



## Meeting of the Environment and Integrated Catchments Committee

### LATE ITEMS

**Date:** Wednesday 1 July 2020  
**Time:** 9.00am  
**Venue:** Council Chamber  
Hawke's Bay Regional Council  
159 Dalton Street  
NAPIER

### Agenda

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ITEM	TITLE	PAGE
<b>Information or Performance Monitoring</b>		
13.	Lincoln University 2019 Survey - Public Perceptions of NZ's Environment: 2019	3
14.	Heretaunga Plains Flood Control Scheme Level of Service Review Update	39

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# HAWKE'S BAY REGIONAL COUNCIL

## ENVIRONMENT AND INTEGRATED CATCHMENTS COMMITTEE

Wednesday 01 July 2020

**Subject: LINCOLN UNIVERSITY 2019 SURVEY - PUBLIC PERCEPTIONS OF NZ'S ENVIRONMENT: 2019**

### Reason for Report

1. This item provides the Committee with an analysis of the views expressed by Hawke's Bay-based participants in the 2019 Lincoln University survey of Public Perceptions of New Zealand's Environment.

### Executive Summary

2. Lincoln University has been surveying New Zealanders' perceptions of the State of the Environment since 2000 using a survey questionnaire constructed around a Pressure-State-Response model. A postal survey was undertaken biennially until 2010 and since then has been conducted triennially and by electronic means.
3. The attached report is drawn from the results of the ninth survey undertaken in 2019, but for Hawke's Bay regional respondents only. The full 2019 results for New Zealand can be found [here](#).
4. In 2019 Council staff requested that Lincoln University provide Hawke's Bay specific data from its survey in order to better understand how Hawke's Bay residents perceive the state of the environment and the way it is being managed. Presentation of the University's report to Council has been delayed by the disruption related to Covid-19 and is now attached to this report.
5. The report suggest that overall there is a high degree of similarity between respondents from Hawke's Bay compared with the rest of New Zealand in terms of their perceptions of the state of the New Zealand environment. The respondents had similar responses to questions about levels of knowledge about the environment, their view of the standard of living in New Zealand, the overall state of the New Zealand environment, and on whether New Zealand's environment is 'clean and green'. However, there are some differences in the Hawke's Bay specific responses.
6. In terms of environmental state (measured in the survey by examining availability and quality), as with the rest of NZ, Hawke's Bay respondents considered the state of air and our natural environment compared to other developed countries to be very good. Rivers and lakes rated poorest by both sets of respondents with more people considering them to in bad or very bad states than in good or very good.
7. In the context of management (or response) to specific environmental issues, Hawke's Bay respondents were particularly negative. Notably, over 60% of respondents considered farm effluent and runoff to be badly or very badly managed – this level is around 15 percentage points more than for the rest of New Zealand. In a consistent thread, Hawke's Bay respondents were particularly negative about management of rivers and lakes, and of groundwater (nearly 50% of respondents for both reporting these resources to be poorly or very poorly managed. Respectively the rest of New Zealand respondents were around 40 and 30%. This finding appears unsurprising given the high profile of freshwater management issues in Hawke's Bay.
8. A further aspect of response examined was around pro-environment behaviours. Hawke's Bay respondents reported a higher level (around 15 percentage points) than the rest of New Zealand in terms of reducing or limiting their use of freshwater, again consistent with the regional focus on water management issues. Notably, Hawkes Bay respondents were less likely to use public transport or to participate in natural environment restoration or similar projects.

9. Lincoln University also explored pressures on the environment by asking respondents to choose activities they thought were having the most impact on each resource examined. The pattern that emerged for Hawkes Bay largely mirrored the rest of New Zealand picture. Farming as one of the three main causes of damage to fresh waters scored less for Hawkes Bay respondents (37.7%) than for other New Zealand respondents (around 43%).
10. Some caution is necessary around the representativeness of these findings, given the relatively small sample population of 55 Hawke's Bay residents. Lincoln University consider that "on a population basis the sample size here is of a similar or the same proportion to that found for other regions which were all covered by survey. To this end we can be reasonably confident the findings reported here are consistent with the entire survey which has a margin of error of 3% at the 95% confidence interval." Staff note that the Hawke's Bay sample, relative to the regional population, was weighted more heavily toward females, over 50s, lower income levels, and New Zealanders of European descent. Participation in the survey is likely to be biased toward those who have an interest in environmental matters.
11. The Lincoln survey does not have a focus on climate change. Council staff have commissioned local research provider, SIL Research Limited, to undertake a comprehensive and representative sample of Hawke's Bay residents on climate change issues, which will help inform the design of a community engagement programme on climate change and associated interventions for the 2021-2031 Long Term Plan. Survey results are expected in September.

#### **Decision Making Process**

12. Staff have assessed the requirements of the Local Government Act 2002 in relation to this item and have concluded that, as this report is for information only, the decision making provisions do not apply.

#### **Recommendation**

That the Environment and Integrated Catchments Committee receives and notes the "*Lincoln University 2019 Survey - Public Perceptions of NZ's Environment: 2019*" staff report.

#### **Authored & Approved by:**

**James Palmer**  
**CHIEF EXECUTIVE**

#### **Attachment/s**

- [1](#) HB Perceptions of NZ Environment Report June 2020

## **Hawke's Bay respondents' perceptions of aspects of the New Zealand environment: 2019**

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**Ross Cullen**

**Lincoln University**

**2020**

## Executive Summary

The ninth survey (the series having begun in 2000) of people's perceptions of the state of the New Zealand environment was undertaken over March-April 2019. The survey is based on the Pressure-State-Response (PSR) model of environmental reporting and remains the only long-running survey of this type in the world. Hawke's Bay respondent data were extracted to report key findings from 2019 for that region.

For the whole-of-New Zealand report respondents' perceptions of all the main resource areas (e.g., air, freshwater, biodiversity) were tested. Statistical analyses identified the roles of several socio-demographic variables. Notably in 2019 there was a vastly increased proportion of younger (30 years and less) respondents and these relatively more positive, on average, respondents have led to significant differences from some key findings reported in 2016 – overall the perceptions are more positive albeit they remain overall negative about many aspects of Aotearoa-New Zealand's natural environment.

Turning now to Hawke's Bay – in terms of state (measured in the survey by examining availability and quality), as with the rest of NZ, Hawke's Bay respondents considered the state of air and our natural environment compared to other developed countries to be very high. Rivers and lakes rated poorest by both sets of respondents with more people considering them to in bad or very bad states than in good or very good. In the context of management (or response) to specific environmental issues, Hawke's Bay respondents were very negative. Notably, over 60% of respondents considered farm effluent and runoff to be badly or very badly managed – this level is around 15 percentage points more than for the rest of New Zealand. In a consistent thread Hawke's Bay respondents were very negative also about management of rivers and lakes, and of groundwater (nearly 50% of respondents for both reporting these resources to be poorly or very poorly managed). This finding appears unsurprising given the often contentious issues that surround aspects of freshwater management in Hawke's Bay. Hawke's Bay respondents reported a higher level (around 15 percentage points) than the rest of New Zealand in terms of reducing or limiting their use of freshwater, again consistent with the previous conclusion. We explored pressures on the environment by asking respondents to choose activities they thought were having the most impact on each resource examined. The pattern that emerged for Hawke's Bay largely mirrored the rest of New Zealand picture although farming, as one of the three main causes of damage to fresh waters, scored slightly less for Hawke's Bay respondents (37.7%) than for rest of New Zealand respondents (around 43%).

On a population basis the sample size for Hawke's Bay is of a similar or the same proportion to that found for other regions which were all covered by the survey. To this end we can be reasonably confident the findings reported here are consistent with the entire survey which has a margin of error of 3% at the 95% confidence interval.

## Table of contents

Section	Page
1. Introduction	3
1.1 Background	3
1.2 Research objectives	3
2. Methods	4
2.1 The questionnaire	4
2.2 Pre-testing	7
2.3 Methods of analysis	7
2.4 Distribution	7
2.5 Response	7
3. Pressure-State-Response analysis by question	9
3.1 Knowledge of the environment, and opinions about standard of living, state of the environment and 'clean and green'	9
3.2 The state of the environment	10
3.2.1 Quality of the New Zealand environment	10
3.2.2 Resource availability	11
3.3 Management of the environment	12
3.3.1 Management of environmental activities	12
3.3.2. Current management of the environment	13
3.4 Main causes of damage to the environment	14
3.5 Participation in environmental activities	17
4. Discussion and conclusions	18
References	20
Appendix 1 – the survey (See Appendix 1 of Hughey et al. 2019 for a formatted copy.)	21
Appendix 2. Comparative respondent demographics compared to the New Zealand population	32

## 1. Introduction

### 1.1 Background

The first survey of New Zealanders' perceptions of the State of the Environment was performed in 2000 using a survey questionnaire constructed around a Pressure-State-Response model. Hughey *et al.* (2001) provides background, justification of the survey approach used, and results. The OECD (1996) and Ministry for the Environment (1997) explain the pressure-state-response model, which is used internationally as the basis for environmental reporting. The model is used primarily in reporting biophysical monitoring data – our translation of the model into the perceptions arena means we have needed to take a broad 'socially constructed' interpretation of each of the key components of the model, i.e., 'pressure', 'state' and 'response'. For example, we consider state to include, for some resources, both condition and amount, either individually or in combination.

