Cultural Values Statement: Waiwhakaata

Mō tātou, ā, mō kā uri a muri ake nei.

For us, and for our children after us.

Aukaha (1997) Ltd.
268 Stuart Street, P O Box 446, Dunedin
9054, New Zealand
Phone – 03 477 0071
www.aukaha.co.nz

This report has been prepared by Aukaha (1997) Ltd., for Otago Regional Council on behalf of Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou, and Hokonui Rūnanga.

Acknowledgement:

The preparation of this report was undertaken with assistance from the following rūnaka:

- Te Rūnanga o Moeraki
- Kāti Huirapa Rūnaka ki Puketeraki
- Te Rūnanga o Ōtākou
- Hokonui Rūnanga

Front cover photo: Lake Hayes Estate from the Remarkables.[2]

Version (final): 14 June 2023

Aukaha Ltd.
Level 2
266 Hanover Street
PO Box 446
Dunedin 9054
Phone 03-477-0071

Prepared by:
Kate Timms-Dean, Makareta Wesley-Evans, Gabby Golding
Internal reviewer: Sandra McIntyre

Noted by: Te Ao Marama Inc.

Reviewed by:
Te Rūnanga o Moeraki
Kāti Huirapa Rūnaka ki Puketeraki
Te Rūnanga o Ōtākou
Hokonui Rūnanga

Report 1 of 1

Otago Regional Council

[1] Work produced by Aukaha contains Mātauraka Kāi Tahu, Kāi Tahu knowledge. Mātauraka Kāi Tahu is intellectual property held collectively by Kā Rūnaka (as listed above). The report is specific to this project specified; the holders of the rights to this report do not permit this information and recommendations herein to be used for any other purpose, project, or event.

[2] References for all images are provided in Appendix 3.

Contents

Toitū te Mana, Toitū te Whenua: Kā Rūnaka

This report is presented on behalf of four of the seven papatipu rūnaka with shared authority in the area surrounding Waiwhakaata Lake Hayes, being:

- Te Rūnanga o Moeraki
- Kāti Huirapa Rūnaka ki Puketeraki
- Te Rūnanga o Ōtākou
- Hokonui Rūnanga.

In the context of this report, the four papatipu rūnaka are collectively referred to as Kā Rūnaka or mana whenua.

Te Rūnanga o Moeraki

The takiwā of Te Rūnanga o Moeraki centres on Moeraki and extends from the Waitaki to the Waihemo, and inland to the Main Divide. The interests of Te Rūnanga o Moeraki are concentrated on the Moeraki Peninsula area and surrounds, including Rakahineatea Pā, Koekohe, and Te Kai Hīnaki with its boulders. In addition, the interests of the rūnaka extend north and south of the Moeraki Peninsula to the boundaries of their takiwā.

Kāti Huirapa Rūnaka ki Puketeraki

The takiwā of Kāti Huirapa Rūnaka ki Puketeraki centres on Karitāne and extends from the Waihemo to Purehurehu, north of Heyward Point. Their takiwā extends inland to the Main Divide, sharing interests in the lakes and mountains to Whakatipu-waimāori.

Te Rūnanga o Ōtākou

The coastal rūnaka of takiwā of Te Rūnanga o Ōtākou centres on Ōtākou on the Otago Peninsula and extends from Purehurehu to Te Mata-au. The inland reaches of their takiwā includes shared interests in the lands and mountains to the western coast with rūnaka to the north and south.

Hokonui Rūnanga

The takiwā of Hokonui Rūnanga centres on the Hokonui region and includes shared interests in the lakes and mountains between Whakatipu-waitai and Tawhititarere with other Murihiku rūnaka, and those located from Waihemo south.

1.0 He Reo Arataki: Introduction

Ka ora te wai, ka ora te whenua, ka ora ai te tākata.
When the water is healthy and the land is healthy, then the people are healthy.

This statement is a wero laid down for the restoration of the mauri of Waiwhakaata. As it currently stands, the wellbeing of the lake is not supported by human activity and land usage practices in the catchment. For the mana and mauri of Waiwhakaata to be restored, this context needs to change.

The name that was given to the lake by tīpuna references Waiwhakaata as a place of reflection, a mirror lake, indicating a mauri of clean, clear waters of such clarity and quality that they reflected the surrounding landscape. It is a source of great mamae for Kā Rūnaka to think that tīpuna would not recognise Waiwhakaata today due to its degraded state.

For Rūnaka to fulfil their duties as kaitiaki, a function of rakatirataka, they seek the regeneration of Waiwhakaata so that mokopuna might experience the lake as was done by their ancestors. For this to occur, it is crucial that activities and practices in the surrounding community actively and intentionally work to protect the mana and the mauri of the lake. This include recognising the interconnectedness of our environment and the wider Mata-au catchment, ki uta ki tai.

1.1 Report background and scope

In 2021, the Waiwhakaata Lake Hayes Rehabilitation project was funded under the ORC LTP 2021-2031.[3] The project's overall objective is the protection of the lake and its environmental, ecological, recreational, and landscape values. Consequently, a strategy group was established with two primary aims:

1. To coordinate existing policy and actions to improve water quality in Waiwhakaata.
2. To oversee the development and propose a governance model for the ongoing implementation of the 2021-2026 Waiwhakaata/Lake Hayes Strategy.[4]

The group comprises representatives from Kā Rūnaka, Friends of Lake Hayes, DOC, QLDC, and ORC. Group members are required to provide leadership, representation, and communications on behalf of their relative communities.

The two Rūnaka representatives for mana whenua are Gill Hopkins and Jana Davis, representing the seven papatipu Rūnaka with shared authority in the area. The cultural values statement will support their mahi as the representatives of mana whenua by providing clear direction and knowledge to guide them. Furthermore, this will provide the tools and information to educate whānau and rakatahi, and others, on mana whenua values, aspirations, and intentions for Waiwhakaata.

1.2 Waiwhakaata: an environmental history

Waiwhakaata is a small, relatively shallow, glacial lake in the Whakatipu Basin with a maximum depth of 33m and a surface area of 2.76km^2.[5] Water flows into the lake from the north, primarily via Mill Creek as well as other small tributaries, by springs at the northern end of the lake, and from overland flows from the surrounding countryside. Water then exits the lake via a wetland area to the south, feeding Hayes Creek before entering the Kawarau River, ultimately converging with the Mata-

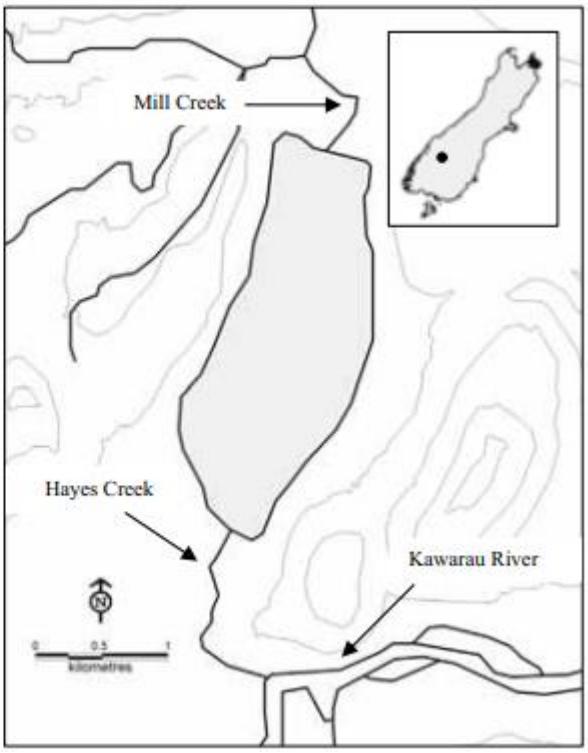
[3] See Appendix 2 for a complete list of acronyms and abbreviations used in this report.
[4] Waiwhakaata Lake Hayes Strategy Group, 2021, Terms of Reference [unpublished material].
[5] LAWA, 2023a.

au at Cromwell.[6] Hayes Creek is piped under the road from an outfall at the southern end of the lake.[7]

Waiwhakaata was likely formed by the ancient Whakatipu Glacier, which scoured out the bed of what is now Whakatipu-waimāori, followed by separation from the larger lake by outwash from the Kimiākau.[8] The major inflow for the lake is Mill Creek (see Whakaahua 2 below), which is fed by numerous high-country streams from the north and west, including O'Connell Creek, Station Creek, and McMullan Creek. The catchment was most likely forested with kahikatea with an extensive wetland across the western reaches of Mill Creek. Small wetlands were scattered to the west and north of the lake, with extensive riverine marshes located along the banks of Mill Creek and smaller streams.[9]

Whakaahua 1: Characteristics of Waiwhakaata

Lake characteristics	
Lake type	Glacial
Lake area (km^2)	2.76
Inlet	Mill Ck
Outlet	Hayes Ck
Max depth (m)	33
Catchment area (km^2)	44



The first human interactions with the environment surrounding Waiwhakaata can be linked back to the tīpuna Rākaihautū, who is credited with digging the lakes of Te Wai Pounamu. He used his kō, Tūwhakarōria to carve out the basins of many waterways, including nearby Whakatipu-waimāori.

Tūpuna had strong associations with the area, with archaeological evidence showing that whānau were present during the moa-hunting period, 500-800 years ago.[10] Indeed, the area surrounding Waiwhakaata would have supported many of the ecological services and characteristics that were sought out by whānau, including significant wetland areas that supported diverse, healthy ecosystems.

[6] Davis, 2022.
[7] Ibid.
[8] ORC & QLDC, 1995. See Appendix 1 for a glossary of Māori words and phrases.
[9] Schallenberg & Schallenberg, 2017.
[10] NZAA, 2023, F41/1.

Mahika kai practices were central to whānau associations with the area, encompassing a broad range of activities, including:

- Food and resource gathering
- Food preservation, storage, and transportation
- Tool-making activities
- Trading and commerce
- Knowledge transfer
- The practice of mātauraka.

Under tikaka Māori, interactions with the environment are based on tenets of respect, balance, and correct procedure; the right to take resources has to be balanced with the duty to protect and give back. As a result, activities that fundamentally changed the environment were avoided in preference for practices that enhanced, and leveraged off, natural processes.

Whakaahua 2: Waiwhakaata in 1903

For example, land clearance was often undertaken to promote growth of a resource, emulating the natural processes brought about following a forest fire. The practice was used extensively in the processing of kāuru from tī kōuka, given the tree is well-known for its vigorous regrowth upon felling. Sections of tī kōuka were clear-felled annually for processing in umu tī; the following year, whānau would move to another location, leaving the tract from the previous year to regenerate, thus providing whānau with a sustainable harvest within the natural polyculture of native forest, bush, and wetland, which protected mahika kai values for birding, fishing, and toolmaking.

Wetlands were prized for their ecological services, so the focus was on maintaining the natural character and mauri of the waterway. Each season, waterway and ecosystem attributes were

assessed by observing water quality and quantity, and the abundance and health of species, for example. If deemed necessary, steps were put in place to allow the mauri to recover and regenerate. For example, a rāhui could be placed over an area or a resource restricting access until the mauri had been restored.

