

Kaituna River Rediversion: Social and Recreational Use Patterns

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Cover photo looking towards the Ōngātoro/Maketu Estuary from Ford's Cut

Executive Summary

This research was requested by Bay of Plenty Regional Council as part of preparation for resource consent to divert a larger proportion the flow of the Kaituna River back into Ōngātoto/Maketu Estuary. The aim was to learn more about how people use the lower reaches of the Kaituna River, the Ōngātoto/Maketu estuary and Maketu beach areas for social and recreational purposes in order to assess the impacts on users of this proposed partial re-diversion of the Kaituna River back into the estuary.

Research assistants carried out observations on a daily basis at five sites from 7th January to 5th February 2013. Observations continued through the autumn-winter period (March – June) on randomly selected days and times to document the following information:

- The numbers of people involved in activities in various places around the river and estuary;
- What activities people were engaged in;
- How activities varied with season, tide, time of day and weather conditions.

In addition, research assistants conducted interviews with 246 people. Participants were asked to rate the health of the lower Kaituna River and Ōngātoto/Maketu Estuary, to provide information about the value to them of these areas and to give their perceptions of how this proposed partial re-diversion would affect their use of the river and estuary.

The observations showed that high numbers of people come to Maketu over summer, with medians of 85 per observation period at Maketu Surf Club and 83 at Maketu Boat Ramp during observation periods in January-February. The most common activities observed were walking and picnicking, followed by swimming (in summer) and fishing. Most of the walkers were observed in Maketu area. Te Tumu Cut was the most popular spot for fishing, with people observed there at all tide times and even in poor weather.

Some activities were tide-dependent and varied with the season, with people collecting shellfish at low tide and more people surf-casting at the estuary mouth during autumn/winter. The counts of vehicles with trailers parked at the boat ramps demonstrated that although numbers are not large, boats are regularly putting out to sea through both the estuary mouth and Te Tumu Cut.

Sixty-two per cent of people interviewed were Māori and 30% Pakeha. Ninety per cent of respondents lived in the Bay of Plenty and over half were residents of the Maketu /Te Puke /Pukehina area. Many had been visiting Maketu locations for more than five years, and visited at least once a week. About one third expected to stay at their location for less than two hours; the others all planned to stay longer.

For interviewees, fishing was the most popular recreational activity reported, particularly at Te Tumu Cut. Swimming, walking and picnicking were also popular, especially around the Maketu Beach and lower estuary area.

Respondents' mean ratings of the health of the lower Kaituna River and Ōngātoto/Maketu Estuary were 5.26 and 4.75 respectively (on a scale of 1 to 10 where 1=poor and 10=excellent). Health ratings were fairly consistent across all of the different age groups, demonstrating that older people who might have been expected to see changes over time did not give lower ratings.

Food/kaimoana was the most highly valued aspect, especially by Māori participants. Recreational opportunities and fishing were highly valued by people from all ethnic groups. Māori participants emphasised the importance of cultural activities, and were also more likely to mention family connections and home as important. Both Māori and Pakeha participants thought the Maketu/Kaituna area had conservation value and also mentioned intrinsic values.

Approximately half of respondents thought the proposed re-diversion would have a positive effect on their activities; very few thought the effect would be negative. People commented that the re-diversion was likely to improve the health of the estuary and remove sedimentation, although some were concerned about the quality of water flowing down the Kaituna River from further upstream. Some people thought the re-diversion would enhance fishing and fish stocks especially within the estuary, while others were concerned that reduced river flow through the Te Tumu Cut would negatively affect fishing there.

The findings show that the Maketu/Kaituna area is very popular for visitors, especially over summer, with many people visiting from elsewhere in the Bay of Plenty. Fishing and kaimoana gathering are very popular activities, and people highly value the area for these activities. Te Tumu Cut is a very popular fishing spot in all weather and tide conditions, and boaties access the sea through both Te Tumu Cut and the estuary mouth.

Other popular activities are swimming, walking and picnicking, particularly during summer. Māori place a high value on the area for cultural purposes such as customary good gathering and kaitiakitanga, and emphasised the importance of ancestral connections and the significance of Maketu as the landing place of the Te Arawa waka. Overall there was support for the proposed Kaituna River Re-diversion and Wetland Creation Project.

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Figure 1 - Preferred option

1. Background

The Kaituna River historically flowed through Ōngātoto/Maketu Estuary into the sea at Maketu. Several diversions have been constructed over the years, in particular the opening of a cut at Te Tumu (commonly known as the Kaituna Cut). Bay of Plenty Regional Council plans to apply for resource consent in 2014 to redivert a larger proportion of the flow of the Kaituna River into the estuary, thereby reducing the amount of water flowing out at Te Tumu Cut. A map with the proposed partial rediversion and wetland creation is shown on the opposite page.

The purpose of this study was to learn more about how people use the lower reaches of the Kaituna River, the Ōngātoto/Maketu Estuary and Maketu beach areas for social and recreational purposes in order to assess the impacts on users of this proposed partial re-diversion of the Kaituna River.

2. Methodology

Research assistants carried out observations on a daily basis at Maketu Surf Club, Maketu Boat Ramp and Te Tumu Cut from 7th January to 5th February 2013. Observations continued through the autumn-winter period (March – June) on randomly selected days and times to document the following information:

- The numbers of people involved in activities in various places around the river and estuary;
- What activities people were engaged in;
- How activities varied with season, tide, time of day and weather conditions.

Observations were also carried out at Bell Rd, Maketu and Ford Rd boat ramps documenting how many vehicles with trailers were parked there, and at what times of the tide. A map showing the survey locations is contained in Appendix 1.

The length of the observation periods varied; on most occasions observers remained at one location for between 2 and 4 hours. If little activity was seen at a site, observers shortened their observation time. In the two locations in Maketu itself (Surf Club and Boat Ramp), observations during peak summer holiday periods covered most of the daylight hours.

Surveys were conducted with people at a number of locations, asking them how often they visited this location, what activities they were engaged in, and what other locations around the Kaituna/Maketu area they also visited and how often.

Interviewees were asked to rate the health of the lower Kaituna River and Ōngātoto/Maketu Estuary, and to provide information about the value to them of these areas. Participants were provided with information about the proposed partial re-diversion of the Kaituna River and asked to give their perceptions of how this proposed partial re-diversion would affect their use of the river and estuary.

Demographic information was collected about interview participants that included ethnicity, gender, age and place of residence. A copy of the survey instrument and instructions for interviewers is contained in Appendix 2.

3. Findings

Findings from the observations at each site are presented in the first section. For each location, graphs showing total numbers of people counted during each observation period and an overview of the activities in which they were engaged are provided. At the end of this section is a summary of the observation findings and discussion of how factors such as tide, weather and season affect the activities people are engaged in.

The second section contains analysis and interpretation of the survey data, including descriptive statistics of participants' responses to the questions. The comments that people made are analysed, with quotes provided to illustrate the range of responses received.

3.1 Observations

Regular observations were carried out at Maketu Surf Club, Maketu Boat Ramp and Te Tumu Cut, with less frequent observations at Bell Rd and Ford Rd boat ramps. Information is reported separately for each location.

3.1.1 Maketu Surf Club

Observations were carried out on most days between 7th January and 6th February. The weather during January was fine every day, with rain only on 3rd, 4th and 5th February. On most days observations were carried out in both the morning and afternoon; on six occasions only morning observations were carried out. The number of people counted in the area (which included the visible beach area immediately out from the Surf Club and the estuary area as far as the "diving board" in the channel) ranged from seven to 304, with the median during this time being 85. The chart below shows the totals for each observation time during this period.

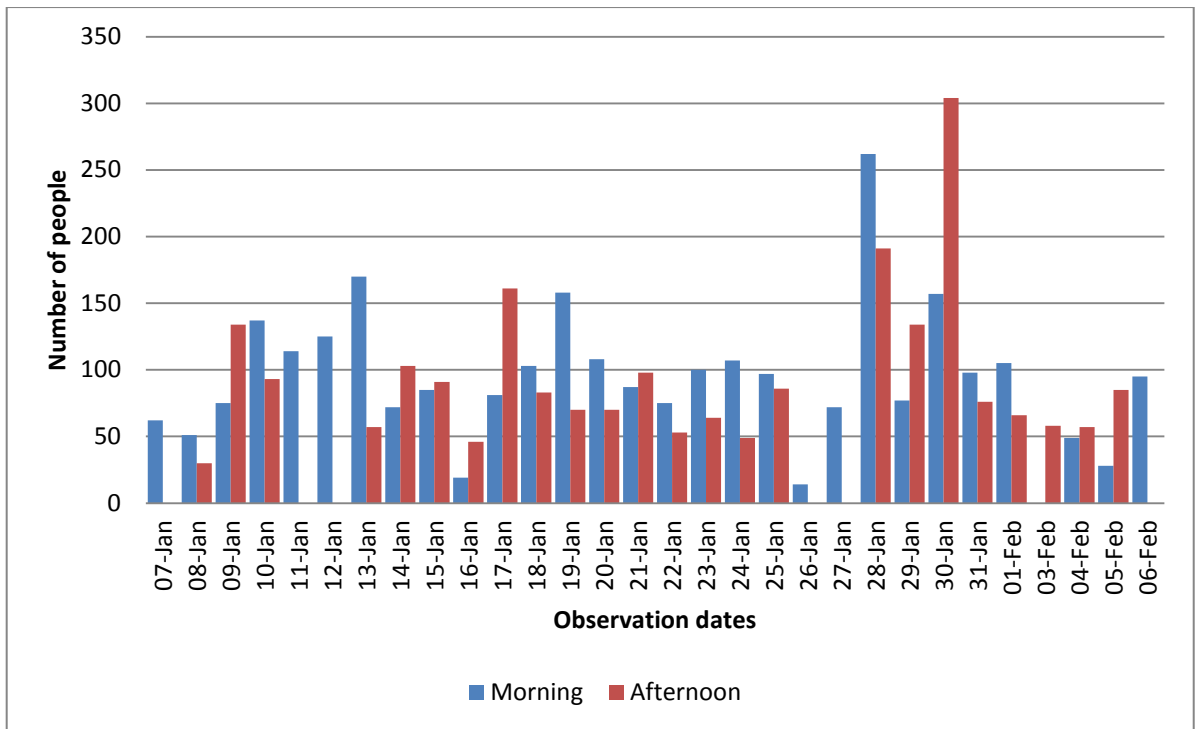


Figure 2: Total numbers of people observed at Maketu Surf Club area January – February 2013

Numbers of people dropped off in autumn/winter (March to June) and ranged from one to 123, with a median of 20 during each observation period. The peak of 123 people during this time was on Easter Monday during a six-hour observation period. Higher than average numbers were also recorded on Good Friday and Easter Sunday. After Easter weekend, numbers decreased further.

The weather was also wetter during winter; on wet days fewer people were observed in the area. Figure H below shows the total numbers of people observed in the area around Maketu Surf Club in each observation period during the period from March to June.

