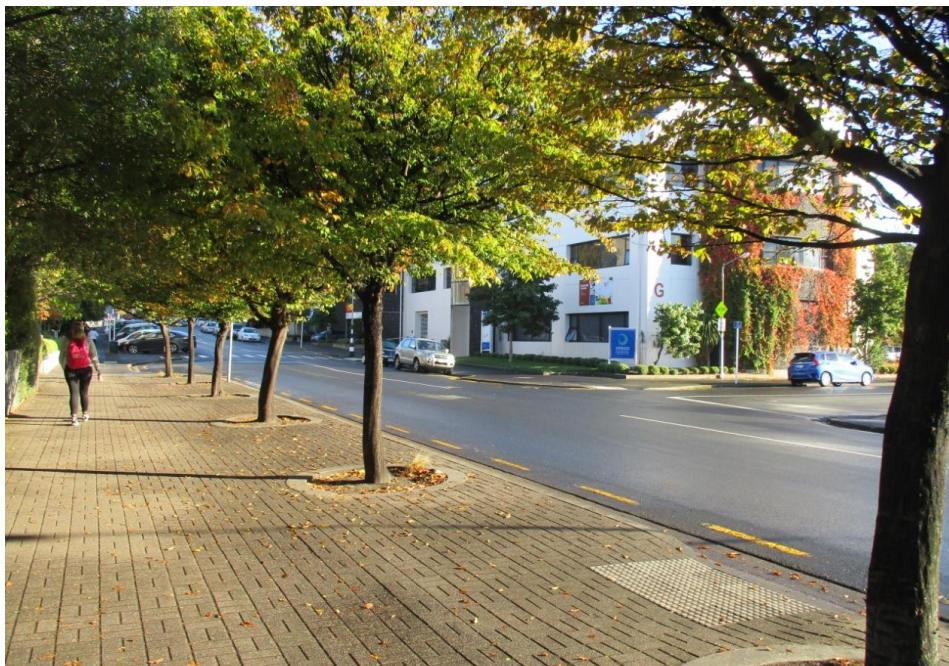


Figure 8: The intersection of Harbour Terrace and Union Street where the overflow is located underground.



Figure 9: The outfall where the overflow discharges into the Water of Leith, close to where it flows into the Otago Harbour.

Sawyers Bay Pumping Station

This overflow is located towards the north end of Sawyers Bay on the far side of the railway lines from the road. It discharges into Otago Harbour in Sawyers Bay. The term of consent sought for this overflow is 20 years.

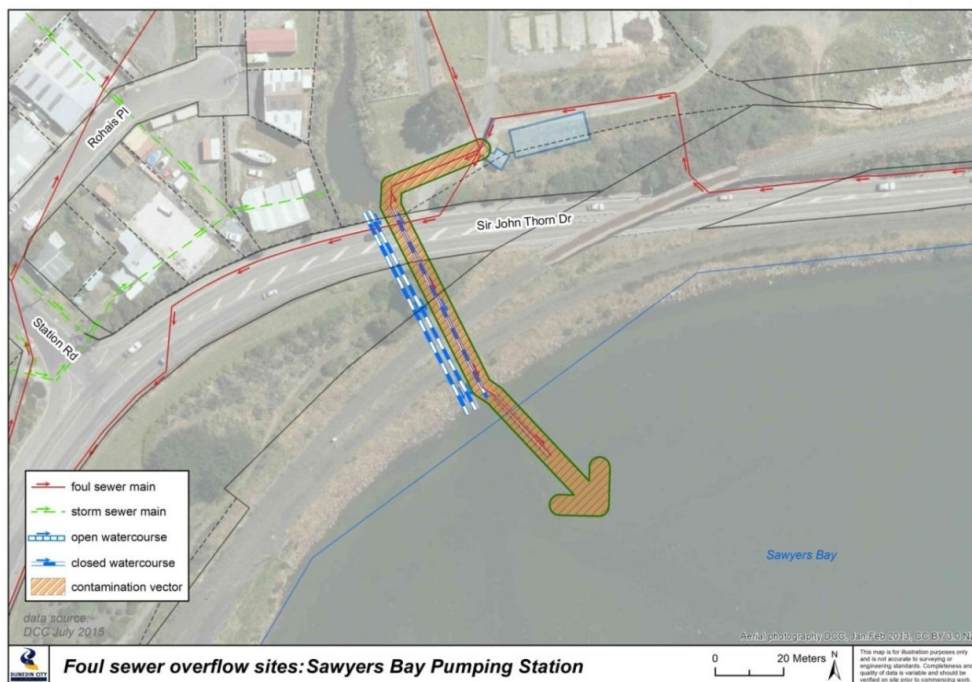


Figure 10: Sawyers Bay overflow site

3. Methodology

The following methodology was used for undertaking this cultural impact assessment:

Project Briefing

Council staff provided a briefing on the application for the discharge consents for the wastewater overflows.