The 2000 postal survey (Hughey *et al.* 2001) was designed to be undertaken biennially and subsequent surveys were undertaken in 2002, 2004, 2006, 2008 and 2010 (Hughey *et al.* 2002a, 2004, 2006, 2008, 2010). Some findings from the 2006 survey were included in the 2007 OECD *Environmental Performance Reviews – New Zealand* report (OECD 2007).

Following the 2010 survey the principal researchers reviewed the results and lessons learnt from the six prior surveys. They found a consistent pattern of results and thus resolved to change the survey to a triennial cycle. This publication thus reports the results of the ninth (formerly biennial and now triennial) environmental survey undertaken in 2019, but for Hawke's Bay Regional Council respondents only (the full 2019 results for New Zealand are reported in Hughey *et al.* 2019<sup>1</sup>). As signalled in 2010, this survey was undertaken electronically, whereas previous surveys were administered via postal hard copy questionnaires (although a companion electronic survey was undertaken in 2010).

### 1.2 Research objectives

The main aims of the research are to measure, analyse and monitor changes in New Zealanders' (in this case concentrating on Hawke's Bay respondents) perceptions, attitudes and preferences towards a range of environmental issues, ultimately contributing to improved state of the environment reporting. Specific objectives are to:

- Implement a questionnaire, operated triennially, to measure and monitor New Zealanders' environmental attitudes, perceptions, and preferences;
- To report (since 2010) triennially, via a published report and other research publications, on findings from the research;
- Provide independent commentary on environmental issues of public concern as a contribution to public debate and a means of alerting government and others to these issues; and
- Provide opportunities for organisations and other researchers to derive one-off research data for individual areas of interest, including teaching purposes.

<sup>1</sup> See <https://www.lincoln.ac.nz/Research/Research/rc/leap/research-themes/nrm/?sti=5>



## 2. Methods

An electronic questionnaire<sup>2</sup> based on the Pressure-State-Response (PSR) model and previous surveys in this series was used to gather information on New Zealanders' perceptions of the environment and environmental management. In 2010 an electronic survey was introduced to complement the postal survey; in 2013, 2016 and 2019 only an electronic survey instrument was used. The electronic survey was selected as the best method of gathering PSR information. The large number of questions deemed a telephone survey unsuitable and interviews would have been too expensive and cumbersome for adequately sampling the New Zealand population; likewise, the ongoing postal surveys were becoming administratively burdensome and overly expensive.

### 2.1 The questionnaire

The electronic survey contained the same core set of questions as the 2016 and earlier surveys and three<sup>3</sup> case studies (see Appendix 1) – only the core PSR questions are reported here for Hawke's Bay respondents. A letter of introduction stated the purpose of the questionnaire, introduced the questionnaire topics and invited voluntary participation. There were 49 'main' questions in the entire survey, comprising a total of 229 questions and sub questions, asked in sets.

The PSR framework guided the development of the ongoing core survey questions. Two sets of questions assessed perceptions of the state of the environment (state questions) and two sets of questions assessed perceptions of the quality of resource management (response questions). For all of these measures a 'don't know' option was provided. Perceived pressures were assessed by another set of questions.

Further questions supplemented the PSR framework. Respondents were asked what was the most important environmental issue facing New Zealand and also the world today and why these issues were chosen.

Participation in 15 activities was measured to explore relationships between environmental behaviour and responses to the PSR framework. Eight questions sought demographic information. Relationships between demographic information and concern for the environment have been well documented (e.g., Jones and Dunlap, 1992) and these are explored using survey responses. A question on ethnic origin was introduced in 2002. It revealed substantial differences between ethnic groups in responses to some questions. The question on ethnic origin was retained in following surveys, with an Asian ethnic origin category being included from the 2006 survey. A question on respondent's place of residence was added to the 2006 survey, organised by regional council boundaries. A further question asked whether respondents lived in an urban area (town or city of 1,000 people or more) or rural area (countryside or a town of less than 1,000 people). In 2008, an additional question on respondent's occupation was included in the survey and this too has subsequently been retained.

<sup>2</sup> Full method details are described in the principal 2019 survey report – see <https://www.lincoln.ac.nz/Research/Research/rc/leap/research-themes/nrm/?sti=5>

<sup>3</sup> Only three are reported as the fourth, regarding aspects of freshwater management, was undertaken for a commercial research client to help fund the survey.

*Knowledge, standard of living and 'clean green'*

The survey began by asking for self-assessment of respondents' knowledge of the environment, and their assessment of the overall standard of living in New Zealand with the invitation: 'We would like your opinion on the following issues'. The questions were: 'Your knowledge of environmental issues is...', 'The overall standard of living in New Zealand is...', 'The overall state of the natural environment in New Zealand is...'. Measurements were taken on five-point scales anchored by 'very good' and 'very bad'. The fourth question asked for an assessment of how 'clean and green' New Zealand is. In 2002 respondents were asked if they agreed with a statement: 'New Zealand's environment is regarded as "clean and green"', which was changed slightly in 2004 to read 'New Zealand's environment is "clean and green"'. Measurement was on a five-point scale anchored by 'strongly agree' and 'strongly disagree'. Finally, a fifth question was added in 2016: 'All things considered, how satisfied are you with your life as a whole these days?', evaluated on a scale from 1 (completely dissatisfied) to 10 (completely satisfied).

*The state of the environment*

To measure the state of the environment two sets of questions were asked about (i) the quality or condition, and (ii) the availability or amount of various resources. In the 2000-2004 surveys a third question set asked whether the environment had changed over the last five years. This question was omitted from the 2006 questionnaire as analysis of the previous survey data showed that results remained consistent over the years and by 2006 sufficient perceptions data were available from previous surveys to identify significant changes. This change has retained.

The first question set in this section was preceded by the instruction: 'Please indicate what you think the condition of each of the following is'. Followed by: 'The condition of New Zealand's...'. The 11 aspects were then presented with a five-point measurement scale anchored by 'very good' and 'very bad'.

The second set of questions regarding the state of the environment measured perceptions of the amount or availability of 10 natural resources. These were measured by asking: 'Now we would like your opinion on some of our natural resources'. The set of 10 natural resources was preceded by: 'New Zealand's ...'. Five-point scales provided for measurement were anchored by 'very high' and 'very low'.

*Adequacy of environmental management*

Information on the adequacy of environmental management was sought by asking two sets of questions, the first regarding the management of six specific resources and the second designed to measure perceptions about current management of aspects of New Zealand's environment.

The first set of questions in this section asked 'What do you think of the management of the following items?', followed by: 'Management of New Zealand's...'. Six specific 'management of resource' issues (e.g., sewage disposal) were then presented, measured along a five-point scale anchored by 'very good' and 'very bad'.

The next set of questions on the current management of aspects of New Zealand's environment presented 13 items preceded by: 'What do you think of the management of each of the following?' followed by 'Currently New Zealand's...'. These items were each presented with a five-point scale anchored by 'very well managed' and 'extremely poorly managed'.

#### *Pressures on the environment*

Perceived causes of damage to parts of the New Zealand environment were measured by presenting a table containing 10 resources with 15 potential causes of damage. Respondents were instructed to select up to three causes of degradation for each environmental component. This approach was designed to ease the cognitive burden that would have been placed on respondents if they were required to select the single most important item from the 15 presented. Respondents were invited to respond with: 'Please tell us what you think are the main causes of damage to parts of the New Zealand environment by choosing up to three causes on each row across the page'.

#### *Participation in environmental activities*

Measurements were taken of respondent participation in 15 activities related to the environment. In 2000 respondents were asked: 'Please indicate if in the last twelve months you have...' followed by 13 environmental activities. Measurements were taken using either 'Yes', 'No' or 'don't know' options. The question was modified slightly in the 2002 survey by adding 'Regularly' as an option in addition to the 'Yes' response. This has been retained through subsequent surveys, with the addition of two activities in 2006 ['Reduced, or limited your use of freshwater', and 'Made a financial donation to a non-government environmental organisation (e.g., Forest and Bird)'].

