

# Identifying Resource Conflicts: Stakeholder Analysis of Flood Protection in the Lower Wairarapa Valley



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# Stakeholder Analysis:

## Flood Protection in the Lower Wairarapa Valley

An Interactive Qualifying Project Proposal

Submitted to the Faculty of Worcester Polytechnic Institute

In partial fulfillment of the requirements for the

Degree of Bachelor of Science

In cooperation with

The Greater Wellington Regional Council

Submitted on December 17th, 2015



# WPI

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## Acknowledgements

We would like to thank our project advisors Professor Robert Kinicki and Professor Bethel Eddy for their continuous support and feedback. We would also like to thank Professor Stephen McCauley for providing the team with helpful feedback and direction. Lastly we would like to thank the Greater Wellington Regional Council and our contact Ian Gunn who has provided us with a lot of guidance along the project.

## Abstract

The goal of our project is to gather perspectives of different stakeholders on the current resource management of the flood protection scheme in the Lower Wairarapa Valley, New Zealand. This information will allow our sponsor, the Greater Wellington Regional Council to develop a more effective and more informed resource consent. To accomplish this goal we will use exploratory interviews and surveys to collect information and conduct a stakeholder analysis on the political, ecological, cultural, and economic effects of the current flood protection methods.

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## 1.0 Introduction

Resource management is often a critical component of regulating lakes, as it directly impacts many groups of stakeholders. Lake management methods cause differences of opinions, as they provide a source of drinking water, the possibility for transportation, fishing, recreation, and may require flood protection methods. Fresh drinking water sources are scarce, and lakes are one of the best sources of freshwater. Less than 1% of the world's water is accessible in lakes and rivers (The Importance of Lakes, 2015). Oceans and glaciers account for the rest of the world's water. Fishing and farming around lakes change species' population levels as well as pollution concentrations. Due to the numerous uses of lakes, resource management methods need to incorporate the opinions of stakeholders in the region.

In the Lower Wairarapa Valley Region of New Zealand, resource management of Lake Wairarapa is challenging due to deep rooted tensions such as Māori land claims, flood protection methods, and land farming. Lake Wairarapa is one of the most biodiverse places in the region. However, physical changes such as river diversions and barrage gates have had significant effects on the environmental health of the region (Wairarapa Moana Wetlands Project, 2015). Some stakeholders in the region that have experienced these effects include the management of the Lower Wairarapa Valley Development Scheme, the Department of Primary Industry, the Ngāti Kahungunu, the Hapū Ngāti Hinewaka, and the Hapū Ngāti Moe. The barrage gates and the Ruamahanga River cutoff are two of the major changes that have the potential to cause conflicts in the region. The barrage gates are flood protection barriers that maintain lake levels, while the river cut off refers to the area where the Lower Wairarapa Valley Development Scheme diverted the Ruamahanga River. The impacts of the barrage gates and river cut off are important aspects to consider when gathering stakeholder opinions, since the current flood protection scheme has greatly reduced flooding in the region (Greater Wellington Regional Council, 2014). However, the barrage gates have negatively impacted the populations of indigenous fish and eels which the Māori have historically relied on. The management of the barrage gates and river cutoff is complicated due to possible conflicting opinions of various stakeholders in the region.

The resource consent for the operation of the barrage gates is expiring in 2019. A resource consent outlines all environmental impacts of the management of a natural resource. Our sponsor, the Greater Wellington Regional Council, is currently in the process of developing a new resource consent. The Greater Wellington Regional Council will be able to submit an improved resource consent by incorporating the opinions of stakeholders in the region.

The goal of this project is to gather information on the current resource management in the Lower Wairarapa Valley by determining the opinions of various stakeholders in regards to the barrage gates and the Ruamahanga river cutoff. This will help to facilitate communication between the stakeholders and the Greater Wellington Regional Council and allow our sponsor to submit a more inclusive resource consent. The project will accomplish this through the use of exploratory interviews and surveys to collect the necessary information regarding the influences and opinions of the various stakeholder groups. Interviews and surveys are an integral part of the project as the stakeholders' opinions are necessary for the submission of an accurate resource consent. The project team will analyze the data collected and present it to the project sponsor, the Greater Wellington Regional Council.

## 2.0 Background

The following chapter describes the flood protection methods in the Lower Wairarapa Valley and some of the environmental impacts that these flood protection methods have had. The chapter then looks into the different ways that the various flood protection methods affect the stakeholders in the region. Lastly the chapter wraps up with some of the politics regarding resource management in the Lower Wairarapa Valley.

### 2.1 Resource Management Conflicts around the Lower Wairarapa Valley

Wairarapa Moana is Māori for “sea of glistening waters”. The Māori explorer Haunui gave the region its name. The Wairarapa Moana was one of the first areas settled by the Māori in New Zealand. It consists of Lake Wairarapa, the surrounding wetlands, Lake Onoke, the Ruamahanga Cutoff, and the lower Ruamahanga River (Masterton District History, 2015). The Ruamahanga River is the largest river in the Wairarapa Valley and it drains into Lake Wairarapa. The natural landscape of the Wairarapa Valley has changed over the years. Prior to human settlement the Wairarapa Moana region was mostly forest, but the area is now deforested by farmers for agricultural purposes. The deforestation has led to increased sedimentation rates and changes in water levels.

The Wairarapa Valley is very important to many New Zealanders. For instance, the Wairarapa region is culturally important to the Māori as an area for food gathering. The region is also an important site for outdoor recreation: hunting, fishing, and boating. Currently it is under the jurisdiction of the South Wairarapa District Council and the Greater Wellington Regional Council.

The largest areas of wetland left in the Wellington region are within the Lake Wairarapa wetland complex. The wetlands in New Zealand are declining. The Wetlands Action Plan estimates “that only 7 – 14% of our [NZ] original wetlands remain” (Wetlands Action Plan, 2003, page 2). Since human settlement, “53% - 60% of the wetlands in the lower Wairarapa Valley have been lost” (Wetlands Action Plan, 2003). The RAMSAR convention is an international treaty that protects wetlands all over the world. Due to the large expanses of wetlands and their current decline, environmentalists identified the Wairarapa Moana as a potential RAMSAR nominee in 1995 (one of 73 in New Zealand). Management of the Lower Wairarapa Valley is important because of the rich natural ecosystems that depend upon this area.

The Lower Wairarapa Valley flood protection scheme regulates the water level in Lake Wairarapa to help protect the region from flooding. The flood protection scheme has had major impacts

on the environment in the region, including fish, eel, and wading bird populations. The environmental impacts have affected not only the wildlife but also the residents living around the lake. The Māori rely on fish and eel not only for food but also as a significant element of their culture. Due to this the Māori want higher water levels to help sustain the fish and eel populations (Potangaroa, 2012).

The land surrounding Lake Wairarapa contains many farms used for dairy and agriculture. These farmers want lower water levels to help protect their land from the damages caused by flooding. This creates tension between the Māori who are often in favor of higher water levels to help the fish and eel populations. The Treaty of Waitangi settlements in the Lower Wairarapa Valley increase this tension even more. Many Māori have put forth a settlement to claim lands that the Pākehā unfairly seized. If these claims are approved then the Māori may regain control of some of their ancestral lands.

The management of the flood protection system being set to change in the near future exacerbates these tensions. The current resource consent that determines the management of the flood protection scheme is set to expire in 2019. The Greater Wellington Regional Council is currently evaluating a new resource consent for the flood protection scheme. The flood protection scheme affects many different stakeholders in the Wairarapa Region. This project is focused on five stakeholders in the region, including Ngāti Kahungunu, the Hapū Ngāti Hinewaka, the Hapū Ngāti Moe, the management of the Lower Wairarapa Development Scheme, and the Department of Primary Industry. Both the current flood protection plan and any changes made in the future will affect these stakeholders. Due to this the Greater Wellington Regional Council must take stakeholder opinions into consideration when drafting a resource consent plan.

## 2.2 Lower Wairarapa Valley Development Scheme

The Lower Wairarapa Valley has a long history of flooding. The community of the Lower Wairarapa Valley has tried many measures to help control flooding and protect the region's valuable land. There are multiple flood schemes in the Valley, but the Lower Wairarapa Valley Development Scheme is by far the most influential scheme. The Lower Wairarapa Valley Development Scheme manages flood protection in the region using many different methods that are described in detail in later sections. This flood protection scheme has affected not only the environment, but the people surrounding Lake Wairarapa. The stakeholders have many differing opinions on the management of the Lower Wairarapa Valley Development Scheme. Though the Lower Wairarapa Valley Development Scheme attempts to address the numerous opinions in regards to the methods for accomplishing flood

protection and develop a compromise of the many views, the Greater Wellington Regional Council has not yet found a perfect solution.

### 2.2.1 History of Flood Protection in the Lower Wairarapa Valley

The Greater Wellington Regional Council developed the Wairarapa Development Scheme to help relieve the flooding that has always been a problem in the Wairarapa Region. The Wairarapa community settled the region in 1840, and set up a Wairarapa River Board in 1886 to begin addressing the flooding problem that had been plaguing the area. The River Board introduced stopbanks, which are barriers to block and control floodwaters, and erosion protection schemes to the area to help lessen the damage caused by flooding. Though this helped flood protection, the region was still vulnerable to flooding and needed to find a better flood control scheme. The Wairarapa community put forth many proposals, and decided on the Lower Wairarapa Valley Development Scheme since it included many elements from the earlier proposals, including the stopbanks and flood culverts (Greater Wellington Regional Council, 2014). Figure 1 shows the impacts of the scheme in the region, which shows the extent of flooding before and after the implementation of the scheme.



**FIGURE 1:THE EXTENT OF FLOODING BEFORE (LEFT) AND AFTER (RIGHT) THE LOWER WAIRARAPA VALLEY DEVELOPMENT SCHEME, [PHOTOGRAPH GWRC, N.D.]**

### 2.2.2 Flood Protection Methods Utilized in the Lower Wairarapa Valley Development Scheme

The Lower Wairarapa Valley community has implemented flood protection with many different methods in the Lower Wairarapa Valley. The community have used numerous methods including stopbanks, barrage gates, and the river cutoff, all with unique effects on the surrounding environment

and local residents who have differing opinions on how the flood protection methods should be managed.

