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**Local values and the promotion and restoration of  
wetlands and their ecosystem services in Aotearoa-New  
Zealand: a case study of Tauranga's planning regime**

A thesis  
submitted in partial fulfilment  
of the requirements for the degree  
of  
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## Abstract

Aligning wetlands restoration planning mechanisms with public perceptions and values can help gain support for and assistance with restoration. Using Tauranga as a case study, this thesis is an exploratory study that applies the Millennium Ecosystem Assessment (MEA) framework to examine the extent to which New Zealand's planning regime incorporates local values in the promotion and restoration of wetlands and their ecosystem services.

This thesis used multiple qualitative research methods in a two-pronged process. A narrative literature review and systematic statutory analysis in phase one helped identify values associated with wetland ecosystem services and how New Zealand's, and more specifically Tauranga's, resource management system promotes and enables the restoration of wetlands and their ecosystem services. A case study approach with analysis of primary and secondary data in phase two helped identify what Tauranga local residents value as important wetland ecosystem services and the extent to which the local policy mechanisms reflect these values.

Through thematic analysis of semi-structured interviews and summaries of submissions, this thesis identifies six dimensions that represent values towards wetland ecosystem services and their restoration in Tauranga. Other than one dimension that consists of a single value on education from the cultural services category of the MEA framework, the remaining five dimensions comprise services from within and between the framework categories. These dimensions are wetlands as nutrient- and mineral-rich areas that support biodiversity and provide habitat; that regulate water, act as natural flood plains and sequester carbon to help protect against climate change and natural hazards; that maintain Māori cultural practices; that remove nutrients and contaminants in water; and provide recreational and aesthetic experiences. Therefore, identified dimensions could form the basis of educational programmes and toolkits that promote wetlands restoration.

The systematic policy analysis and cross-comparison with the results of the thematic analysis found that Tauranga's planning regime partially provides for each of the six dimensions. However, the nuances and complexities of the values, including the interconnected nature of wetlands values and services, are not

captured. This means Tauranga's planning regime does not fully incorporate local values in the promotion and restoration of wetlands and their ecosystem services. Bridging the gap between wetlands restoration provisions and wetland ecosystem service values is likely to be supported by enacting the current resource management reforms. Enacting the reforms would help reduce the number of policies and plans, implement regional spatial planning, and develop outcomes-based policy mechanisms that encompass ecological, social, cultural and spiritual values, including those associated with wetlands.

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## Abbreviations

ANZBS	Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020
BOP	Bay of Plenty
BOPRC	Bay of Plenty Regional Council
BOPRCEP	Bay of Plenty Regional Coastal Environment Plan 2019
BOPRNRP	Bay of Plenty Regional Natural Resources Plan 2008
BOPRPS	Bay of Plenty Regional Policy Statement 2014
CMA	Coastal Marine Area
IMP	Iwi Management Plan
MEA	Millennium Ecosystem Assessment
NES-F	National Environmental Standards for Freshwater 2020
NPS-FM	National Policy Statement Freshwater Management 2020
NPS-IB	Proposed National Policy Statement for Indigenous Biodiversity
NZCPS	New Zealand Coastal Policy Statement 2010
Ramsar Convention	Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971
RMA	Resource Management Act 1991
RPS	Regional Policy Statement
TCC	Tauranga City Council
TCP	Tauranga City Operative District Plan 2013
Trust Board	New Zealand Game Bird Habitat Trust Board
WBOPDC	Western Bay of Plenty District Council

## Glossary of Te Reo Māori terms

Ahi kā	Burning fires of occupation, continuous occupation – title to land through occupation by a group, generally over a long period of time
Atua	Ancestor with continuing influence, God, demon, supernatural being, deity, ghost, object of superstitious regard, strange being
Hapū	Kinship group, clan, tribe, subtribe
Harakeke	New Zealand flax, <i>Phormium tenax</i>
Inanga	Whitebait
Iwi	Extended kinship group, tribe, nation, people, nationality, race
Kai	Food, meal
Kaimoana	Seafood, shellfish
Kaumātua	Elderly respected male, one with knowledge and wisdom
Kaupapa Māori	Māori approach, Māori topic, Māori customary practice, Māori institution, Māori agenda, Māori principles, Māori ideology
Kuia	Elderly respected female, one with knowledge and wisdom
Kaitiaki	Trustee, minder, guard, custodian, guardian, caregiver, keeper, steward
Kaitiakitanga	Guardianship, stewardship, trusteeship, trustee
Kōkōwai	Red ochre
Mahi	To work, do, perform, make, accomplish, practice, raise (money)
Mahinga kai	Garden, cultivation, food-gathering place
Mana atua	Sacred spiritual power from the atua
Mana whenua	Territorial rights, power from the land, authority over land or territory, jurisdiction over land or territory
Manaaki	To support, take care of, give hospitality to, protect, look out for
Manaakitanga	Hospitality, kindness, generosity, support – the process of showing respect, generosity and care for others
Manu	Bird
Mātauranga	Knowledge, wisdom, understanding, skill

Mātauranga Māori	Māori knowledge – the body of knowledge originating from Māori ancestors, including the Māori world view and perspectives, Māori creativity and cultural practices
Mauri	Life principle, life force, vital essence, special nature, a material symbol of a life principle, source of emotions – the essential quality and vitality of a being or entity
Mokopuna	Grandchildren, grandchild, descendent
Pākehā	New Zealander of European descent
Papakāinga	Original home, home base, village, communal Māori land
Papatūānuku	Earth, Earth mother and wife of Ranginui
Paru	Dirt, mud, earth
Pou	Post, upright, support, pole, pillar, goalpost, sustenance
Puna	Spring (of water), well, pool
Rahui	To put in place a temporary ritual prohibition, closed season, ban, reserve
Rangatahi	Younger generation, youth
Ranginui	Atua of the sky, sky father and husband of Papatūānuku
Raranga	Weaving
Raupō	Bulrush, <i>Typha orientalis</i>
Rohe	Boundary, district, region, territory, area, border (of land)
Tamariki	Children
Tangata whenua	Local people, hosts, indigenous people
Taonga	Treasure, anything prized
Tapu	Sacred, prohibited, restricted, set apart, forbidden, under atua protection
Taunga ika	Fishing ground
Te Ao Māori	Māori world view
Te Taiao	Natural world, earth, environment, nature, country
Tikanga	Correct procedure, custom, habit, lore, method, manner, rule, way, code, meaning, plan, practice, convention, protocol
Tino rangatiratanga	Self-determination, sovereignty, autonomy, self-government, domination, rule, control, power
Tuna	Eel of various species, including the longfin eel ( <i>Anguilla dieffenbachii</i> ) and shortfin eel ( <i>Anguilla australis</i> )
Utu	Repay, pay, respond, avenge, reply, answer, reciprocity
Wāhi/waahi tapu	Sacred place, sacred site - a place subject to long-term ritual restrictions on access or use

Wai	Water
Whakaora	Save, rescue, resuscitate, revive, restore to health, cure, heal, remedy
Whakapapa	Genealogy, genealogical table, lineage, descent
Whānau	Extended family, family group, a familiar term of address to a number of people
Whanaungatanga	Relationship, kinship, sense of family connection
Whenua	Land, placenta

*Te Reo definitions sourced from:*

Moorfield, John C. 2013. "Te Aka Online Māori Dictionary." Accessed November 9, 2021. <https://maoridictionary.co.nz/>.

# 1. Introduction

## 1.1 Rationale

Wetlands are permanently or intermittently wet areas and include shallow water and land water margins (Ausseil, Dymond, and Weeks 2011). Wetlands support ecosystems of plants and animals and are one of the most productive and valuable ecosystems, delivering 40 percent of global ecosystem services (B.R. Clarkson, Ausseil, and Gerbeaux 2013). Wetlands are vital for human well-being as they provide a range of ecosystem services, including vegetation, animal and mineral products; habitat and breeding grounds; improved water quality, flood abatement and carbon management; and cultural, spiritual, recreational and aesthetic values (Ausseil, Dymond, and Weeks 2011; B.R. Clarkson, Ausseil, and Gerbeaux 2013).

New Zealand classifies wetlands into nine types: bog, fen, swamp, marsh, seepage, shallow water, ephemeral wetland, pakihi/gumland and saltmarsh (Ausseil et al. 2011; Denyer and Robertson 2018). The benefits of wetlands are estimated to be NZD5 billion per year (Ministry for the Environment 2020a). For example, wetlands support a variety of plants, including 47 rush and 72 native sedge species, and freshwater wetlands provide a home for 30 percent of New Zealand's native bird population and eight native fish species (Ausseil, Dymond, and Weeks 2011). Wetlands also have important cultural significance for Māori, providing traditional food and weaving materials (Ministry for the Environment 2020a). New Zealand is a signatory to the Ramsar Convention on Wetlands of International Significance. Seven wetlands are designated as Wetlands of International Importance, comprising an area of around 67,000 hectares (Ramsar n.d.).

Despite their importance, since the start of the twentieth century the Earth has lost 50 percent of its wetlands (B.D. Clarkson and Kirby 2016; Millennium Ecosystem Assessment 2005b). In New Zealand, the situation is more extreme. Where wetlands once covered 10 percent of the landmass, they now cover one percent, meaning an estimated 90 percent loss in the last 150 years (Denyer and Robertson 2018; Department of Conservation 2020a). This loss has resulted in the extinction of 15 bird species. A further 10 bird species have been classified as threatened, as have 52 wetland taxa species. There has also been a decline in native

freshwater fish. Blame for wetlands losses is attributed to human activities such as draining, deforestation, fires and ploughing (Ausseil, Dymond, and Weeks 2011).

An exemplar of the extent of wetlands loss in New Zealand is Tauranga, Bay of Plenty (BOP), with just 470 hectares (10 percent) remaining of the estimated 4,362 hectares in 1870 (Lawton and Conroy 2019). Before human settlement, swamps were the dominant form of wetland, subsequently suffering the most loss. Loss of bogs and marshes also occurred, while gumlands largely remain intact (Statistics New Zealand 2017).

Tauranga Harbour (Te Awanui) is a nationally and internationally significant site for shorebirds and meets the criteria for a Wetland of International Importance (Bay of Plenty Regional Council 2014). Despite this, Tauranga's rapid growth means wetlands continue to be at risk of loss. Between 2006 and 2018, Tauranga's population increased by 35.5 percent from 103,881 to 140,800 (Statistics New Zealand n.d.; Tauranga City Council 2020). Continued growth is expected, with the projected population reaching 213,653 by 2063, requiring approximately 49,300 new dwellings (Tauranga City Council 2020).

To address the issue of wetlands loss in New Zealand, successive governments have introduced requirements to promote and enable the restoration and rehabilitation of wetlands. These include policies at national, regional and local levels. For example, Policy 14 of the New Zealand Coastal Policy Statement 2010 (NZCPS) provides for natural character restoration. Outside the coastal marine area (CMA), the promotion of wetlands restoration is enabled in the recently gazetted National Policy Statement for Freshwater Management 2020 (NPS-FM). At a regional level, the BOP Regional Policy Statement (BOPRPS) includes several policies and methods on wetlands restoration in coastal areas, including identifying opportunities to restore and enhance natural functioning of coastal margins and promoting water quality (Bay of Plenty Regional Council 2014). In addition, the BOP Regional Natural Resources Plan (BOPRNRP) includes a policy "to encourage and promote the creation of new wetland habitats in appropriate locations" (Bay of Plenty Regional Council 2008, WL-4). For coastal wetlands, the BOP Regional Coastal Environment Plan (BOPRCEP) includes policies and rules for restoration or enhancement (Bay of Plenty Regional Council, 2018). At a city level, the Tauranga City Plan (TCP) has limited provisions on wetlands restoration, rehabilitation or enhancement, and none for its promotion (Tauranga City Council 2013).

Effective wetland management relies on positive public perceptions and values (Dobbie and Green 2013). Therefore, understanding what attitudes and motives residents have towards local ecosystems and how they interact with and value them is necessary (Mann et al. 2013; Milon and Scrogin 2006). Furthermore, Caruso (2006) states that public awareness is critical to the success of restoration programmes, as it can garner support and assistance with restoration efforts. Therefore, understanding community values towards wetlands and the ecosystem services they provide, and supporting these values within the planning regime, is required to promote and enable wetlands restoration in New Zealand.

## 1.2 Research gap and aims

Research on wetland ecosystem services, and their restoration, has focused primarily on ecological functions. At an international level, Boerema et al. (2017) found that regulating services accounted for 48 percent of studies, while those focused on cultural services accounted for only 26 percent. Research on values held about wetland ecosystem services is very limited. According to Aronson et al. (2010), only three percent of studies surveyed people to evaluate local perceptions of ecological restoration.

In New Zealand, submissions on the recent *Action for healthy waterways discussion document* (2020) found a call to “encourage wetland restoration/reinstatement, particularly where wetland loss is extreme” (Ministry for the Environment 2020a, 100). However, research on New Zealanders’ values towards wetlands and their restoration is fairly limited, focussed primarily on perceptions held by farmers and a few *iwi* and *hapū* (McLeod et al. 2006; Ratana, Herangi, and Murray 2019).

This thesis aims to fill this gap in knowledge by investigating local values towards wetland ecosystem services and the motivations for their restoration. It also investigates the extent to which provisions for the restoration of wetlands and their ecosystems, and the promotion of restoration in New Zealand’s planning regime incorporates these values. To this end, the thesis is an exploratory study that applies the Millennium Ecosystem Assessment (MEA) framework (Millennium Ecosystem Assessment 2005b), using Tauranga as a case study.

### 1.3 Research questions

The overarching research question guiding this thesis is:

*To what extent does Tauranga's planning regime incorporate local values in the promotion and restoration of wetlands and their ecosystem services?*

Supporting this research question are three secondary research questions:

1. What ecosystem services are associated with wetlands?
2. What do local people value<sup>1</sup> as important wetland ecosystem services?
3. To what extent do current Tauranga policy mechanisms for the restoration of wetland ecosystem services reflect local values?

### 1.4 Thesis structure

This thesis has eight chapters. The literature review on the ecosystem services associated with wetlands is presented in Chapter Two. Chapter Three discusses the methodology used. Supported by a statutory analysis, Chapter Four outlines Tauranga's approach to wetlands resource management, from the international to local scale. Chapter Five reports on the case study findings, including the results of the semi-structured interviews and analysis of the summaries of submissions. Chapter Six reports on the policy mechanisms analysis focused on Tauranga's policies, plans and strategies against the findings from Chapter Five. A discussion is provided in Chapter Seven, and Chapter Eight concludes the thesis.

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<sup>1</sup> According to Aggestam (2014), values are the "building blocks of an individual's internalised beliefs about how they should behave" (682). Values can be both underlying ideals and the relative importance of things (Chan, Satterfield, and Goldstein 2012). For the purposes of this thesis, values are the relative importance that individuals place on wetland ecosystem services.

## 2. Literature review

A narrative literature review was undertaken to help answer research question one (what ecosystem services are associated with wetlands?). A literature review helps identify knowledge about the topic and refine the research design (MacCallum, Babb, and Curtis 2019). A narrative analysis aims to build theory through a narrative synthesis of previously published information and is a typical approach in humanities and social sciences (Juntunen and Lehenkari 2021).

This thesis uses the ecosystem services framework given that the concept of ecosystem services is firmly established in scientific literature, public discourse, and policy documents, especially since the 2005 publication of the MEA reports (Margaryan et al. 2018).

### 2.1 Overview of the ecosystem services concept

Earth's ecosystems are under threat, having changed more extensively over the last 50 years than in any other period of human history (Millennium Ecosystem Assessment 2005a). This change includes loss of biomes, genetic diversity, and species homogenisation and extinction. These losses can impact on the components of human well-being, which include access to basic materials, health, good social relations, security, and freedom of choice and action (Millennium Ecosystem Assessment 2005a). The concept of ecosystem services arose from the recognition that human well-being is tied to the health of the services provided by ecological systems and the natural capital stocks that produce them (Costanza et al. 1997). By establishing links between conservation and human well-being, the assessment of ecosystem services plays "an important role in efforts to show local stakeholders the importance of protecting and restoring natural ecosystems" (Brancalion et al. 2014, 65).

According to de Groot et al. (2010), the ecosystem services concept dates back to at least the 1970s, "but gained momentum in the scientific literature in the 1990s" (261). Ecosystem services are defined as the direct and indirect benefits people obtain from ecosystems (Barbier et al. 2009; Costanza et al. 2014). Ecosystem services assume people are integral parts of ecosystems, so any changes in ecosystem services can affect human well-being (Costanza et al. 2014; Harmsworth, Awatere, and Robb 2016). This connection of ecosystems and

human well-being has led to the attribution of values to ecosystem services (Costanza et al. 1997). The ecosystem services framework helps take account of these values and bridges the gap between ecology and economics (Barbier et al. 2009; Chan, Satterfield, and Goldstein 2012; Harmsworth, Awatere, and Robb 2016; Margaryan et al. 2018). In 1997, the value of Earth’s ecosystems were conservatively estimated to be, on average, USD33 trillion per year (Costanza et al. 1997).

The ecosystems services concept became internationally established when the United Nations published its MEA in 2005 (Costanza et al. 2014). The MEA describes ecosystems as having processes, services and “biological, physical, and chemical components” (Millennium Ecosystem Assessment 2005b, 19). Ecosystem services are broken down into four broad categories that provide benefits to humans. The MEA classifies these as provisioning, regulating, cultural, and supporting services (see Figure 1) (Barbier et al. 2009; Harmsworth, Awatere, and Robb 2016; Millennium Ecosystem Assessment 2005b).

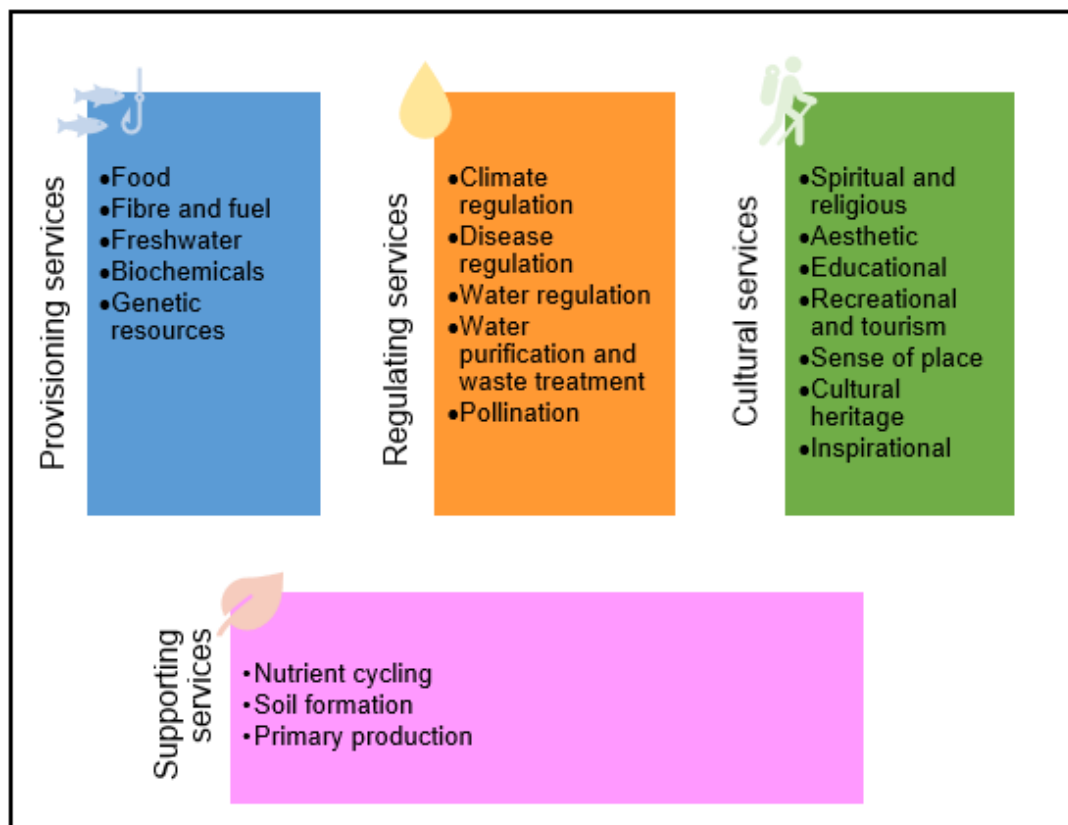


Figure 1: The ecosystem services categories. Adapted from Millennium Ecosystem Assessment (2005a, 57).

Provisioning services are products obtained from ecosystems, such as food, fibre and freshwater. Regulatory services are the benefits obtained from ecosystem processes that regulate, such as water purification (Millennium Ecosystem Assessment 2005b). Cultural ecosystem services are “nonmaterial benefits that people obtain from ecosystems through spiritual enrichment, cognitive development, reflection, recreation and esthetic experience” (Brancalion et al. 2014, 65). According to the MEA, provisioning, regulating and cultural services directly affect people (direct use benefits), while supporting services are necessary for the production and maintenance of the other services (indirect use benefits) (Millennium Ecosystem Assessment 2005a, 2005b). Another way of classifying the services is material and non-material values, with material relating to provisioning, regulating and supporting services, and non-material to cultural services (Chan, Satterfield, and Goldstein 2012).

Whilst the link between ecosystem services and human well-being is generally explicit, the majority of studies do not directly examine which elements of well-being are valued by local stakeholders or residents. Instead, the vast majority of literature focuses on ecological rather than human values, where environmental values are individual and shared community beliefs on the importance, and well-being, of the natural environment and how humans should treat the natural environment (Jones et al. 2016). For example, Boerema et al. (2017) found that the most studied ecosystem services were regulating (48 percent) and the least studied were provisioning (26 percent) and cultural (26 percent). This disparity in studies is even starker in ecological restoration projects. A review of 89 projects by Benayas et al. (2009) found none explicitly evaluated cultural ecosystem services. Furthermore, in reviewing 1,589 papers that evaluated ecological restoration projects, Aronson et al. (2010) found that only three percent surveyed people about their local perceptions of restoration (Brancalion et al. 2014; Pueyo-Ros, Ribas, and Fraguell 2019).

The comparative lack of studies on local perceptions of ecosystems and cultural services is likely due to their subjective and qualitative nature and the difficulty in measuring and quantifying these services, particularly in monetising intangible attributes (Chan et al. 2012; Clarke et al. 2021; Margaryan et al. 2018; Pueyo-Ros, Ribas, and Fraguell 2019). Despite this, studies on environmental attitudes and behaviour in social-psychological research has shown “that people are motivated by far more than economic considerations” (Josephs and Humphries 2018, 32). However, most studies on human perceptions of ecosystem services use

predefined classifications. This pre-classification determines what can be identified and, therefore, what is considered valuable (Pueyo-Ros, Ribas, and Fraguell 2019). The majority of studies limit the number of functions investigated by including questions that choose a mix of functions from a number of MEA categories (Kaplowitz and Kerr 2003; Lupi, Kaplowitz, and Hoehn 2002; Scholte et al. 2016; Seeteram, Engel, and Mozumder 2018; Sinclair et al. 2021). On the other hand, Dou et al. (2020) studied all cultural ecosystem services, and Brancalion et al. (2014) investigated a sub-set of cultural ecosystem services. According to Pueyo-Ros, Ribas, and Fraguell (2019), such approaches “reinforce an assumption that values always fit predefined types, and that types will encompass all values” (629).

As the public often directly experiences cultural services, they provide a “powerful justification for ecosystem restoration and investment” (Allan et al. 2015, 418). In developed countries, cultural services are the values generally considered most likely to increase societies’ commitment to ecological conservation (Pueyo-Ros, Ribas, and Fraguell 2019; Schaich, Bieling, and Plieninger 2010). Neglecting cultural values and services can result in unintended consequences, impacting the achievement of ecosystem programme goals (Chan et al. 2012). The most common cultural services examples include recreation, tourism, aesthetic appreciation, spiritual experience, a sense of place and symbolic value (Allan et al. 2015; Brancalion et al. 2014; Caruso 2006; Margaryan et al. 2018). For example, 94 percent of residents in Iracemápolis, Brazil, want more ecological restoration projects in their community, citing an appreciation for cultural services such as “esthetic landscape improvement, tourism, recreation, as well as various religious, spiritual, and educational services” (Brancalion et al. 2014, 65). A study of people residing in estuarine and coastal areas of New Jersey, United States, found “communing with nature, walking, and the provision of open ‘green’ space as the most valued uses” (Burger 2003, 145). Similarly, a stakeholder survey in Puget Sound, Washington, United States, found “recreation, tourism, and ethical and existence values were consistently among the five ecosystem services reported as most important” (Chan et al. 2012, 745).

However, there is concern that recreation and tourism may be overrepresented (Dou et al. 2020). In general, undertaking ecosystems services valuations is done by assessing direct use values, indirect use values, option values and non-use values (Millennium Ecosystem Assessment 2005b). While provisioning services have many methods for placing an economic value on them, methods for valuing

cultural and regulatory services are more limited and subject to debate and critique, resulting in few reliable estimates of their value. Many cultural services valuations depend on the elicitation of peoples' preferences for ecosystem stocks (Barbier et al. 2009). As a result, quantitative methods, such as visitor numbers, tourism revenue, fishing and hunting licenses and the travel cost method are used as a proxy (Boyer and Polasky 2004; Dou et al. 2020). These proxies make quantifying recreation and tourism comparatively easy compared to other cultural ecosystem services (Pueyo-Ros, Ribas, and Fraguell 2019).

Furthermore, identifying services can be problematic, given that cultural ecosystem service groups generally overlap (Pueyo-Ros, Ribas, and Fraguell 2019; Scholte et al. 2016). For example, a study in East Cascades, Washington, United States, found that cultural heritage was inter-connected to broader notions of nature, place and outdoor recreation. Survey respondents identified "cultural heritage benefits as part of nearly every outdoor recreation activity, including motorized recreation, hunting, fishing, camping, and hiking, as well as more explicit heritage activities like visiting historic sites and traditional plant gathering" (Helmer et al. 2020, 10). Another value commonly rated highly is the provision of habitat for wildlife, connected with recreational activities, including bird watching and nature appreciation (Tunstall et al. 2000).

This interconnection of benefits and services, and ultimately values, is especially prominent within indigenous communities. Long et al. (2020) state that "traditional ecological knowledge (TEK) tends to consider interrelationships among species, and it often reveals deep understanding of system dynamics" (72). Focusing on the United States, Long et al. (2020) outline that some indigenous communities may object to the anthropocentric views that value the benefits that flow from nature to humans and the monetary quantification of these benefits. Instead, an indigenous framework would reverse the ecosystem services concept to focus on the obligations of humans to care for nature (Long et al. 2020). This framework is more aligned with a social-ecological systems perspective which places "humans within nature and the reciprocity of environmental and social well-being" (Lyver et al. 2015, 681).

Overall, the MEA may be considered a Western social construct, where the value of ecological assets is "instrumental, anthropocentric, individual-based and subjective, context dependent, marginal, and state-dependent" (Barbier et al. 2009, 250). Despite this, the MEA framework provides a means to understand what

society most values about ecosystems and where to direct conservation priorities. However, the value of ecosystem services is not as clear-cut as the MEA's categories suggest, as it can miss some of the values people associate with nature and it differs depending on locality and culture (Jax et al. 2013). Studies also suggest that people using an ecosystem are more likely than those not using it to place a higher value on its restoration (O'Connor, Hynes, and Chen 2020). Therefore eliciting from people the value they place on ecosystems and their restoration needs to be done at a local level and may require the “use of locally defined metrics, values, and guiding principles” (Gómez-Baggethun and Barton 2013, 240).

## 2.2 Ecosystem services and wetlands

Socio-economically, wetlands are of immense importance, providing food, fibre, fuel and water. Wetland functions in the hydrological and chemical cycles help serve as the kidneys of the landscape (Baral et al. 2016). The MEA has classified these functions into services within the ecosystem services framework (see Figure 2). ‘Provisioning’ includes fish supply and water availability, two of the most important wetland ecosystem services that affect human well-being. Other wetlands services with strong links to human well-being are the regulatory services of water purification, waste detoxification, climate regulation and mitigation of climate change (Millennium Ecosystem Assessment 2005b).

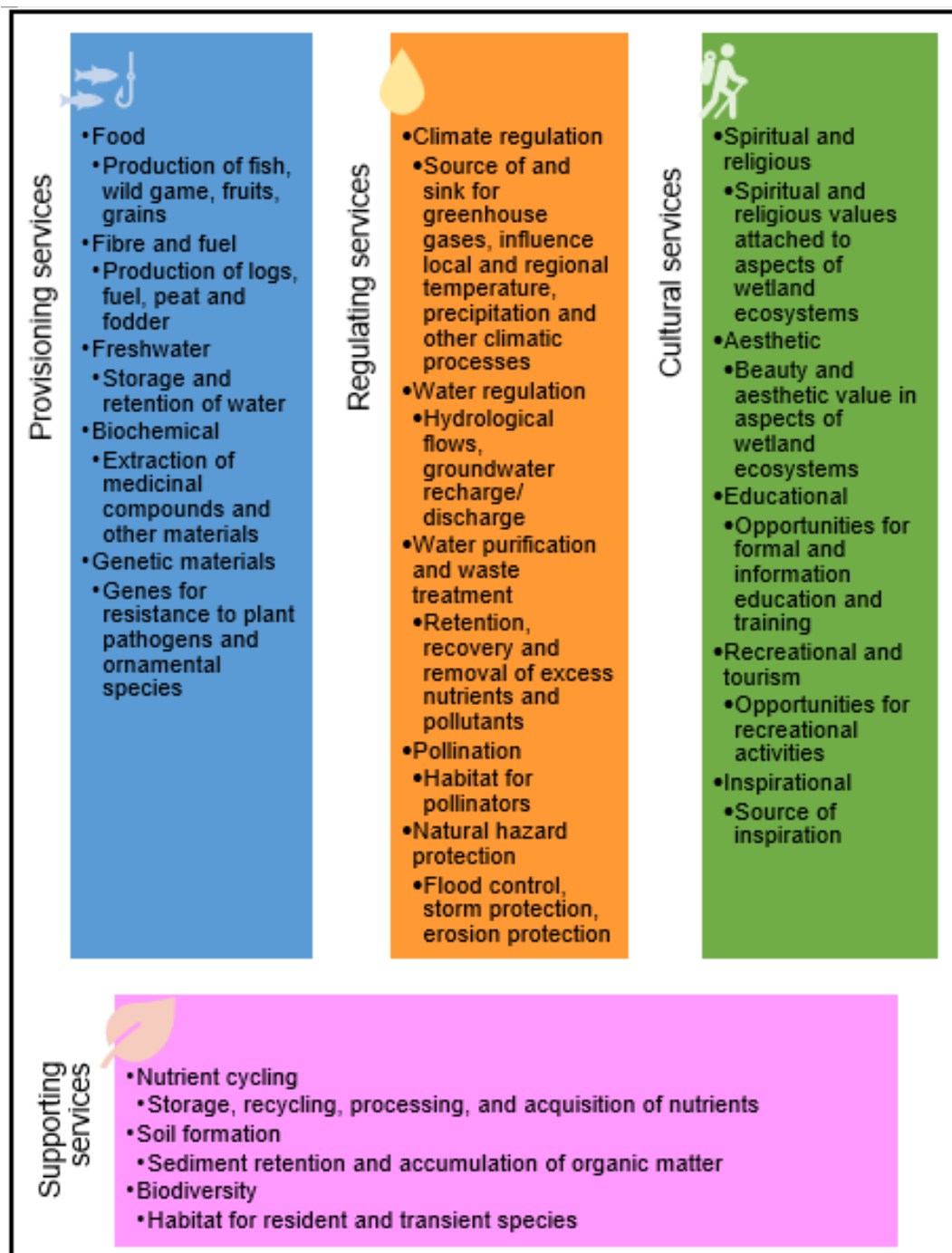


Figure 2: Ecosystem services provided by or derived from wetlands. Adapted from Millennium Ecosystem Assessment (2005b, 2).