#### *Demographic information and representativeness*

Information was sought regarding gender, number of household members, age, country of birth, ethnicity, residential region, rural or urban residence, education, current situation (e.g., student, retired or in paid employment), the industry the person works in or had last worked in, occupation and personal income. Where possible these were measured using categories closely corresponding to data categories reported in the New Zealand Census. Key demographic information for the survey is provided in Appendix 2 (but also see Appendix 4 in Hughey et al. (2019) which presents an analysis of a significant 2019 change in demographic, namely a much higher proportion of younger respondents with significant changed perceptions).

To assess representativeness of the New Zealand survey sample it was compared with currently available official statistics (Stats NZ 2018); we have subsequently extracted the Hawke's Bay respondent data for comparative descriptive commentary. The following key points can be drawn about where the e-survey sample differs from NZ population-level data:

- Gender: the Hawke's Bay e-survey sample under-represents males in regard to both the rest of NZ e-survey and the 2018 census data.

- Income: the Hawke's Bay e-survey sample under-represents those in the high income categories both from a 2018 census perspective and from the rest of NZ e-survey perspective.
- Ethnicity: the Hawke's Bay e-survey over represents NZ European respondents compared for the 2018 census for NZ findings.
- Education: the Hawke's Bay e-survey sample more closely represents the 2018 census result than does the rest of NZ e-survey, but like the latter under represents those with high school qualifications and over represents those with a trade or technical qualification of with an undergraduate diploma.

Some of these differences are of great importance—one option was to weight the responses to correct for the differences. We chose not to weight as we had not done so for the previous postal surveys and to introduce weighting now would be a major change to data treatment. Despite the difference of these distributions from the 2018 Stats NZ data, the sample is judged to be an adequate basis for making comment on respondents' views about the environment.

Ongoing sampling in the same manner will provide a valid indicator of changes in environmental perceptions for the population represented by survey respondents.

## 2.2 Pre-testing

Pre-testing followed a cognitive interview process described in Dillman (1998). Several individuals were interviewed about each of the questions in the 2000 survey, while other individuals were asked about questions introduced in subsequent surveys. Subsequently, some minor adjustments were made to the questionnaire. The survey instrument has been scrutinised and approved by the Lincoln University Human Ethics Committee.

## 2.3 Methods of analysis

Descriptive data from the Hawke's Bay survey respondents are provided in Section 3. The principal New Zealand report (Hughey et al. 2019) contains a detailed descriptive, mainly graphical, comparison of 2019 survey results with those from previous surveys, and a statistical analysis of relationships between selected PSR framework components and demographics.

## 2.4 Distribution

The survey was administered under contract by Horizon Research. They maintain a database of around 7000 volunteers who are on email – the database was open for electronic survey responses over the period March-April 2019. All responses were recorded automatically by Horizon Research. Anonymity was assured.

## 2.5 Response

After accounting for known undeliverable surveys, effective national level survey response rates have been:

- |        |     |         |        |
|--------|-----|---------|--------|
| • 2000 | 48% | N = 894 | Postal |
| • 2002 | 45% | N = 836 | Postal |
| • 2004 | 43% | N = 820 | Postal |



- 2006 46% N = 880 Postal
- 2008 40% N = 752 Postal
- 2010 35% N = 610 Postal
- 2010 na N = 2477 Electronic
- 2013 na N = 2200 Electronic
- 2016 na N = 2468 Electronic
- 2019 na N = 2073 Electronic

All surveys had maximum margins of error of 3% at the 95% confidence level.

A total of 55 Hawke's Bay region responses to the 2019 survey were received – this is sufficient for broad scale descriptive analysis.

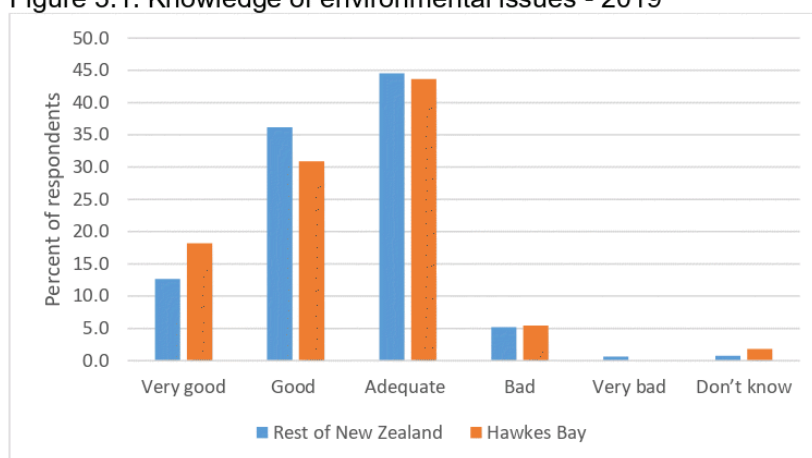
### 3. Pressure-State-Response analysis by question

This section reports findings for Hawke's Bay grouped by question type, which provides the clearest depiction of the relative evaluations of different environments, within the organisational context of the Pressure-State-Response framework.

#### 3.1 Knowledge of the environment, and opinions about standard of living, state of the environment and 'clean and green'

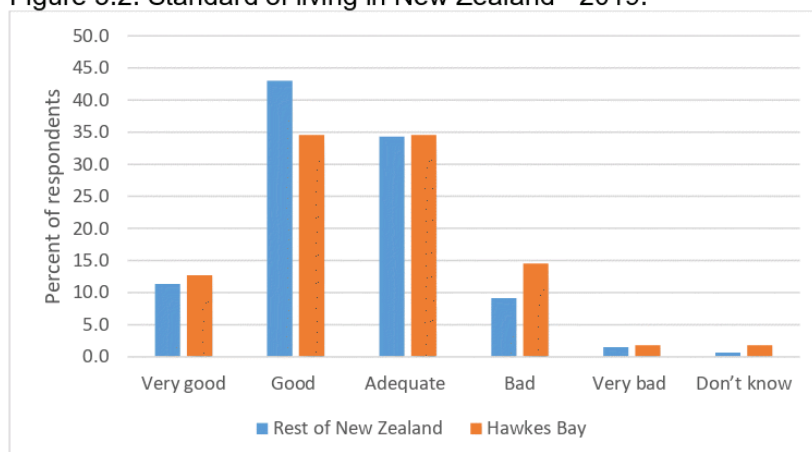
Most Hawke's Bay respondents considered their environmental knowledge to be 'good' or 'very good' (49.1% combined), which is very similar to the rest of New Zealand (Figure 3.1).

Figure 3.1. Knowledge of environmental issues - 2019



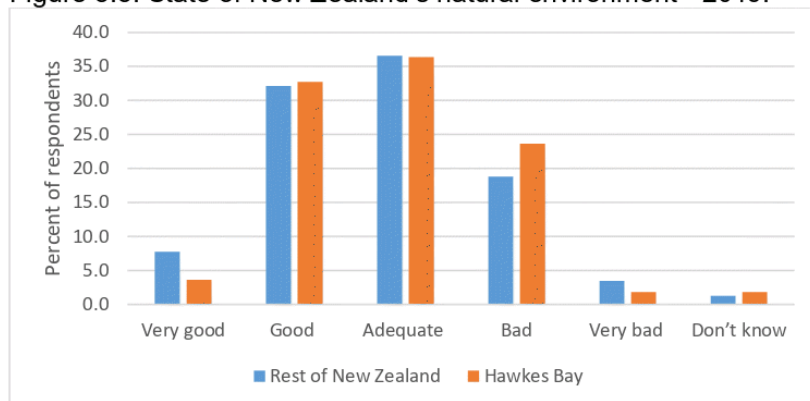
The majority of Hawke's Bay respondents considered the standard of living in New Zealand to be 'good' or 'adequate' (69% cf 77% for the rest of New Zealand, Figure 3.2).

Figure 3.2. Standard of living in New Zealand - 2019.



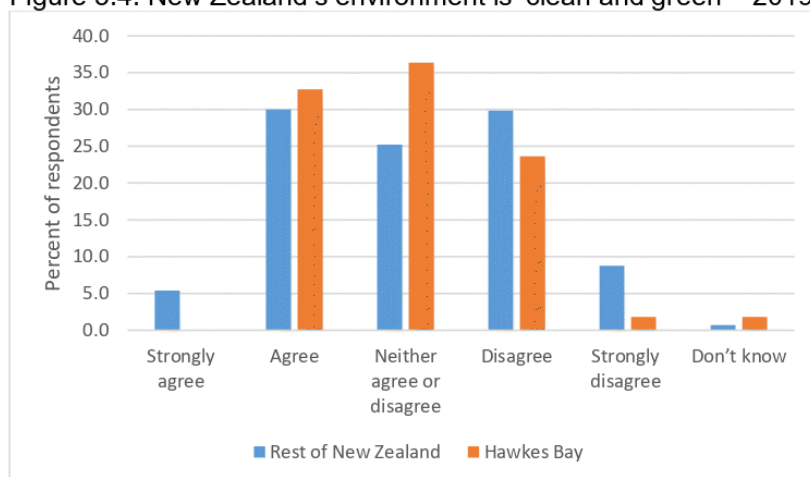
Hawke's Bay respondents considered the state of the New Zealand environment to be 'adequate' to 'good' (69.1%, Figure 3.3).