The Lower Wairarapa Valley Development Scheme uses the control and operation of the barrage gates to actively regulate water levels and passage in the region. Figure 2 shows one of the barrage gates in the Lower Wairarapa Valley. A barrage is a form of a dam that consists of multiple gates that are opened and closed to change water levels. The Greater Wellington Regional Council is in charge of opening and closing the barrage gates, which can be tele-operated, to change the water level. The operation of the barrage gates is automated to control the water levels during normal conditions. Rather than working to contain water in a reservoir or lake as most dams do, barrage gates instead focus on water diversion, which is essential for flood protection. The barrage gates in the Lower Wairarapa Valley control the water levels in Lake Onoke, which connects directly to the sea. When the water level in Lake Onoke gets too high and the sea is too rough, the Greater Wellington Regional Council opens the barrage gates to allow some of the excess water to go to Lake Wairarapa in order to prevent flooding (Wairarapa Moana Wetlands Project, 2014).



FIGURE 2: THE GEOFFREY BLUNDELL BARRAGE, [PHOTOGRAPHS GWRC, N.D.]

Another strategy in flood protection is to use stopbanks. Stopbanks are human-made embankments of earth along a river to help contain the water should flooding occur. Figure 3 shows some of the stopbanks along the Ruamahanga River. In some locations along the river, sandbags reinforce the stopbanks to help contain the water.



FIGURE 3: STOPBANKS ALONG THE RUAMAHANGA RIVER, [PHOTOGRAPH GWRC, N.D.]

River diversions redirect water away from one body of water to help ensure the river will not overflow when flooding occurs. Figure 4 shows the Ruamahanga River Diversion (also known as the river cutoff). This river diversion channels about 95% of the water from the Ruamahanga River to the sea to help with flood protection (Gunn 2012).



FIGURE 4: RUAMAHANGA RIVER DIVERSION, [PHOTOGRAPH GWRC, N.D.]

### 2.2.3 Lower Wairarapa Valley Flood Protection Scheme

The Lower Wairarapa Valley Development Scheme is one of the largest flood protection projects in all of New Zealand, helping to protect 31,500 hectares of land. The Greater Wellington Regional Council started developing the scheme in 1963 and completed it in 1983. The scheme encompasses sections of the Ruamahanga River, the Tauherenikau River, and Lake Wairarapa. Figure 5 shows a map of the Lower Wairarapa Valley flood protection methods. The flood protection system implements barrage gates, river cut offs, stopbanks, and flood ways. Barrage gates control the flow of the Ruamahanga River into Lake Wairarapa.

Ensuring that the Ruamahanga River mouth stays open is one of the most important elements of the scheme. Typically at the mouth of the river excess sediment leads to blockage, causing still water to collect between the months of January and May when there is naturally lower river flow. The barrage gates enable quick changes in the water level in Lake Onoke in order to withstand flooding (Gunn 2012).

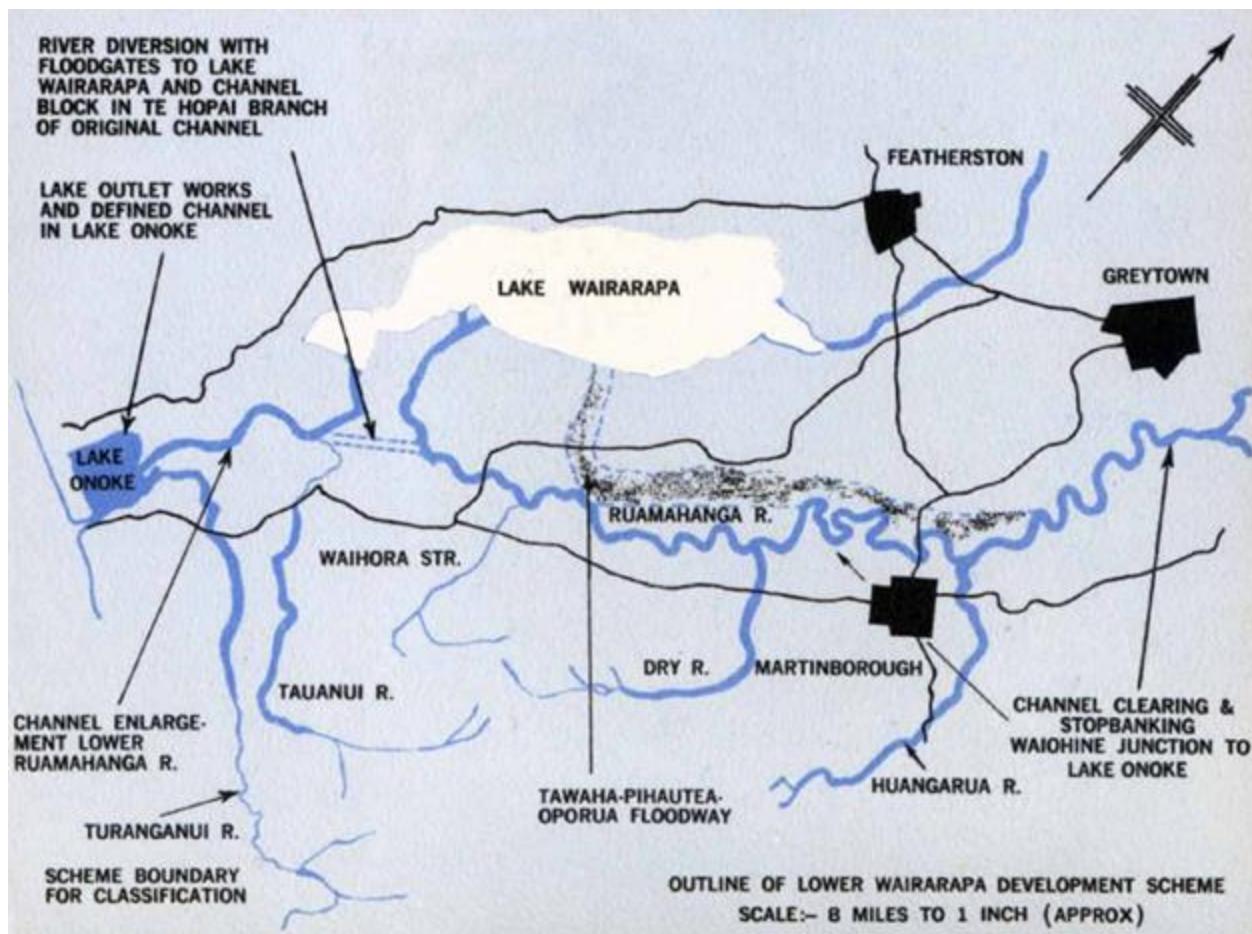


FIGURE 5: RUAMAHANGA RIVER DIVERSION, [PHOTOGRAPH GWRC, N.D.]

The Lower Wairarapa Valley Development Scheme, also known as the Wairarapa Development Scheme, includes 190 km of stopbanks, 112 culverts and floodgates, and a total of 12 drainage schemes (Greater Wellington Regional Council, 2014). With the Wairarapa Scheme in place approximately 95 percent of the Ruamahanga River flows directly to Lake Onoke, bypassing Lake Wairarapa. This bypass of Lake Wairarapa allows flood water to recede very quickly following a flood event. Prior to the Wairarapa Development Scheme flood waters could affect 20,000 hectares of land and were often present in areas for weeks. This would take a great toll on communities, causing blocked roads, downed communication lines, and stock and fence losses (Gunn 2012). Figure 6 shows the effects of flooding, where flood water covers the entire State Highway.



FIGURE 6: FLOODING OVER STATE HIGHWAY 53, MARTINBOROUGH, 2004. [PHOTOGRAPH GWRC, N.D.]

The objective of the Wairarapa Development Scheme is to keep Lake Wairarapa at the defined operating level. This level varies depending on the season. In 1990 the Greater Wellington Regional Council consulted numerous stakeholders affected by the lake's water level to determine the desired lake level (Ian Gunn, 1990).

## 2.3 Environmental Impact of the Barrage Gates and Cut Off

Maintaining biodiversity is essential to maintaining a healthy thriving ecosystem. However, increasing human influences due to farming and flood protection have made maintaining biodiversity difficult. New Zealand's Wairarapa Moana wetlands are home to a vast variety of species, many of which the Crown considers nationally critical, endangered, or vulnerable (Wairarapa Moana Wetlands Project, 2015). The waters of Lake Wairarapa are also home to numerous small, cryptic (species that look identical but are genetically different) and nocturnal fish, many of which are endemic. Over the years local farmers and government entities have made many changes to the land and streams surrounding Lake Wairarapa to allow for better irrigation and flood protection. These changes have helped control

flood levels, but they have also disrupted the wildlife in the area and caused detrimental environmental impacts, including decreased water quality. The main changes that have affected the ecosystems in the area are the barrage gates and the Ruamahanga River cut off. The Ruamahanga River cut off is the point where the river previously flowed into Lake Wairarapa. The Lower Wairarapa Valley Development Scheme diverted the river to prevent the lake and surrounding land from flooding. The following sections describe how these changes have specifically impacted the sedimentation inside the lake as well as their influence on the animals that inhabit this area (Wairarapa Moana Wetlands Project, 2015).

### 2.3.1 Impact on Sedimentation and Current Flow of the Lake Wairarapa

The barrage gates and river cut off have altered the flow and sedimentation in Lake Wairarapa. Sedimentation refers to the process where soil particles settle against certain areas or barriers in the lake. Wind and water flow are the two major factors that alter the movement of sediment in the lake. As the British Crown converted more of the surrounding forest into farmland, the soil became more unstable as the tree roots were no longer there to provide structure. Rainfall eroded the loose sediment and washed it into the streams and lakes. This erosion is detrimental to the habitat and the feeding patterns of the local fish. The fishes' gills are unable to filter loose sediment in the water as the fish attempt to breathe and feed. Once the sediment drifts to the bottom of the lake, it fills up cracks and spaces between rocks that would have normally provided shelter for the native fish (Grant, 2012). There is little information on the lake's original sedimentation patterns, however, "the rate of infilling on the eastern shore [has] increased more than tenfold" (Trodahl M. 2010, p. 2). In Figure 7, the eastern shore is predominantly covered in wetlands. The increase in sedimentation in the area proves to be increasingly detrimental to the surrounding flora and fauna.



FIGURE 7: FLOODING OVER STATE HIGHWAY 53, MARTINBOROUGH, 2004. [PHOTOGRAPH GWRC, N.D.]

In 1968, when the Lower Wairarapa Valley Development Scheme diverted the Ruamahanga River, only 10% of its original water volume flowed through the lake (Pickrill, R. A., & Irwin, J. 1978). The still water in the river cutoff provides a place for algae to flourish and pollution to accumulate (Grant, 2012).