Review of the Project Documentation

Documentation relevant to the discharge consent application was reviewed. This included:

- 'Appendix A: Wastewater network overflows requiring resource consent' prepared by DCC
- 'Appendix B: Wastewater network overflows, Information to inform a discharge consent application' prepared by DCC
- 'Dunedin City Wastewater Overflows: An assessment of receiving water environments' prepared by Ryder Consulting, November 2015
- Kāi Tahu ki Otago Natural Resource Management Plans

Site Visit

A site visit to each of the five overflows was completed on 21st April 2016.

Literature Review

An initial literature review was undertaken that drew together the relevant resources relating to the association of Te Rūnanga o Ōtākou with the Kaikorai Stream, Lindsay Creek, Water of Leith and Otago Harbour. The review collected information from a variety of sources including:

- Books and Publications
- Cultural Evidence of Kāi Tahu Whānui
- Cultural Impact Assessments prepared by KTKO Limited
- Kāi Tahu ki Otago Natural Resource Management Plans
- Statutory Acknowledgement for Te Tai O Arai Te Uru (Otago Coastal Marine Area)

Key Informant Interviews

Interviews were undertaken with representatives from Te Rūnanga o Ōtākou to discuss the effects of the overflow discharges on Kāi Tahu cultural values.

Preparation and Review of the Cultural Impact Assessment

A draft cultural impact assessment was prepared and submitted to Te Rūnanga o Ōtākou for review. The cultural impact assessment was revised in light of comments received.

Handover of the Cultural Impact Assessment

The cultural impact assessment was handed over to Te Rūnanga o Ōtākou and Dunedin City Council for implementation.

4. Tāngata Whenua

‘Tāngata Whenua’ literally means ‘people of the land’ and is often used to refer to the whānau (families), hapū (sub-tribe) or iwi (tribe) of a particular area who are recognised as holding the traditional rights and responsibilities within that area to manage and govern natural resources. Kāi Tahu is the iwi that is Tāngata Whenua over most of the South Island. Te Rūnanga o Ōtākou represents the whānau and hapū that are Tāngata Whenua for the receiving environments of the overflow discharges.

Te Rūnanga o Ōtākou

The takiwā (tribal area) of Te Rūnanga o Ōtākou (on Muaūpoko/Otago Peninsula) and extends from Purehurehu (Heyward Point) to Te Mata-Au (Clutha River) and inland, sharing an interest in the lakes and mountains to the western coast with rūnaka to the north and south. The Otago Harbour has a pivotal role in the well-being of Ōtākou people. The harbour is a source of identity and a bountiful provider of kaimoana, and it is the pathway to the fishing grounds beyond. Traditionally it was the mode for other hapū to visit, and in today's world it is the lifeline to the international trade that benefits the region. The ebb and flow of the harbour tides is a valued certainty in a world of change, a taoka to be treasured and protected for the benefit of current and future generations.



Figure 11: Ōtākou Marae, Otago Peninsula

Tāngata Whenua Approach to Resource Management

In assessing the impact of activities on the environment Te Rūnanga o Ōtākou takes a values-based approach. That is, the impact of activities on the environment and on associated cultural values is the key measure for determining the acceptability of a proposal. This cultural values approach encompasses the interrelated cultural values, associations and relationships between Kāi Tahu¹ and the environment, and the holistic interrelationships between the constituent parts of the environment including Tāngata Whenua, respectively:

Table 3: Kāi Tahu environmental values and principles

	<p>Whakapapa and Whakawhanaukataka</p> <p><i>Whakapapa provides the framework, within which whakawhanaukataka (relationships) connect people to one another and to the environment.</i></p>
	<p>Tikaka Māori and Kawa</p> <p><i>Tikaka Māori (customary knowledge handed down by the tūpuna) and Kawa (methods and practices)²</i></p>
	<p>Kaitiakitaka, Ki Uta Ki Tai, Mahika Kai, Mauri Rakatirataka, Taoka Tuku Iho, Wāhi Tapu</p>
	<p>Wai Māori <i>(Estuaries, Hapua, Lakes, Rivers, Waipuna, Wetlands)</i></p> <p>Papatūānuku</p>

¹ In the south of the South Island, the local Māori dialect uses a 'k' interchangeably with 'ng'. The preference is to use a 'k' so southern Māori are known as Kāi Tahu, rather than Ngāi Tahu.

² Tikaka Māori is the knowledge base and kawa is the local practice of that knowledge. Please note that the definition of tikaka Māori and kawa is fluid between hapū.

“Of all the values of tikanga Māori whanaungatanga is the most pervasive. It denotes the fact that in the traditional Māori thinking relationships are everything – between people; between people and the physical world; and between people and the atua (spiritual entities). The glue that holds the Māori world together is whakapapa identifying the nature of relationships between all things.”³

This section discusses the cultural values that make up the values based approach to resource management. The discussion of cultural values is not intended as an exhaustive review of this subject. Rather, the intent is to provide a conceptual framework for understanding the Kāi Tahu perspective on the management of the environment.