Figure 3.3. State of New Zealand's natural environment - 2019.



Around a quarter of Hawke's Bay respondents either 'strongly disagreed' or 'disagreed' with the statement that New Zealand's environment is 'clean and green'; around 39% of the rest of New Zealand gave the same opinion (Figure 3.4).

Figure 3.4. New Zealand's environment is 'clean and green' - 2019.



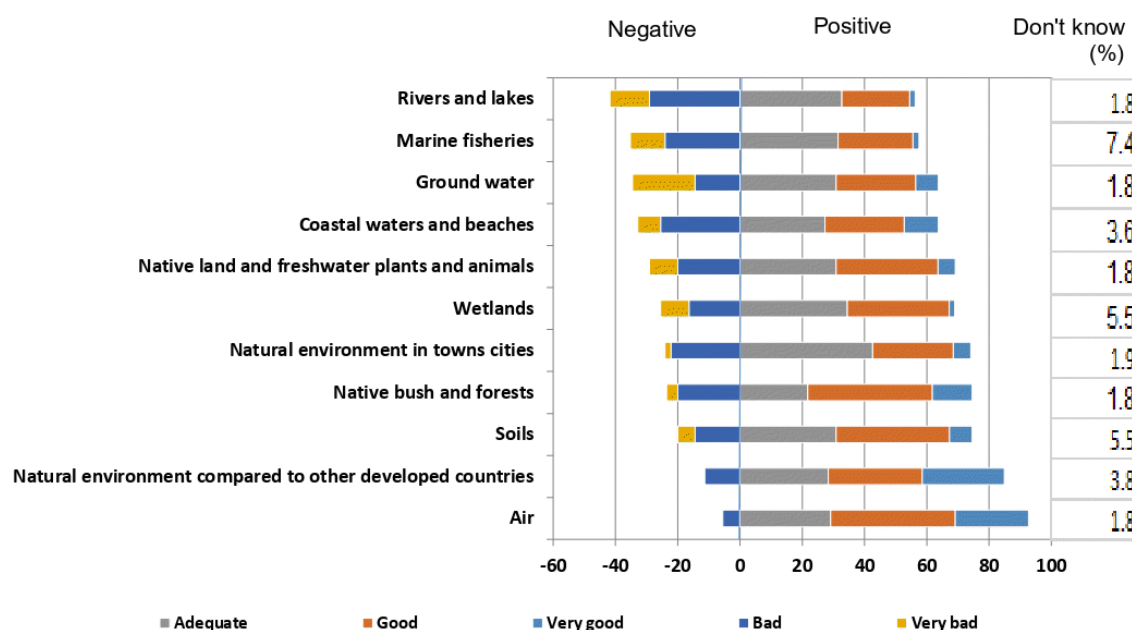
### 3.2 The state of the environment

#### 3.2.1 Quality of the New Zealand environment

The quality of the New Zealand environment was measured on five-point Likert scales ranging from 'very good' to 'very bad'. Figure 3.5 shows that Hawke's Bay respondents generally rated the state of the New Zealand environment to be 'good' or 'adequate'. However, New Zealand's natural environment was rated to be 'good' or 'very good' when compared with other developed nations. Two specific resources (natural environment compared to other developed countries – 56.6%; air – 63.6%) scored very positively (scores of 'very high' or 'high' combined), with mean Likert

scores of 3.75 and 3.83 respectively. Rivers and lakes were considered to be in the worst condition (mean score = 2.70), with 41.8% of respondents rating them as 'bad' or 'very bad'.

Figure 3.5. Perceived state of the Hawke's Bay environment – 2019 (Note: the key is not presented in the same order as the graph – this is a software problem)

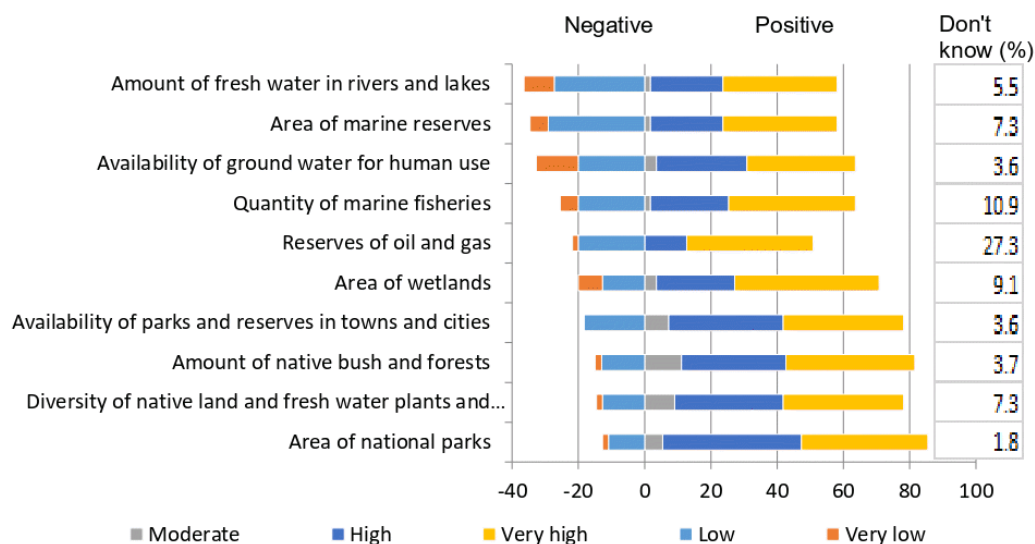


### 3.2.2 Resource availability

Respondents' assessments of resource availability in Hawke's Bay are shown in Figure 3.6. The lowest availability rating was for the amount of fresh water in rivers and lakes (mean Likert score 2.79; whole of NZ 2.95), with around a quarter of respondents rating availability as 'very low' or 'low'. Area of marine reserves, quantity of marine fish and reserves of oil and gas also received mean Likert scores of less than 3, again with around a quarter of respondents rating availability as 'very low' or 'low'. The area of national parks had the highest rating (mean score = 3.39; whole of NZ 3.49), with 48.3% of respondents rating it 'high' or 'very high'. Several resources received a high number of 'don't know' responses, especially reserves of oil and gas (27.3%), area of wetlands (9.1%) and the quantity of marine fisheries (10.9%).



Figure 3.6. Perceived availability of natural resources in Hawke's Bay – 2019 (Note: the key is not presented in the same order as the graph – this is a software problem).

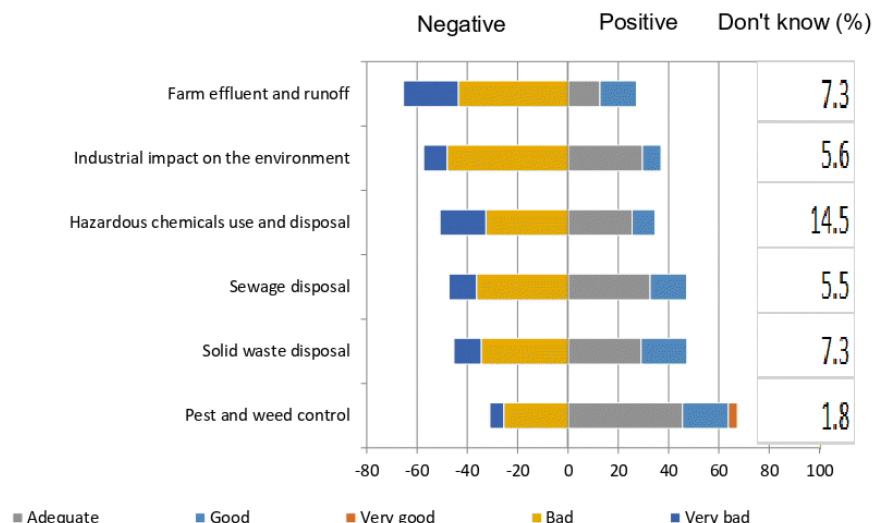


### 3.3 Management of the environment

#### 3.3.1 Management of environmental activities

Survey respondents were asked to evaluate the management of six items on a five-point Likert scale that ranged from 'very good' to 'very bad' (Figure 3.7). A high percentage of respondents thought that the management of farm effluent and runoff (65.4%; whole of NZ 51.5%) was 'bad' or 'very bad' (mean Likert score = 2.22; whole of NZ 2.75). Only management of pests and weeds (21.8%; whole of NZ 25.6%) achieved combined 'good' or 'very good' management ratings from 20% or more respondents. Hazardous chemicals use and disposal had the largest 'don't know' response (14.5%).