The effects of the barrage gates and cut off on water pollution in the Lake is comparable to that of the New Bedford Bay Harbor Hurricane Barrier in New Bedford, Massachusetts, USA. In 1966, the Army Corps of Engineers built the Hurricane Barrier to protect the harbor from hurricane surges. It consists of doors that the New Bedford Council of Trustees can open or close depending on the situation (New Bedford Hurricane Protection Barrier. 2015, June 11). The Barrier prevents the majority of ocean tide from circulating the water in the harbor, allowing pollution to accumulate. The concentration of polychlorinated biphenyl is at such a dangerous level that the FDA has placed a fishing ban upon any fish

in the harbor. Contaminated sedimentation has also built up around the harbor, providing not only a health hazard for fish, but also altering the depth of the harbor. The major difference between the barrage gates and the hurricane barrier is the lack of indigenous fish that reside in the New Bedford Harbor. (Environmental Assessment New Bedford Harbor Restoration, 2001).

### 2.3.2 Impact on Fish Populations

New Zealand has 50 native freshwater fish species, 25 of which live in the Wairarapa Moana (Wairarapa Moana Wetlands Project, 2015). Freshwater fish are not included in the Wildlife Act and the Crown permits the fishing of indigenous fish despite their populations being dangerously low (Grant, 2012). Human influences greatly contribute to the rate at which species populations have been declining. To prevent flooding and allow for irrigation of surrounding farm lands, farmers have diverted rivers or even cut them off entirely, as in the case of the Ruamahanga River. The most influential human made change, however, is that of the barrage gates. The barrage gates create a temporary barrier for fish moving throughout Wairarapa Moana. The majority of fish in Wairarapa Moana are diadromous, meaning the “fish must migrate between freshwater environments (rivers, streams, lakes) and the sea to complete its life cycle” (Grant, 2012, p. 176). The barrage gates and the river cut off act as physical barriers for migratory fish, leading to an overall decline in population (Crisp, Bunny, & Perrie, 2014).

The Black Flounder, shown in Figure 8, is indigenous to New Zealand, and is the only freshwater flounder that belongs to the Pleuronectidae family. It is a diadromous fish and zoologists hypothesize that it swims out to sea for breeding, and then the juvenile fish return to the freshwater bodies. Before the Ruamahanga River cut off, there was a vibrant population of Black Flounders that supported a number of small fisheries, and it was common for fisherman to catch 40-60 flounders per night (Grant, 2012). Immediately following the river cut off, fisherman only caught 15-25 flounders on average per night. The Wairarapa Moana Wetlands Group conducted a fish survey in 1991, but was collectively only able to catch 7 flounders across three specific fishing sites. The Wetlands Group conducted the same survey in 2010, and despite a higher survey effort, the Wetlands Group was only able to catch 8 flounders across the three sites (McEwan, A. 2010). The Wairarapa Moana Wetlands Group attributes a decline in Black Flounder populations to the prevention of migration as well as the competition provided by exotic fish.



FIGURE 8: AN INDIGENOUS BLACK FLOUNDER [FARELLY, W. (2013, JULY 8)]

The presence of exotic and nonindigenous species has exacerbated the population decline of indigenous species. Over 100 years ago, acclimatization societies, groups that the Crown tasked with enriching the biodiversity in a region, deliberately introduced many exotic species for recreational fishing. The European perch is one such exotic fish that is causing the population decline of native species. Perch are voracious carnivores, feeding almost exclusively on smaller native fish in Lake Wairarapa (Grant, 2012). Perch, along with the majority of other exotic fish in the area, do not migrate. Having no natural predators in the area enables their population to thrive in Wairarapa Moana. The large population of exotic fish creates competition for food, further decreasing the population of indigenous species. Many of the indigenous species found in the Wairarapa Moana are endangered and are only found in the lake. (McEwan, A. 2010).

### 2.3.3 Impact on Wading Bird Populations

Wairarapa Moana is a popular site for migratory birds, particularly wading birds, which frequent the shores of lakes searching for food. Lake Wairarapa provides a variety of habitats for birds. Over 23% of bird species that bird surveyors have sighted in New Zealand live in the Lake Wairarapa region (Wairarapa Moana Wetlands Project, 2015). It is one of the top fifteen sites for wading birds in the

country; particularly the Pied Stilt, Banded Dotterel, and the Black-Fronted Dotterel (Robertson, H., & Heather, B. 1999). In 1855, an earthquake lifted the bed of Lake Wairarapa, effectively making the lake shallower and more attractive for wading birds (Hancox, G. T. 2005). The Greater Wellington Regional Council took into account the ideal depth for wading birds when initially setting the parameters for the optimal lake level. Between November 1984 and October 1994 the bird survey group recorded lake level and number of wading birds. The surveyors found that a larger number of wading birds were spotted when the lake level was between 9.95m above datum (a standardized point chosen as a zero point to measure lake level) and 10.3m above datum. The study used data to describe a certain lake depth throughout the lake. For the purpose of this study, the bird survey group measured lake levels from the datum depth. In 1990 the Greater Wellington Regional Council set the water levels for the lake to 10.15m in the summer, 10.00m in autumn and spring, and 9.95m in the winter. The Greater Wellington Regional Council decided upon these levels as they promoted an optimal population of wading birds, while also suppressing weed growth and allowing maximum water storage capacity (Robertson, H., & Heather, B. 1999). The Greater Wellington Regional Council then employed John Cheyne in 2012 to carry out a series of bird surveys around the Lake and document any changes in bird population. During his survey, he rediscovered two species of birds that were believed to be extinct in the region since 1980 (Grant, 2012).

### 2.3.4 Impact on Eel Populations

New Zealand's eel population has always been of importance to the Māori. In a country that has few large animals, the eels became a staple in the Māori diet. Both the endemic Longfin Eels, and the indigenous Shortfin Eels are in Wairarapa Moana as shown in Figure 9. These eels are born in the sea, then swim to the freshwater lakes where they live until they eventually migrate back to the ocean to breed and die. The barrage gates prevent the eels from traveling between the ocean and the freshwater bodies. This not only interferes with their breeding cycle, but it also provides a barrier for the juvenile eels returning from the ocean. Eels only breed once at the end of the life cycle, meaning that every eel that fishermen catch has not been able to breed yet. The Crown gave the Māori population the right to fish in Wairarapa Moana. Due to the dwindling eel populations the local Māori established rules against catching the eels to allow their population to increase (Grant, 2012).

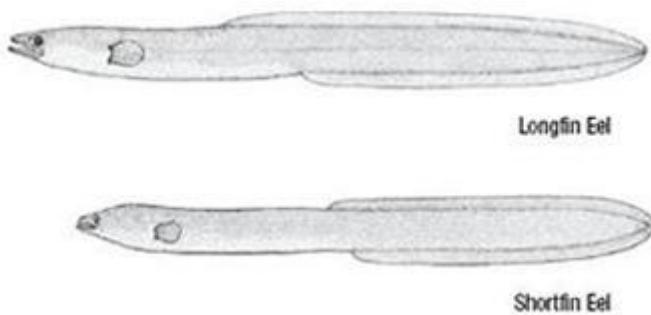


FIGURE 9: EELS OF NEW ZEALAND [NEW ZEALAND SHORTFIN AND LONGFIN EELS. (2012, OCTOBER 9)]

### 2.3.5 Future Impacts of Climate Change on the Region

Climate change will play an increasingly important role in affecting the environment surrounding Lake Wairarapa. Though New Zealand is expected to warm up by only two-thirds of the global average by 2050, this temperature increase will still play a major role in changing water levels and ecosystems (Boyle 2003). The Eastern North Island from the Bay of Plenty to Wairarapa has a projected increase in mean temperature of 0.9 to 2.7 degrees Celsius for the years 2070 to 2099 (Boyle 2003). As mean temperatures increase and average precipitation decreases, water availability will decrease. Even though climate experts predict the average amount of rainfall will decrease in the Lower Wairarapa Valley, they also believe rainfall intensity will increase (Boyle 2003). Increases in rainfall intensity will lead to higher concentrations of sediment run-off. This increased volume of sediment loadings may reduce flood storage capacities along with water quality. Not only are changing temperatures going to affect the Lake Wairarapa region, but changes in precipitation due to climate change will also greatly influence the region. The Eastern North Island from Bay of Plenty to Wairarapa has a projected decrease in precipitation of 20 percent (Bengtsson 2010). Changes in precipitation and rising sea levels will lead to erosion, and will become an ever increasing problem as climate change increases. Erosion and coastal inundation are expected to cause changes in sediment deposition patterns that will greatly affect the ecosystems of the Lower Wairarapa Valley.

Increased temperatures will lead to reduced glacier cover, reduced frost frequency, and reduced alpine snow masses. Climate change will yield a greater frequency of droughts in the Wairarapa region. All of these factors will form a new ecosystem to which existing species must adapt. Environmental changes will force species to relocate and therefore interact with new species. This will greatly change

existing food chains in ecosystems and has the possibility of introducing disease to the region. The Wellington Department of Conservation predicts that plant productivity is likely to change as the ecosystem and atmosphere around them change (McGlone 2011). As the ecosystem evolves, exotic organisms will have a greater likelihood of surviving as they have already adapted to survive in the region. Indigenous species on the other hand are very accustomed to the specific climate of the Wairarapa Valley region, and will find it harder to adapt to a drastically changing ecosystem (McGlone 2011).

## 2.4 Stakeholders

There are numerous stakeholders with differing opinions involving the ownership and management of the Lake Wairarapa flood control schemes. The five main stakeholders include the Ngāti Kahungunu, the Hapū Ngāti Hinewaka, the Hapū Ngāti Moe, the Lower Wairarapa Valley Development Scheme, and the Department of Primary Industry. The future use of the barrage gates and flood management scheme influences all of the stakeholders. The flood protection scheme directly affects the residents living in the valley, who depend on the lake for both water and food. Due to this, the Māori are very focused on the many environmental impacts of the barrage gates and cut offs with specific attention to the changes in fish and eel populations.

### 2.4.1 Ngāti Kahungunu

Ngāti Kahungunu is the third largest tribal group in New Zealand. It has three main divisions: Ngāti Kahungunu ki Wairoa, Ngāti Kahungunu ki Heretaunga, and Ngāti Kahungunu ki Wairarapa. The last group resides in the southern portion of the tribe's territory and shares the title of tangata whenua (local authority) for the Wairarapa region with the people of Rangitāne (Whaanga, 2012). Figure 10 shows the tribal territory of Ngāti Kahungunu.