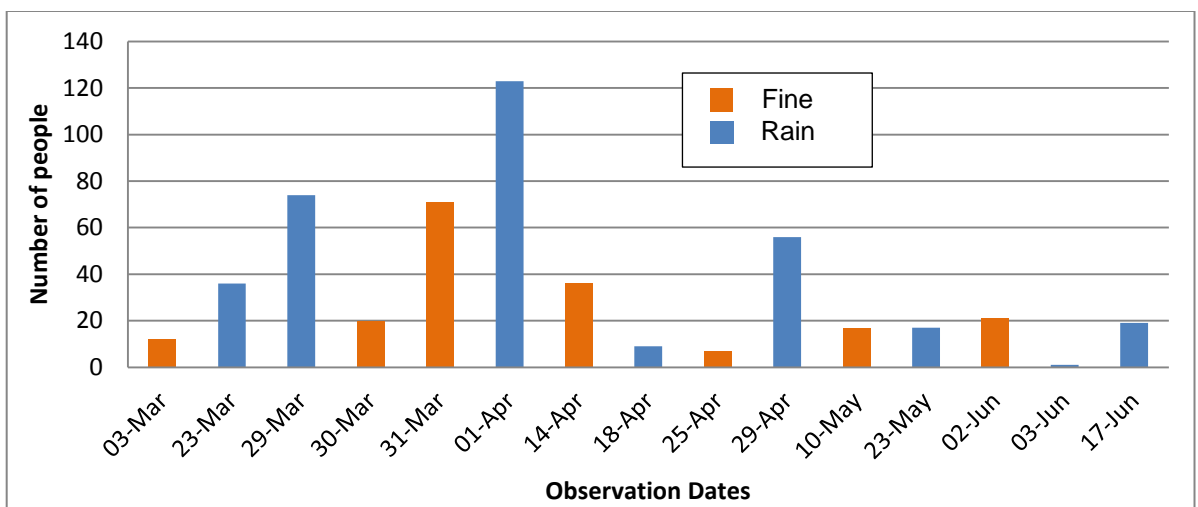


Figure 3: Total numbers of people observed at Maketu Surf Club area March - June 2013

Walking was the most popular activity in the Surf Club area, with an average of 40 people walking during each observation period. Numbers were higher in January-February with an average of 52 people walking during an observation period; in March – June, the average numbers of walkers observed was 10.

Another popular activity was swimming (during January – February), with an average of 21 people swimming during each observation; the average number of swimmers at any one time throughout the observation period was 17. Swimming tended to be more popular during the afternoon, but depended on the tide.

Picnicking was also popular, with an average of 16 people per observation; slightly more people were picnicking in January-February than later, although picnicking remained popular as the weather became colder. Picnickers were observed on the beach itself and also at the tables above the estuary along Beach Rd, where Pohutukawa trees provide excellent shade. Smaller numbers of people were engaged in a broad range of other activities in the area around Maketu Surf Club, including sunbathing, surfcasting, surfing, boating and sports activities.

During the summer period, there was little difference between the numbers of people observed on weekdays and weekends. However, particularly large numbers of people were observed walking and swimming on Auckland Anniversary weekend and also during the following week. Waitangi Day was not adjacent to a weekend, and was preceded by three rainy days, which meant that fewer numbers of people were observed during this time. Numbers rose slightly again over Easter weekend, when picnicking was the most popular activity. Swimming and sunbathing were only observed during summer.

The figure on the facing page shows the patterns of recreational activities for the four most popular activities throughout the observation period.

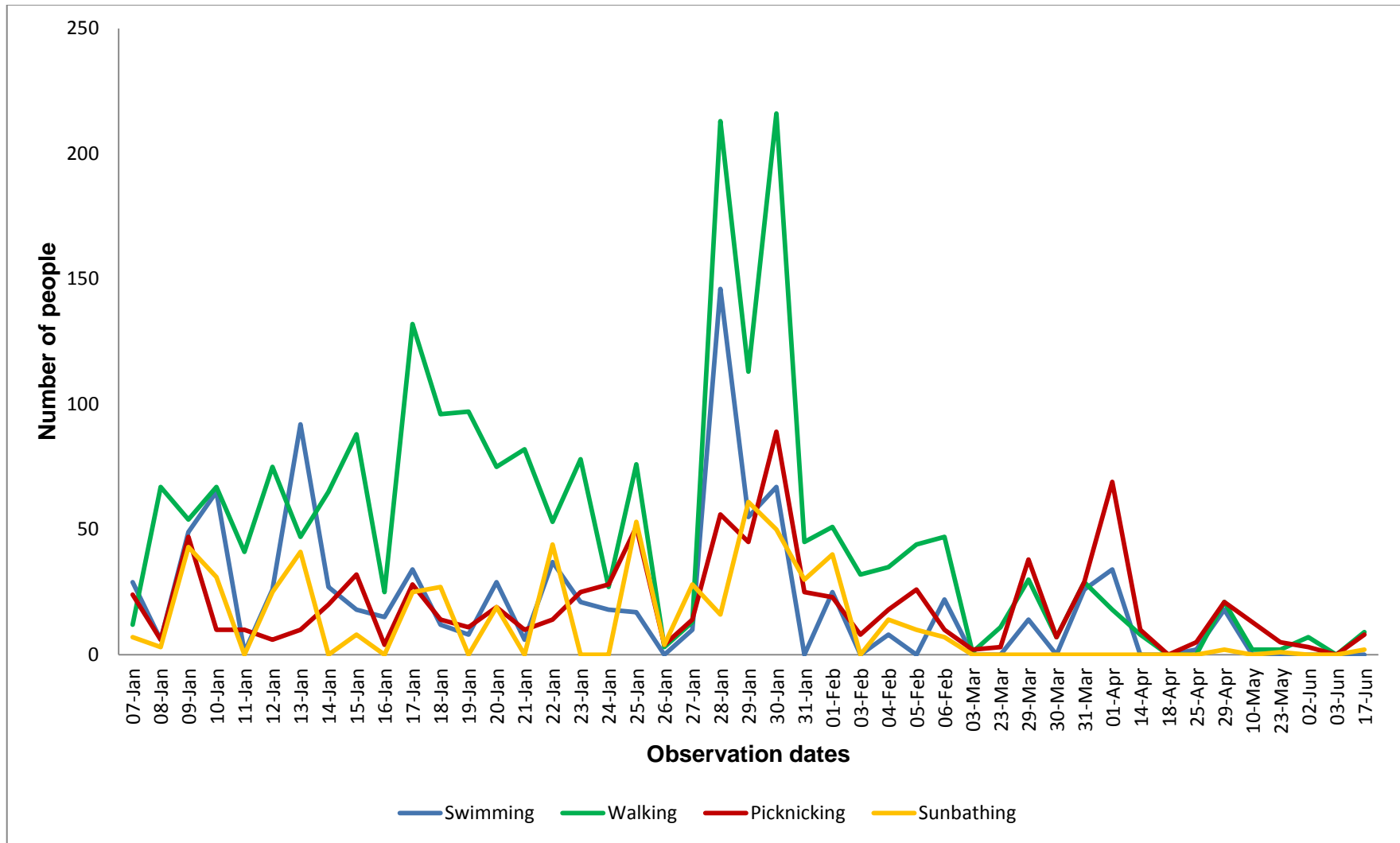


Figure 4: The most popular activities observed at Maketu Surf Club

3.1.2 Maketu Boat Ramp

Observations were carried out from the car park adjacent to the Maketu Boat Ramp on most days between 7th January and 6th February, and on some days in both morning and afternoon. From this location, researchers were able to observe activities being carried out in the upper part of the estuary as well as the car park itself and adjacent park area. The number of people counted in this area during a single observation period varied from five to 289, with the median being 83. Numbers of people observed during this summer period can be seen in the chart below.

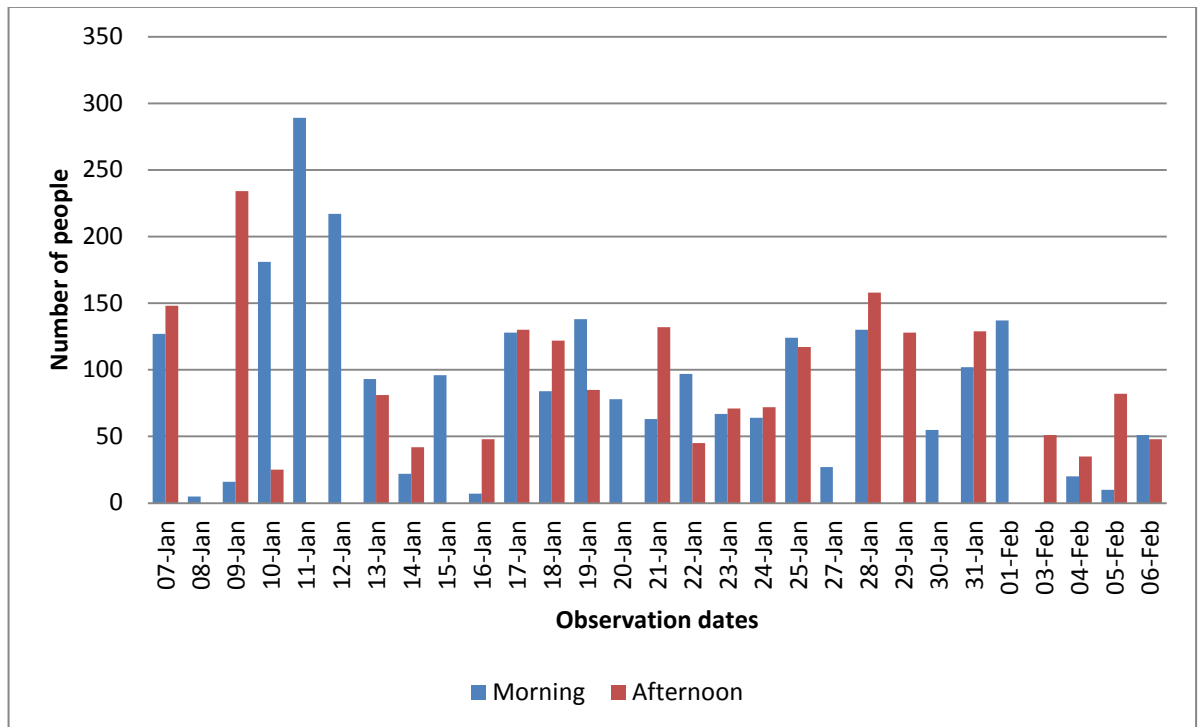


Figure 5: Total numbers of people observed at Maketu Boat Ramp January - February 2013

Numbers of people in this area dropped off into autumn and winter when fewer observations were carried out, with numbers ranging from nine to 145, and the median being 30. Over the Easter break slightly higher numbers were observed and on 9th April a visiting school group meant that numbers were high with a total of 145 people in the area. The chart below shows the total numbers of people counted in the Maketu Boat Ramp area from March to June, 2013.

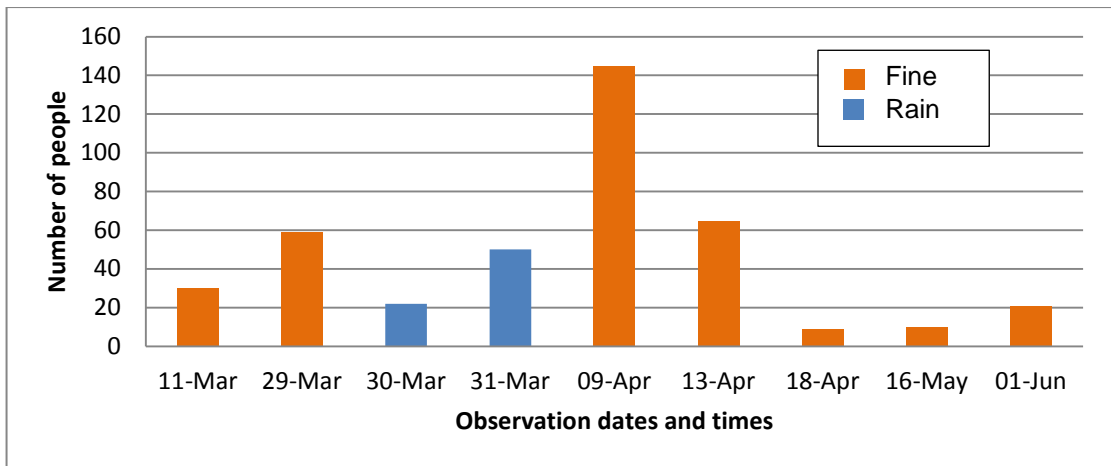


Figure 6: Total numbers of people observed at Maketu Boat Ramp March - June 2013

Walking was the most popular activity in the Maketu Boat Ramp area, with a median of 30 people per observation during summer and 15 per observation during autumn/winter. However, numbers fluctuated from day to day, and more people were observed walking on weekdays than on the weekends. People walked in both mornings and afternoons.

