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REVIEW ARTICLE



# Tai Timu, Tai Pari, the ebb and flow of the tides: working with the Waimatā from the Mountains to the Sea

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## ABSTRACT

This paper emerges from a Marsden project, *Let the River Speak*, focused on the Waimatā River in Gisborne, bringing insights from mātauranga and wānanga together with a wide range of disciplines to produce innovative and engaged understandings of ki uta ki tai-the life of rivers from the mountains to the sea. In Te Ao Māori, waterways are relational knots/nodes/strands in a meshwork of whakapapa that arises from exchanges between earth and sky, land and sea. This approach acknowledges the relations between the atmosphere, surface water and groundwater, vegetation cover, land use, water quality and quantity, the sea, plants, animals, micro-organisms and people; and rivers as beings in their own right, with their own rights. *Let the River Speak* is codeveloped with the river by a team including iwi researchers, scholars from earth system science, geomorphology, microbiology and infectious diseases, forest ecology, anthropology, creative practice, and business studies. It is holistic, working across different knowledge systems to understand the full complexity of waterways in relationship with people and other life forms over time. At the same time, it is hopeful, providing a relational framework for actions to restore river and estuarine communities to a state of ora (health, well-being, flourishing).

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This paper emerges from a Marsden project focused on the Waimatā River in Tūranganui-a-Kiwa (Gisborne). Waterways in Tairāwhiti (the East Coast) have been much studied by international scholars, but with little attention to river stories or their coastal interface. Such research may miss the chance to engage with and generate locally-owned, all-encompassing programmes of river regeneration. This project, *Let the River Speak*, has been co-developed by a team including the Waimatā River itself, iwi researchers and wānanga (ancestral knowledge) experts, scholars and students from an array of disciplines, including anthropology, history, earth system science, geomorphology, microbiology and infectious diseases, forest ecology, creative practice, and business studies. We seek to understand the full complexity of the river and its estuary as

a living community, including land, sea, people, and other life forms, through time and across different knowledge systems.

In its history, and in its current state, the Waimatā River and its estuary exemplify many of the challenges faced by waterways across Aotearoa New Zealand (hereafter Aotearoa) and around the world. From the late nineteenth century, Western ideas of ‘landscape’ became dominant in Tairāwhiti. From a world in which land, sea and waterways, people and other life forms were woven together in whakapapa (kin networks), the world was partitioned and fragmented. The land was divided from the sea and into blocks, with boundaries demarcated by fences or hedges and protected by private rights and laws of trespass; the sea from rivers and streams; and people from the land, sea, and rivers, from other living beings, and from each other as property-owning, rights-bearing individuals. In a world where people were thought to be in charge of ‘nature,’ which was created for human purposes, Papatūānuku, the earth, and Tangaroa, sea and river ancestor, were rendered inanimate, without life or rights of their own.

In analytic logic, where the aim is to make clear-cut distinctions between one category and another, interstitial spaces such as estuaries, where land, river, sea, people, and other life forms meet and intermingle, transcending boundaries, are problematic. In Mātauranga Māori, on the other hand, they are sites of emergence and potential. In te reo, a term for an estuary is wahapū—literally the speaking mouth (waha) of the awa (river), a term that also applies to an eloquent speaker on the marae. Wahapū is a place of utterance and co-mingling, rich in knowledge and stories. Wahapū or estuaries fall somewhere between river and ocean, land and sea, people and other life forms including sea birds, fish, eels, shellfish, forests, land birds, and animals. They flow between tāngata whenua and settlers, and the biophysical and social sciences—their stories often unheard, their eloquent voices silenced.

In ‘Let the River Speak’ and this paper, we are inspired by a different view of the world, eloquently expressed by Dame Mira Szászy:

*Kahore te ture i hanga pērā me te kūpenga hī ika, hei here, hei pupuri, engari, pērā i te tai nekeneke, hei arahi*

[Māori law [tikanga] is not crafted like a fishing net, to trap and confine us; rather, it is a tide that keeps on moving, to guide us].

Likewise, the wahapū of the Waimatā River, beside the bustling Port of Gisborne, is animated by tides that surge in and out, not confined by divisions between land and ocean, nor by disciplinary boundaries. Its life can only be understood by listening to the river itself, to its deep and more recent histories from mountains to the sea, and its stories of people, plants, and animals, as people come and go, tides ebb and flow, fish swim up and down the river, and the land washes into the sea.

Here, we offer a brief biophysical overview and summary of ancestral beginnings to reflect upon changing socio-cultural relations to the estuary in conversation with local knowledges-in-place and locally-owned actions. These are some of the ways we are listening to the wahapū of Waimatā.