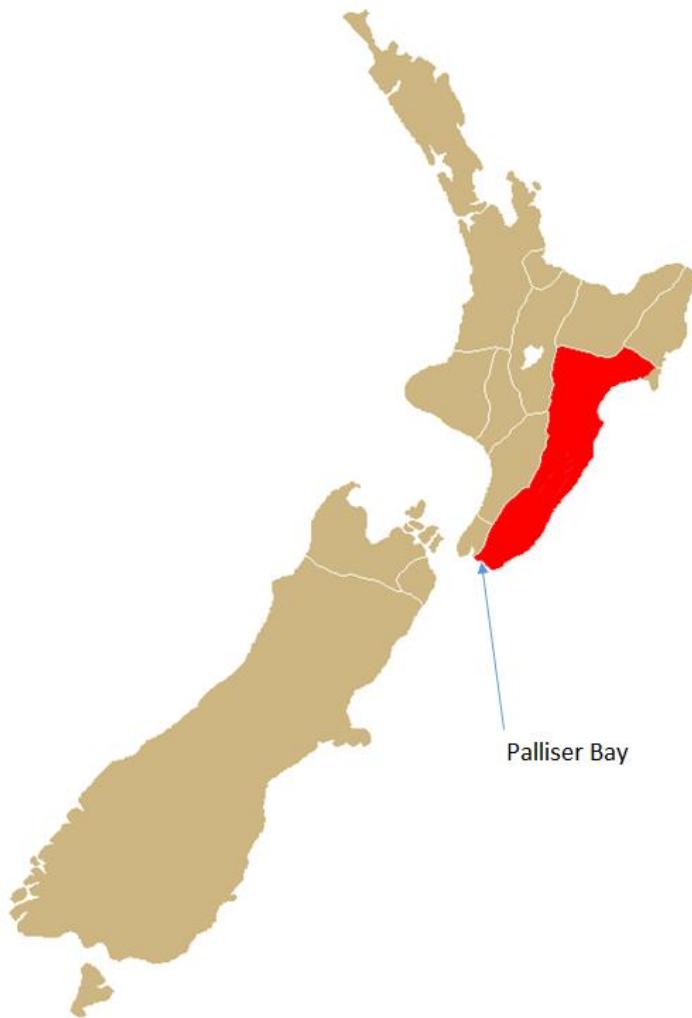


FIGURE 10: NGĀTI KAHUNGUNU TRIBAL TERRITORY, [WIKIPEDIA, 2012]

Ngāti Kahungunu ki Wairarapa is seeking to reclaim the land that the British Crown bought from them in the 1850s, which includes Wairarapa Moana and Tamaki Nui A Rua (Seventy Mile Bush). They are currently seeking a settlement in regards to the Treaty of Waitangi, and are making well founded (Ngāti Kahungunu ki Wairarapa - Tamaki Nui a Rua Trust, 2012) claims to many locations in the Wairarapa region (Ngāti Kahungunu ki Wairarapa - Tamaki Nui a Rua Trust, 2012).

#### 2.4.1.1 History of Ngāti Kahungunu

Māori have been living around the Palliser Bay region since around the 1300s. The tribes that initially settled in the region lived in relative peace. The two principal tribes, Ngāti Kahungunu and

Rangitāne intermarried extensively. In the 1840s Europeans began to colonize the land, leasing access from the tribes who owned it (Schrader 2012). This led to trade and profit for the Māori, and as more colonists began to settle, the price of rent increased. The Māori were very friendly with the Pākehā, or Europeans, who were in good standing with the Māori. Many of the Pākehā rented land from the Māori to farm and settle. As the Māori rented more land to colonists, the British Crown made several attempts to purchase the land instead of renting it, but none of the tribes showed interest in selling their land. The Crown wanted the land in order to protect settlers from eviction from it, as well as for the potential profits. On the other hand the Māori saw the leases and the settlers as a strategy for furthering trade for their tribes, and had no desire to part with the land permanently (Wairarapa Moana Wetlands Project, n.d.).

Unfortunately for the Māori, the 1846 Native Land Purchase Ordinance enacted by New Zealand's government made it illegal to lease Māori lands to private citizens, and the tribes risked losing the settlers and the benefits that came with them (Taonui, 2012). The Crown wanted to make a profit off of the settlers and therefore promised the iwi in the Wairarapa region that they would continue to receive a percentage of all profits earned from the land as well as land reserves and assistance from the British government (Wairarapa Moana Wetlands Project, n.d.). As a result of these promises Ngāti Kahungunu lost more than one million acres of land to the British Crown, leaving approximately 3000-4000 acres for the Māori. After the 1931 Napier earthquake the government claimed several locations under the Public Works Act, giving no compensation to the Māori for the loss of their land (Whaanga, 2012).

#### 2.4.1.2 Land Settlements in the Wairarapa Region

Several of the tribes in Wairarapa region have begun to reclaim their lands through settlement agreements with the British Crown (Rangitane o Wairarapa Inc., 2014). The Tamaki Nui A Rua, a section of forests located just north of Lake Wairarapa, is the current focus of the Ngāti Kahungunu ki Wairarapa – Tamaki Nui a Rua Trust, which represents the interests of 27 claims that relate to Ngāti Kahungunu. These claimants recognize that different Māori tribes would share the land, and are simply seeking that the government return the land to its rightful owners (Ngati Kahungunu ki Wairarapa - Tamaki Nui a Rua Trust, 2012).

Another area of concern is Lake Wairarapa, as the people of the Ngāti Kahungunu have traditionally relied on the fish and the eels that live in the lake as a food source. Unfortunately the eel

populations have decreased dramatically, and the Māori are now focused on increasing eel numbers. As Potangaroa, a researcher of Wairarapa Māori history says, “At present... Wairarapa Moana is a case study on the negative impact humans have had on New Zealand’s eels.” (Potangaroa, pg. 198, 2012). Lake water quality and manmade obstacles to fish and eel migration are currently hindering eel population growth. If Ngāti Kahungunu ki Wairarapa were to receive greater control of the Wairarapa Moana as a result of the Treaty of Waitangi settlement, then it is possible that they would be able to further protect the eels and bring their populations up to a sustainable level once again (Potangaroa, 2012).

#### 2.4.2 Hapū Ngāti Hinewaka

The Ngāti Hinewaka people reside in the southern part of the Wairarapa East Coast. Figure 11 shows the Waitangi Tribunal Claim WAI-959 that defines boundaries to the hapū’s land. These boundaries follow the Ruamahanga River from Lake Onoke to the river’s intersection with the Huangarua River, from the Huangarua River to the Pahaoa River, and from there to the coast (Ngāti Hinewaka, n.d.). Note, a registered claim does not mean that the claim is well founded (New Zealand Ministry of Justice, n.d.). The people of Ngāti Hinewaka have a vested interest in the Wairarapa wetlands and the Ruamahanga River itself as a part of their land connects to the river and Wairarapa wetlands (Ngāti Hinewaka, n.d.). Parts of their territory are subject to flooding from the rivers leaving Lake Wairarapa, as well as from the lake itself. In addition, any pollution in the lake and surrounding rivers affects Ngāti Hinewaka.

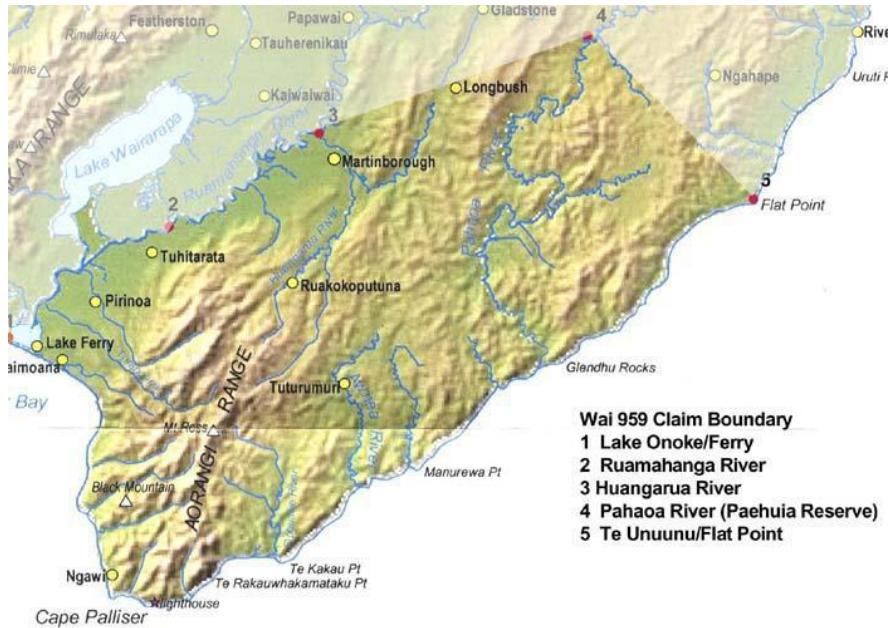


FIGURE 11: WAITANGI TRIBUNAL CLAIM WAI-959, [NGATI HINEWAKA, N.D.]

The hapū (subtribe) traditionally descends from Hinewaka, who was a Ngāti Kahungunu migrant to the Wairarapa region. Ngāti Hinewaka also has ties to both of the iwi (tribes) serving as tangata whenua in Wairarapa region, Ngāti Kahungunu ki Wairarapa and Rangitāne, as well as to two other tribes, Ngāti Tara and Ngāti Ira (Rangitane o Wairarapa Inc., n.d.). As Ngāti Hinewaka shares land and ties with several other iwi, they also share the same concerns over the land. Their claim to the land south of the Ruamahanga River is sufficient reason for their concern about the welfare of the Wairarapa wetlands (Ngati Hinewaka, n.d.). This also means that they share a vested interest with the tangata whenua over the results of the Treaty of Waitangi settlement process, as its result in the Wairarapa region may lead to a return of land to the hapū (Office of Treaty Settlements, 2002).

#### 2.4.3 Hapū Ngāti Moe

The people of Ngāti Moe live in Greytown at the Papawai Marae. They are closely affiliated with Ngāti Kahungunu ki Wairarapa, and share common interests with all of the Māori that are a part of the Ngāti Kahungunu ki Wairarapa - Tamaki Nui a Rua Trust. The trust has put forward a claim to the Wairarapa Moana region as well as the Tamaki Nui a Rua region. Figure 12 shows the claim boundaries.