Whakapapa and Whakawhanaukataka

Whakapapa binds Kāi Tahu to the mountains, forests, waters and taonga species of Te Wai Pounamau. This shared whakapapa confirms that all things are from a common source. Therefore, Kāi Tahu do not see themselves as separate from the natural world. This interconnectedness (whakawhanaukataka) of all things means that any alteration to the health and welfare of the natural world will directly impact on the health and welfare of the people.

Tikaka Māori and Kawa

Tikaka Māori and Kawa refers to Māori customary values and practices. Maintaining mahika kai sites, gathering resources, and continuing to practice the tikaka that governs each resource, is an important means of passing on cultural values and mātauraka Māori (traditional knowledge) to the next generation.

Kaitiakitaka

Kaitiakitaka is an inherited responsibility of those who hold mana whenua to ensure that the life-supporting capacity (mauri) of the natural resources of their takiwā is sustained. Te Rūnanga o Ōtākou are kaitiaki over the receiving environments of the

³ *Environment Court: Ngati Hokopu v Whakatane DC C168/02*. Paragraph 39. From Maori Custom and Values in New Zealand Law, NZ Law Commission, Paragraph 130, citing an unpublished paper written for the Commission by Joseph Williams (“He Aha Te Tikanga Maori”)

overflow discharges and are responsible for ensuring that these water bodies are available for Kāi Tahu to use now and in the future.

Ki Uta Ki Tai

In accordance with Tikaka Māori, a holistic approach should be taken to the management of the natural environment. This world view is articulated in the Kāi Tahu ‘Ki Uta Ki Tai’ philosophy, which is a holistic, culturally based ‘mountains to the sea’ natural resource management framework.

Mahika kai

“Life blood of our hapū and marae”

Mahika kai is a cornerstone of Kāi Tahu cultural identity. Mahika kai is a term that literally means “food workings” and refers to the places where food is gathered or produced. The term also embodies the traditions, customs and collection methods, and the gathering of natural resources for cultural use, including raraka (weaving) and rokoā (traditional medicines) and ensuring the good health of the resource for future generations.



Figure 12: Whānau collecting kai in the Otago Harbour

Mauri

The forest, waters, the life supported by them, together with natural phenomena such as the mist, wind and rocks, possess a mauri or life force. The primary management principle for Māori is the protection of the mauri of an ecosystem. If the mauri of the natural environment is degraded it no longer has the capacity to support cultural uses and values.

Rakatirataka

Rakatirataka is about the ability of Tāngata Whenua to exercise customary authority over natural resources, including mahika kai and other taoka tuku iho, within their takiwā (tribal area). Rakatirataka is inextricably linked to kaitiakitaka.

Taoka Tuku Iho

Ngā taoka tuku iho incorporates:

- All things prized, tangible and intangible, animate and inanimate
- The concept of a resource; its utility and notions of sustainability; the wise use of resources; and the obligation to maintain the mauri
- Respect for the past and the obligation to preserve resources, and cultural wealth and well-being, for future generations
- Intrinsic values
- Cultural use, heritage and amenity values

Wāhi tapu and wāhi taoka sites

Wāhi tapu and wāhi taoka sites hold special historical, spiritual, or cultural associations for Kāi Tahu. The term refers to places that hold the respect of the people in accordance with tikaka. In addition to urupā, physical resources such as landforms, mountains and ranges, remaining areas of indigenous vegetation, springs, and waterways are examples of wāhi tapu or wāhi taoka sites.

*He taura whiri kotahi mai anō te kopunga tai no i te pu au.
From the source of the mouth of the sea all things are joined together as one.*

[illegible]

Figure 13: Otago Harbour Catchment Map (NRMP, 2005).

Otago Harbour Catchment

The Otago Harbour Catchment is a special feature of Dunedin and is highly valued by Kāi Tahu. The landscape of the Otago Harbour Catchment evokes a cultural and spiritual meaning to Tāngata Whenua. This is signified through layers of tradition, association and use, and reinforced by place names that individually each reflect countless traditions, events, ancestors, sites, uses, food or other resources and cultural perspectives. The landscape and associated place names are an integral element of an oral culture. They help Kāi Tahu whānau recall and pass on to future generations a framework of values, beliefs and traditions that bind Kāi Tahu people to the whenua (land) and all its resources.

The whole of the coastal area offered a bounty of mahika kai, including a range of kaimoana, sea fishing, eeling and harvest of other freshwater fish in lagoons and rivers, whale, seal, waterfowl, sea bird egg gathering and forest birds and a variety of plant resources including harakeke, fern and ti root.

The contemporary significance of the Otago Harbour Catchment is recognised by the Statutory Acknowledgement for Arai Te Uru. This describes Kāi Tahu association with this area and is attached as Appendix 1.

Otago Harbour

“We consider all of the Otago Harbour to be the food basket for the marae”

The Otago Harbour area has historically been important to Kāi Tahu as a source of mahika kai, a place of settlement, a burial place, and as a cultural landscape that embodied the ancestral, spiritual and religious traditions of all the generations prior to European settlement. The Otago Harbour is therefore an important taoka tuku iho.