## Biophysical significance of estuaries

In biophysical and socio-cultural terms, estuaries are meeting places. As the interface between marine and terrestrial systems, their morphodynamics are shaped by flow, sediment and nutrient fluxes (waves, tides, river flows, currents), and the movements and actions of living beings, including fish, microbes, and people. Changes in this interplay influence the forms, rates, and range of such interactions over daily and seasonal cycles and rhythms. The balance of prevailing forces determines patterns and rates of deposition, including the seaward growth of a beach (progradation) and the increase in land elevation (aggradation) due to sediment build up, as well as erosion and shifts in water composition. These dynamic processes influence the conditions for the biota therein and the multiple ways people use and connect with estuaries. In turn, boundary conditions set by process interactions in the past influence the functionality of this evolving bio-physical template, as antecedent conditions influence contemporary morphodynamics, the nature and health of the river community, and future trajectories of these living systems. While sometimes connections to the past are erased, each estuary retains a partial and selective history of what's gone before (Brierley, 2010).

In bio-socio-cultural terms, estuaries are focal points of interaction—sites of arrival and departure at the coastal interface. As biodiversity 'hotspots,' these productive zones provide a diverse range of kai (food-stuffs) while generating flat lands with productive soils and distinctive kinds of vegetation. They are critical places of historical connection, sometimes with conflict over contested uses. In turn, responses to profound human impacts and shifting bio-dynamics shape future prospects. As meeting points and focal points of trade, these zones are subject to external influences, modifying relations and outcomes at any given locality.

Although general properties can be identified, each estuary is different, with its own emergent traits. In biophysical terms, geologic and climatic forces generate the dramatic, fast-changing landscapes of the 'Shaky Isles' through profound disturbance events such as earthquakes, uplift, volcanic eruptions, tsunamis, and cyclones. In global terms, erosion and sedimentation rates are exceptionally high across much of the country (and particularly in Tairāwhiti), with the separation from Gondwana (~80 million years ago) also contributing to a unique ecology (Gibbs 2006). While this was one of the last significant landmasses on the planet to be found and settled by people, perhaps eight hundred years ago, human activities have profoundly altered the landscapes and ecosystems of Aotearoa. Many estuaries have been significantly reshaped by forest clearance and earthworks, and relatively little native forest remains, especially in lowland (estuarine) environments (see Park 1995).

Socio-cultural relations have also been shaped by interactions at the coastal margins. Māori arrival by sea shaped first perceptions of the land: From the Sea to the Mountains. Whakapapa (kin networks) trace the emergence of the cosmos from a first surge of energy to the sun, moon, and stars, land, sea, and waterways, before the late arrival of voyagers from the Pacific and, later still, from Europe and elsewhere. Framed by whakapapa, rivers and estuaries are understood as more ancient and powerful than people, as a well-known whakataukī explains: Whatungaongaro te tangata, toitū te whenua—People come and go, while the land remains. Kin-based ideas of oceans, rivers, landscapes, people, and other life forms as indivisible from each other fashion distinctive

relationships to place, explicitly emphasising humans as part of living (emergent) systems. Associated connections to place were subsequently ruptured by fragmented, discipline-bound framings and the ‘top-down’ externalities of colonial relations (see Parsons et al. 2021; Stewart-Harawira 2020; Te Aho 2019). Profound transformations to estuaries and coastal margins accompanied the quest for ‘growth’ and ‘development,’ pushing aside local relations and ancestral connections.

Historically significant encounters and interactions have influenced the recent evolution of the Waimatā estuary at Gisborne. When defined as a ‘port’ serving trade and the forestry industry, the estuary is very differently understood relative to the lived experiences, ancestral landscapes, and connections of local iwi. Although Tairāwhiti is globally renowned as a research area to examine anthropogenic impacts on ‘Source to Sink’ relationships (e.g. Hicks et al. 2000; Kuehl et al. 2016; Page et al. 2000), analyses of the long-run socio-biophysical dynamics of estuaries in the region are under-done. For example, apart from Coombes (2000), there has been little systematic investigation of historical maps and associated morphodynamic changes to Tairāwhiti estuaries (and their links to changing social relations). This dearth of research confirms growing nationwide recognition that estuaries have been scientifically marginalised, falling through the cracks of discipline-bound investigations and associated institutional framings. Detailed, appropriately contextualised case studies are required, reflecting upon how selected systems are ‘laden with differing meanings’ and shaped by shifting interactions over time between land, river, sea and climate, and plants, animals and people. This is much more than a technical task (see Braun, 2021) and requires much more than generalised understandings of flow/sediment/nutrient fluxes tweaked (or averaged out) from highly abstracted and radically incomplete models.

## Geohistory

Estuaries form where waterways intersect the land-sea boundary. Their location in space changes through time as sedimentation patterns and rates respond to the interplay between movements in the earth’s crust and the amount of water in the oceans, affecting land and sea levels, and, latterly, human activities. Estuaries are sites of activity and meeting—desirable and dynamic—and of conflict, with clashing intentions and dichotomies and artificial stasis. Conceptualising estuaries as living systems entails a reappraisal of their character and behaviour, relating to their evolutionary trajectory and associated responses to changing boundary conditions. Context is everything: each estuary is unique in its own right, as geologic, climatic, and anthropogenic controls upon system morphodynamics shape the changing balance of flow and sediment. Just as the anthropogenic imprint creates distinctive legacy effects that shape contemporary realities and prospective futures, prehistoric geologic and climate conditions shape the boundary conditions under which each system operates.