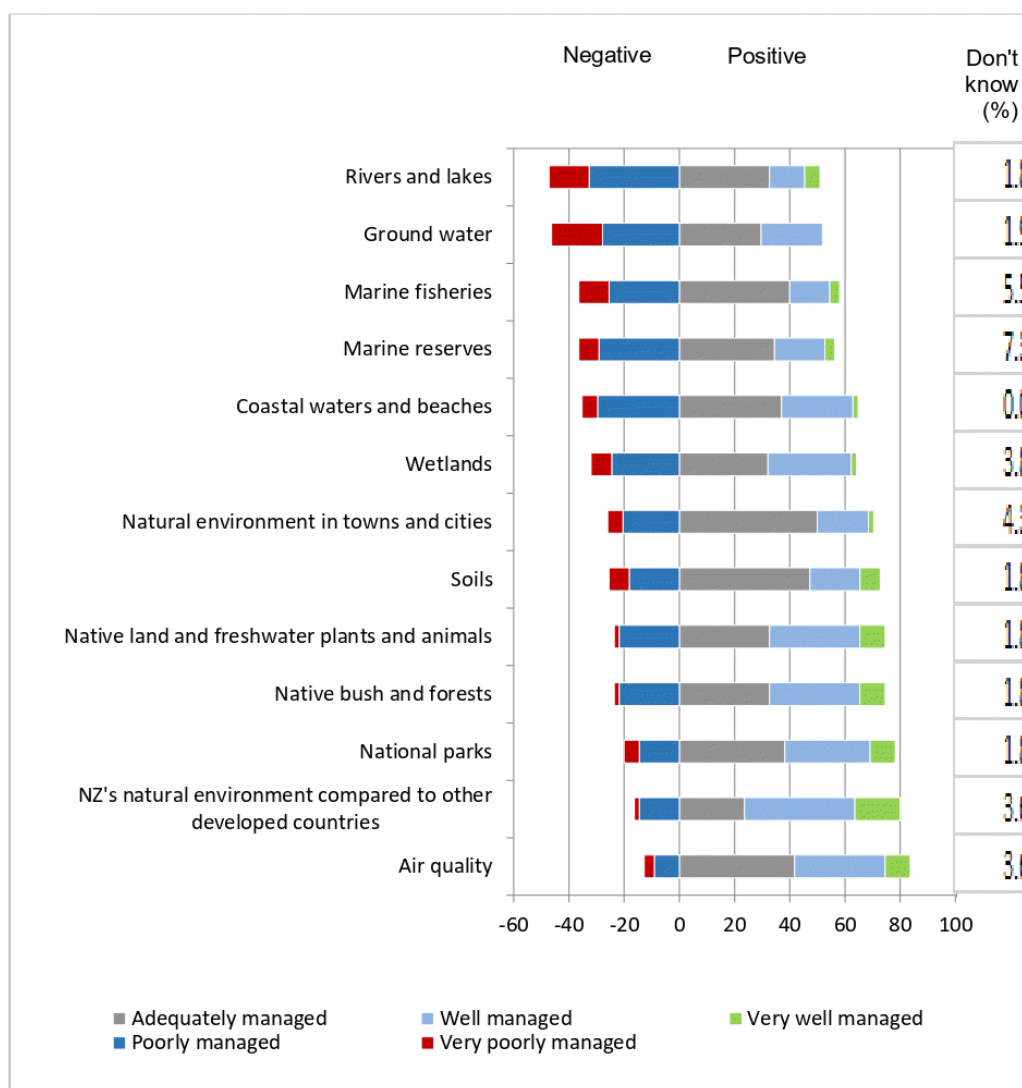
Figure 3.7. Perceived quality of management activities in Hawke's Bay - 2019 (Note: the key is not presented in the same order as the graph – this is a software problem).



### 3.3.2. Current management of the environment

The quality of management of 13 environments or resources was assessed on a scale ranging from 'very well managed' to 'very poorly managed' (Figure 3.8). Generally, most environmental features were considered to be 'adequately managed' or better, but with management of groundwater (Mean Likert score = 2.57), followed by rivers and lakes scoring lowest (Mean Likert score = 2.61; whole of NZ 2.96). Nearly 50% of Hawke's Bay respondents felt that rivers and lakes (about 40% for whole of NZ) and groundwater (about 30% for whole of NZ) were either 'poorly managed' or 'very poorly managed'. Conversely, over half of the respondents (56.4%) rated Hawke's Bay's natural environment compared to other developed countries as either 'very well managed' or 'well managed'.

Figure 3.8. Perceived quality of management of Hawke's Bay's natural environment  
(Note: the key is not presented in the same order as the graph – this is a software problem).



### 3.4 Main causes of damage to the environment

Respondents were instructed to select what they considered to be the main causes of damage from a list of 15 items for ten components of the environment. They could select up to three causes for each environmental component. The responses for each component are shown in Table 3.1. Colour coding helps to interpret the table, with red highlighted cells signifying the most frequently cited cause of damage to individual environmental components, orange indicating the second most frequently cited main cause, and the third most frequent response in yellow.

For some environmental components, people have very clear ideas about sources of harm. For example, motor vehicles and transport (77.4%), as well as industrial

activities (52.8%), were clearly judged to be the two main causes of damage to air. Similarly, sewage and stormwater was judged to be the main cause of damage to beaches and coastal waters, with 60.4% of respondents nominating this cause, while 69.8% percent of respondents identified commercial fishing as a major problem for marine fisheries.

Reading across the rows of Table 3.1 identifies sources of harm that are important across different areas of the environment. Sewage and stormwater, pests and weeds, and farming were each considered a main cause of damage to four components of the environment.

Table 3.1. Perceived main causes of damage to the Hawke's Bay environment. The fill colours (red, orange, yellow) indicate in order the three most-frequently-cited causes of damage to the individual environmental component. (Note: percentages in each column do not add to 100% because respondents identified up to three causes for each environmental component.)

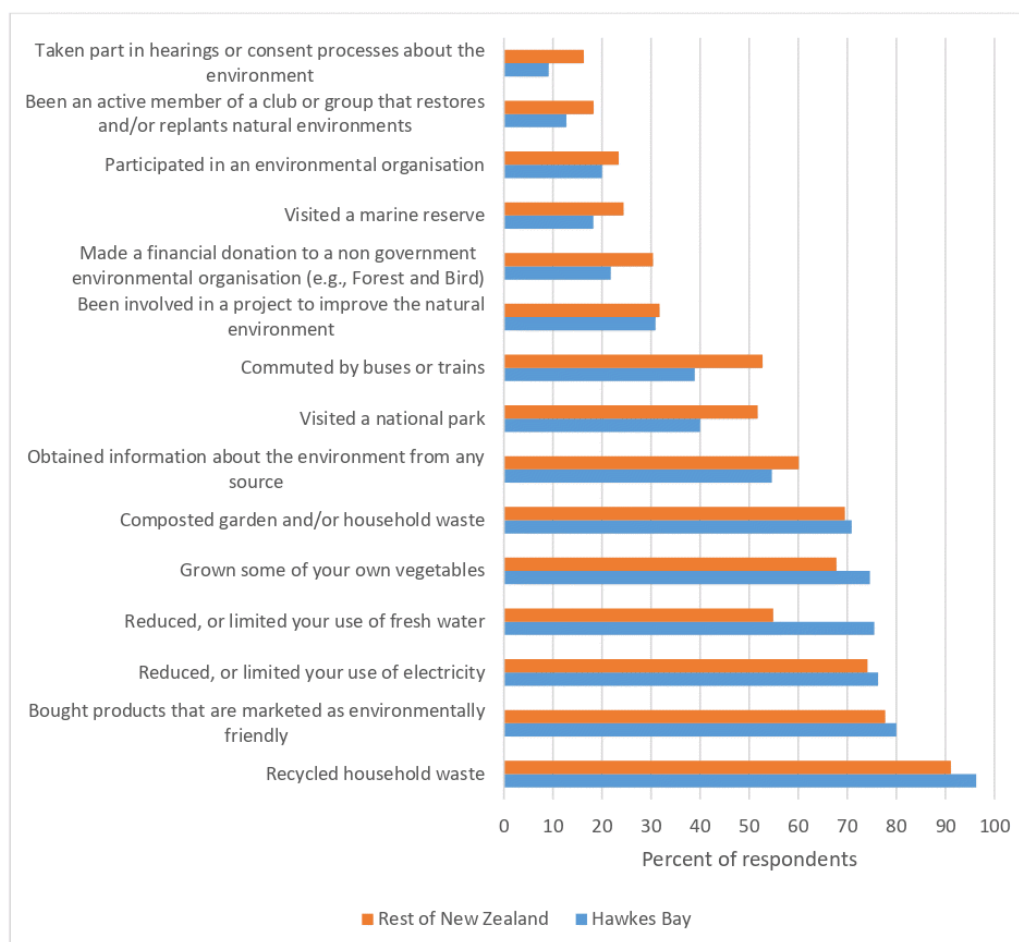
	Air (%)	Native land & freshwater plants & animals (%)	Native forests & bush (%)	Soils (%)	Beaches & coastal waters (%)	Marine fisheries (%)	Marine reserves (%)	Fresh waters (%)	National parks (%)	Wetlands (%)
Motor vehicles & transport	77.4	3.8	9.4	3.8	3.8	0.0	0.0	0.0	5.7	0.0
Household waste & emissions	28.3	15.1	3.8	24.5	20.8	20.8	11.3	32.1	11.3	7.5
Industrial activities	52.8	30.2	15.1	28.3	24.5	15.1	5.7	24.5	5.7	17.0
Pests and weeds	1.9	37.7	60.4	28.3	1.9	0.0	3.8	15.1	43.4	30.2
Farming	13.2	35.8	9.4	32.1	13.2	3.8	5.7	37.7	15.1	34.0
Forestry	5.7	18.9	43.4	17.0	9.4	1.9	0.0	7.5	15.1	9.4
Urban development	15.1	22.6	32.1	15.1	15.1	3.8	9.4	5.7	13.2	22.6
Mining	5.7	7.5	13.2	9.4	0.0	3.8	1.9	7.5	9.4	7.5
Sewage and stormwater	11.3	18.9	5.7	13.2	60.4	41.5	34.0	43.4	7.5	18.9
Tourism	1.9	3.8	18.9	3.8	13.2	3.8	7.5	7.5	47.2	20.8
Commercial fishing	1.9	5.7	0.0	1.9	22.6	69.8	47.2	11.3	0.0	0.0
Recreational fishing	0.0	5.7	1.9	0.0	9.4	24.5	26.4	9.4	0.0	1.9
Dumping of solid waste	5.7	18.9	11.3	35.8	28.3	11.3	18.9	13.2	15.1	18.9
Hazardous chemicals	35.8	20.8	18.9	37.7	13.2	20.8	20.8	26.4	5.7	18.9
Other	1.9	3.8	5.7	1.9	5.7	3.8	5.7	5.7	9.4	3.8