Muaūpoko (Otago Peninsula) had many kāika (settlements) with a multitude of hapū occupying them. At one time up to 12 kāika existed in the lower Otago Harbour. The harbour was a highway for Kāi Tahu, providing a thousand years of transport for generations of Kāi Tahu tūpuna (ancestors) moving between kāika and nohoaka (seasonal occupation sites). Travel by sea between settlements and hapū was common. Travel by waka hunua (double-hulled canoe) and whale boats (post-contact) was undertaken. Tauraka waka (mooring sites) occur up and down the coast. Wherever a tauraka waka is located there is also likely to be a nohoaka,

fishing ground, kaimoana resource, and rimurapa (bull kelp). Sea trails tended to be linked to a land trail or other mahika kai resource.

The harbour is a significant mahika kai area. Te Rūnanga o Ōtākou have applied for the establishment of a Mātaitai Reserve over the Otago Harbour in recognition of the importance of the Harbour for customary food gathering. The aims of the Mātaitai are:

- To ensure that the local community and Kāi Tahu whānau are able to undertake recreational activities and to exercise their customary rights.
- To ensure the protection of fisheries resources so that an abundant supply of mahika kai is available to Kāi Tahu whānau and the local community.
- To prevent further degradation of the mauri and wairua of the Ōtākou fishery.

Kaikarae (Kaikorai Stream)

Kaikarae (Kaikorai Stream) was one of the first places to be named in the Dunedin area. Kaikorai Stream was once a significant mahika kai area and is one of the most significant rivers to enter the coastal waters of Otago. The significance of Kaikarae as a place of mahika kai stems from the earliest time in tribal memory when Rākaihautū and his people named the estuary during their journey of discovery over 42 generations ago. The name refers to a meal of karae (seabird) that Rākaihautū enjoyed when camped by the mouth of the Kaikarae. Since that time the area was the site of seasonal and semi-permanent camps. Coastal Kāi Tahu utilised the Kaikarae area to supplement their seasonal food supplies. The mouth of the estuary was the favoured camping site. The mahika kai resources included eels, waterfowl, birds and kaimoana. It is the aspiration of Te Rūnanga to once again be able to utilise these areas for mahika kai.

Owheo (Lindsay Creek and Water of Leith)

Lindsay Creek is a tributary of the Water of Leith. Historically Kāi Tahu would have accessed all parts of the Water of Leith and Lindsay Creek for mahika kai. It is the aspiration of Te Rūnanga to once again be able to utilise these waterways for mahika kai. The Water of Leith was called Owheo, for the Ngāti Mamoe chief named Wheo who resided there. The kāika, also named Owheo, was on the bank of the

stream, where Howe Street joins Leith Street. There was another kāika on the beach near the mouth of the Owheo named Tutai-a-te-matauirā.

5. Statutory Framework

Otago Regional Plan: Water

Issues of concern to Kāi Tahu are listed in Chapter 4 of the Regional Plan: Water. Schedule 1D of the plan also details spiritual and cultural beliefs, values and uses of significance to Kāi Tahu for specific water bodies.

The Kaikorai Stream is listed as having the following Kāi Tahu beliefs and customary use interests:

- Kaitiakitanga – the exercise of guardianship by Kāi Tahu in accordance with tikanga Maori in relation to Otago’s natural and physical resources; and includes the ethic of stewardship.
- Mauri – life force; for example the mauri of a river is most recognisable when there is an abundance of water flow and the associated ecosystems are healthy and plentiful; a most important element in the relationship that Kai Tahu have with the water bodies of Otago.
- Wāhi tapu – sacred places; sites, areas and values associated with water bodies that hold spiritual values of importance to Kai Tahu. (Note: Kai Tahu should be consulted regarding the location of these places, sites, areas and values for a river identified as MA3).
- Wāhi taoka – treasured resource; values, sites and resources that are valued and reinforce the special relationship Kai Tahu have with Otago’s water resources.
- Mahika kai – places where food is procured or produced. Examples in the case of waterbourne mahika kai include eels, whitebait, kanakana (lamprey), kokopu (galaxiid species), koura (fresh water crayfish), fresh water mussels, indigenous waterfowl, watercress and raupo.
- Kohanga – important nursery/spawning areas for native fisheries and/or breeding grounds for birds.

- Trails – sites and water bodies which formed part of traditional routes, including tauraka waka (landing place for canoes).
- Cultural materials – water bodies that are sources of traditional weaving materials (such as raupo and paru) and rongoa (medicine).

The Water of Leith is listed as having the following Kāi Tahu beliefs and customary use interests:

- Wāhi tapu – sacred places; sites, areas and values associated with water bodies that hold spiritual values of importance to Kai Tahu. (Note: Kai Tahu should be consulted regarding the location of these places, sites, areas and values for a river identified as MA3).
- Wāhi taoka – treasured resource; values, sites and resources that are valued and reinforce the special relationship Kai Tahu have with Otago's water resources.

Resource Management Act 1991

The Act require Council to:

Recognise and provide for the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development [Section 6(a)],

Recognise and provide for the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga [Section 6(e)].