At the Last Glacial Maximum, around 15,000 years ago, the sea level was approximately 130m lower than it is today. At that time, the Tūranganui River, where the Waimatā and the Taruheru rivers join to flow into the ocean—currently just 1.2 km long and considered to be the shortest awa in Aotearoa—was an entrenched river system extending many kilometres beyond the position of the contemporary shoreline position (cf., Walsh et al. 2007).

Once sea-levels reached their current level (~5,000 years ago), interactions with the much larger Waipaoa sedimentary system shaped the geomorphic evolution of the Waimatā estuary, with the progradation of the Waipaoa River delta front and rapid extension of the Poverty Bay Flats shaping the position and morphodynamics of the river mouth. Adjustments over recent millennia saw the realignment of the Taruheru River as it hugs terraces at the former coastal margin. Further downstream, interactions with coastal dunes influenced the evolutionary history of the Waikanae Stream. Collectively, these various factors fashioned the biophysical template of the Waimatā estuary at the time of Māori arrival.

## Waterways in Te Ao Māori

In Te Ao Māori, waterways are relational knots/nodes/strands in a meshwork of whakapapa that arises from exchanges between earth and sky, land and sea, people, and other life forms. This approach acknowledges the relations between the atmosphere, surface water and groundwater, vegetation cover, land use, water quality and quantity, the sea, plants, animals, micro-organisms, and people; and bodies of water as beings in their own right, with their own lives and rights.

In this way of understanding, rivers and oceans have mauri or life force, and estuaries are sites of abundance, mixing, and contrast, where freshwater (wai māori) meets saltwater (wai tai), and land meets the sea. In the takutai or coastal zone, where the ancient contest between Tāne-mahuta (forest ancestor) and Tangaroa (sea and river ancestor) plays out, the tides ebb and flow—tai timu, tai pari—as river and ocean intermingle; and tuna (eels), inanga (whitebait), kanae (grey mullet), kahawai and other fish run with the tides, swimming up the river and out to sea.

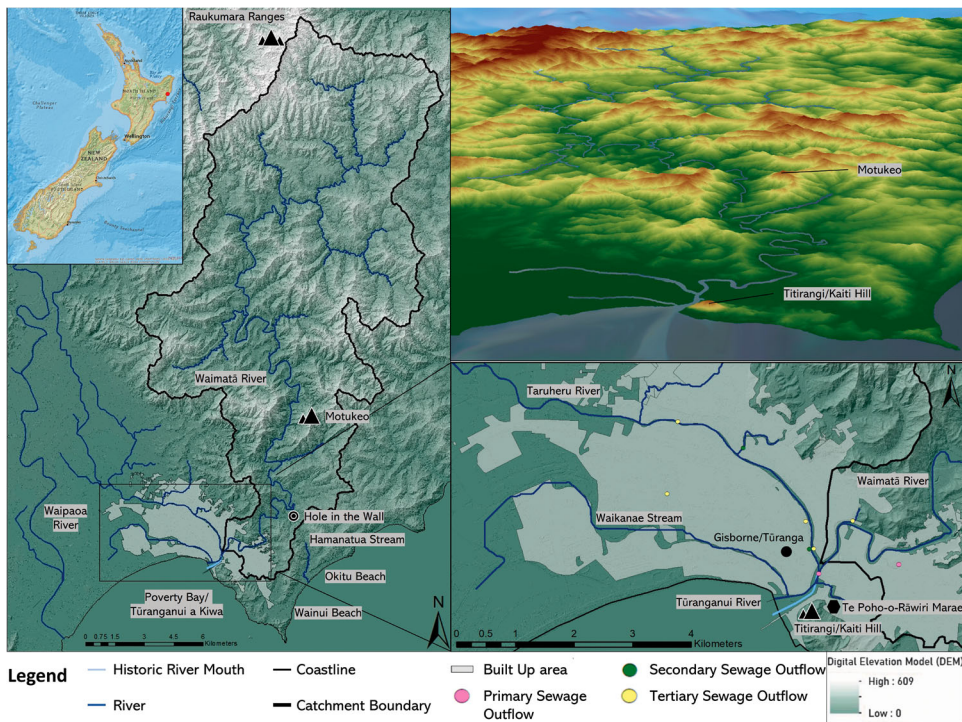
In tikanga, such interstitial zones, where different kinds of beings engage, are creative and dynamic. The depth of ancestral thinking about rivers, the ocean, and estuaries, and the entanglement of these different life forces is evident in a letter by Wiremu Tamihana, a Christian Rangatira who helped to establish the Māori King movement, at the outbreak of the Land Wars in the 1860s. After accusing Governor Gore-Brown of being ‘double hearted,’ favouring Pākehā (associated with saltwater, wai tai) over Māori (associated with freshwater, wai māori), he added:

This is my thought with regard to the inland rivers that flow into their deep channels from their sources with their mouths open, until they reach the point where they terminate. I thought that the currents of every river flowed together into the mouth of Te Parata [a great taniwha in the ocean, whose breathing caused the tides], where no distinction is made.