Deforestation of the catchment became a permanent state for the area once European settlers and miners arrived, as they sought timber for shelter and firewood. Consequently, at the time of the gold rush in the 1860s, the catchment comprised mostly native tussock grassland in the highlands, and lowland areas scattered with swamps and wetlands. Wetlands provided a range of ecological services including by providing a native habitat, flood mitigation, and a sediment and nutrient sink. [11]

Settler archaeology in the area indicates that farming started in the catchment shortly after gold was found in the Haehaenui in 1858. Early land usage in the areas appears to have consisted mainly of sheep and possibly wheat cropping for the nearby flour mills.[12]

Whakaahua 3: Mill Creek entering Waiwhakaata from the north

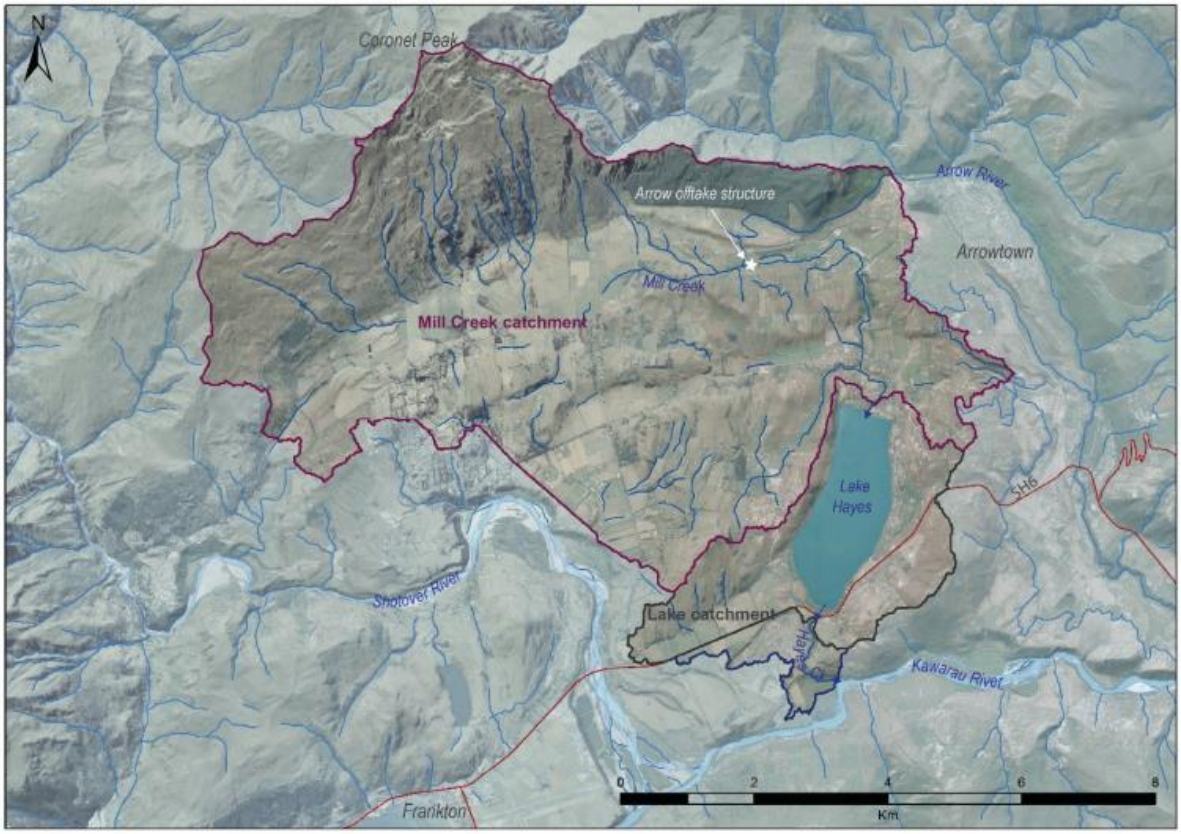
Through the early to mid-1900s, land usage practices in the catchment saw increasing conversion to sheep pasture, followed by further conversion to cattle and dairy farming. In the 1950s, the introduction of artificial phosphate fertilisers led to the intensification of cattle and dairy farming, supported by the application of phosphate through aerial top-dressing, including the area directly surrounding the lake. Other activities in the area from 1912 to 1955 included the release of whey effluent from a cheese factory to the north of the lake, with a phosphorous load of approximately 1000kg per year.[13]

Major drainage and channelling works began in the early 1960s, which saw the wetlands drained and the artificial channelisation of waterways through what was previously 80-120ha of wetland areas, and which would soon be replaced with high producing exotic grasslands. The result was the

[11] NZAA, 2023, F41/1.
[12] NZAA, 2023.
[13] ORC, 2009.

inflow of significant amounts of sediment into the lake, with the first recorded sightings of brown water flowing into the lake occurring in 1961.[14]

Whakaahua 4: The natural extent of the Waiwhakaata catchment



Over the past 70 years, changes in land usage have contributed to higher levels of nutrients entering the lake. This has led to the degradation of the waterway, mainly due to human activities such as fertiliser application, industry development, septic tank effluent, and the removal of wetlands and riparian plantings.[15]

As a result, the physical characteristics of the land cause runoff from the surrounding areas to quickly drain into the lake, which remains there for a period of months or even years, before exiting via Hayes Creek and flowing into the Kawarau. This process drives a build-up of phosphorous to accumulate in lake-bed sediments.

In summer, Waiwhakaata becomes thermally stratified, that is, a warmer surface layer of water forms above a layer of colder water at the bottom of the lake. This causes the colder layer to become oxygen depleted, allowing phosphorous to be released into the water column, feeding algal blooms. At times, these blooms can become toxic, causing rashes and nausea, and possibly being deadly to dogs if ingested. Consequently, Waiwhakaata is considered a eutrophic lake; that is, the lake has significant accumulations of nutrients that support dense growth of algae and other organisms, the decay of which depletes oxygen in summer resulting in death of animal life.[16]

This combination of waterway modification and land usage changes has led to the significant degradation of water quality in the lake, with a record of poor water quality dating back to the 1960s. For Kā Rūnaka, the loss of the waterway's natural form, and its inability to manage itself

[14] Schallenberg & Schallenberg, 2017.
[15] ORC, 2021a.
[16] LAWA, 2022.

through its natural processes, are indicators that the mana and mauri of Waiwhakaata has been significantly degraded. Consequently, the restoration and regeneration of the lake is a significant aspiration and intention for Kā Rūnaka.[17]

Whakaahua 5: Aerial photo of Waiwhakaata in 1956

[17] ORC, 2021a.

2.0 He Kaupapa Mahi: Methodology

In 2021, ORC identified the rehabilitation of Waiwhakaata Lake Hayes as a priority work programme under the Long-term Plan 2021-2031.[18] The project is being led by the Waiwhakaata/Lake Hayes Strategy Group, which is made up of mana whenua representatives, Councils, DOC, and members of the Friends of Lake Hayes group.[19] In order to support this work, mana whenua representatives for the seven papatipu rūnaka with shared authority in and around Waiwhakaata have requested the delivery of a cultural impact assessment to guide their work in the Strategy Group.

The key elements of the project methodology are set out below.

4.1 Review of literature

A desktop review of the project area was undertaken, focusing on detailed documentary research, to inform the drafting of a cultural values statement related to the proposed activities. Reference material has been derived from the following key sources:

a. The Kāi Tahu ki Otago NRMP[20]
b. Kā Huru Manu, the Ngāi Tahu cultural maps and related primary sources[21]
c. District wāhi tīpuna mapping
d. Recorded archaeological sites via ArchSite,[22] and
e. Available ecological and environmental monitoring data and reports.

Other relevant policies, plans, government and industry literature and reports, and academic research publications were identified as further source material during the review of literature.

These sources form the basis of a literature review material presented in sections 3, 4, and 5. Mana whenua cultural experts have provided leadership and direction on the contents of the literature review, and final approval of its contents.

4.2 Cultural values statement

A cultural values assessment identifies key mana whenua values in the area affected by the proposed activity, particularly focused on the affected waterways, and the area related to proposed tunnelling and construction. While some of the base information is sourced from the literature review material, the primary and paramount source for identifying cultural values is mana whenua themselves. Their mātauraka and leadership provides the basis of section 3.0, Ko te Manawa Kāi Tahu, supported by the review of literature.

The cultural values statement provided below was drafted by Aukaha staff members, and presented to mana whenua representatives for review, comment, and amendment. All material released by Aukaha has been assessed and approved by mana whenua, to ensure that the final statement accurately reflects the position of Kā Rūnaka.

[18] ORC, 2021b.
[19] Waiwhakaata/Lake Hayes Strategy Group, 2021 [unpublished material].
[20] KTKO, 2005.
[21] TRONT, 2022.
[22] NZAA, 2022.

4.3 Statement of Expectation

The compiled findings of the literature review and cultural values statement form the basis of a statement of intention presented in section 6. This statement sets out the key intentions and strategiec priorities that Rūnaka hold for the restoration of Waiwhakaata. The aim is to provide touchstone points to inform and guide the work of the Kāi Tahu representatives to the Strategy Group, establishing a sound basis from which they can advocate for, and advance, the the vision and intention of Kā Rūnaka and the aspirations of whānau.

The statement outlines the expectations that Kā Rūnaka hold for the restoration of Waiwhakaata. This statement does not stand in isolation, nor does it nullify anything other statement mandated by Rūnaka with shared authority. As such, this statement resides within the context of other relevant Kāi Tahu and Rūnaka policies, plans, statements, and reports.

3.0 Ko te Manawa Kāi Tahu: Mana whenua values, associations, and practices

Mana whenua values provide a cultural frame for whānau to identify and communicate te ao Māori perspectives. Values are used by mana whenua as a tool for assessing the impact of an environmental event or activity, or, as in this case, as a means of identifying the values associated with a natural feature or resource.[23]

Mātauraka underpins the definitions of mana whenua values. Every iwi, every hapū, every Rūnaka, has its own understanding of these values and their application, based on the mātauraka handed down to them through whakapapa.

Kā Rūnaka have identified the following values in relation to Waiwhakaata, referencing the stories, knowledge, and experience of their tīpuna. This section provides an overview of each value based on mātauraka Kāi Tahu, with a summary of how these values are linked to Waiwhakaata within the context of Kāi Tahu history and associations in the wider cultural landscape. These values build on those identified in the context of the QLDC Spatial Plan (see section 5.4 below).

3.1 Whakapapa

Kāi Tahu are bound to the land, water and all life supported by them by whakapapa. The word whakapapa references the laying down of layers, a metaphor for the layering of generations from the past to the present, and into the future. The following account of Kāi Tahu whakapapa and creation stories is sourced from the words of the famed Kāi Tahu leader, Matiaha Tiramōrehu:

Nā Te Pō, ko Te Ao	*From the night came the day*
Nā Te Ao, ko Te Ao Marama	*From the day, the bright day*
Nā Te Ao Marama, ko Te Ao Tūroa	*From the bright day, the longstanding day*
Nā Te Ao Tūroa, ko Te Koretewhiwhia	*From the longstanding day, the unattainable void*
Nā Te Koretewhiwhia, ko Te Koreterawea	*From the unattainable void, the intangible void*
Nā Te Koreterawea, Ko Te Koretetamaua	*From the intangible void, the unstable void*
Nā Te Koretetamaua, ko Te Korematua	*From the unstable void, the parentless*
E moe ana Te Mākū i Mahoranuiātea	*Te Mākū, the damp, lay with Mahoranuiātea, the great expanse of light*
Ka puta ko Raki	*And the Raki the Sky was born*
Tuatahi e moe ana Raki i Pokoharuatepō	*First, Raki lay with Pokoharuatepō*
Tuarua, e moe ana Papatūānuku.[24]	*Next, he lay with Papatūānuku the earth.*

Wai is a central element in Kāi Tahu creation traditions and is present very early in the whakapapa of the world. In this kōrero, darkness gives rise to the light, and through an abyss of nothingness, moisture materialises as the first iteration of wai.

The whakapapa continues down to Rakinui and his wives, Pokoharuatepō and Papatūānuku. The children of Rakinui and his wives created the elements of te taiao, including mountains, rivers, forests, and seas, and all living things.

Kāi Tahu claim the same descent from Raki and his wives and are therefore connected to all things by whakapapa. Kāi Tahu tribal whakapapa thus links the cosmological world of the atua to present

[23] Harmsworth, Awatere, & Robb, 2016.
[24] Tiramōrehu, Van Ballekom, & Harlow, 1987.

and future generations, giving rise to a spiritual relationship with te taiao and a respect for the mauri of that environment.

Similarly, whakawhanaukataka is expressed in the resource management approach “Ki Uta Ki Tai”, emphasising the holistic management of the interrelated elements within the natural environment. Water released by Raki makes its way into rivers, which in turn connect the entire landscape from the mountains to the sea. From the sea, water evaporates, condenses, and falls again on Papatūānuku, an eternal holistic cycle. The wai māori of Waiwhakaata contributes to the whakapapa of the catchment, flowing from the mountains to the lake through Hayes Creek to the Kawarau, which in turn becomes a major tributary of the Mata-au.

Whakapapa links whānau of today with Waiwhakaata through the actions of tīpuna in the past. Some kōrero link the lake with Hakitekura, a tipuna known for her feats of strength and bravery in the wider area. From the stories of the shaping and naming of the land by Rākaihautū, to the mātauraka gained over generations, the connection to Waiwhakaata continues.

3.2 Mauri

Mauri flows from our living world and down through whakapapa, linking all aspects of our world. The mauri of water represents the essence that binds all things, acting as a life-giving force, and connecting the environment, from the mountains to the sea.

Mauri is an observable measure of environmental health and well-being. Waterbodies with an intact and strong mauri are characterised by good quality waters that flow with energy and life, sustain healthy ecosystems and support mahika kai and other cultural values. The primary resource management principle for Kāi Tahu is the protection of mauri. Concepts such as tapu, noa and rāhui are therefore applied by mana whenua to protect the mauri of a resource.

However, the mauri of a waterway is unable to protect itself against unnatural actions and interventions such as damming, diversions, altered flow regimes, discharges, and activities that impact on the riverbed. When the mauri of wai is degraded, there are multiple impacts. Physical effects may be noticeable in the environment, through changes in the āhua of the water, such as appearance, smell, colour, or taste. Changes in chemical composition or flow of water may also be present. These physical changes are likely to affect animal and plant species that live in surrounding ecosystems. Impacts might include the decline of species, usually natives, and over-population of other species, often those that are introduced. In turn, this alters the connection of mana whenua with a waterway, as mahika kai uses may become unsustainable if the mauri continues to degrade. From here, a loss of knowledge can occur, as the opportunities to share the stories, practices, and histories associated with a waterway diminish due to the lack of connection.