### 3.5 Participation in environmental activities

Figure 3.9 shows levels of participation in 15 environment related activities during the preceding twelve months, with Hawke's Bay respondents compared with the Rest of New Zealand. While the pattern is generally similar, there are several apparent differences:

- Hawke's Bay respondents appear to be less involved in active environmental activities, e.g., taking part in hearings, actively engaging in restoration projects, or participating in an environmental organisation.
- Hawke's Bay respondents reported a much higher level of involvement in reducing or limiting the use of fresh water (75.5% cf 54.9% for the Rest of NZ).

Figure 3.9. Reported participation in environmental activities – Hawke's Bay and Rest of New Zealand, 2019.





#### 4. Discussion and conclusions

Overall there is a high degree of similarity, probably not surprisingly between respondents from Hawke's Bay compared for the Rest of New Zealand in terms of their perceptions of aspects of the state of the New Zealand environment, in terms of pressures, states and response. To begin with these respondents had similar responses to questions about levels of knowledge about the environment, their view of the standard of living in New Zealand, the overall state of the New Zealand environment, and on whether New Zealand's environment is clean and green. However, this generically similar pattern masks some nuances that emerge in a detailed analysis of perceptions of specific resources or management thereof.

First, in terms of state (measured in the survey by examining availability and quality), as with the rest of NZ, Hawke's Bay respondents considered the state of air and our natural environment compared to other developed countries to be very high. Rivers and lakes rated poorest by both sets of respondents with more people considering them to in bad or very bad states than in good or very good.

Second, in the context of management (or response) to specific environmental issues, Hawke's Bay respondents were very negative. Notably, over 60% of respondents considered farm effluent and runoff to be badly or very badly managed – this level is around 15 percentage points more than for the rest of New Zealand. In a consistent thread Hawke's Bay respondents were very negative about management of rivers and lakes, and of groundwater (nearly 50% of respondents for both reporting these resources to be poorly or very poorly managed). Respectively the rest of New Zealand respondents were around 40 and 30%. This finding appears unsurprising given the often contentious issues that surround aspects of freshwater management in Hawke's Bay. The other aspect of response examined was around pro-environment behaviours. Hawke's Bay respondents reported a higher level (around 15 percentage points) than the rest of New Zealand in terms of reducing or limiting their use of freshwater, again consistent with the previous conclusion. Perhaps a little more surprising though, Hawke's Bay respondents were less likely to use public transport or to participate in natural environment restoration or similar projects.

Third, we explored pressures on the environment by asking respondents to choose activities they thought were having the most impact on each resource examined. The pattern that emerged for Hawke's Bay largely mirrored the rest of New Zealand picture (see also page 15 of Hughey et al. 2019). Farming as one of the three main causes of damage to fresh waters scored slightly less for Hawke's Bay respondents (37.7%) than for other New Zealand respondents (around 43%).

**Attachment 1**

Some discussion is necessary around the validity of these findings, which at first sight might be considered to come from a small sample population. Actually, on a population basis the sample size here is of a similar or the same proportion to that found for other regions which were all covered by the survey. To this end we can be reasonably confident the findings reported here are consistent with the entire survey which has a margin of error of 3% at the 95% confidence interval.

**Item 13**



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## Appendix 1 – the survey (See Appendix 1 of Hughey et al. 2019 for a formatted copy.)

### APPENDIX 1: SURVEY Environmental Perceptions Survey 2019 Lincoln University QUESTIONNAIRE

#### New Zealand's environment

1. Firstly, we would like your opinion on the following:

1.1. Your knowledge of environmental issues is

- A. Very good
- B. Good
- C. Adequate
- D. Bad
- E. Very bad
- F. Don't know

1.2. The overall standard of living in New Zealand is

- A. Very good
- B. Good
- C. Adequate
- D. Bad
- E. Very bad
- F. Don't know

1.3. The overall state of the natural environment in New Zealand is

- A. Very good
- B. Good
- C. Adequate
- D. Bad
- E. Very bad
- F. Don't know

1.4. New Zealand's environment is "clean and green"

- A. Strongly agree
- B. Agree
- C. Neither agree nor disagree
- D. Disagree
- E. Strongly disagree
- F. Don't know

2. All things considered, how satisfied are you with your life as a whole these days?

Score using a scale of 1 to 10 where 1 means "Completely dissatisfied" and 10 means "Completely satisfied"

- A. 1 - Completely dissatisfied
- B. 2
- C. 3
- D. 4
- E. 5
- F. 6
- G. 7
- H. 8
- I. 9
- J. 10 - Completely satisfied

3. Please indicate what you think the condition of each of the following is.

The condition of New Zealand's...

- 3.1. Natural environment in towns & cities is
- 3.2. Air is
- 3.3. Native land and freshwater plants and animals is
- 3.4. Native bush and forests is
- 3.5. Soils is
- 3.6. Coastal waters and beaches is
- 3.7. Marine fisheries is
- 3.8. Rivers and lakes is
- 3.9. Groundwater is
- 3.10. Wetlands is
- 3.11. Natural environment compared to other developed countries is
  - A. Very good
  - B. Good
  - C. Adequate
  - D. Bad
  - E. Very bad
  - F. Don't know

#### 4. Natural resources

Now we would like your opinion on some of our natural resources.  
New Zealand's...

- 4.1. Diversity of native land and freshwater plants and animals is
- 4.2. Amount of native bush and forests is
- 4.3. Quantity of marine fisheries is
- 4.4. Area of marine reserves is
- 4.5. Amount of fresh water in rivers and lakes is
- 4.6. Availability of ground water for human use is
- 4.7. Area of national parks is
- 4.8. Area of wetlands is
- 4.9. Availability of parks and reserves in towns and cities is
- 4.10. Reserves of oil and gas are
  - A. Very high
  - B. High
  - C. Moderate
  - D. Low
  - E. Very low
  - F. Don't know

#### 5. What do you think of the management of the following items?

Management of New Zealand's...

- 5.1. Pest and weed control is
- 5.2. Solid waste disposal is
- 5.3. Sewage disposal is
- 5.4. Farm effluent and runoff is
- 5.5. Hazardous chemicals use and disposal is
- 5.6. Industrial impact on the environment is
  - A. Very good
  - B. Good
  - C. Adequate
  - D. Bad
  - E. Very bad
  - F. Don't know

#### 6. And what do you think of the management of each of the following?

Currently New Zealand's ...