Despite the importance of wetlands, there is a belief that widely held perceptions and negative associations towards wetlands, including being unattractive, challenge public support for wetlands. Wetlands are considered some of the least understood and appreciated ecosystems (Clarke et al. 2021; Dobbie and Green 2013; Margaryan et al. 2018; Nassauer 2004; Rispoli and Hamblen 1999). However, increasing environmental awareness, concern over the impacts of climate change, growing recognition of wetlands' contribution to urban

environments, and their importance as tourism destinations have started changing perceptions of, and support for, wetlands (Manuel 2003; Margaryan et al. 2018). For example, in Louisiana, United States, Kim and Petrolia (2013) found that households expressed widespread awareness and concern over the loss of wetlands and the consequences of this loss.

While there is a lot of information on the ecological importance of wetlands, there is limited understanding of culturally derived values. Where studies have taken place, most have focused on wetlands in rural or wilderness settings, with urban wetlands receiving less attention (Manuel 2003).

As with other ecosystem services, the cultural services of recreation and open space amenities are some of the most cited and highly valued benefits of wetlands (Lupi, Kaplowitz, and Hoehn 2002; Pueyo-Ros, Ribas, and Fraguell 2019). For example, studies of residents of Rhode Island and Michigan, United States, found that accessibility and recreational use of wetlands by the public are highly important for generating public support (Bauer, Cyr, and Swallow 2004; Kaplowitz and Kerr 2003). Research on the Pletera coastal wetlands, Costa Brava, Spain, supports the importance of public access for recreational use (Pueyo-Ros, Ribas, and Fraguell 2019). Furthermore, a study of Australian wetland owners in two catchments found that pleasure/recreation is considered a value for 73 percent (Upper South East of South Australia) and 88 percent (Murrumbidgee River Floodplain) of owners (Bennett and Whitten 2002). At an urban level, residents in Halifax, Nova Scotia, Canada, feel wetlands add to their community through the provision of green space, nature and a rural atmosphere, “allowing opportunities for play and recreation close to home” (Manuel 2003, 933). These studies suggest that recreation benefits are strongly associated with other cultural services, such as aesthetics and inspiration.

On the other hand, people can hold negative opinions of wetlands, which are sometimes considered to have poor aesthetic landscape value and detrimental impacts on human health, such as presence of mosquitos (Clarke et al. 2021; Dobbie and Green 2013). For example, a study on the Ain River in south-eastern France found that people’s perceptions of wetland aesthetics strongly depend on visual criteria. Their perception is affected by particular attributes, such as water transparency and colour, sedimentation, and the look and presence of aquatic vegetation (Cottet, Piégay, and Bornette 2013). A United States study in Minnesota found wetlands sites that are “perceived as more well-cared-for and as a good

place to enjoy nature were perceived as more attractive” (Nassauer 2004, 756). Furthermore, perceived attractiveness is also related to cultural cues and natural landscape context (Nassauer 2004). These studies suggest that perceptions of the aesthetics and health of wetlands are influenced by Western social perceptions (Cottet, Piégay, and Bornette 2013).

As with other ecosystems, ethnicity can significantly influence cultural services perception and values (Dou et al. 2020). A study of residents surrounding the Genheyuan wetland, China, found 93.5 percent perceived at least six of the MEA cultural services in their landscape, and 70.8 percent perceived nine. Inspiration was the most perceived and valued cultural service (Dou et al. 2020). In Rajasthan, India, a study of residents on three regenerated catchments found that wetlands carried a range of “non-market medicinal, spiritual and traditional meanings” (Everard 2016, 38). This suggests that traditional local ethnic knowledge and practices contribute greatly to how people conceptualise cultural services (Dou et al. 2020).

Provision of habitat for wildlife is another value often associated with wetlands, despite the MEA framework referencing habitat only with regards to biodiversity or pollination. Studies from the United States found that wildlife habitat is the most widely known and valued function of wetlands (Hoehn, Lupi, and Kaplowitz 2003; Kaplowitz and Kerr 2003). In addition, the richness of bird species is related to the perceived attractiveness of wetlands (Nassauer 2004). For example, the presence of endangered species is the second most critical reason for public support of wetlands in Rhode Island (Bauer, Cyr, and Swallow 2004). On the other hand, one study found that the richness of plant species “was not significantly related to perceived wetland attractiveness” (Nassauer 2004, 756). However, biodiversity conservation is one of six key values for stakeholders in the Jagadishpur Reservoir catchment area, Nepal (Baral et al. 2016).

While wildlife tends to be a value of importance to the general public, landowners can perceive a wider range of services, which intersect with the use of the surrounding land. The Australian study of two catchments found that wetland owners perceived benefits of wetlands: 86–93 percent of owners perceived benefits for grazing, 16–35 percent for fishing, 26–63 percent for water supply, and 8–45 percent for farm or commercial timber harvesting (Bennett and Whitten 2002). In China, farming households identified flood and drought control, water conservation, and water quality improvement as the ecological functions of

wetlands most beneficial to their daily lives and agricultural production (Wu et al. 2007).

As a whole, provisioning and cultural services are the most identified values for wetlands, especially food and recreation (Scholte et al. 2016), although the relative values can change depending on wetland type. For example, in Belgium, meadows are associated with aesthetic quality and the provision of medicine and food, marshes with biodiversity and water quality, and riparian forests with materials and recreation provision (Scholte et al. 2016). Although categorised separately, the values people assign to wetlands are primarily an amalgamation of the services found within and between the MEA categories. For example, Manuel (2003) suggests most culturally derived values are focused on utilitarian, recreational and aesthetic benefits. Further, utilitarian and recreational benefits are often linked with wildlife, while aesthetic appreciation is often linked to habitat diversity, openness and wildness (Manuel 2003). Similarly, a Swedish study suggests these values derive from the interrelations of environmental space and cultural practices, including “playing and exercising, creating and expressing, producing and caring as well as gathering and consuming” (Margaryan et al. 2018, 17). Furthermore, a study on what the Cache River Watershed means to the community in Illinois, United States, found that community values converge along three dimensions: a rare and treasured ecosystem; a revered historic and contemporary cultural landscape; and a resource for local economic revitalisation (Davenport et al. 2010).

What is clear across studies is the public’s limited knowledge on the regulatory services of wetland ecosystems, such as groundwater recharge, water quality and flood control (Hoehn, Lupi, and Kaplowitz 2003; Scholte et al. 2016). This lack of knowledge may be due to the invisible character of these services (Scholte et al. 2016) or to residents being neither particularly observant nor especially interested in small wetlands in their vicinity (Manuel 2003). Alternatively, it may be due to the environmental conditions of the location, with residents in flood-prone areas having greater awareness of the regulatory functions of wetlands. For example, in Louisiana, United States, an area prone to hurricanes, the loss of hurricane protection is perceived to be the primary function affected by the loss of wetlands (Kim and Petrolia 2013). In Australia, 47–48 percent of landowners identify the ability of wetlands to act as a drainage sink as an important benefit, and 23 percent see irrigation supply/water storage as important, a likely alignment with the agricultural use of the land (Bennett and Whitten 2002). In Nepal, stakeholders

identified carbon sequestration as one of the six most important values of the Jagadishpur Reservoir (Baral et al. 2016).

Overall, the literature suggests that local values towards wetlands are often associated with 'softer' services such as recreation, nature study, and cultural and aesthetic experiences (Manuel 2003). As with other ecosystems, what people value about wetlands derives not from discrete services outlined by the MEA but from a combination of the services. Therefore, wetlands management should focus on cultural and ecological goals and the interrelationships between these goals to ensure relevance to the widest range of groups and help increase community interest and participation (Davenport et al. 2010). However, due to the focus on ecological services, in particular provisioning services, it is often unclear what stakeholders and communities value about wetlands and the services they provide (Kaplowitz and Kerr 2003).

### 2.3 Wetland ecosystems and restoration

It is estimated that 50 percent of Earth's wetlands have been lost, with extreme loss of over 90 percent in some areas, including Europe and New Zealand (B.R. Clarkson, Ausseil, and Gerbeaux 2013). According to the MEA, more than 50 percent of "specific types of wetlands in parts of North America, Europe, Australia, and New Zealand were converted during the twentieth century" (Millennium Ecosystem Assessment 2005b, 3). These include inland water, coastal marshes and emergent estuarine wetlands in North America, peatlands in Europe, freshwater marshes in North Australia, and inland and coastal marshes in New Zealand (Millennium Ecosystem Assessment 2005b). The key drivers for destruction and degradation are "infrastructure development, land conversion, water withdrawal, pollution, overharvesting and overexploitation, and the introduction of invasive alien species" (Millennium Ecosystem Assessment 2005b, 4).

According to the MEA, wetlands restoration is a broad response to help recover degraded or destroyed wetland ecosystems (Millennium Ecosystem Assessment 2005b). Restoration is "the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed" (Norton et al. 2016, 171). The MEA acknowledges restoration can be controversial, partly due to the uncertainty about what actions lead to the desired combination of wetland structure and function (Millennium Ecosystem Assessment 2005b). However, research suggests that

support for restoration activities increases as the understanding of the associated benefits of restoration increases (Mann et al. 2013).

In order to increase public knowledge, more insight into the current state of understanding is required. The limited research on public perceptions of wetlands restoration described above reveals considerable location-specific variation in what people value. This highlights the need for local-level insights that use research techniques appropriate to the local culture. In Louisiana, United States, storm impact mitigation is a strongly perceived benefit of wetland restoration (Kim and Petrolia 2013). In Florida, species-based restoration, as opposed to functional attributes or processes, results in a significantly larger share of respondents favouring restoration plans (Milon and Scrogin 2006; Seeteram, Engel, and Mozumder 2018). In Kerala, India, a study on provisioning services found the greatest value is attributed to mangroves conservation, with water quality and sustainably managed fisheries following (Sinclair et al. 2021).

Building support for wetlands restoration also requires the identification of project burdens (Davenport et al. 2010). These burdens can include the potential for loss of income, an increase in mosquitos or predatory species, and loss of identity. For example, a Spanish study found that residents perceived landscape changes resulting from restoration, especially the removal of a promenade, as a loss of identity (Pueyo-Ros, Ribas, and Fraguell 2019). Davenport et al. (2010) offered four propositions to help build community support and commitment for restoration. These propositions are: provide for local participation in project planning; identify and mitigate project burdens; emphasise and communicate local cultural benefits; and acknowledge and reduce uncertainty in restoration outcomes where possible. Overall, Castagna (2018) argues that reaching public consensus regarding restoration, especially large-scale restoration, can prove challenging as it can change familiar landscapes. Furthermore, the process to reach consensus is slow and incremental (Castagno 2018).

Restoration proposed on private land brings an extra set of barriers. A Swedish study looked at the factors that facilitated or hindered a Swedish Anglers Association wetland restoration project. It found that the willingness of landowners to cooperate in wetlands restoration was linked to feelings of environmental responsibility, expectations of benefits, and the low private investment required (Blicharska and Rönnbäck 2018). This finding coincides with Johnson and Pflugh (2008) who found support for wetlands preservation in central New Jersey, United

States, was due not to land ownership, but to “personal importance, support for positive claims, and knowledge of definitions” (399). However, other European studies have shown that farm landowners have less enthusiasm for restoration than the public, sometimes perceiving it as a negative process. This lack of enthusiasm may be due to historical links to drainage that are often considered positive for farming. Farmers may also fear an increased presence of predatory mammals and may prefer aesthetic features and agricultural functions over biodiversity (Aggestam 2014; Rispoli and Hambler 1999).

Overall, insight into perceptions and values of wetland restoration and its associated benefits is limited, both for public and private wetlands. The lack of insight may result from the relatively recent recognition of the need for restoration. Furthermore, there may be difficulties in dealing with sometimes-conflicting values held both among the public and between the public and landowners. What is clear is the uniqueness of values to the location, which arises from the intersection of the environment and cultural practices.

## 2.4 New Zealand context

Wetlands are used by a cross-section of New Zealanders and visitors “for recreation, walking, bird watching, kayaking, fishing, and gamebird hunting” (Denyer and Robertson 2018, 1982). Due to the value of their ecosystem services, estimated at NZD5 billion, the loss of wetlands has become a critical concern, and accordingly there are calls for more emphasis on restoration (Ministry for the Environment 2020a). However, as is the case internationally, wetlands-related cultural values are rarely discussed in New Zealand (Ratana, Herangi, and Murray 2019).

A significant issue for Māori is the decline in water quality, quantity and *mauri* (Harmsworth, Awatere, and Robb 2016). Māori have strong connections with wetlands, regarding them as *taonga* closely linked to their identity as *tangata whenua* (B.D. Clarkson and Kirby 2016). Wetlands provide essential places for *mahinga kai*, including collecting food, harvesting plants and collecting swamp mud for staining flax (Denyer and Robertson 2018). Furthermore, wetlands sustain spiritual well-being and shape *hapū* identity (B.D. Clarkson and Kirby 2016; Forster 2012). According to Forster (2012), improvements in ecological conditions contribute to a range of spiritual, social and cultural objectives for *hapū*. Restoration is an act of *kaitiakitanga* for the benefit of the *hapū* and can strengthen

the relationship between *hapū* and *whenua* (Forster 2012). Developing a holistic approach to wetlands restoration is required given “Māori emphasise the kinship of all aspects of the experiential world with people integrated into the cycles and changes occurring within the broad environment” (Henwood et al. 2016, 624). Values and practices on land and water include all tangible and intangible elements of being. The central concept of *mauri* “binds the tangible and intangible, the physical and the spiritual” (Henwood et al. 2016, 624). *Mauri* endows things with their own nature, allowing everything to live within the conditions and limits of their existence (Chan, Satterfield, and Goldstein 2012).

The need for a holistic approach is outlined by Ratana, Herangi, and Murray (2019) who explain the amalgamated learnings and methodology from two collaborative projects with Ngā Tai o Kawhia, Hauāuru ki Uta and Nehenehenui Regional Management Committees on the restoration of Ngāti Maniapoto wetlands. Despite participants scoring categories to help prioritise wetland restoration efforts, for which water-related uses scored highest, *whānau* often mentioned the concepts of *mauri*, *manaakitanga*, and using a holistic approach (Ratana, Herangi, and Murray 2019).

One of the issues for restoration efforts stems from most wetlands, especially small wetlands, being in private ownership (Streever 1999). A study by McLeod et al. (2006) on New Zealand farmers and how they approach wetlands management found solid support for developing wetland areas as areas for recreational activity, with almost half stating this was important or very important to them. However, a third said wetland development on their farm would be inappropriate. Farmers’ motivations to develop and manage wetlands included providing habitat for wildlife and native plants, water and shade for stock, hunting, fishing and tourism opportunities, as well as water recreation and enhancing environmental/aesthetic values (McLeod et al. 2006). However, a number emphasised lack of money as the main limiting factor (McLeod et al. 2006). Supporting this study are the recent insights from the *Action for healthy waterways discussion document*, which identified that landowners are concerned about the cost impacts of the proposed regulation and want funding/tax rebates “to compensate for loss of land or to help restore wetlands” (Ministry for the Environment 2020a, 95).

The tri-annual *Public Perceptions of New Zealand’s Environment*, which was last published in 2019, shows that respondents generally consider the condition of wetlands as adequate to good, though the trend has shown a worsening perception

since the surveys started in 2000. The study also shows a divergence in perceptions on the perceived area of wetlands, with equal numbers considering it high to very high as opposed to low to very low. Interestingly, wetlands have one of the highest percentages of 'don't know' responses compared to other surveyed resources, highlighting New Zealanders' lack of knowledge about wetland pressures, states and responses (Hughey, Kerr, and Cullen 2019).

Overall, public knowledge of wetlands trends is lacking compared to understanding of other resources. However, the loss of wetlands in New Zealand is becoming a growing concern. This concern is especially so for Māori who have strong cultural connections to wetlands. However, the MEA's categorisation of values into discrete benefits that flow from wetlands to humans' conflicts with Māori perspectives. Addressing Māori concerns may require reframing the ecosystem services approach to reverse the flow of benefits from humans to wetlands and incorporate a more holistic approach in restoration efforts. Conversely, the restoration of wetlands for landowners aligns highly with the perception of receiving benefits, whether in ecosystem services or via monetary compensation.

## 3. Methods

### 3.1 Introduction

This thesis applied multiple qualitative research methods to investigate the extent to which Tauranga's planning regime, as a case study for New Zealand, incorporates local values in the promotion and restoration of wetlands and their ecosystem services (see Figure 3). Qualitative research provides the "means of acquiring and exploring information that is difficult to express as numbers" (MacCallum, Babb, and Curtis 2019, 35). Qualitative research was chosen as it is useful for gaining insights into the meaning of things such as values (MacCallum, Babb, and Curtis 2019). The investigation focuses on the city of Tauranga and draws on empirical data collected through semi-structured interviews, alongside document analysis of submissions and statutory and regulatory planning instruments.

The study was undertaken in two phases (see Figure 3). Phase one comprised two steps. Step one utilised a narrative literature review to identify the latest literature on ecosystem services, including ecosystem services associated with wetlands. Step two used a systematic statutory analysis to identify how, and the extent to which, Tauranga's resource management system, from the international to local scale, promotes and enables wetlands restoration. Phase two used a case study approach to identify what wetland ecosystem services local Tauranga residents value as important and the extent to which the local policy mechanisms reflect these values. Phase two applied primary and secondary data collection and a three-step data analysis process utilising thematic analysis, systematic policy analysis and a cross-comparison of the results. The next sections outline these methods in more detail.

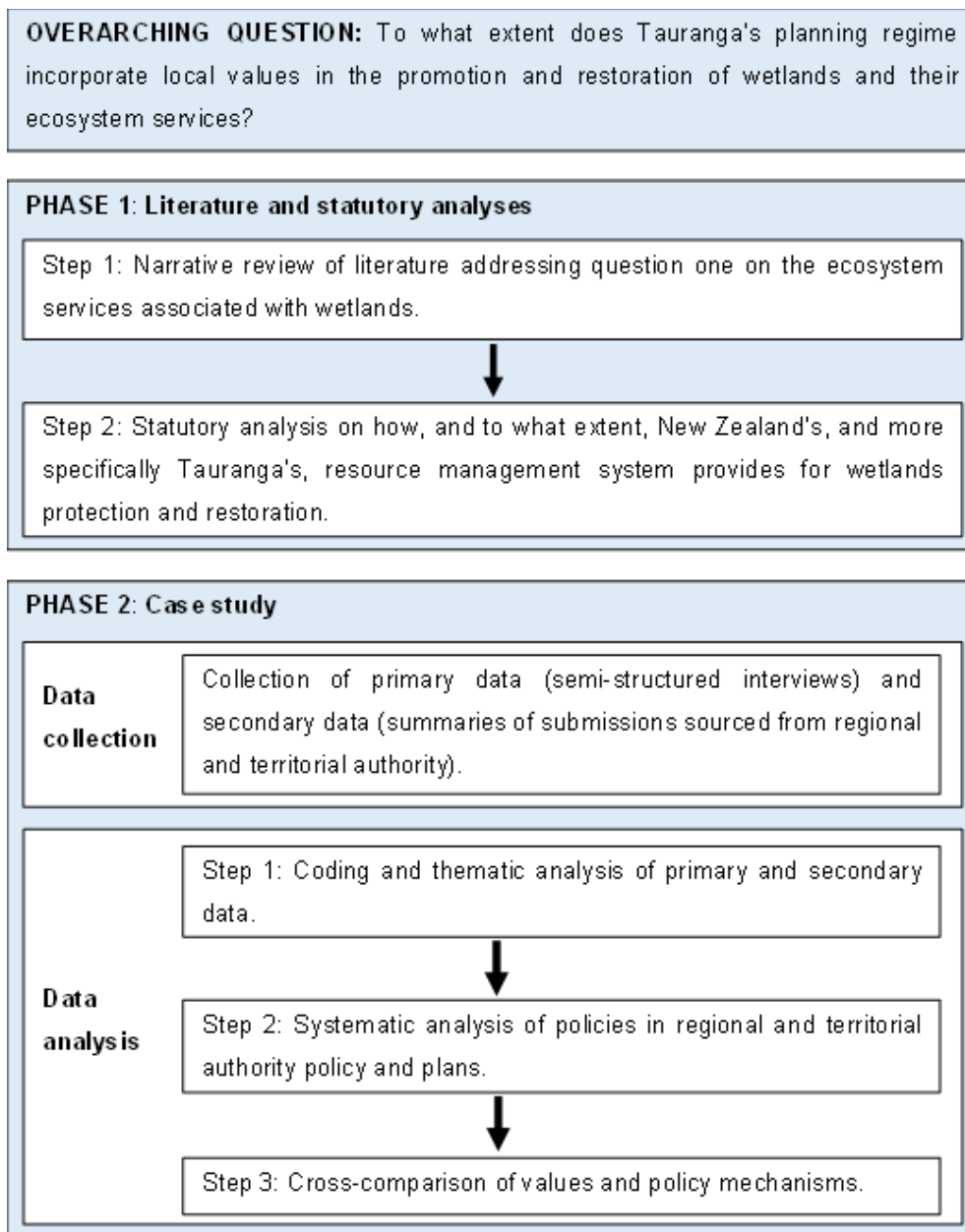


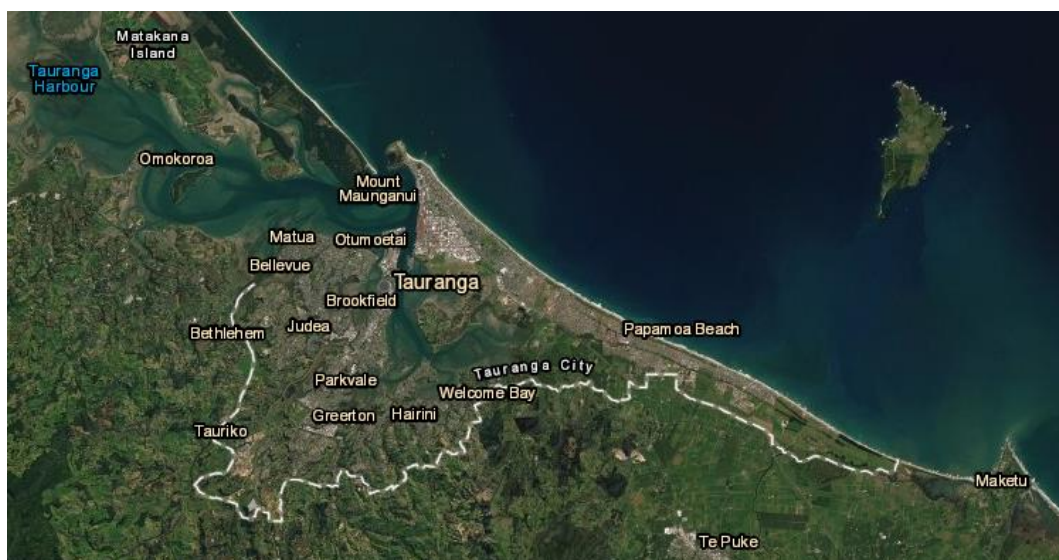
Figure 3: Phases of the thesis method

### 3.2 Case study description

Case studies involve detailed data collection and analysis of one, or a small-number of, cases in order to evaluate the “relationship between a phenomenon and its context” (MacCallum, Babb, and Curtis 2019, 46). Geographically defined case studies are a common research technique in environmental planning research (MacCallum, Babb, and Curtis 2019). The case study for this thesis is the city of Tauranga.

Tauranga (see Figure 4) is situated along one of New Zealand's largest natural harbours, Tauranga Harbour (Te Awanui) (SmartGrowth 2013). Tauranga is New Zealand's fifth largest city, and the largest urban area in the BOP, comprising 168 kilometres (TaurangaNZ n.d.). As one of New Zealand's fastest growing cities, it's population increased by more than 35 percent in the 12 years to 2018, to sit at 140,800 (Statistics New Zealand n.d.; Tauranga City Council 2020).

Over the last 170 years, Tauranga has lost an estimated 90 percent of its original wetlands. Just 470 hectares remain, and 65 percent of these are under one hectare in size (Lawton and Conroy 2019). The principle reasons for wetland loss have been "draining, burning and clearing of vegetation for farmland, together with the reclamation of wetlands for urban and industrial uses" (Lawton and Conroy 2019). Lawton and Conroy (2019) estimate that Tauranga Moana wetlands are at risk of increasing degradation.



*Figure 4: Map of Tauranga City boundary. Source: Bay of Plenty Regional Council (n.d.)*

No research on local perceptions and values towards wetlands in Tauranga could be found. This lack of research, together with a wetlands loss rate in line with New Zealand's average loss and an ongoing risk of degradation due to increased development pressures justifies Tauranga's suitability as a case study in the New Zealand context.

### 3.3 Data collection

#### 3.3.1 Semi-structured interviews

Empirical data informing this thesis was collected through semi-structured interviews. Interviews aimed to collect information on participants' knowledge, perceptions, attitudes and, ultimately, values towards Tauranga wetlands and their ecosystem services. Targeting a cross-section of the community, all Tauranga iwi organisations and a selection of well-established community, youth (18+) and conservation groups, as well as the local regional and territorial councils, were approached for interviews. Organisations were advised about the purpose of the study and provided with an information sheet, and those that agreed to take part put forward participants.

Between June 22, 2021, and August 14, 2021, 10 interviews of 11 people from the BOP Regional Council (BOPRC), Tauranga City Council (TCC), *iwi* authorities (Ngāi Te Rangi, Tapuika, Ngāti Ranginui and Ngāti Pūkenga), conservation groups (Matua Estuary Care Group, Royal Forest and Bird Protection Society of New Zealand Inc Tauranga Branch and Bay Conservation Alliance), and the Papamoa Residents and Ratepayers Association (two participants), were held (see Appendix A). Participants were advised about the purpose of the study, provided with the information sheet and signed a consent form to confirm their voluntary participation before the interviews (see Appendix B). An interview script guided open-ended questioning (see Figure 5), but there was freedom to probe for clarity or dive deeper into a particular area (Davenport et al. 2010). Interviews ranged from 45 minutes to 1.5 hours, were audio-recorded and transcribed verbatim.

#### General questions for semi-structured interviews

- What is your name?
- What is your organisation?
- How long have you been with organisation?
- What involvement with wetlands have you had?
  - If involved, why did you get involved?
- Can you tell me what you know about wetlands in Tauranga?
  - Are these historic or current wetlands in Tauranga?
- Do you think wetlands are important to Tauranga?
  - If so, what is their importance?
  - What is the most important function / service of wetlands?
  - If not, can you tell me why?
- What do you think is the difference between restoration, rehabilitation, enhancement and improvement of wetlands?
  - Which do you think Tauranga should be focussing on (if any)?
- What do you think of restoring/rehabilitating wetlands in Tauranga?
- What are the most important wetlands to restore/rehabilitate in Tauranga?
  - Why?
- Do you know if these are natural or man-made wetlands?
  - Does it matter? Why?
- Would you be involved in wetlands restoration/rehabilitation if it was undertaken?
  - If so, why?
  - If not, why not?
- Have you seen any promotion of the importance of wetlands and/or their restoration in Tauranga?
  - Can you tell me about it?

*Figure 5: Question themes for semi-structured interviews*

A further online interview with a planner from BOPRC on the planning aspects of wetland restoration and promotion was held on July 16, 2021. Figure C 1 in Appendix C outlines the additional planning-specific questions posed to the BOPRC planner and TCC participant. The University of Waikato's Division of Arts, Law, Psychology and Social Sciences (ALPSS) Ethics Committee approved the study design and data collection protocol (see Appendix B).

It is estimated that the people interviewed may have a fairly high understanding of wetlands and their functionality, from being involved in wetlands restoration either through the planning or implementation of wetlands or their objections to it.

### 3.3.2 Summaries of submissions on the local RPS and plans

Secondary data informing this thesis comprised submissions on the BOPRPS, BOPRNRP, BOPRCEP and TCP. The analysis of submissions was included in the study to complement interview data and provide a broader picture of stakeholders' values towards wetlands, their ecosystem services and restoration of them. Information requests to BOPRC and TCC were made by email. The councils provided the summaries of submissions of the policies and plans outlined in Table 1.

*Table 1: Summary of submission policies and plans reviewed*

<b>Summary of submission documents</b>	<b>Summary of submissions date</b>
Bay of Plenty Regional Policy Statement 2014 (BOPRPS)	April 2011
Bay of Plenty Regional Natural Resources Plan 2008 (BOPRNRP)	July 2002
Bay of Plenty Regional Coastal Environment Plan 2019 (BOPRCEP)	November 2014
Tauranga City Operative District Plan 2013 (TCP): Chapters 5, 6, 7 and 13	May – October 2010

To identify relevant submissions for subsequent data analysis, a systematic review using keyword searches was undertaken. For the BOPRPS, BOPRNRP and BOPRCEP, the keywords used were ‘wetland’, ‘estuary/estuaries/estuarine’, ‘biodiversity’, ‘restore/restoration’, ‘rehabilitate/rehabilitation’, ‘enhance(ment)’, ‘improve(ment)’ and ‘promote/promotion’. Given the number of ‘biodiversity’ mentions, only submissions referencing ‘biodiversity’ and ‘restoration’, ‘rehabilitation’, ‘enhancement’ or ‘improvement’, were included. Furthermore, as the issue of mangroves was the source of much debate, any submission on mangroves that did not reference restoration or enhancement was excluded.