Kā Rūnaka have seen this pattern take place over and over throughout the history of European settlement in Te Waipounamu, with many behaviours and actions that undermine and degrade the mana and the mauri of our waterways still in evidence today. For Waiwhakaata, this history is tied to land usage practices in the catchment that have contributed to increased nutrient-loading and culminated in the existing water quality issues. The mauri of the lake is in stark contrast to the image evoked by the name Waiwhakaata; a lake of such clarity that it was likened to a mirror.

Whakaahua 6: Waiwhakaata from the Queenstown Trail

3.3 Rakatirataka and Kaitiakitaka

Rakatirataka refers the exercise of mana in order to give effect to Kāi Tahu culture and traditions. In the management of the natural world, rakatirataka is underpinned by the obligations placed on mana whenua as kaitiaki. Kaitiakitaka is an expression of rakatirataka. Wai māori is a taoka that is governed under the domain of rakatirataka, in accordance with Kāi Tahu tikaka and the principles of kaitiakitaka.

The whakapapa connection with te taiao imposes a kaitiakitaka obligation on mana whenua to protect wai and all the life it supports, in accordance with customs, knowledge, and mātauraka developed over many generations. The duty of kaitiakitaka is not merely about guarding or caretaking; it involves acting as an agent for environmental protection and decision-making, on behalf of tīpuna and mokopuna. The focus of kaitiakitaka is to ensure environmental sustainability for future generations, as expressed in the whakataukī, 'Mō tātou, ā, mō kā uri a muri ake nei.'

For tīpuna, the state of the environment and the bounty of resources were significant measures of the mana of the people. Consequently, the current state of Waiwhakaata is a significant mamae to mana whenua. Under the tenets of kaitiakitaka, mana whenua consider it their duty to strive for the restoration of Waiwhakaata as an expression of their mana, and in the fulfilment of rakatirataka and kaitiakitaka roles.

3.4 Mahika Kai

Mahika kai practices underpin the Kāi Tahu relationship with Otago's rivers, lakes, wetlands, moana, and the broader environment. The cultural identity of whānau and hapū is tied to their resources. Fundamental to Kāi Tahu culture is the ability to learn and practise customary gathering of food and other resources, to put kai on the table at the marae and at home, and to ensure that the knowledge of customary practices is passed on from generation to generation.

The inland lakes and waterways of the Otago region once supported rich and healthy mahika kai resources. The lakes, waterways and their surrounds attracted whānau who would travel inland from the coast to camp at nohoaka. These were often located adjacent to lakes and waterways to allow easy access to mahika kai activities.

For mahika kai to be sustained, populations of species must be present across all life stages and must be plentiful enough for long term sustainable harvest. Safe access to mahika kai sites must be available, kai must be safe to gather, safe to harvest and safe to eat and management and harvesting practices must be able to be carried out in accordance with tikaka.

Tūtohi 1: Mahika kai species associated with the Waiwhakaata area

Birds	Freshwater species	Plants
Weka	Tuna	Tī kōuka
Moa	Kōura	Taramea
Koreke	Kanakana	Āruhe
Manu kāhere		Raupō

The transmission of mātauraka necessitates whānau being able to access healthy mahika kai to carry out customary practices; however, this opportunity is extremely limited at Waiwhakaata. The historic degradation of the lake, and the continuation of damaging land-based activities on the surrounding whenua is continuing to exacerbate water quality issues. The impact is that the lake no longer supports many of the mahika kai practices that were known to be there in the past. Despite this, recent evidence suggest that tuna and kōura are still present in Waiwhakaata.[25] It is important that these taoka and indigenous species are protected through restoration and regeneration of their habitat.

Historical vegetation records and research indicates that the flora of area was most likely dominated by native scrub, shrub and tussock grasslands interspersed with isolated stands of tawai and tawairauriki. Small glades of native podocarp species kahikatea, mataī, and tōtara clustered along the banks of the Kawarau (see Whakaahua 7 below).

Native beeches like tawai and tawairauriki provide an important habitat for the beech scale insect or honeydew, a native species of aphid that is a vital food source for many native birds and insects. It lives in the bark of most types of native beech, providing a high-sugar, high-energy food source for tūī, korimako, and kākā.[26]

Podocarps like the kahikatea are members of the conifer family; they produce small berry-like cones that are highly attractive to forest bird species like tūī, kākā, and kea, species that are recorded as mahika kai species in the area.[27]

Certain mahika kai species were crucial to ensuring food security for southern Māori. The wider area is recorded as having been a source of kāuru, weka, kanakana, and tuna, which are referenced throughout the district as significant and plentiful food sources. These species were particularly suitable for preservation using several processes such as drying, baking, or storing in rendered fat, allowing medium to long-term storage over the cold, winter season in the south.

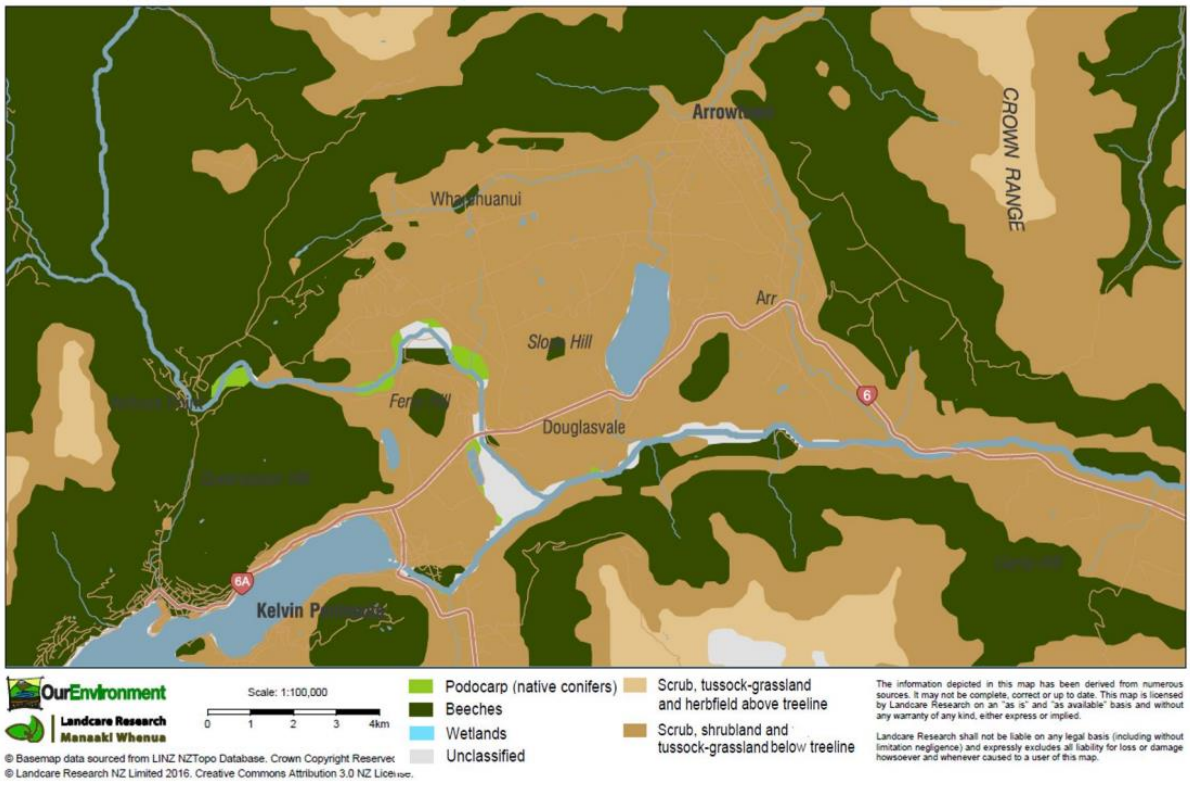
Wetlands surrounding the lake provided significant services to whānau in the past, as sources of food, fibre materials for weaving and construction, and fresh water filtered by the surrounding swamps and wetlands to the north and west of Waiwhakaata.

Indigenous biodiversity known to have been present in the area is listed in Tūtohi 2 below. Six of these species are considered threatened, including three native freshwater fish, the declining kōaro and tuna, and the nationally endangered Central Otago roundhead galaxiid.[28] Two further species

[25] Davis, J., 2023, personal communication.
[26] DOC, 2022; Orwin, 2007.
[27] DOC, 2023a; TRONT, 2023.
[28] Davis, 2018; QLDC, 2022.

associated with the area that are now extinct have not been included in this list; the moa, and the koreke.

Whakaahua 7: Expected original vegetation of the Whakatipu Basin



3.5 Wāhi Tūpuna

Wāhi tīpuna are interconnected ancestral places, landscapes and taoka that reflect the history and traditions associated with the long settlement of Kāi Tahu whānui in Otago. Wāhi tīpuna are characterised not only by natural and physical aspects, but also by the place names and associated traditions and events that bind mana whenua to the landscape, just as the landscape itself is a part of Kāi Tahu identity. Such landscapes are linked by whakapapa in creation traditions, underpinning mana whenua status, and breathing life into mātauraka and tikaka. These are treasured places that transcend the generations.

Recorded archaeological sites in the wider area provide further evidence of the mana whenua associations in the upper lakes. Findspots indicate a collection of activities being undertaken, including mahika kai practices associated with food-gathering and toolmaking. The fires of occupation are also referenced in the presence of burnt and fire-shattered stone. The presence of moa bone in middens and ovens demonstrates that this area has a long history of occupation and use, including a period before the extinction of the moa over 500 years ago.

Tūtohi 2: Extant indigenous species associated with the Waiwhakaata area.

Name	Conservation status
Kautuku Australasian bittern	Threatened – Nationally critical
Kōtuku White heron	Threatened – Nationally critical
Central Otago roundhead galaxias Galaxias anomalus	Threatened – Nationally endangered
Kārearea Eastern falcon	Threatened – Nationally vulnerable
Pāteketeke Great crested grebe	Threatened – Nationally vulnerable
Pārera Grey duck	Threatened – Nationally vulnerable
Kōaro Galaxias brevipinnis	Threatened – Declining
Kawau pū Black shag	At risk - Relict
Kōkōreke Marsh crake	At risk - Declining
Kōura Freshwater crayfish	At risk - Declining
Tuna Eel	At risk - Declining
Upland bully Gobiomorphus breviceps	Not threatened
Tuna Long-fin eel	Not threatened
Kowhai Sophora species	Not threatened
Pūtakitaki Paradise shelduck	Not threatened
Kuruwheki NZ shoveler	Not threatened
Pāteke Grey teal	Not threatened
Pāpako NZ scaup	Not threatened
Matuku moana White faced heron	Not threatened
Pūkeko Swamp hen	Not threatened
Kōtare NZ kingfisher	Not threatened
Mikimiki Coprosma areolata	Not threatened
Tupare Olearia colensoi	Not threatened
Hakeke Olearia ilicifolia	Not threatened
Raupō Typha orientalis	Not threatened
Akiraho Olearia paniculata	Not threatened
Makura Carex secta	Not threatened

Tūtohi 3: Wāhi Tūpuna in the Waiwhakaata area

Name	Description
Waiwhakaata (Lake Hayes)	A small lake situated near the junction of the Kimiākau and the Kawarau.
Kā-muriwai	The pākihi at Haehaenui in Central Otago, formerly known as Arrowtown Flat.
Haehaenui (Arrow River)	A river that rises in the Harris Mountains and flows in a southern direction past Waiwhakaata and into the Kawarau.
Kawarau	A traditional travel route providing direct access between Whakatipu-waimāori and the Mata-au.
Puahuru	The junction of the Kimiākau and the Kawarau in Central Otago
Pōtiki-whatu-rumaki-nao	A natural rock bridge spanning the Kawarau and allowing people to cross the river.

Tūtohi 4: Recorded Māori archaeological sites in the Waiwhakaata area

Name	Description
F41/1 Midden	Small pieces of moa leg bones and vertebrae Two dozen small quartz pebbles Three small flakes of silcrete Part of a blade of grey porcellanite A large thin silcrete blade snapped and retouched
F41/66 Oven (intact)	Cut and worked moa bone Burnt and fire-shattered quartz Artefacts of porcellanite and silcrete Silcrete blade
F41/67 Artefact - cache	Several intact and broken toki One whao 1 irregular flake of graywacke Associated with a shell midden
F41/442 Artefact - adze	Toki Fragments of moa bone

The nearby rivers of Haehaenui and Kawarau are recognised as wāhi tīpuna with values associated with ara tawhito, mahika kai, and nohoaka. Archaeological values are also recorded in relation to the Kawarau.[29] Ara tawhito enabled regular seasonal heke to the area surrounding Waiwhakaata as a destination that enabled access to significant resources including food and raw materials. Today, these values have been significantly eroded due to the continued degradation of the waterway.