- 6.1. Natural environment in towns and cities is
- 6.2. Air quality is

- 6.3. Native land and freshwater plants and animals are
- 6.4. Native bush and forests are
- 6.5. Soils are
- 6.6. Coastal waters & beaches are
- 6.7. Marine fisheries are
- 6.8. Marine reserves are
- 6.9. Rivers and lakes are
- 6.10. Groundwater is
- 6.11. National parks are
- 6.12. Wetlands are
- 6.13. Natural environment compared to other developed countries is
  - A. Very well managed
  - B. Well managed
  - C. Adequately managed
  - D. Poorly managed
  - E. Extremely poorly managed
  - F. Don't know

**7. Please tell us what you think are the main causes of damage, if any, to each of the following parts of the New Zealand environment by ticking up to 3 causes on each row for each of the following:**

- 7.1. Air
- 7.2. Native land & freshwater plants & animals
- 7.3. Native forests & bush
- 7.4. Soils
- 7.5. Beaches & coastal waters
- 7.6. Marine fisheries
- 7.7. Marine reserves
- 7.8. Fresh waters
- 7.9. National parks
- 7.10. Wetlands
- A. Motor vehicles and transport
- B. Household waste and emissions
- C. Industrial activities
- D. Pests and weeds
- E. Farming
- F. Forestry
- G. Urban development
- H. Mining
- I. Sewage and stormwater
- J. Tourism
- K. Commercial fishing
- L. Recreational fishing
- M. Dumping of solid waste
- N. Hazardous chemicals
- O. Other

#### **8. Personal actions**

In the last 12 months have you have done any of the following?

Please provide an answer for each statement

- 8.1. Reduced, or limited your use of electricity
- 8.2. Reduced, or limited your use of fresh water
- 8.3. Visited a marine reserve
- 8.4. Visited a national park
- 8.5. Bought products that are marketed as environmentally friendly
- 8.6. Recycled household waste
- 8.7. Composted garden and/or household waste

- 8.8. Grown some of your own vegetables
- 8.9. Been involved in a project to improve the natural environment
- 8.10. Obtained information about the environment from any source
- 8.11. Taken part in hearings or consent processes about the environment
- 8.12. Participated in an environmental organisation
- 8.13. Commuted by buses or trains
- 8.14. Been an active member of a club or group that restores and/or replants natural environments
- 8.15. Made a financial donation to a non-government environmental organisation
- A. Yes
- B. Regularly
- C. No
- D. Don't know

#### Predators in New Zealand

This section enquires about control activities for the "Big Four" predators (rat, possum, stoat & ferret) and their impact on conservation in NZ. (Other animals and plants are also considered pests in NZ but are not the focus of this section of the survey).

In the past 12 months, have you undertaken any unpaid control work of the "Big Four" predators in New Zealand?

This question requires an answer for each row

#### 9.1. Rats

- A. Yes
- B. No
- C. Don't know

#### 9.2. Possums

- A. Yes
- B. No
- C. Don't know

#### 9.3. Stoats

- A. Yes
- B. No
- C. Don't know

#### 9.4. Ferrets

- A. Yes
- B. No
- C. Don't know

#### Donations

10. In the past 12 months, have you donated money to a voluntary organisation that undertakes control of the Big Four predators?

- A. Yes
- B. No
- C. Don't know

11. In your opinion, how much effort should private citizens be contributing to controlling the Big Four predators?

- A. Much more than now
- B. A little more than now
- C. It's about right
- D. A little less than now
- E. Much less than now
- F. I don't know

12. And how much effort should the Department of Conservation and Regional Councils be contributing to controlling the Big Four predators?

- A. Much more than now
- B. A little more than now
- C. It's about right

- D. A little less than now
- E. Much less than now
- F. I don't know

#### Controlling the Big Four predators

The next section is about control of the Big Four predators at your residence.

13. Do you rent or own your main residence?

- A. Rent
- B. Own
- C. Other

14. Which of the following best describes the land size of your main residence?

- A. No land (e.g. an apartment)
- B. A suburban section or similar
- C. A small lifestyle block
- D. A farm

Have any of the Big Four predators been present at your main residence in the past 12 months?

15.1. Rats

- A. Yes
- B. No
- C. Don't know

15.2. Possums

- A. Yes
- B. No
- C. Don't know

15.3. Stoats

- A. Yes
- B. No
- C. Don't know

15.4. Ferrets

- A. Yes
- B. No
- C. Don't know

16. Which of the Big Four predators, if any, have you controlled at your main residence in the past 12 months?

Please tick all that apply

- |                  |               |
|------------------|---------------|
| A. Rats          | Ask 17 and 18 |
| B. Possums       | Ask 19 and 20 |
| C. Stoats        | Ask 21 and 22 |
| D. Ferrets       | Ask 23 and 24 |
| E. None of these | Ask 25        |

#### Rats

17. Why did you control rats?

- A. To protect the environment
- B. To eliminate nuisance (e.g. rat in compost or house)
- C. To prevent human disease
- D. To minimize impact to business
- E. Another reason (please tell us what that is)

18. What was your main control method for rats?

- A. Trapping
- B. Aerial poison
- C. Ground poison

- D. Shooting
- E. Other (please tell us what that is)

**Possums**

19. Why did you control possums?

- A. To protect the environment
- B. To eliminate nuisance
- C. To prevent human disease
- D. To minimize impact to business
- E. Another reason (please tell us what that is)

20. What was your main control method for possums?

- A. Trapping
- B. Aerial poison
- C. Ground poison
- D. Shooting
- E. Other (please tell us what that is)

**Stoats**

21. Why did you control stoats?

- A. To protect the environment
- B. To eliminate nuisance
- C. To prevent human disease
- D. To minimize impact to business
- E. Another reason (please tell us what that is)

22. What was your main control method for stoats?

- A. Trapping
- B. Aerial poison
- C. Ground poison
- D. Shooting
- E. Other (please tell us what that is)

**Ferrets**

23. Why did you control ferrets?

- A. To protect the environment
- B. To eliminate nuisance
- C. To prevent human disease
- D. To minimize impact to business
- E. Another reason (please tell us what that is)

24. What was your main control method for ferrets?

- A. Trapping
- B. Aerial poison
- C. Ground poison
- D. Shooting
- E. Other (please tell us what that is)

**25. How much money have you spent in total on Big Four predator control for your main residence in the past 12 months?**

Open response

**26. Do you monitor the abundance of native birds at your residence?**

- A. Yes
- B. No

**We would like your opinion on each of the following statements:**

- 27.01. Pest species are a significant conservation problem
- 27.02. Pest control interferes with nature
- 27.03. The benefits of pest control outweigh the risk to nature
- 27.04. Pest control has unknown side effects
- 27.05. Native species have greater rights than pest species
- 27.06. Today's pest control methods are proven to be ineffective
- 27.07. Investment in pest control is beneficial for future generations
- 27.08. Pest control is important compared to other conservation issues
- 27.09. NZ should do more pest control
- 27.10. To protect native species we should kill rats, possums and stoats
- 27.11. Domestic cats are a significant threat to native species
- 27.12. Unowned cats are a significant threat to native species
- 27.13. We should replant native plants/bush to protect NZ native species
- 27.14. I trust government agencies
- 27.15. I trust scientists
- 27.16. All stoats, rats and possums should be eradicated from NZ by 2050
- 27.17. I have control over my own impact on the environment
- 27.18. Science funded by the NZ government can't be trusted
- 27.21. Possums kill native birds
- 27.22. Possums spread bovine tuberculosis (TB) to cattle
- 27.23. NZ ecosystems have adapted to possums, rats and stoats
- 27.24. Possums, rats and stoats are a significant threat to native species
- 27.25. Other predators will fill an ecological gap created by removal of possums, rats and stoats
- A. Strongly disagree
- B. Disagree
- C. Somewhat disagree
- D. Neither agree nor disagree
- E. Somewhat agree
- F. Agree
- G. Strongly agree

**1080**

We would like your opinion on each of the following statements about dropping 1080 poison from helicopters to kill possums, rats and stoats.