It is not said there that ‘you are salt water and that is fresh water,’ nor that you should prefer only salt water, since they all intermingle. Just as the currents from the different islands flow into the mouth of Te Parata, so the kingdoms of the different nations rest on God as the waters rest in the mouth of Te Parata. (Tamihana 1865)

Here, Tamihana argues that each river (with its kin groups, whose life force flows with its currents) runs into the ocean where they converge in Te Parata, a vast whirlpool at the heart of Te Moana-nui-a-Kiwa (the Pacific Ocean). Te Parata is also the throat of Tangaroa, the ancestor of fish, sea, and rivers, whose breathing causes the ebb and flow of the tides. Since all the rivers and the ocean, and all kin groups and the settlers intermingle in





**Figure 1.** The Wāhāpū at Tūranga Port (Land Information New Zealand, 2021a; LINZ, 2021b; National Geographic et al., 2021). Contains data sourced from the LINZ Data Service licensed for reuse under CC BY 4.0. Compilation courtesy Elliot Stevens.

the depths of the great ocean, they are equal and should be treated as such by the Governor, in keeping with Te Tiriti o Waitangi.

Tamihana's argument about rivers and the ocean, and the estuaries and other places where they meet, has particular resonance with the Waimatā River and its wāhāpū by virtue of its histories. Once, the Waimatā flowed from its headwaters northeast of Tūranga through a steep, forested hinterland. Inland, the river ran through deeply incised valleys covered with bush where people gathered birds, berries, and other bush foods, and small alluvial flats where gardens were established. This hinterland often served as a refuge for kin groups who were escaping conflict on the coast or had been defeated in battle. Winding down towards Tūranga, tightly constrained by its terraces, the Waimatā joins the Taruheru river, which flows from the west across the coastal plains. The short stretch from this meeting place to the wāhāpū, where saltwater and freshwater intermingle, once known as Ngā Waiweherua (the waters split in two), is now known as the Tūranganui river (see Figure 1).

The wāhāpū where the Waimatā and the Taruheru run together into the ocean is one of the world's great voyaging sites, rich in stories. There the crew of the *Horouta* canoe, which had sailed from Hawaiki, came ashore and settled, followed by the sacred canoe *Tākitimu*, marking the long-range voyaging of the Polynesian star navigators. According to Te Kani te Ua, although the *Horouta* voyaging canoe left Hawaiki before *Tākitimu*, it arrived first in Aotearoa, while the *Tākitimu* was visiting other islands (Te Ua 1932,

p. 41). In Rongowhakaata Halbert's account, when the *Horouta* arrived at the Ohiwa estuary in the Bay of Plenty, it hit a submerged rock and capsized. The crew split up, and a skeleton crew led by Kiwa sailed the damaged canoe south. The rest of the crew travelled overland to the rendezvous at Tūranga—women and children, warriors led by their captain Paoa, and a tapu group who carried the ceremonial adzes and the calabashes that held their ancestral atua.

When Kiwa landed at Tūranga, he decided to settle on the west bank of Ngā Waiweherua, near where the Gladstone Road and railway bridges now stand, which he named 'Tūranga-nui-a-Kiwa,' the great standing place of Kiwa. When Paoa arrived some time later, he named the white-cliffed headland to the south of the bay 'Te Kurī a Paoa,' the dog of Paoa, and he and his people settled around the Muriwai stream (Halbert 1999, p. 26–29).

Later, according to Te Kani te Ua, the *Tākitimu* canoe made its landfall, a sacred canoe crewed by high-born men and women led by Ruawharo and its high priest Matuatonga (Te Ua 1932, p. 39–41). When the *Tākitimu* sailed south to Mahia, Matuatonga and his wife Hamo-te-rangi stayed on and settled at Tūranga, where they built a house called Matatuahu, about where Pitt Street meets Read's Quay. Heipipi was Hamo's spring of drinking water, almost under the west side of the William Pettie Bridge, while the area now known as Anzac Park was named after Matuatonga. They were followed by people from the Mataatua canoe, whose irascible rangatira Maia, another tohunga, settled at Puhikaiti on the east side of the river, near where the Cook Memorial now stands. Maia married Matuatonga's daughter; his latrine was called Parahamuti, and his drinking water came from a stream named Murimuri-mai-Hawaiki. According to Rongowhakaata Halbert,

While he was living at Puhikaiti, Maia frequently crossed the Turanganui River to visit his father-in-law Matuatonga, and one day he called out to a young girl to paddle over in her canoe so he could cross the river. She did this, but Maia drowned her, quickly paddled over, pretended he had swum across, and berated the people for not sending him a canoe.

The girl was called Taiao, and she was turned into a rock (Toka-a-Taiao) in the middle of the river, opposite the mouth of the Waikanae Stream. (Halbert 1999, p. 30)

According to Ngāti Porou, on the other hand, this sacred rock, which held the mauri for the fisheries in the bay, was known as Te Toka-a-Taiau, after Taiau, a great-grandson of their ancestor Porourangi. It is often cited as a boundary marker between Ngāti Porou and the hapū (kin groups) on the west side of the river.