3.6 Wāi Māori

Wai is an integral and enduring aspect of wāhi tīpuna. The Otago landscape is criss-crossed by many and varied waterbodies, from many sources, including lakes, awa and their tributaries, puna, and groundwater. Water is the lifeblood of the environment and of the many life forms that depend on it. Water, as a result, is of high significance for Kāi Tahu, both for its practical applications and for the spiritual meaning it embodies. Rivers are a symbol of permanence and a source of spiritual meaning.

[29] QLDC, 2023.

Water was, and is, used extensively by mana whenua for spiritual and common uses. Wai is used to remove tapu, and in ceremonies. The indigenous flora and fauna supported by waterways like Waiwhakaata provided significant resources for whānau in the past, acting as a vehicle for the transmission of mātauraka related to mahika kai and other cultural practices across generations.

The wai that descends from the mountains to the great inland lakes is a taoka, reflecting the mana of the mountains and carrying an intact mauri. At Waiwhakaata in the past, the sediment-laden waters of its upper catchment entered at the lake having been filtered through many layers of wetland and swamp. The result was lake with water so pure that it was named Waiwhakaata, referencing water so clean that it could be used as a mirror. In the past, this water would eventually spill down into the Kawarau, feeding pure, clean wai māori into the lifeblood of the Mata-au.

Whakaahua 8: Waiwhakaata from Mill Creek

3.7 Taoka

The term 'taoka' refers to cultural, physical, and metaphysical resources that are treasured by mana whenua, including practices, activities, and mātauraka associated with flora, fauna, and the natural world. In the context of the Ngāi Tahu settlement, taoka incudes: aspects of the natural environment like water or air; landscape features such as mountains, lakes, and rivers; locations and sites associated with the settlement and activity of tīpuna; and natural resources and species like pounamu, raupō, or tuna. Mahika kai is a significant taoka to Kāi Tahu and was a substantive component of both Te Kēreme and the settlement with the Crown.[30]

Indigenous species are valued as taoka by Kāi Tahu, as are the habitats in which taoka species survive and thrive. The ecosystems provided by wai māori, in lakes, rivers, wetlands, estuaries, and at the coast, offer lifegiving habitats for indigenous biodiversity. Whanaukataka is at the heart of this relationship, rather than an economic model of ownership. Thus, when the health of a waterway is degraded, the impacts are far-reaching, for the waterway, for the ecosystems, habitats, and species it supports, and for the people.

Waterways like Waiwhakaata are taoka for Kā Rūnaka. Their physical presence connects whānau today with their tīpuna in the past, but also with mokopuna, the future generations, placing an obligation that Kā Rūnaka will strive for the restoration and regeneration of these waterways. Imbued within the understanding of Waiwhakaata as a taoka is the lake as part of a natural system, as was seen through the eyes of ancestors in the days of the past.

[30] TRONT, 1997, Mahinga kai.

Whakaahua 9: Waiwhakaata and Coronet Peak

4.0 E rite ana ki te karo o te moa: The Kāi Tahu history of loss

Te Tiriti o Waitangi was signed by representatives of Kāi Tahu whānui in late May and early June of 1840.[31] Subsequently, in 1844 and 1864, Kāi Tahu agreed a series of land sales with the Crown. Rather than acting in good faith, the Crown reneged on key elements of the agreements, resulting in widespread land alienation and economic deprivation for mana whenua.[32]

The 1848 Kemp's Deed was the largest of the Crown land purchases, comprising 13,551,400 acres for which £2,000 was paid. Although the deeds promised a tenth of the land would be retained as reserves for Kāi Tahu, less than 6,500 acres were allocated within the footprint of the deed.[33]

The meagre reserves that were afforded Kāi Tahu were clustered around the coast, with the pressures of colonisation meant that the relationship to te takutai moana was closely guarded, while the links to the inland areas diminished.

Barriers to following kā ara tawhito made visiting wāhi tīpuna and wāhi mahika kai as was done in the past more and more difficult. Over time, the ancestral lands were surveyed, on-sold, and settled. Wetlands were dammed; waterways were modified and drained. Changes in the landscape led to changes for the people, contributing to the displacement of whānau, loss of knowledge and identity, and the suffering of economic hardship.

The loss of connection to whenua that took place as a result of the Deeds, coupled with the visible deterioration and degradation of lakes, rivers, and waterways since that time, is a source of great mamae for mana whenua. This is particularly true given the obligations of mana whenua to fulfil their roles as kaitiaki whenua in their takiwā, mō tātou, ā, mō kā uri a muri ake nei.

When gold was struck in Otago in 1862, thousands flocked to Te Waipounamu to find their fortunes. In August of that year, alluvial gold was discovered by "Māori Jack" Tewa, a shearer who worked for William Rees, a runholder at present-day Queenstown. Jack Tewa is now recognised as "the original prospector of much of what became the Lakes District Goldfield, including the Shotover, Arrow, Glenorchy, and Skipper's Canyon fields."[34]

From the goldrush on, the impacts of layer upon layer of activity has influenced, altered, and damaged, the natural processes through which the lake managed itself in the past. Activities such as waterway modification, farming and growing, commercial and industrial activites, and housing development have contributed to increased sedimentation and phosphorous loading in the lake. These activities are summarised in Tūtohi 5 below.

Whakaahua 10: Waiwhakaata from Lake Hayes domain looking south

[31] Waitangi Tribunal, 1991, s4.2.
[32] Ibid.
[33] TRONT, 1997.
[34] Carpenter, 2013, p. 112.

Tūtohi 5: A timeline of land-use activities in the Waiwhakaata catchment

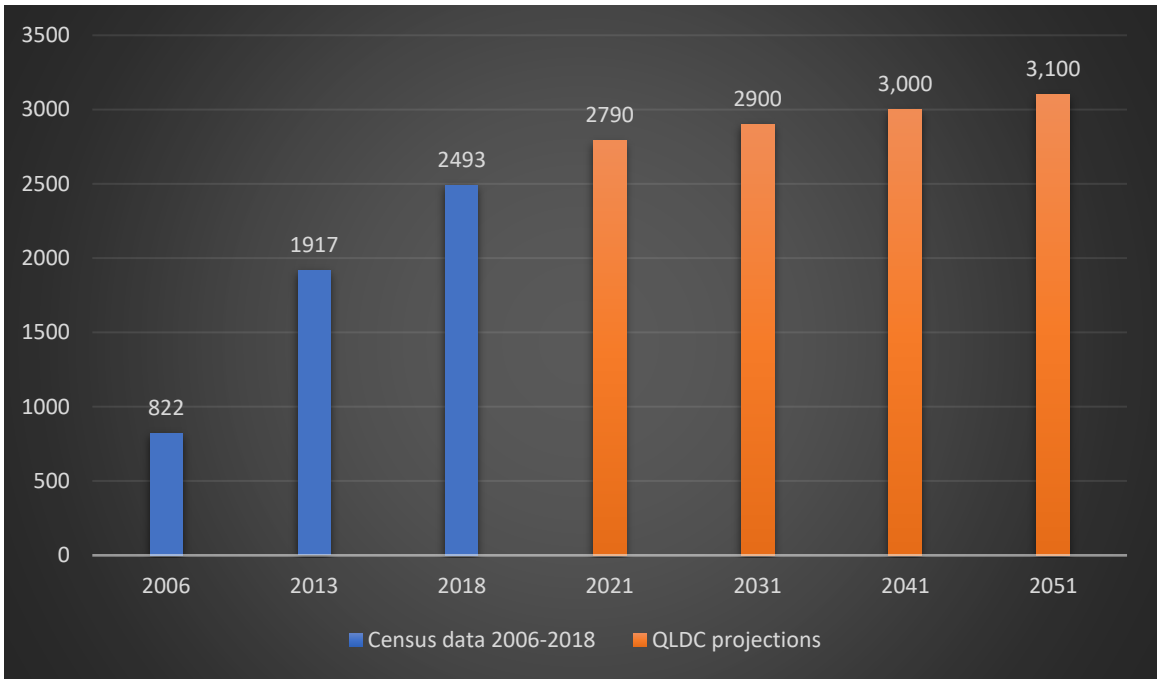
Period	Catchment modification	Housing and construction	Farming and Growing activities	Commercial and Industrial
Pre-1880s			Land clearing	
1860-1900	Brown trout released (1870) Perch released (1875-1880)	McIntyre Cottage (1860s) Ayreburn Farmstead (1864) Meadow Bank Farmstead (1864) Mill Farm (1865) Bridesdale Cottage (1865-1870) Steel's Cottage (1870s) Lake Hayes Farm (1873) Stone cottage/barn (1880-85)	Land clearing Exotic planting Sheep farming Cropping Orchards	Lake Hayes Hotel (1867) Wakatip Flour Mill (1868-1871) Arrow Flour Mill (1872) New Lake Hayes Hotel (1881-82)
1900-1950		Threepwood Homestead (1909)	Sheep, cattle, dairy farming Arrow Irrigation Scheme (1926-32) Bendemeer water race construction (1935-36)	Arrowtown Golf Club (1937) Coronet Peak Ski Field (1947)
1950-1970	Wetland draining and artificial channelling (1961-62) First recorded pollution event (1961)		Introduction of superphosphates Aerial topdressing Topdressing plane crash in lake (1953) Pig farming, Mill Creek (1955)	Cheese factory – whey discharges (from 1955)
1970-2000	Ongoing cutting and draining Loss of wetland buffering		Superphosphates Intensive pastoralisation	Cardrona Alpine resort (1980) Millbrook Country Club (1989) Millbrook Golf Course (1992) Millbrook Resort (1993)
2000-2023	Lake Hayes Restoration and Monitoring Plan (2017) Lake Hayes South restoration (2018) Waiwhakaata rehabilitation J4N project (2021) ORC Restoring Lake Hayes project (2021)	Lake Hayes Estate (2012) HawkRidge Estate (2014)	Land clearing Orchards Exotic planting	The Hills Golf Course (2007) Millbrook Golf Course expansion (2009, 2018)
Future		Waterfall Park Hayes Creek Development Te Pūtahi/Ladies Mile		

This history of land use in the catchment has directly contributed to water quality issues associated with runoff of phosphorous, with 70% of nutrient loading to the lake attributed to overland flows.[35] Four primary influences have been identified as the main causes of nutrient loading through sedimentation.

1. Runoff of nutrients from farms due to fertiliser application and animal waste
2. Loss of vegetation on, and adjacent to, river banks
3. Drainage of wetlands
4. Erosion.[36]

Housing and recreation adds further pressure through irrigation, clearing of land, and stormwater runoff. Afforestation to enable housing development has created tracts of bare land, which, in some cases, have remained undeveloped for significant periods despite granting a consents to proceed. Both Mill and Hayes Creeks are now surrounded by housing estate. Consequently, the area around the lake has demonstrated considerable population growth, with further growth projected through to 2051 (see Tūtohi 6 below).

Tūtohi 6: Population in Lake Hayes 2006-2051

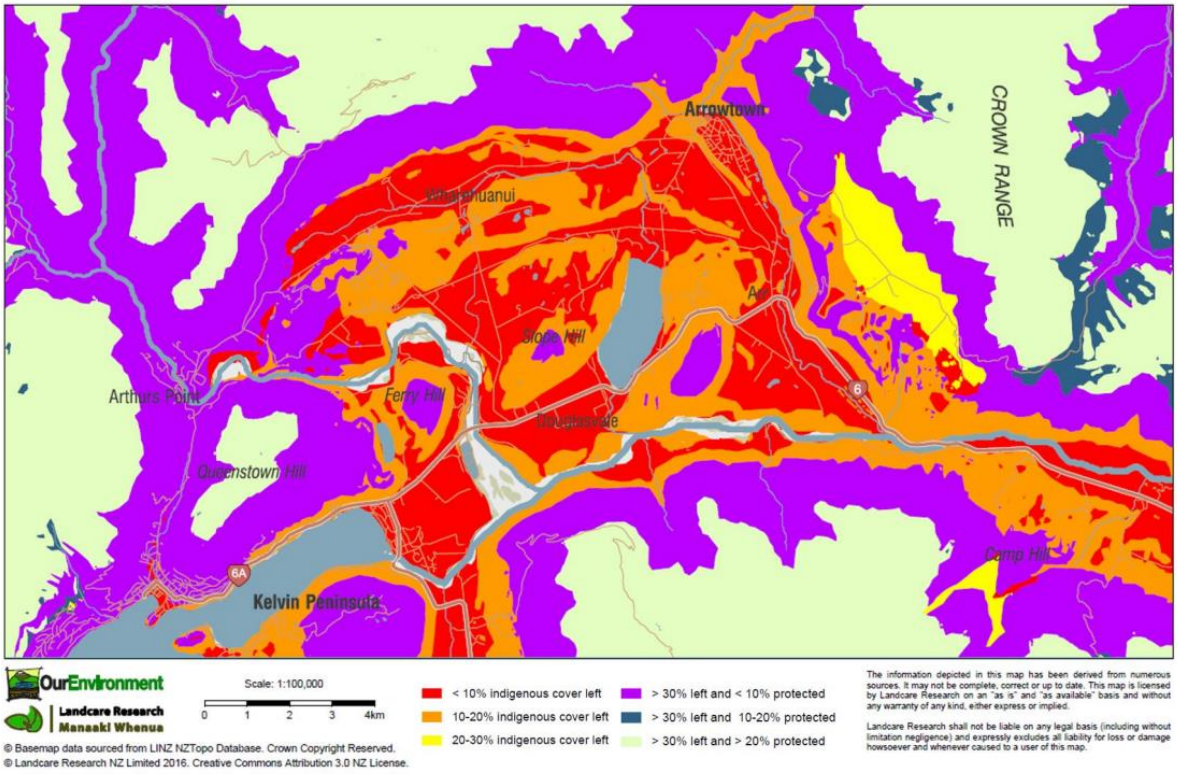


Golf courses located to the north of the lake may also have a bearing; land use practices associated with this particular recreational activity are known to impact water quality through entry into waterways of fertilisers, pesticides, and other contaminants via runoff or groundwater infiltration.[37]

Forestry and the spread of exotic plant species adds another layer of impact. Consequently, the majority of land bordering Waiwhakaata has less than 20% indigenous cover remaining (see Whakaahua 11 below).