Have particular regard to kaitiakitanga [Section 7(a)].

Take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) [Section 8].

Ngāi Tahu Claims Settlement Act 1998

The Ngāi Tahu Claims Settlement Act included as cultural redress a number of mechanisms to recognise and give practical effect to Ngāi Tahu mana over taonga

resources and cultural landscapes. These include Statutory Acknowledgements, Tōpuni, Nohoanga and place name changes.

The aim of statutory acknowledgments is to improve the effectiveness of Ngāi Tahu participation under the Resource Management Act in decisions affecting taonga species, customary fish species, and acknowledged cultural landscapes. The statutory acknowledgement for Te Tai o Arai Te Uru (Otago Coastal Marine Area) of which Otago Harbour is a part, is attached as Appendix 1.

Te Rūnanga o Ngāi Tahu Freshwater Policy

The Freshwater Policy Statement describes Ngāi Tahu's association with freshwater resources, the ways in which Ngāi Tahu want to participate in freshwater management and the environmental outcomes sought.

The primary management principle for Ngāi Tahu is the maintenance and enhancement of the mauri or life-giving essence of a resource. With respect to water quality, the policy statement states that protecting the mauri of a waterbody requires:

- Protecting the integrity and cultural uses of waterbodies by prohibiting unnatural mixing of waters from different waterbodies
- Prohibiting the direct discharge of contaminants to water, in particular the discharge of human effluent
- Requiring the discharge of water from agricultural and industrial effluent to pass through land before it enters a waterbody and
- Encouraging the restoration of wetlands and riparian margins because of their pollution abatement function.

Specific objectives are as follows:

- Restore, maintain and protect the mauri of freshwater resources
- To maintain vital, healthy mahinga kai populations and habitats capable of sustaining harvesting activity

Kāi Tahu ki Otago Natural Resource Management Plans

The Kāi Tahu ki Otago Natural Resource Management Plans 1995 and 2005 are the principal resource management planning documents for Kāi Tahu ki Otago. The kaupapa of the plans is 'Ki Uta ki Tai' (Mountains to the Sea), which reflects the holistic Kāi Tahu ki Otago philosophy of resource management.

The Natural Resource Management Plans express Kāi Tahu ki Otago values, knowledge and perspectives on natural resource and environmental management issues. The plans are an expression of kaitiakitaka. While the plans are first and foremost planning documents to assist Kāi Tahu ki Otago in carrying out their kaitiaki roles and responsibilities, they are also intended to assist others in understanding tāngata whenua values and policy.

The Kāi Tahu ki Otago Natural Resource Management Plan 2005 (NRMP) is divided into catchments, with specific provisions for the whole Otago area and for each catchment. The overflows discharge into water bodies located in the Otago Harbour Catchment.

The NRMP contains the following issues that are relevant to the overflows discharge consents:

Wai Māori and Wai Tai Issues in the Otago Harbour Catchment

- Deterioration of inlet health and impacts on the mauri and life supporting capacity of the sea.
- Point source discharge of wastewater and other contaminants into the Otago Harbour.

Mahika Kai and Biodiversity Issues in the Otago Harbour Catchment

- Loss of important cultural species from the Otago Harbour Catchment.
- Some mahika kai species within the Otago Harbour Catchment are considered culturally unsafe for consumption.

6. Assessment of Impacts on Tāngata Whenua Values

Ko te wai te ora ngā mea katoa

Water is the life giver of all things

Protection of the mauri of ecosystems is a key Kāi Tahu environmental management principle. If the mauri of the natural environment is degraded it no longer has the capacity to support cultural uses and values. Water plays a significant role in Kāi Tahu spiritual beliefs and cultural traditions. The condition of water is seen as a reflection of the health of Papatūānuku. The loss and degradation of this resource through pollution is a significant issue for Kāi Tahu. High water quality is a prerequisite for healthy and abundant mahika kai, which is the cornerstone of Kāi Tahu culture. Water, mahika kai and mauri are negatively affected by the discharge of contaminants to water. This in turn negatively affects the health of the catchment as a whole.

It is difficult to determine exactly how the contaminants from the wastewater overflow discharges will affect the receiving water bodies. This is partly because the overflows discharge during heavy rainfall events when other sources of contaminants are also entering the receiving water bodies, making it difficult to distinguish between contaminants from overflow discharges and other sources.

The Ryder Consulting report (2015) states that the overflow discharges “appear to have little impact on biological communities”. Te Rūnanga believes that this may be because the environments are already degraded and the communities that exist in these environments are only those that are tolerant to poor water quality.

Regardless of the effects on biological communities, Kāi Tahu whānau will not collect kai in areas where untreated sewage has been discharged. When sewage enters water, it makes it unsafe for cultural use. This affects both recreational gathering by whānau and customary gathering.