Picnicking and sports were the two next most popular activities; this is likely to be partly because of the adjacent park area. The highest numbers of people picnicking were on two Fridays in January and a weekday in April when a school group was in the area. Swimming was popular during summer, with an average of 13 people per observation period, and 46 people observed on one mid-summer week day. Swimming fluctuated with the tide, with people swimming in the lower estuary only when the tide was reasonably high; numbers of people swimming reduced when school holidays ended at the beginning of February.

Power-boating and shellfish collecting were popular activities, with people observed gathering shellfish in the estuary above the boat ramp. Both boating and shellfish gathering were tide-dependent, and it should be noted that a shellfish ban was in place throughout the entire observation period. The chart on the following page shows the fluctuation in numbers of people engaged in the four most popular activities during this time.

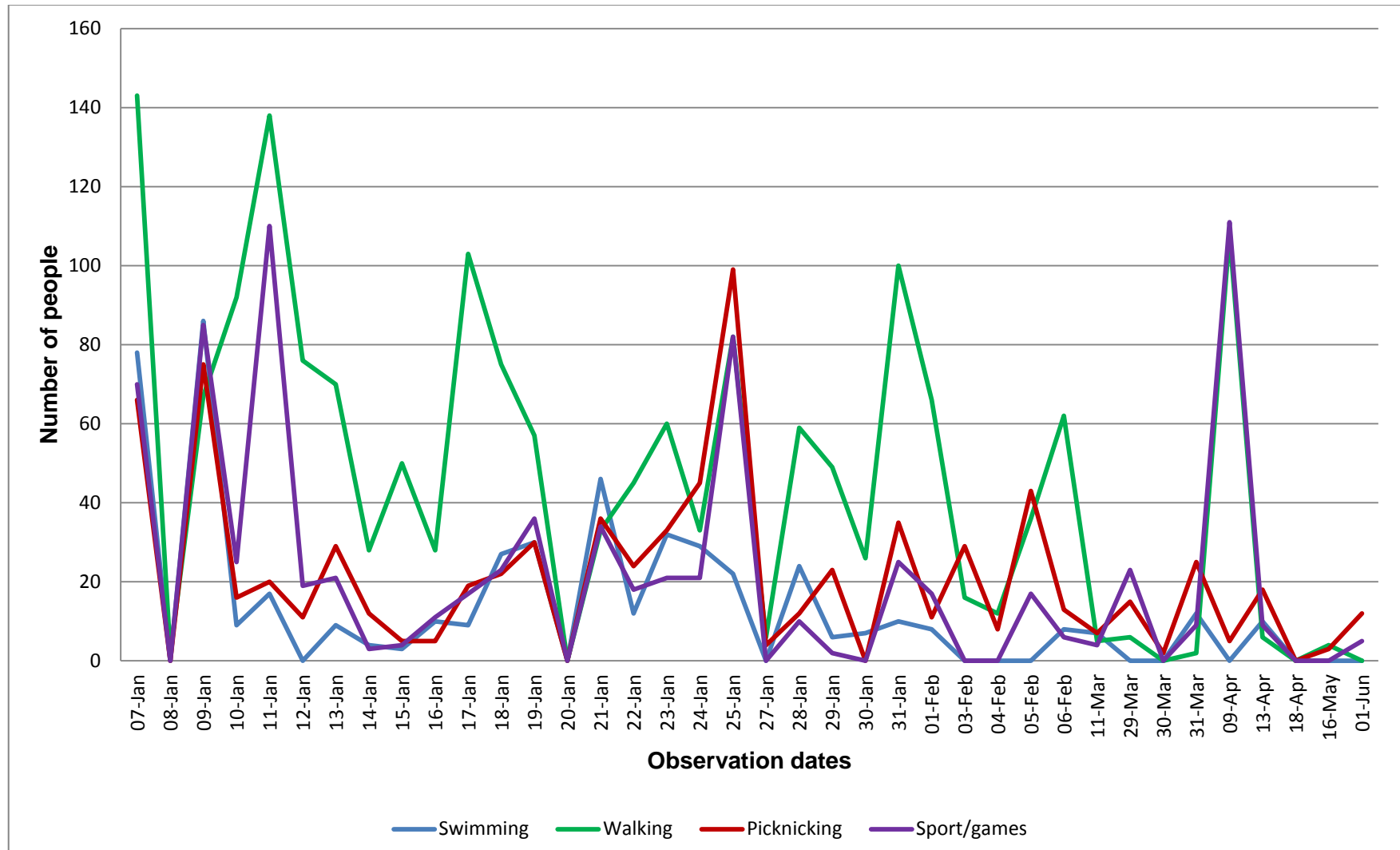


Figure 7: The most popular activities observed at Maketu Boat Ramp

Information about the numbers of vehicles with trailers parked at the Maketu Boat Ramp was also collected during each observation period. Numbers of vehicles with trailers parked at this location varied from 0 to 31, with the average overall being five. The graph below displays the numbers recorded per observation.

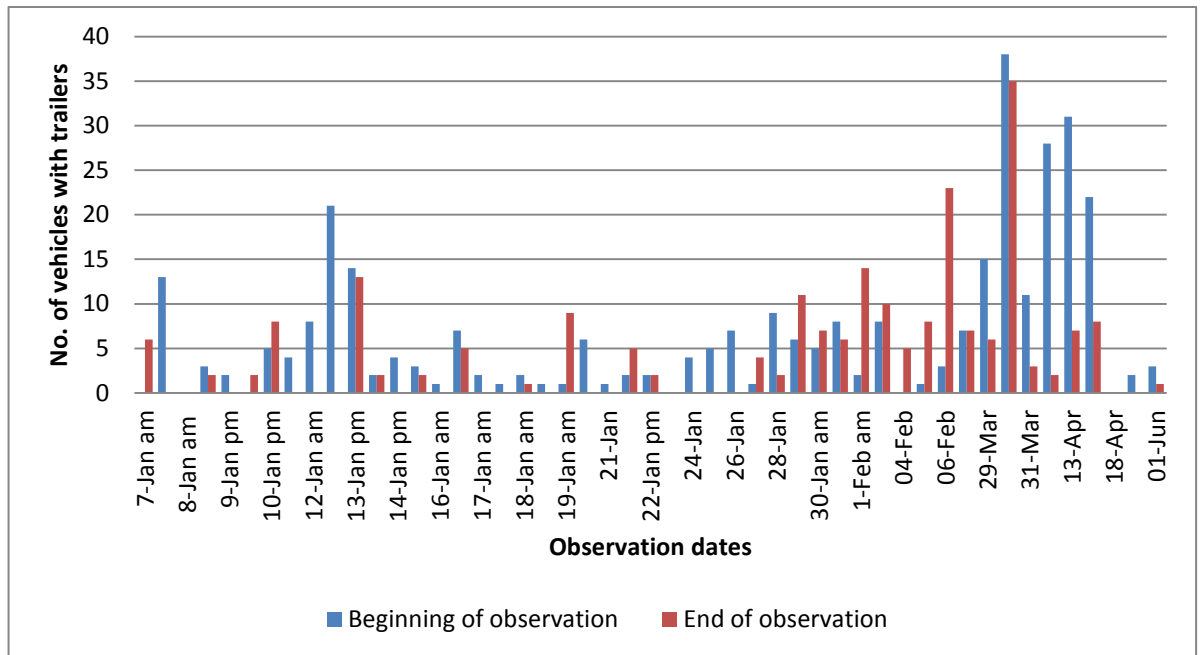


Figure 8: Numbers of vehicles with trailers observed at Maketu Boat Ramp

It is not known why the counts of vehicles with trailers counted increased during March and April. One possibility is that the change in research assistant in March also brought a corresponding change in the way information was recorded. However, it is also possible that more people are using this boat ramp to launch their boats in autumn and winter than do in summer. It is possible that the numbers of people swimming in the lower estuary during summer may deter boat owners from using this boat ramp.

3.1.3 Te Tumu Cut

The total number of people at Te Tumu Cut during each observation period varied from seven during a brief one hour observation on a week day to 168 people on the afternoon and evening of Waitangi Day. Observation times varied from half an hour to approximately three hours during January and February, with exceptions being five hours on the afternoon of Waitangi Day and one five hour observation in March.

There were always people at this location when observations were carried out, even early in the morning and later in the evening. During summer, the median number of people counted during any observation period was 32; during autumn (March – May) the median was 23. Higher numbers of people were counted on weekends and public holidays. On eight days, observations were carried out in both morning and afternoon. The chart below shows the total numbers counted during each observation period.

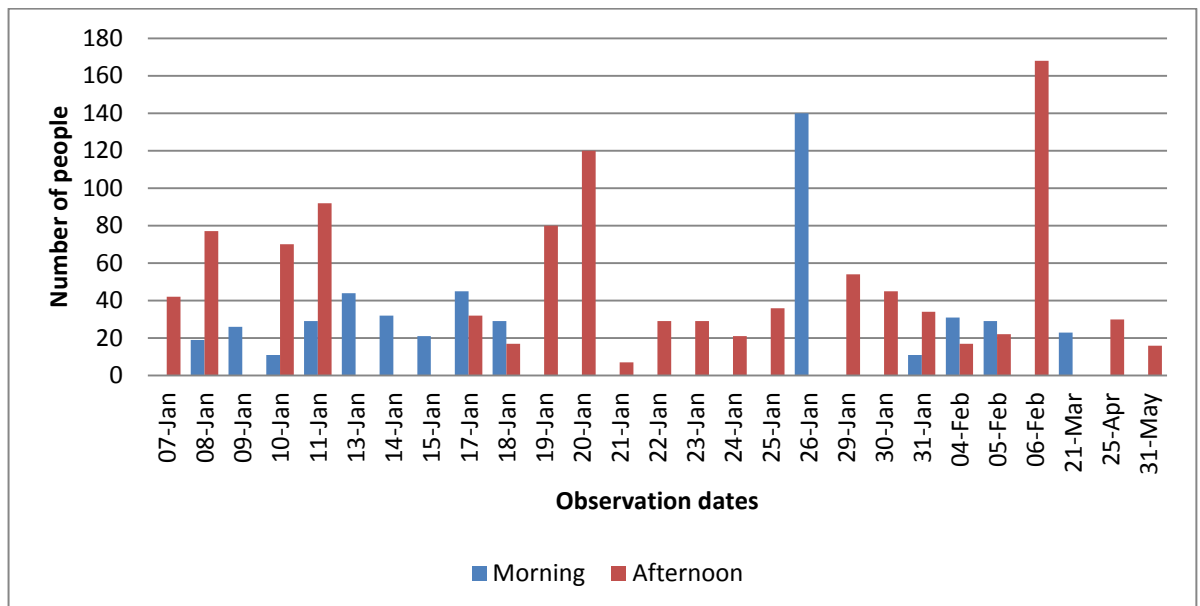


Figure 9: Total numbers of people observed at Te Tumu Cut

The graph on the facing page shows the main activities in which people were engaged at this location. Throughout both summer and winter observations, fishing was by far the most popular activity observed at Te Tumu Cut. The fishing category included people surfcasting on the beach, and fishing off the groyne and along the river bank, plus a small number fishing from boats. Numbers of people fishing during an observation period varied from two to 122, with the median number being 30 people. Walking and picnicking were also popular activities. On average seven people were walking during each observation period.

Tide height had little effect on the numbers of people fishing. Even at low tide numbers remained constant although it is possible that tide height affected their choice of fishing spot (groyne, beach or river bank). Fishing from the groyne was not possible at low tide. Light rain appeared to have little effect on the number of people observed; people were observed fishing even on the two observation days when it was raining heavily.