[35] Davis, 2018; ORC & QLDC, 1995.
[36] Schallenger & Schallenger, 2017.
[37] Guzmán & Fernández, 2014.

Whakaahua 11: Remaining indigenous vegetation cover in the Whakatipu Basin



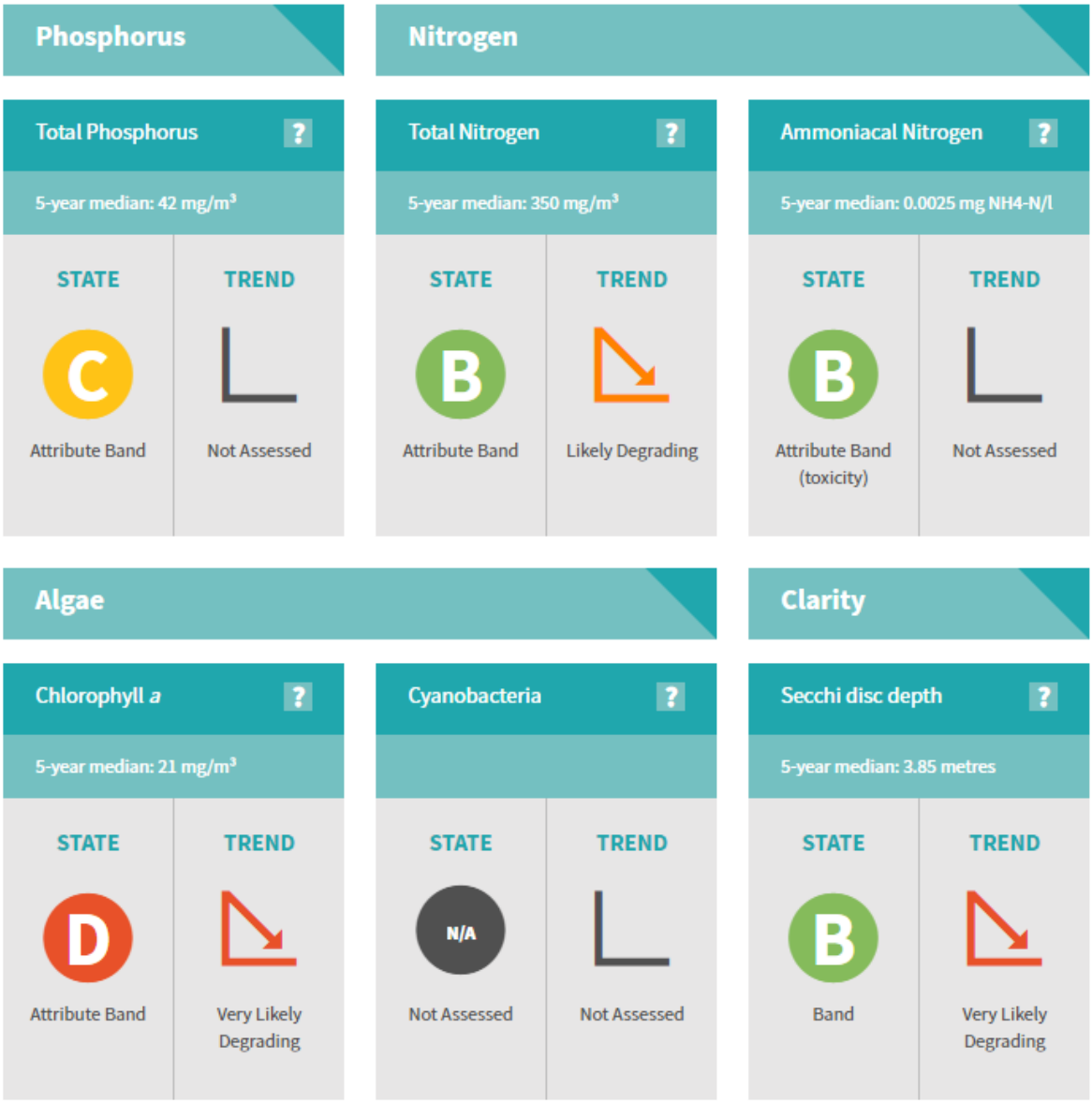
The culmination of these influences is the recognised issues with water quality at the lake, particularly in terms of the level of total phosphorous and chlorophyll a, and poor water clarity (see Whakaahua 12 below for further details). These changes to the catchment have had significant impacts on mana whenua values for Waiwhakaata. Land usage and catchment modification has changed the nature of the lake, which has effectively stopped the natural processes of filling and flushing that enabled the lake to manage itself in the past.

Phosphorous laden sediment continues to flow in via Mill Creek, but now without the wetland complexes at its borders, which were once able to filter out sediments before they reached the lake. The result is that the mauri of Waiwhakaata has been significantly degraded. The impact of this degradation extends to the waterways that Waiwhakaata once fed, the Kawarau and the Mata-au.

The loss of wetlands and indigenous vegetation, and the decline in water quality in the lake, have contributed to the loss of opportunities for mahika kai activities. These were an integral component of mana whenua connection to the area of the inland lakes in the past. Without these opportunities, the associated practices, mātauraka and transition of knowledge has been affected, which in turn has significant impacts for the cultural identify of Kāi Tahu whānui.

Restoration activities related to Waiwhakaata need to go beyond scientific and engineering solutions to the problems in the lake. The restoration of mauri must be the focus of these activities in order to ensure that Te Mana o te Wai, that is, the health and wellbeing of the waterway and the indigenous biodiversity it supports, is upheld.

Whakaahua 12: Water quality at Lake Hayes at Mid-Lake 10m



5.0 He ara poutama: Relevant legislation and policy

5.1 Ngāi Tahu Claims Settlement Act 1998

The NTCSA 1998 was enacted to settle the historical Ngāi Tahu claims against the Crown and provides redress under Te Tiriti o Waitangi. The Crown apology in section 4 explicitly recognises the rakatirataka of Kāi Tahu within its takiwā. The Act provides specific provisions that provide for the exercise of rakatirataka and kaitiakitaka by mana whenua in relation to mahika kai, taoka species, and other resource management matters.

5.2 Resource Management Act 1991

In achieving the purpose of RMA 1991, particular regard is required to kaitiakitaka.[38] Kāi Tahu whānau exercise kaitiakitaka in this catchment. Tikaka indicates that whānau must strike a balance between the right to access and use natural resources, and the responsibility to care for te taiao, with a focus on providing a sustainable base for future generations; this is the basis of kaitiakitaka, as expressed in the whakataukī, 'Mō tātou, ā, mō kā uri a muri ake nei.'

5.2 National Policy Statement for Freshwater Management 2020

Te Mana o te Wai is a fundamental concept in the NPSFM 2020 and refers to. *"*...the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai.*"*[39]

The concept of Te Mana o te Wai represents a significant paradigm shift in freshwater management. The previous focus on the scale and significance of the effects of resource use is now redirected onto the mauri or life-force of water and the enquiry becomes, how do users of resources protect the water's health and well-being?

Mana whenua have undertaken a robust process to define Te Mana o te Wai in Otago, informed and framed by a vision for freshwater that aligns with the central elements of the creation traditions. This definition is informed by knowledge and mātauraka about te taiao and wai māori.

The primary objective of the NPSFM is to ensure that natural and physical resources are managed in a way that prioritises:

- first, the health and well-being of water bodies and freshwater ecosystems.
- second, the health needs of people (such as drinking water).
- third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.[40]

5.3 Proposed Otago Regional Policy Statement 2021

Waiwhakaata forms part of the Mata-au catchment. The PORPS vision for the Mata-au FMU is that:

[38] RMA 1991, s.7(a).
[39] NPSFM 2022, s.1.3.
[40] Ibid.

- Management of wai māori recognises that the Mata-au is a single connected system ki uta ki tai, and that the source of the wai is pure, coming directly from Tāwhirimātea to the top of the mauka and into the awa.
- The ongoing relationship of Kāi Tahu with wāhi tīpuna is sustained.
- Water bodies support thriving mahika kai and Kāi Tahu whānui have access to mahika kai.
- Indigenous species migrate easily and as naturally as possible along and within the river system.
- In the Upper Lakes rohe, the high quality waters of the lakes and their tributaries are protected, recognising the significance of the purity of these waters to Kāi Tahu and to the wider community.[41]

The PORPS provides for Te Mana o te Wai and recognises that:

- water is the foundation and source of all life - na te wai ko te hauora o ngā mea katoa.
- there is an integral kinship relationship between water and Kāi Tahu whānui, and this relationship endures through time, connecting past, present and future.
- each water body has a unique whakapapa and characteristics.
- water and land have a connectedness that supports and perpetuates life.
- Kāi Tahu exercise rakatirataka, manaakitaka and their kaitiakitaka duty of care and attention over wai and all the life it supports.[42]

5.4 QLDC Spatial Plan

The QLDC Spatial Plan is described as "a tool to support and direct change that benefits the wellbeing of the Queenstown Lakes community and New Zealand both now and into the future."[43] Collaboration with Kāi Tahu as has enabled the inclusion of a mana whenua values framework that has been used to identify the outcomes sought by mana whenua in the delivery of the Spatial Plan (see Tūtohi 7 and Whakaahua 13 below). The plan's operationalisation is directed by a governance board that includes direct representation from Kā Rūnaka.

Kāi Tahu values and outcomes in the QLDC Spatial Plan strongly echo key aspects of the values identified in section 4. Moreover, several of the spatial elements identified showing clear alignment with the mana whenua values and intentions identified in this report, for example,

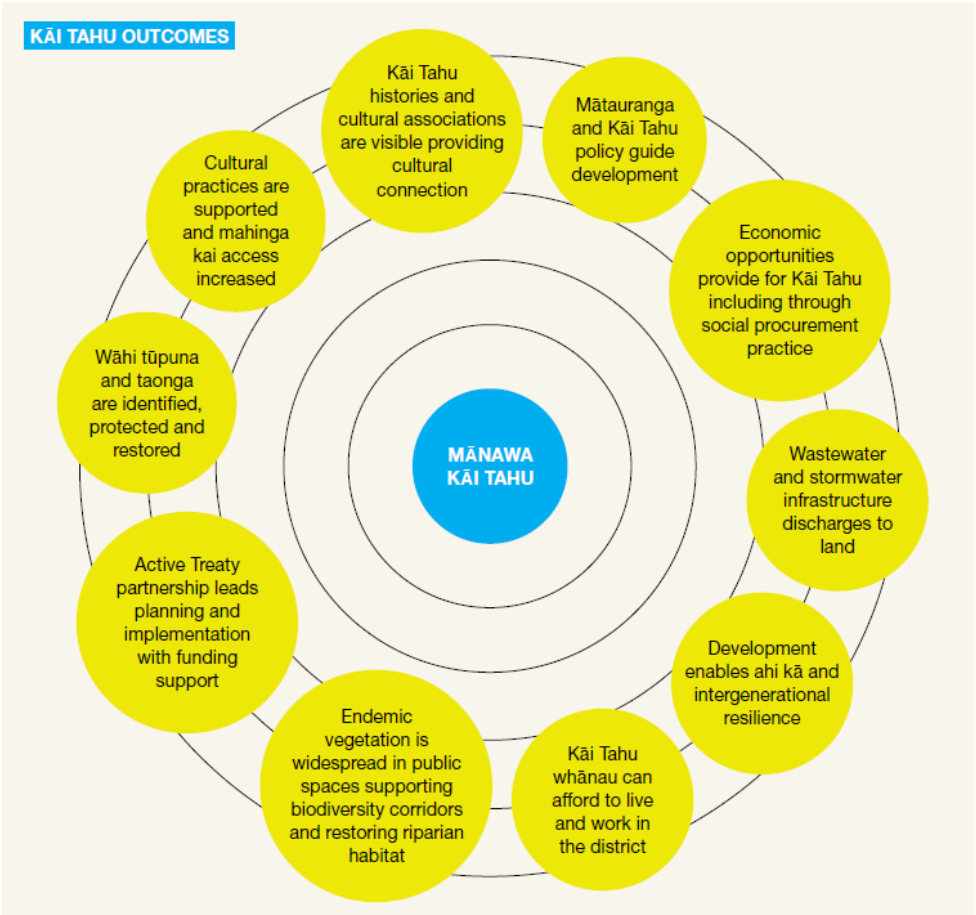
- Avoidance of further urban development in the Wakatipu Basin beyond Te Pūtahi – Ladies Mile.
- Exclusion of Waiwhakaata from housing intensification areas.
- Phasing out of wastewater and stormwater discharges to lakes and rivers.
- Enhancement and protection the Blue-Green Network.[44]

[41] PORPS 2021. LF–VM–O2 – Clutha Mata-au FMU vision.
[42] PORPS 2021, LF–WAI–O1 – Te Mana o te Wai.
[43] QLDC, 2021, p. 12.
[44] QLDC, 2021, pp. 48ff. See Whakaahua xx-xx below for maps relating to these spatial elements.