During the period of Māori occupation, the fertile flats around the mouth of the river were settled and cleared for houses and gardens. However, scattered stands of bush remained on the plains for birds, berries, and building timber, and the hinterland was largely left in forest. Gardens were established on the flood plains and foothills, with kūmara grown on sunlit, sandy mounds, and taro in damp hollows. Eel weirs were built along the Waikanae Stream, and thousands of ducks lived in the Awapuni Lagoon. Another major river, the Waipaoa, ran into the southern curve of the bay. The bay teemed with fish, and to the north and south, its rocky shores were encrusted with shellfish and koura (crayfish), while the sandy beaches were rich in pipi (Salmond 1991, p. 119; Coombes 2000, p. 213–223).



In ancestral times, the Waimatā was a highway, linking Tūranga with Ūawa and Whāngarā on the east coast (Philipps and Salmond 2019). Strategic marriages joined kin groups in the interior with those on the coastline, both at Tūranga and further north on the East Coast and from the west side of the river to the east, but there are also many stories of conflict. Hapū linked with Ngāti Porou, including Te Aitanga-a-Hauti and Ngāti Konohi in the upper reaches of the river and Ngāti Oneone in its lower reaches, dominated the east side of the river, while hapū linked with Te Aitanga-a-Māhaki and Rongowhakaata dominated the west. The Waimatā River itself was an interstitial space, at once a boundary and a place of kinship and exchange.

By the time of first European arrival, the bay was intensively inhabited, with a palisaded village, Heipipi, where Gisborne city now stands, and pā including Orakaipū near the junction of the Waipaoa and the Te Arai; Ruruhangehange on Tuamotu Island; Waiteata opposite Anzac Park on the Waimata River (Spedding 2006, p. 96); and Rarohou, 3.2km upriver (Spedding 2006, p. 96; Philipps and Salmond 2019, p.105). Below the high hill Titirangi, which stands above the east side of the estuary, the Kopuwhakapata stream flows into the river, an area occupied by Ngāti Oneone; while the Waikanae stream, famed for its eel weirs and shoals of mullet (kanae), runs into the west side of the river, an area occupied by Te Whānau-a-Iwi, a kin group linked with both Rongowhakaata and Te Aitanga-a-Māhaki. Between the Waikanae stream and Oneroa, a long, curving beach that runs south to Te Kuri a Paoa ('Paoa's dog), a long white-cliffed peninsula, an area known as Te Wai-o-Hīrarore was set aside as a safe haven where kin groups from the interior could come and fish (Philipps and Salmond 2019, p. 15, p. 16, p. 119–124). There, a freshwater spring ran underground into the sea, attracting shoals of kahawai, according to ancestral stories (Philipps and Salmond 2019, p. 14; see Figure 1).

When the *Endeavour* commanded by Lieutenant James Cook made landfall at Tūranga-nui-a-Kiwa and the first Europeans landed at the river mouth in October 1769, many of their encounters with local Māori were violent. During their first landing when Te Maro, a Ngāti Oneone rangatira, and his companions challenged Cook's men on the north side of the Tūranganui river mouth, he was shot dead. The next day, a group of armed warriors from Orakaipū Pā vigorously reproached the Europeans for the shooting, performing an enraged haka on the south side of the river. This time Tupaia, a high priest navigator from Ra'iatea who had sailed on the *Endeavour*, had come ashore, and he called out and persuaded an unarmed warrior to swim across the river. After standing on Te Toka-a-Taiao/u, this man greeted Cook, who had also put down his weapon, with a hongi. In the exchanges that followed, another warrior, Te Rākau, was shot dead, and three other warriors were wounded; and the next day during an attempted kidnapping out at sea, two unarmed fishermen were shot dead and two others were wounded (Salmond 1991, p. 119–138).

Despite this unpropitious beginning, when the first European whalers and flax traders arrived in Tūranga, they lived among Māori families, often intermarrying with them. The local people began to cultivate wheat, maize, and potatoes, raised pigs and became successful exporters (Mackay 1949, p. 125–126). After the New Zealand Wars and the confiscation of local land in the 1860s, a town sprang up around the estuary. As the remaining land was surveyed into blocks and went through the Native Land Court, much of the Waimatā catchment was first leased and then sold to European farmers, who from the

1880s onwards bought large blocks, first in the lower reaches of the Waimatā, and progressively upriver (Gundry 2019, p. 1–2). In the 1880s, despite the vehement protests of tāngata whenua, Te Toka-a-Taiao/u and other rocky formations near the mouth of the river were blown up by the Harbour Board (Spedding 2006, p. 16).

Upriver on the Waimatā, tree-felling inland was followed by large-scale burn-offs; for instance, as reported in the *Poverty Bay Herald* in December 1895, ‘Some four thousand acres of bush country were cleared by fire in the Waimata district yesterday, a good burn being obtained’ (Poverty Bay Herald 18 December 1895). The plumes of smoke rose so high that people on ships out at sea thought that a volcano had erupted, and during the day, the lights had to be turned on in the offices in town (Kenway 1928, p. 47). As the land was burned off, and cleared, it was planted with grass as pasture, and sheep farming began in the hilly hinterlands.