Mahika kai is “part of who we are”

None of the Rūnanga representatives interviewed for this CIA currently collected mahika kai in any of the receiving water bodies (except for the lower Otago Harbour, but no mahika kai was collected in Sawyers Bay). However they, or people they

knew of, had fished in Sawyers Bay and the Water of Leith, and eeled in the Kaikorai Estuary ten years ago or more. Mahika kai is no longer gathered in these places because they are perceived to be degraded environments and whānau are not sure whether it is safe to gather kai there. Although it is uncertain how much of this degradation is due to the wastewater overflow discharges, the discharges contribute to the overall degradation of these environments that has been occurring for many years.

“Contaminants continue to enter the harbour and we want to do whatever we can do to minimise those”

This ongoing degradation has meant that the water quality of the receiving water bodies is poor and the environments are not in good health. Te Rūnanga aspire in the long-term to restore these water bodies and their ecosystems to a much better state. This includes seeing improved flows, water quality and habitat for native species and preventing contaminants from entering the water bodies. The discharges from the wastewater overflows contribute to this degradation, and Te Rūnanga would like to see the discharges cease in the long-term.

7. Addressing Impacts on Tāngata Whenua Values

The effects of the wastewater overflow discharges can be mitigated in a variety of ways. Recommended mitigation measures are described below.

Notification

“Ōtākou are tangata whenua of the Otago Harbour and act as guardians of the Harbour not only for our own people but also for the wider community”

Currently there is no way for the public to know where the overflows are located or when they have discharged. This poses a risk to the health and safety of the public, of which Kāi Tahu is a part. Notification of the overflow events will not address the cultural impacts of the overflow discharges, but it will address the health and safety concerns of Te Rūnanga.

The public could be notified about overflows by placing signs in the vicinity of the overflow discharges. Ideally, an electronic notification system would be developed. For example a system that alerts the public when an overflow has discharged, or a notification on the DCC website. Either of these options would be supported by Te Rūnanga.

Sharing monitoring results

Sharing the results of overflow monitoring with Te Rūnanga increases their understanding about the state of the environment in their rohe. This helps Te Rūnanga to exercise their kaitiaki role. This will assist Te Rūnanga to address areas that are not in good cultural health. Te Rūnanga would be interested in working with DCC on a database that they could access to check the water quality monitoring results of all monitored consents. Te Rūnanga would then know when water quality thresholds of interest to them have been exceeded. This would help Te Rūnanga to better understand the effects of discharges and enable them to respond to the effects and fulfil their kaitiaki role.

Habitat restoration

DCC should ensure through their work improving the wastewater network infrastructure that where possible, they increase or improve habitat suited to native

species. This could include re-vegetating riparian areas with native species. Habitat restoration can mitigate negative effects on water quality and mahika kai.

Prevention of overflow discharges

It is DCC's intention that eventually the overflows will cease. DCC has developed a work programme to improve wastewater infrastructure and reduce inflow and infiltration, which will prevent the overflows from discharging. Te Rūnanga supports DCC's approach for addressing the overflow discharges through a staged work programme.

Priority of work to address overflows

Te Rūnanga understands that the varying terms of consent sought for each overflow reflect the order in which DCC will work towards preventing overflow discharges. Te Rūnanga has no concerns with the terms of consent sought for each overflow, or the order in which they have been prioritised.

Future planning

Te Rūnanga has an intergenerational perspective. Improvements to Dunedin's wastewater infrastructure should allow for technological improvements. If technological advancements are made over the terms of consent, these should be implemented.

It is also important that the works being undertaken now are future-proof. Climate change has altered our local weather patterns, and conditions are likely to change. Therefore the improvements should provide for potential demands on the network that are expected over the next 25 years.

8. Conclusions

The discharges from the wastewater overflows add contaminants, including untreated sewage, to the receiving environments. This has a negative effect on water quality and mahika kai. The assessment of the ecology and water quality of the receiving environments states that “ecological values in waterways examined are not particularly high and discharges from overflow conduits on their own appear to have little impact on biological communities.” (Ryder Consulting; 2015: 53). Although Te Rūnanga acknowledge that the receiving environments are already in a modified and/or degraded state, this does not make further degradation acceptable.

The long-term aspiration of Te Rūnanga is to improve the health of the receiving environments that currently receive overflow discharges. While Te Rūnanga opposes activities that degrade water quality, they understand that DCC is working to prevent the discharges and resource consents are required in the interim.

Te Rūnanga has no concerns with the terms of consent sought and the order in which the DCC has prioritised work on the overflows. They are supportive of the approach taken by DCC to prevent the overflows from discharging by improving infrastructure up-catchment from the overflows and working to address inflow and infiltration. Preventing overflow discharges will have positive effects on the receiving environments.

Te Rūnanga does not oppose the DCC’s application for resource consent for the discharge of the five wastewater overflows.

Bibliography

DCC Appendix A: Wastewater network overflows requiring resource consent

DCC Appendix B: Wastewater network overflows, Information to inform a discharge consent application

Kāi Tahu ki Otago (2005) *Natural Resource Management Plan*.

KTKO Consultancy Ltd; Potiki, T (2011) *A Thematic Māori Heritage Study for Dunedin*. Report prepared for the Dunedin City Council.