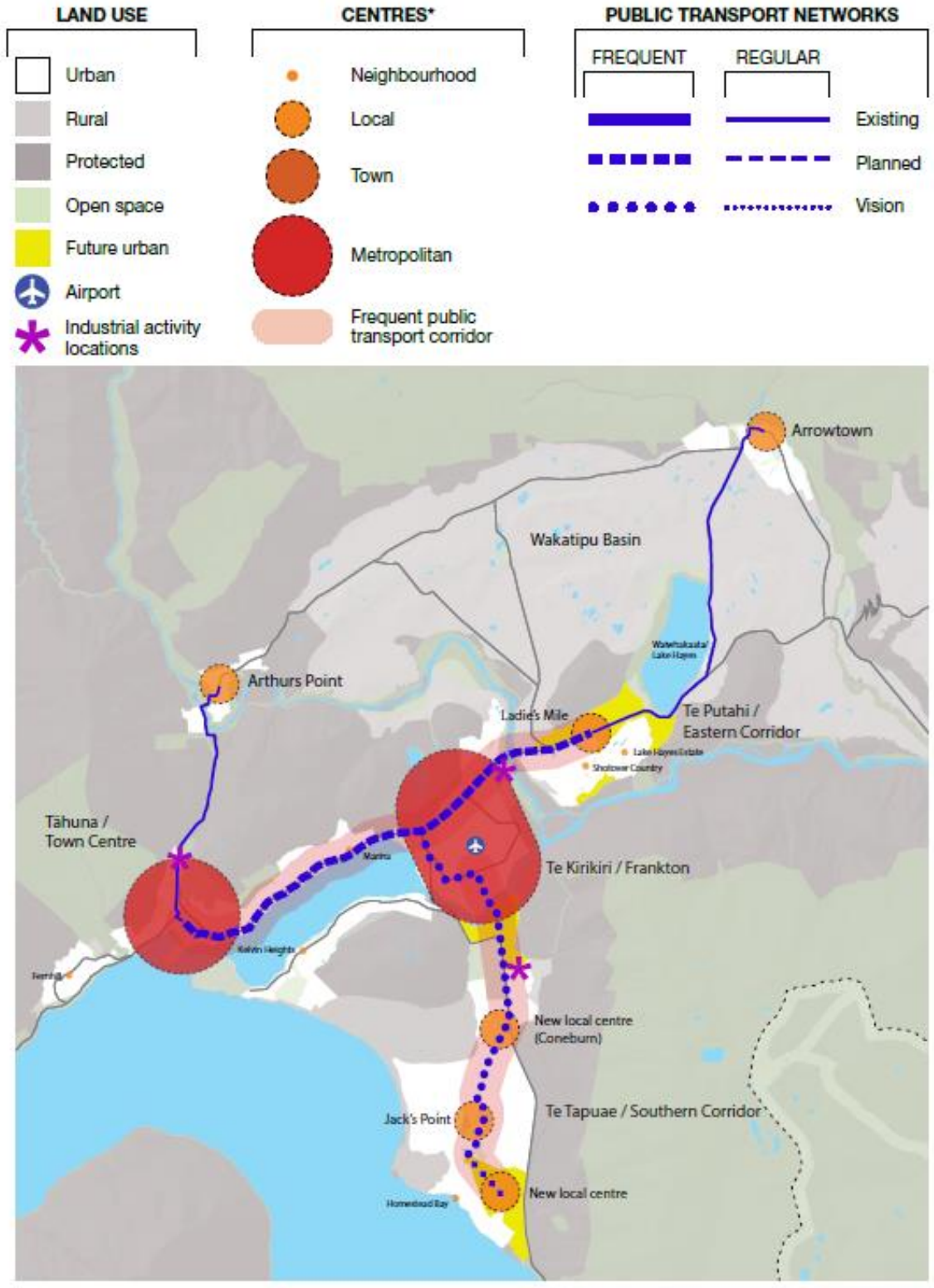
Tūtohi 7: Kāi Tahu values in the QLDC Spatial Plan

VALUE	DESCRIPTION	APPLICATION
Whanaukataka	Family and community focused	Ensuring consideration of the social implications of decisions to enable community and whanau connections and growth.
Manaakitaka	Hospitality	Demonstrating behaviour that acknowledges others, through the expression of aroha, hospitality, generosity and mutual respect.
Rakatirataka	Leadership	Ensuring the treaty partnership is recognised to enable mana whenua leadership in decision making processes.
Haere whakamua	Future focused	Adopting a forward looking orientation with future generations in mind.
Tikaka	Appropriate action	Ensuring consideration of the appropriateness of decisions that will have a bearing on social, economic, environmental and cultural outcomes.
Kaitiakitaka	Stewardship	Enabling the inherited responsibility of mana whenua to support and protect people, the environment, knowledge, culture, language and resources on behalf of future generations.
Mauri	Life force	Recognising the life force in all lands, waters and the natural environment that stems from time immemorial, requiring a high duty of care for kaitiaki (and others) to maintain an intact and healthy mauri, ensuring that what is gifted from the Atua is not neglected.

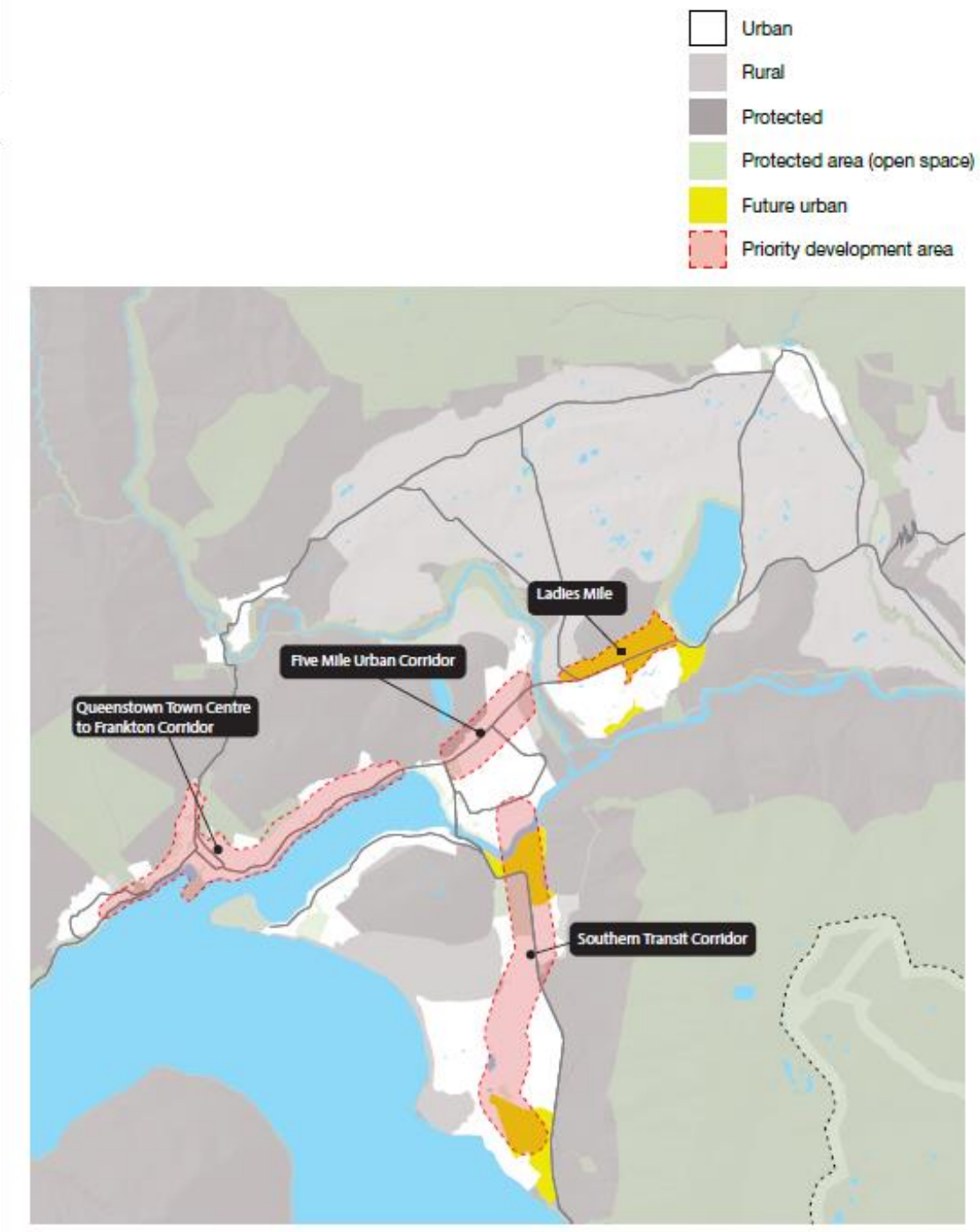
Whakaahua 13: Kāi Tahu outcomes in the QLDC Spatial Plan



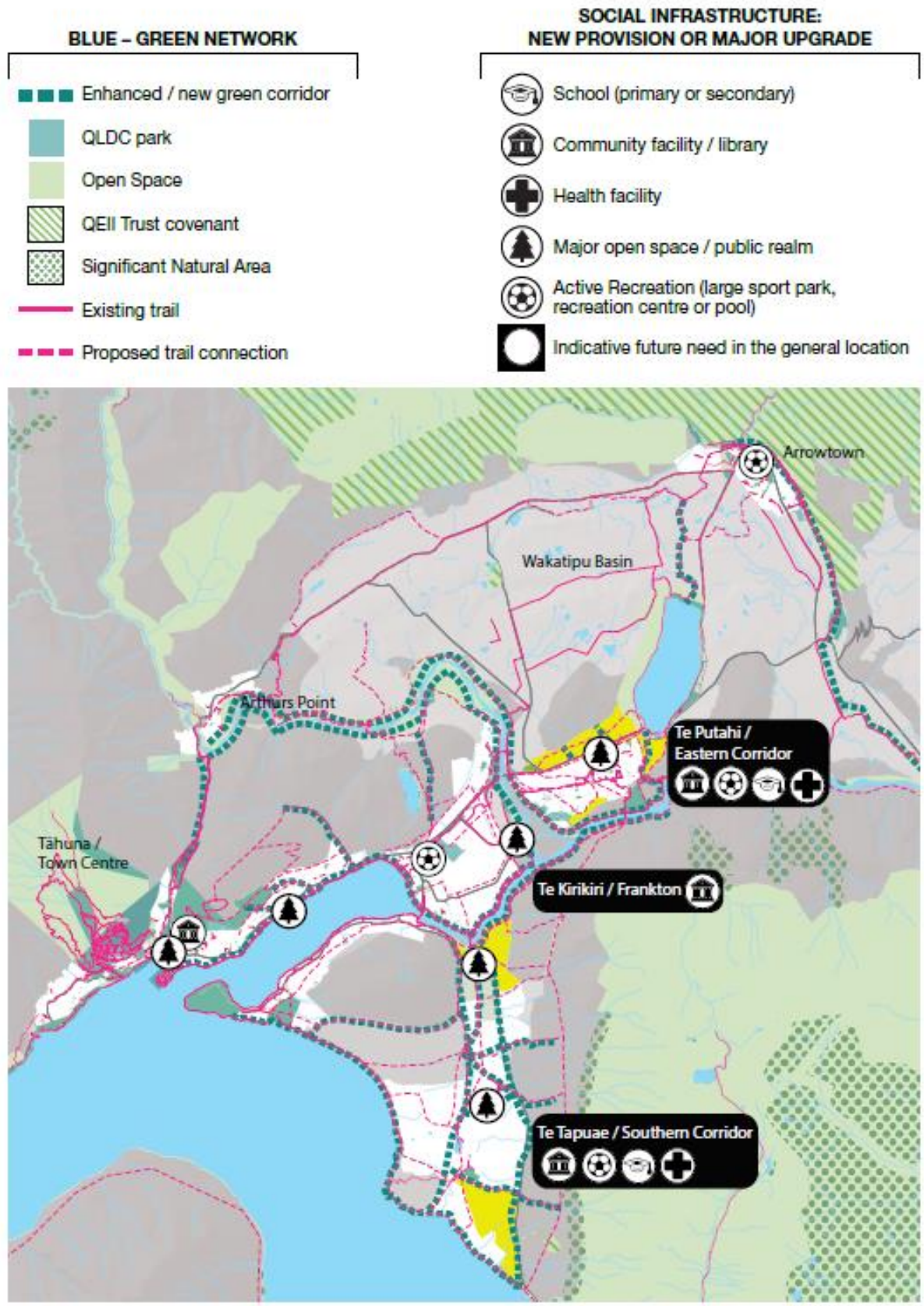
Whakaahua 14: Spatial elements identified for Tāhuna



Whakaahua 15: Priority Development Areas for housing intensification around Tāhuna



Whakaahua 16: Blue-Green networks and social infrastructure around Tāhuna



6.0 He mahi kai hōaka: Statement of Expectation

Ka ora te wai, ka ora te whenua, ka ora ai te tākata.
When the water is healthy and the land is healthy, then the people are healthy.