At times of heavy rainfall, the exposed mudstone hillsides slid and slipped, blocking the river. When these earth dams burst, they released surging waves downstream, eroding river banks, washing out fences and roads, flooding houses, and choking the estuary with sediment (Coombes 2000, 2.39–53). Major floods in 1876, 1880, 1892, 1894, and 1902 caused significant damage. In 1892, engineer Napier Bell estimated that in 24 h, 2.72 million cubic metres of silt flowed down the Waimatā river. So much sediment and so many logs were swept into the harbour and onto the beaches that he advised the Harbour Board that the Ngā Waiweherua river should be separated from the port (Gundry 2019, p. 10–22). In 1916 engineer William Ferguson described the erosion in the Waimatā catchment:

The surface of the country consists of little valley flats and the long and tortuous course of the river is due to the natural spurs of the hilly country. There is no hard rock visible and there is a remarkable absence of any extent of shingle or gravel in the river bed. The whole country is formed of what is known as ‘papa’ and unfortunately the papa is of an extremely soft and easily degraded variety. It is readily cut and moved by water and is composed of very fine particles.

The natural bush which covered a large portion of the land has been removed and the stumps of the trees have rotted away, leaving crevices into which the surface water easily penetrates. The soil being very fine and adhesive holds the water for a certain time and then breaks away on the hill sides, forming slips or slumps.

It is generally accepted that the grass lands do not absorb rain and transform into vegetable growth [like native forest]. The trees and undergrowth (as well as the scrub where there was no bush) offered considerable obstruction to the flow off the country side of the rain that had fallen on it, so that the water that did flow off did so over a longer period and in a gentler manner with a much less erosive action than at present.

The water being retained in the forest vegetation, there was a considerably larger portion evaporated than is the case at present. There is therefore not only a greater quantity of water to be moved off a given area than there used to be but it moves off much more quickly and has a corresponding increased cutting and transporting action. (Ferguson 1916, p. 4–5)

Given the flume-like nature of the Waimatā River system, with its confined mid- and lower course channels carved in Quaternary terraces (Marden et al. 2008), the tight connectivity of the river network from its headwaters to the ocean illustrates a

'Mountains to the Sea' dynamic (Fuller and Death 2018; Harvey et al. 2021). As William Ferguson noted, in high rainfall events, flow, sediment, logging debris, and human waste are rapidly conveyed through the system from the headwaters to the ocean, sometimes temporarily accumulating and being reworked at the river mouth. Land clearance accelerates these impacts, exposing the soft, steep papa slopes, which are readily cut through by water and logs. Large areas of earthflows and localised mud volcanoes recurrently contribute fine-grained materials to the sediment cascade.

In the early twentieth century, to deal with these effects, some suggested that the lower reaches of the Waimatā should be diverted into a canal via the Wainui stream to the coast at Wainui beach, or via a tunnel from the Hole in the Wall to the Hamanatua stream at Okitu (Ferguson 1916, p. 14). However, these schemes were too costly, and in the 1920s, work began instead on splitting the river from the port. This included shifting Poho-o-Rāwiri marae inland from beside the river, despite Ngāti Oneone's vehement objections; dredging the port, which happens on an ongoing basis; carving an artificial channel, the 'Cut,' encased in concrete, for the river, allowing the Waimatā to carry its sediment, logs, and pollution out to sea while avoiding the port; and reclaiming land for industrial and port buildings and storage, while burying much of the rocky reef, including its ancestral waka (and later boat) channel (see Figure 2). The town's sewage and wastewater were channeled into pipes, with discharge outlets into the river and a major pipe running to a sewerage tank in the port that carried human waste out into the harbour. In the process, the wahapū was completely transformed (Coombes 2000, 6.143-182; 7.192-202; 8.214-242; 257-272; 10.345-356).

Although the 'Cut' was completed in 1931, the Waimatā continued to flood. In 1944 a large flood washed trees downstream, damaging the William Pettie bridge, while in 1948, 1955, 1958, and 1968, large slips dammed the river, bursting and causing downstream damage to houses, roads, and jetties. Despite heavy erosion in the catchment, the 1950 Marginal Lands Act led to more native forest being cleared for pasture, a process that has continued with scrub-cutting and, more recently, aerial spraying of regenerating bush. In the 1960s, poplars and willows were planted along the Waimatā and its tributaries to try and hold the banks, but these trees were not trimmed and often choked the river or were dislodged and swept downstream during flooding (Gundry 2019).

Further severe floods occurred in 1971, 1977, and 1981, followed by Cyclone Bola in 1988 and more flooding in 2009 and 2015. In 2015, forestry slash damaged the Gladstone Road bridge, which carries power, water, and stormwater for Gisborne city. During these floods, millions of tonnes of soil have likely been washed downstream. In an effort to mitigate this erosion, from the 1980s and again in the early to mid-1990s post-Cyclone Bola, pine plantations were planted in the upper and mid reaches of the Waimatā catchment, helping to stabilise the land. Once these plantations began to be harvested twenty-five to thirty years later, however, slash and sediment caused more severe problems for farmers and other landowners downstream, causing the river base to aggrade and leaving piles of slash on the beaches.