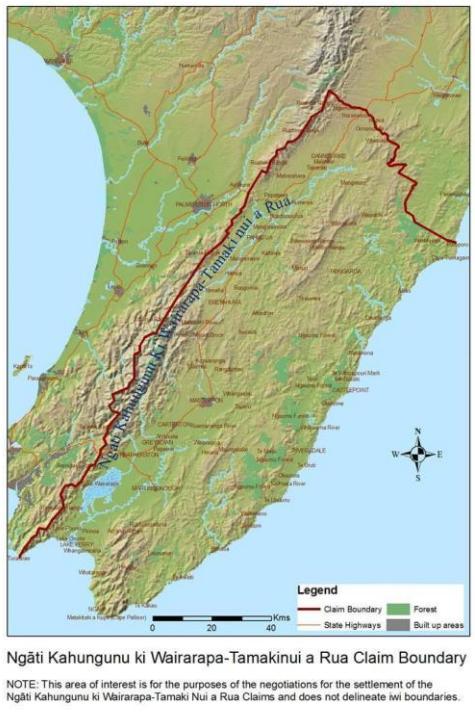


FIGURE 12: CLAIMS BOUNDARY, [NGATI KAHUNGUNU KI WAIRARAPA - TAMAKI NUI A RUA TRUST, 2012

The Ngati Kahungunu ki Wairarapa - Tamaki Nui a Rua Trust defines this area “for the purposes of the negotiations for the settlement of the [claims] and does not delineate iwi boundaries” (Ngāti Kahungunu ki Wairarapa - Tamaki Nui a Rua Trust, 2012). The Ngāti Kahungunu ki Wairarapa - Tamaki Nui a Rua Trust makes this distinction because they acknowledge that they will share the land with the other iwi in the Wairarapa Region.

#### 2.4.4 Management of the Lower Wairarapa Valley Development Scheme

The Lower Wairarapa Valley Development Scheme is the largest flood protection scheme in the Lower Wairarapa Valley. A manager and two supervisors run the scheme and ensure that all of the flood protection methods are operating correctly. A series of wards maintain the Scheme, and a representative from each ward is on the Scheme Advisory Committee. This committee is in charge of overseeing and approving all aspects of the work program and provides a liaison between the landowners and the flood protection staff. The managers of the work program work in the Flood Protection Department of the Greater Wellington Regional Council. The members of the work program

mainly consist of farmers and other local landowners. Some aspects managed by the work program include planting and vegetation control, stop bank maintenance and reinforcement, floodgate work, bank protection, and operation of the Barrage Gates (Wairarapa Moana Wetlands Project, 2014). The council is in charge of both the current and future management of the scheme.

#### 2.4.5 Department of Primary Industry

The Ministry for Primary Industries in New Zealand focuses on maximizing sector productivity and export opportunities while focusing on sustainable resource use for primary industries. The Ministry works to determine plans for industries to adapt to and plan for the future. The Ministry is especially concerned with the fishing and agricultural industries. Any future changes made to the flood protection plan will influence the fishing and agriculture industries. The Department of Primary Industry must consider 463,940 hectares of farmland in the Wellington Region.

### 2.5 Politics Surrounding the Barrage Gates

The politics surrounding the barrage gates primarily focus on the region's historical land claims and more importantly on the Treaty of Waitangi. In addition there is a growing desire among New Zealanders to protect the nation's wetlands through policies such as RAMSAR. The RAMSAR treaty identifies wetlands as nationally important and identifies them as sites that the Crown protects. Furthermore, there is tension between the local farmers and the Māori over the land claims. All of these key political factors, which the next section describes in detail, play into the stakeholder's relationships and the regulation of the barrage gates.

#### 2.5.1 The Treaty of Waitangi and the Land Rights of the Māori

Ever since the Māori and Crown signed the Treaty of Waitangi in 1840, it has been an essential part of Māori operations (Network Waitangi, 2015). Before 1840, the Māori and the Pākehā (New Zealanders of European descent) lived together peacefully. The Pākehā were primarily British traders and runaway convicts who the Māori invited to live on their land. The Māori customs follow the ethical principle of Manoaki, an obligation to care for their visitors. The Māori coupled this principle with the understanding that the British settlers would follow the Māori law of fairness (Tikanga) and respect the leaders of the Hapū, known as the rangatira. The early settlers had a peaceful relationship with the Māori, as the settlers were well aware that their survival was dependent on this peaceful coexistence.

A mutually beneficial relationship began to grow between the Māori and the Pākehā. The Māori supplied visiting ships with fresh water, fish and meat, kumara, flax, and logs to build the ships masts. The Māori wished to expand their overseas trade, and a strong relationship with the British was beneficial in achieving this goal. The Māori saw the British settlers as “Hapū hou” or a “new Hapū” with whom they wished to build an advantageous relationship (Network Waitangi, 2015). In Māori culture it was not unusual to make these types of relationships formal with a treaty. Great Britain was not the only country interested in building a relationship with New Zealand; America and France also wanted to get involved in Māori trade. For this reason Great Britain showed interest in a treaty with the Māori, in order to establish itself as the primary country with whom the Māori had international links.

In addition, as the number of European settlers increased, the Māori became concerned with the growing lawlessness of many of the Pākehā. Pākehā lawlessness included murders, kidnappings, enslavements and other criminal acts. The Māori hoped that the treaty would force the Crown to take control over the Pākehā and decrease the number of incidents of these crimes. The treaty was a confirmation of the power of the rangatira and an agreement that the rangatira would be responsible for governing the Māori and the Crown would be responsible for governing the Pākehā.

Another issue the treaty cleared up was land rights. The Māori gave grants of land use, called *taku whenua*, to the European settlers. The Europeans, however, abused these rights and forcefully took land from the Māori. In 1835 Te Wakaminega, the “confederation of chiefs”, signed New Zealand’s declaration of Independence, or Te Rangatiratanga in Māori. The declaration internationally established New Zealand as an independent country in which full sovereign power rested with the Hapū their representative rangatira. The British resident, James Busby, who was sent to New Zealand to keep the peace between the Pākehā and Māori, sent the declaration to Great Britain and in 1836 the Crown recognized New Zealand’s sovereign independence from Great Britain.

The treaty of Waitangi became one of New Zealand’s first founding documents. On February 6, 1840, 40 rangatira representing their hapū and Captain Hobson representing Queen Victoria signed the Treaty of Waitangi. Copies of the treaty were then taken around the country and more than 500 Māori leaders signed it (Network Waitangi, 2015). There are two versions of the treaty, one in Māori and one in English (Read the Treaty, 2015). First Captain Hobson wrote the treaty in English, then he translated it into Māori. However there has been much controversy about differences in the two translations.

In article one of the treaty, the two translations differ in the terms used to describe the Crown's power in New Zealand. In the English text, Māori leaders gave the Queen "all the rights and powers of sovereignty over their land." In the Māori text, Māori leaders gave the Queen 'te kawanatanga katoa' or the complete government over their land (Read the Treaty, 2015). In the years following the treaty, the number of British settlers continued to rise. Once the number of Māori and Pākehā were similar, the Pākehā used violence to take land from the Māori; this period around 1858 is commonly referred to as the land wars. In addition to the land wars, the Crown also deceived the Māori to acquire more land. The Crown understood the Māori's generous gifting of land differently than the Māori did, and tricked them into signing legal documents that gave the Pākehā ownership of the land. From the Māori perspective, money that the Pākehā gave them in exchange for the land was a reciprocal gift. In 1896 Hāmuera Tamahau Mahupuku gifted the Wairarapa Moana to the Crown. The act of gifting meant that the mana, or authority, over the land still belonged to the Māori. The Crown gave the Māori two thousand pounds and promised to set aside some of the land for them. The Crown ended up giving the Māori only one land small reserve (Schrader, 2012).

The Treaty of Waitangi Act established the Waitangi Tribunal in 1975 to dispute land claims between the Māori and Pākehā (Network Waitangi, 2015). The government appoints members of the Tribunal, which does not have the power to directly enforce settlements; instead members make recommendations to parliament. Parliament must make the final decision on whether or not the Crown would return land and resources that the British settlers took illegally. Approval of the Wairarapa Valley settlement means that the Crown would return the Wairarapa Moana to the local iwi. There are tensions regarding the land settlements between the Māori groups. Controversy over which iwi has rights to the Wairarapa Moana causes these tensions. Therefore the settlement process plays a key role in regards to resource management.

## 2.5.2 RAMSAR Status and International Recognition of Wetlands

The Convention on Wetlands, called the RAMSAR Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources (Gunn, 2012). Throughout the 1960s countries and non-governmental organizations concerned with the increasing loss and degradation of wetlands around the world negotiated the treaty. Australia, the Netherlands, and Iran were among the first countries to adopt the treaty in the Iranian city of Ramsar in 1971 (RAMSAR, 1971). To date approximately 170

countries have signed the treaty and registered RAMSAR sites. The convention uses a broad definition of wetlands. It includes all lakes and rivers, underground aquifers, swamps and marshes, wet grasslands, peatlands, oases, estuaries, deltas and tidal flats, mangroves and other coastal areas, coral reefs, and all human-made sites such as fish ponds, rice paddies, reservoirs and salt pans. Under the “three pillars” of the Convention, the Contracting Parties commit to:

- Work towards the wise use of all their wetlands.
- Designate suitable wetlands for the list of Wetlands of International Importance (the “RAMSAR List”) and ensure their effective management.
- Cooperate internationally on transboundary wetlands, shared wetland systems and shared species (RAMSAR, 1971).

The mission of the convention is as follows: “the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world”. In short the main drive behind the convention is sustainable use of wetlands. RAMSAR sites have to meet nine criteria to receive national importance. The nine criteria split into two major categories: sites containing representative, rare or unique wetland types, and sites that conserve biological diversity. The second major category splits further into sections pertaining to species and ecological communities, water birds, and fish (RAMSAR, 1971). Currently Wairarapa Moana fulfills seven of the nine requirements for RAMSAR status as shown in Table 1 below.

]

TABLE 1: EVALUATION OF THE WAIRARAPA MOANA AGAINST THE 9 RAMSAR CRITERIA [RAMSAR, 1971]

Criterion	A wetland should be considered internationally important if:	Met?
1.	It contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.	✓
2.	It supports vulnerable, endangered, or critically endangered species or threatened ecological communities.	✓
3.	It supports populations of plant and/or animal species important for maintaining the biological diversity of a particular biogeographic region.	✓
4.	It supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.	✓
5.	It regularly supports 20,000 or more waterbirds.	✓
6.	It regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.	✓
7.	It supports a significant proportion of indigenous fish subspecies, species or families, life-history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity.	✓
8.	It is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend.	✓
9.	It regularly supports 1% of the individuals in a population of one species or subspecies of wetland-dependant non-avian animal species.	NA

New Zealand farmers are the only group against RAMSAR status because they fear it will invoke regulation of Wairarapa Moana which forces them to change their farm operational methods.