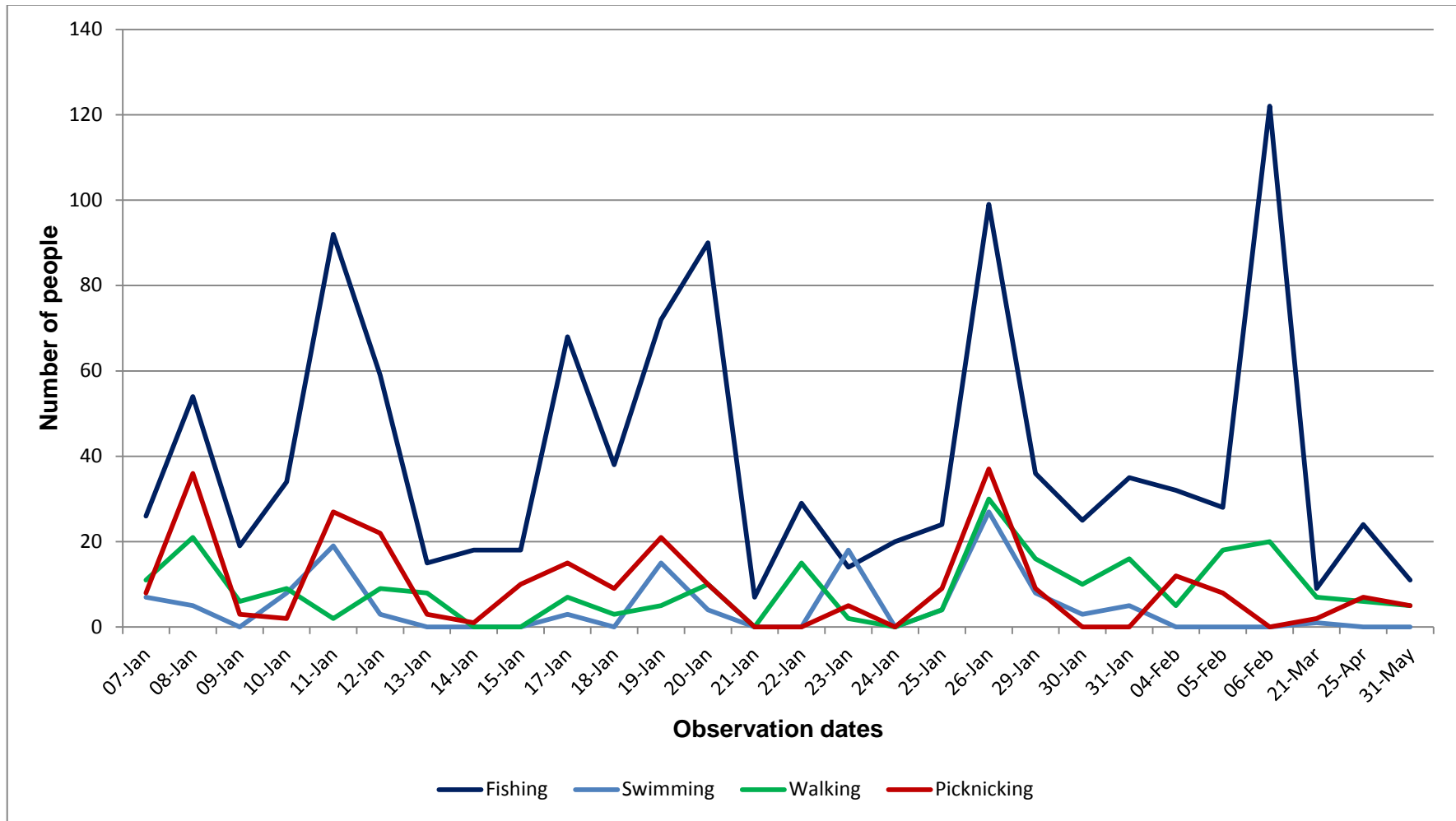


Figure 10: The most popular activities observed at Te Tumu Cut

3.1.4 Ford Rd Boat Ramp

Brief observations were carried out at Ford Road boat ramp on 36 separate occasions between 8th January and 21st March 2013. On four occasions there were no vehicles and trailers in the car park. Numbers varied considerably from some days on which there was only one vehicle with trailer, through to 22 vehicles and trailers counted in March. An average of 6.7 vehicles with trailers was observed over the observation periods. The graph below records the numbers of vehicles and trailers parked at this location during each observation.

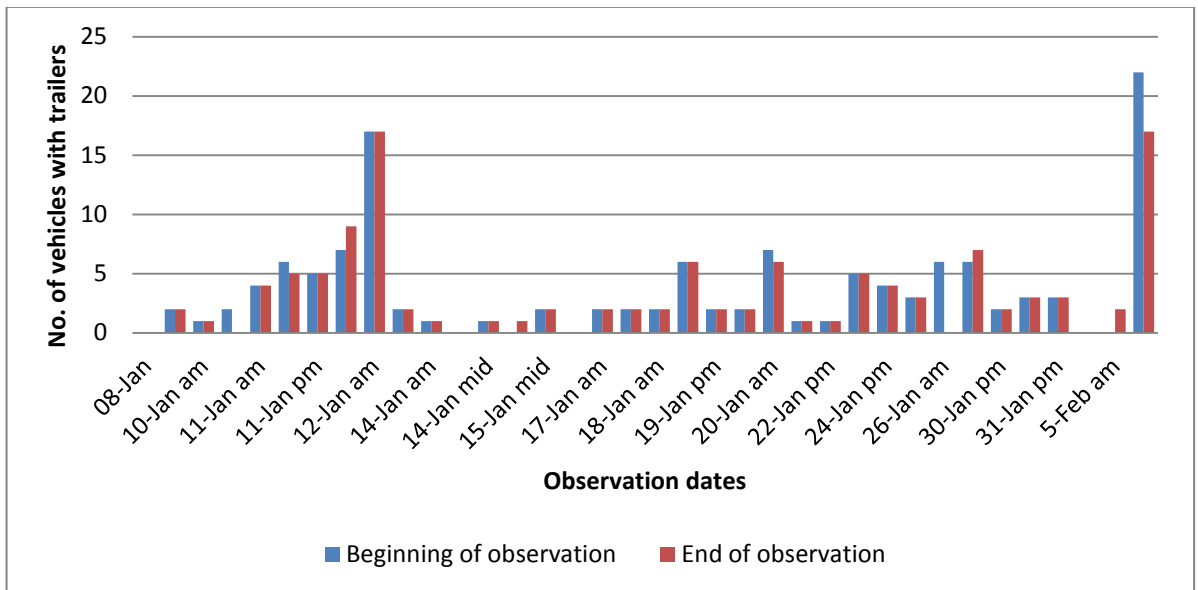


Figure 1: Numbers of vehicles with trailers observed at Ford Rd Boat Ramp

Very small numbers of people were observed at this location. On several days, observers recorded boats returning from fishing or putting out to sea. A small number of commercial fishing boats were regularly observed at this location. When people were observed in the area, they were either on boats or parked in the car park, with people picnicking there on several occasions. On one occasion people were jet-skiing on the river at this location.

3.1.5 Bell Rd Boat Ramp

Observations were carried out at Bell Rd Boat Ramp on 20 occasions. On seven occasions no vehicles with trailers were parked at this location. At the other observation times one or two vehicles and trailers were parked. On twelve occasions, small numbers of people were observed in the area, usually fishing either from a boat or from the riverbank. On one occasion kayakers were on the river. A small number of people were observed carrying out conservation activities or picnicking. The graph below records the numbers of vehicles with trailers parked at this location on the observation dates.

From Bell Rd Boat Ramp boats travel down the Kaituna River approximately four kilometres in order to access the open sea via Te Tumu Cut.

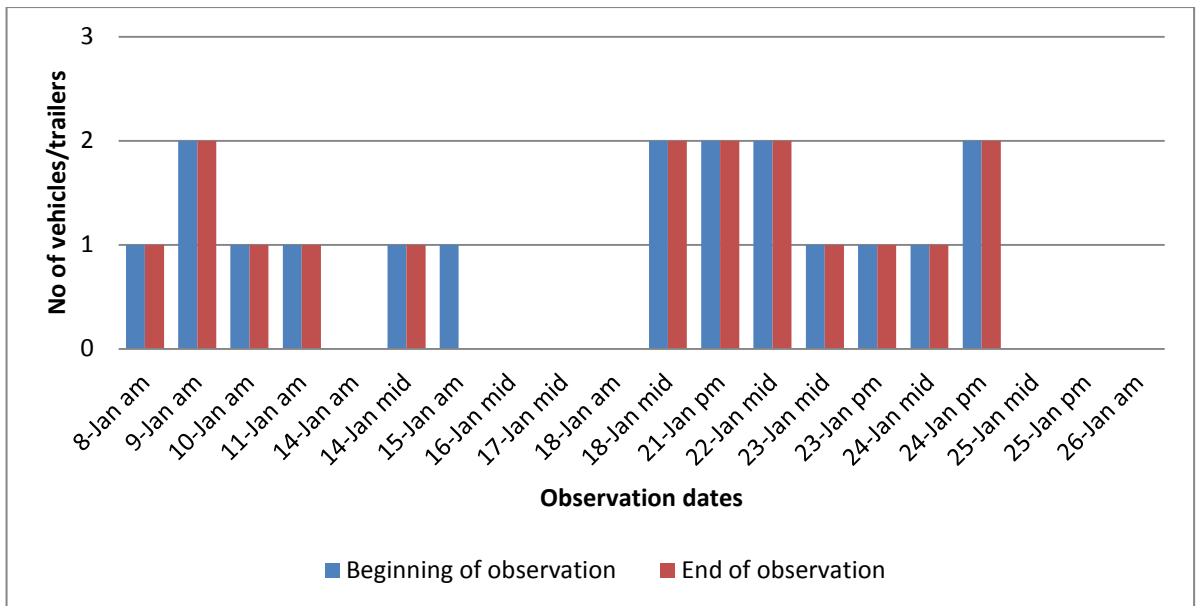


Figure 2: Numbers of vehicles with trailers observed at Bell Rd Boat Ramp

3.1.6 Summary of Observation Data

The numbers of people observed in Maketu during January-February 2013 were high for such a small community, with medians of 85 at Maketu Surf Club, 83 at Maketu Boat Ramp and 30 at Te Tumu Cut over this period. Given that approximately 1,000 people live in Maketu (retrieved from www.stats.govt.nz), it is likely that the numbers of people counted include many people visiting for the day or staying in the area over summer. A campground situated adjacent to the Surf Club area may account for some of these numbers.

The most popular activities were walking and picnicking, followed by swimming (in summer) and fishing. Most of the walkers were observed in Maketu area. Te Tumu Cut was the most popular spot for fishing, with people observed there at all tide times and even in poor weather.

A typical summer's day in Maketu starts out fairly slowly with walking the most popular morning activity. On warm, sunny mornings people can also be observed swimming in the channel and surfing when conditions are right. During the middle part of the day, many people can be seen in the car parks around Maketu sitting in their cars and picnicking or sunbathing beside the water. The picnic areas with tables available along Beach Rd and the park area are well used all day long. On sunny afternoons, large numbers of people can be seen swimming, particularly in the estuary around the "diving board". Sports and games are also popular, either on the beach or in the park adjacent to the boat ramp area.

Some activities are tide-dependent and vary with the season, with people collecting shellfish at low tide and more people surf-casting at the estuary mouth during autumn/winter. The counts of vehicles with trailers parked at the boat ramps demonstrate that boats are putting out to sea through both the estuary mouth and the Te Tumu Cut. Both of these bars are only navigable around high-mid tide times and when the sea is fairly flat. Observations carried out at low tide showed that there was

very little boat activity at these times, although often there were vehicles with trailers parked up.

3.2 Surveys

A total of 246 interviews were completed. The table below shows the total numbers of interviews completed at each location.