While farmers in the catchment live on the land, often for generations, pine plantations are usually owned offshore or by people who live elsewhere, and are only episodically occupied by forestry gangs trimming or harvesting the trees. This alienated



**Figure 2.** Estuary change and Port Development through time. Features (1) Toka-a-Taiao (2) Mata-tuahu (3) The Cut (4) Anzac Park (5) William Pettie Bridge (6) Gladstone Road Bridge (7) Te Maro Memorial (8) Cooks Landing (9) Banks Garden (Eagle Technology et al., 2021; Great Britain Hydrographic Office, 1927; Williams, 1888). Compilation courtesy Elliot Stevens.

form of land use, with little ethic of care, causes major difficulties for those who live around the river (Gundry 2019, p. 29–35). During the floods, too, and even in heavy rain, sewage flows into the stormwater system in the lower reaches of the catchment and is discharged into the river, polluting fish and shellfish and putting at risk the health of swimmers, paddlers, and rowers (Coombes 2000, 10.324-355). Since the Waimatā is the most popular river for recreation in Tairāwhiti, with its lower reaches used by world-class waka ama paddlers, kayakers, and rowers for training, this is another major challenge.

## Regenerative futures for the wahapū at Tūranga-nui-a-Kiw

How can we better listen and respond to the stories of this river system, as they ebb and flow with the tides at its' speaking mouth', the wahapū?

In 2019, 250 years since the reception of Cook and his crew by iwi at the mouth of the river, the British High Commissioner gave an expression of regret for encounters that ended in violent confrontation (UK govt to Gisborne iwi [2019](#)). As mentioned earlier, Te Maro of Ngāti Rākai (later Ngāti Oneone) and Te Aitanga a Hauiti was shot and killed during the first meeting between Cook's crew and Māori here on 8 October 1769. Te Maro was a learned man, trained in the whare wānanga (house of learning) Puhi Kai Iti, an expert reader of nature, kaitiaki of the Waimatā and Turanganui rivers and their surrounding gardens, and a master producer of cultivated foods for his people. Te Maro's death and the events of the next 24 h prompted expedition botanist Joseph Banks to write in his diary (October 9, 1769): 'Thus ended the most disagreeable day my life has yet seen, black be the mark for it and heaven send that such may never return to embitter future reflection' (Hooker [2011](#), p. 185).



**Figure 3.** Puhi Kai Iti / Cook Landing National Historic Reserve. Nick Tupara, artist. Photograph by Brennan Thomas, used with permission from Currie Construction.



On this turning tide of recognition of past violence and ongoing *mamae* (pain), monuments are being reimagined to rebalance the stories to which they give voice. At Puhī Kai Iti a granite obelisk commemorating ‘Cook’s Landing’ erected in 1906 is now encircled with Banks’ own words of regret (Repair job for Banks’ words 2021) and flanked by *hue* (gourds) that recall the agricultural prowess of Te Maro and the calabashes of *atua* brought by Kiwa. The skywards thrust of the obelisk is newly framed by a whale tail—a gravitational subversion that recalls the depths of the sea and the region’s whale-riding ancestors—and immense metal *tukutuku* panels instantiating *mātauranga* (Figure 3; Landscape architect Cathy Challinor (Boffa Miskell) and artist Nick Tupara (Ngāti Oneone), a descendant of Te Maro, were co-creative directors on the project). Nearby, the ‘Banks Garden’ highlights plants collected by Banks and natural historian Daniel Solander in Tūranganui. Since these were collected around the estuary, the herbaria samples and Parkinson’s sketches provide a remarkable snapshot of the estuary biota in 1769 (Salmond and Cameron, 2018). A storyboard panel explains how these helped disprove Linnaeus’ thesis that ‘the number of plants in the whole world ... hardly reaches 10,000,’ a reminder of the incongruities of the knowledge systems that met here.

Looking down from Ruatanuika on the slopes of Titirangi, a new memorial to Te Maro, visible from the city and Waikanae Beach and illuminated at night, further elevates his life and legacy. Te Maro holds a *hue*, its top open to reflect his role in the community. Rongo-ma-Tane, ancestor of cultivation and peace, forms a silhouette behind Te Maro, while the circular form of the installation as a whole refers to lunar and solar calendars so important to seasonal gardening (Telling Stories of Tairāwhiti 2019). Here, at the speaking mouth of the *wahapū*, narratives of dominion and dominance declared in books and immortalised in stone and concrete are now cloaked in *kōrero* and *mātauranga* for all to see and hear.

Alongside these artistic assertions of ongoing ancestral presence and *mana*, recent *iwi*-led initiatives set out to ‘recloak the whenua.’ In the Whaia Titirangi project, Ngāti Oneone is restoring native forest to the slopes of Titirangi, their ancestral hill to the north of the estuary, and planting the banks of the Kopuawhakapata stream that flows along its foothills into the Tūranganui. Te Poho-o-Rāwiri, the *marae* that was shifted from the banks of the Tūranganui River to the north of Titirangi in the 1920s, has been refurbished, and its ancestral links with Motukeo, an ancestral *maunga* upriver and leaping-off place of spirits, reasserted.