This whakataukī conveys the intrinsic holism that permeates te ao Māori. Mana whenua values for te taiao are strongly grounded in the principle ki uta ki tai, recognising that all aspects of our environment are interconnected, and we are connected to it. In the case of Waiwhakaata, the health of the lake reflects the health of the wider community. For mana whenua this means that the people will not be healed until the land and water are healed." [45] Consequently, Kā Rūnaka recognise the significant role that human activity plays in the outcomes we see in our environment,[46] as well as the significant role that we can play in environmental protection. Through our actions, we can restore the balance between what is taken from Waiwhakaata, and what is given back.

Rūnaka aspirations and intentions for Waiwhakaata reflect the values that were held by tīpuna in the past and that have been handed down as kawa, mātauraka, and tikaka. This confers an obligation upon mana whenua to actively seek the restoration of the mauri of the lake. To this end, Kā Rūnaka have identified the following seven expectations for this project.

6.1 The restoration of Waiwhakaata upholds the rakatirataka and mana of Kā Rūnaka.

The rakatirataka and kaitiaki responsibilities of Kāi Tahu in their takiwā are recognised under the Ngāi Tahu settlement with the Crown, with kaitiakitaka further enforced under the RMA 1991 and the NPSFM 2020. These mechanisms recognise the manawhenuataka of Kā Rūnaka, indicating their status as kaitiaki within their takiwā.

For the restoration of Waiwhakaata to uphold the rakatirataka and mana of mana whenua, the following expectations will need to be met:

6.1.1 The project is undertaken as a partnership between mana whenua, ORC, and QLDC.

6.1.2 The partnership is a living relationship that requires ongoing effort, commitment, and negotiation.

6.1.3 Mana whenua representation is an integral component of the project's governance, strategic oversight, and overall delivery, supported by appropriate resourcing.

6.1.4 Kā Rūnaka are central to decision-making about how to manage environmental events and algal blooms at Waiwhakaata.

6.2 The restoration of Waiwhakaata upholds the mana and mauri of the lake.

For the last 150 years, the needs of people and human activity has been prioritised over the health and wellbeing of Waiwhakaata. However, under the concept of Te Mana o te Wai, emphasis and priority is given to "the fundamental importance of water," recognising that "protecting the health of freshwater protects the health and wellbeing of the wider environment."[47] This approach substantively aligns with Māori perspectives relating to freshwater management.

[45] J. Davis, 21 April 2023 (personal communication).
[46] Shearer, 1986.
[47] NPSFM 2022 s.1.3(1).

The restoration of the mauri of the lake requires the reestablishment of the catchment as a natural freshwater system and as part of an integrated catchment ki uta ki tai. To achieve this intention for Waiwhakaata, the following expectations will need to be met:

6.2.1 The lake is recognised as part of an integrated freshwater system, ki uta ki tai, encompassing the Mill Creek catchment, and extending to the Mata-au and to the sea.

6.2.2 Monitoring and assessment shows improved water quality and quantity in the lake, and the wider catchment.

6.2.3 Sediment and phosphorous contamination is reduced by at least 20%.

6.2.4 The natural form and function of tributaries are reinstated through re-establishment of wetland areas, and removal of barriers and structures on stream banks and beds.

6.2.5 Lowland areas, creeks, and indigenous habitats from activities that adversely affect mana whenua values, particularly those that contribute to sedimentation and nutrient loading within Waiwhakaata and the catchment.

6.2.6 The ecological services that wetlands can provide to support the lake's regeneration are recognised and valued as a primary means of addressing water quality issues in the catchment.

Whakaahua 17: Tuna being fed

6.3 The restoration of Waiwhakaata enables the regeneration of indigenous biodiversity and mahika kai values.

Abundant and thriving indigenous biodiversity is a key indicator of the mana and mauri of freshwater systems like Waiwhakaata. Indigenous species are taoka to Kāi Tahu, as recognised in the Ngāi Tahu Settlement Act 1998. Mahika kai practices are similarly recognised in the settlement. Mahika kai is a significant source of identity for mana whenua, reflecting the activities' cornerstone contribution to the intergenerational transmission of mātauraka Kāi Tahu.

In order for the restoration of Waiwhakaata to meet mana whenua expectations for mahika kai and indigenous biodiversity, the following expectations need to be met:

6.3.1 Remnant populations of indigenous species like tuna and kōura are identified, monitored, and protected, and their habitats are restored and reinvigorated.

6.3.2 Instream and riparian habitats support thriving ecosystems, providing a suitable environment for re-establishment of absent species, either through translocation or natural repopulation.

6.3.3 Lake-edge wetlands are restored, including the removal of exotics species like willow and poplar, and suitable indigenous revegetation.

6.3.4 Indigenous species are abundantly present in and on the water across the lake, tributaries, wetlands, and springs.

6.3.5 Whānau engage in mahika kai practices in Waiwhakaata, and the surrounding catchment, based on the tikaka and kawa of mana whenua. There is good access to suitable sites, and the kai is safe for consumption.

6.3.6 The removal of vegetation within the catchment is undertaken to ensure best-practice management of erosion and sediment control.

6.3.7 Remnant biomes in the catchment are identified, protected, restored, and revitalised. Corridors and connections are established between remnant biomes in order to support ecological restoration and growth.

6.4 Mechanisms are established to reduce land-based effects on waterway health.

A significant driver of water quality and quantity issues is the land-based practices and activities in the catchment, such as farming, forestry, and residential and tourism development. For the mauri of Waiwhakaata to be restored, it is crucial that these practices are managed to reduce effects on water quality and quantity. The following expectations express how this outcome can be met:

6.4.1 Land management practices are undertaken in a way that promotes improvements in water quality.

6.4.2 Land use is increasingly diverse and intensive land practices are reducing.

6.4.3 Discharges are predominantly to land and are treated to a high standard.

6.4.4 Subdivisions and development activities are undertaken in such a way as to support and protect the mauri of the lake.

6.4.5 Contaminated land is being actively restored.

Whakaahua 18: Tī kōuka in flower

6.5 Mātauraka, research, and education are central to the project's methodology.

For this project to truly succeed, education needs to be at its heart both for whānau, and for the community. Kā Rūnaka see education as a means of engaging the community and restating their long-standing connection with this place. Moreover, for mana whenua aspirations and intentions to be enacted, there must be opportunities for whānau to practice mahika kai and mātauraka in the catchment. For these outcomes to be achieved, the following expectations must be met:

6.5.1 Sites within the catchment that support mahika kai and biodiversity values are identified and resourced for mātauraka and educational purposes.

6.5.2 Wānaka, noho, and other activities that support mana whenua values for the catchment are being delivered with and by whānau.

6.5.3 Scientific assessment and monitoring activities relevant to the project prioritise and facilitate whānau involvement, collaboration, and leadership.

6.5.4 Whānau are leading and contributing to mātauraka-based activities in the catchment to assess and monitor the mauri of the lake and its biodiversity, and their findings are given due weighting alongside scientific methods.

6.5.5 Programmes, events, communications, and activities are being delivered to promote community engagement and education on mana whenua values, aspirations, and intentions for Waiwhakaata, and on actions that can be undertaken to support these values.

6.5.6 Suitable physical manifestations of mana whenua values, aspirations, and intentions for Waiwhakaata are initiated, for example, through naming and nomenclature, signage, or art and design.

6.6 The restoration of Waiwhakaata protects values associated with Māori archaeology.

It is crucial that any remaining archaeological evidence is protected in the course of any works in the area. Given the long history of association with the area, the following expectation applies:

6.6.1 An accidental discovery protocol is adopted for physical works associated with the project.

6.7 The restoration of Waiwhakaata provides opportunities for employment and broader social outcomes for Kāi Tahu whānui.

For the project to truly express mana whenua values, the benefits of the project will be equitably spread across the community, including whānau and Rūnaka. For this to be successful, the following expectations would need to be met:

6.7.1 The delivery of the project provides equitable opportunities for broader outcomes that benefit whānau, Rūnaka and Kāi Tahu whānui through contracting, procurement, employment, and capability-building opportunities.

6.7.2 The project advances the capacity and capability of Kāi Tahu whānau and Rūnaka, including through co-delivery, direct contracting and employment, and internships, secondments, and apprenticeships.

References

Arrowtown Golf Club (2023). History. Retrieved from https://www.arrowtowngolf.co.nz/our-club

Carpenter, L. (2013). Finding "te wherro" in Ōtākou: Māori and the early days of the Otago gold rush. In *MAI Journal*, 2 (2): pp. 105-120.

Chalmers, A.R. (2013a, February 24). Lake Hayes Estate from the Remarkables (CC BY-SA 3.0). Retrieved from https://en.wikipedia.org/wiki/Lake_Hayes_Estate#/media/File:Lakes_Hayes_Estate_from_The_Remarkables.jpg

Chalmers, A.R. (2013b, August 24). Lake Hayes from the Queenstown Trail (CC BY-SA 3.0). Retrieved from Wikipedia: https://en.wikipedia.org/wiki/Lake_Hayes#/media/File:Lake_Hayes_vista.tif

Chandler, P. (2022, August 20). Company pursuing alternative retirement village plans. Retrieved from *Otago Daily Times*: https://www.odt.co.nz/regions/queenstown/company-pursuing-alternative-retirement-village-plans

Cook, M. (2011, October 16). Retirement time for happy, hearty Lees. Retrieved from *Otago Daily Times*: https://www.odt.co.nz/regions/queenstown-lakes/retirement-time-hearty-happy-lees

Coronet Peak (2023). 75 years of Coronet Peak. Retrieved from https://www.coronetpeak.co.nz/75th/

Davis, G.A. (2018, May 28). Statement of evidence of Glenn Alister Davis on behalf of Queenstown Lakes District Council. Ecology – Wakatipu Basin Variation Area. Retrieved from Queenstown Lakes District Council: https://www.qldc.govt.nz/media/cznhjfc5/s2239-qldc-t14-davis-g-evidence-30675648-v-1.pdf

Davis, J. (2022, 11 February). Statement of evidence of Jana Davis on behalf of Otago Regional Council and Kāi Tahu ki Otago and Ngāi Tahu ki Murihiku. Plan Change 8: Urban provisions, Parts A and G. Retrieved from Ministry of Justice: https://www.justice.govt.nz/assets/2022-02-11-Statement-of-Evidence-of-Jana-Davis-dated-11-February-2022.pdf

Department of Conservation (2022). Beech forest. Retrieved from https://www.doc.govt.nz/nature/native-plants/beech-forest/

Department of Conservation (2023b). Podocarp – hardwood forests. Retrieved from https://www.doc.govt.nz/nature/native-plants/podocarp-hardwood-forests/

Department of Conservation (2023a). Projects funded by Jobs for Nature. Retrieved from https://www.doc.govt.nz/our-work/jobs-for-nature--mahi-mo-te-taiao/projects-funded-by-jobs-for-nature/

Dingfelder, J. (2020, December). Approaches for minimising water quality impacts from urban development: Lake Hayes/Waiwhakaata Catchment, New Zealand. Retrieved from Save Lake Hayes: https://www.savelakehayes.org.nz/_files/ugd/c1b10b_9c3b0c20a6b54305a8eef6454961604f.pdf

Goldsmith, M., & Hannan, D. (2019, March). Lake Hayes remediation options overview report. GHC Consulting. Retrieved from Otago Regional Council: https://www.orc.govt.nz/media/7081/ghc-2019-lake-hayes-remediation-options-overview-report.pdf

Guzmán, C.A.P., & Fernández, D.J.M. (2014). Environmental impacts by golf courses and strategies to minimise them: State of the art. In *International journal of arts and sciences*, 7 (3): 403-417.