### 2.5.3 Relationship between farmers and the Māori

There has been disagreement between farmers and the Māori about the appropriate water level for Lake Wairarapa. The Māori want high water for fishing while the farmers want to keep the

water levels low for dry pasture (Wairarapa Moana Wetlands Project, 2013). The Māori hunt eels in the lake but lower water levels decrease the habitat for the eels to flourish. Agriculture is also a major contributing factor to the drainage of wetlands in Wairarapa Moana. Since European settlement of New Zealand, the Crown has drained approximately 90% of wetlands for housing, commercial development, and agricultural production. This equates to more than three million hectares of land (McLeod, 2006). Further discussion on the regulation of Lake Wairarapa's water levels will be vital in future resource management plans.

#### 2.5.4 Resource Management Act of 1991 and the Use of Natural Resources

The Resource Management Act (RMA) of 1991 defines how local authorities manage the effects of various activities on the environment of New Zealand. The New Zealand parliament created the RMA to create one large framework for resource management in New Zealand. The RMA monitors Resource consent, proposals of national significance (such as RAMSAR), local authorities and Greater Wellington Regional Council plans. The main purpose of the RMA is to achieve sustainable management of all of New Zealand's natural resources (Ministry for the Environment, 2015)

Under the RMA, resource consents are often necessary for the use of natural resources. The Greater Wellington Regional Council is currently evaluating a new resource consent for the Lower Wairarapa Valley Development Scheme, as the current resource consent is set to expire in 2019. Applications for resource consent must include a detailed description of the environmental impacts of the proposal (Resource Management Act, Article 88). The resource consent submitted by the Greater Wellington Regional Council must take into account irrigation, fish passage, and lake levels. The Greater Wellington Regional Council will evaluate these impacts against New Zealand's national environmental standards. In addition the proposal must take into account the six matters of national importance of the RMA:

- The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development.
- The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development.
- The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.

- The maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers.
- The relationship of Māori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.
- The protection of historic heritage from inappropriate subdivision, use, and development.
- The protection of protected customary rights (Parliamentary Counsel Office, 2015)

Since the fifth matter of national importance is the relationship of the Māori, and the Māori have a strong cultural connection to Lake Wairarapa, the Māori play an important role in the renewal of resource consent. Additionally, in order to fully cover the environmental effects mentioned previously stakeholder views are very important to consider when submitting a resource consent.

Once complete, the applicant sends the resource consent to the consenting authorities for any necessary revisions. Consent authority refers to any council whose permission is needed to carry out an activity that requires resource consent (Parliamentary Counsel Office, 2015). If the Crown returns the land of the Wairarapa Valley to the Māori as described in section 2.5.1 then the Māori will become a consent authority and have more control over the resource consent. Once the consenting authorities make revisions, a hearing will convene and various stakeholders will state their opinions. The commissioners (an independent adviser to the Government on environmental issues) will have the final say in whether or not the resource consent passes. Territorial authorities, such as the Greater Wellington Regional Council, are responsible for upholding the requirements for management set out by the resource consent (Parliamentary Counsel Office, 2015).

## 3.0 Methodology

This project intends to gather more information on the current resource management problem in the Lower Wairarapa Valley by determining the viewpoints of the various stakeholders in regards to the barrage gates and river cutoff. The project team will accomplish this through the use of exploratory interviews and surveys to gather the necessary background information regarding the influences and opinions of the various stakeholders to help facilitate communication between them and the Greater Wellington Regional Council. To accomplish this, the project team will address the following objectives:

- Understanding current management methods of the barrage gates and river cutoff.
- Understanding stakeholder views in regards to the barrage gates and river cutoff.
- Identifying conflicts and opportunities regarding the current resource consent plan.
- Compile stakeholder views and report findings

This chapter discusses the methods used to fulfill the above objectives.

### 3.1 Overview of Research Methods Used in the Project

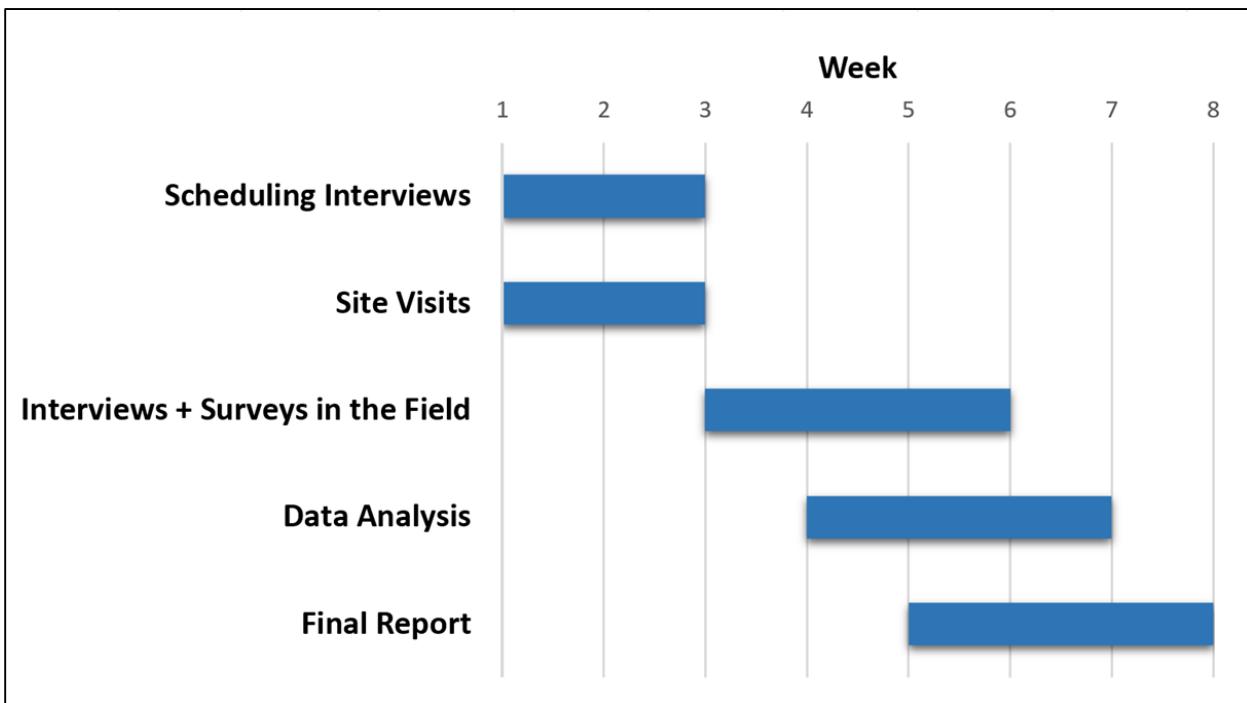
The project will utilize multiple data collection techniques, including semi-structured interviews, surveys, and group interviews. The project team decided that interviews and surveys would be the most appropriate techniques for gathering relevant information from our specific stakeholder groups. The interviews will be semi structured. The project team chose this format because this will bring a formal aspect to the interview. There is a lot of information that the project team is looking to learn from the various stakeholders which the team will learn through a structured interview (Cohen 2006). However, there are some areas of the conflict that the project team may not be aware of yet. For this reason, semi-structured interviews are more valuable than structured interviews because they allow new points to be brought up throughout the discussion. The project team will be bringing a pre-written list of questions to the interview, but will plan on having discussions that diverge from the original questions.

Each interview and survey will begin with a confidentiality permission request. This will ensure that the participants are aware that they may withdraw their participation at any time and the interview is completely voluntary. The project team will also ask for permission to record during interviews so that it will be easier for the team to accurately keep track of the responses. At the end of the interview or survey the project team will provide the participant with the team's contact information in case they later decide to withdraw any information from our consideration.

The team developed the interview and survey questions by identifying the specific information that our sponsor wanted to collect and then conferring with our contact from the Greater Wellington Regional Council, Ian Gunn, to confirm that our questions covered all of the relevant areas. A semi structured exploratory interview strategy can help determine the viewpoints of the managers of the Lower Wairarapa Valley Development Scheme and the Department of Primary Industry. The interview sheets are in Appendices A, B, D, F, and H. This specific method enables us to ask relevant questions while leaving open any other avenues of conversation. These interviews would yield qualitative information. The team plans on taking recordings of the interviews so that we can find exact quotes later on to include in our reports. The project sponsor will provide us with contacts to interview. During the interviews the project team may also ask the interviewee for any recommendations on who else we should talk to. This will help ensure that the team can schedule enough interviews to get accurate information on the organizations views.

The team decided that the use of surveys would be more applicable when talking to the Ngāti Kahungunu, the Hapū Ngāti Hinewaka, and the Hapū Ngāti Moe. While each Māori group traditionally has a leader who could act as a spokesperson, our goal is to ensure that our research reflects the general opinions of the local Māori populations. The team designed the surveys to collect both quantitative and qualitative data which are in Appendices C, E, and G. We will also use group interviews when talking to the different Māori groups. A group interview has the potential to spark group discussions that can outline differences in opinions within each stakeholder group. The team will be able to collect qualitative data from the group interviews as seen in the question sheets in Appendices B, D, and F. The project team will use coding to organize the qualitative data from the surveys and then subsequently analyze the output. The team will also look for patterns or similarities in the quantitative data. After the project team collects the information from all of our stakeholders we will do a stakeholder analysis and identify any points of conflicts between our stakeholders. Table 2 provides the planned schedule for the project and methodology implementation.

TABLE 2: GANTT CHART OUTLINING PROPOSED TIMELINE



### 3.2 Understanding Management Methods and Evaluating Stakeholder Input

This study aims to determine and understand the factors that currently control the management of the barrage gates and river cutoff. There are three main questions that this objective aims to answer: does everyone involved understand the management system? Are the opinions of the stakeholders' influential to the control of the management system? What other factors control the management? The team will collect this information through exploratory interviews and surveys with Māori iwi and hapū, the Lower Wairarapa Valley Development Scheme and the Department of Primary Industry. The team will evaluate the Māori groups' views with both surveys and interviews. Our interviews will be semi-structured to enable incorporating unforeseen information and conflicts into the discussion. The interviews will begin with the Lower Wairarapa Valley Development Scheme in order to develop an introductory sense of the management. Appendix A shows the interview plan and questions for the management of the Lower Wairarapa Valley Development Scheme. The first few questions establish the interviewee's position in the management of the scheme and their familiarity with the Wairarapa Moana. The next few questions ask about how much influence they have over the operation and management of the barrage gates and Ruamahanga River cutoff and how the Lower Wairarapa Valley

Development Scheme takes other stakeholders' opinions into account when managing the assets. Other questions address some of the main focuses when managing the barrage gates and river cutoff.