Rongowhakaata are restoring the Waikanae Stream, once famed for its eel weirs and prodigal *kai awa*; while the Ruru *whānau* from Te Aitanga-a-Māhaki have devised a ‘Mauri Compass’ to guide the restoration of rivers in the district. The Kiwa group of *iwi* representatives has been established by Gisborne District Council to advise on its work on rivers. However, there are often strong differences of opinion, both among *iwi* and between them and the Council, particularly over ongoing discharges of sewage into local waterways. Various *waka ama* clubs use the Waimatā river as a training ground, keeping alive the living connection between *iwi* members and other Māori and the river. They have also registered vigorous complaints about health issues arising from these discharges.

The Waimatā River is intensively used for recreation, with rowing, paddling, paddle-boarding, swimming, and fishing in addition to *waka ama* racing. As our researchers



soon discovered, it is known as the ‘River of Gold’ because of the international gold medals won by local athletes trained in water sports on its lower reaches (Reeve 2019). As the river flows from its headwaters through forests and farms, lifestyle blocks, and suburbs into the heart of Gisborne City and the port, seen from roads and crossed by bridges, it is a key presence in the life of the community.

In the preliminary stages of our project, the team produced a series of reports, articles and theses on the geomorphological landscapes of the Waimatā, its ecological, Māori, and settler histories, and community relationships with the river (see resources at <https://www.waikereru.org/river/>). This work provided initial understandings of life in and around the river, as land, water, sea, plants, animals, and most recently, people interact with each other in complex, everchanging exchanges over very long time scales. Public meetings initiated by the research team to report back on their work led to the formation of the Waimatā Catchment group, established in 2020 with a project administrator and manager, supported by grants from the government’s Erosion Control Fund and Freshwater Improvement Fund.

The Waimatā Catchment group, which works very closely with the *Let the River Speak* team, focused the early stages of their project on the farms and forests in the upper reaches of the river. Project administrator Lois Easton, an ecologist and former Head of Science at Gisborne District Council (GDC), and project manager, Laura Watson, a farmer from a 5th generation farming family in the catchment and former member of the Freshwater team at GDC, have done an exceptional job of working with the upriver community on farm environment plans, fencing, planting and pest and weed control along the banks of the river. They are recloaking the whenua while establishing relationships with foresters to help address the impacts of production forestry and carbon farming on other members of the river community.

The work is also heading downriver, with a Lower Catchment committee led by Dr. Jill Chrisp initiating a formal partnership with GDC, and a series of well-attended public meetings to gauge community aspirations for the river and ideas for its regeneration. Project groups on Planting, Pollution, Pest and Weed Control, Education, and Mātauranga/citizen science are underway, and GDC is funding a Lower Waimatā restoration plan. All of this work has been inspired by the idea of the Waimatā as an ancestral being with its own life and rights.

## Conclusion

Contemporary Gisborne is a port town – an important administrative and cultural centre. The future of the city is highly dependent upon the state of the wahapū, which in turn reflects process relations ki uta ki tai—from the mountains to the sea. What have we learnt from disrupted relations of the past? How will these knowledges shape more generative prospects into the future? What, and where, is the voice of the river, and its wahapū, in these deliberations and contemplations?

The *Let the River Speak* team draws upon a wide range of scientific and ancestral framings to listen to the voices of the awa—the Waimatā itself, with its fish, tuna (eels) and other river creatures, including microbes; the streams whose currents run into it; the land through which it flows, with its complex geo-dynamics; the riverside forests, with their birds and reptiles; the people who inhabit or have lived alongside the river, from

successive generations of tāngata whenua to later settlers; and those who swim, fish, paddle and row in the river. In this way, we hope to better understand the complex, intricate dynamics of the Waimatā, so its mauri can be returned to a state of ora – life, health, and flourishing.

These complex, interwoven strands in the life of the Waimatā and their stories tangle together at the wahapū—the mouth of the river, teller of tales. In Western thinking about landscapes, where people are placed in control of ‘nature’ and land and sea are radically distinguished, such interstitial spaces are often marginalised. This oversight is also apparent in the policy space of Aotearoa, where the ‘mountains to sea’ dynamics of river systems are poorly understood, and instrumental, ‘command and control’ kinds of land use and engineering interventions have had unforeseen impacts on estuaries. This paper suggests an approach to water systems that could benefit existing regulatory frameworks that seek to improve water quality (e.g. under the National Policy Statement for Freshwater Management). By attending to the complex, long-run exchanges between land and water, plants, animals and people along rivers ‘that flow into their deep channels from their sources with their mouths open,’ and by attending to their stories, we seek ways of living with, rather than ‘managing’ river systems (Tamihana 1865). Indeed, there are growing assertions of more-than-human relations in speaking for land/country/ivers (and assertions of ‘rights’) in Aotearoa New Zealand and elsewhere in the world (e.g. RiverofLife, Australia). Here, the wahapū has a role to play—and much to say.

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