The format of the TCP meant the ‘find’ functionality would not work in either pdf format or when uploaded to NVivo, a quantitative data analysis software. Therefore, only the submissions related to sections 5, 6, 7 and 13, which aligned with the objectives and policies on wetlands restoration and enhancement identified in the statutory analysis (outlined in Section 3.5.1), were read. The reading review used a keyword search using the terms identified above. In reviewing only selected sections, submission points related to wetlands may have been missed.

Identified submissions were added to an Excel spreadsheet (see Table D1 in Appendix D for the reference list of submitters). The spreadsheet included the name of the submitter, a summary of their submission and the decision sought. Any submission points from councils, as well as community groups and geographic locations outside TCC boundaries, were removed prior to data analysis.

### 3.4 Data analysis

Analysis of the semi-structured interviews and summaries of submissions was through thematic analysis. Thematic analysis is “a method for identifying, analysing and reporting patterns (themes) within data” (Braun and Clarke 2006, 79) and was chosen as it involves searching across a data set to find repeated patterns. Using the Braun and Clarke (2006) six-step methodology, the thematic analysis consisted of:

- Familiarisation with data
- Generating initial codes
- Searching for themes
- Reviewing themes
- Defining and naming themes
- Producing the report

The coding of values derives from the services defined by the MEA framework and outlined in Table 2. A set of codes, named 'other', was created for values identified that did not fall within the MEA framework. However, the often-mentioned terms of 'habitat' and 'natural character' required further analysis to determine category placement. Highlighting the cells that included negative value associations helped to distinguish between positive and negative associations.

*Table 2: Coding framework for semi-structured interviews and summaries of submissions*

Category	Code (value)	Comment and/or example
<b>Provisioning</b>	Food	Production of fish, wild game, fruits, grains, etc.
	Fibre and fuel	Production of timber, fuelwood, peat, fodder, aggregates, etc.
	Freshwater	Storage and retention of water; provision of water for irrigation and drinking.
	Biochemicals	Extraction of materials from biota.
	Genetic resources	Medicine, genes for resistance to plant pathogens, ornamental species etc.
<b>Regulating</b>	Climate regulation	Regulation of greenhouse gases, temperature, precipitation, and other climatic processes, chemical composition of the atmosphere.
	Disease regulation	Resistance of species invasions, regulating interactions between different trophic levels, preserving functional diversity and interactions.
	Water regulation	Hydrological flows, groundwater recharge/discharge, water storage, timing and magnitude of runoff.

	Water purification and waste treatment	Retention, recovery, and removal and detoxification of excess nutrients and pollutants.
	Pollination	Support and habitat for pollinators.
	Natural hazard protection	Flood control and storm protection, erosion protection, soil retention and prevention of structural change.
<b>Cultural</b>	Spiritual and religious	Spiritual or religious values attached to wetlands or their components.
	Aesthetic	Appreciation of natural features.
	Educational	Opportunities for formal and informal education and training.
	Recreational and tourism	Opportunities for recreation and tourism, including swimming.
	Sense of place	Associations with recognised features of their environment.
	Cultural heritage	Maintenance of important landscapes, species or practices.
	Inspirational	Source of inspiration.
	Social/ collaboration	Social relations that are established.
<b>Supporting</b>	Nutrient cycling	Storage, recycling, processing, and acquisition of nutrients.
	Soil formation	Sediment retention and accumulation of organic matter.
	Primary production	Primary industries including agriculture, horticulture, fisheries and forestry.
	Biodiversity	The variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems.
	Habitat	Habitats for resident or transient species.
<b>Other</b>	Connectivity	Interconnections between ecosystems, waterways, walking and cycling etc.
	Bequest value	Ensure that the benefits of the resource, biodiversity, habitat etc., are available for present or future generations to enjoy.
	Existence value	The continued existence of resource, biodiversity, habitat, etc.
	Security	Feelings of safety.
	Residential value	Property values.
	Mangroves	Coastal trees/shrubs of the species <i>Avicennia marina</i> , subspecies <i>Australasica</i> or <i>Manawa</i> .
	Natural character	The qualities of the environment that give New Zealand and/or Tauranga recognisable character. These qualities may be ecological, physical (including landscape), spiritual, cultural or aesthetic in nature. They include modified and managed environments.

Source: Adapted from *Millennium Ecosystem Assessment (2005b, 2)*.

The term 'habitat' was discussed by all interview participants, repeatedly in many cases, resulting in the creation of a 'habitat' category. The importance of habitat is in line with the literature review, which found habitat to be a commonly identified value (Hoehn, Lupi, and Kaplowitz 2003; Kaplowitz and Kerr 2003). However, this importance differs from the MEA framework, which considers habitat a part of biodiversity and pollination values. The MEA gives habitats for resident or transient species as a comment and example of biodiversity, and habitat for pollinators as a comment and example of pollination (Millennium Ecosystem Assessment 2005b). As participants referred to habitats for species, particularly birds, this value was placed in the supporting category. To differentiate biodiversity and habitat, this thesis uses the RMA, BOPNERP and TCP definition of biological diversity for biodiversity, where biological diversity "means the variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems" (Resource Management Act 1991, 36).

In submissions, the term 'natural character' was in the text of the submission points of 21 submitters. An analysis of definitions was used to determine the best location for this term. The BOPRPS defines 'natural character' as:

The qualities of the environment that give New Zealand recognisable character. These qualities may be ecological, physical, spiritual, cultural or aesthetic in nature. They include modified and managed environs. Natural character exists on a spectrum of values from low to outstanding (Bay of Plenty Regional Council 2014, 210).

The TCP's definition is similar but limited to Tauranga City (Tauranga City Council 2013). The BOPRNRP does not define natural character, which may be due to the RMA confining preservation of natural character to the coastal environment. The NZCPS provides direction, rather than a description, of natural character, which includes all natural aspects of the land and seas, natural movements of water and sedimentation, and aspects that affect human experience, and can range in spectrum from pristine to modified (Environment Foundation 2015). Therefore, given the definitions and direction encompass services that span across the MEA categories, the 'other' category was selected.

Subsequently, codes (values) were analysed, which included counting the number of participants and submitters mentioning the value, with sub-counts categorised

by interview participant grouping (council, *iwi* authority, conservation group and community group) and submission sector groups (industry bodies/businesses/landowners, conservation, *iwi* and individuals). It also included summaries of participants and submitter groups, which included identifying their key values, whether they had a low, moderate or strong association with the values, and linkages between values. After combining the counts, a doughnut graph was created, mapping the connections and relationships between values, resulting in a draft set of themes. However, while quantification provides an understanding and comparison of priorities within groups, the sample was relatively small and results should not be extrapolated to the whole Tauranga population.

The review of themes consisted of two parts. The first involved re-reading all the coded values from each theme to determine whether a coherent pattern had formed. The second part considered the validity of the individual themes compared to the data set (Braun and Clarke, 2006). Themes were named to capture the essence of identified wetland values. Finally, a detailed analysis of each theme was drafted.

The thematic analysis is subject to a number of limitations. Firstly, in regards to the submissions, the content reviewed was not the original submissions but a summary of them. Therefore, some values outlined by submitters may have been lost in the summarisation process. Secondly, submissions by individuals are outweighed by submissions from companies, organisations and industry bodies. Finally, the interpretation of expressed values was through a Western framework lens. Therefore, the interpretation by the researcher of the stated Māori cultural values may not be the same as the interpretation of *iwi* and *hapū*.

## 3.5 Analysis of resource management planning instruments

### 3.5.1 Tauranga's wetland resource management planning system

Prior to analysing the extent to which policy mechanisms for restoration of wetlands and their ecosystem services reflect local values, it was first important to identify how Tauranga's resource management planning system promotes and enables wetlands restoration. Therefore, a statutory analysis of provisions in international, national, regional and district legislation, policies and plans was carried out (see

Table 3). The statutory analysis involved identifying and reviewing the relevant strategic and regulatory requirements by searching for the keywords: 'wetland', 'water body', 'restore/restoration', 'rehabilitate/rehabilitation', 'enhance[ment]' and 'promote/promotion'. A full document scan was done when there was a scarcity of keywords. In policies and plans, the policy structure and content were the focus and a tabulation and comparative analysis of the objectives, policies and methods was performed.

A literature review of articles and texts on New Zealand wetlands policy literature supported the statutory analysis. Article identification was from the narrative literature review and keyword searches on 'New Zealand wetland policies', 'New Zealand wetland resource management', and 'New Zealand wetland regulation' in the Web of Science Core Collection, Scopus database and Google Scholar on May 24, 2021.

Table 3: Resource management documents analysed

Scale	Document	Download date
<b>International</b>	Convention on the Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention)	May 24, 2021
<b>National</b>	Resource Management Act 1991	May 25, 2021
	New Zealand Coastal Policy Statement 2010	May 24, 2021
	National Policy Statement on Freshwater Management 2020	May 24, 2021
	Proposed National Policy Statement for Indigenous Biodiversity	May 31, 2021
	National Environmental Standards for Freshwater 2020	May 24, 2021
	Wildlife Act 1953	June 3, 2021
	Reserves Act 1977	June 3, 2021
	Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020	June 3, 2021
<b>Regional</b>	Bay of Plenty Regional Policy Statement 2014 (full pdf provided by BOPRC)	June 8, 2021
	Bay of Plenty Regional Natural Resources Plan 2008	May 31, 2021
	Bay of Plenty Regional Coastal Environment Plan 2019	May 31, 2021
<b>Territorial Authority</b>	Tauranga City Plan 2013 (Chapters 1–8, 12 and 13)	June 3, 2021
<b>Iwi/Hapū Authority</b>	Tauranga Moana Iwi Management Plan 2016–2026	June 10, 2021
	Te Awanui Tauranga Harbour Iwi Management Plan 2008	June 10, 2021
	Ngati Kahu Hapu Environmental Management Plan 2011	June 10, 2021
	Ngai Te Ahi Hapū Environmental Management Plan 2013	June 10, 2021
	Te Mana Taiao o Ngai Tamarāwaho Management Plan 2014	June 10, 2021
	Ngāi Te Rangi Resource Management Plan 1995	June 10, 2021
	Ngai Tapu Ngai Tukairangi Hapū Management Plan 2014	June 10, 2021
	Ngāti Pūkenga Iwi ki Tauranga Trust Iwi Management Plan 2013	June 10, 2021
	Tapuika Environmental Management Plan 2014	June 15, 2021
	Waitaha Iwi Management Plan 2015	June 15, 2021

A qualitative assessment on the strength of wetland restoration and promotion provisions in Tauranga’s regional and district policy and plans followed. The relative strength of each provision was assessed using the weighting outlined in Table 4.

*Table 4: Weighting rules for determining the relative strengths of wetlands restoration provisions in Tauranga’s regional and district plans.*

<b>Strength of provision</b>	<b>Wetland restoration rule</b>	<b>Promotion of wetlands restoration rule</b>
Strong	Provision(s) for restoration and/or rehabilitation of all wetlands, whether natural or artificial.	Provision(s) for the promotion of restoration and/or rehabilitation of all wetlands, whether natural or artificial.
Moderate	Provision(s) for restoration and/or rehabilitation of all natural wetlands.	Provision(s) for the promotion of restoration and/or rehabilitation for all natural wetlands.
Low	Provision(s) for restoration and/or rehabilitation of wetlands in protected areas, e.g., Significant Natural Areas, to maintain a particular value, or for natural hazard mitigation.	Provision(s) for the promotion of restoration and/or rehabilitation of wetlands in protected areas, e.g., Significant Natural Areas, or to maintain a particular value.
Nil	No provision.	No provision.

### 3.5.2 Systematic review and analysis of Tauranga policies and plans

To understand the extent to which policy mechanisms for the restoration of wetland ecosystem services reflect local values (based on empirical data from interviews), a systematic analysis of BOP and Tauranga policies, plans and strategies, both regulatory and non-regulatory, was carried out. The analysis considered how the values identified in the interview and submissions data are provided for in Tauranga’s planning regime. Policies and plans regulated, or required to be taken into account, under the RMA had already been identified, being the documents sitting under regional, territorial or iwi/hapū authority from Table 3. Non-RMA policies, plans and strategies were identified by reviewing the policies, plans and strategies on the relevant pages of the BOPRC and TCC websites and the supporting documents link on the TCP webpage. A review of documents with a title that included ‘wetlands’, ‘biodiversity’, ‘natural hazards’, ‘stormwater’ and ‘development guidelines’ was undertaken. Documents that contained implementation methods were included for analysis against the identified values (see Table 5).

*Table 5: Bay of Plenty and Tauranga policies, plans, strategies and guides reviewed in addition to the RMA-regulated policies and plans*

<b>Documents</b>	<b>Download date</b>
Policy on Regional Parks November 2003	September 28, 2021
Tauranga Reserves Management Plan 2019	October 20, 2021
Stormwater Strategy for the Bay of Plenty Region October 2005	September 28, 2021
Tauranga City Council Development Guide December 2008	September 28, 2021

Catchment Action Plans were downloaded from the BOPRC website, however, there was no further analysis as the actions revolved around activities in the upper catchment areas rather than in Tauranga City (Bay of Plenty Regional Council 2012a, 2012b, 2012c, 2012d). Also downloaded was the Tauranga Harbour Integrated Management Strategy 2006; however, it had no policy framework, and while it had a set of actions, with four related to wetlands, there were no provisions for restoration or promotion, so no further analysis was undertaken (Lawrie 2006).

For Table 3 policies and plans, the provisions outlined in Appendices E–G were added to Excel worksheets. A further systematic review comprised searches on keywords not included in the first review. The keywords were: ‘estuary/estuaries/estuarine’, ‘biodiversity’ and ‘improve(ment)’. Any provisions that provided for the restoration, rehabilitation, enhancement or improvement of wetlands, estuaries, habitat and biodiversity were included, as were any educational programme provisions. Where possible, the policy structure cascade was entered into the worksheet to determine how the values cascaded through the policy structure and to identify any gaps.

For documents identified in Table 5, a keyword search of terms used through the statutory and submissions analyses followed. The keywords were: ‘wetland’, ‘water body’, ‘estuary/estuaries/estuarine’, ‘biodiversity’, ‘restore/restoration’, ‘rehabilitate/rehabilitation’, ‘enhance(ment)’, ‘improve(ment)’ and ‘promote/promotion’. Provisions included those on wetlands, estuaries, habitat or biodiversity restoration, rehabilitation, enhancement and improvement. Also included were provisions on educational programmes on wetlands, estuaries, habitat and biodiversity.

Following policy identification, each objective, policy and method was reviewed and coded according to the value and corresponding dimension identified in question two. Any objective, policy or method that did not identify values was coded

as 'no-value'. As the term '*mauri*' was used frequently in regulatory documents and *iwi* management plans (IMPs), a code was required. Although *mauri* encompasses and transcends many MEA values, it is most associated with water quality in provisions so is coded as freshwater.

The codes were transferred to one of two tables, one for the BOPRC and TCC policies, plans, strategies and guides, and one for IMPs (see Tables H 1 and H 2 in Appendix H). These tables provided an outline of all the values present through the policy structure of all the documents. The tables showcased the values for each dimension that are provided for; the values that are not provided for; and how the values flow through the policy and statutory planning structures. The separation of the IMPs gave the ability to review *iwi* and *hapū* values against the BOPRC and TCC regulatory documents to determine how well they meet RMA sections 61(2A)(a), 66(2A)(a) and 74(2A).

## 4. Wetlands and their ecosystem services restoration in resource management planning

To identify the extent to which Tauranga’s policy mechanisms for the restoration of wetland ecosystems services reflect local values first required an understanding of Tauranga’s approach to wetlands restoration. Therefore, a statutory analysis of Tauranga’s resource management planning at various scales was undertaken. This chapter outlines the planning regime from the international through to the local (Tauranga) level.

### 4.1 International obligations

New Zealand is a signatory to the *Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention)* (Ausseil, Dymond, and Weeks 2011; Denyer and Robertson 2018; Myers et al. 2013). Signed in 1971, the Ramsar Convention came into force in 1975 (Finlayson et al. 2011), with New Zealand signing and ratifying it in 1976.

Article 1 requires contracting parties to designate at least one wetland of international importance within their territory (Wallace 2015). Designation is “based on a suite of nine criteria related to ecology, botany, zoology, and hydrology” (Denyer and Robertson 2018, 1983). New Zealand has seven Ramsar sites, but as they are all sited in lowlands they do not fully represent New Zealand’s diversity of wetlands or their key ecological and hydrological functions (Denyer and Robertson 2018).

Article 2 of the Ramsar Convention creates obligations to promote the wise use of all wetlands. The Ramsar Convention Manual defines ‘wise use’ as “the maintenance of ecosystems and the continued delivery of ecosystem services to maintain human well-being” (Ramsar Convention Secretariat 2010, 6). The manual also recommends associated measures to achieve the standard, which includes “preparation of a national wetland policy, the development of programmes for wetland inventory, monitoring, research and education, and the development of integrated management plans for all aspects of the wetlands and their relationships to the catchment” (Wallace 2015, 493). Article 3 of the Ramsar Convention deals with promoting the conservation of listed wetlands, including, as far as possible, their wise use.

When a contracting party deletes or restricts the boundaries of a listed wetland, it is encouraged to compensate for any loss of wetland resources. Article 4 of the Ramsar Convention states “it should create additional nature reserves for waterfowl and for the protection, either in the same area or elsewhere, of an adequate portion of the original habitat” (Convention on Wetlands of International Importance especially as Waterfowl Habitat 1994, 1).

Overall, the Ramsar Convention requires New Zealand to develop wetland policy, report on the extent and state of its wetlands, and promote the wise use of listed wetlands. However, it does not require restoration or rehabilitation of wetlands, including listed ones.

## 4.2 New Zealand wetland resource management planning

The *Resource Management Act 1991* (RMA) is New Zealand’s principal resource management law. Section 5 sets out the RMA’s purpose to “promote the sustainable management of natural and physical resources” (Resource Management Act 1991). Section 6(a) requires preservation of the natural character of wetlands and the protection of wetlands from inappropriate subdivision, use and development. Where the definition of a wetland “includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions” (Resource Management Act 1991, 51). Section 6(b) requires the protection of outstanding natural features and landscapes, and Section 6(c) requires the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna. All Section 6 matters must be recognised and provided for as a matter of national importance (Myers et al. 2013).

Subordinate to Section 6 is other matters under Section 7, from which all persons exercising functions and powers under the RMA must have particular regard to. Under Sections 7(c) and (f) particular regard must be given to the maintenance and enhancement of amenity values and the quality of the environment. Amenity values are defined as “those natural or physical qualities and characteristics of an area that contribute to people’s appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes” (Resource Management Act 1991, 35).

The 2003 amendment to the RMA gave legislative responsibility to regional and district councils to develop policies and rules on enhancing the quality of water and ecosystems in water bodies and coastal water. Regional and district plans provide the mechanisms to implement the RMA's national direction and address "the protection of wetlands on private land" (Myers et al. 2013, 110). Section 65 of the RMA provides for the preparation of regional plans whenever certain circumstances or considerations arise or are likely to arise, including the restoration or enhancement of any natural and physical resources in a deteriorated state. Regional plans are not mandatory.

Under the RMA, national standards and policy statements must be addressed by councils (Myers et al. 2013). The purpose of a National Policy Statement (NPS) is to set a policy framework for matters of national significance. A National Environmental Standard (NES) sets the technical standards for dealing with a specific issue (Miller and Beattie 2017). The NZCPS guides councils in their day-to-day management of the coastal environment (Ministry for the Environment 2021b), which includes saline wetlands and intertidal saltmarshes. Policy 14 of the NZCPS requires the promotion of restoration or rehabilitation of natural character. This can be achieved by identifying areas and opportunities for restoration or rehabilitation, providing policies, rules and other methods in regional policy statements (RPSs) and plans, and imposing or reviewing restoration or rehabilitation conditions on resource consents and designations.

Policy 21 provides for the enhancement of water quality where it has deteriorated and has a significant adverse effect on ecosystems, natural habitats or water-based recreational activities, or is restricting existing uses. Policy 21 gives priority to improving water quality through actions such as:

- (b) including provisions in plans
- (c) where practicable, restoring water quality to at least a state that can support such activities, ecosystems and natural habitats; and
- (e) engaging with *tangata whenua* to identify areas where they have particular interest, and remedying these areas and values.

Policy 25 promotes the use of natural defences for managing coastal hazard risk to subdivision, land use and development. Finally, Policy 26 provides for restoration or enhancement of natural defences, including wetlands, that protect coastal land uses or sites of significant biodiversity, cultural or historic heritage or geological value from coastal hazards.

The Essential Freshwater package introduced restoration policies for freshwater. The package includes the introduction of a new NPS for Freshwater Management (NPS-FM) and an NES for Freshwater (NES-F), which came into force on September 3, 2020 (Ministry for the Environment 2021a). According to the Ministry for the Environment, the package is designed to:

- stop further degradation of New Zealand’s freshwater resources and improve water quality within five years.
- reverse past damage and bring New Zealand’s freshwater resources, waterways and ecosystems to a healthy state within a generation (Ministry for the Environment 2021a, para. 2).

Underpinning the NPS-FM is the concept of Te Mana o te Wai, which recognises the fundamental importance of water and that “protecting the health of freshwater protects the health and well-being of the wider environment” (National Policy Statement for Freshwater Management 2020, 5). Te Mana o te Wai encompasses six principles, including *kaitiakitanga*, defined as “the obligation of *tangata whenua* to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations” (National Policy Statement for Freshwater Management 2020, 5). The NPS-FM goes some way towards using a Māori ecosystems framework by creating a hierarchy of obligations that prioritises the health and well-being of water bodies and freshwater ecosystems before that of the health needs of people and “the ability of people and communities to provide for their social, economic, and cultural well-being” (National Policy Statement for Freshwater Management 2020, 9).

The NPS-FM applies to all freshwater and receiving environments (which may include estuaries and the CMA) to the extent they are affected by freshwater. Restoration of wetlands is provided for in the NPS-FM, both generically in the overarching policies and specifically in Subpart 3. General policies require that freshwater management ensures the health and well-being of degraded water bodies and the improvement of freshwater ecosystems. They also require promotion of wetlands restoration and the systematic monitoring over time of the condition of water bodies and freshwater ecosystems, with action “taken where freshwater is degraded, and to reverse deteriorating trends” (National Policy Statement for Freshwater Management 2020, 9). Subpart 3, Section 3.22(4) requires regional councils to make or change their regional plans(s) to include:

objectives, policies, and methods that provide for and promote the restoration of natural inland wetlands in its region, with particular focus on restoring the values of ecosystem health, indigenous biodiversity, hydrological functioning, Māori freshwater values, and amenity value (National Policy Statement for Freshwater Management 2020, 25).

The NPS-FM requires regional councils to include in their regional plans the following policy: “the loss of extent of natural inland wetlands is avoided, their values are protected, and their restoration is promoted, ...” (National Policy Statement for Freshwater Management 2020, 24). ‘Natural inland wetlands’ are natural wetlands not in the CMA. ‘Natural wetland’ means a wetland as defined in the RMA that is not:

- a) a wetland constructed by artificial means (unless it was constructed to offset impacts on, or restore, an existing or former natural wetland); or
- b) a geothermal wetland; or
- c) any area of improved pasture that, at the commencement date, is dominated by (that is more than 50% of) exotic pasture species and is subject to temporary rain-derived water pooling (National Policy Statement for Freshwater Management 2020, 23)

Restoration, in relation to a natural inland wetland, “means active intervention and management, appropriate to the type and location of the wetland, aimed at restoring its ecosystem health, indigenous biodiversity, or hydrological functioning” (National Policy Statement for Freshwater Management 2020, 23).

The NES-F regulates “activities that pose risks to the health of freshwater and their ecosystems” (Ministry for the Environment 2020b, para. 1). The NES-F allows vegetation clearance, earthworks, and changes in water level within, or within a 10-metre setback from, a natural wetland for the purpose of natural wetland restoration as a permitted activity so long as conditions are followed (Resource Management (National Environmental Standards for Freshwater) Regulations 2020). The definitions of ‘natural wetland’ and ‘restoration’ are the same as the NPS-FM. The conditions are that the activity must comply with the general conditions in Regulation 55 (Regulation 38(4)(a)); and that if the activity is vegetation clearance, earthworks or land disturbance, the activity must not occur over more than 500 m<sup>2</sup> or 10 percent of the area of the natural wetland, with the

smallest prevailing (Regulation 38(4)(b)). However, 38(4)(b) does not apply if the earthworks or land disturbance is for planting purposes. If the conditions of 38(4)(a) cannot be met, a restricted discretionary activity status applies. Given Regulation 55 has 13 conditions, the majority with sub-clauses, it may be the case that restoration of wetlands will require resource consent as a restricted discretionary activity.

There has been confusion over whether wetlands located in the CMA are included in the meaning of the term 'natural wetland' in the NES-F. In an Environment Court hearing of appeals on the Proposed Northland Regional Plan, the Environment Court concluded that the NES-F did not have effect within the CMA. However, on appeal, the High Court reversed this decision and made the declaration that the NES-F applies to wetlands in the CMA. This was based on the RMA definition including wetlands in the CMA and the fact that the drafters of the NES-F could have excluded wetlands in the CMA by using the term 'natural inland wetland' as per the NPS-FM. Therefore, while the NPS-FM narrows the scope to natural wetlands outside the CMA, the NES-F does not narrow the scope (Resource Management Law Association of New Zealand Inc 2021). Overall, this difference in natural wetlands covered by the NPS-FM and NES-F suggests a lack of integrated management in the Essential Freshwater package.

The proposed NPS for Indigenous Biodiversity (NPS-IB) would set out objectives, policies and implementation requirements to maintain indigenous biological diversity (indigenous biodiversity) through managing natural and physical resources. According to its explanatory note, meeting its obligations will require "remaining ecosystems to be restored or enhanced and even reconstruction of indigenous vegetation cover in the most modified environments" (Ministry for the Environment 2019, 5).

The NPS-IB includes objectives and policies relating to restoration and enhancement, which apply to wetlands. One of the six objectives is to restore indigenous biodiversity and enhance the ecological integrity of ecosystems. Furthermore, one of the 15 policies is to "provide for the restoration and enhancement of specific areas and environments that are important for maintaining indigenous biodiversity" (Ministry for the Environment 2019, 16). Part 3 which describes NPS-IB's implementation requirements, includes a section on restoration and enhancement. Section 3.16 requires local authorities to promote and identify opportunities for restoration and enhancement of wetlands (including

reconstruction) through objectives, policies and methods in RPSs and plans, and they may provide incentives to do so. These include 3.15(4)(a) on wetlands whose ecological integrity is degraded or where there is a reduction in the presence of indigenous species. In addition, 3.15(4)(d) applies to former wetlands whose indigenous vegetation or habitat for indigenous fauna is lost, but where reconstruction is likely to result in regaining them. Reconstruction means “re-introducing and maintaining appropriate biota to recreate an ecosystem that would not regenerate or recolonise even with best practice restoration interventions” (Ministry for the Environment 2019, 13).

Overall, the current national resource management legislation provides for restoration, and in the case of the NPS-FM, promotes restoration, but this is limited to natural wetlands. Only where water bodies have degraded are there requirements to improve the situation. There is no requirement to reverse the loss of a wetland. Furthermore, there could be confusion on requirements given the interchanging use of the terms ‘restoration’, ‘rehabilitation’, ‘enhancement’ and ‘improvement’, especially as restoration is the only defined term. However, wetlands restoration, and the promotion of wetlands restoration, would be strengthened if the NPS-IB is implemented as it provides for the reconstruction of lost wetlands.

### 4.3 Other relevant national legislation and strategies

#### 4.3.1 Wildlife Act 1953

While the RMA and its subsidiary NES and NPSs provide for habitat protection and restoration, the *Wildlife Act 1953* provides specific animal protection and wildlife sanctuary, refuge, district and management reserve provisions (Wallace 2007). The Wildlife Act affords absolute protection to all wildlife throughout New Zealand land and fisheries waters, so long as the species are not designated in the schedules of the Act. Absolute protection means that no one may kill or have wildlife in their possession unless they have a permit (Department of Conservation n.d.-c).

Section 44B provides for the establishment of the New Zealand Game Bird Habitat Trust Board (Trust Board). The Trust Board’s primary focus is to apply the net receipts from the Habitat Stamp programme to grants (Fish and Game New

Zealand n.d.). The grants help the Trust Board carry out its functions under the Act, including:

- Improving the habitat of New Zealand game birds and other wildlife.
- Identifying and evaluating areas worthy of protection, restoration, improvement, creation or procurement.
- Negotiating the protection, restoration, improvement, creation or procurement of game bird habitat with landowners.
- Receiving submissions and applications for the protection, restoration, improvement, creation or procurement of habitat, and evaluating them to determine whether or not to support them.
- Promoting and advising on the protection, restoration, improvement, creation or procurement of habitat suitable for game birds and associated wildlife to prospective applicants (Wildlife Act 1953).

Overall, the Wildlife Act provides direct protection for wildlife. However, the habitat on which wildlife depends is not afforded such protection. Scheduled wildlife sanctuaries/refuges are a means of protecting wildlife within the areas, not their habitat. Restoration, improvement or creation of habitat, which could include wetlands, is limited to promotion, advice and provision of grants from the Trust Board.

#### 4.3.2 Reserves Act 1977

The *Reserves Act 1977* provides for the acquisition of land for reserves, along with the classification and management of reserves, including their development. The Act has three primary functions. Firstly, it provides for the preservation and management of areas possessing some special feature or value for the benefit and enjoyment of the public. Secondly, it ensures, as far as possible, the preservation of representative natural ecosystems or landscapes and the survival of indigenous species of flora and fauna. Thirdly, it ensures, as far as possible, the preservation of access for the public and encourage the protection and preservation of an area's natural character (Department of Conservation n.d.-b).

The Reserves Act provides for the improvement of reserves, including government purpose reserves administered by the Crown, reserves administered by local authorities, and reserves under lease or managed by administering bodies. Furthermore, the Reserves Act provides for farming and grazing if the reserve is in a development, improvement, or management programme. Neither 'improvement'

nor 'development' is defined, and there are no specific provisions relating to wetlands, water bodies, restoration, rehabilitation or enhancement. Promotion is limited to the third purpose of the Act, on promoting the preservation of the natural character of the coastal environment and the margins of lakes and rivers (Reserves Act 1977).

