BEFORE THE COMMISSIONERS APPOINTED ON BEHALF OF THE OTAGO REGIONAL COUNCIL, CENTRAL OTAGO DISTRICT COUNCIL, AND QUEENSTOWN LAKES DISTRICT COUNCIL

UNDER	The Resource Management Act 1991
IN THE MATTER	of an application for resource consents for Suction Dredge Gold Mining on the Clutha River / Mata Au
BETWEEN	**COLD GOLD CLUTHA LIMITED** **Applicant**
AND	**OTAGO REGIONAL COUNCIL (RM22.434)** **QUEENSTOWN LAKES DISTRICT COUNCIL (RM220834)** **CENTRAL OTAGO DISTRICT COUNCIL (RC220255)** **Consent Authorities**
AND	**TE RŪNANGA O MOERAKI** **KĀTI HUIRAPA RŪNAKA KI PUKETERAKI** **TE RŪNANGA O ŌTĀKOU** **HOKONUI RŪNANGA** **Submitters (Collectively Kā Rūnaka)**

PLANNING EVIDENCE OF KORAKO EDWARDS
ON BEHALF OF KĀ RŪNAKA

3 November 2023

TABLE OF CONTENTS

INTRODUCTION

MIHIMIHI

Tēna koutou katoa

Ko Hikaroroa te mauka

Ko Waikouaiti te awa

Ko Huirapa te wharenui

Ko Kāi Tahu, Kāti Mamoe, Waitaha me Rapuwai ōku iwi

He uri au o Huirapa rāua kō Kāi Te Ruahikihiki

Nō Ōtepoti au

Ko Korako Edwards tōku ikoa

Greeting to you all

Hikaroroa is the mountain

Waikouaiti is the river

Huirapa is the meeting house

Kāi Tahu, Kāti Mamoe, Waitaha and Rapuwai are my tribes

I am a descendant of Huirapa and Te Ruahikihiki

I am from Dunedin

My Name is Korako Edwards

QUALIFICATIONS AND EXPERIENCE

1. I have always had a strong connection to my marae at Kāti Huirapa ki Puketeraki based in Karitāne. My participation at my marae has taught me the tikaka and Te Ao Māori world view of our hapū. As my mihi sets out, my ancestry ties my mana whenua status to the Otago region from the inland mountains to the coast. I represent the rūnaka on the Komiti Kaupapa Taiao who hold a central role in decision making environmental matters on behalf of our people.

2. I hold a Bachelor of Science majoring in Ecology from the University of Otago. I have over four years' experience in this field, including 2 years as an Environmental Scientist with Beca Limited and 2 and a half years as Kaiārahi Taiao/Environmental Advisor with Aukaha. With Aukaha I have led several projects in Otago undertaking Cultural Health Index [1] studies on waterways alongside mana whenua. I have been a Member of Environmental Institute of Australia and New Zealand since June 2019. During this period I served for 1 and a half years on the Indigenous Engagement Working Group.

3. I give my evidence on behalf of Te Rūnanga o Moeraki, Kāti Huirapa Rūnaka ki Puketeraki, Te Rūnanga o Ōtākou and Hokonui Rūnanga (collectively Kā Rūnaka). In my work for Aukaha over the last two years', I have been heavily involved in assisting Kā Rūnaka to articulate what Te Mana o Te Wai and how this feeds into policy development.

INVOLVEMENT IN THE APPLICATION

4. I have reviewed the application. My central role has been to provide advice to Aukaha planning staff and mana whenua relating to the proposed activities effects on ecological values. I have reviewed:

    a. Suction Dredge Mining Upper Clutha River – Freshwater Assessment (Jager & Doheny, 2022).

    b. MEMO Ecological Review of Consent Application RM22.434 (Coates, A. 2022).

    c. MEMO Response to Cultural Impact Assessment – Suction dredge gold mining in the Clutha River (Hamer & Miller, 2023).

    d. MEMO Ecology audit of information provided and response to planners questions dated 2 August 2023 with regard to consent application RM22.434 (Barnett, T. 2023)

[1] https://environment.govt.nz/assets/Publications/Files/cultural-health-index-for-streams-and-waterways-tech-report-apr06.pdf

5. I have assisted Aukaha in the development of the submission to this application.

6. I participated in an online meeting with the applicant and e3 scientific on the 24th of October.

SCOPE OF EVIDENCE

7. My evidence addresses the following matters:

    a. The importance of the Mata-Au. The relationship of Kā Rūnaka with the Mata-Au.

    b. The Importance of Tuna to Kāi Tahu

    c. My understanding of mauri as a young descendant of Kāi Tahu genealogy and the appropriateness of relating cultural health assessments to mauri.

    d. A definition of Mahika kai and how this relates to the practice of gathering eels in the upper Mata-Au. In this section I discuss my concerns of lack of information on noise effects and potential impacts on eel passage.

    e. The impact of the activity on macroinvertebrates and the disruption this causes to natural ecosystem processes.