Table 1: Number of interviews completed at each location

Location	Number of Interviews
Te Tumu Cut	93
Maketu Surf Club	76
Maketu Boat Ramp	53
Ford Road Boat Ramp	16
Maketu Estuary	5
Bell Road Boat Ramp	3
Total	246

3.2.1 Demographic Information

Seventy-four participants (30%) were female and 131 (53%) were male. Gender was not reported for 41 people. Sixty-two per cent of participants were Māori and 30% Pakeha. The ethnic breakdown of participants is shown in Table 2 below. These breakdowns have been compared with census data on ethnicity for Maketu (Retrieved from www.stats.govt.nz). The percentage of Māori respondents is similar to the census percentage. The percentage of Pakeha respondents is lower than census figures; it is likely that this is because in the census people can record multiple ethnicities.

Table 2: Participants' reported ethnicity

Ethnicity	No. of respondents	Percentage	Census percentages¹
Māori	152	62%	65.4%
Pakeha/NZ European	74	30%	43.2%
Pacific Island	4	1.6%	2.8%
Asian	2	0.8%	1.8%
Other ethnicities	6	2.4%	7.7%

Approximately 50% of respondents were aged 40 years or over, and the other 50% were from younger age groups. However, participants were from a broad spread of age groups as shown in the graph below:

¹ Percentages add up to more than 100% because census data collection allows respondents to name more than one ethnicity.

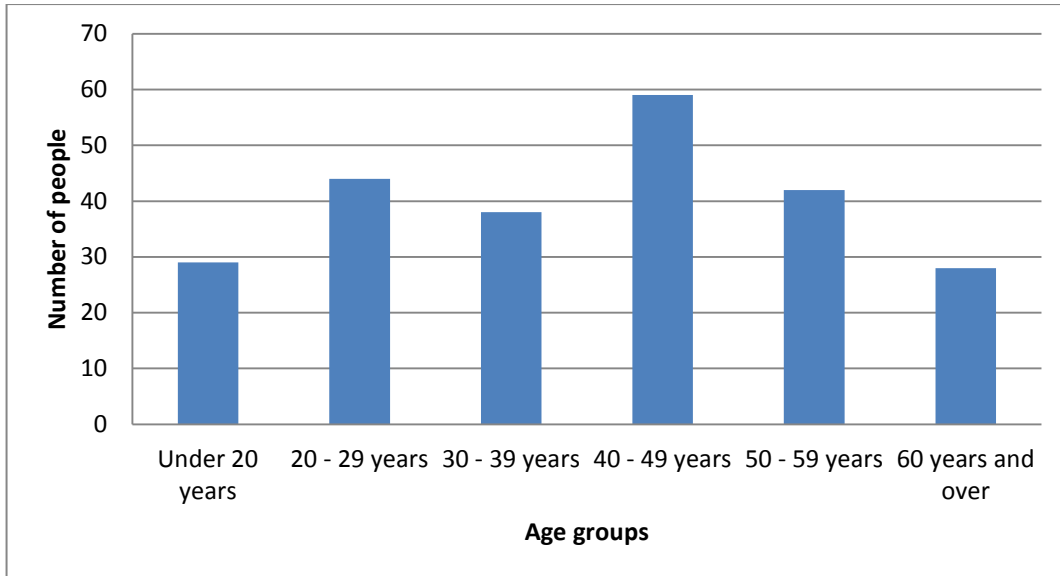


Figure 3: Participants' age groups

Most of the people interviewed reported that they lived either in Maketu or elsewhere in the Bay of Plenty. More than half of respondents said they lived in the Maketu/Te Puke/Pukehina area (n=130). Table 3 below shows respondents' reported place of residence. Only 27 respondents came from further away in other parts of New Zealand.

Table 3: Respondents' reported place of residence

Respondents' place of residence	No. of respondents	Percentage
Maketu/Te Puke/Pukehina	130	52.63%
Wider Tauranga area	20	8.10%
Bay of Plenty	61	24.70%
Elsewhere in New Zealand	27	10.93%

3.2.2 Patterns of visiting the Maketu/Kaituna area

When asked for how long they had been coming to the particular site where they were interviewed, a majority of people reported they had been visiting this place for more than five years. A small number (n=28) were visiting Maketu for the first time when they were interviewed. Table 4 below contains full information about how long respondents had been visiting Maketu.

Table 4: Length of time visiting this site

Length of time coming to this site	No. of respondents	Percentage
More than 5 years	138	55.87%
1 - 5 years	46	18.62%
Less than 12 months	27	10.93%
First time today	28	11.34%

Respondents also reported on the frequency with which they visited this particular site. Forty-five per cent said that they visited this location once a week or more, while 39% said they visited less frequently. The remaining 11% were first time visitors. The frequency with which people visit the site where they were interviewed is reported in Table 5 below.

Table 5: Frequency of visiting this site

Frequency of visiting this site	No. of respondents	Percentage
Two or more times a week	65	26.32%
Once a week	47	19.03%
Once a month	74	29.96%
Once a year	23	9.31%
Never been before	28	11.34%

In addition, respondents were asked whether they visited other sites around Maketu, and the frequency with which they visited other sites. Maketu Beach and Estuary were the most popular other places that people visited. Te Tumu Cut was also a popular destination for just over half of respondents. Figures for all sites are reported in the table below.

Table 6: Other sites also visited

Other sites visited by respondents	No. of respondents	Percentage
Maketu Beach	173	70.04%
Maketu Estuary	170	68.83%
Te Tumu Cut	128	51.82%
Maketu Spit	76	30.77%
Ford Rd Boat Ramp	55	22.27%
Bell Rd Boat Ramp	26	10.53%

Respondents were asked to say how often they visited other sites. Thirty-nine per cent said they visited other sites once a week or more; 41% said they visited other sites less frequently. The full break-down of responses is reported in the table below.

Table 7: Frequency of visiting all sites

Frequency of visiting all other sites	No. of respondents	Percentage
Two or more times a week	49	19.84%
Once a week	47	19.03%
Once a month	71	28.74%
Once a year	30	12.15%

Given the high percentage of respondents who live in the Maketu area, it would be expected that people would have been visiting the various sites in the area for some time and that they would visit the sites often, which is exactly what people reported. Although the most commonly reported frequency for visiting all sites was once a

month, 45% of people reported they returned to the same site at least once a week, and 39% of people reported visiting other sites.

3.2.2.1 This visit

Respondents were asked how long they planned to stay at this site today. Responses ranged from only a few minutes to more than an entire day. Table 8 below shows the responses grouped into categories.

Table 8: Planned duration of present visit

Time respondents planned to stay at the site	No. of respondents	Percentage
Less than 2 hours	80	32.52%
2-4 hours	73	29.67%
More than 4 hours	63	25.61%

The table shows a fairly even spread of intended visit times, with slightly fewer people planning to spend more than half a day there.

People were asked to say how many people were in their group. Most people were either alone (n=51) or with one other person (n=85). Table 9 below shows the size of the groups reported by survey respondents.

Table 9: Size of group

No of people in group	No. of respondents	Percentage
1-2 people	136	55.28%
3-9 people	101	41.06%
10 or more	7	2.85%

3.2.3 Recreational activities

The interviewers asked survey respondents the purpose of their visit to the site where they were interviewed. Up to three activities were recorded for each respondent. Table 10 below summarises the activities people reported they would be engaged in at each site. The most popular activities were surfcasting (n=101), and walking (n=60).

At Maketu Surf Club people were engaged in a broad range of activities, with walking and swimming being the most popular. At Maketu Boat Ramp walking and shellfish gathering were the most commonly reported activities. Surfcasting was by far the most popular activity at Te Tumu Cut (n=83) which was also the most popular fishing spot. At Ford Rd Boat Ramp, boat fishing was most commonly reported, although small numbers of people were also engaged in other activities.

Table 10: Activities reported at each site by survey participants

Activities	Maketu Surf Club	Te Tumu Cut	Maketu Boat Ramp	Ford Rd Boat Ramp	Bell Rd Boat Ramp	Activity Totals
Surfcasting	14	83	3	1		101
Walking	34	2	22	2		60
Swimming	21	4	17	2	1	45
Picnicking	15	4	15	2		36
Shellfish	3	3	18	1		25
Surfing	12		4			16
In parked car	9	3		4		16
Fishing (boat)	1	1	3	8	1	14
Conservation	10	3				13
Powerboat		2	1	1	2	6
Sport/games			5	1		6
Netting		4	1			5
Kayak	2				1	3
Diving	1		1			2
Dinghy			1	1		2
Spearing	2					2
Surf lifesaving	1					1
Kontiki/Longline fishing		1				1
Totals for each site	125	110	91	23	5	354

The graph below shows the patterns of recreational activities reported across the various sites for the most popular activities.

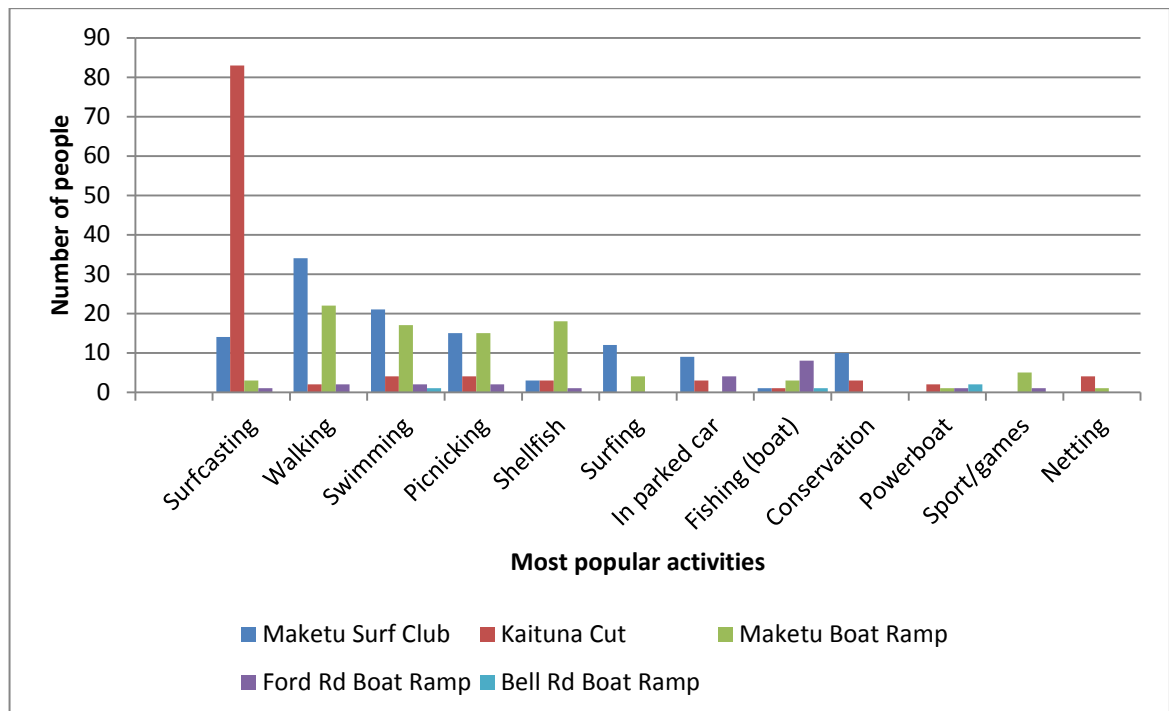


Figure 4: Number of respondents undertaking particular activities at the survey sites

Respondents who were fishing or shellfish gathering were asked whether they were engaged in recreational or customary fishing. Most people (n=122) said that their fishing or shellfish gathering was recreational. Three people said they were engaged in customary fishing, and two people interviewed at Ford Rd Boat Ramp were fishing commercially.