Overall, the Reserves Act provides protection and preservation of areas that meet the requirements of one or more of the eight categories of reserves. It provides for their development or improvement but there is no specific requirement to restore or rehabilitate them.

### 4.3.3 Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020

Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy 2020 (ANZBS) is a non-statutory document that sets a strategic direction for protection, restoration and sustainable use of biodiversity, particularly indigenous biodiversity, in New Zealand (Department of Conservation 2020b). The ANZBS has a series of objectives and subsequent goals related to five outcomes the strategy aims to achieve by 2050. The outcomes include thriving ecosystems, indigenous species and their habitats. The goals are set at 2025 for tūāpapa (getting the system right) and whakahau (empowering action), and at 2025, 2030 and 2050 for tiaki me te whakahaumanu (protecting and restoring).

Wetland restoration is specifically targeted in Objectives 10 and 13. Objective 10 aims to ensure “ecosystems and species are protected, restored, resilient and connected from mountain tops to ocean depths” (Department of Conservation 2020a, 53). This cascades to two 2050 goals of having an interconnected series of indigenous land, wetland, freshwater, marine and coastal ecosystems restored to 'healthy functioning' states (Goals 10.3.3 and 10.3.4). Objective 13 aims for biodiversity to provide nature-based solutions to climate change and be resilient to its effects. This cascades to goals on carbon storage from the restoration of indigenous ecosystems, including wetlands, contributing to New Zealand's net emissions targets. Timewise, its goals are for its potential to be understood in 2025 (Goal 13.1.1), to contribute to targets in 2030 (Goal 13.1.2) and to be a key contributor to achieving net-zero emissions in 2050 (Goal 13.1.3) (Department of Conservation 2020a).

Provision for wetlands restoration is evident throughout the strategy. Relevant goals include:

- 1.4: Quantifying costs and value of restoring indigenous biodiversity and actively using these to inform decision making.
- 2.2: Development of innovative Treaty partnership approaches that lead the delivery of many biodiversity restoration projects.
- 3.2: Economic tools promote the protection and restoration of biodiversity for its intrinsic value, as well as economic benefits.
- 7.1: Education and campaigns are encouraging people to take action to protect and restore nature.
- 8.2 and 8.4: Individuals, landowners, businesses, resource users/owners and industry are supported and, where appropriate, incentivised to restore and protect indigenous biodiversity.
- 12.5.1: The most appropriate places for the protection and restoration of indigenous biodiversity have been identified.
- 12.5.3: Connectivity of indigenous ecosystems has improved through targeted restoration.
- 13.2.2 and 13.2.3: Restoration of indigenous ecosystems improves resilience and ultimately mitigates the effects of climate change and natural hazards (Department of Conservation 2020a).

Overall, the ANZBS strongly endorses the concept of wetlands restoration. However, given its non-statutory status, its implementation is dependent on the statutory and non-statutory methods employed by central government and local authorities. Currently, the resource management planning legislation does not incentivise wetlands restoration to the level required to meet the objectives and goals of the ANZBS. However, the implementation of the proposed NPS-IB would help to do so.

## 4.4 Bay of Plenty wetland resource management planning

### 4.4.1 Bay of Plenty Regional Policy Statement

Under the RMA, regional councils must develop an RPS to address regional planning issues. In the RPS, regional councils can develop objectives, policies and methods to help achieve the integrated management of their region's natural and physical resources (Miller and Beattie 2017). The BOPRPS came into effect in

October 2014, and since this time has had four plan changes and one amendment to meet the requirements of the NPS on Urban Development Capacity (Bay of Plenty Regional Council 2014).

Relevant BOPRPS provisions focus on wetlands, ecosystems and biodiversity restoration, rehabilitation and enhancement (see Table E 1 in Appendix E). These provisions are primarily for degraded natural character and ecosystems or to protect against natural hazards. Criteria for assessing natural character include natural systems, where “the qualities and patterns of the landscape express integrated physical processes and ecological systems and promote and support the healthy functioning of the natural environment” (Bay of Plenty Regional Council 2014, 239). Its provisions also require:

- Landform which retains its natural form and qualities
- Estuaries and wetlands are natural without obvious human structures or intervention, and
- Habitat for fauna is natural and can function without compromise (Bay of Plenty Regional Council 2014).

There is a single provision for wetlands creation (Method 37), which derives from Policy CE 4A on protecting and restoring natural coastal margins to provide a protective buffer from natural hazards (Bay of Plenty Regional Council 2014). There are no provisions that enable the reconstruction of lost wetlands. Furthermore, the BOPRPS does not define ‘restoration’, ‘rehabilitation’ or ‘enhancement’, or outline what any involves. The BOPRPS does promote active community participation by providing practical support for community restoration initiatives of natural features and ecosystems (Method 26). However, there is no provision for promotion to raise public awareness and increase positive public perceptions for wetlands restoration (Bay of Plenty Regional Council 2014).

#### 4.4.2 Bay of Plenty Regional Natural Resources Plan

Regional councils can develop objectives, policies and methods in a regional plan to further achieve a region's integrated management of natural and physical resources (Miller and Beattie 2017). The BOPRC has developed a Regional Natural Resources Plan that includes provisions for wetlands above mean high water springs (Bay of Plenty Regional Council 2008).

The BOPRNP became operative in December 2008 and has had two plan changes and five amendments, including four to incorporate NPS, NES and Planning Standards requirements, including the new NPS-FM in March 2021. While the definition of wetlands is the same as the RMA, it excludes artificial water bodies, including those used for wastewater or stormwater treatment and those “that are not in the bed of a stream, river or lake; and are not degraded natural wetlands that have been modified. This includes artificial water bodies that are managed to appear ‘natural’” (Bay of Plenty Regional Council 2008, 21).

The BOPRNP provides for the creation, restoration and enhancement of wetlands via several objectives, policies and methods (see Table E 2 in Appendix E). Interestingly, restoration is limited to Policy WL P13, which is the policy wording required by the NPS-FM. Restoration requirements, therefore, do not cascade through the objective, policy and method structure. On the other hand, wetlands creation and enhancement requirements follow the policy cascade. The disconnect in restoration provisions through the policy cascade is likely a result of the BOPRNP's development occurring in advance of the NPS-FM update. The creation of wetlands is provided for throughout the BOPRNP within the sections on land management (LM), water quantity and allocation (WQ) and beds of water bodies (BW). However, the planting of vegetation on land is not the role of the BOPRNP, as this is a function of land use controlled under a city/district plan (Bay of Plenty Regional Council 2008).

#### 4.4.3 Bay of Plenty Regional Coastal Environment Plan

Control of coastal wetlands is undertaken through the BOPRCEP, which was made operative in December 2019. Unlike a regional plan, a regional coastal plan, which addresses activities in the CMA, is mandatory. In line with the boundaries of the NZCPS, the BOPRCEP encompasses the coastal environment, which extends inland beyond the CMA. Therefore, some BOP wetlands will be subject to the rules of the BOPRNP and BOPRCEP.

Unlike the BOPRNP, which has a dedicated wetlands section, the BOPRCEP includes references to wetlands and their restoration, rehabilitation, enhancement or improvement throughout the plan, under sections relating to natural heritage (NH), *iwi* resource management (IR), water quality (WQ), natural hazards (CH) and activity-specific policies and rules (see Table E 3 in Appendix E). In most cases, there is no connection between policies and methods to achieve restoration,

rehabilitation, enhancement or improvement of wetlands and specific restoration objectives, except in the case of natural heritage, which has a clear cascade structure. The natural heritage section also includes three issues that directly reference restoration. Issue nine outlines that inappropriate restoration, remediation or mitigation can negatively affect natural heritage values. Natural heritage “includes indigenous flora and fauna, terrestrial, marine and freshwater ecosystems and habitats, landscapes, landforms, geological features, soils and the natural character of the coastline” (Bay of Plenty Regional Council 2019, 212). Issue 10 cites that restoration and rehabilitation of natural heritage can be inhibited or prevented by an overly restrictive regulatory framework. Issue 11 states that “regulation alone cannot achieve restoration of natural character” (Bay of Plenty Regional Council 2019, 12). Issue 11 also outlines that community collaboration and facilitation of community-based groups and *tangata whenua* provide a significant opportunity to progress restoration of natural character (Bay of Plenty Regional Council 2019).

A short guideline for rehabilitation of estuarine areas is provided, outlined as “encourage and promote revegetation of estuarine edge areas with appropriate native coastal species” (Bay of Plenty Regional Council 2019, 366). However, there is no outline as to what constitutes ‘restoration’, ‘enhancement’ or ‘improvement’. The BOPRCEP does not provide for wetlands creation, except in the management of stormwater. Rules also permit modification of wetlands in the CMA for their enhancement, subject to conditions and being in accordance with a Coastal Wetland Management Agreement or Biodiversity Management Plan, a Reserve Management Plan or a Conservation Management Strategy (Bay of Plenty Regional Council 2019).

Overall, restoration, rehabilitation and enhancement are provided for in the BOPRPS and regional plans’ cascade. However, there is a focus on restoring or enhancing wetlands that are either degraded or for protecting against natural hazards. Interestingly, it is the oldest plan, the BOPRNRP, that has the strongest provisions for restoration or reinstatement of lost wetlands through its objectives, policies and methods that enable the creation of new wetland habitats. The BOPRPS and BOPRCEP have more moderate provisions and only provide for wetlands creation as buffers from natural hazards and for managing stormwater.

The strength of promotion provisions in the BOPRPS and BOPRNRP are moderate, with the BOPRPS providing for the promotion of active community

participation through the provision of practical support for community restoration initiatives of natural features and ecosystems. The BOPRNP incorporates the NPS-FM requirement alongside provisions to promote covenants, and other voluntary agreements, to help enhance wetlands on private land and encourage landowners to enhance wetlands. On the other hand, the BOPRCEP is fairly low on promotion, with a single provision to encourage landowners and the community to maintain or enhance natural heritage values by maintaining or improving water quality in wetlands (Bay of Plenty Regional Council 2019).

#### 4.5 Tauranga wetland resource management planning

District and city councils, such as TCC, are responsible “for developing objectives, policies and methods to achieve the integrated management of the effects of the use, development and protection of land-use activities, responding to natural hazards (in conjunction with regional councils) and controlling land subdivision through their district plans” (Miller and Beattie 2017, 19). The TCP was made partly operative in September 2013 and fully operative in July 2014. Since this time, it has undergone six variations and has had 15 plan changes. At the time of download, June 3, 2021, it was in the process of three further plan changes on housing choice (plan change 26), flooding from intense rainfall (plan change 27) and earthworks (plan change 30), each of which was in the further submission phase.

The TCP primarily provides for the maintenance and enhancement of wetlands via their protection or preservation from inappropriate or adverse effects of subdivision, use or development (see Table F 1 in Appendix F). The TCP provides for this in policies directly referencing wetlands or through policies on Special Ecological Areas, Significant Māori Areas, Conservation land, and along the margins of Tauranga Harbour, where wetlands may exist. It is also possible for wetlands to be enhanced if they contain areas of remnant indigenous vegetation or provide landscape character values.

Restoration policies are limited in the TCP to areas where there is the ability to restore or rehabilitate wetlands’ natural character; or areas where there is the ability to enhance the ecological values of remnant indigenous vegetation. Ecological restoration is defined as “returning a place as nearly as possible to a known earlier state by reassembly, reinstatement and/or removal of extraneous additions, and includes ground reinstatement” (Tauranga City Council 2013, 3:13).

There is no provision for creating new wetlands, even for natural hazard mitigation, unless it can be considered a stormwater reserve (Tauranga City Council 2013). This creation of stormwater reserves is also in the associated Tauranga City Development Guidelines 2008. The guideline recommends planning stormwater catchments to work with wetlands and includes consideration of constructed wetlands to treat stormwater (Tauranga City Council 2008).

Methods in the TCP are activity status rules, which require earthworks within 15 metres of a wetland to not exceed more than 50 m<sup>3</sup> in a six-month calendar period and/or raise or lower the ground level by more than 1 metre for it to be a permitted activity under Rule 4C.2.6 (Tauranga City Council 2013). These rules are different to the requirements of the recent NES-F. For earthworks that do not comply with Rule 4C.2.6, a landscape and visual assessment from a qualified landscape architect is required for a restricted discretionary consent application under Rule 4C.3.1. This assessment needs to have “particular regard to the open space character and factors, values and associations that contribute to the area’s landscape and natural character” (Tauranga City Council 2013, 4C:8), which includes the interface with a wetland.

Overall, the TCP has low to moderate provisions for wetlands restoration, rehabilitation or enhancement. The TCP has no provisions relating to the promotion of wetlands restoration.

## 4.6 Iwi resource management planning

RMA sections 61, 66 and 74 require local governments to take into account any relevant planning document recognised by an *iwi* authority where its content has a bearing on resource management issues (Miller and Beattie 2017). IMPs have been the most popular means of articulating Māori resource management aspirations (Miller and Beattie 2017).

### 4.6.1 Pan-*iwi* resource management plans

Four *iwi* reside within the TCC boundaries, Ngāti Ranginui, Ngāi Te Rangi, Ngāti Pūkenga and Te Arawa. Ngāti Ranginui, Ngāi Te Rangi and Ngāti Pūkenga have *rohe* in and around Tauranga Moana (Te Awanui/Tauranga Harbour) and Te Arawa in Mount Maunganui and Papamoa. The three Tauranga Moana *iwi* authorities have created two pan-*iwi* IMPs.

The most recent plan is the 2016–2026 Tauranga Moana IMP, where Tauranga Moana is defined as Te Awanui Tauranga Harbour and its adjacent land, waters (including wetlands) and CMAs. Tauranga Moana takes in an area larger than the geographic boundaries of TCC, but does not include East Papamoa. Its purpose is to articulate the collective vision and aspirations of the three *iwi* in relation to Tauranga Moana. However, it does not replace any planning document prepared by the *iwi* or associated *hapū*. Its overarching vision is for *iwi* and *hapū* to work together and be actively involved in restoring and enhancing the *mauri* of Tauranga Moana (Ngāti Ranginui Iwi Society Incorporated, Te Rūnanga o Ngāi Te Rangī Iwi Trust, and Ngāti Pūkenga Iwi ki Tauranga Trust 2016).

The Tauranga Moana IMP includes a section dedicated to wetlands. Objective 6.3.1 states that “the *mauri* of all wetlands within Tauranga Moana are protected and where possible restored and enhanced” (Ngāti Ranginui Iwi Society Incorporated, Te Rūnanga o Ngāi Te Rangī Iwi Trust, and Ngāti Pūkenga Iwi ki Tauranga Trust 2016, 35). This objective cascades to policies and actions on encouraging wetlands in areas that are unsuitable for grazing (Action 6.2) and Tauranga Moana *iwi* working with councils, landowners, community groups and other agencies on wetland creation, restoration and enhancement projects (Action 6.3a). There are also linkages to wetlands restoration in further sections, particularly around Tūhauora Whenua (land), Tūhauora Whānau (our people) and Tūhauora Hinengaro (knowledge) (see Table G 1 in Appendix G).

Overall, the Tauranga Moana IMP has strong objectives, policies and actions on wetlands restoration and enhancement. Furthermore, actions in the wetlands and land-use effects sections include references to wetlands creation. To achieve these, *iwi* and *hapū* seek active involvement in the development of plans and the use of *mātauranga Māori* (Ngāti Ranginui Iwi Society Incorporated, Te Rūnanga o Ngāi Te Rangī Iwi Trust, and Ngāti Pūkenga Iwi ki Tauranga Trust 2016). However, the Tauranga Moana IMP has low to moderate provisions towards wetlands promotion, with actions focused on promoting incentives and providing technical advice.

The 2008 Te Awanui Tauranga Harbour IMP is an older plan that applies to Te Awanui and its catchment area (Te Rūnanga o Ngāi Te Rangī, Te Rūnanga o Ngāti Ranginui, and Te Rūnanga o Ngā Pūkenga ki Tauranga 2008). The Te Awanui Tauranga Harbour IMP has a section on wetlands, including Objective 5.3.1 on

enhancing wetlands, policies on enhancing and restoring wetlands, and actions focused on wetlands restoration. Objectives, policies and actions for wetlands restoration and enhancement can be seen throughout the plan, particularly around issues on wastewater/sewage, oxidation ponds, agricultural and horticultural run-off and sedimentation (see Table G 2 in Appendix G). The creation of wetlands is referenced as an option “to promote alternative environmentally sound options for waste treatment and disposal systems” (Te Rūnanga o Ngāi Te Rangi, Te Rūnanga o Ngāti Ranginui, and Te Rūnanga o Ngā Pūkenga ki Tauranga 2008, 36).

Like the Tauranga Moana IMP, the Te Awanui Tauranga Harbour IMP strongly desires the restoration and enhancement of wetlands. However, the creation of wetlands is more limited to the issue of wastewater/sewage. The three *iwi* seek an integrated approach to catchment management and to participate in restoration/enhancement, research and training, and have good relationships with councils, communities and research agencies. The plan has fairly strong provisions for promoting restoration of wetlands and catchments, receiving environments and high-risk ecological areas.

#### 4.6.2 Ngāti Ranginui hapū management plans

Ngāti Ranginui has 10 affiliated *hapū* (Ngāti Ranginui Iwi Society Incorporated, Te Rūnanga o Ngāi Te Rangi Iwi Trust, and Ngāti Pūkenga Iwi ki Tauranga Trust 2016), with five having *rohe* within TCC boundaries, being Ngāti Kahu, Ngāti Hangarau, Ngāi Tamarāwaho, Ngāti Ruahine and Ngāi Te Ahi. The boundaries of Ngāti Ranginui and its *hapū* reach across the south-west of Tauranga. Ngāti Kahu, Ngāi Te Ahi and Ngāi Tamarāwaho each have a *hapū* IMP (Tauranga City Council n.d.).

Ngāti Kahu’s *rohe* is primarily around the Wairoa River (Te Runanga o Ngāti Kahu 2011). The Ngāti Kahu Environmental Management Plan includes a vision on identifying parts of the environment that need restoration (Te Runanga o Ngāti Kahu 2011). In developing the plan, interviewees said that while much of the Wairoa River is degraded, the degradation is not beyond restoration. The Ngāti Kahu Environmental Management Plan outlines five achievements it seeks; four of these involve restoration and/or enhancement. These achievements include restoring and protecting the *mauri* of *Te Taiao* o Ngāti Kahu; maintaining and strengthening Ngāti Kahu’s spiritual/cultural connections to *Te Taiao*; improving,

strengthening and sustaining the cultural/spiritual well-being of Ngāti, and there being a better environment for Ngāti Kahu's *mokopuna* (Te Runanga o Ngati Kahu 2011).

The Ngāti Kahu Environmental Management Plan focuses on principles relating to *kaitiakitanga* and policies relating to all other sections. The *kaitiakitanga* principles take precedence over all policies. Though there is no specific wetlands section, it does include a section on *wai* that is separate from the Wairoa River and Te Awanui sections. The Ngāti Kahu Environmental Management Plan has a limited number of policies that relate to restoring or enhancing wetlands. This limitation is due to the plan's focus on promoting the replenishment of biodiversity and enhancing *mahinga kai*, *tuna* habitat, waterway ecosystems and *mauri* (see Table G 3 in Appendix G). However, the overarching principles of *kaitiakitanga*, including the requirement to involve *utu* where there is any desecration or manipulation of *Te Taiao*, could be said to provide for restoration and/or enhancement of wetlands. The plan outlines that *utu* focuses on restoring the *mauri* of *taonga* and addressing past mistakes (Te Runanga o Ngati Kahu 2011).

Ngāi Te Ahi's *rohe* includes the coastal area of Mauao through to the areas surrounding Maungatapu and continues inland around the Waimapu River (Ngāi Te Ahi 2013). The Ngāi Te Ahi *Hapu* Management Plan was published in 2013. There are no specific references to wetlands, and restoration is limited to a statement that Ngāi Te Ahi wants to participate in monitoring restoration activities. The closest information related to wetlands creation is a statement that Ngāi Te Ahi supports the establishment of ecological corridors to protect high-value ecological sites. There is no reference to enhancement. However, those reading the plan need to understand that Ngāi Te Ahi maintains the right to exercise *kaitiakitanga* (Ngāi Te Ahi 2013).

Ngāi Tamarāwaho *rohe* extends from Matua to the central business district and inland to Pyes Pa and beyond (Ngai Tamarawaho 2014). The Te Mana Taiao o Ngai Tamarāwaho Management Plan was published in 2014 and states its purpose is to set out how Ngāi Tamarāwaho will deal with environmental and resource management issues and where input into environmental issues is appropriate (Ngai Tamarawaho 2014). Therefore, there are no specific objectives, policies or methods, although there is a projects action table. Reference to wetlands restoration and/or enhancement is outlined through the *kaitiaki* obligation to ensure, and where possible, enhance water quality. Furthermore, Ngāi

Tamarāwaho explicitly states it wishes to work with other stakeholders towards the incremental restoration of waterways and the restoration of its *mauri*. Like other plans of the Ngāti Ranginui-affiliated *hapū*, the right to *kaitiakitanga* over their *rohe* is explicit.

#### 4.6.3 Ngāi Te Rangi resource management plans

Ngāi Te Rangi has 11 affiliated *hapū* (Ngāti Ranginui Iwi Society Incorporated, Te Rūnanga o Ngāi Te Rangi Iwi Trust, and Ngāti Pūkenga Iwi ki Tauranga Trust 2016), with six having *rohe* in TCC boundaries, being Ngati He, Ngai Tukairangai, Ngati Kuku, Ngati Tapu, Ngati Potiki and Ngati Kaahu. The boundaries of Ngāi Te Rangi and its *hapū* span from Mauao to Central Papamoa and extend southwards from Matua to Greerton and across to Welcome Bay and Ohauiti. Ngāi Te Rangi has an IMP, and the *hapū* of Ngai Tukairangai and Ngati Tapu have a combined IMP (Tauranga City Council n.d.).

The Ngāi Te Rangi Resource Management Plan was published in 1995 and is the oldest IMP. The plan contains a series of policy statements, including those from four *hapū*, being Ngai Tukairangai, Ngati Tapu, Ngati Potiki and Ngati He. While there is no specific reference to wetlands, restoration of estuaries, which can also be known as wetlands (Department of Conservation n.d.-a), are found in policy statements at both the *iwi* and *hapū* levels. The policy statements encourage the preservation and restoration of the estuarine foreshore in its natural state, with ongoing preservation and restoration programmes to be undertaken (Te Runanga O Ngaiterangi 1995).

The Ngai Tukairangai and Ngati Tapu Hapū Management Plan was published in 2014. According to its executive summary, it is only operative for five years, after which time it will need to be reviewed and updated. Both *hapū* have *papakāinga* in Matapihi and Whareroa, as well as different *rohe* around Western Bay of Plenty (Ngai Tukairangi Hapu Trust and Ngati Tapu Hapu Trust 2014). Wetland enhancement or improvement is seen throughout the plan, either directly regarding wetlands or through more general policy statements on development, funding, wastewater/sewage and stormwater receiving environments and supporting integrated catchment management to improve water quality. Restoration is more limited to a policy statement on restoring wastewater/sewage receiving environments (see Table G 4 in Appendix G) (Ngai Tukairangi Hapu Trust and Ngati Tapu Hapu Trust 2014).

#### 4.6.4 Ngāi Pūkenga management plan

According to TCC, Ngāti Pūkenga has the smallest geographic boundary within Tauranga City of the three Te Awanui *iwi*. Ngāti Pūkenga has *rohe* in the Ngapeke area around Rangataua Bay, and it developed the Ngāti Pūkenga Iwi ki Tauranga Trust IMP in 2013 (Tauranga City Council n.d.). The plan outlines how the *iwi* wants its resources managed and culture respected (Ngāti Pūkenga Iwi ki Tauranga Trust 2013). As part of its vision, the *iwi* desire that their people “enhance and preserve the natural environment and resources” (Ngāti Pūkenga Iwi ki Tauranga Trust 2013, 1).

The Ngāti Pūkenga Iwi ki Tauranga Trust IMP outlines a series of incorporated policies, requirements and outcomes that are associated with specific issues. The plan does not reference wetlands, restoration, rehabilitation or enhancement. However, like other IMPs, Ngāti Pūkenga maintains their position as *kaitiaki* over their *rohe*. The plan also includes policies on having an active management role in waterways and estuaries in their *rohe*, including Ngāti Pūkenga being at the table when the council develops the water strategy. Furthermore, Ngāti Pūkenga wants to be involved in any decision-making affecting their “customary or traditional practices of food gathering and species” (Ngāti Pūkenga Iwi ki Tauranga Trust 2013, 7).

#### 4.6.5 Te Arawa hapū management plans

Te Arawa has 16 affiliated *hapū* (Te Puni Kōkiri - Ministry of Māori Development n.d.), with three *iwi* authorities having *rohe* within the boundaries of TCC (Tauranga City Council n.d.). The Tapuika and Waitaha *iwi* authorities have created IMPs.

Tapuika encompasses four main *hapū*: Ngāti Tuheke, Ngāti Moko, Ngāti Marukukere and Ngāti Kuri (Tapuika Iwi Authority Trust 2014). Tapuika has finalised its settlement of historical Treaty of Waitangi claims, resulting in the Tapuika Claims Settlement Act 2014. “The Settlement recognises breaches of the Treaty of Waitangi and its principles in its dealings with Tapuika” (Tapuika Iwi Authority Trust 2014, 11). The breaches include modifying, degrading and polluting the Kaituna River, which forms the Eastern boundary of Tauranga. The Tapuika Claims Settlement Act 2014 established a co-governance framework for the Kaituna River (Tapuika Iwi Authority Trust 2014).

The Tapuika Environmental Management Plan was published in 2014 and covers a period of 10 years. It includes policies on wetland restoration, such as identifying projects and focusing resources and efforts on restoration projects within the Priority River Catchment (including the Kaituna River) and the coastal environment. It also includes the pursuit of opportunities to work with others on restoration projects and exploring partnership opportunities that use “scientific and *mātauranga* based knowledge to guide restoration projects” (Tapuika Iwi Authority Trust 2014, 24). These policies help meet outcomes on enhancing the *mauri* of waterways, aquifers, coastal waters, land and soil resources (see Table G 5 in Appendix G) (Tapuika Iwi Authority Trust 2014).

Waitaha encompasses 12 *hapū* and has finalised its settlement of historical claims with the Crown, resulting in the Waitaha Settlement Act 2013 (Te Kapu o Waitaha 2015). The Waitaha IMP was published in 2015, with drafting during the early development of the Post-Settlement Governance Entity. Therefore, the plan reflects high-level thinking rather than specific detail. The Waitaha IMP acknowledges the aim of having their people and others take better care of their environment and requires plan readers to consider the *kaitiaki* responsibilities of Waitaha (Te Kapu o Waitaha 2015). Overall, in line with the high-level thinking, the plan does not deal specifically with wetlands restoration, other than noting it as a problem in section 2.10. However, it does outline the desired outcome of restoring the *mauri*, enhancing the well-being and protecting and balancing the biodiversity of all indigenous species and their habitats within section 2.3.

Overall, IMPs vary in the identification and strength of provisions relating to wetlands restoration. However, there is an overarching theme of enhancing the *mauri* of waterbodies. Often the restoration of wetlands is seen as a way of enhancing the *mauri*. There is limited focus on promoting wetlands restoration, although IMPs strongly advocate for the ability to practice *kaitiakitanga* and for the active participation of their members in waterbodies management.

## 5. Local values towards wetland ecosystem services in Tauranga

The second research question guiding this thesis aims to understand what local people value as important wetland ecosystem services, using Tauranga as a case study. Before delving into the six dimensions of wetland values identified through the thematic analysis of interviews and public submissions data, an outline of the public understanding of different terms used in statutory and regulatory documents, and knowledge of Tauranga wetlands, is provided.

### 5.1 The interchanging of terms and public understanding

Several terms are used interchangeably throughout the statutory and interview analyses. Furthermore, there are differences in legislation and public understanding of these terms.

The first of these terms is not a value, rather it regards restoration. Throughout the statutory analysis, the terms 'restoration', 'rehabilitation', 'enhancement' and 'improvement' are used, often interchangeably. In the primary, legislation, policies and plans do not define these terms or outline what is required of each. The exception for this is the NPS-FM, which defines restoration, and the BOPRCEP's guideline on estuarine rehabilitation.

Given the breadth of terms used, participants were asked what they thought each meant and whether there were any differences between them. For the TCC participant, restoration involved removing pest plants, while enhancement was working with what's already there. For the BOPRC planner, the NPS-FM's inclusion of the term's 'active intervention' and 'management' in its restoration definition meant a lot of grey space in interpreting the scale of work. According to the BOPRC planner's in-field colleagues, there is a difference between maintenance, which includes the removal of pest plants, and full-scale restoration. When considering just inland wetlands, these may include wetlands constructed to offset impacts on or restore an existing or former natural wetland but do not include other artificially created wetlands.

Participants' views on the different terminologies varied, including restoration being the re-creation of lost or desecrated wetlands for the Forest and Bird and Ngāi Te

Rangi participants. For Papamoa Residents and Ratepayers Association restoration represents a wetland that is still in existence as well as a wetland that has been lost. For Forest and Bird, Ngāi Te Rangi and Matua Estuary Care Group, the term 'enhancement' represents working with what is already there, and Ngāi Te Rangi suggested it could be supporting a wetland to keep it in balance and function naturally. Interestingly, in a submission to the BOPRNRP, the BOP Conservation Board recommended including a definition for 'enhancement' given people have different understandings of what enhancement means.

Only the Ngāi Te Rangi participant articulated ideas about what rehabilitation and improvement meant. Based on ordinary understanding, the Ngāi Te Rangi participant suggested that rehabilitation could be helping a wetland come back from being harmed, or suffering a setback, while improvement could be supporting the wetland to function better. For Tapuika, Ngāti Ranginui and Ngāti Pūkenga participants, the differing terms were just words, and anything done to restore, rehabilitate, enhance or improve wetlands was a good thing. The Ngāti Ranginui and Ngāti Pūkenga participants were more focused on the Māori values of *mauri*, *whakaora* and *kaitiaki*.

In submissions, it is not clear if submitters see any differences in the terms, and they are often used interchangeably. The primary production industries and industry bodies, such as Carter Holt Harvey and Federated Farmers of New Zealand Inc, stated that artificially created wetlands should be excluded from any objectives, policies and methods.