Kāi Tahu ki Otago Ltd (2012) *Cultural Impact Assessment: Waikouaiti Reserve Restoration Project and Discharge Consent*

Potiki, T (2011) *Statement of evidence on behalf of Te Rūnanga o Ōtākou, Application for Resource Consents for Project Next Generation by Port Otago Limited*.

Prebble, M; Mules, D (2004) *Tō hīkoia mai Hikaroroa ki Waikouaiti - Kua Te Rā, Kā Te Ahi (A journey from Hikaroroa to Waikouaiti – The sun has set, the fire is now alight)*. A contribution to the cultural history of the Waikouaiti River and surrounding environs, compiled for Kati Huirapa Runaka ki Puketeraki by Matiu Prebble and David Mules.

Roberts, W. H. S. (1913) *Place Names and Early History of Otago and Southland* Southland Times: Invercargill.

Ryder Consulting (2015) *Dunedin City Wastewater Overflows: An assessment of receiving water environments*

Te Rūnanga o Arowhenua, Te Rūnanga o Waihao, Te Rūnanga o Moeraki, Office of Te Rūnanga o Ngāi Tahu, with assistance from G. Tipa, H. Crengle, K. Davis, B. Allingham, and A. Symon (2002). *Cultural Impact Assessment for Project Aqua*.

Tipa, G (2001) *Rangitata River: Tangata Whenua Values*. Report RO 1/9 prepared for Environment Canterbury.

Tipa, G (2008) *Strath Taieri Irrigation Group: Cultural Impact Assessment*

Tipa, G (2011) *Seismic Testing in the Great South Basin: Cultural Impact Assessment*. Report prepared by Tipa and Associates Ltd for OMV / Shell.

Appendix 1: Statutory Acknowledgement for Te Tai O Arai Te Uru (Otago Coastal Marine Area)

Ngāi Tahu Claims Settlement Act: Schedule 103

Statutory Acknowledgement for Te Tai O Arai Te Uru (Otago Coastal Marine Area)

This statutory acknowledgement applies to Te Tai o Arai Te Uru (the Otago Coastal Marine Area), the Coastal Marine Area of the Moeraki, Dunedin Coastal and Molyneaux constituencies of the Otago region.

The Crown acknowledges Te Rūnanga o Ngāi Tahu's statement of Ngāi Tahu's cultural, spiritual, historic, and traditional association to Te Tai o Arai Te Uru.

Ngāi Tahu Association with Te Tai o Arai Te Uru

The formation of the coastline of Te Wai Pounamu relates to the tradition of Te Waka o Aoraki, which foundered on a submerged reef, leaving its occupants, Aoraki and his brothers, to turn to stone. They are manifested now in the highest peaks in the Ka Tiritiri o Te Moana (the Southern Alps). The bays, inlets, estuaries and fiords which stud the coast are all the creations of Tu Te Rakiwhanoa, who took on the job of making the island suitable for human habitation.

The naming of various features along the coastline reflects the succession of explorers and iwi (tribes) who travelled around the coastline at various times. The first of these was Maui, who fished up the North Island, and is said to have circumnavigated Te Wai Pounamu. In some accounts the island is called Te Waka a Maui in recognition of his discovery of the new lands, with Rakiura (Stewart Island) being Te Puka a Maui (Maui's anchor stone). A number of coastal place names are attributed to Maui, particularly on the southern coast.

The great explorer Rakaihautu travelled overland along the coast, identifying the key places and resources. He also left many place names on prominent coastal features. Another explorer, Tamatea, sailed along the Otago coast in the waka Tākitimu. After the waka eventually broke its back off the coast of Murihiku, Tamatea and the

survivors made their way overland back to the North Island, arriving at the coast by the place Tamatea named O-amaru (Ōamaru).

Place names along the coast record Ngāi Tahu history and point to the landscape features which were significant to people for a range of reasons. For example, some of the most significant rivers which enter the coastal waters of Otago include: Waitaki, Kakaunui, Waihemo (Shag), Waikouaiti, Kaikarae (Kaikorai), Tokomairiro, Mata-au (Clutha), Pounawea (Catlins). Estuaries include: Waitete (Waitati), Ōtākou (Otago), Makahoe (Papanui Inlet), Murikauhaka (Mate-au and Koau estuaries), Tahaukupu (Tahakopa estuary), Waipātiki (Wapati Estuary). Islands in the coastal area include Okaihe (St Michaels Island), Moturata (Taieri Island), Paparoa, Matoketoke, Hakinikini, and Aonui (Cooks Head).

Particular stretches of the coastline also have their own traditions. The tradition of the waka (canoe) Arai Te Uru and its sinking at the mouth of the Waihemo (Shag River) has led to the coastal area of Otago being known as Te Tai o Araiteuru (the coast of Arai Te Uru).

Accounts of the foundering, the wreckage, and the survivors of this waka are marked by numerous landmarks almost for the length of the Otago coast. The boulders on Moeraki coast (Kai Hinaki) and the Moeraki pebbles are all associated with the cargo of gourds, kumara and taro seed which were spilled when the Arai Te Uru foundered.