MANA WHENUA RELATIONSHIPS WITH THE MATA-AU

He whakapapa ki okahu me ōmakō

Ko te roto o Wanaka, ka haere tonu ki Te Manuhaea, ki ka heke tonu o Hāwea.

From Lake Wānaka over to the Neck and onto Lake Hāwea.

Huri Noa ki te Pā o Turihuka.

Across the Lake to the ancient Pā site of Turihuka.

Ka huri ki te Kāika tua tahi ki Korotane me te Mauka o Kahui Tamariki

And on to the first campsite at the Breastburn Range and Mt Grandview

Ki Ka titiro ihu o te Kāika tua rua o Tautukua

We look to the second campsite at Breastburn

Ka here ki ka ara tawhito o Okahu

Climbing up to the top of the Lindis

Ka here tonu ki te Kāika tua toru o Ōmakō

We travel down to the Lindis River and the third campsite

Me te Kāika tua wha o Whamauka Kino

We look to Dalrachney Station and the fourth campsite

Ki te Mauka o Matakinui

And onto the Dunstan Range

Me te Maukatiketike

And onto Mt Prospect

Huri ki te pakihi o Te Wai Pakeke

We look over to Tarras

Ka huarahi ki te takiwā o Matau, he tipua ki Ko are are a Te Pahi ki ka puawa ki te Awa tapu o Mata-au.

We journey to the place of Matau the Taniwha who dwelled upstream of the confluence of the Lindis and Clutha Rivers.

Mata-au, Ki te wahine tua tahi ki ka Tupuna, Tamatea Pokai Whenua.

The name of the first wife of Tamatea Pokai Whenua, a famous ancestor from the Takitimu canoe.

Tihei Mauri ora!

I cough the breath of life!

8. The whakapapa recited here were recorded from David Higgins, Upoko for Moeraki Rūnaka. He recited those words from his great great great grandfather and Kāi Tahu chief, Rawiri Te Mamaru of Moeraki who lived there in the mid-1800s. I continue to remember the way Kāi Tahu ancestors knew this landscape and the connection to it.

9. The Mata-Au is a wāhi tūpuna. Wāhi tūpuna are landscape features and places that are of significance to Kāi Tahu because of the link they provide between the traditional stories and practices of our ancestors and our lives today.

10. Kā Rūnaka, representing mana whenua of the Mata-Au, continue to seek the preservation of wāhi tūpuna in a condition or state that would resemble what it

would have looked like to the ancestors from generations past. Activities that alter the shape, behaviour, water quality or mauri of waterways will continue to degrade wāhi tūpuna.

11. With the help of mana whenua, regional and district council are beginning to understand and recognise the importance of wāhi tūpuna. Although Central Otago District Council has not yet included a wāhi tūpuna layer in its district plan, the Queenstown Lakes District Council Proposed and Operative District Plan recognises and maps the part of the Mata-au within its district as wāhi tūpuna.

12. The Mata-au was a vital ara tawhito (traditional travel route) that provided direct access to and from Lakes Wānaka, Hāwea and Whakatipu-wai-Māori (Lake Wakatipu) and coastal Otago. The Mata-Au was used as a travel route on land, connected by nohoaka or seasonal settlement sites, to navigate to and from the Lakes region. By water, the Mata-Au would allow rafts to transport resources gathered in the Upper Lakes back down to the coast. The awa also supplied food to sustain the travellers.

13. The Mata-au has particular significance to mana whenua arising from its origin in the tūpuna mauka (ancestral mountains) of the Southern Alps. The glacial water that flows into the catchment from the mountains is in its purest form. Kāi Tahu know this kind of water to be called wai-ora. Wai-ora contains the source of life and wellbeing. It is from this state that wai-ora can become wai māori (freshwater). Wai māori can be used for consumption and it sustains life. These factors contribute to the importance of the Upper Clutha to Kāi Tahu, and the wider community, in drawing the people to this region.