When it comes to values, there seems to be some difference in the understanding of the terms 'biodiversity' and 'habitat' between the MEA, legislation, policies and plans, and those interviewed. As noted in the methodology section, an example of biodiversity in the MEA framework is "habitats for resident or transient species" (Millennium Ecosystem Assessment 2005b, 32). On the other hand, the RMA considers biological diversity to be the variability among living organisms and the ecological complexes. Habitat, however, is mostly undefined. Only the BOPRNRP provides a definition, stating that habitat is "the place or type of site where an organism or population normally occurs" (Bay of Plenty Regional Council 2008, 11).

Interview participants were not asked about their understanding of the term's 'biodiversity' and 'habitat', however, the linkages between the terms show an

interesting pattern. Where biodiversity was mentioned, habitat was also mentioned by all but one participant, which links closely to the MEA framework. However, habitat was mentioned by nearly twice as many participants (11) as biodiversity (six) was, suggesting they saw habitat as a value in its own right. In submissions, there was only one linkage between biodiversity and habitat, and habitat was cited by more than twice as many participants (23) compared to biodiversity (10).

The term natural character provides an interesting conundrum. It is a widely used term because of the RMA's Section 6 requirement to preserve it in respect of the coastal environment as a matter of national importance. In the NZCPS, Section 13(2) outlines that natural character is not the same as natural features and landscapes or amenity values, rather it may include a number of matters. According to the Environment Foundation (2015), natural character generally reflects an absence of buildings and other human influences; the presence of original landforms, vegetation cover and ecological patterns; water bodies and natural movement of water and sediment; as well as experiential attributes, which can vary in degree.

No interview participant used the term natural character when describing wetlands, but the term 'natural' was used. While participants were not asked to define what 'natural' meant, elements of natural character can be seen in their responses. For example, the Matua Estuary Care Group participant stated that wetlands are places that provide habitat for birds to do what they do naturally (breed). In terms of the experiential attributes, the Papamoa Residents and Ratepayers Association participants expressed the need for people to have open spaces and natural areas to enjoy. The Ngāi Te Rangi participant said wetlands are naturally beautiful places, and the Bay Conservation Alliance participant said they are nice places to go because they are so natural.

What encompasses submitters' concepts of natural character is not particularly clear. Several industry bodies, businesses and landowners requested wording changes from the 'preservation' of natural character to either 'manage' or 'restore' based on the need for compatibility between Tauranga's current and future zonings, the natural character of wetlands, and the need to preserve all options for future urban development. In contrast, conservation and *iwi* groups agreed with the need to preserve natural character, and in many cases made requests to add the words 'enhance' or 'enhancement' into natural character policies. Ngāti Mākinō Heritage Trust and Ngāti Ranginui Iwi Incorporated Society wanted

acknowledgement that restoration of natural character can be achieved by restoring cultural landscape features. This inclusion of cultural elements fits within the definitions provided by the BOPRPS and TCP but goes beyond the direction provided in the NZCPS. In interviews, the term 'natural' was most often mentioned in association with aesthetic values, and in submissions it was most often positioned alongside natural heritage and landscape attributes. Overall, where natural character fits within the values set is not completely clear, though it appears most connected to aesthetic values.

## 5.2 Knowledge of wetlands in Tauranga and its surrounds

At the onset of each interview, interview participants were asked about their knowledge of Tauranga wetlands. Council participants had extensive wetlands knowledge, identifying numerous wetlands, including estuaries and saltmarshes, such as Matua and Waimapu, harbour margin wetlands, wetlands in catchments along the Wairoa and Waitao rivers, the stormwater reserve of Gordon Carmichael as well as wetlands in Welcome Bay, Te Tumu and the Kopurererua Valley.

The knowledge of non-Council participants was not as extensive, and wetlands identified tended to be those in the vicinity of the participants current or past residence, within their *iwi rohe*, or where they undertake conservation work. Examples include the Matua Estuary Care Group participant who focused primarily on the Matua estuary and saltmarsh but was aware of the Waimapu, Waikareao and Welcome Bay estuaries and the Kopurererua Valley. The Forest and Bird participant knew the wider Papamoa area, including lost wetlands behind the dunes, Kopurererua Valley and Gordon Carmichael reserve. The Papamoa Residents and Ratepayers Association focused primarily on the stormwater reserves in Papamoa, particularly Te Ara O Wairakei, but were also aware of the planned restoration at Kopurererua Valley. Similarly, the Ngāti Pūkenga participant focused on the wetlands being restored on *iwi* land in Welcome Bay.

On the other hand, the participant from Ngāi Te Rangi was aware of wetlands around the Wairoa River, Tauriko, Kopurererua Valley, Hairini, Welcome Bay, Mangatawa, Papamoa including Te Tumu, and the islands in Tauranga Harbour. The Ngāti Ranginui participant mentioned wetlands around the Wairoa River, Tauriko, Harini, Maungatapu and Welcome Bay.

Outside of the TCC boundaries, the Kaituna wetlands restoration, which sits on the Western Bay of Plenty District Council (WBOPDC) side of the Kaituna River, is often-mentioned. There are also individual mentions of wetlands around Te Puke, Katikati, Waihi, Te Puna and Omokoroa, all of which sit within the WBOPDC boundaries.

This contributes to the overarching theme that people's connection to place underpins their knowledge, association and values towards wetlands.

### 5.3 Values towards wetlands and their restoration in Tauranga and its surrounds

The interviews demonstrated that participants are aware and appreciative of a range of wetland ecosystem services. Consistent with the literature review, wildlife habitat was one of the most highly valued services, with nine interviews discussing this in a positive light. The provisioning of food species, such as *inanga*, *tuna* and oysters was also seen positively by nine interviews, though for non-*iwi* participants this was from a habitat rather than a food gathering perspective. The importance of wetlands as a filter for nutrients and contaminants was well-known, with nine interviews mentioning this function and eight having a positive association towards it. Furthermore, four interviews identified, and had a positive association with, wetlands and their ability to mitigate against impacts of climate change. Additionally, six interviews mentioned wetlands' water regulation ability, with five interviews seeing this in a positive light, and one seeing both positive and negative associations with it. These findings contrast with the literature review that found that regulatory services were not well known (Hoehn, Lupi, and Kaplowitz 2003; Scholte et al. 2016). Freshwater, particularly water quality, was mentioned in six interviews. The cultural themes varied from recreation opportunities, such as walking, cycling and observing wildlife (primarily birds), to cultural heritage, spiritual values, education and social collaboration. For the most part, *iwi* participants tended to express a more holistic perspective of wetlands as dynamic ecosystems that connect to their spiritual beliefs and cultural practices.

When considering the summaries of submission's, there are varied and divergent discussion points. Some submissions supported objectives, policies and methods that require the protection of wetlands, biodiversity and habitat, with conservation groups generally wanting more focus on enhancement and restoration. *Iwi* and *hapū* groups discussed the need for more restoration at

identified sites to enhance *kaimoana* stocks, protect cultural values and maintain practices. There was also support for climate regulation and natural hazard protection based on restoring the natural functioning of coastal margins (including wetlands) as an adaptation to climate change and natural hazards, especially storms and tsunamis. There were three connections between the climate regulation and natural hazard protection values and water regulation given wetlands' flood control functionality. Recreation was supported based on providing open areas and accessways. There was support for mangroves' ability to act as a sediment trap, however, this was in contrast to those opposed to mangroves, who saw sedimentation as a barrier to the open waterways they preferred. There was also general support for natural character.

On the other hand, some submissions considered the proposed rules around wetlands, biodiversity or habitat as overly restrictive, impacting urban development or making maintenance of infrastructure difficult. There were several submission points opposed to having identified areas of biodiversity listed on land they own. Some conservation groups had negative associations with natural character based on the idea that remedial and/or restorative action should not be "hindered by statements of natural character which define the outcomes of poor or inappropriate land-use practices as being 'The Natural Character' of an area" (Bay of Plenty Regional Council 2011, 83-4).

Based on the number of mentions by submitters, habitat was again the most cited service, with 17 outlining this in a positive light and six in a negative light. Other commonly cited services included cultural heritage (16 positive mentions), natural character (12 positive mentions, nine negative mentions), mangroves (nine positive mentions, nine negative mentions) and natural hazard prevention (nine positive mentions, one negative mention). These results show some differences in the perceived value of ecosystem services between the interviews and submissions. For regulatory services, the filtering functionality of wetlands was a strong focus for interviewees but was low in submissions. For cultural services, both education and recreation were lower in submissions than interviews. Spiritual and religious values were not present in submission points. Mangroves were discussed more often in submissions, as was 'natural character', which was not a term used by interviewees.

Overall, when combining the interviews and analysis of submissions, the most highly valued wetland function or service was habitat, followed by cultural heritage

and food (see Figure 6). For cultural services, other than cultural heritage, the most highly valued function was recreation and tourism, followed by education and aesthetics. By considering the most-rated functions and services of wetlands and the linkages between them, the values expressed for Tauranga wetlands can be represented along six dimensions:

1. A life force for living things.
2. A natural flood plain and protection against hazards.
3. A place of significance that maintains my cultural practices.
4. A natural filter of nutrients and contaminants.
5. A naturally beautiful area that I like to visit.
6. A place to educate the next generation on the importance of the environment.

These dimensions incorporate elements across the MEA categories, aligning with the literature review, which found that values assigned to wetlands were an amalgamation of the services found between and within the categories.

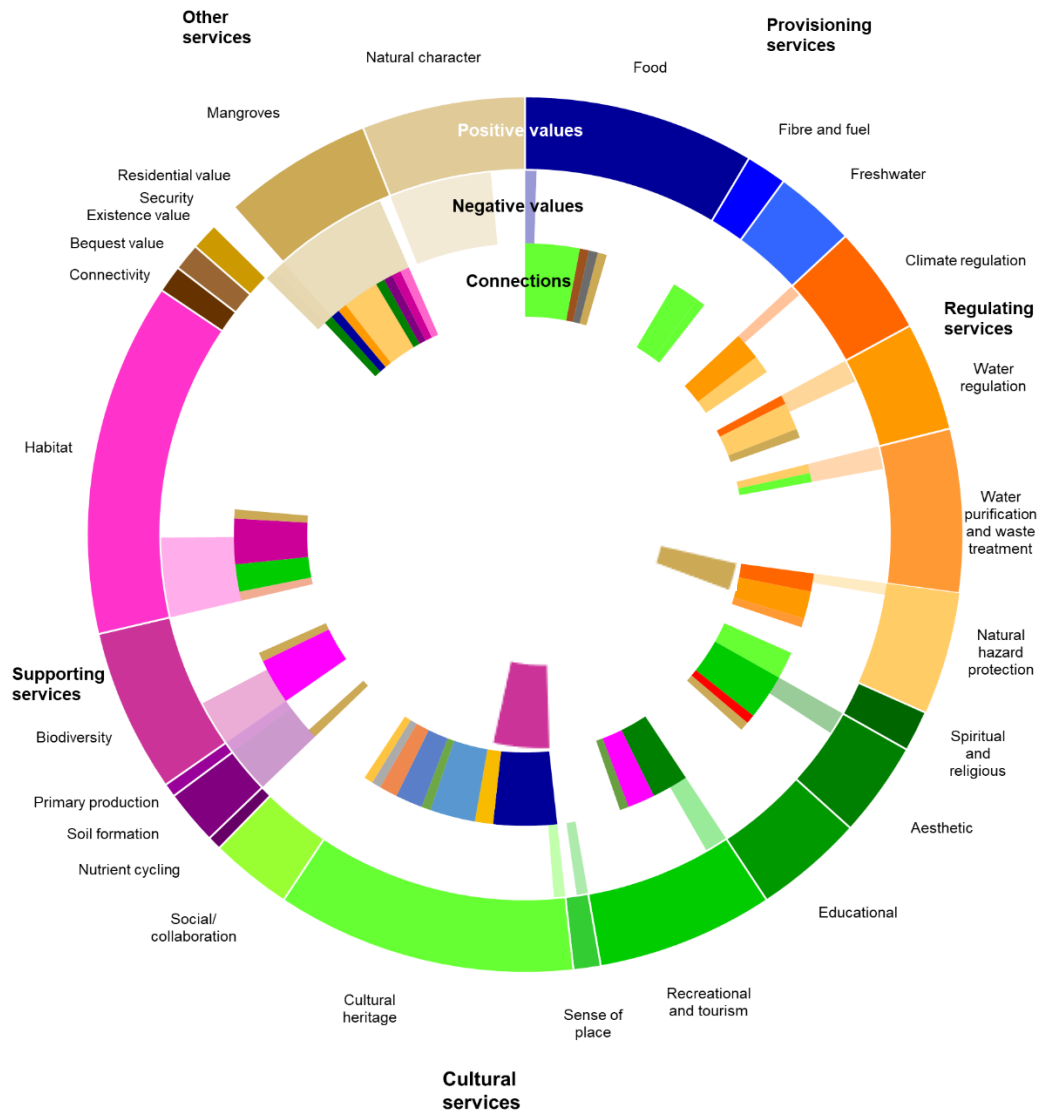


Figure 6: Functions and services valued by interview participants and submissions on Bay of Plenty and Tauranga policies and plans. Positive values on the outside circle, negative values middle circle, connections on the inside circle(s)

### 5.3.1 A life force for living things

Interviews and submissions characterised wetlands as areas rich in nutrients and minerals that support biodiversity and provide habitat for flora and fauna (see Figure 7). In terms of fauna habitat, the significance of endangered wading birds, particularly matuku (bittern), dotterels and spoonbills, was mentioned by several participants, particularly conservation and council participants. Participants also

acknowledged the presence of other species, including Hochstetter's frog, *inanga*, *tuna*, banded kokopu, oysters, carp, pūkeko and other non-specified reptiles, fish and invertebrates. For *iwi*, some of these species represent *kai* or indicate the health of the wetlands and catchments. For the Tapuika participant, the feathers from pūkeko and matuku have traditionally been used for cloak making.

The Tapuika participant mentioned habitat for flora, outlining information from Tapuika's *kuia* and *kaumatua* about the use of wetland plants in traditional and cultural practices. These include the use of *harakeke* for mats, ropes, baskets and trading; *raupō* for roof thatching; and moss for bedding. The Ngāi Te Rangi participant also identified *harakeke* for different types of weaving. Flora was not commonly mentioned by non-*iwi* participants, except as either a place of natural beauty or negatively in terms of pest plants. For the Papamoa Residents and Ratepayers Association, native planting of the Te Ara O Wairakei stormwater reserve was seen negatively due to aesthetics, security and rats.

Biodiversity was discussed in six interviews, five positively. The slight negative association was not related to biodiversity per se, rather it regarded biodiversity being promoted by Council as a reason for planting natives along the Te Ara O Wairakei waterways. Participants did not explain their understanding of biodiversity, but seemed to consider wetlands as sites of biodiversity, or as the Bay

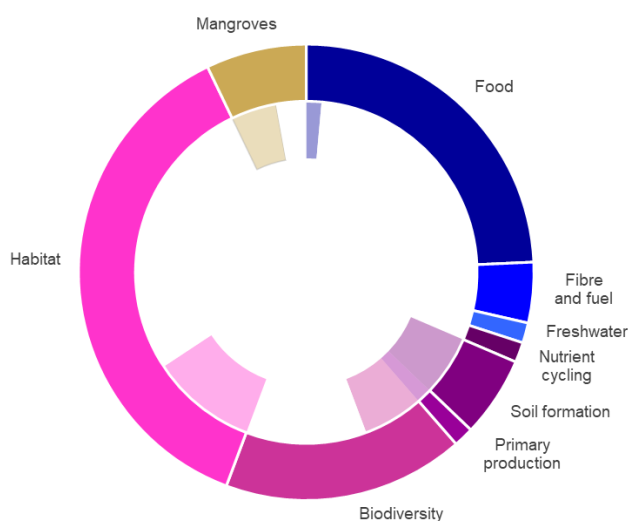


Figure 7: Values contributing to the life force for all living things

Conservation Alliance participant put it, “wetlands need to be celebrated as biodiversity hotspots” (Participant 5, interview, July 14, 2021).

For *iwi*, wetlands freshwater provides the life force for flora and fauna. According to the Ngāti Ranginui participant, a wetlands *puna* “brings life to the wetlands, and you can see that wetlands bring life to the migratory species, and the resident species of birds and fish” (Participant 10, interview, August 9, 2021). The Ngāti Ranginui participant also saw the benefits of nutrients and minerals as part of the ecological processes of wetlands. The Ngāti Ranginui participant stated:

Wetlands are all part of *Ranginui* and *Papatūānuku*, water and soil .... The soil will bring the nutrients, and the water will bring the sustenance, and you get them all mixing together. The different mineral combinations will create the bed for the vegetation and the smaller life forms. It is all about nutrient cycling when you look at it from an ecological perspective. And, those little invertebrates will support the next life forms higher up the rank (Participant 10, interview, August 9, 2021).

### 5.3.2 A natural flood plain and protection against hazards

Wetlands act as water regulators, natural flood plains and carbon sequesterers helping protect against climate change and natural hazards (see Figure 8). These functions and services were mentioned in up to six interviews. The TCC and Forest and Bird participants understand the ability of wetlands to slow water down. For the TCC participant, this slowing down was related

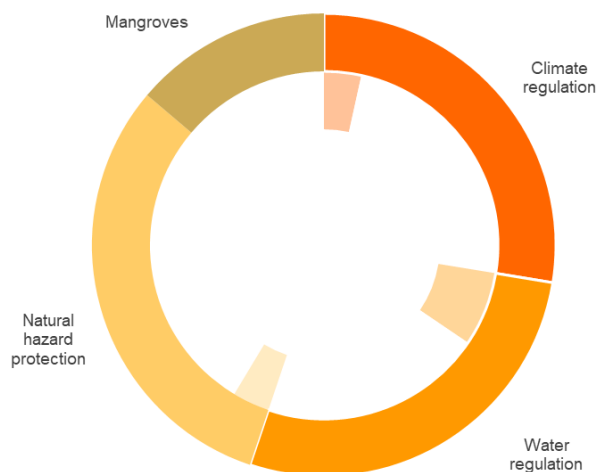


Figure 8: Values contributing to a natural flood plain and protection against climate change

to realigning the river that runs through Kopurererua Valley back towards its original path. The Papamoa Residents and Ratepayers Association participants expressed concern that council plans for the Te Ara O Wairakei stormwater reserve will affect water flow, with the removal of too much soil resulting in water flowing up the valley rather than out to sea. The Matua Estuary Care Group

participant said that mangroves negatively impact water regulation by reducing water flow in estuaries.

On flood protection, the Bay Conservation Alliance participant saw wetlands as floodplains. Similarly, the Tapuika participant identified land they wish to revert to a wetland given the land is full of springs and continually floods.

Understanding of the role of wetlands in carbon sequestration was limited to councils and the Bay Conservation Alliance participants. The TCC participant outlined issues TCC faces with residents wanting to convert wetlands to forests to capture carbon credits, despite wetlands being better carbon sinks. The BOPRC participant outlined that “coastal wetlands are more important than other wetlands because of their increased carbon sequestration capabilities” (Participant 9, interview, August 6, 2021).

In contrast to interviews, submissions had more focus on the impact of wetlands on climate and water regulation and natural hazard protection. This difference may be due to the RPS and plans containing chapters or sections on natural hazards. There was general support for the protection, enhancement and restoration of natural and physical processes to act as natural buffering systems and provide protection against climate change and coastal hazards, such as erosion, storms and tsunamis. However, identification of carbon sequestration was limited to a submission by the Royal Forest and Bird Protection Society who suggest including a new BOPRPS policy to identify carbon sequestration opportunities around the restoration of terrestrial and freshwater biodiversity values.

### 5.3.3 A place of significance that maintains my cultural practices

Most *iwi* participants reported wetlands as being connected to their spiritual beliefs and cultural traditions and practices. Cultural heritage was the most interconnected value, with links to the provisioning of food, fibre and freshwater, the regulating and filtering of water, and the cultural values of sense of place and social collaboration (see Figure 9). Furthermore, there were links to spiritual values

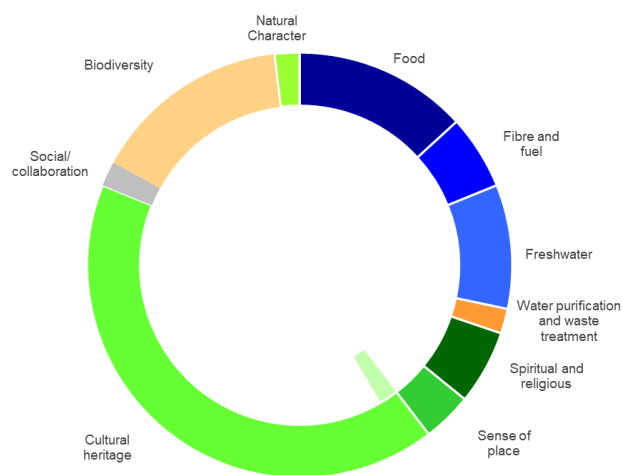


Figure 9: Values contributing to a place of significance that maintains my cultural practices

connected with *Te Ao Māori*, which views all living and non-living things as related and connected. For example, according to the Ngāti Ranginui participant, the protection and restoration of wetlands are rooted in *whakapapa*: “we are all created, we have a link to all things living, and so we have a responsibility if we want to continue to sustainably use and harvest” (Participant 10, interview, August 9, 2021).

Connected to the familiar relationships between all living and non-living things is the concept of *kaitiakitanga*, which was an important value to *iwi* participants. According to the Ngāti Pūkenga participant, *kaitiakitanga* is a socio-environmental ethic, where “*kaitiakitanga* is not only about the management of the environment, it’s also got the management of resources, people, and relationships. But, also very importantly it is about keeping balance, both in time and space” (Participant 11, interview, August 14, 2021).

For the Tapuika participant, “any work that we do in the wetland to give life, to *whakaora*, is *kaitiaki*. And that’s our role as being a part, of being natural beings, that we have a role to protect it” (Participant 8, interview, July 27, 2021).

The most common cultural connection made was with food, both in interviews and submissions. Food includes the protection and restoration of *kai* sources to maintain traditional harvesting. Both Tapuika and Ngāi Te Rangi participants outlined the need to increase *kai* sources. The Tapuika participant stated:

What we are really focusing on now, is that as an *iwi* we would like to get some of those endangered species to a state where they are quite abundant and we are able to harvest them as food again, but there's a long way to get to that (Participant 8, interview, July 27, 2021).

The Ngāi Te Rangi participant acknowledged the need to get *kai* back in a hurry, otherwise “we will lose our values, we will forget about them, and they'll become more distant and distant, and we'll start making them up” (Participant 4, interview, July 14, 2021).

Other cultural practices outlined included the use of *paru* to dye clothing and *kōkōwai*, which is ground up into a powder and mixed with shark skin to create a paste that protects wood. This *kōkōwai* is sacred and considered a prized possession for Tapuika. Wetlands also served as burial grounds and provided hiding spots during times of war. The natural curing properties of wetlands have resulted in the discovery of archaeological artefacts around Otamarakau, including old timber, *pou* and paddles. The provisioning of suitable habitat for kahikatea provided a connection to *iwi* social structures:

If a tree is starting to fall over, the kahikatea will reach out and grab them and pull them back up ... Which is very similar to how, if we have a whanau member who is struggling with mental or physical issues, we will reach out and try and wrap them, and support them and pick them up (Participant 8, interview, July 27, 2021).

Consistent with the literature review, the interconnectedness between living and non-living things in Māori philosophy makes it almost impossible to segregate the values held by *iwi* and *hapū* into the functions and services outlined by the MEA framework. The Tapuika participant described how no wetland function is more important than another: “It really is a balance. Every time we intervene and we focus on one thing we throw the balance out” (Participant 8, interview, July 27, 2021).

Only the Ngāi Te Rangi participant saw any merit in categorising and quantifying values as per the MEA framework, as this was a way of communicating Māori values to non-Māori:

I'm quite open to quantifying it. Not so much to putting a monetary value to it, but quantifying the service that a well-functioning ecosystem offers us as humans and society, to get people to understand why we need to stop managing things (Participant 4, interview, July 14, 2021).

### 5.3.4 A natural filter of nutrients and contaminants

Wetlands provide a natural filtering function, helping to remove nutrients and contaminants in water before it reaches rivers and the sea. This functionality was understood and valued by most interviewees (see Figure 10). Only the Papamoa Residents and Ratepayers Association participants expressed concern about this function, and this was not in regards to filtering itself, but rather whether the proposed planting of Te Ara O Wairakei will achieve this function.

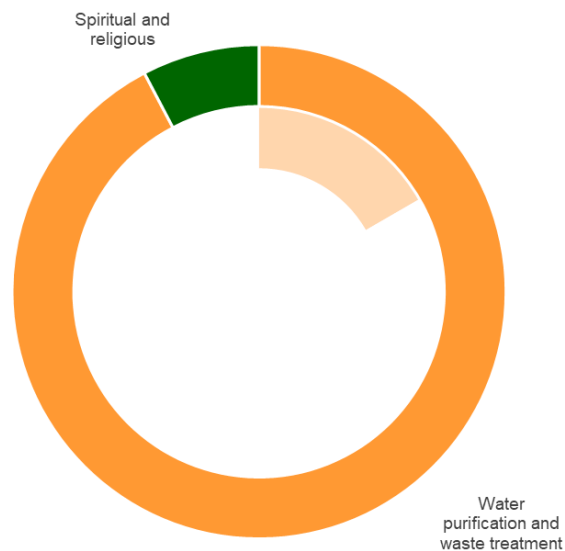


Figure 10: Values contributing to a natural filter of nutrients and contaminants

For the Tapuika participant, the filtering function connects to *Te Ao Māori*, stating:

Parawhenua mea, she was the goddess of freshwater, and she was the daughter of Tāne, the god of the forest. And her mother was Hinepū-Parimaunga, who was the goddess of the Mountains. So, in flood, when the rivers fill up with sediment, it was Parawhenua mea's job to capture the sediment and purify it (Participant 8, interview, July 27, 2021).

The Ngāi Te Rangi participant explained that wetlands need to be connected to water bodies so they are “able to be the kidneys, to flush yucky stuff out, and hold sediment ..., to act as a filter” (Participant 4, interview, July 14, 2021). For the Bay Conservation Alliance participant, all drains going into a river need to go through a wetland. For council participants, this meant focusing on stormwater treatment wetlands to slow water down and capture some of the nutrients and sediment

before it enters the receiving environment. For the Matua Estuary Care Group participant, a healthy wetland environment likely meant it is working properly as a filtration system.

Few submissions discussed filtration directly. Ballance Agri-Nutrients suggested a new BOPRCEP policy that includes sewage disposal by passage through land, soil or wetlands. The Eastern Bay of Plenty Branch of the Royal Forest and Bird Protection Society suggested using wetlands for filtering stormwater in the BOPRNP. However, several submitters discussed the need to improve water quality and reduce the amount of sediment being discharged into estuaries, potentially through wetlands.

### 5.3.5 A naturally beautiful area that I like to visit

Many conservation, community and council participants prized wetlands as places to undertake recreational pursuits, such as walking, cycling and swimming, which are often associated with aesthetic beauty or the presence of wildlife (see Figure 11). Comments such as ‘pristine environment’, ‘beautiful’, ‘a nice place to be’, ‘peaceful’, ‘looks good’, ‘natural’, ‘ambience’ and ‘amenity’ were terms used to describe wetlands.

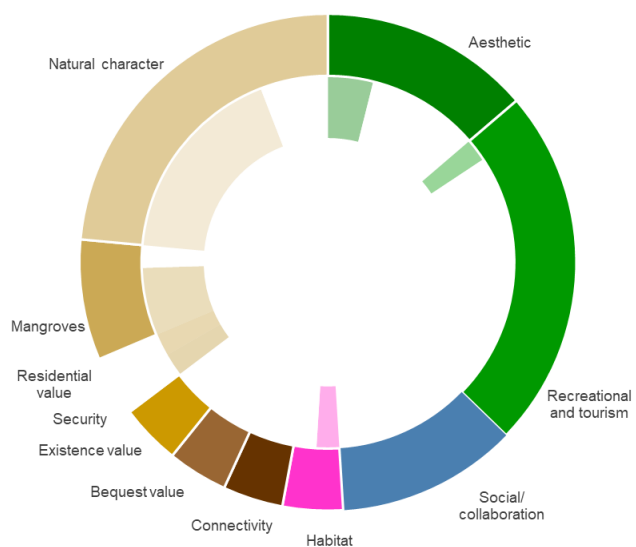


Figure 11: Values contributing to a naturally beautiful area that I like to visit

The importance of recreation was a driver for the TCC participant because restoration and recreation dovetail together. The TCC participant stated, “in Tauranga City, we have the walking and cycling passive recreation aspect, they get parks, they get duck ponds, they see they love” (Participant 1, interview, June 22, 2021). On the other hand, recreation was seen as an ancillary benefit with little weight for the BOPRC participant unless it relates to swimmability. These differing focuses reflect the different responsibilities of the regional and city councils.

The Tapuika participant is wary of recreation in wetlands, stating:

I am aware that, in order for it to really thrive, is a habitat with an absence of people. So, when people talk about walkways through wetlands, and boardwalks, I'm not in favour of it. Maybe around the wetland, but not going through it, otherwise it is just so disruptive to the ecosystem (Participant 8, interview, July 27, 2021).

Aesthetic beauty differs depending on the eye of the beholder. The Matua Estuary Care Group participant considered that mangroves clog estuaries, creating an unaesthetic sea of green. In contrast, the Forest and Bird participant stated that mangroves are more aesthetically pleasing than the black bog left at low tide when the mangroves have been removed. For the Bay Conservation Alliance and Forest and Bird participants, aesthetics are tied to naturalness and consist of natural flora and fauna.

For the Papamoa Residents and Ratepayers Group, landscaped ponds with grass to the edges were aesthetically pleasing. These ponds provide areas for families to picnic in, children to feed the ducks and model yachts to be sailed. This view is connected with aesthetics established in the original stormwater development and bought into when purchasing a residence. This finding aligns with the works of Pueyo-Ros, Ribas, and Fraguell (2019), who found that changes to landscapes can cause a loss of identity and Castagna (2018), who said that reaching public consensus on wetland restoration can be challenging as it can change familiar landscapes. However, the Papamoa Residents and Ratepayers Group considered wetland planting programmes to be positive if they occur in areas where ecological benefits are delivered and where it is socially acceptable, such as in the Kopurererua Valley.

For the Ngāi Te Rangi participant, while wetlands are naturally beautiful, aesthetic values were ranked the least important.

Submissions focused little on aesthetics and amenity landscapes but instead focus on 'natural character', which was often mentioned in conjunction with landscape values.