The Greater Wellington Regional Council will also take the project team on a tour of the Wairarapa valley in order to help in gaining a perspective on the region and its management. The team will take pictures of the region for later use. This information will provide the necessary background knowledge necessary to determine whether the other stakeholders involved have an accurate understanding of the current management plan (Appendix A questions 1, 2, 3). Next, the project team will conduct additional stakeholder interviews with the Ngāti Kahungunu, Hapū Ngāti Moe, and Hapū Ngāti Hinewaka in order to gain an introductory sense of the stakeholders' interest and understanding of the management plan.

The interview with the Lower Wairarapa Valley Development Scheme will give the project team a sense on how the scheme incorporates the stakeholders' various opinions into the management. The interviews with the other stakeholders will validate whether or not the Lower Wairarapa Valley Development Scheme is incorporating their views into the management. From these preliminary interviews the project team will gain an introductory sense of any problems with the current management plan. In summary, the interviews will determine if there is any confusion surrounding the management plan and give the project team the necessary background information to meet this objective.

### 3.3 Understanding Stakeholders Views

An essential portion of the project is to determine the stakeholders' opinions and views in regards to the barrage gates and river cutoff. First the project team needs to determine the stakeholders' views in regards to the current management of the flood protection scheme and what changes they would make to it. This information is extremely important in regards to the Māori interviews because if the Crown returns land ownership of the Wairarapa valley to the Māori, then they will have more influence over the management of the barrage gates and river cutoff. This would make the Māori views more important when creating a resource consent document. The project team also needs to understand how the current flood protection scheme affects all of the different stakeholder groups. The project team will be looking into the effects that the water level has had on certain cultural and economic aspects of the Māori such as the fishing of eels. This information is essential to the

Greater Wellington Regional Council when putting together a resource management plan so that they can incorporate differing views.

There are three different Māori groups that the project team will interview in order to determine their opinions on the current management of the barrage gates and Ruamahanga River cutoff. Understanding their opinions on the current management of these assets and any changes they would make is extremely important due to the settlement process. Our sponsor will be providing a few different contacts from the iwi and the two hapū. The team will interview these contacts and any other people that they may recommend so that we can obtain an accurate understanding of the iwi's opinion of the current management of the barrage gates and river cutoff. If a hapu invites our project team to a marae, or meeting house, then we will conduct surveys there. We will conduct surveys in groups of two, with one person serving as the note taker and observer and the other person facilitating the questions. The appendix shows the interview questions for the different Māori groups.

The project team will also be using semi-structured exploratory interviews when interviewing the Department of Primary Industry. If time permits then we will be conducting interviews with different employees of the department in order to understand their opinions in regards to the barrage gates and Ruamahanga River cutoff. Our sponsor will provide us with a few contacts at the Department of Primary Industry so that we can establish their views in relation to the impact the barrage gates have on the farming and fishing industries in the region. Appendix E shows the exact plan for the interview. The first questions ask about the interviewee's position at the Department of Primary Industry and their knowledge on the Lower Wairarapa Valley Development Scheme. The next questions then ask about what they see as important aspects of the management of the barrage gates and Ruamahanga River cutoff. Multiple questions address their opinion of the current management of the barrage gates and river cutoff and where improvement could be made. By determining the opinions of the Department of Primary Industry in regards to the current management of the barrage gates and Ruamahanga River cutoff, the Greater Wellington Regional Council can establish a more informed resource consent.

### 3.4 Identifying Conflicts and Opportunities

As we collect information using surveys and interviews the team will analyze the data based on trends and patterns in the opinions of each stakeholder group. We will organize any quantitative responses by question. This will allow us to compare the responses and determine trends between the

different stakeholder groups. These trends will help us to understand the general views of our Māori stakeholders, while the interviews will give more specific information about the management of the barrage gates and river cut off. In order to regulate these trends we intend to code the survey responses. While survey responses are not normally coded, the nature of our inquiry makes it necessary for us to ask a few open ended questions as a part of our surveys. For example, question 7 in the Hapū Ngāti Hinewaka Survey in Appendix E asks what could be improved upon in regards to the current resource management methods Lake Wairarapa. It is important that this question is answered by every Māori that we survey as this will paint a larger picture of the overall opinion of the Māori stakeholder groups. Coding open ended survey questions will allow us to figure out exactly how the groups feel on the matter. The team will then be able to analyze our coded data, which will show differences and similarities between different stakeholders, as well as within the individual stakeholder groups. It is possible that certain stakeholders, especially the Māori iwi, will have differing opinions amongst themselves as to the management of the resources in Wairarapa Moana. Analysis of the data will determine what topics the Māori stakeholder groups agree and disagree on, which is essential knowledge for the Greater Wellington Regional Council in regards to the renewal of the resource consent in 2019.

### 3.4.1 Stakeholder Analysis

Stakeholder analysis is a method used by companies and organizations to evaluate the levels of interest and influence of stakeholders in regards to various problems. In typical stakeholder analysis the investigators graph the stakeholders on a chart such as the one below. The opinions of stakeholders that fall into the upper right quadrant are the most important for investigators to consider when evaluating the problem. The opinions of stakeholders in other quadrants are also important to consider but they have a lower stake than the key stakeholders due to decreased influence or interest in the problem.

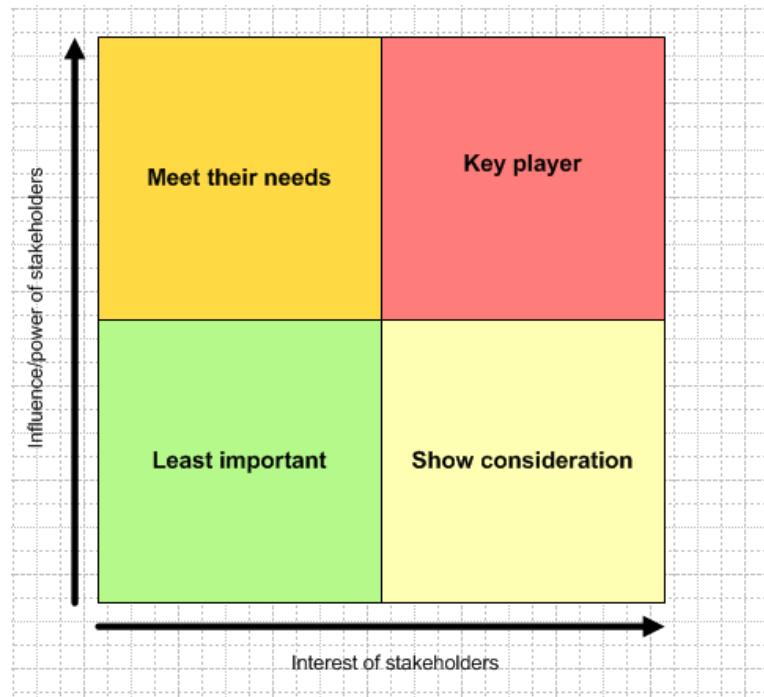


FIGURE 13: STAKEHOLDER ANALYSIS GRAPH (THOMPSON,N.D.)

Through this graphical method the investigators can determine which stakeholders are key to the problem. Identifying key stakeholders is an important aspect of conflict resolution because their opinions and interests are most influential in finding a solution to the problem.

### 3.5 Compiling and Reporting Findings

Once the project team has collected and processed all of the stakeholder groups' views and opinions, we will compile the data into a report to present to the Greater Wellington Regional Council. The team will organize the data by stakeholder and will indicate where the stakeholder groups agree and disagree. The report will also indicate how informed each stakeholder is in regards to the resource consent process and the fact that it is expiring. With this information the Greater Wellington Regional Council will be able to present a well-informed resource consent for the control of the barrage gates and river cutoff in 2019.

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## Appendix A

Note Taker: Breanne Happell  
Question Facilitator: Elzani van Zyl  
Observer: Elizabeth Walfeld  
Recorder: Rene Jacques:



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***We are working with the Greater Wellington Regional Council to determine the views and opinions of the Lower Wairarapa Valley Development Scheme in regards to the management of the barrage gates and Ruamahanga River cutoff.***

*You are not required to answer any questions that may be asked and you may stop the interview at any time. Your participation is completely voluntary and you may withdraw any information you submit at any time.*

Do we have your permission to record this interview? If yes then your answers will be recorded and may be used in the future.

- 1. What do you define the Wairarapa Moana to be?**
- 2. What is your position in the management of the Lower Wairarapa Valley Scheme?**
- 3. Do you feel that the current management system of the barrage gates and the Ruamahanga river cutoff is fair to all involved stakeholders?**
- 4. What is your level of influence on the current management system?**
- 5. How are other opinions incorporated into the management of the barrage gates and river cutoff?**
- 6. How has the Lower Wairarapa Valley Development Scheme affected the Lower Wairarapa Valley?**
- 7. Please rank the water quality in Lake Wairarapa with a 1 indicating poor water quality.**
- 8. What are your primary concerns when managing the barrage gates and the Ruamahanga river cutoff?**
- 9. What is your understanding of the resource consent process?**

**a. Are you aware that the barrage gates have a resource consent and it expires in 2019?**

Thank you very much for taking the time to complete this interview. Your feedback is valued and very much appreciated!

## Appendix B

Note Taker: Breanne Happell  
Question Facilitator: Elzani van Zyl  
Observer: Elizabeth Walfield  
Recorder: Rene Jacques:



---

**We are working with the Greater Wellington Regional Council to determine the views and opinions of the Ngāti Kahungunu in regards to the management of the barrage gates and Ruamahanga River cutoff.**

*You are not required to answer any questions that may be asked and you may stop the interview at any time. Your participation is completely voluntary and you may withdraw any information you submit at any time.*

Do we have your permission to record this interview? If yes then your answers will be recorded and may be used in the future.

- 1. What is the history of the Ngāti Kahungunu in the region of the Wairarapa Moana?**
- 2. What is your current occupation?**
- 3. What do you define the Wairarapa Moana to be?**
- 4. How has the Lower Wairarapa Valley Development Scheme affected the Lower Wairarapa Valley?**
- 5. Do you feel that the current management system of the barrage gates and the Ruamahanga river cutoff is fair to all involved stakeholders?**
- 6. How would you change the management of the barrage gates and river cutoff?**
- 7. How are you affected both culturally and economically by the barrage gates and river cutoff?**
- 8. Please rank the water quality in Lake Wairarapa with a 1 indicating poor water quality.**
- 9. How important is the management of these assets to your hapū?**
- 10. What is your understanding of the resource consent process?**

**a. Are you aware that the barrage gates have a resource consent and it expires in 2019?**

**b. Are you applying for a resource consent?**

**11. Do you partake in any recreational activities in the vicinity of the barrage gates and the Ruamahanga cutoff?**

Thank you very much for taking the time to complete this interview. Your feedback is valued and very much appreciated!