3.2.4 Ratings of health of the area

Respondents were asked to rate the health of the lower Kaituna River and Ōngātoto/Maketu Estuary on a scale of 1 to 10 (where 1=very poor and 10=excellent). The average of respondents' ratings of the health of the lower Kaituna River was 5.26; the average of ratings of the health of the Ōngātoto/Maketu Estuary was 4.75. Overall, the health of the estuary was rated slightly lower than that of the lower Kaituna River. The chart below shows the patterns of health ratings for both areas.

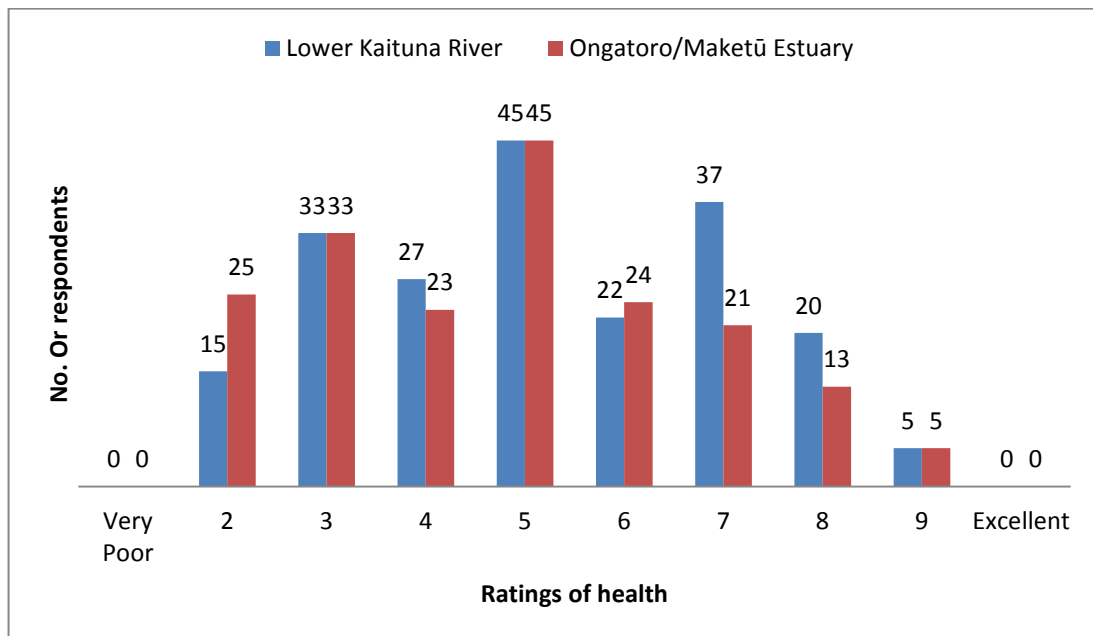


Figure 5: Respondents' ratings of the health of the river and estuary

Analysis of the health ratings by age group showed no difference in health ratings across the different age groups. People in the 30-39 year age group gave very slightly higher health ratings for both areas, but these differences were not significant.

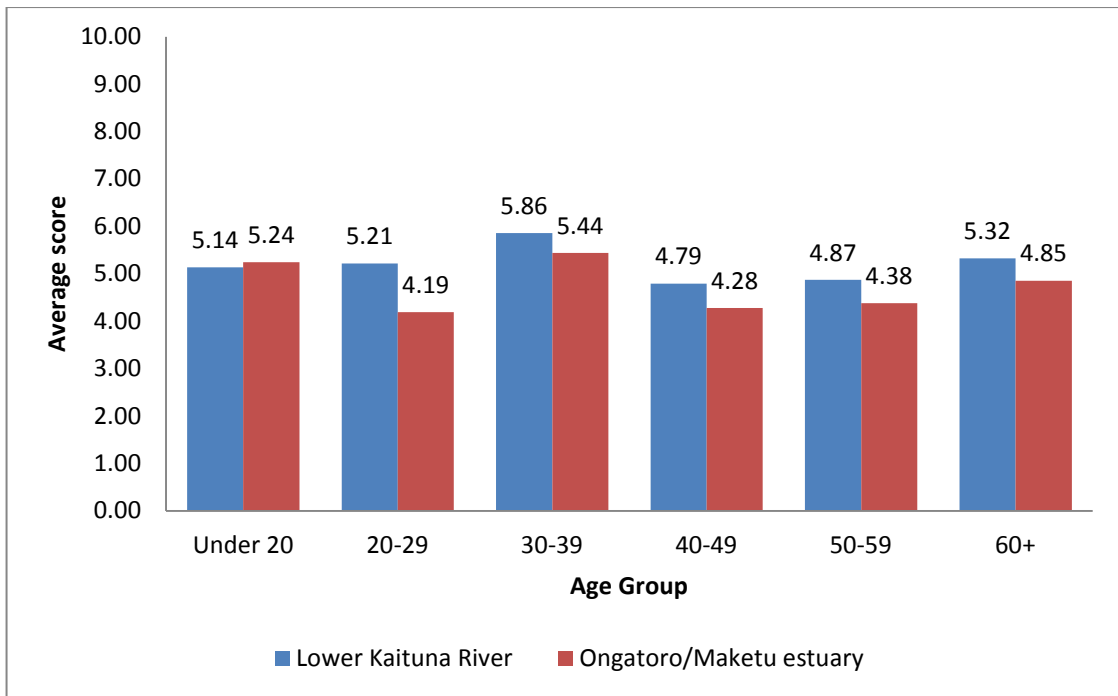


Figure 16: Ratings of the health of the river and estuary by age group

3.2.5 Value placed on Maketu/Kaituna

Participants were asked to comment on the value of the Maketu/Kaituna area to them. A content analysis of the text identified a number of common aspects that were valued. The area was valued in particular for food/kaimoana and fishing. People valued the recreational opportunities that are available, such as swimming, surfing and walking. Cultural values such as kaitiakitanga and customary rights were also important to many people. Figure 16 below shows the overall numbers of participants who commented on these aspects.

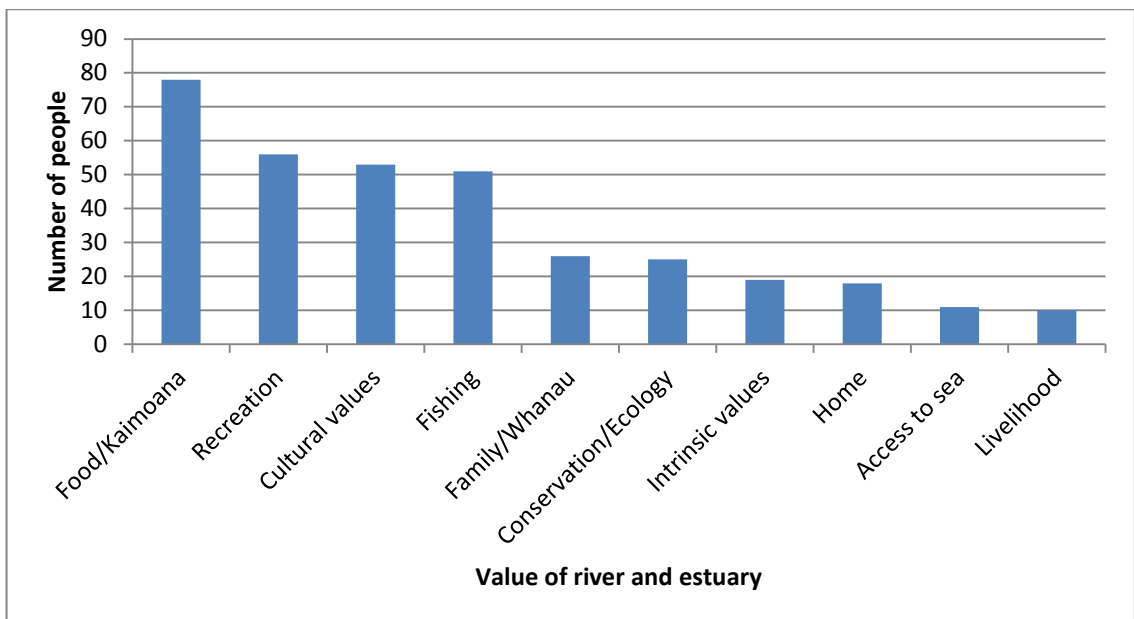


Figure 7: Reported value placed on the Kaituna/Maketu areas

A breakdown of the most valued aspects of the Kaituna/Maketu area showed that Māori respondents valued slightly different aspects than Pakeha. Māori respondents highly valued the access to kaimoana and cultural values, followed by fishing, recreation, family and home. Pakeha were more likely to identify recreational activities and fishing, followed by conservation and kaimoana gathering. Although the numbers were quite small, Māori were more likely to report that the area was important to their livelihood than Pakeha. The values reported by participants were broken down by ethnicity and are reported in the chart below.

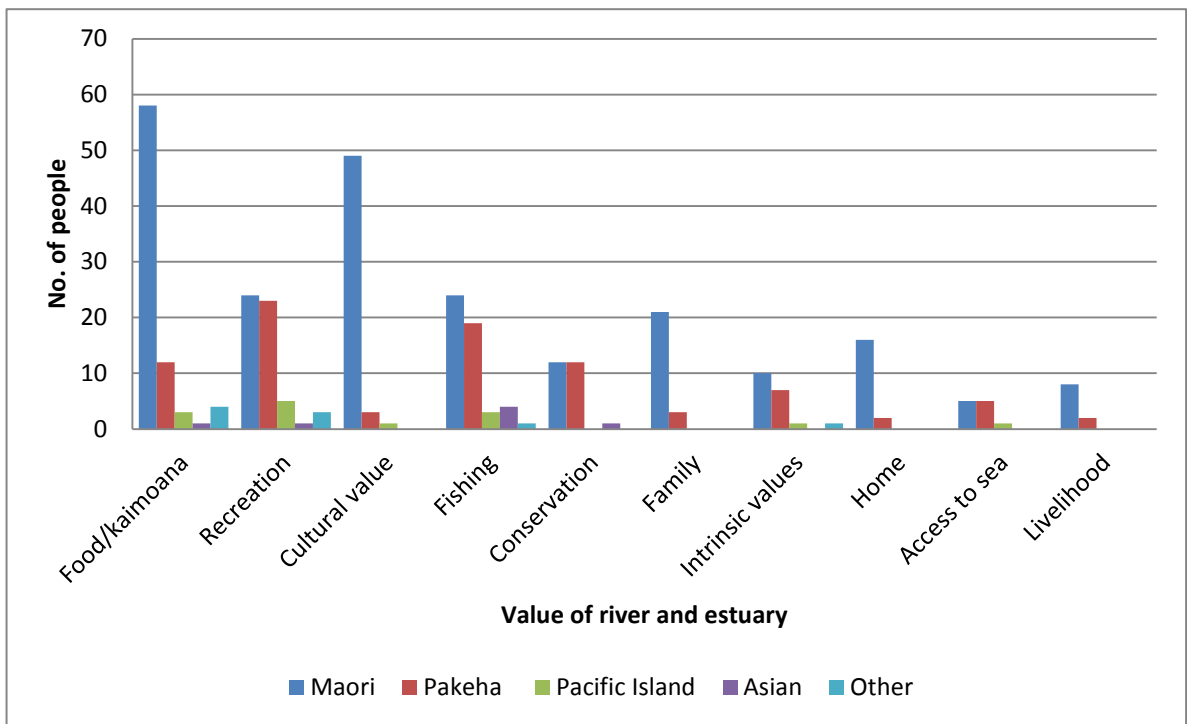


Figure 8: Value of river and estuary by ethnicity

When considering the impact of place of residence on the value that participants placed on Maketu/Kaituna, some slightly different trends were reported. People who lived in the Maketu area were much more likely to mention the importance of the area for food and cultural activities, and also for recreation and fishing. They were more likely to mention family connections and home, although people who reported they lived in the wider Bay of Plenty also mentioned food, family and cultural activities as important. This finding may be related to the fact that Maketu is considered by Māori of Te Arawa descent, many of whom live inland in the Rotorua area, as having great cultural significance as the landing place of the Te Arawa waka; many also have family ties to Maketu and come to gather seafood there.