14. Our vision for the management of wai māori in this area recognises that the Clutha Mata-au is a single connected system ki uta ki tai, and that the source of the wai is pure, coming directly from Tawhirimatea to the top of the mauka and into the roto(lakes) and awa (rivers). We want to ensure that 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.

15. Kā Rūnaka, representing mana whenua of the Mata-Au, continue to seek the preservation of wāhi tūpuna in a condition or state that would resemble what it would have looked like to the ancestors from generations past. Activities that alter the shape, behaviour, water quality or mauri of waterways will continue to degrade wāhi tūpuna.

16. As discussed in depth within the Cultural Impact Assessment prepared for the application the Mata-Au River is on a journey of recovery and transformation after

historic and continued alteration from gold mining, hydro-electric generation, water abstraction and other human-induced pressures. Under a Te Mana o Te Wai approach to water management, any activity affecting the awa should support and contribute to its recovery from past degradation. I challenge the notion that the proposed activity contributes to the health and wellbeing of the Mata-Au.

MAURI

17. In my understanding, mauri is the life-giving essence inherent in all living and inanimate objects. To Kā Rūnaka, the protection and restoration of mauri is the primary envrionmental ethic that governs decision making.

18. The mauri of a person or place is a reflection of the health and well-being of that person or place. In a physical sense, the mauri of water can be recognised by observing qualities such as liveliness, energy sources, water quality and the flow or form of a river. Mauri also possesses intangible qualities that cannot appropriately be described by physical observations. It is my opinion that understanding and assessing the intangible qualities of mauri requires an involvement in Te Ao Māori.

19. In my work facilitating Cultural Health Index studies across different waterways in Otago, I have come to learn that mauri cannot simply be equated to a number or a sum of Cultural Heatlh Indicators. That is why this assessment tool is called a 'Cultural Health' index and not a 'Mauri Index'. I have learnt that mana whenua must be given the opportunity to identify indicators that they want to have used for the particular waterway that is being assessed. When mana whenua apply their own cultural indicators to a specific location it takes into account their values, memories and knowledge of the whakapapa of that waterway. For example, in the takiwā of Kāti Huirapa ki Puketeraki, participants asked for presence of weeds to be included in their assessment forms, in addition to the standard indicators that are applied in Cultural Health Index studies.

20. The Cultural Health Indices that I apply with whānau in Otago include long form answer questions as well as indicator scores. It the long form answers and the discussions held on the banks of a given waterway that give effect to the full intentions of cultural health monitoring methodology. Under the Cultural Health Index methodology it would not be appropriate to assess indicators of cultural health without having visited the site with mana whenua.

THE IMPORTANCE OF TUNA (EELS) TO KĀI TAHU

21. Mahika kai literally means ‘food working’. It refers to the practices of gathering materials from the environment, including flora and fauna from all varieties of ecosystems, wetlands, rivers, lakes, forests and montane environments.

22. Mahika kai is a cultural practice that provides a connection between mana whenua and the lands and rivers. Mahika kai practice is central to Kāi Tahu identity as an integral part of the tribal history in the South Island and for transmission of knowledge and places.

23. Tuna have always been a taoka - a prized species to Kāi Tahu. Historically, the abundance and widespread distribution of tuna made them a key protein source for Kāi Tahu. The prevalence of tuna as a mahika kai resource in the Upper Clutha is highlighted in Tūtohi 3 of the Cultural Impact Assessment (CIA).

24. Having the ability to gather and process eels is a practice which maintains and strengthens kinship within and between whānau and hapū. It is in undertaking these kinds of mahika kai practice that whakapapa, stories and knowledge are passed from generation to generation. It is the responsibility of mana whenua to protect and restore ecosystems that support flourishing mahika kai flora and fauna. Doing so holds open the opportunity for future generations and returning Kāi Tahu whānau to engage in this traditional practice and its associated teachings.

25. The key objective of Kāi Tahu in relation to the eel fisheries within the Mata-Au system can be summarised in this excerpt from the Arai Te Uru Eel Management Plan:

    “… to restore the abundance of the resource, and use it in a manner which will allow future generations to provide fully for the sustenance and cultural requirements of their communities”

26. I am part of a multi-year Vision Mātauranga project investigating the populations of tuna within the Whakatipu, Wānaka and Hawea lakes. Two of the key research aims of this project are to better understand the effects of passage issues in the Mata-Au and to reconnect people with mahika kai practice in Lakes Whakatipu, Wānaka and Hawea.