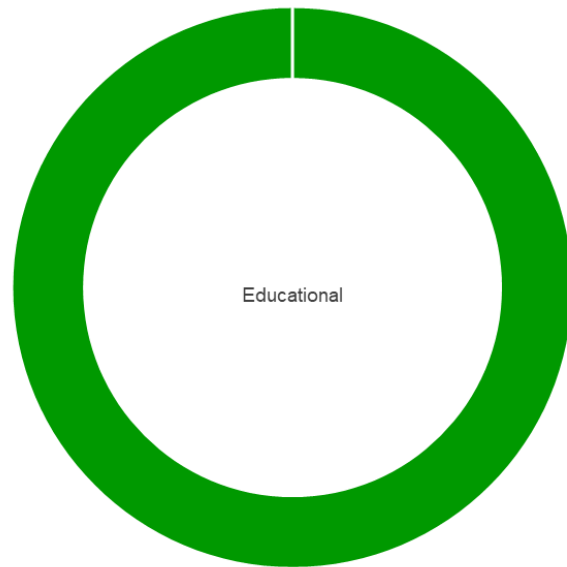
### 5.3.6 A place to educate the next generation on the importance of the environment

Wetlands were reported as an important educational tool for children for the Matua Estuary Care Group, Bay Conservation Alliance and Tapuika participants (see Figure 12). Each outlined the work they do with schools around the area, showcasing the focus on the younger generation. The Tapuika participant was explicit in the focus on children, stating “let’s focus on the younger generation because then we get 70 years out of them, rather than

70 to however long they live. Let’s teach the next generation, they’ll take care of things” (Participant 8, interview, July 27, 2021). Outside of school children, the Ngāti Ranginui participant focused on cadets, seeing them as the next ones coming through in *whakapapa*.

The TCC participant outlined the various education programmes they provide, including Learning through Discovery and Trees for Survival, but suggested more education could be done on wetlands, particularly around interpretation.

A submission from Royal Forest and Bird Protection Society recommended environmental education programmes be inclusive of wetlands, orientated towards the school curriculum, and include experiential learning.



*Figure 12: Educational value as a place to educate the next generation on the importance of the environment*

## 6. Policy mechanisms that support restoration of Tauranga wetlands and their associated values

The third research question guiding this thesis aims to understand the extent to which Tauranga's policy mechanisms for wetlands restoration reflect local values towards wetland ecosystem services. This question involved a systematic review of the regional and city policies, plans, strategies and guides against the value dimensions identified in Chapter Five.

### 6.1 Policy mechanisms and 'a life force for living things'

For 'a life force for living things' dimension, habitat is the value most provided for within the policy structure of the BOPRPS and plans regulated under the RMA (see Table H 1 in Appendix H). Provision for the habitat value is present throughout most of the wetland associated objectives, policies and methods in the BOPRPS and plans. However, it is only provided for in the policies section in the BOPRNP. Provision for the biodiversity value is present throughout the policy structure of the BOPRNP and BOPRCEP. However, in the BOPRPS, the biodiversity value is only provided for within the policies and methods sections, while the TCP does not reference biodiversity. Mangroves management, and small-scale mangroves removal, are provided for in the policies section of the BOPRPS and the objectives and policies sections of the BOPRCEP.

Provision for the freshwater value is high in the BOPRPS and BOPRNP, with policy mechanisms focused on improving water quality and *mauri*. Unsurprisingly, there are fewer provisions for the freshwater value in the BOPRCEP, given its remit does not extend beyond the coastal environment. The lack of freshwater provisions in the TCP may be explained by water quality management being a regional council role (Environment Foundation 2018).

The food value is partially provided for, with provisions in the policies section of the BOPRPS and the objectives and policies sections of the BOPRCEP. However, the lack of provisions for the food value in the BOPRNP means implementation methods for restoring freshwater food sources rely on restoring habitat and migratory pathways, not the food sources themselves.

When it comes to IMPs, the structure and content differ substantially, as do the values expressed (see Table H 2 in Appendix H). Food and freshwater are the values most commonly outlined, with seven plans identifying 'freshwater' and six mentioning 'food'. Freshwater is expressed primarily via *mauri*. The next most common values are habitat (in five plans) and biodiversity (in four plans). There are slight differences in how the restoration of food sources is articulated in regulatory documents and IMPs. The BOPRPS and plans provide for the restoration or rehabilitation of *kaimoana* and *mahinga kai* resources and habitat; some IMPs discuss the need to improve the quality and health of *kai* species to fulfil *manaakitanga* obligations. For example, Objective 6.5.1 of the Te Awanui Tauranga Harbour IMP seeks the restoration, sustainable management and enhancement of coastal and freshwater fisheries. This objective includes having diverse and abundant *taonga* fish and *kaimoana* species.

Overall, the BOPRPS and plans regulated under the RMA do not provide for the full breadth of values that make up the dimension 'a life force for living things', because they do not cater for fibre and fuel, nutrient cycling, soil formation and primary production values. However, the use of the term *mauri* throughout most of the policy structure in all three regional documents means the 'life force' element can be said to be provided for. Although 'living things' could be argued as being limited to the restoration or improvement of biodiversity or its habitat, the broad concept of natural character is used throughout the regional documents. Furthermore, the term 'natural heritage' is in the BOPRCEP and is defined as including "indigenous flora and fauna, terrestrial, marine and freshwater ecosystems and habitats, landscapes, landforms, geological features, soils and the natural character of the coastline" (Bay of Plenty Regional Council 2019, 212). The use of '*mauri*' and 'natural heritage' suggests that much of the dimension, including *iwi* aspirations, is provided for. However, provision is through a western scientific ecological lens rather than a community values lens.

There is limited enablement of 'a life force for living things' dimension in documents not regulated under the RMA. Only biodiversity and habitat are provided for, with objectives in the Tauranga Reserves Management Plan and Tauranga City Development Guide. There are also guidelines in the Tauranga City Development Guide on creating green links between open spaces for wildlife movement and using indigenous vegetation to provide food for native fauna in these links. The Guide also includes provision for restoring watercourses to their natural state and

enhancing aquatic habitat in waterways through sufficient shade and water flow (Tauranga City Council 2008).

## 6.2 Policy mechanisms and ‘a natural flood plain and protection against hazards’

For the ‘natural flood plains and protection against hazards’ dimension, the natural hazard protection value is provided for throughout the BOPRPS and BOPRCEP policy structure (see Table H 1 in Appendix H). In the BOPRPS the climate and water regulation values are only provided for in the policies section. The BOPRCEP has provisions for climate regulation values throughout its policy structure, but only its objectives and policies sections provide for water regulation values. In the BOPRNRP, the climate and water regulation values are in the methods section only. In the TCP, only the water regulation value is provided for in the objectives and policies sections.

In the BOPRNRP, the single method (WL M16) is on contributing “engineering expertise to design and construct water level and flow control structures on wetlands where the hydrology has been adversely affected by flood control and land drainage schemes” (Bay of Plenty Regional Council 2008, WL: 7). This method sits in the wetlands section, which includes in its objectives the enhancement and creation of wetlands, and in its policies, encouraging and promoting the creation of new wetland habitats in appropriate locations (Bay of Plenty Regional Council 2008). The limited provision in the TCP may be due to a territorial authority’s role in avoiding or mitigating natural hazards being defined in the RMA as based on the “control of any actual or potential effects of the use, development, or protection of land” (Resource Management Act 1991, 98).

Policies in two IMPs briefly allude to natural hazard protection, though neither is specific to wetlands (see Table H2 in Appendix H). In the Te Awanui Tauranga Harbour IMP, Policy 5.7.3.6 requires restoration and enhancement to avoid any effects on coastal erosion as a result of infrastructure activity (Te Rūnanga o Ngāi Te Rangī, Te Rūnanga o Ngāti Ranginui, and Te Rūnanga o Ngā Pūkenga ki Tauranga 2008, 56). Policy statement 2.4 in the Ngāi Te Rangī Resource Management Plan discusses the general restoration of the estuarine foreshore (Te Runanga O Ngaiterangi 1995).

Overall, including policy mechanisms for wetlands regulation, climate resilience and natural hazard protection functions throughout the BOPRPS, BOPRNP and the TCP policy structures would strengthen provision for this dimension. However, the general provisioning in the regulatory documents for wetlands water and climate regulating functions to mitigate against hazards is stronger than the values expressed by interview participants, which may be due to the statutory requirements of councils to avoid or mitigate natural hazards. However, what is lacking through the regulatory documents is any provision for wetlands restoration or creation to sequester carbon. This lack of provision may result from the effects-based nature of the RMA, which deals with avoiding, mitigating and remedying effects rather than promoting positive outcomes. Including policy mechanisms for wetlands and carbon sequestration would help meet Objective 13 and the subsequent carbon storage goals of the ANZBS.

For the documents not regulated by the RMA, the values are limited to water regulation methods in the Stormwater Strategy and Tauranga City Development Guide. The Stormwater Strategy outlines that wetlands are a design solution for the regulation and treatment of stormwater (Environment Bay of Plenty 2005). The Tauranga City Development Guide recommends developers minimise the risk of natural hazards, such as flooding, which can be done through opening up waterways rather than piping them (Tauranga City Council 2008). Although these methods provide for wetlands as natural stormwater solutions, they do not emphasise green infrastructure over grey infrastructure.

### 6.3 Policy mechanisms and 'a place of significance that maintains my cultural practices'

For wetlands as 'places of significance that maintain cultural practices' dimension, the cultural heritage value is provided for throughout the policy structure of all the policies and plans regulated under the RMA (see Table H 1 in Appendix H). This provision reflects Section 6(e) of the RMA, which requires the recognition and provision for the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, *waahi tapu*, and other *taonga* as a matter of national importance, which the BOPRPS repeats at Objective 21 (Bay of Plenty Regional Council 2014). However, the objectives of the BOPRNP refer only to the protection of cultural values (Objective IM02). The BOPRCEP enables the restoration or rehabilitation of areas of cultural significance or those identified

by *tangata whenua* through Objectives NH5 and WQ6 (Bay of Plenty Regional Council 2008, 2019).

The TCP's only objective for cultural heritage is 6A.1.2, which provides for the enhancement of the factors, values and associations of the City's important amenity landscapes, which include Māori values (Tauranga City Council 2013). The BOPRPS, BOPRNP and BOPRCEP include objectives that provide for the restoration, rehabilitation, enhancement or improvement of the *mauri* of water. *Mauri* is also present in BOPRPS, BOPRNP and BOPRCEP policies and methods. However, only the BOPRPS uses it throughout the policy structure. Provision for *mauri* in the TCP falls under Policy 7C.4.1.1 on identifying Significant Māori Areas, where *mauri* is one of six identification criteria.

Other values provided for in the policy structure of the BOPRPS and plans include *kaitiaki* and *kaitiakitanga*, *kaimoana* and *mahinga kai*, and *taonga*. These values are not provided for throughout all the plans or the policy structure but are terms referenced. The oldest plan, the BOPRNP, uses the fewest cultural terms, with *kaitiakitanga*, *mahinga kai* and *taonga* not referenced, and *kaitiaki* referenced once in the wetlands-affiliated policy structure. The TCP is very limited in its understanding of the dimension, with terms limited to cultural values and “ensuring that subdivision, use and development maintains and enhances the remaining values and associations of Group 2 Significant Māori Areas” (Tauranga City Council 2013, 7C:2). Identification of Significant Māori Areas is undertaken by the extent to which they meet the criteria of *mauri*, *waahi tapu*, korero tuturu (historical), rawa tuturu (customary resources), hiahiatanga tuturu (customary needs) and Whakaaronui o te Wa (contemporary esteem). Spiritual values associated with Māori philosophy and *whakapapa* are limited in the regulatory documents to those identified in Section 6(e) of the RMA around *waahi tapu* and *taonga*, which the BOPRPS provides for in its policies.

The use of resources for weaving, dying and wood protection is primarily provided for under the general cultural values, though BOPRPS Policy IW 2B(a)(i) provides for traditional Māori uses and practices relating to natural and physical resources such as *taonga raranga* (Bay of Plenty Regional Council 2014). Nutrient and contaminant-filtering properties tend to be provided for in separate objectives, policies or methods in the regulatory documents rather than through an acknowledgement of connection to Māori philosophy. Social linkages to wetlands,

such as those outlined by the Tapuika participant through the kahikatea story, are not explicit, with provisions limited to generic cultural values.

There is great diversity in content and structure in IMPs. The values used throughout most of the IMPs include *mauri*, *kaitiaki* and *kaitiakitanga*. Having active participation in management or *mana whenua* over *rohe* is cited in a number of plans, as are *mahinga kai*, *manaakitanga*, *mātauranga* and *tikanga* Māori. Many values are expressed in just one or two plans, such as harvesting of cultural materials like *paru* and *manu*, Ngā Tai ki Uta (mountains to the sea), *whanaungatanga*, *whakapapa*, *mana atua*, *tino rangatiratanga* and *ahi kā*, amongst others. These values reflect the strong connection Māori have to either wetlands or the environment in general and the reciprocal relationship between Māori and natural resources. The summarisation of these values into ‘cultural values and traditions’ in the BOPRC and TCC policies and plans may reflect a difficulty in reconciling Māori and Western philosophical frameworks. Therefore, while the RMA-regulated BOPRPS and plans provide for these values, they are not worded in a way that expresses the holistic and interconnected nature of Māori worldviews. Fundamentally this follows the MEA framework, which categorises cultural values as discrete and intangible ‘cultural services’ as opposed to values that encompass provisioning, regulating, cultural and supporting services.

For the documents not regulated under the RMA, cultural values references are limited to the Policy on Regional Parks and the Tauranga Reserves Management Plan. Cultural values are based on the management or restoration of cultural sites or values, and partnership with *tangata whenua* in parks and reserves management. The Policy on Regional Parks also includes Objective 12.1, which provides for “*tangata whenua* participation in regional parks through the expression and practice of *kaitiakitanga*” (Environment Bay of Plenty 2003, 11).

#### 6.4 Policy mechanisms and ‘a natural filter of nutrients and contaminants’

For the wetlands as ‘a natural filter of nutrients and contaminants’ dimension, provisions on water purification and waste treatment are provided for through the policy structures of the BOPRPS, BOPRNP and BOPRCEP (see Table H 1 in Appendix H). However, there is no specific objective in the BOPRPS and no method in the BOPRCEP. The strength of the provisions in the BOPRPS is limited, with Method 37 based on investigating the establishment of large-scale wetlands

in the downstream areas of contributory streams that feed into harbours, which links back to policies on natural hazards and managing cumulative effects of land-based activities (Bay of Plenty Regional Council 2014). The BOPRNRP has stronger provisions related to encouraging the use of innovative methods, such as wetlands, to manage and treat stormwater systems (Bay of Plenty Regional Council 2008). The BOPRCEP recognises the natural filtering function of wetlands and provides for the consideration of the development of new wetlands to assist with the management of stormwater run-off to restore or rehabilitate natural heritage and enhance coastal water quality (Bay of Plenty Regional Council 2019).

Despite providing for wetlands as a natural filter for water, including stormwater, in the BOPRPS and regional plans, the provisions have not cascaded to the TCP. The TCP does not provide for wetlands as natural filters, even as part of stormwater management. It leaves this to the non-regulatory Tauranga City Development Guide, which is limited to a single point on “plan stormwater catchments to work with overland flow paths, wetlands and streams. Consider swales, rain gardens and constructed wetlands to treat stormwater on-site where appropriate” (Tauranga City Council 2008, 3). The argument that water quality is the responsibility of the regional council does not hold well for this dimension, given that the city council is responsible for stormwater infrastructure. By not including green infrastructure provisions in the TCP, it may be argued that TCC is, in effect, promoting hard infrastructure. If the TCP includes provisions for wetlands as a filtering mechanism for stormwater, it will help meet the filtering values identified by interview participants. Additionally, it will help support the restoration of degraded wetlands or the reestablishment of lost wetlands.

Four IMPs include provisions for water purification and waste treatment. These plans are the Tauranga Moana IMP, the Te Awanui Tauranga Harbour IMP, the Ngai Tapu Ngai Tukairangi Hapū Management Plan and the Tapuika Environmental Management Plan (see Table H 2 in Appendix H). However, none of these plans have provisions that flow throughout the policy structure. Rather, the provisions are often tied to objectives around the protection, enhancement or restoration of the *mauri* of water and the linkages to cultural practices traditions, such as *mahinga kai* and *kaitiakitanga*. Linkages to spiritual values and Parawhenua mea were not identified in the systematic review, however, they could be in the introductions and backgrounds to the policies. For example, the Tauranga Moana IMP outlines the values, principles and beliefs that provide the foundations of the plan. These values, principles and beliefs include ngā atua kaitiaki (children

of Ranginui and Papatūānuku), who were “deities, forefathers and personifications of all known phenomenon, both living and non-living” (Ngāti Ranginui Iwi Society Incorporated, Te Rūnanga o Ngāi Te Rangi Iwi Trust, and Ngāti Pūkenga Iwi ki Tauranga Trust 2016, 16).

IMPs oppose the discharge of waste to water. Instead, land-based discharges and greater use of wetlands, including through enhanced or created wetlands, is generally proposed, aligning with the BOPRCEP submission point by Ballance Agri-Nutrients. Overall, the BOPRPS and plans go some way to providing for the aspirations outlined in IMPs, but the TCP does not. Other than generic provisions for cultural values and traditions, the BOPRPS and plans do not provide for the spiritual connections to wetlands identified in interviews.

Among the documents not regulated by the RMA, the Stormwater Strategy includes a policy for identifying the options for employing wetlands (including constructed wetlands) along stormwater drains. Furthermore, it describes wetlands as being a design solution often utilised for stormwater treatment, detainment and flow control. These methods cascade from objectives focused on reducing the amount of contaminants entering stormwater from point and non-point source discharges (Environment Bay of Plenty 2005). These provisions can be said to provide for the consideration of wetlands rather than the promotion of wetlands and their filtering function as the preferred stormwater development option.

## 6.5 Policy mechanisms and ‘a naturally beautiful area that I like to visit’

The wetlands as ‘a naturally beautiful area that I like to visit’ dimension encompasses many values that align not just with aesthetics and recreation, but with the concept of natural environments, habitat, biodiversity, social and collaboration, as well as the opposing views on the values and aesthetics of mangroves. These broad and sometimes conflicting reasons for why people enjoy being in and around wetlands may make it difficult to provide for the whole dimension in policy mechanisms. The broad nature of this dimension is often bundled under the term ‘natural character’ in the BOPRPS and plans (see Table H 1 in Appendix H). An exception is the BOPRCEP, where objectives for ‘natural character’ and wetlands are limited to mangroves.

As discussed in section 5.1, the term 'natural character' provides something of a conundrum. The matters outlined by the NZCPS that may be included in natural character are primarily ecological and are not the same as natural features and landscapes or amenity values, except that natural character does include "experiential attributes". Experiential attributes include the sounds and smell of the sea and their context or setting (New Zealand Coastal Policy Statement 2010). According to the Oxford Dictionary, experiential is defined as "of or pertaining to experience or observation; based on or derived from experience" (Oxford University Press 2010).

For interviewees, the experience or observation of nature in wetlands is often associated with birds, habitat and aesthetic views, providing an area people want to be. In the BOPRPS and TCP, natural character pertains to the qualities of the environment that give Tauranga recognisable character, which may be ecological, but may also be physical, spiritual, cultural or aesthetic in nature, and can include modified and managed environs (Bay of Plenty Regional Council 2014; Tauranga City Council 2013). Based on the hierarchy of plans, it seems that natural character in the coastal environment is primarily related to ecological matters. On the other hand, the natural character of the non-coastal environment relates to a wider set of matters that include community values and perceptions. Therefore, the consideration of the natural character of estuarine wetlands may be more constrained than freshwater wetlands. Based on this difference, the term 'natural character' would cover most of the community values identified for this dimension for most freshwater wetlands but would not for estuarine wetlands.

The other dimension values provided for in the BOPRPS and plans include aesthetics, social/collaboration, recreational and tourism, connectivity and mangroves. Aesthetics is provided for in the BOPRNRP, BOPRCEP and TCP, although these are termed 'amenity'. No plan defines amenity, although the RMA does, as discussed in section 4.2. For the BOPRCEP, amenity is found in mangroves and natural heritage policies. The inclusion of amenity in regional plans is interesting given the BOPRC interview participant outlined that 'beautification' was not one of the things the regional council considered when providing grants or funding for wetlands. Furthermore, the BOPRC participant outlined that although recreation was an ancillary benefit, it had little weight in decision-making. Therefore, it could be argued that, at the regional level, amenity is limited to its cultural attributes.

Social/collaboration values arise in the methods section of the BOPRPS and plans through the promotion and support of community participation and care groups, and collaboration amongst councils, agencies, organisations, *tangata whenua* and care groups. Recreational and tourism values in the BOPRPS, BOPRCEP and TCP are primarily around the provision of open space to provide recreational opportunities. For example, in Method 49 of the BOPRPS, open spaces should be managed to improve biodiversity values where this is consistent with their purpose (Bay of Plenty Regional Council 2014). In the BOPRCEP, Method 15 promotes well-formed public access ways while also restricting ad hoc access in sensitive environments (Bay of Plenty Regional Council 2019).

Given the purpose of the RMA, the maintenance or promotion of real estate values are not provided for. Existence and bequest values of wetlands, or the environment, are not outlined in policy mechanisms. However, the RMA's purpose to promote the sustainable management of natural and physical resources, which includes "sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations" (Resource Management Act 1991, 65) could be said to provide for these values.

Wetlands as 'a naturally beautiful area that I like to visit' is not a dimension given much weight in IMPs. Recreation and tourism are referenced in only two IMPs. For the Tauranga Moana IMP, recreation is in Objective 6.1.1 regarding the restoration and protection of the *mauri* of freshwater, and the need to balance "natural, cultural, recreational and ecological values of Tauranga Moana and commercial use and development" (Ngāti Ranginui Iwi Society Incorporated, Te Rūnanga o Ngāi Te Rangi Iwi Trust, and Ngāti Pūkenga Iwi ki Tauranga Trust 2016, 27). The Ngāi Te Rangi Resource Management Plan opposes constructing estuarine walkways due to possible detrimental physical and visual impacts on the environment (Te Runanga O Ngaiterangi 1995). However, the social/collaboration value is present throughout many of the plans, particularly the value of working with, and having good relationships with, councils, landowners, community groups and other agencies involved in the management and restoration of natural resources and cultural sites, including wetlands.

In the documents not regulated under the RMA, the values are limited. Recreation and tourism are provided for in the Policy on Regional Parks and Tauranga Reserves Management Plan. Social/collaboration is also provided for in both these documents, while natural character and aesthetics are also provided for in the

Tauranga Reserves Management Plan. Similarly, natural character and aesthetics are discussed in the Tauranga City Development Guide, but the Stormwater Strategy only provides for aesthetics with a policy on retaining and enhancing the amenity and visual character of watercourses (Environment Bay of Plenty 2005). Given that wetlands can be parks, reserves and stormwater systems, the values provided for in these documents could be enhanced to provide for more of the values that make up this dimension.

## 6.6 Policy mechanisms and ‘a place to educate the next generation on the importance of the environment’

The dimension ‘a place to educate the next generation on the importance of the environment’ is made up solely of education, making provision fairly simple. Educational values are provided for throughout the BOPRPS and plans, primarily coming into play in the methods section, although the BOPRNP also includes an educational policy. The TCP includes references to educational elements in Objectives 6A.1.2 and Policy 6A.1.2.2, which relate to the maintenance and enhancement of the particular factors, values and associations that make an area an important amenity landscape. Amenity landscapes are determined by the degree to which they contain the factors, values and associations listed in Objective 6A.1.1.1. This objective is related to identifying outstanding natural features and landscapes by the extent to which criteria are met, including the contribution natural features and landscapes make to research and education (Tauranga City Council 2013).

Despite the inclusion of educational policies, there is a clear difference between these policies and the values identified in interviews. The educational programmes and community awareness programmes are directed towards the community and landowners, whereas interview participants focused on educating the next generation through school and cadet programmes. This difference suggests there is a need for youth-focused educational policies in regulatory policies and plans.

Educational values were also a strong focus in IMPs, with six plans identifying this value (see Table H 2 in Appendix H). Educational aspirations had several foci, including:

- Build *iwi* capacity and capability in environmental management at both a governance and management level and in-field through wetlands restoration and protection.

- Identify and pursue opportunities to connect *tamariki* and *rangatahi* in environmental management.
- Ensure the continuation of customary knowledge and *mātauranga Māori*, which includes fostering the next generation of *kaitiaki*.
- Partner with educational institutes to guide environmental management and restoration projects through the use of both scientific and *mātauranga Māori* based knowledge.

These aspirations go beyond the educational provisions provided for in the RMA regulated documents.

In the documents not regulated under the RMA, educational policies are found in the Policy on Regional Parks, the Tauranga Reserves Management Plan and the Stormwater Strategy. It is not surprising that educational recommendations do not form part of the Tauranga City Development Guide given its purpose as a guide for developers. There are objectives, policies and methods in the Policy on Regional Parks and the Tauranga Reserves Management Plan on enhancing public understanding and appreciation of ecological, archaeological, historical and cultural sites and values (Tauranga City Council 2019). These include recognising the educational values and opportunities of parks, developing parks' educational strategies and programmes, and ensuring *tangata whenua* input into the development of education material (Environment Bay of Plenty 2003; Tauranga City Council 2019).

The Stormwater Strategy has strong educational provisions throughout its policy structure. Objective 14 aims to “raise the awareness of stormwater management issues with the general public and industry interests” (Environment Bay of Plenty 2005, 28). To achieve this, the Stormwater Strategy has policies around improving understanding of the ecological and amenity values effects of stormwater-derived sediments and contaminants, and industry-specific education programmes (Environment Bay of Plenty 2005). The strategy outlines numerous methods that could be taken, such as school information packs, workshops, information brochures, advertising and newsletters, alongside its stated current approaches. It also suggests supporting territorial authorities through actions such as developing specific stormwater teaching resources and educational ‘tool kits’, and encouraging the establishment of environment information displays (Environment Bay of Plenty 2005). These comprehensive educational provisions in the Stormwater Strategy align with the comments from the TCC interview participant

who acknowledged that the stormwater team were strong on education, stating that “stormwater do interpretation around most of their ponds explaining what the purpose of them are” (Participant 1, interview, June 22, 2021).

## 6.7 Other policy mechanisms

Outside of the six dimensions that represent Tauranga's community values towards wetlands, the BOPRPS and plans also outline the need to restore, rehabilitate, enhance or improve wetlands or water bodies for ecological reasons, including natural or ecological functioning, hydrological regimes, natural heritage, their life-supporting capacity and ecosystems. Furthermore, the BOPRNP provides for the restoration of wetlands that are degraded and for the promotion of the restoration and creation of wetlands where appropriate, without specifying any values.

IMPs make it clear that empowerment and active involvement of *iwi* in resource management planning, decisions and processes are of utmost importance. Other desires expressed around wetlands, and water bodies in general, included the use of integrated and holistic catchment management, the requirement to source funding for restoration projects, and the requirement to restore wetlands without specifying a value for its restoration (Te Rūnanga o Ngāi Te Rangī, Te Rūnanga o Ngāti Ranginui, and Te Rūnanga o Ngā Pūkenga ki Tauranga 2008; Ngai Tamarawaho 2014; Ngai Tukairangi Hapu Trust and Ngati Tapu Hapu Trust 2014; Ngāti Ranginui Iwi Society Incorporated, Te Rūnanga o Ngāi Te Rangī Iwi Trust, and Ngāti Pūkenga Iwi ki Tauranga Trust 2016).

## 7. Discussion

The results of this thesis have highlighted that Tauranga's planning regime only partially provides for each of the wetland ecosystem services value dimensions found through the thematic analysis. This means Tauranga's planning regime does not fully incorporate local values in the promotion and restoration of wetlands and their ecosystem services. The following sections discuss how Tauranga's local authorities could promote the restoration of wetlands in order to meet the requirements of the new NPS-FM. They also suggest how the gaps between Tauranga policy mechanisms and wetland ecosystem services value dimensions may be bridged.

### 7.1 Promoting wetlands restoration

The identification of the educational dimension in the interviews data provides an opening from which to promote wetlands restoration. Educational programmes and toolkits could form the foundation of a promotional campaign based on the other five dimensions.

From an ecological basis, the awareness and value placed on wetlands as part of the hydrology of water catchments and their filtering functionality provides an opening for promoting wetlands restoration based on improving water quality, for which there is a strong focus in the NPS-FM. This finding is emphasised in submissions on the *Action for healthy waterways discussion document*, which highlights the need for New Zealanders to change the way things are done to improve freshwater quality (Ministry for the Environment 2020a).

The strong connections expressed by several interview participants towards birds, especially endangered wading birds, and the value of wetlands as a habitat for birds aligns strongly with the literature review, including findings from research on New Zealand farmers (McLeod et al. 2006). This finding suggests urban residents may be motivated to develop and manage wetlands to provide habitat for wildlife and native plants.

Aligned with international studies, the findings of this thesis highlight that ethnicity can have a significant influence on perceptions and values of cultural services (Dou et al. 2020). The differences in Māori and *Pākehā* knowledge, traditions and

practices lead to different conceptualisations of wetlands services and their values. On the whole, *iwi* interview participants tend to perceive and value more wetland services than non-*iwi* participants. *Iwi* interview participants see wetlands as part of an interconnected ecosystem that includes ecological, spiritual and cultural values. Therefore, incorporating cultural information provided by *iwi* members into wetlands restoration promotion could help educate the Tauranga community on the multiple functions and interconnecting values of wetlands. It could also help increase cultural understanding and support cultural practices, traditions and the transmission of *mātauranga Māori*.

For *Pākehā* residents, recreation and open space amenities are highly valued functions of wetlands, a finding that aligns with international literature (Lupi, Kaplowitz, and Hoehn 2002; Pueyo-Ros, Ribas, and Fraguell 2019). Therefore, undertaking experiential educational programmes in a wetland setting could help connect Tauranga residents to landscape appreciation and recreational opportunities. Furthermore, given the literature review found that public access and recreational use of wetlands was critical to public support (Bauer, Cyr, and Swallow 2004; Kaplowitz and Kerr 2003; Pueyo-Ros, Ribas, and Fraguell 2019), experiential educational programmes could help generate public support for wetlands restoration.

However, not all local values held towards wetland ecosystem are conducive to wetlands restoration. This thesis has identified conflicting community and private interest values, particularly around urban development, commercial and industrial activities and landscape aesthetics. Even with promotion of local values to build support for wetland restoration, the process to reach a balanced agreement on the planning policies needed to enable restoration of wetlands and their ecosystem services may be slow and incremental (Castagno 2018).