## Appendix C

Note Taker: Breanne Happell  
Question Facilitator: Elzani van Zyl  
Observer: Elizabeth Walfield  
Recorder: Rene Jacques:



***We are working with the Greater Wellington Regional Council to determine the views and opinions of the Ngāti Kahungunu in regards to the management of the barrage gates and Ruamahanga River cutoff.***

*You are not required to answer any questions that may be asked and you may stop the survey at any time. Your participation is completely voluntary and you may withdraw any information you submit at any time.*

**1. What is the history of the Ngāti Kahungunu in the region of the Wairarapa Moana?**

**2. Have you heard about the Lower Wairarapa Valley Development Scheme?**

Yes       No

**3. How well would you rate your knowledge of the barrage gates and the Ruamahanga river cutoff? (Rate from 1 to 5, with 1 being no knowledge and 5 being a lot knowledge)**

---

1     2     3     4     5

**4. How important is the management of these assets to your iwi? (Rate from 1 to 5, with 1 being not important and 5 being very important)**

---

1     2     3     4     5

**5. How would you rate the water quality in Lake Wairarapa? (Rate from 1 to 5, with 1 being low quality and 5 being high quality)**

---

1     2     3     4     5

**6. What do you know about the current management system of the barrage gates and river cutoff?**

**7. How would you change the management of the barrage gates and river cutoff?**

**8. What do you think could be improved upon from the current management practices?**

**9. If the current management practices were changed what affects would you expect to see?**

**10. Do you partake in any recreational activities in the vicinity of the barrage gates and the Ruamahanga cutoff? (If yes, list which ones)**

**11. Do you understand the resource consent process?**

---

Yes       No

**1a. Are you aware that the barrage gates have a resource consent and it expires in 2019?**

---

Yes       No

**1b. Do you have a resource consent?**

---

Yes       No

Thank you very much for taking the time to complete this survey. Your feedback is valued and very much appreciated!

## Appendix D

Note Taker: Breanne Happell  
Question Facilitator: Elzani van Zyl  
Observer: Elizabeth Walfield  
Recorder: Rene Jacques:



***We are working with the Greater Wellington Regional Council to determine the views and opinions of the Ngāti Hinewaka in regards to the management of the barrage gates and Ruamahanga River cutoff.***

*You are not required to answer any questions that may be asked and you may stop the interview at any time. Your participation is completely voluntary and you may withdraw any information you submit at any time.*

Do we have your permission to record this interview? If yes then your answers will be recorded and may be used in the future.

- 1. What is the history of the Ngāti Hinewaka in the region of the Wairarapa Moana?**
- 2. What is your current occupation?**
- 3. What do you define the Wairarapa Moana to be?**
- 4. How has the Lower Wairarapa Valley Development Scheme affected the Lower Wairarapa Valley?**
- 5. Do you feel that the current management system of the barrage gates and the Ruamahanga river cutoff is fair to all involved stakeholders?**
- 6. How would you change the management of the barrage gates and river cutoff?**
- 7. How are you affected both culturally and economically by the barrage gates and river cutoff?**
- 8. Please rank the water quality in Lake Wairarapa with a 1 indicating poor water quality.**
- 9. How important is the management of these assets to your hapū?**
- 10. What is your understanding of the resource consent process?**

**a. Are you aware that the barrage gates have a resource consent and it expires in 2019?**

**b. Are you applying for a resource consent?**

**11. Do you partake in any recreational activities in the vicinity of the barrage gates and the Ruamahanga cutoff?**

Thank you very much for taking the time to complete this interview. Your feedback is valued and very much appreciated!

## Appendix E

Note Taker: Breanne Happell  
Question Facilitator: Elzani van Zyl  
Observer: Elizabeth Walfield  
Recorder: Rene Jacques:



***We are working Ngāti Hinewaka with the Greater Wellington Regional Council to determine the views and opinions of the Ngāti Hinewaka in regards to the management of the barrage gates and Ruamahanga River cutoff.***

*You are not required to answer any questions that may be asked and you may stop the survey at any time. Your participation is completely voluntary and you may withdraw any information you submit at any time.*

**1. What is the history of the Ngāti Hinewaka in the region of the Wairarapa Moana?**

**2. Have you heard about the Lower Wairarapa Valley Development Scheme?**

Yes       No

**3. How well would you rate your knowledge of the barrage gates and the Ruamahanga river cutoff? (Rate from 1 to 5, with 1 being no knowledge and 5 being a lot knowledge)**

---

1     2     3     4     5

**4. How important is the management of these assets to your hapu? (Rate from 1 to 5, with 1 being not important and 5 being very important)**

---

1     2     3     4     5

**5. How would you rate the water quality in Lake Wairarapa? (Rate from 1 to 5, with 1 being low quality and 5 being high quality)**

---

1     2     3     4     5

**6. What do you know about the current management system of the barrage gates and river cutoff?**

**7. How would you change the management of the barrage gates and river cutoff?**

**8. What do you think could be improved upon from the current management practices?**

**9. If the current management practices were changed what affects would you expect to see?**

**10. Do you partake in any recreational activities in the vicinity of the barrage gates and the Ruamahanga cutoff? (If yes, list which ones)**

--

**11. Do you understand the resource consent process?**

---

Yes       No

**1a. Are you aware that the barrage gates have a resource consent and it expires in 2019?**

---

Yes       No

**1b. Do you have a resource consent?**

---

Yes       No

Thank you very much for taking the time to complete this survey. Your feedback is valued and very much appreciated!

## Appendix F

Note Taker: Breanne Happell  
Question Facilitator: Elzani van Zyl  
Observer: Elizabeth Walfield  
Recorder: Rene Jacques:



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**We are working with the Greater Ngāti Moe to determine the views and opinions of the Department of Primary Industry in regards to the management of the barrage gates and Ruamahanga River cutoff.**

*You are not required to answer any questions that may be asked and you may stop the interview at any time. Your participation is completely voluntary and you may withdraw any information you submit at any time.*

Do we have your permission to record this interview? If yes then your answers will be recorded and may be used in the future.

**1. What is the history of the Ngāti Moe in the region of the Wairarapa Moana?**

**2. What is your current occupation?**

**3. What do you define the Wairarapa Moana to be?**

**4. How has the Lower Wairarapa Valley Development Scheme affected the Lower Wairarapa Valley?**

**5. Do you feel that the current management system of the barrage gates and the Ruamahanga river cutoff is fair to all involved stakeholders?**

**6. How would you change the management of the barrage gates and river cutoff?**

**7. How are you affected both culturally and economically by the barrage gates and river cutoff?**

**8. Please rank the water quality in Lake Wairarapa with a 1 indicating poor water quality.**

**9. If the current management practices were changed what affects would you expect to see?**

**10. How important is the management of the barrage gates and Ruamahanga River cutoff to your hapū?**

**11. Do you partake in any recreational activities in the vicinity of the barrage gates and the Ruamahanga cutoff?**

Thank you very much for taking the time to complete this interview. Your feedback is valued and very much appreciated!

## Appendix G

Note Taker: Breanne Happell  
Question Facilitator: Elzani van Zyl  
Observer: Elizabeth Walfield  
Recorder: Rene Jacques:



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***We are working Ngāti Moe with the Greater Wellington Regional Council to determine the views and opinions of the Ngāti Moe in regards to the management of the barrage gates and Ruamahanga River cutoff.***

*You are not required to answer any questions that may be asked and you may stop the survey at any time. Your participation is completely voluntary and you may withdraw any information you submit at any time.*

**1. What is the history of the Ngāti Moe in the region of the Wairarapa Moana?**

**2. Have you heard about the Lower Wairarapa Valley Development Scheme?**

---

Yes       No

**3. How well would you rate your knowledge of the barrage gates and the Ruamahanga river cutoff? (Rate from 1 to 5, with 1 being no knowledge and 5 being a lot knowledge)**

---

1     2     3     4     5

**4. How important is the management of these assets to your hapu? (Rate from 1 to 5, with 1 being not important and 5 being very important)**

---

1     2     3     4     5

**5. How would you rate the water quality in Lake Wairarapa? (Rate from 1 to 5, with 1 being low quality and 5 being high quality)**

---

1     2     3     4     5

**6. What do you know about the current management system of the barrage gates and river cutoff?**

**7. How would you change the management of the barrage gates and river cutoff?**

**8. What do you think could be improved upon from the current management practices?**

**9. If the current management practices were changed what affects would you expect to see?**

**10. Do you partake in any recreational activities in the vicinity of the barrage gates and the Ruamahanga cutoff? (If yes, list which ones)**

**11. Do you understand the resource consent process?**

---

Yes       No

**1a. Are you aware that the barrage gates have a resource consent and it expires in 2019?**

---

Yes       No

**1b. Do you have a resource consent?**

---

Yes       No

Thank you very much for taking the time to complete this survey. Your feedback is valued and very much appreciated!

## Appendix H

Note Taker: Breanne Happell  
Question Facilitator: Elzani van Zyl  
Observer: Elizabeth Walfield  
Recorder: Rene Jacques:



***We are working with the Greater Wellington Regional Council to determine the views and opinions of the Department of Primary Industry in regards to the management of the barrage gates and Ruamahanga River cutoff.***

*You are not required to answer any questions that may be asked and you may stop the interview at any time. Your participation is completely voluntary and you may withdraw any information you submit at any time.*

Do we have your permission to record this interview? If yes then your answers will be recorded and may be used in the future.

- 1. What do you define the Wairarapa Moana to be?**
- 2. What is your current occupation?**
- 3. What is your position at the Department of Primary Industry?**
- 4. How has the Lower Wairarapa Valley Development Scheme affected the Lower Wairarapa Valley?**
- 5. Do you feel that the current management system of the barrage gates and the Ruamahanga river cutoff is fair to all involved stakeholders?**
- 6. What influence do you have on the management of the barrage gates and river cutoff?**
- 7. How would you change the management of the barrage gates and river cutoff?**
- 8. Please rank the water quality in Lake Wairarapa with a 1 indicating poor water quality.**
- 9. If the current management of these assets was changed what would you expect to see?**

**10. What is your understanding of the resource consent process?**

**a. Are you aware that the barrage gates have a resource consent and it expires in 2019?**

**b. Are you applying for a resource consent?**

Thank you very much for taking the time to complete this interview. Your feedback is valued and very much appreciated!