27. Under Consent condition 16 of the Roxburgh Dam Discharge Permit (ORC 2001.394) Contact Energy must provide for effective native eel and lamprey passage upstream and downstream past the Roxburgh, Clyde and Hawea Dams. This point establishes the fact that eel species are present within the Mata-Au

catchment, including the areas subject to this application, and require passage both upstream and downstream. Mr Hamer elaborates on recent catch and release efforts undertaken by Contact Energy in his evidence.

28. Appendix 1 shows a table of estimated numbers of total longfin and shortfin elvers captured at dams across New Zealand. The estimates are based on reliable catch data. The table shows that the Roxburgh elver catch efforts are orders of magnitude lesser than other dams in New Zealand. Given that the Mata-Au is the largest catchment in New Zealand,[2] mana whenua are immensely concerned about the future of eel fisheries in the Mata-Au catchment and upper lakes.

29. Given this ongoing impact on the life cycle of eels within the Mata-Au catchment, mana whenua place great weight on looking after the remaining populations of eels and elvers that persist within the catchment or are successfully translocated above the dams. This includes the safe passage of eels and elvers. To give effect to these concerns, mana whenua seeks a precautionary approach when there is uncertainty about impacts.

30. Elvers may be active at night or during overcast and damp days (Jellyman, D.J. 1977). The currently proposed operating hours are between 7am – 10pm. Depending on the time of year there is potential for long durations of the dredging operation to be carried out in the hours of darkness. Figure 1 below illustrates the potential effects of sound on fishes. Acknowledging that I do not have expertise on the effects of sound on aquatic ecosystems, I am of the opinion that the prepared ecological information has not adequately considered the impacts of the noise generated by dredging activity on elvers or adult eels.

[2] Land Air Water Aotearoa. Link: https://www.lawa.org.nz/explore-data/otago-region/river-quality/clutha-rivermata-au/#:~:text=The%20Clutha%20River%2FMata%2DAu,flow%20volume)%20in%20New%20Zealand.

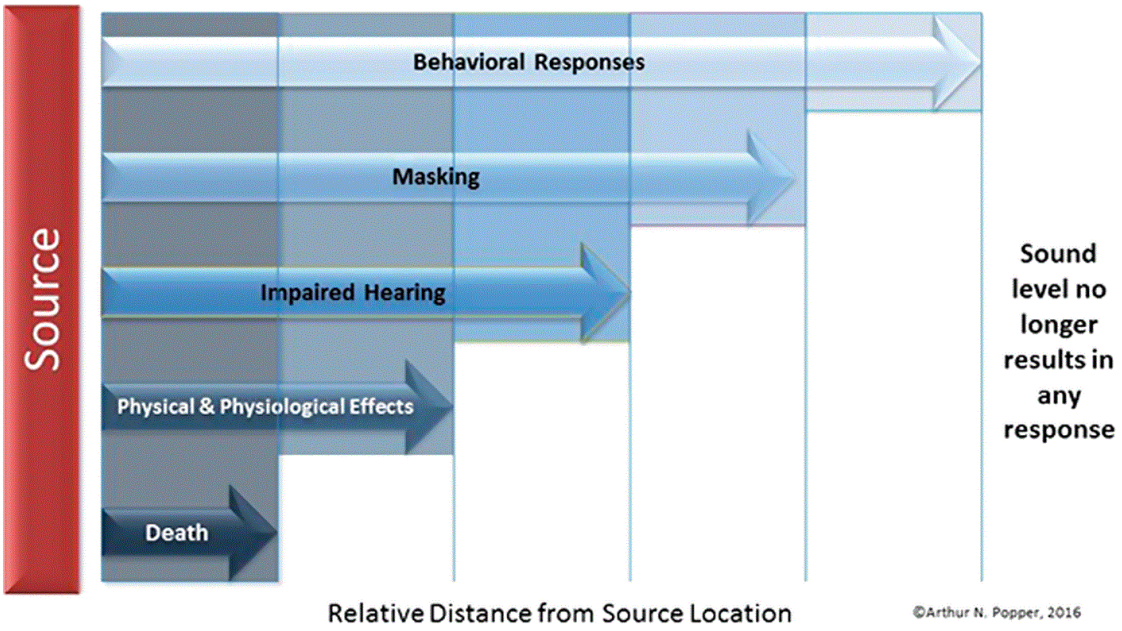

Figure 1. Potential effects of a sound on fishes at different distances from a source. (Hawkins & Popper, 2017)

31. I also retain a concern about the potential impact on the health of the eel population from entrainment. In paragraph 15 of Mr Hamer's evidence, reference is made to a study by Westerberg *et al* 1993. I question the validity of Mr Hamer's summation that this study supports a position that elver passing through a suction dredge pipe would be unharmed. At no point in the paper are any comments made about the physical condition of elvers after being captured by this method.