## 7.2 Bridging the gaps in Tauranga policy mechanisms and wetland ecosystem services value dimensions

The analysis of Tauranga's resource management documents reveals that the policy mechanisms go some way in providing for each of the wetland ecosystem services value dimensions. However, in the majority of dimensions, the nuances and complexities of the values identified and the interconnections between them are lost. Mostly policy mechanisms in the BOPRPS and plans are framed around ecological values. This aligns with RMA requirements on the preservation of

natural character, the NZCPS requirements on promoting restoration or rehabilitation of natural character, and the NPS-FM requirements to prioritise the health and well-being of water bodies and freshwater ecosystems above all other considerations.

When it comes to human and community values, these tend to be provided for in policy mechanisms at a generic level, for example, providing for Māori culture and traditions, and intrinsic and amenity values. Again, these values align with the requirements of the NPS-FM to provide for and promote the restoration of natural inland wetlands, with a particular focus on Māori freshwater values and amenity values, alongside the ecological elements of ecosystem health, indigenous biodiversity and hydrological functioning (National Policy Statement for Freshwater Management 2020).

The focus on ecological values rather than community values may arise for several reasons, such as the focus on ecological values within ecosystem services academic literature and the ability to quantitatively monitor changes in the quality and quantity of ecological resources. It may also arise from the effects-based nature of the RMA, which has been criticised for “having too narrow a focus on managing the negative effects of resource use, rather than providing direction on desired environmental and development outcomes or goals” (Resource Management Review Panel 2020, 17). This effects-based nature tends to be at odds with how interview participants expressed their values towards wetlands. While interview participants often lamented the loss of wetlands, and the dominance of economic interests, their focus tended to be on preserving, improving or restoring what remained, whether this is to maintain cultural practices, to improve habitat and biodiversity values, for the enjoyment of nature, or to ensure use and enjoyment of wetlands by future generations. In other words, interview participants focused on achieving an outcome or goal.

Therefore, bridging the gaps between Tauranga policy mechanisms and wetland ecosystem services value dimensions may require changing from effects to outcomes-based objectives, policies and methods. The current reform of the resource management system, with its proposal to reorient the planning system towards specified outcomes and targets (as well as limits), could provide the means to achieve this (Resource Management Review Panel 2020). Including outcomes and targets that encompass quality, quantity and well-being of all living things supported by wetlands, such as human and non-human and residential and

migratory populations, would help meet local values. Working with the Tauranga community to determine what success looks like and to define the meanings of terms would help create outcomes and targets that bridge the current language gap between the policy sphere and the community.

Furthermore, the inclusion of social, cultural and spiritual values, alongside ecological values in outcomes and targets would help encompass the range of expressed values. The stated objectives of the resource management reform go some way to achieving this, and include protecting and restoring the environment and its capacity to provide for the well-being of present and future generations, the proper recognition of the principles of Te Tiriti of Waitangi and greater recognition of *Te Ao Māori*, including *mātauranga Māori* (Ministry for the Environment 2021c).

It is also clear from interview participants that perceptions of wetland ecosystem services derive from a combination of services that exist within and between MEA categories. Therefore, policies and plans should consider values across the range of ecosystem services. Incorporating values from across the MEA categories would also help meet Māori aspirations, as according to Harmsworth and Awatere (2013), Māori would like their values to not just equate with ‘cultural services’, such as non-use, intangible values, but to be considered across the provisioning, regulating, cultural and supporting services. There is a resource management reform proposal to create new legislation entitled the Strategic Planning Act that mandates regional spatial planning to improve strategic integration across the proposed Natural and Built Environments Act, Climate Change Response Act 2002, Local Government Act 2002 and Land Transport Management Act 2003. This may go some way to representing and dealing with the interconnections of values for wetland ecosystem services. The recommended purpose of the Strategic Planning Act is “to promote the social, economic, environmental and cultural wellbeing of present and future generations through the long-term strategic integration of functions exercised under specified legislation” (Resource Management Review Panel 2020, 132). This purpose includes functions concerning the enhancement of natural environments, the relationship of *iwi*, *hapū* and *whānau* and their culture and traditions with natural environments, and responses to climate change (Resource Management Review Panel 2020). Furthermore, areas for enhancement and restoration, such as wetlands, should be included in regional spatial strategies to secure and prioritise these outcomes for the future, and to support strategically planned blue-green infrastructure and biodiversity networks.

Finally, the reform's aim to simplify the resource management system and reduce regional and territorial council policies and plans to a single combined regional plan (Resource Management Review Panel 2020) would help decrease the inconsistency in wetlands restoration values in Tauranga's planning hierarchy and policy structure.

## 8. Conclusion

### 8.1 Summary

This thesis investigated the extent to which Tauranga's planning regime, as a case study for New Zealand, incorporates local values in the promotion and restoration of wetlands and their ecosystem services. This question arose in response to the state and loss of wetlands and the recently updated NPS-FM, which requires regional plans to include a new policy promoting the restoration of natural inland wetlands. Promoting wetlands restoration requires councils to understand the attitudes and motives people and communities have towards wetlands and their ecosystem services and how they interact with and value them. Yet limited research exists on New Zealanders' values towards wetland ecosystem services and their restoration.

This thesis helps bridge this gap in understanding in the context of a region with significant wetland loss. While 'promotion' supports wetlands restoration, planning mechanisms must also be in place to achieve restoration. In order to gain support and assistance with restoration, these mechanisms should align with public perception and values of wetlands and their ecosystem services. Therefore, this thesis also looked at the objectives, policies and methods of Tauranga's planning documents to determine whether they align with identified community values and whether values are missing in the policy structure.

To address the overarching question, the thesis analysed three secondary research questions. Firstly, what ecosystem services are associated with wetlands globally and in New Zealand? A narrative literature review was used to determine this. Secondly, what do local people value as important wetland ecosystem services? An analysis of empirical and secondary data provided insight into the values held towards wetland ecosystem services in Tauranga. These included analysis of semi-structured interviews with the regional and city council, conservation and community groups and *iwi*, followed by analysis of the summaries of submissions on the draft BOPRPS, BOPRNRP, BOPRCEP and TCP. Data from the interviews and submissions were analysed using Braun and Clarke's (2006) six-step thematic analysis. The third question examined the extent to which current Tauranga policy mechanisms for the restoration of wetland ecosystem services reflect local values. This involved a statutory analysis to

establish how Tauranga's resource management planning at various scales from international through to local levels provides for the restoration of wetlands. Finally, Tauranga's policies, plans, strategies and guides were systematically reviewed and analysed to examine the extent to which current policy mechanisms for the restoration of wetland ecosystem services reflect local values found through interviews and analysis of submission.

## 8.2 Local values for Tauranga wetlands and their restoration represented along six dimensions

This thesis reveals that values for wetland ecosystem services in Tauranga can be represented by a framework encompassing six dimensions. The first, 'a life force for living things,' considers wetlands as areas rich in nutrients and minerals that support biodiversity and provide habitat for flora, fauna and *kai*. This dimension includes the most commonly identified value, habitat. It also includes freshwater, fibre and fuel, soil formation and mangroves (which are viewed both positively and negatively). While the literature review found that provision of habitat for wildlife was one of the most widely known and valued wetland services, this dimension extends beyond this, encompassing the interconnections between the life-giving properties of water and nutrients and the flora and fauna that depend on these.

The second dimension, 'a natural flood plain and protection against hazards' sees wetlands as water regulators, natural flood plains and carbon sequesterers that help protect against climate change and natural hazards. This dimension was discussed to a greater extent in summaries of submissions than in interviews, likely reflecting the natural hazards sections found in policies and plans. Understanding these functions was more limited among interview participants, with the council participants being the most knowledgeable. This somewhat aligns with the literature review, which found limited knowledge on the regulatory services of wetlands. However, with four to six interviews identifying climate and/or water regulation values, participants' knowledge of wetlands' regulatory functions is generally higher than international knowledge found in the literature review.

The third, 'a place of significance that maintains my cultural practices,' is the most interconnected dimension, reflecting the holistic perspectives of ecosystems that Māori hold, including all tangible and intangible elements of being. As with the literature review, this dimension highlights that ethnicity can influence perception and values towards wetlands. Furthermore, the MEA's categorisation of values into

discrete benefits or services that flow from wetlands to humans aligns poorly with Māori perspectives.

The fourth dimension, 'a natural filter of nutrients and contaminants' recognises wetlands' ability to remove nutrients and contaminants from water before it reaches rivers and the sea. In contrast to the literature review, which found limited recognition for wetlands' regulatory services, this dimension was well understood and valued by interview participants. Given participants' interactions with wetlands, this understanding may reflect greater awareness and knowledge among them than among the general Tauranga population.

The fifth, 'a naturally beautiful area that I like to visit' is associated with services around recreation, such as walking, cycling and swimming, and aesthetic experiences, including the presence of wildlife. This dimension arises primarily from non-*iwi* perspectives of wetlands, encompassing intrinsic values associated with services categorised as 'cultural' within the MEA framework. This dimension can cause burdens for wetlands restoration as any changes to a familiar landscape can make it difficult to reach public consensus (Castagno 2018).

The final category, 'a place to educate the next generation on the importance of the environment', encompasses the single MEA educational service categorised under cultural services. Educating children and cadets was the focus of participants who identified this service.

Overall, the values for wetland ecosystem services in Tauranga converge and diverge from the literature review findings. Convergences include value dimensions that combine services that exist within and between MEA categories; the importance of wetlands as places that provide recreational opportunities and habitat, especially for birds; and ethnic influences on perceptions and values of wetlands. In contrast, there is divergence in understanding of wetlands' regulatory functions, especially their filtering capacity, with the participants and submitters having a generally higher understanding than reported in literature.

These convergences and divergences emphasise that wetland ecosystem services values differ depending on locality and culture. Therefore, creating education campaigns focused on the first five dimensions would help promote the restoration of wetlands in Tauranga. Promotion should highlight wetlands as places that support cultural practices, traditions and spiritual beliefs, provide habitat for

flora and fauna (especially endangered wading birds), offer recreation and open space amenities, and help filter waste and contaminants.

### 8.3 The enablement of wetlands restoration in Tauranga's planning provisions

The statutory analyses found that the national, regional and Tauranga City planning provisions provide for the restoration, rehabilitation, enhancement or improvement of wetlands. However, these provisions are primarily focused on a degraded water body or protecting against natural hazards. The varied use of the terms restoration, rehabilitation, enhancement or improvement within and between policies and plans creates confusion, highlighted by the different perceptions of these terms held by interview participants, including between regional and city councils. Across local RMA-regulated documents, the BOPRNP provides the strongest provisions for the restoration or reinstatement of lost wetlands.

Tauranga's RMA planning structure partially provides for each of the six dimensions of local values towards wetlands, their ecosystem services and their restoration. However, these are, on the most part, not consistent throughout the planning hierarchy nor policy structure, and they are addressed primarily through ecologically-based measures or the provision of generic values, such as cultural, amenity and intrinsic values. As a result, the nuances and complexities of the values for wetland ecosystem services in Tauranga, including the interconnected nature of wetlands values and services, are not fully captured. Therefore, in response to the overall question posed, the planning regime of Tauranga, as a case study for New Zealand, does not fully incorporate local values in the promotion and restoration of wetlands and their ecosystem services.

In line with the recommendations from the Resource Management Review Panel (2020), bridging the gap between wetlands' restoration provisions and values may be achieved through the development of interconnected, outcomes-based objectives and targets which span across the MEA categories, incorporating ecological, social, cultural and spiritual values. Expressing these objectives and targets in language the community understands, and creating education programmes around these, could help garner support and assistance on restoration efforts. Determining what success looks like, and agreeing to language, would be best conducted at a local level given the strong associations to place and *rohe*. Furthermore, reducing the number of policies and plans to the proposed

combined plan would help achieve consistency and clarity in the policy hierarchy and structure.

Dealing with the diverse and interconnected values held for wetlands could be at least partly achieved by implementing regional spatial plans, which would provide long-term objectives (at least 30 years) on improving the quality of the natural environment; promoting Māori interests and values; and addressing natural hazards and climate change. However, this thesis highlights the need for research on how to clearly express, balance and provide for these diverse and interconnecting values within the resource management planning regime.

Irrespective of the resource management reform process, implementing the following would help improve the consistency of Tauranga's wetlands policy structure and address missing values:

- Include objectives, policies and methods in the TCP for stormwater retention and filtering via wetlands restoration and creation.
- Include provisions for wetlands restoration or creation to sequester carbon throughout the BOPRPS, BOPRNRP, BOPRCEP and TCP.
- Include provisions for wetlands regulation, climate resilience and natural hazard protection functions throughout the BOPRPS, BOPRNRP and the TCP policy structures.
- Include spiritual values provisions for wetlands throughout the BOPRPS, BOPRNRP, BOPRCEP and TCP in collaboration with *tangata whenua*.
- Include provisions that focus on youth education programmes throughout the BOPRPS, BOPRNRP, BOPRCEP and TCP, as well as the Policy on Regional Parks and Tauranga Reserves Management Plan.
- Define the terms 'restoration', 'rehabilitation', 'enhancement' and 'improvement' and provide guidelines on what is involved with each.

#### 8.4 Limitations and future areas for research

The results of this thesis are constrained by the number of interview participants and the organisations they represent. Given participants' association with either a council, *iwi* or a conservation or community group, their understanding of wetlands may be higher than those of the wider Tauranga population. While this thesis indicates values and motivations that exist for the ecosystem services of Tauranga

wetlands, it does not proportionately represent the Tauranga community or quantitatively assess the weight of these values and dimensions.

The summaries of submissions analysis were undertaken to reduce some of these limitations and add robustness to the semi-structured interviews. However, the limitations of this analysis, which include the use of summarised instead of original submissions and the higher number of submissions by companies, organisations and industry bodies compared to individuals, mean that limitations remain. Therefore, further research is required on the attitudes and perceptions of the wider Tauranga community to determine whether the values and dimensions identified in this thesis for wetland ecosystem services and their restoration are representative of the larger community.

Finally, as an exploratory study, this thesis has focused on identifying local values towards wetlands ecosystem services and the gaps between these values and the New Zealand planning regime, using Tauranga as a case study. Further research is needed to explore how the planning regime could incorporate the identified and interconnecting values, and achieve a balanced agreement between the conflicting community and private interest values, in order to restore and promote restoration of wetlands and their ecosystem services.

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## Appendix A: Interview participants list

Table A 1: List of interview participants

<b>Participant ID</b>	<b>Organisation</b>	<b>Interview date</b>
Participant 1	Tauranga City Council	June 22, 2021
Participant 2	Matua Estuary Care Group	June 30, 2021
Participant 3	Forest and Bird	July 1, 2021
Participant 4	Ngāi Te Rangi	July 14, 2021
Participant 5	Bay Conservation Alliance	July 14, 2021
Participant 6	Papamoa Residents and Ratepayers Association	July 21, 2021
Participant 7	Papamoa Residents and Ratepayers Association	July 21, 2021
Participant 8	Tapuika	July 27, 2021
Participant 9	Bay of Plenty Regional Council	August 6, 2021
Participant 10	Ngāti Ranginui	August 9, 2021
Participant 11	Ngāti Pūkenga	August 14, 2021

## Appendix B: Ethical approval, information and consent forms

Te Wānanga o Ngāi Kete | Division of Arts,  
Law, Psychology & Social Sciences

The University of Waikato  
Private Bag 3105  
Hamilton 3240  
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Te Piringa – Faculty of Law  
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THE UNIVERSITY OF  
**WAIKATO**  
Te Wānanga o Waikato

Helen Peat

Christina Hanna

School of Social Sciences

31 May 2021

Dear Helen

**Re: FS2021-18: Examining community values and effective policy mechanisms for the promotion of wetland restoration in Tauranga, New Zealand**

Thank you for submitting your revised application to the ALPSS Human Research Ethics Committee. We have reviewed the final electronic version of your application and the Committee is now pleased to offer formal approval for your research activities as detailed therein.

Please contact the Committee should issues arise during your data collection, or should you wish to add further research activities or make changes to your project as it unfolds. We wish you all the best with your research. Thank you for engaging with the process of ethical review.

Kind regards,

A handwritten signature in black ink, appearing to read 'Nathan Cooper'.

Nathan Cooper, Chair  
Division of Arts, Law, Psychology & Social Sciences Human Research Ethics Committee

Environmental Planning  
School of Arts  
Faculty of Arts and Social Sciences  
The University of Waikato  
Private Bag 3105  
Hamilton 3240  
New Zealand

Name

Date

Dear \_\_\_\_\_

**Re: Examining local values and effective policy mechanisms for the promotion of wetland restoration in Tauranga, New Zealand.**

Thank you for taking the time to consider this research. I am a student at the University of Waikato undertaking a Masters of Environmental Planning. I am researching human values towards wetlands, with a focus on promoting their restoration. The key aim of this study is to understand what are the most effective policy mechanisms that help promote the restoration of wetlands according to local values and motivators in Tauranga, Bay of Plenty.

As part of the research, I am undertaking interviews with individuals from identified organisation and groups (local authorities, iwi authorities and conservation and community groups) on their attitudes towards wetlands and their motivations to restore them. The purpose of the interviews is to understand and collect information on the values and motivators that drive individuals to protect and restore wetlands in the Tauranga catchment. I would like to invite you to participate in an interview. The interview should not take longer than 1.5 hours.

If you chose to participate in the interview, you have the right to: -

- Decline to answer any question(s)
- Withdraw up to three weeks after the interview
- Ask any questions about the research at any time
- Decline to be audio recorded
- Request that any material be erased
- Request that your individual participation and responses be kept anonymous through pseudonyms (e.g. Participant 1) in the understanding that the researcher will endeavour to ensure you remain anonymous but that the name of your organisation or representative group will be identified.
- Have a support person present during the interview.

With respect to confidentiality, your name will not be attributed to any interview responses. I will solely have access to the interview responses, which will be password protected. The results of my research will be used as a component of a research thesis to partially fulfil the requirements of a Masters of Environmental Planning, which will be publicly available. The findings of this research may also be used in presentations, conferences and journal publications. All records held by myself

for the purpose of this Master's thesis will be destroyed five years following the completion of the thesis.

This research project has been approved by the Human Research Ethics Committee of the Faculty of Arts and Social Sciences. Any questions about the ethical conduct of this research may be sent to the Secretary of the Committee, email [alpss-ethics@waikato.ac.nz](mailto:alpss-ethics@waikato.ac.nz), postal address, Division of Arts, Law, Psychology and Social Sciences, University of Waikato, Te Whare Wananga o Waikato, Private Bag 3105, Hamilton 3240.

If you would like to take part in my research or if you have any questions, please contact either myself or Dr Christina Hanna (Supervisor), via the details below.

Kind regards,

Helen Peat  
Mob: 0274168147  
Email: [helen.peat@xtra.co.nz](mailto:helen.peat@xtra.co.nz)

Dr Christina Hanna  
Email: [christina.hanna@waikato.ac.nz](mailto:christina.hanna@waikato.ac.nz)

UNIVERSITY OF WAIKATO  
DIVISION of ARTS, LAW, PSYCHOLOGY & SOCIAL SCIENCES

**PARTICIPANT CONSENT FORM**

[A completed copy of this form should be retained by both the researcher and the participant]

**Name of person interviewed:**

I have received a copy of the Information Sheet describing the research project. Any questions that I have, relating to the research, have been answered to my satisfaction. I understand that I can ask further questions about the research at any time during my participation, and that I can withdraw my participation by advising the researcher in writing up to 3 weeks from the interview.

During the interview, I understand that I do not have to answer questions unless I am happy to talk about the topic. I can stop the interview at any time, and I can ask to have the recording device turned off at any time. I may have a support person present during the interview.

When I sign this consent form, I will retain ownership of my interview, but I give consent for the researcher to use the interview for the purposes of the research outlined in the Information Sheet. I understand that my identity will remain confidential in the presentation of the research findings, but that my organisation or representative group may be named.

<b>Please complete the following checklist. Tick [✓] the appropriate box for each point.</b>	<b>YES</b>	<b>NO</b>
<i>[I wish to view the transcript of the interview.]</i>	<input type="checkbox"/>	<input type="checkbox"/>
<i>[I wish to receive a copy of the findings.]</i>	<input type="checkbox"/>	<input type="checkbox"/>
<i>[Other?]</i>	<input type="checkbox"/>	<input type="checkbox"/>

Participant : \_\_\_\_\_  
 Signature : \_\_\_\_\_  
 Date : \_\_\_\_\_  
 Contact Details : \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Researcher : \_\_\_\_\_  
 Signature : \_\_\_\_\_  
 Date : \_\_\_\_\_  
 Contact Details : \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Appendix C: Additional questions for council semi-structured interviews

### Questions for Council staff

- What has been the key policy (or policies) and methods in the policies / plans that have enabled wetland restoration?
- Have you encountered any difficulties in creating wetlands restoration policies and methods when developing your policies / plans?
- How might the new NPS-FM change the policies / plans in terms of wetlands restoration in the future?
- What are the opportunities arising from the NPS-FM for wetlands restoration?
- What impact do you think the NES-F will have on wetland restoration?
  - Are these statutory or non-statutory?
- How has wetlands restoration been promoted?
- What are the key values for the councils for wetlands restoration?
- What was/were a good example of a successful wetland restoration? (Ideally in Tauranga)
  - What were the reasons/mechanisms that made it successful?
- What do you consider to be barriers to wetlands restoration? And what do you consider to be enablers of wetlands restoration?
  - What do you think could help remove the barriers?

*Figure C 1: Additional questions for semi-structured interview with BOPRC planner and TCC participant*

## Appendix D: Submissions reference list

Table D 1: List of submitters reviewed from the summary of submissions thematic analysis

	Bay of Plenty Regional Policy Statement (BOPRPS)	Bay of Plenty Regional Natural Resources Plan (BOPRNP)	Bay of Plenty Regional Coastal Environment Plan (BOPRCEP)	Tauranga City Plan (TCP)
<b>Industry bodies/businesses/landowners</b>	Blakely Pacific Limited	TrustPower Limited	Ballance Agri-Nutrients	The Aggregate and Quarry Association of New Zealand
	Scorpions Limited	Transpower New Zealand Ltd	Te Tumu Kaituna 14 Trust	Te Tumu Kaituna 14 Trust
	TKC Holdings Limited	Fonterra Co-Operative Dairy Group Ltd	Te Tumu Landowners Group	Te Tumu Landowners Group
	Federated Farmers of New Zealand	Carter Holt Harvey Ltd	Te Tumu Kaituna 11B2 Trust	Te Tumu Kaituna 11B2 Trust
	Fonterra Co-operative Group Limited	NZ Vegetable & Potato Growers' and Fruitgrowers' Federations	Ford Land Holdings Pty Ltd	Ford Land Holdings Pty Ltd
	Hancock Forest Management (NZ) Ltd	Waiotahi Contractors Ltd	Transpower New Zealand Limited	Carrus Corporation Limited
	Avocado Industry Council Inc	Fletcher Challenge Forests Industries Ltd	Lowndes Associates	Te Tumu Kaituna 7B2 Trust
	Horticulture New Zealand		Powerco Limited	
	New Zealand Kiwifruit Growers Incorporated		Aquaculture New Zealand	
	Te Tumu Kaituna 14 Trust		Port of Tauranga	
	Te Tumu Landowners Group		Carrus Corporation Limited	
	Te Tumu Kaituna 11B2 Trust		TKC Holdings Limited	
	Ford Land Holdings Pty Ltd		Bay of Plenty Civil Defence Emergency Management Group	
	TrustPower Limited			
Winstone Aggregates				
<b>Conservation</b>	Department of Conservation - East Coast Bay of Plenty Conservancy	Bay of Plenty Conservation Board	Maketu Ongatoro Wetland Society Inc	Sandy Walker Group
	East Coast Bay of Plenty Conservation Board	Fish and Game New Zealand, Eastern Region	Royal Forest and Bird Protection Society NZ Inc	Department of Conservation
	Eastern Bay of Plenty Branch Royal Forest and Bird Protection Society NZ Inc	Eastern Bay of Plenty Branch Royal Forest and Bird Protection Society NZ Inc	Mangrove Protection Society	
	Fish and Game New Zealand, Eastern Region	Department of Conservation	Tauranga Branch Forest and Bird	
	Omokoroa Estuaries Restoration Group		Maketu Community Group for the Environment	
	Royal Forest and Bird Protection Society of New Zealand Inc		Welcome Bay Catchment Care Group Incorporated (WBCCG)	
	Waikaraka Estuary Managers Incorporated		Uretara Estuary Managers Inc	
	Welcome Bay Catchment Care Group Incorporated		Department of Conservation	
<b>Individuals</b>	Garry Webber	B S Roberts	Kevin Youngman	
	Hans Zuur	Mr Ray Bushell	Virginia and Gerald O'Leary	
	Karen Summerhays		Paul Stewart	
	PM and JH Gravit		Michael Smith	
			Heather Wills	
			Kate Graham	
<b>Iwi</b>	Ngati Makino Heritage Trust	Te Arawa Maori Trust Board	The Aramoana Whanau, Roimata Marae and Upokorehe Iwi	Te Runanga O Ngai Te Ahi
	Waitaha Resource Management Committee	Ngai Potiki Hapu and Nga Potiki Resource Management Unit	Ngati Makino Heritage Trust	Ngati Ranginui Iwi
	Te Runanga o Ngati Kahu (ki Tauranga Moana)	Te Komiti Taiao o Te Runanga o Ngati Awa	Ngati Ranginui Iwi Inc Soc	Te Runanga O Ngai Tamarawaho
	Ngati Ranginui Iwi Society	Whakatohea Maori Land Trust Board	Rangiwaea Marae Trust	Ngati Hangarau Hapu
	The Tuhoe Putaiao Trust	Te Keeti Whanau Trust	Rangiwaea Ahikaa Residents	Te Runanga O Ngati Pukenga
			Whanau a Tauwhao	
			Te Arawa ki Tai Trust	
			Motiti Rohe Moana Trust	
			Nga Potiki a Tamapahore Trust	

## Appendix E: Bay of Plenty resource management provisions on wetland restoration

Table E 1: Summary of the objectives, policies and methods on the restoration and enhancement of wetlands in the Bay of Plenty Regional Policy Statement

	Objectives	Policies	Methods
<b>Creation</b>			<ul style="list-style-type: none"> <li>• 37: Investigate the establishment of large-scale wetlands in the downstream areas of the contributory streams feeding into the region's harbours.</li> </ul>
<b>Restoration/ rehabilitation</b>	<ul style="list-style-type: none"> <li>• 2: Preservation, restoration and, where appropriate, enhancement of the natural character and ecological functioning of the coastal environment.</li> <li>• 20: The protection of significant indigenous habitats and ecosystems, having particular regard to their maintenance, restoration and intrinsic values.</li> </ul>	<ul style="list-style-type: none"> <li>• CE 4A: Identify opportunities to restore natural functioning of coastal margins to allow for the continued natural functioning of physical processes, including changes arising as a result of climate change; and the capacity of natural features (such as wetlands) to provide a protective buffer from natural hazards.</li> <li>• MN 4B: Encourage ecological restoration and rehabilitation through retention or establishment of vegetation corridors linking otherwise isolated habitats and greater use of buffer zones and, non-regulatory initiatives for the restoration or rehabilitation of degraded habitats.</li> <li>• IR 6B: Provide for the integrated management of the region's natural and physical resources, particularly including catchments at risk and the coastal environment, across agencies</li> </ul>	<ul style="list-style-type: none"> <li>• 26: Promote active community participation by providing practical support for community restoration initiatives focused on the protection, restoration or rehabilitation of natural features and ecosystems.</li> <li>• 56: Identify areas of the coastal environment where restoration or rehabilitation of natural character should be undertaken as a priority.</li> <li>• 60: In consultation with affected landowners consider opportunities to restore the natural character of the coastal environment where it has been compromised, and is practicable.</li> <li>• 39: Promote greater communication, co-ordination and collaboration among agencies responsible for implementing the protection and management of natural communities</li> </ul>

		and jurisdictional boundaries, including by coordinating restoration, activities.	and habitats to identify priorities for ecological restoration, rehabilitation. <ul style="list-style-type: none"> <li>• 23C: Assess opportunities for the restoration of natural defences which assist in reducing natural hazard risk.</li> </ul>
<b>Enhancement</b>	<ul style="list-style-type: none"> <li>• 2: Preservation, restoration and, where appropriate, enhancement of the natural character and ecological functioning of the coastal environment.</li> <li>• 17: The mauri of water is safeguarded and where it is degraded, where appropriate, it is enhanced over time.</li> <li>• 27: The quality and mauri of water in the region is maintained or, where necessary to meet the identified values associated with its required use and protection, enhanced.</li> </ul>	<ul style="list-style-type: none"> <li>• CE 4A: Identify opportunities to enhance natural functioning of coastal margins to allow for the continued natural functioning of physical processes, including changes arising as a result of climate change; and the capacity of natural features (such as wetlands) to provide a protective buffer from natural hazards.</li> <li>• CE 9B: Safeguard the life-supporting capacity of coastal and marine ecosystems by maintaining or enhancing any areas that contain indigenous coastal ecosystems and habitats that are particularly vulnerable to modification – such as coastal wetlands and salt marshes.</li> </ul>	<ul style="list-style-type: none"> <li>• 23C: Assess opportunities for the enhancement of natural defences which assist in reducing natural hazard risk.</li> <li>• 43: Recognise the importance to tangata whenua of safeguarding, or enhancing where it is appropriate, the mauri of water, when a proposal involves matters of significance to Māori.</li> <li>• 49: Reserves, parks and other open space should be acquired or protected by covenant and then managed to improve biodiversity values, where this is consistent with the purpose of open space.</li> <li>• 59: Identify areas where the natural functioning of physical processes along coastal margins is degraded and seek opportunities to enhance the buffering capacity of these areas.</li> <li>• 60: In consultation with affected landowners consider opportunities to enhance the natural character of the coastal environment where it has been compromised, and is practicable.</li> </ul>

Table E 2: Summary of the objectives, policies and methods on the creation, restoration and enhancement of wetlands in the Bay of Plenty Regional Natural Resources Plan