For Ngāi Tahu, traditions such as these represent the links between the cosmological world of the gods and present generations. These histories reinforce tribal identity and solidarity, and continuity between generations, and document the events which shaped the environment of Te Wai Pounamu and Ngāi Tahu as an iwi.

Because of its attractiveness as a place to establish permanent settlements, including pā (fortified settlements), the coastal area was visited and occupied by Waitaha, Ngāi Māmoë and Ngāi Tahu in succession, who, through conflict and alliance, have merged in the whakapapa (genealogy) of Ngāi Tahu whānui. Battle sites, urupā and landscape features bearing the names of tūpuna (ancestors) record this history. Prominent headlands, in particular, were favoured for their defensive qualities and became the headquarters for a succession of rangatira and their followers. Notable pā on the Otago coast include: Makotukutuku (Ōamaru), Te Raka-a-hineatea (Moeraki), Te Pā Katata, Pā a Te Wera, (Huriawa Peninsula), Mapoutahi (Purakaunui), Pukekura

(Taiaroa Head), Moturata (Taieri Island). The estuaries from the Waitaki River to the Chaslands also supported various hapu.

Tūpuna such as Waitai, Tukiauu, Whaka-taka-newha, Rakiiamo, Tarewai, Maru, Te Aparangi, Taoka, Moki II, Kapo, Te Wera, Tu Wiri Roa, Taikawa, Te Hautapanuiotu among the many illustrious ancestors of Ngāti Māmoe and Ngāi Tahu lineage whose feats and memories are enshrined in the landscape, bays, tides and whakapapa of Otago.

The results of the struggles, alliances and marriages arising out of these migrations were the eventual emergence of a stable, organised and united series of hapu located at permanent or semi-permanent settlements along the coast, with an intricate network of mahika kai (food gathering) rights and networks that relied to a large extent on coastal resources. Chiefs such as Korako (several), Tahatu, Honekai, Ihutakuru, Karetai, Taiaroa, Potiki, Tuhawaiki, and Pokene being some among a number who had their own villages and fishing grounds. Otago Peninsula (Muaupoko) had many kaunga nohoanga with a multitude of hapu occupying them. At one time up to 12 kainga existed in the lower Otago harbour, some larger and more important than others.

The whole of the coastal area offered a bounty of mahika kai, including a range of kaimoana (sea food); sea fishing; eeling and harvest of other freshwater fish in lagoons and rivers; marine mammals providing whale meat and seal pups; waterfowl, sea bird egg gathering and forest birds; and a variety of plant resources including harakeke (flax), fern and ti root. In many areas the reliance on these resources increased after the land sales of the 1840s and 1850s, and the associated loss of access to much traditional land-based mahika kai.

Many reefs along the coast are known by name and are customary fishing grounds, many sand banks, channels, currents and depths are also known for their kaimoana. One example is Poatiri (Mt Charles — Cape Saunders) the name of which refers to a fish hook. Poatiri juts out into the Pacific, close to the continental shelf, and is a very rich fishing ground. Another example is Blueskin Bay which was once a kohanga (breeding ground) for the right whale, although it is well over 150 years since it has seen this activity.

Other resources were also important in the coastal area. Paru (black mud used for dying) was obtained from some areas. Some of the permanent coastal settlements, such as those at the mouth of the Mata-au (Clutha River), and at Ōtākou and Pūrākaunui, were important pounamu manufacturing sites. Trading between these villages to the south and north via sea routes was an important part of the economy.

The Otago coast was also a major highway and trade route, particularly in areas where travel by land was difficult. Pounamu and titi were traded north with kumara, taro, waka, stone resources and carvings coming south.

Travel by sea between settlements and hapu was common, with a variety of different forms of waka, including the southern waka hunua (double-hulled canoe) and, post-contact, whale boats plying the waters continuously. Hence tauranga waka (landing places) occur up and down the coast in their hundreds and wherever a tauranga waka is located there is also likely to be a nohoanga (settlement), fishing ground, kaimoana resource, rimurapa (bull kelp — used to make the poha, in which titi were and still are preserved) with the sea trail linked to a land trail or mahika kai resource. The tūpuna had a huge knowledge of the coastal environment and weather patterns, passed from generation to generation. This knowledge continues to be held by whānau and hapū and is regarded as a taonga. The traditional mobile lifestyle of the people led to their dependence on the resources of the coast.

Numerous urupā are being exposed or eroded at various times along much of coast. Water burial sites on the coast, known as waiwhakaheketupapaku, are also spiritually important and linked with important sites on the land. Places where kaitangata (the eating of those defeated in battle) occurred are also wāhi tapu. Urupā are the resting places of Ngāi Tahu tūpuna and, as such, are the focus for whānau traditions. These are places holding the memories, traditions, victories and defeats of Ngāi Tahu tūpuna, and are frequently protected in secret locations.

The mauri of the coastal area represents the essence that binds the physical and spiritual elements of all things together, generating and upholding all life. All elements of the natural environment possess a life force, and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāi Tahu whānui with the coastal area.