EFFECTS ON MACROINVERTEBRATES

32. When considering a Te Ao Māori approach to environmental management, we recognise the interconnections between different elements of an ecosystem, the weather, the wetlands, the tributaries, the terrestrial biota and the instream biota. The ecological discipline takes a similar approach to how we manage different environments. In paragraph 17 I discussed some of the physical qualities that are observable for mauri, including energy sources.

33. Macroinvertebrates are an essential part of the aquatic food chain providing nutrition to high orders of biota living within rivers. The Freshwater Assessment prepared for the application states that "Macroinvertebrate communities will be lost from where stream bed disturbance occurs" (Jager & Doheny, 2022). The resulting assessment from report authors considers that ecological effects will be low because nearby macroinvertebrate communities will readily re-colonise the disturbed area. From a cultural perspective the artificial removal of macroinvertebrate species from the streambed does not put the health and

wellbeing of the Mata-Au first. The loss of macroinvertebrates communities from the base of the Mata-Au food web reduces the energy sources available to the rest of the ecosystem. This does not support the mauri of the Mata-Au and will not in any way support Kāi Tahu aspirations for a recovering Mata-Au or eel fishery.

34. In addition, observational data from international research outlines that fish species, including salmonids, have been observed accumulating behind suction dredges as they exploit entrained macroinvertebrates in the water column (Stern 1988; Thomas 1985; Harvey 1986). Mr Sycamore in our video conferencing meeting dated 24th of October stated that he has personally observed fish species accumulating downstream of suction dredge operations.

35. A natural process that drives benthic invertebrate stock is changes in river flow or the advent of flooding. This results in resetting benthic stock to a lower biomass (Hayes, et al 2023). By entraining benthic macroinvertebrates into the water column through the process of suction dredge mining, the applicant is in a way artificially inducing an ecosystem process of macroinvertebrate resuspension. When considering this impact across the proposed area and operating hours of the activity, it is my opinion that the cumulative effect of this impact on the Mata-Au is cause for concern.

36. The human induced process of entraining macroinvertebrates into the water column to become food for salmonids which are known to accumulate downstream of dredges disrupts natural ecosystem processes and does not put the health of freshwater ecosystems first.

CONCLUSION

37. Kā Rūnaka have a long and enduring relationship with the Mata-Au. The importance of this river is recognised by its status as a wāhi tūpuna and ara tawhito, having been a key travel route for Kāi Tahu between the coastal and inland regions of Otago. Kāi Tahu and the wider community value the purity and cleanliness of water that originates in the upper Mata-Au catchment. Recognising the history of human pressures that have degraded the natural state and mauri of the Mata-Au, we aspire to allow the recovery of this river from continued activities that do not support its health and wellbeing.

38. My ability to continue the aspiration of my elders and for the future generations of my tribe, to see a replenished eel fishery in the Mata-Au catchment and upper Lakes is put at risk by the unquantified risks of noise impact to eel movement.

39. The suction dredge activity removing or redistributing macroinvertebrates in the Mata-Au river does not uphold or support the ecosystem health or mauri of the river.

REFERENCES

Arai Te Uru Eel Management Committee (1999). *Arai Te Uru: Eel Management Plan*. Published jointly by Te Waka a Maui me ona Toka Mahi Tuna and the Ministry of Fisheries.

Crow, S.K, Lambert, P.W.; Egan, E.M.; Bowman, E. (2023). Recruitment of freshwater eels, 1995– 2022. New Zealand Fisheries Assessment Report 2023/52. 94 p. https://www.mpi.govt.nz/dmsdocument/59422-FAR-202352-Recruitment-of-freshwater-eels-19952022

Hayes J, Shearer K, Casanovas P (2021). The relationship between invertebrate drift and flow in the Manuherikia River: revised analysis and implications for setting minimum flow and allocation limits. Prepared for Otago Regional Council, Aukaha, and Otago Fish & Game Council . Cawthron Report No. 3574A. 19 p.