	<b>Objectives</b>	<b>Policies</b>	<b>Methods</b>
<b>Creation</b>	<ul style="list-style-type: none"> <li>WL O3: Creation of new wetland habitats where appropriate and practicable.</li> </ul>	<ul style="list-style-type: none"> <li>WL P7: Encourage and promote the creation of new wetland habitats in appropriate locations.</li> <li>WL P12: Assess the appropriateness of the creation of new open water areas within a natural wetland on a case-by-case basis</li> </ul>	<ul style="list-style-type: none"> <li>WL M12: Develop a guideline on the creation of wetlands.</li> <li>WL M17: Continue to reinstate wetlands, where practicable, in river scheme and land drainage scheme maintenance areas administered by the Regional Council.</li> <li>WL M18: Actively participate in the creation of wetlands by considering land purchase or lease and funding wetland enhancement works on private land.</li> </ul>
<b>Restoration</b>		<ul style="list-style-type: none"> <li>WL P13: The loss of extent of natural inland wetlands is avoided, their values are protected, and their restoration is promoted....</li> </ul>	
<b>Enhancement</b>	<ul style="list-style-type: none"> <li>WL O2: Enhancement of the values and functions of degraded wetlands where enhancement is viable.</li> </ul>	<ul style="list-style-type: none"> <li>WL P2: Maintain or enhance migratory pathways to wetlands, and ecological sequences that include wetlands.</li> <li>WL P3: Maintain or enhance the values of existing wetlands by encouraging landowners and the community to maintain or improve water quality, hydrological regime, soil conservation values and aquatic and terrestrial indigenous biodiversity of flora and fauna; and maintain or enhance cultural and amenity values.</li> </ul>	<ul style="list-style-type: none"> <li>BW M13: Facilitate a process with relevant organisations and individuals to assess and implement the most appropriate methods for the enhancement of wetlands and their margins.</li> <li>WL M5: Promote the use of covenants and other voluntary agreements to help enhance wetlands on private land.</li> <li>WL M8: Encourage landowners to enhance wetlands.</li> </ul>

		<ul style="list-style-type: none"> <li>• WL P4: Prioritise action to enhance wetlands where: the wetland has significant heritage values, including ecological values; the hydrology is sufficient to sustain wetland species and habitat.</li> </ul>	<ul style="list-style-type: none"> <li>• WL M14: Develop a guideline on the appropriate maintenance and enhancement of wetlands.</li> <li>• WL M15: Develop active partnerships with other resource management agencies, organisations and community groups to enhance wetlands.</li> <li>• WL M17: Continue to enhance wetlands, where practicable, in river scheme and land drainage scheme maintenance areas administered by the Regional Council.</li> <li>• WL M18: Actively participate in the enhancement of wetlands by considering land purchase or lease and funding wetland enhancement works on private land.</li> <li>• WL M20: Allowing wetland enhancement that is consistent with WL P3.</li> </ul>
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*Table E 3: Summary of the objectives, policies and methods on the creation, restoration/rehabilitation and enhancement of wetlands in the Bay of Plenty Regional Coastal Environment Plan*

	<b>Objectives</b>	<b>Policies</b>	<b>Methods</b>
<b>Creation</b>		<ul style="list-style-type: none"> <li>WQ 3: Manage stormwater in coastal catchments, where appropriate considering and applying the development of new wetlands.</li> </ul>	
<b>Restoration/ rehabilitation</b>	<ul style="list-style-type: none"> <li>2: Protect the attributes and values of outstanding natural features and landscapes and areas of high, very high and outstanding natural character, and restore or rehabilitate the natural character where appropriate.</li> <li>3: Safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems by enhancing or restoring indigenous biodiversity where appropriate.</li> <li>5: Enable the restoration and rehabilitation of the natural heritage.</li> <li>16: Restoration or rehabilitation of areas of cultural significance.</li> <li>34: Diversion of natural watercourses in the CMA is only undertaken where necessary, including to restore or rehabilitate the coastal environment.</li> </ul>	<ul style="list-style-type: none"> <li>NH 1: Activities may be considered appropriate if they contribute to the restoration and rehabilitation of natural heritage or cultural values associated with natural heritage.</li> <li>NH 14: Recognise and provide for Māori cultural values and traditions when assessing the effects of a proposal on natural heritage, including by assessing whether restoration of cultural landscape features can be enabled.</li> <li>CH 6: Regional, city and district councils restore natural values and features that provide a natural defence from coastal hazards, including wetlands.</li> <li>WQ 4: Use of methods to reverse the effects of sedimentation may be appropriate when undertaken as part of a catchment-based management plan and where necessary, including, providing for restoration of existing indigenous</li> </ul>	<ul style="list-style-type: none"> <li>13: Facilitate and support the involvement of community groups in the sustainable management and restoration of natural heritage, historic heritage and water quality in the CMA.</li> <li>14: Facilitate and support tangata whenua to exercise kaitiakitanga and apply mātauranga Māori in the restoration of natural, historic and cultural heritage and water quality in the CMA.</li> <li>18: Work with tangata whenua to identify degraded cultural sites in the coastal environment which tangata whenua wish to restore.</li> </ul>

		<p>habitats, amenity or cultural and customary values.</p> <ul style="list-style-type: none"> <li>• IW 8 and 9: Tangata whenua shall be involved in establishing appropriate mitigation, remediation and offsetting options for activities that have an adverse effect on areas of significant cultural value, which may include restoring areas.</li> <li>• TD 3: Diversion of unmodified watercourses within the CMA is only appropriate where necessary, including to provide for coastal restoration or enhancement, including wetlands.</li> </ul>	
<b>Enhancement</b>	<ul style="list-style-type: none"> <li>• 3: Safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems by enhancing or restoring indigenous biodiversity where appropriate.</li> <li>• 23: Recognise and provide for the enhancement of natural defences to coastal hazards.</li> <li>• 34: Diversion of natural watercourses in the CMA is only undertaken where necessary, including to improve water quality.</li> </ul>	<ul style="list-style-type: none"> <li>• NH 24: Maintain or enhance natural heritage values by encouraging landowners and the community including to maintain or improve water quality in wetlands.</li> <li>• CH 6: Regional, city and district councils enhance natural values and features that provide a natural defence from coastal hazards, including wetlands.</li> <li>• WQ 3: Manage stormwater in coastal catchments, where appropriate considering and applying a layout of subdivision and services that facilitates wetlands enhancement.</li> </ul>	<ul style="list-style-type: none"> <li>• 2: Support private landowners to enhance high value ecological sites using sustainable land management, biodiversity protection and pest control.</li> <li>• 15: In conjunction with city and district councils and DOC, support and administer community-based programmes and Kaupapa Māori based initiatives that seek to enhance the natural character and biodiversity; and, improve the capacity of dune systems and other ecosystems to withstand coastal hazards and relevant climate change effects.</li> </ul>

## Appendix F: Tauranga City resource management provisions on wetland restoration

Table F 1: Summary of the objectives and policies on the restoration and enhancement of wetlands in the Tauranga City Plan.

	<b>Objective</b>	<b>Policy</b>
<b>Restoration/ rehabilitation</b>	5A.3.6: Habitat fragmentation and isolation of natural areas throughout the City is reduced.	5A.3.6.1: Ensuring subdivision, use and development provides for the maintenance and enhancement of areas of remnant indigenous vegetation, including any Special Ecological Area, where their provision is likely to: e) Restore areas where ecological values can be enhanced.
	6A.1.3: The natural character of the City's wetlands is preserved and protected from inappropriate subdivision, use and development.	6A.1.3.2: Ensuring that subdivision, use and development preserves the natural character of wetlands by having regard to: g) The ability to restore or rehabilitate natural character.
<b>Enhancement</b>	5A.3.6: Habitat fragmentation and isolation of natural areas throughout the City is reduced.	5A.3.6.1: Ensuring subdivision, use and development provides for the maintenance and enhancement of areas of remnant indigenous vegetation, including any Special Ecological Area, where their provision is likely to: a) Improve the natural character of wetlands.
	5A.3.2: The factors, values and associations of the City's Category 2 Special Ecological Areas are maintained and enhanced.	5A.3.2.2: Maintaining and enhancing the particular factors, values and associations that make an area a Special Ecological Area (Category 2), from the adverse effects of inappropriate subdivision, use and development.
	5A.3.3: The factors, values and associations of areas of indigenous vegetation, not identified as a special ecological area, continue to contribute to the intrinsic values of ecosystems and/or the maintenance and enhancement of the City's amenity values.	5A.3.3.2: Maintaining and enhancing the particular factors, values and associations of areas of indigenous vegetation, not identified as a special ecological area, from the adverse effects of inappropriate subdivision, use and development.
	6A.1.7: The landscape character values of the City's harbour environment is maintained and enhanced.	6A.1.7.1: Ensuring that subdivision, use and development along the margins of Tauranga Harbour does not adversely affect the landscape character values of that environment by: a) Maintaining and enhancing the characteristics and elements that determine the amenity of the surrounding area.

	<p>6A.1.9: The City's urban landscape character values are maintained and enhanced.</p>	<p>6A.1.9.1: Ensuring that subdivision, use and development does not adversely affect the landscape character values of urban areas by: Maintaining and enhancing the characteristics and elements that determine the character and amenity of the surrounding area; a) Maintaining and enhancing the characteristics and elements that determine the character and amenity of the surrounding area; e) Protecting and enhancing natural waterways and drainage patterns.</p>
	<p>6A.1.10: The City's rural-residential and rural landscape character values are maintained and enhanced.</p>	<p>6A.1.10.1: Ensuring that subdivision, use and development does not adversely affect the landscape character values of rural-residential and/or rural areas by: a) Maintaining and enhancing the characteristics and elements that determine the character and amenity of the surrounding area; h) Protecting and enhancing natural waterways and drainage patterns.</p>
	<p>7C.4.3: The values associated with Group 2 Significant Māori Areas, identified in accordance with the criteria in 7C.4.1.1 Policy – Identifying Significant Māori Areas, are maintained and enhanced by ensuring that subdivision, use and development is not inappropriate.</p>	<p>7C.4.3.1: Ensuring that subdivision, use and development maintains and enhances the remaining values and associations of Group 2 Significant Māori Areas by having regard to the following criteria: c) The opportunities for remediation, mitigation or enhancement.</p>
	<p>13A.5.1: The natural character, ecological and conservation values of the City's Conservation Zone land is maintained and enhanced.</p>	<p>13A.5.1.1: Maintaining and enhancing the natural character, ecological and conservation values of land zoned Conservation from the potential adverse effects of subdivision, use and development.</p>

## Appendix G: Iwi resource management provisions on wetland restoration

Table G 1: Summary of the objectives, policies and actions on the creation, restoration and enhancement of wetlands in the Tauranga Moana Iwi Management Plan 2016-2026.

	Objectives	Policies	Actions
<b>Creation</b>			6.2: Encourage wetlands in areas that are unsuitable for grazing.
			6.3: Work with Councils, landowners, community groups and other agencies in relation to wetland creation projects.
			23.1: Iwi and hapū are actively involved in the development of sub-catchment action plans that recognise and provide for the creation of wetlands.
<b>Restoration</b>	6.3.1: The mauri of all wetlands within Tauranga Moana are protected and where possible restored.	4: Ensure the restoration of wetlands within Tauranga Moana.	6.3: Work with Councils, landowners, community groups and other agencies in relation to wetland restoration projects.
	6.4.1: The mauri of Te Awanui (Tauranga Harbour) and coastal areas is restored and protected.	10: Reduce the impacts of sediment on Te Awanui (Tauranga Harbour).	10.1: Work with Councils, developers, landowners and community groups to ensure that wetlands and riparian areas are restored and protected. 10.2: Promote the use of incentives (e.g., funding) and provision of technical advice to effect positive change e.g., restoration projects.
		11: Manage the effects of Mangroves.	11.2: Ensure that the removal of mangroves (where needed) is carried out in conjunction with, or following, the restoration of the upper catchment areas.
	6.5.1: Our fisheries within Tauranga Moana (coastal and freshwater) are restored and sustainably managed and	22: Restore the sustainability of freshwater mahinga kai areas.	22.1 Work with Councils, Department of Conservation, Ministry for Primary Industries, Takutai Trust and Te Wai Māori, landowners, community groups and other agencies in relation

	enhanced. This means that habitat for taonga species are restored.		to the restoration of suitable habitat to sustain freshwater fisheries.
	7.1: The mauri of land within Tauranga Moana is protected and where possible enhanced. This means that riparian margins, wetlands and mahinga kai habitats are restored.	23: A holistic and integrated approach is taken to the sustainable use and management of land within Tauranga Moana.	23.1: Iwi and hapū are actively involved in the development of sub-catchment action plans that recognise and provide for the restoration of wetlands.
		25: Manage the effects of rural land use on the health and wellbeing of Tauranga Moana.	25.1: Work with the BOPRC to advocate for greater collaboration with landowners to ensure land use and land management practices are sustainable, including restoration of riparian margins.
			30.5 Carry out a stock take of existing scheduled sites of significance. This is to include condition of the site including whether there are opportunities for site restoration.
	9.1 Tauranga Moana iwi and hapū are empowered and provided with opportunities to be actively involved in resource management processes and decisions.	33: Ensure effective working relationships with others.	33.1 Support and encourage opportunities to collaborate with Councils, other Iwi, agencies and communities in the protection and restoration of Tauranga Moana. This could include local / catchment-based restoration projects.
			37.1(b): Identify and pursue opportunities for capacity building of iwi, hapū and whānau members in relation to technical matters, including methods of restoring and protecting wetlands.
<b>Enhancement</b>	6.3.1: The mauri of all wetlands within Tauranga Moana are protected and where possible enhanced.	4: Ensure the enhancement of wetlands within Tauranga Moana.	6.3: Work with Councils, landowners, community groups and other agencies in relation to wetland enhancement projects.
	6.5.1: Our fisheries within Tauranga Moana (coastal and freshwater) are restored and sustainably managed and	22: Enhance the sustainability of freshwater mahinga kai areas.	22.1 Work with Councils, Department of Conservation, Ministry for Primary Industries, Takutai Trust and Te Wai Māori, landowners, community groups and other agencies in relation

	enhanced. This means that habitat for taonga species are enhanced.		to the enhancement of suitable habitat to sustain freshwater fisheries.
	7.1: The mauri of land within Tauranga Moana is protected and where possible enhanced. This includes riparian margins, wetlands and mahinga kai habitats are enhanced.	23: A holistic and integrated approach is taken to the sustainable use and management of land within Tauranga Moana	23.1: Iwi and hapū are actively involved in the development of sub-catchment action plans that recognise and provide for the enhancement of wetlands.
		25: Manage the effects of rural land use on the health and wellbeing of Tauranga Moana	25.1: Work with the BOPRC to advocate for greater collaboration with landowners to ensure land use and land management practices are sustainable, including enhancement of riparian margins.

Table G 2: Summary of the objectives, policies and actions on the creation, restoration and enhancement of wetlands in the Te Awanui: Tauranga Harbour Iwi Management Plan 2008.

	Objectives	Policies	Actions
<b>Creation</b>		<ul style="list-style-type: none"> <li>• 5.4.3.3: Artificial wetlands at Te Maunga requires investigation.</li> <li>• 5.4.3.5: To promote alternative environmentally sound options for waste treatment and disposal systems.</li> </ul>	<ul style="list-style-type: none"> <li>• Investigate up to date technology regarding alternative methods to oxidation ponds that are more sustainable for Te Awanui.</li> </ul>
<b>Restoration</b>	<ul style="list-style-type: none"> <li>• 5.4.1.1: To preserve, maintain and restore the mauri of Te Awanui through the practice of kaitiakitanga.</li> <li>• 5.4.4.1: To restore the mauri of the harbour and its tributaries.</li> </ul>	<ul style="list-style-type: none"> <li>• 5.3.3: To promote and implement restoration of wetland areas.</li> <li>• 5.4.1.2: To promote and implement the restoration of the receiving environment.</li> <li>• 5.4.4.1: To recommend, where appropriate, that wetland restoration be a component of any sewage discharge to land scheme.</li> <li>• 5.4.5.3: To promote ecological restoration of high risk areas (re: sedimentation).</li> <li>• 5.4.5.4: To participate in active restoration of wetlands and upper catchment areas including enhancement of native riparian growth at waterway margins and rubbish removal (re: sedimentation).</li> <li>• 5.7.1.7: For tangata whenua to be provided with concession fees or levies for the marine space that has been occupied by various</li> </ul>	<ul style="list-style-type: none"> <li>• Formulate good working relationships with iwi, hapū, local and regional councils, the community and care groups to develop restoration projects.</li> <li>• Participate in wetland restoration projects.</li> <li>• Identify mahinga kai, paru, manu and habitat with the goal to evaluate, monitor and restore the state of the wetland resources.</li> <li>• Te Maunga oxidation ponds to be converted back to wetlands.</li> <li>• Assist hapū and whānau to implement individual catchment management plans, including restoration and to assist hapū to obtain ongoing funding for this purpose.</li> <li>• Encourage iwi, hapū and whānau to have active involvement in mangrove management and for any mangrove management, including the removal of</li> </ul>

		<p>entities in on and above the harbour. Fund to be used for research, restoration, and monitoring of the effects of such activities using kaupapa Māori research methodologies by tangata whenua.</p>	<p>mangroves to be carried out in conjunction with or following the restoration of the upper catchment areas.</p>
<p><b>Enhancement</b></p>	<ul style="list-style-type: none"> <li>• 5.3.1 To ensure the wetland resource and habitat is sustained for future generations.</li> <li>• 5.3.2: To maintain and enhance the quality of mahinga kai within wetland areas.</li> <li>• 5.4.4.1: To enhance the mauri of the harbour and its tributaries.</li> </ul>	<ul style="list-style-type: none"> <li>• 5.3.1: Protect and enhance the integrity of wetland species and habitat of Te Awanui.</li> <li>• 5.3.3: To promote and implement enhancement of wetland areas.</li> <li>• 5.4.1.1: Wetland enhancement is required as a consent condition for any proposed wastewater schemes.</li> <li>• 5.4.1.2: To promote and implement the enhancement of the receiving environment (re: wastewater/sewage).</li> <li>• 5.4.5.3: To promote ecological enhancement of high risk areas.</li> <li>• 5.4.5.4: To participate in enhancement of wetlands and upper catchment areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Work towards the active enhancement of significant cultural sites identified by tangata whenua.</li> <li>• To apply integrated catchment management to improve the environmental quality of repo – wetland areas.</li> <li>• Provide research into the feasibility of land-based discharge upon the establishment of enhanced wetland areas (re: wastewater/sewage).</li> </ul>

*Table G 3: Summary of the principles and policies on the restoration and enhancement of wetlands in the Ngati Kahu Hapu Environmental Management Plan 2011.*

	<b>Principles</b>	<b>Policies</b>
<b>Restoration</b>	<ul style="list-style-type: none"> <li>4.1(c): Kaitiakitanga: Any desecration or manipulation of Te Taiao must involve Utu (reciprocity). Utu will focus on restoring the mauri of the Taonga, whether or not the action proposed is the progenitor or not of the undermining of the mauri of the Taonga.</li> </ul>	<ul style="list-style-type: none"> <li>4.2(13): Ranginui – Sky Father: Ngati Kahu will encourage councils and other agencies to promote information about loss of biodiversity in our rohe and ways to stop decline and replenish biodiversity.</li> </ul>
<b>Enhancement</b>		<ul style="list-style-type: none"> <li>4.4(3): Wai – Water: Mahinga kai and waterway ecosystems are protected and enhanced.</li> <li>4.4(10): Wai – Water: Protect, and where needed enhance, the mauri or life supporting capacity of ngā puna me nga roto waimāori.</li> <li>4.4(14): Wai – Water: Protect and enhance the tuna (eel) population and/or habitat within the Wairoa catchment, while recognising the customary use rights of Ngati Kahu.</li> </ul>

*Table G 4: Summary of the policy statements on the restoration and enhancement/improvement of wetlands in the Ngai Tukairangi, Ngati Tapu Hapū Management Plan 2014.*

	<b>Policy statements</b>
<b>Restoration</b>	<ul style="list-style-type: none"> <li>• 6.2.3(5): To promote and implement restoration of receiving environments in relation to wastewater/sewage.</li> </ul>
<b>Enhancement/ improvement</b>	<ul style="list-style-type: none"> <li>• 6.0(4): For hapū to source funding to build environmental projects that support sustainable environmental management and enhancement.</li> <li>• 6.2.3(4): That wetland enhancement is applied as consent conditions for any wastewater schemes.</li> <li>• 6.2.3(5): To promote and implement enhancement and protection of receiving environments in relation to wastewater/sewage</li> <li>• 6.3.1(1): To protect and enhance the quality of freshwater and wetland areas within the rohe.</li> <li>• 6.3.1(2): To support integrated catchment management that improves water quality for the rohe.</li> <li>• 6.3.3(1): That mitigation and enhancement measures are provided to all storm water discharge waterways.</li> </ul>

Table G 5: Summary of the outcomes and policies on the restoration and enhancement of wetlands in the Tapuika Environmental Management Plan 2014.

	Outcomes	Policies
<b>Restoration</b>	<ul style="list-style-type: none"> <li>• 3.2.3(5): The mauri of land and soil resources within Te Takapū o Tapuika is enhanced by identifying opportunities for, and working towards, the protection and restoration of riparian margins, wetlands and mahinga kai habitats.</li> <li>• 3.4.3(5): The mauri of coastal waters within Te Takapū o Tapuika is enhanced by identifying opportunities for protection and restoration of wetlands and taunga ika habitats.</li> </ul>	<ul style="list-style-type: none"> <li>• 3.1.5(6): Tapuika to adopt the use of Priority River Catchments in which to focus resources and efforts such restoration projects, which includes the Kaituna River.</li> <li>• 3.1.5(7): Identify restoration projects within Priority River Catchment, which could include mahinga kai habitat restoration, freshwater fisheries projects, wetland restoration and riparian margin restoration projects.</li> <li>• 3.1.5(8): Pursue opportunities to work with others for priority restoration projects.</li> <li>• 3.1.5(18): Explore partnership opportunities regarding the use of scientific and mātauranga based knowledge to guide restoration projects.</li> <li>• 3.4.4(16): Identify restoration projects within the coastal environment. These could include wetland restoration.</li> </ul>
<b>Enhancement</b>	<ul style="list-style-type: none"> <li>• 3.1.4(4): The mauri of waterways and aquifers within Te Takapū o Tapuika are protected and enhanced.</li> <li>• 3.2.3(5): The mauri of land and soil resources within Te Takapū o Tapuika is enhanced by identifying opportunities for, and working towards, the protection and restoration of riparian margins, wetlands and mahinga kai habitats.</li> <li>• 3.4.3(5): The mauri of coastal waters within Te Takapū o Tapuika is enhanced by identifying opportunities for protection and restoration of wetlands and taunga ika habitats.</li> </ul>	<ul style="list-style-type: none"> <li>• 3.1.5(10): Support proposals and activities that enhance the mauri of waterways within Te Takapū o Tapuika.</li> <li>• 3.4.4(17): Work with others in relation to coastal management and enhancement and the overall health of the coastal environment.</li> </ul>

## Appendix H: Policy mechanisms analysis

Table H 1: Values for Tauranga wetlands within the policy structure of Tauranga's policies, plans and strategies

Dimensions	Values	Policy structure	RMA				Non-RMA			
			Bay of Plenty Regional Policy Statement (BOPRPS)	Bay of Plenty Regional Natural Resources Plan (BOPRNP)	Bay of Plenty Regional Coastal Environment Plan (BOPRCEP)	Tauranga City Plan (TCP)	Policy on Regional Parks	Tauranga Reserve Management Plan <sup>1</sup>	Stormwater Strategy for the Bay of Plenty Region	Tauranga City Council Development Guide
A life force for living things	Food, fibre and fuel, freshwater, nutrient cycling, soil formation, primary production, biodiversity, habitat, mangroves	Objectives	Freshwater, habitat	Freshwater	Food, biodiversity, habitat, mangroves	Habitat		Biodiversity, habitat		
		Policies	Freshwater, food, biodiversity, habitat, mangroves	Freshwater, biodiversity, habitat	Food, freshwater, biodiversity, habitat, mangroves (food, habitat)	Habitat				
		Methods	Freshwater, habitat, biodiversity	Freshwater, biodiversity, habitat	Biodiversity			Biodiversity, habitat		Biodiversity, habitat
A natural flood plain and protection against hazards	Climate regulation, water regulation, natural hazard protection, mangroves	Objectives	Natural hazard protection		Climate regulation, water regulation, natural hazard protection, mangroves	Water regulation				
		Policies	Climate regulation, water regulation, natural hazard protection, mangroves		Climate regulation, water regulation, natural hazard protection, mangroves	Water regulation				
		Methods	Natural hazard protection	Climate regulation, water regulation	Climate regulation, natural hazard protection			Water regulation		Water regulation, natural hazard protection
A place of significance that maintains my cultural practices	Food, fibre and fuel, freshwater, water purification and waste treatment, spiritual and religious, sense of place, cultural heritage, social/collaboration, natural character	Objectives	Freshwater, cultural heritage	Cultural heritage	Food, cultural heritage	Cultural heritage, sense of place	Cultural heritage	Cultural heritage		
		Policies	Freshwater, food, cultural heritage	Cultural heritage	Food, cultural heritage	Cultural heritage, sense of place	Cultural heritage			
		Methods	Freshwater, cultural heritage	Cultural heritage, freshwater	Cultural heritage			Cultural heritage		
A natural filter of nutrients and contaminants	Water purification and waste treatment, spiritual and religious	Objectives		Water purification and waste treatment	Water purification and waste treatment				Water purification and waste treatment	
		Policies	Water purification and waste treatment	Water purification and waste treatment	Water purification and waste treatment				Water purification and waste treatment	
		Methods	Water purification and waste treatment	Water purification and waste treatment				Water purification and waste treatment		Water purification and waste treatment
A naturally beautiful area that I like to visit	Aesthetic, recreational and tourism, social/collaboration, habitat, connectivity, bequest value, existence value, security, residential value, mangroves, natural character	Objectives	Natural character	Aesthetic, natural character	Recreational and tourism, mangroves (aesthetics, natural character, recreational and tourism)	Natural character, connectivity, aesthetics, recreational and tourism	Social/collaboration	Recreational and tourism, natural character		
		Policies	Natural character, mangroves (recreational and tourism, aesthetics)	Aesthetics, natural character, social/collaboration	Natural character, aesthetics, connectivity, mangroves (aesthetics, connectivity, recreational and tourism, natural character)	Natural character, connectivity, aesthetics, recreational and tourism	Social/collaboration, recreational and tourism		Aesthetics	
		Methods	Natural character, social/collaboration, recreational and tourism	Aesthetic, natural character, social/collaboration	Social/collaboration, natural character, recreational and tourism			Recreational and tourism, aesthetics, social/collaboration		Aesthetics, natural character
A place to educate the next generation on the importance of the environment	Educational	Objectives				Educational		Educational	Educational	
		Policies		Educational		Educational	Educational		Educational	
		Methods	Educational	Educational	Educational			Educational	Educational	

<sup>1</sup> Objectives section also includes outcomes for specific reserve categories. Has a section on management statements which are most closely aligned to methods

Table H2: Values for Tauranga wetlands within the policy structure of Tauranga Iwi Management Plans

Dimensions	Values	Policy structure	Pan-Iwi		Ngāti Ranginui			Ngai Te Rangī		Ngāti Pūkenga	Te Arawa		
			Tauranga Moana Iwi Management Plan 2016-2026	Te Awanui Tauranga Harbour Iwi Management Plan 2008	Ngati Kahu Hapu Environmental Management Plan 2011 <sup>1</sup>	Ngai Te Ahi Hapū Environmental Management Plan 2013 <sup>2</sup>	Te Mana Taiao o Ngai Tamarāwaho Management Plan 2014 <sup>3</sup>	Ngāi Te Rangī Resource Management Plan 1995	Ngai Tapu Ngai Tukairangi Hapū Management Plan 2014 <sup>4</sup>	Ngāti Pūkenga Iwi ki Tauranga Trust Iwi Management Plan 2013 <sup>2</sup>	Tapuika Environmental Management Plan 2014	Waitaha Iwi Management Plan 2015	
<b>A life force for living things</b>	Food, fibre and fuel, freshwater, nutrient cycling, soil formation, primary production, biodiversity, habitat, mangroves	Objectives	Food, freshwater, habitat	Food, freshwater, habitat							Food, freshwater, habitat	Freshwater, biodiversity, habitat	
		Policies	Food, mangroves	Habitat, mangroves	Food, freshwater, biodiversity, habitat			Food	Food, freshwater, mangroves		Food, freshwater, habitat, biodiversity	Freshwater	
		Methods	Food, freshwater, biodiversity	Food, fibre and fuel, habitat, mangroves					Food, freshwater, mangroves		Food, habitat, biodiversity	Freshwater	
<b>A natural flood plain and protection against hazards</b>	Climate regulation, water regulation, natural hazard protection, mangroves	Objectives											
		Policies		Natural hazard protection				Natural hazard protection					
		Methods											
<b>A place of significance that maintains my cultural practices</b>	Food, fibre and fuel, freshwater, water purification and waste treatment, spiritual and religious, sense of place, cultural heritage, social/collaboration, natural character	Objectives	Cultural heritage	Food, cultural heritage	Cultural heritage			Cultural heritage		Spiritual and religious, cultural heritage		Cultural heritage	Cultural heritage
		Policies	Cultural heritage	Cultural heritage	Food, cultural heritage	Cultural heritage		Food, cultural heritage	Cultural heritage	Food, cultural heritage	Cultural heritage	Cultural heritage	Cultural heritage
		Methods	Cultural heritage	Cultural heritage					Cultural heritage		Cultural heritage	Cultural heritage	
<b>A natural filter of nutrients and contaminants</b>	Water purification and waste treatment, spiritual and religious	Objectives											
		Policies		Water purification and waste treatment					Water purification and waste treatment		Water purification and waste treatment		
		Methods	Water purification and waste treatment	Water purification and waste treatment									
<b>A naturally beautiful area that I like to visit</b>	Aesthetic, recreational and tourism, social/collaboration, habitat, connectivity, bequest value, existence value, security, residential value, mangroves, natural character	Objectives	Recreational						Social/collaboration				
		Policies	Social/collaboration, mangroves	Social/collaboration, mangroves	Social/collaboration			Recreational and tourism (+/-), social/collaboration	Social/collaboration, mangroves		Social/collaboration		
		Methods	Social/collaboration, mangroves	Social/collaboration, mangroves			Social/collaboration		Mangroves		Social/collaboration	Social/collaboration	
<b>A place to educate the next generation on the importance of the environment</b>	Educational	Objectives	Educational						Educational				
		Policies	Educational	Educational	Educational	Educational			Educational		Educational		
		Methods	Educational	Educational					Educational		Educational		

<sup>1</sup> Uses principles rather than objectives

<sup>2</sup> Has a single policy structure called policies, responsibilities and desired outcomes

<sup>3</sup> Has a two step policy structure under the headings principles and protocols and action plan

<sup>4</sup> Visions rather than objectives and actions rather than methods