People who live elsewhere in New Zealand were most likely to come to the area for recreation or to visit family. Figure 19 below reports the dimensions valued by respondents broken down by their reported place of residence.

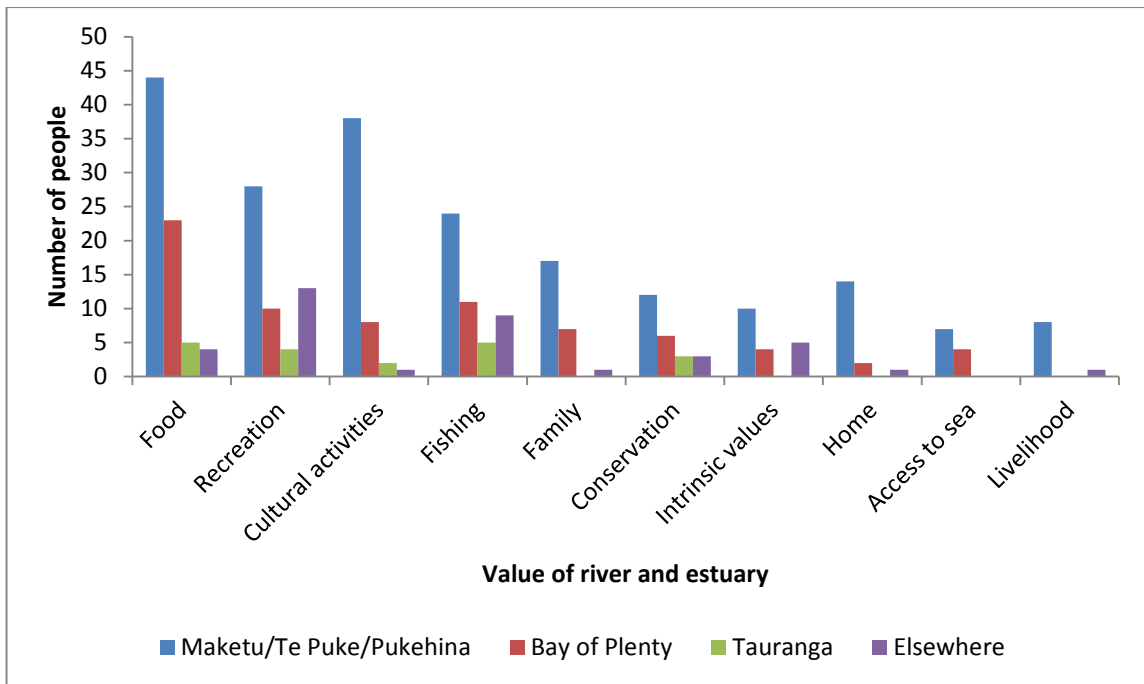


Figure 9: Value of river and estuary for respondents from different places of residence

When asked about the value of the area to them, the most common response was food or kaimoana, mentioned by 78 people. Most of them simply said “gathering of kaimoana”, “food basket” or “kai for whānau”. More specific comments noted the importance of food “...for cultural events, meal on the table, very important to local Māori”.

Several people also mentioned the importance of sustainability of kaimoana, as the estuary provided a place for fish to breed. Fifty-eight (74%) of the people who said the area was important as a source of food were Māori. Fifty-one people specifically mentioned that they valued the fishing and shell-fish gathering. Participants interviewed at the Te Tumu Cut noted that it was “... a great fishing spot”. The estuary area was identified as important for gathering shellfish and catching flounder.

Some people who used the boat ramps liked the access to the sea for their boats, particularly for fishing. A small number of people (n=10) reported that the fishing was important for their livelihood and for that of many others in the community, including some commercial fishers. One person noted that in the past the area provided “livelihood for many people (used to be, can't really now)”.

The area was also valued for recreational activities by people of all ethnicities. Most made general comments about the recreational value of Maketu/Kaituna, but some mentioned specific activities such as surfing, swimming and walking. It was also identified as a good recreation and play area for children; one person reported there were “good recreational areas for all ages”.

Fifty-three people, most of them Māori, placed a cultural value on the Maketu/Kaituna area. Approximately one third of Māori respondents (n=49) said that the area was important for cultural purposes. Most participants made general comments about the cultural value, but more specific comments were also made about the historical

significance of Maketu (n=9), kaitiakitanga (n=9) and the importance of the area for future generations. Comments about cultural value included:

(My) ancestors landed here, lived here a long time

To bring mauri back (it) needs to be restored back to (its) natural course

Tōku whenua, this is our land we must take care of it.

Kaituna is my awa, it means a lot to me and we need it to be clean and healthy for the future generations to come

It has great historical significance to the livelihood of our tamariki for future generations, bringing about a stronger heritage.

Māori respondents also reported that they valued the area for family reasons (n=21). They mentioned the importance of family gatherings and whakapapa. Comments included:

A good spot for the whānau to spend time together

I have been coming since I was young. This is important to me and my whānau.

My family has lived off this land for generations

Some people reported that Maketu was important because it was their home (n=16). A number of participants commented that they had been living there their whole lives; others said they lived elsewhere but returned often because of family and whakapapa links. One person said of the estuary and river: "We swim in it, we eat out of it, we fish in it. It is our home".

Equal numbers of Māori and Pakeha thought the area had conservation value because of the wildlife, birdlife and fish breeding grounds. Some Pakeha talked about the importance of protecting the environment; Māori also mentioned kaitiakitanga. Both Māori and Pakeha participants reported the area had an intrinsic value (e.g.): "lovely natural setting, unique seeing estuary join to ocean, see changing tides"; "peaceful, beautiful spot".

3.2.6 Perceptions of the proposed re-diversion

People were asked for their perceptions of the proposed partial re-diversion which was explained in the information sheet (see Appendix 3) offered to all participants. Table 11 below summarises their perceptions of how the proposed re-diversion would affect them.

Table 11 : Respondents' perceptions of the proposed re-diversion of the Kaituna River

Perception	No. of respondents	Percentage
I don't expect any change	31	12.60%
It will have a negative effect on my activities	13	5.28%
It will have a positive effect on my activities	122	49.59%
I don't know	72	29.26%

Almost half of the survey respondents said they thought the proposed re-diversion of the Kaituna River would have a positive effect on their activities. Many of them made general positive comments about the proposed change, for example:

I would like to think it would be a positive change, for the environment and the community

Really good for the estuary

Others commented more specifically about the re-diversion being likely to improve the health of the estuary:

At the moment the upper estuary is contaminated with algae quite bad but the saltwater is cleaning it out slowly. The re-diversion will obviously have positive effects. It will just take a while to restore the health throughout the whole estuary.

It will clean out a lot of the silt and waste that has collected at the end of the estuary. The estuary will end up being healthier

I'm sad to say our estuary health has declined severely and I think it would help clean it out and keep it fresh

Removal of sedimentation particularly in the upper estuary was one of the benefits that respondents thought would result from the partial re-diversion of the river.

Will help with sedimentation

I think it will help flush the estuary of pollution.

Hopefully it will clean out the estuary for the whānau in Maketū.

It will take a while to restore it back to its natural clean state but in time the estuary will get cleaner and healthier.

Hopefully it will help the estuary clean itself so we can keep the tradition of living off this land

Many people commented about the likely effects on fishing. Some made positive comments about the enhancement of fishing, especially within the estuary:

It should enhance the shellfish and plant life within the beach & estuary.

Mussels will prosper, restore cockles (currently dying)

Increase number of fish, fish in the estuary

Others expressed concern that reduced river flow through the Te Tumu Cut would negatively affect fishing at that location.

Good for estuary, not sure about the fishing at the cut

If they are going to block the cut out I think it will cause a huge conflict with the people. This is our fishing spot - a source of kai.

People who use the Te Tumu Cut for boat access to the sea were worried that reduced water flow through the Cut would limit this access:

Require access through Kaituna River; any loss of water will result in failure to get out

Positive for estuary but negative for boaties' access out to sea through Kaituna

Some said that they needed access to the sea, but this could be either through Te Tumu Cut or Maketu

As I need a working bar to cross every day either Maketu Bar or Kaituna

Several respondents commented on the need to take other measures to improve the health of the Kaituna River and estuary, such as addressing pollution up-river from farm run-off and Lake Rotorua². Some thought more monitoring and mitigation of water quality and water flow was needed before re-diversion occurred.

Upstream/upper reaches of river need to be monitored and be of better quality before re-diverting

Monitor Rotorua lakes before diverting

Upper reaches of river needs to improve before letting into estuary. Dairy farms need to stop polluting river, riparian vegetation.

At the moment all that needs cleaning is Kaituna River. And the top of the estuary so sort that out before they run shitty water into shitty water.

All of the people who expressed concern about the Ōngātoro/Maketu Estuary being negatively affected by pollution from further up the Kaituna River or Lake Rotorua were Maketu locals.

A number of people commented about the cultural importance of the river and estuary and support by iwi for the partial re-diversion. People also mentioned the importance of tangata whenua exercising their kaitiakitanga as part of improving the health of the area.

A few people expressed uncertainty about whether the proposed partial re-diversion would result in positive change, while some said that they hoped that the change would have a positive effect. Some hoped that the change would return the area to how it was previously. Several thought more research or monitoring was needed before the re-diversion or stated that they needed to be better informed before giving their feedback.

It should enhance the shellfish and plant life within the beach and estuary [and] also re-establish the natural river flow that used to run here.

Step towards putting nature back to normal

Some people thought that it was best to leave things as they were. Comments included:

It's fine as is, [I] don't see the point in the diversion with poor water quality [river]

I don't want it opened at all. We all want fresher, cleaner water, not more pollution, so before opening it clean Kaituna River up first. Ka pai.

I think diversion is bad idea i.e. BOPRC is just making wrong decisions without consulting the people.

² Currently water from Lake Rotorua drains through the Ohau Channel into the Kaituna River

[I'm] very against diversion. I think I will just be ignored (despite survey). I thought that the original diversion was bad and the diversion will be the same as in the past.

When asked for any other comments, some people expressed concern that the re-diversion would increase the number of people coming into the area:

Will bring more people and so could have a negative impact on the environment
i.e. more rubbish, less shellfish

One person commented extensively on the proposal:

I've seen a lot of changes since [I was] young! I was around before diversion out to sea.

- Wetlands have been lost to dairy farming (reclaimed).
- Excessive nutrients entering harbour from waste water drains that run off farm at back of estuary (council operated apparently). Need to be better managed and monitored!
- Canals that run through farms are entering directly into harbour/estuary. Especially when floods.
- Loss of kaimoana, pipi, cockle, tuatua.
- We used to be able to fish for trevally out of estuary.
- All flow needs to be re-diverted and appropriate channels need to be decided.
- Awareness is important! Those who lived here will know some mechanics behind the estuary - the original flows, etc.

Another person suggested that dredging would help to keep channels open:

I suggest dredging to open bar/s to enable safe crossing for recreational boaties as shallow water is very dangerous in swells. Dredging is a simple fix for Kaituna as there is only a small shallow spot. [Dredging] seems to work at the Whakatane Bar as it is a sandy bar as well. Dredge on outgoing tide and water takes sand out naturally and disperses evenly - cheap and effective!

It can be seen from the above comments that people who added comments at the end had particular views about aspects that they thought had not been canvassed elsewhere in the survey.

3.2.7 Summary of Survey Information

The 246 people interviewed fairly accurately reflected the ethnic profile of Maketu residents and came from a wide range of age groups, with about half aged over 40. Ninety per cent of respondents lived in the Bay of Plenty and over half were residents of the Maketu /Te Puke /Pukehina area.