Harvey B.C (1986) Effects of Suction Gold Dredging on Fish and Invertebrates in Two California Streams. *North American Journal of Fisheries Management*. 6(3): 401-409

Hawkins, A.D & Popper, A.N (2017) *A sound approach to assessing the impact of underwater noise on marine fishes and invertebrates*, *ICES Journal of Marine Science 71: 635-651* https://doi.org/10.1093/icesjms/fsw205

Jager, M., & Doheny, B. (2022). *Suction Dredge Mining Upper Clutha River, Prepared for Cold Gold Clutha LTD.*e3 scientific.

Jellyman, D.J. (1977). Summer upstream migration of juvenile freshwater eels in New Zealand. *New Zealand Journal of Marine and Freshwater Research 11:* 61-71. http://www.tandfonline.com/doi/pdf/10.1080/00288330.1977.9515661

Stern, G.R (1999). Effects of suction dredge mining on anadromous salmonid habitat in canyon creek, trinity county, California. MSc Thesis; Humboldt State University.

Thomas, V.G (1982). Experimentally determined impacts of small suction dredge on a Montana stream. MSc Thesis; The University of Montana.

Timms-Dean, K, Golding, G and Vial, T. (2023). *Cultural Impact Assessment: Cold Gold Clutha Suction Dredging on the Mata-au*. Prepared by Aukaha for Cold Gold Clutha Limited and Terramark.

Thomas, V.G (1982). Experimentally determined impacts of small suction dredge on a Montana stream. MSc Thesis; The University of Montana.

Westerberg, H., Haamer, J., & Lagefelt, I. (1993). *A new method for sampling elvers in the coastal zone.* Gothenberg, Sweden: National Board of Fisheries. Accessed 02/11/2023 : https://www.ices.dk/sites/pub/CM%20Doccuments/1993/M/1993_M5.pdf

Korako Edwards

03 NOVEMBER 2023

Appendix 1: Estimated annual total number (,000s) of Longfin and Shortfin elvers captured at dams in New Zealand (Crow et al. 2023)

Table 4: **Estimated annual total number (in 1000s) of longfin (LFE) and shortfin (SFE) elvers captured at the primary (*) and secondary sites that have a reliable time series of catch data available. Unreliable annual records for individual sites have been removed (see Appendix A).**

	Wairua*		Karāpiro*		Matahina*		Patea*		Piripaua		Arnold*		Waitaki*		Roxburgh		Mararoa		Total	
Season	LFE	SFE	LFE	SFE	LFE	SFE	LFE	SFE	LFE	SFE	LFE	SFE	LFE	SFE	LFE	SFE	LFE	SFE	LFE	SFE
1995–96			333	822															333	822
1996–97			246	974															246	974
1997–98			510	1 529	136	479													646	2 008
1998–99			341	756															341	756
1999–00			94	798															94	798
2000–01			155	627															155	627
2001–02			246	1 351	27	592	48	707	0.4	3.7									321	2 654
2002–03			176	1 766	124	1 360	8	372	0.2	10.0									308	3 508
2003–04			200	1 931	64	881	1	390	0.2	4.7			4.7						270	3 207
2004–05			132	1 201	15	1 102			0.5	7.7			1.6				64		213	2 311
2005–06			483	1 695	228	965	87	475	0.1	2.6			4.7				46		849	3 138
2006–07			179	1 117	159	326	53	843	0.3	3.8	52	55	3.3				118		565	2 345
2007–08			701	2 027	928	2 450	98	759	1.1	4.7	78	108	4.1				136		1 946	5 348
2008–09			298	1 990	517	3 791	82	399	2.2	7.3	87	96	3.5	1.3			81		1 071	6 285
2009–10			232	1 476	78	924	20	290	2.9	7.3			2.1	0.3			71		406	2 697
2010–11			175	1 260	84	1 758	20	227	2.5	9.3	49	65					198		529	3 319
2011–12	11	3 167	36	967	15	666	9	82	3.1	12.5	26	50					266		365	4 944
2012–13	98	5 389	139	1 632	317	2 104	51	183	5.2	25.1	36	55	7.1	1.8	13.8		128		795	9 390
2013–14	16	2 764	160	1 683	220	1 848	24	170	7.9	60.8	29	36	0.1	0.1	0.8		145	0	603	6 561
2014–15	118	2 893	160	1 445	275	4 460	23	237	4.7	59.5	65	88	4.6	1.3	1.3		136	0	787	9 183
2015–16	79	8 200	517	2 674	771	6 413	180	556	15.6	144.9	69	118	1.3	1.1	1.4		86	3	1 719	18 109
2016–17	0	2 947	221	2 312	6	370	56	230	1.3	27.9	10	22	1.0	1.4			42		337	5 911
2017–18	8	2 438	373	1 856	8	125	103	308	5.7	64.3	98	213	3.2	1.5	8.7		229	20	837	5 026
2018–19	0	3 352	176	905	324	2 394	67	206	1.4	55.6	240	226	2.5	1.8	25.8		150	48	986	7 188
2019–20			159	595	80	1 399	42	186	10.3	100.5	111	133	5.4	4.0	2.4		13	7	423	2 425
2020–21			330	752	114	1 206	72	285	4.0	37.4	97	185	6.8	2.7	17.5		48	16	689	2 484
2021–22			465	1 115	57	1 542	39	243	9.8	44.7	131	192	8.8	2.6	67.9	10.1	103	65	881	3 214
Median	14	3 057	221	1 351	119	1 283	49	288	2.5	12.5	69	96	3.5	1.4	8.7	10.1	111	12	529	3 207
Mean	41	3 894	268	1 380	207	1 689	54	357	3.8	33.1	79	109	3.8	1.7	15.5	10.1	114	20	619	4 268
Std Dev	49	1 960	155	543	245	1 512	42	210	4.1	37.4	56	67	2.4	1.1	21.5	–	67	24	440	3 692
Max	118	8 200	701	2 674	928	6 413	180	843	15.6	144.9	240	226	8.8	4.0	67.9	10.1	266	65	1 946	18 109
Min	0	2 438	36	595	6	125	1	82	0	2.6	10	22	0	0.1	0.8	10.1	13	0	94	627