Hale, P. (2019). Cultural values statement: Queenstown Lakes District Council wastewater overflow discharge, Queenstown Lakes District. Retrieved from Otago Regional Council: https://www.orc.govt.nz/media/6939/cultural-values-statement.pdf

Harmsworth, G., Awatere, S., & Robb, M. (2016, December 4). Indigenous Māori values and perspectives to inform freshwater management in Aotearoa-New Zealand. In *Ecology and Society*, 21 (4). Retrieved from JSTOR: https://www.jstor.org/stable/26269997

Hart (1903, February 27). The scene of Fox's Colonial Gold Rush in 1862 [image]. Retrieved from Hocken Library: https://hocken.recollect.co.nz/nodes/view/12476

HawkRidge Estate (2023). About. Retrieved from https://hawkridgeestate.co.nz/about.html

Hudson, D. (2019, March 14). Waterfall Park development gets go-ahead. Retrieved from *Otago Daily Times*: https://www.odt.co.nz/regions/queenstown/waterfall-park-development-gets-go-ahead

Kāi Tahu ki Otago (2005). *Kāi Tahu ki Otago natural resource management plan*. Dunedin, New Zealand: Kāi Tahu ki Otago.

kebabette (2019, July 28). Eels being fed on Oxford Terrace (CC BY-NC-SA 4.0). Retrieved from Christchurch City Libraries: https://my.christchurchcitylibraries.com/blogs/post/eels-tuna-picturing-canterbury/

Kleinlangevelsloo, M., & Clucas, R. (2017). Cultural values report: Arrow River, Wakatipu Basin Aquifers, Cardrona River. Retrieved from Otago Regional Council: https://www.orc.govt.nz/media/4196/cultural-value-report-aukaha.pdf

Land Air Water Aotearoa (2022, 24 September). *Factsheet: Lakes*. Retrieved from https://www.lawa.org.nz/learn/factsheets/lakes/

Land Air Water Aotearoa (2023a). Lake Hayes. Retrieved from https://www.lawa.org.nz/explore-data/otago-region/lakes/lake-hayes/

Land Air Water Aotearoa (2023b). Lake Hayes at Mid Lake 10m. Retrieved from https://www.lawa.org.nz/explore-data/otago-region/lakes/lake-hayes/lake-hayes-at-mid-lake-10m

Manaaki Whenua (2023). Lake Hayes. Retrieved from Visualising Māori Land: https://whenuaviz.landcareresearch.co.nz/place/88226

Millbrook Resort (2023). About Millbrook. Retrieved from https://millbrook.co.nz/about-us

Mitchell, C. (2022). Freshwater reforms reveal difficulty in science-driven policy, report says. Retrieved from Stuff: https://www.stuff.co.nz/environment/300665073/freshwater-reforms-reveal-difficulty-in-sciencedriven-policy-report-says

National Institute of Water and Atmospheric Research (2018). *Land-use impacts on freshwater and marine environments in New Zealand*. Christchurch, New Zealand. Retrieved from Friends of Lake Hayes: https://www.savelakehayes.org.nz/_files/ugd/c1b10b_5360da43e99b438194fec56d90fece75.pdf

National Policy Statement for Freshwater Management 2020. Retrieved from Ministry for the Environment: https://environment.govt.nz/assets/publications/National-Policy-Statement-for-Freshwater-Management-2020.pdf

New Zealand Archaeological Association (2023). ArchSite. Retrieved from https://archsite.eaglegis.co.nz/NZAA/

Orwin, J. (2007). Southern beech forest – ecology. Retrieved from *Te Ara, the encyclopedia of New Zealand*: https://teara.govt.nz/en/southern-beech-forest/page-3

Otago Regional Council (2009). Otago lakes' trophic status: Lake Hayes, Lake Johnson, Lake Onslow, Lake Wakatipu, Lake Wānaka. Retrieved from https://www.orc.govt.nz/media/6192/web-version-otago-lakes-trophic-status.pdf

Otago Regional Council (2021a, April). *Otago Regional Council long-term plan 2021-2031 consultation document.* Retrieved from https://www.orc.govt.nz/media/9911/long-term-plan-2021-2031-consultation-document.pdf

Otago Regional Council (2021b, July). *Otago Regional Council long-term plan, 2021-2031.* Retrieved from https://www.orc.govt.nz/media/10139/orc-longtermplan-web-144dpi.pdf

Otago Regional Council (2023a). Lake Hayes Margins. Retrieved from https://orc.govt.nz/managing-our-environment/water/wetlands-and-estuaries/queenstown-lakes-district/lake-hayes-margins

Otago Regional Council (2023b). Restoring Lake Hayes. Retrieved from https://yoursay.orc.govt.nz/lakehayes

Otago Regional Council and Queenstown Lakes District Council (1995, September). Lake Hayes Management Strategy. Retrieved from Otago Regional Council: https://yoursay.orc.govt.nz/38718/widgets/255419/documents/111887

Pūharakekenui (2023). Upland bully. Retrieved from Styx Living Laboratory Trust: https://www.thestyx.org.nz/upland-bully

Queenstown Lakes District Council (2022a, March). Demand projections summary. Retrieved from https://www.qldc.govt.nz/media/ygilrton/demand-projections-summary-march-2022.pdf

Queenstown Lakes District Council (2022b, May 6). Waiwhakaata (Lake Hayes) ONF. Retrieved from https://www.qldc.govt.nz/media/4bqotpzc/21-22-5-lake-hayes-pa-onf-schedule.pdf

Queenstown Lakes District Council (2023). Operative and proposed District Plans. Retrieved from https://qldc.maps.arcgis.com/apps/webappviewer/index.html

Remarkables Golf Tours (2023). The Hills Golf Course, Arrowtown. Retrieved from https://remarkablegolftours.co.nz/the-hills-golf-course-queenstown

Retrolens (2023). Retrieved from https://retrolens.co.nz/

Schallenberg, M. (2020). The application of stressor-response relationships in the management of lake eutrophication. In *Inland waters*, 11 (1): pp. 1-12.

Schallenberg, M., & Schallenberg, L. (2017, May 17). Lake Hayes restoration and monitoring plan. Prepared for the Friend of Lake Hayes Society, Inc. Retrieved from Otago Regional Council: https://yoursay.orc.govt.nz/38718/documents/111850

Shearer, D. (1986). Between two worlds: Māori values and environmental decision-making. Masters thesis, University of Canterbury. Retrieved from https://ir.canterbury.ac.nz/bitstream/handle/10092/10379/shearer_thesis.pdf

Spragg, B. (2008, May 3). Lake Hayes and Coronet Peak (CC0). Retrieved from Wikipedia: https://commons.wikimedia.org/wiki/Category:Lake_Hayes#/media/File:Lake_Hayes_and_Coronet_Peak._(17397298622).jpg

Statistics New Zealand (2023a). Lake Hayes. Retrieved from https://www.stats.govt.nz/tools/2018-census-place-summaries/lake-hayes

Statistics New Zealand (2023b). Lake Hayes Estate. Retrieved from https://www.stats.govt.nz/tools/2018-census-place-summaries/lake-hayes-estate

Sullivan, J. (2012, November 30). Tī kōuka in flower (CC BY-NC 2.0). Retrieved from Flickr: https://www.flickr.com/photos/mollivan_jon/8230713269/in/photostream/

Te Rūnanga o Ngāi Tahu (1997). Mahinga kai. Retrieved from https://ngaitahu.iwi.nz/ngai-tahu/the-settlement/settlement-offer/cultural-redress/ownership-and-control/mahinga-kai/

Te Rūnanga o Ngāi Tahu (2023). Kā Huru Manu. Retrieved from https://www.kahurumanu.co.nz/atlas

Tiramōrehu, M., Van Ballekom, M., & Harlow, R. (1987). *Te Waiatatanga mai o te Atua: South Island traditions*. Christchurch, New Zealand: Department of Māori, University of Canterbury.

Waitangi Tribunal (1991). *The Ngāi Tahu claim report*. Retrieved from Ministry of Justice: https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_68476209/Ngai%20Tahu%20Report%201991%20V1W.pdf

Wakatipu Restoration Trust (2023). Our planting sites. Retrieved from https://wrtqt.org.nz/our-planting-sites/

West, J. (2018). *The face of nature: An environmental history of the Otago Peninsula*. Dunedin, New Zealand: University of Otago Press.

Williams, G. (2021, April 10). Bleak figures in Lake Hayes in flow data. Retrieved from *Otago Daily Times*: https://www.odt.co.nz/regions/queenstown/bleak-figures-lake-hayes-flow-data

Wormald, L. (2022, July 2). Ladies Mile Master Plan approved unanimously. Retrieved from *Otago Daily Times*: https://www.odt.co.nz/regions/queenstown/ladies-mile-master-plan-approved-unanimously

Appendix 1: Glossary of Māori terms

Āhua	Nature, appearance
Ahikāroa	The long-burning fires of occupation
Akiraho	Olearia paniculata
Ara tawhito	Ancestral trails
Atua	Deity, early ancestor
Hapū	Clan, clans
Hakeke	Olearia ilicifolia
Heke	Migration, movement
Kāika	Villages
Kārearea	Eastern falcon
Kāuru	The edible part of the tī kouka or cabbage tree
Kaitiakitaka	The exercise of guardianship by the mana whenua of an area in accordance with tikaka Māori in relation to natural and physical resources, and includes the ethic of stewardship
Kanakana	Lamprey
Kautuku	Australasian bittern
Kawau pū	Black shag
Kimiākau	Shotover River
Koekohe	Hampden Beach
Kōaro	Whitebait
Kōkōreke	Marsh crake
Kōrero	Story
Kōtare	New Zealand kingfisher
Kōtuku	White heron
Koreke	New Zealand quail
Korimako	Bellbird
Kuruwheki	New Zealand shoveler
Mātauraka	Knowledge, wisdom
Mahika kai	Practices, knowledge, and activities related to food gathering, including food gathering resources and species
Makura	Carex secta
Mamae	Pain, distress
Mana	Status, prestige, honour

Mana whenua	Customary authority exercised by an iwi or hapū in an identified area, and the people mandated to exercise it on their behalf
Manawhenuataka	The tikaka and kawa associated with mana whenua status.
Manu kāhere	Forest birds like tūī, kāka and kea.
Mata-au	Clutha River
Matuku moana	White-faced heron
Mauri	Life force, life essence
Mikimiki	Coprosma areolata
Mokopuna	Grandchildren, descendants
Mōkihi	Reed raft
Murihiku	The area of Te Waipounamu south of the Waitaki River
Murihiku ki te Raki	The area of Te Wai Pounamu now known as Otago
Murihiku ki te Toka	The area of Te Wai Pounamu now known as Southland
Noa	Free from tapu
Nohoaka	Settlements, sites of occupation
Pā	Fortified settlement
Pākihi	Open grasslands, plains, flat ground
Pāpako	New Zealand scaup
Pārera	Grey duck
Pāteke	Grey teal
Pūtaitai	Australasian shoveler
Pūtakitaki	Paradise shelduck
Pāteketeke	Great crested grebe
Rāhui	A temporary ritual prohibition
Rakatira	Chief, person of high rank
Rakatirataka	Chiefly authority
Raupō	Bullrushes
Takiwā	Territory, district
Taoka	Treasure
Tapu	Restriction, prohibition
Taramea	Speargrass
Tawai	Silver beech
Tawairauriki	Mountain beech
Te takutai moana	The coast

Te taiao	The natural environment
Tikaka	Correct procedure, custom
Tipuna	Ancestor (singular)
Tīpuna	Ancestors (plural)
Toki	Adze, adzes
Tuna	Eel
Tupare	Olearia colensoi
Wāhi mahika kai	Food-gathering sites
Wāhi tīpuna	Ancestral landscape of significance to iwi
Wai	Water
Waihemo	Shag River
Wai māori	Freshwater
Waka	Canoe
Whānau	Family, families
Whakapapa	Genealogy
Whakataukī	Proverb
Whakatipu-waimāori	Lake Whakatipu
Whakatipu-wai-tai	Lake McKerrow
Whanaukataka	A sense of family connection
Whao	Chisel

Appendix 2: Acronyms and abbreviations

DOC	Department of Conservation
KTKO	Kāi Tahu ki Otago (now trading as Aukaha (1997) Ltd.)
LAWA	Land Air Water Aotearoa
LTP 2021-2031	ORC Long-term Plan 2021-2031
NPSFM 2022	National Policy Statement 2020 (2022 revision)
NRMP	Natural Resource Management Plan
NZAA	New Zealand Archaeological Association
ORC	Otago Regional Council
PORPS 2021	Proposed Otago Regional Policy Statement 2021
QLDC	Queenstown Lakes District Council
RMA 1991	Resource Management Act 1991
TRONT	Te Rūnanga o Ngāi Tahu

Appendix 3: Tables and figures

Tūtohi: List of Tables

Whakaahua: List of Figures