Apart from a small number of respondents who were visiting Maketu/Kaituna for the first time, most visited the area fairly often. Many had been visiting Maketu locations for more than five years, and visited at least once a week. The frequency of visiting Maketu locations is not surprising given the high percentage of respondents who live in the area. About one third expected to stay at their location for less than two hours; the others all planned to stay longer.

Fishing was the most popular recreational activity reported by survey participants, particularly at Te Tumu Cut. Swimming and walking were also popular, especially around the Maketu Beach and lower estuary area. Many people also came down to the water to picnic, while others drove down and sat in their cars.

When asked to rate the health of the lower Kaituna River and Ōngātoto/Maketu Estuary, mean ratings for both locations were in the average range (mid-way between poor and excellent). The health of the estuary was rated slightly lower than that of the lower Kaituna River. Health ratings were fairly consistent across all of the different age groups, demonstrating that older people who might have been expected to see changes over time did not give lower ratings.

Food/kaimoana was the most highly valued aspect, especially by Māori participants. Recreational opportunities and fishing were highly valued by people from all ethnic groups. Māori participants emphasised the importance of cultural activities, and were also more likely to mention family connections and home as important. Both Māori and Pakeha participants thought the Maketu/Kaituna area had conservation value also mentioned intrinsic values.

Approximately half of respondents thought the proposed re-diversion would have a positive effect on their activities; very few thought the effect would be negative. People commented that the re-diversion was likely to improve the health of the estuary and remove sedimentation, although some were concerned about the quality of water flowing down the Kaituna River from further upstream. Some people thought the re-diversion would enhance fishing and fish stocks especially within the estuary, while others were concerned that reduced river flow through the Te Tumu Cut would negatively affect fishing at that location. A few people expressed concerns about access to the ocean being more difficult. It should be noted that the more negative concerns that participants expressed represent the view of only a few participants, with most having a favourable view of the proposal.

4. Conclusion

The observation findings show that the Maketu/Kaituna area is very popular for visitors, especially over summer, with many people visiting from elsewhere in the Bay of Plenty. Large numbers of people visit the same locations once a week or more, and also visit other locations around the estuary and river. Fishing and kaimoana gathering are very popular activities, and people highly value the area for these activities. Te Tumu Cut is the most popular fishing spot in all weather and tide conditions, and, although numbers are not large, boaties access the sea through both Te Tumu Cut and the estuary mouth at Maketu.

Other very popular activities are swimming, walking and picnicking, particularly during summer. Maketu lower estuary and beach provide excellent opportunities for these activities. Many people drive down to the water's edge and sit in their cars. Other popular activities especially during summer are surfing, sunbathing and boating (including power boats, dinghies, kayaks and kite surfing).

Māori participants placed a high value on the area for cultural purposes such as customary good gathering and kaitiakitanga, and emphasised the importance of ancestral connections and the significance of Maketu as the landing place of the Te Arawa waka.

The health of lower Kaituna River and Ōngātoro/Maketu Estuary area was considered to be about average, with some people commenting on pollution sources both within the estuary and upstream. Approximately half of the survey respondents thought the re-diversion would have a positive effect on their activities and many people commented it would be likely to improve the health of the estuary and reduce sedimentation. Overall, there was support for the proposed re-diversion of the Kaituna River.

Because a convenience sampling method was used to recruit survey participants, it is not known how representative this sample was of all people who visit Maketu/Kaituna locations and use the area for social and recreational purposes. However, the sample included people from a wide range of age groups and the ethnic breakdown of participants was similar to the ethnic breakdown of Maketu residents. Therefore, we can be reasonably confident that the sample has provided a fairly broad range of information and views.

Appendix 1: Map of lower Kaituna River and Ōngātoro/Maketu Estuary



- LEGEND**
-  State Highways
 -  Railways
 -  District Council Boundaries

Bell Rd Boat Ramp approximately 4km upriver



Kaituna River and Maketu Estuary

Printed at 18/12/12 03:25:33 by ENV/OP/Manchyp
GeoView 2.5.0.0
Scale: 1:0.450

0 131 262 393 524

1048

1572

2096

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Appendix 2: Survey form and interviewer instructions

Kaituna-Maketu Re-diversion Project Survey Questions

Location _____ Date: _____ Time: _____ [Interviewer to complete]

1. What is the purpose of your being at this site today? **[tick all that apply]**

- (a) Fishing: Netting Surfcasting Kontiki/long line Spearing From a boat
 Whitebaiting
- (b) Shellfish gathering: Estuary Rocks Beach
- (c) Swimming: Beach Estuary Snorkelling/Diving
- (d) Surfing: Surfing Surf lifesaving Kite-surfing
- (e) Boating: Dinghy Powerboat Kayak Sailing
- (f) Recreation: Walking Picknicking Conservation Sport/games Other

2. If you have come to fish, is this for recreational, or customary fishing? **[tick one]**

3. How long have you been coming to this site? **[tick one only]**

- First time today Less than 12 months 1-5 years More than 5 years

4. How often do you come here? **[tick one only]**

- 2 or more times a week once a week never been before
 once a month once a year

5. Do you also go to any of these other sites? **[tick all that apply]**

- Maketu Estuary Maketu Beach Kaituna Cut Bell Rd Maketu Spit Ford Rd boatramp

6. If so, how often do you go to any of these other sites? **[Tick one only]**

- 2 or more times a week once a week once a month once a year

7. (a) What time did you arrive here today? _____ **[enter time or approximate]**

(b) What time do you plan to leave? _____ **[enter time]**

8. How many people in your group today? _____

9. Ethnicity **[tick all that apply]**

- Māori Pākehā Pacific Island Asian Other

10. Gender **[Tick one]**

- Female Male

11. Age group **[Tick one only]**

- Under 20 20-29 years 30-39 years 40-49 years 50-59 years 60 years or over

12. Where do you live? **[Tick one only]**

- Local (Maketu/Te Puke/Pukehina) Wider Tauranga area
 Bay of Plenty Somewhere else in New Zealand

13. On a scale of 1 to 10, how would you rate the health of the following areas (where one = very poor and 10 = excellent) **[Circle one]:**

- (a) Lower Kaituna River 1 2 3 4 5 6 7 8 9 10
(b) Ongatoro/Maketū Estuary 1 2 3 4 5 6 7 8 9 10

14. What is the value to you of the Kaituna River and Maketu estuary?

15. What are your perceptions of how partial re-diversion of the Kaituna River will affect your use of the river or estuary?

- I don't expect any change It will have a negative effect on my activities
 It will have a positive effect on my activities I don't know

Please comment on your answer:

16. Any other comments? **[Write on the back]**

Instructions for Interviewers

Approach one member of each group. For the most part we intend to interview adults, but you may interview high school age people if you wish. If other members of a group also wish to complete an interview, then you may interview them next. If several people wish to contribute in a single interview – please record this on the sheet and record age group, gender and ethnicity for each person.

At some locations, it may be possible to interview one person from each group. However, if there are lot of people at a particular location, you will not be able to interview all of them. In that case, simply move from one group to the next available group or person.

If you are interviewing at a boat ramp where boats are returning, it is probably best to wait while people remove their boat from the water before making an approach. Approach the first available returning person or group and carry out an interview. Once you have completed that interview, approach the next available person or group. Don't worry if other boats arrive and people leave while you are interviewing. It is better to ensure that you collect complete information and record it accurately, rather than worrying about speaking to every person.

Begin the interview with the following statement (either read from the sheet or put into your own words):

Kia ora/Hello, my name is _____. We've been asked by the Bay of Regional Council to collect information about people's usage patterns of the lower Kaituna River and Maketu Estuary and beach areas. The Regional Council wants to collect this information to be presented as part of a resource consent application to re-divert some of the flow of the Kaituna River into the estuary.

Here's some information about the project and what the information we're collecting will be used for. [Hand out Fact Sheet]

Once you have handed out the Fact Sheet and given people a chance to look at it, ask them:

Can I ask you a few questions about your activities or intended activities here today? It will take only a few minutes.

If they answer "Yes", proceed with the survey questions. When finished thank them for their time.

If they answer "No", that is the end of the interview. Again thank them for their time.

Appendix 3: Participant Information Sheet

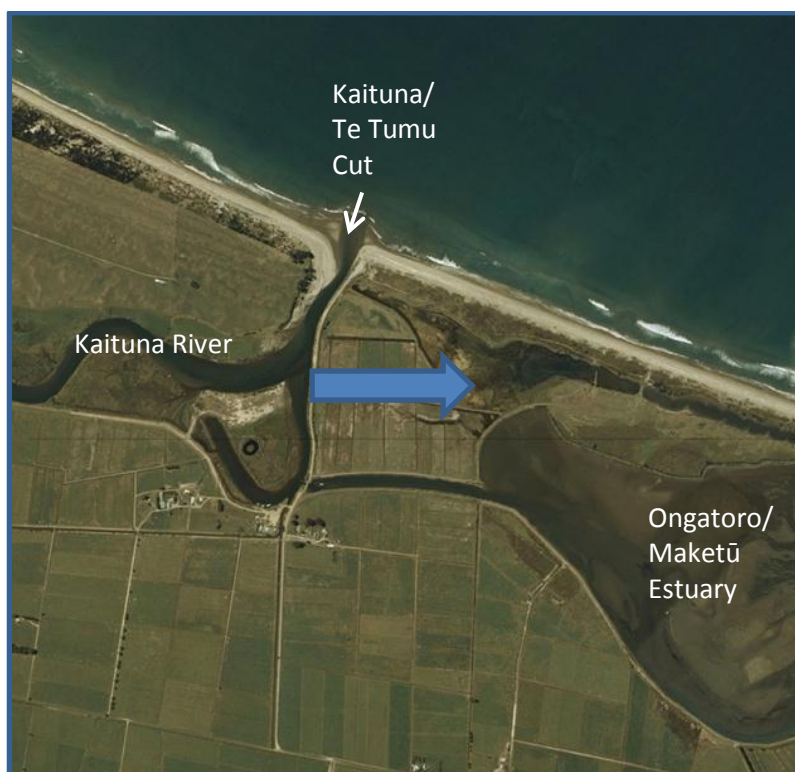
The Kaituna River Re-diversion Project

The [Kaituna River and Ongatoro/Maketū Estuary Strategy](#) was prepared in response to longstanding community concerns about the degradation of the local environment, in particular the lower river and estuary. Much of this degradation occurred because the Kaituna River was diverted out to sea at Te Tumu for flood protection purposes in 1956.

Bay of Plenty Regional Council intends to re-divert almost a quarter of the Kaituna River's flow back into Ongatoro/Maketū Estuary. This freshwater will contribute toward the restoration of the estuary's health and mauri by allowing maritime marsh to be restored; creating conditions more suitable for a range of shellfish and fish species; and possibly reducing the rate at which sand fills in the estuary.

The present state of the environment:

- 98.5% of the 6,100ha of freshwater wetlands in the lower Kaituna have been lost since 1840
- 95% of the 160ha of salt marsh (whitebait/native fish rearing habitat) has been lost since 1956
- 70% of the volume of Maketū Estuary has filled in with sand from the sea since 1956
- Shellfish have declined due to the lack of freshwater and the in-filling of the estuary with sand
- Nitrogen levels in the water have doubled since 1975
- Bacterial contamination has declined from 1000 to 200 faecal coliform units/100ml since 1989 due to improvements in wastewater discharge quality upstream



The lower Kaituna River and upper Ongatoro/Maketū Estuary

Note, the location of the re-diversion intake structures and channel(s) for water flow have not been determined. The blue line shown on the map is indicative only.

The water needs to be taken from far enough upstream to get fresh (rather than just salty) water, and some would prefer to see it enter the estuary via the old river bed.



We are currently carrying out observations and interviews to look at how people use the lower Kaituna River and estuary so we can assess the impacts of the partial re-diversion. This information will be presented as part of a resource consent application to implement the re-diversion. For further information on the project please contact Pim de Monchy at the Bay of Plenty Regional Council on 0800 884 880, or email pim.demonchy@boprc.govt.nz