Appendix 2: Glossary of Māori words and phrases

Atua	Deity / deities
Awa	River
Hapū	Sub-tribe
Haukāika	Mana whenua who live in a locality permanently
Iwi	Tribe
Kai	Food
Kaimoana	Seafood
Kāi Tahu / Kāi Tahu whānui	the collective of the individuals who descend from one or more of the five primary hapū of Hāwea, Rapuwai, Waitaha, Kāti Mamoe and Kāi Tahu. Kāi Tahu hold mana whenua status across large tracts of Te Waipounamu.
Kaitiaki / Kaitiakitaka	The exercise of guardianship over natural and physical resources,as an expression of rakatirataka and mana; a person undertaking roles as an expression of kaitiakitaka.
Mahi	Work, tasks
Mahika kai	A term that literally mean “food workings” and refers to the customary gathering of food and natural materials, and the places where those resources are 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).
Mana whenua / mana moana	Customary authority or rakatirataka exercised by an iwi or hapū in an identified area, iwi that hold this customary authority in a specific location.
Mātauraka	Kāi Tahu customary knowledge passed down from one generation to the next, used in the present, and developing, for the future. It involves observing, experiencing, participating, studying, and understanding the world from an indigenous cultural perspective. It is a tool for thinking, organising information, considering the ethics of knowledge, and

	informing us about our world and our place in it. Incorporation of mātauraka in resource management decision-making is important to ensure that cultural interests are appropriately recognised and provided for.
Mauri	Essential life force or principle, a metaphysical quality inherent in all things both animate and inanimate.
Mihimihi	Formal introduction
Moana	Ocean
Pākeha	New Zealanders of European descent
Papatūānuku	Kāi Tahu deity represented by the earth
Pātaka	Place where food is stored
Rakatirataka	The exercise of mana or authority to give effect to mana whenua culture and traditions across all spheres of their takiwā, including the management of te taiao.
Rakinui	Kāi Tahu deity represented by the sky
Taiao	Natural environment / nature
Takiwā	Area, region, district
Takaroa	Kāi Tahu deity represented by the ocean
Takata Tiaki	Customary fisheries officers
Te Waipounamu	The south island of New Zealand
Tikaka	The beliefs, values, practices, protocols, and procedures that guide appropriate codes of conduct.
Waka	Seafaring vessel(s), boat(s)
Wānanga / wānaka	To discuss, a workshop or meeting for discussions
Whakapapa	Genealogy
Whānau	Family / families
Whenua	Land