**Aerial 1080 use:**

- 28.01. Results in an overall increase in native bird populations
- 28.02. Kills native animals living in waterways
- 28.03. Is cruel
- 28.04. Breaks down quickly to become harmless
- 28.05. Harms native vegetation
- 28.06. Is a risk to human health
- 28.07. Effectively kills pest species
- 28.08. Kills native insects
- 28.09. Increases rat populations
- 28.11. Conflicts with NZ's clean, green image
- 28.12. Is the cheapest way to control pests
- 28.13. Is safe
- 28.14. Is a tool of the New World Order
- 28.15. Makes people who use it rich
- 28.16. Adversely affects recreation on public land
- 28.17. Kills the species it is supposed to save
- 28.21. Is humane
- 28.22. Is a way for the government to control the food supply
- 28.23. Is an effective method of killing introduced predators
- 28.24. Results in an unacceptable number of deer deaths



- A. Strongly disagree
- B. Disagree
- C. Somewhat disagree
- D. Neither agree nor disagree
- E. Somewhat agree
- F. Agree
- G. Strongly agree

**Please tell us whether you support or oppose the following activities in New Zealand:**

29.01. Doing more to reduce greenhouse gas emissions

29.02. Fluoridation of public water supplies

29.03. Compulsory vaccination of children against contagious diseases

29.04. Growing genetically modified crops

29.05. Using gene technology to manage pest animals

29.06. Controlling predators with aerial 1080

29.07. Using more aerial 1080

29.08. More pest trapping to reduce use of 1080

29.09. More pest shooting to reduce use of 1080

29.10. Banning aerial 1080

- A. Strongly oppose
- B. Oppose
- C. Somewhat oppose
- D. Neither support nor oppose
- E. Somewhat support
- F. Support
- G. Strongly support

#### **Species at risk...**

30.1. Please list the three native species you think are most at risk of extinction (place the most at risk species at the top of your list)

Species 1 - Open response

30.2.

Species 2 - Open response

30.3.

Species 3 - Open response

31.1. A species being near extinction doesn't necessarily mean it should have the highest priority for protection. Please list three native species you think should have the highest priority for protection (place the highest priority species for protection at the top of your list)

Species 1 - Open response

31.2.

Species 2 - Open response

31.3.

Species 3 - Open response

#### **DEMOGRAPHICS**

32. Are you:

- A. Male
- B. Female

33. Including yourself, how many people live in your household?

- A. 1
- B. 2
- C. 3
- D. 4

## Attachment 1

## Item 13

- E. 5
- F. 6
- G. 7
- H. 8
- I. 9
- J. 10
- K. 11
- L. 12
- M. 13
- N. 14
- O. 15
- P. More than 15 (please tell us how many)

34. In which year were you born?  
Open response

35. In what country were you born?

- A. New Zealand
- B. Australia
- C. Brazil
- D. Canada
- E. China
- F. France
- G. Germany
- H. India
- I. Indonesia
- J. Iran
- K. Iraq
- L. Ireland
- M. Japan
- N. Korea
- O. Malaysia
- P. Pakistan
- Q. Phillipines
- R. South Africa
- S. Sri Lanka
- T. Thailand
- U. United Kingdom
- V. United States of America
- W. Somewhere else (please tell us where that is)

36. Are you:

- A. Maori
- B. New Zealand European
- C. Pacific Islander
- D. Asian
- E. Other ethnicity (please tell us what that is)

37. In which of the following regions do you live?

- A. Northland
- B. Auckland
- C. Waikato/Coromandel
- D. Bay of Plenty
- E. Gisborne/Poverty Bay
- F. Taranaki
- G. Hawke's Bay
- H. Manawatu/Wanganui
- I. Wellington/Wairarapa

- J. Tasman
- K. Nelson
- L. Marlborough
- M. Canterbury
- N. West Coast
- O. Otago
- P. Southland
- Q. Chatham Islands

38. To help us with our analysis, what is the post code where you live?  
Open response

39. Do you live in:

- A. The countryside or a town of less than 1,000 people
- B. A town of 1,000 to 10,000 people
- C. A town of 10,001 to 30,000 people
- D. A large town or city of more than 30,000 people

40. What is the highest level of formal education you have completed (or the equivalent outside of New Zealand)?

- A. Primary school/Intermediate school (standard 6/form 2/year 8)
- B. High school, without qualifications
- C. High school, with qualifications
- D. Trade/technical qualification or similar
- E. Undergraduate diploma/certificate
- F. Bachelors degree
- G. Postgraduate

41. Please tick one of the following that best describes your current situation.

- A. Paid employment, working 30 or more hours per week
- B. Paid employment, working less than 30 hours per week
- C. Unemployed
- D. Retired
- E. Unpaid voluntary work
- F. Student
- G. Home duties
- H. Other

42. What industry do you work in, or if you are not working, what industry did you last work in?

- A. Resource based
- B. Manufacturing and transport
- C. Accommodation, retail and leisure services
- D. Government services and defence
- E. Health services
- F. Education
- G. Communication and financial services
- H. Have never been in paid employment

43. What is your occupation?

- A. Clerical or sales employee
- B. Semi-skilled worker
- C. Technical or skilled worker
- D. Business manager or executive
- E. Business owner or self-employed
- F. Teacher, nurse, police or other trained service worker
- G. Professional or senior government official

- H. Labourer, manual, agricultural or domestic worker
- I. Farm owner or manager
- J. Retired
- K. Student
- L. Have never been in paid employment
- M. Not currently employed
- N. Other (please tell us what that is)

44. What is your personal annual income from all sources before tax?

- A. Loss
- B. \$0 to \$10,000
- C. \$10,001 to \$20,000
- D. \$20,001 to \$30,000
- E. \$30,001 to \$40,000
- F. \$40,001 to \$50,000
- G. \$50,001 to \$70,000
- H. \$70,001 to \$100,000
- I. \$100,001 or more

**Finally: Most important environmental issues**

**New Zealand**

45. What do you think is the most important environmental issue facing New Zealand today?

Open response

46. Why did you choose this issue?

Open response

**World**

47. What do you think is the most important environmental issue facing the world today?

Open response

48. Why did you choose this issue?

Open response

Thank you!

We appreciate your help and thank you for the time you have taken to fill out this survey.

**49. Please take this opportunity to add anything further that you want to say in the space below:**

Open response

## Appendix 2. Comparative respondent demographics compared to the New Zealand population

### Gender (%)

	Hawke's Bay survey	Rest of NZ survey	2018 Census for NZ
Male	41.8	45.2	49.3
Female	58.2	54.8	51.7

### Age (%)

	Hawke's Bay survey	Rest of NZ survey	2018 Census for NZ
18-19	2	2	2.4
20-29	15.7	18	18.5
30-39	11.8	17.9	17
40-49	11.8	16.9	16.8
50-59	21.6	17.1	16.9
60-69	17.6	17.6	13.9
70 and over	19.6	10.5	13.6

### Country of birth (%)

	Hawke's Bay survey	Rest of NZ survey	2018 Census for NZ
NZ	89.1	76.4	72.6
Britain/Ireland	9.1	7.2	5.9
Asia	0.0	8.1	10.8
Pacific Islands	0.0	1.0	3.6
Other	1.8	7.3	7.1

### Ethnicity (%)

	Hawke's Bay survey	Rest of NZ survey	2018 census for NZ
Maori	9.1	6.7	16.5
NZ European	81.8	69.2	70.2
Other	7.3	22.4	13.3

## Income (%)

	Hawke's Bay survey	Rest of NZ survey	2018 census of NZ results
Loss	1.9	3.8	0.5
\$0 - \$10,000	11.1	10.5	17.1
\$10,001 - \$20,000	18.5	11.8	16.9
\$20,001 - \$30,000	24.1	13.5	13.7
\$30,001 - \$40,000	7.4	9.7	10.6
\$40,001 - \$50,000	13.0	12.0	9.7
\$50,001 - \$70,000	16.7	16.5	14.4
\$70,001 - \$100,000	5.6	12.5	9.6
\$100,000 +	1.9	9.6	7.6

## Education (%)

	Hawke's Bay survey	Rest of NZ survey	2018 census of NZ results
Primary	1.9	0.7	18.2
High school without qualifications	14.8	7.8	
High school with qualifications	22.2	19.5	47.2
Trade or technical qualification	16.7	15.5	9.8
Undergraduate diploma	22.2	16.2	
Bachelors degree	13.0	24.0	14.6
Postgraduate	9.3	16.4	10.2

## HAWKE'S BAY REGIONAL COUNCIL

## ENVIRONMENT AND INTEGRATED CATCHMENTS COMMITTEE

Wednesday 01 July 2020

**Subject: HERETAUNGA PLAINS FLOOD CONTROL SCHEME LEVEL OF SERVICE REVIEW UPDATE****Reason for Report**

1. This item provides an update to the February 2020 report where staff provided background information and a project outline to review the current level of protection of 1 in 100 year (1 %AEP) to a new level of protection 1 in 500 year (0.2% AEP).

**Executive Summary**

2. In February 2020 staff presented the Heretaunga Plains Flood Control Level of Services project delivery plan and milestones with intention to provide Council with regular project updates.
3. A budget of \$20M over 10 years was provisionally allocated in the 2018 LTP however through the further work we have identified that this is unlikely to be sufficient funding for the upgrade of the whole scheme.
4. A Project Team was established with the full time Project Manager committed to delivering this project.

**Background**

5. The Heretaunga Plains Scheme covers the low-lying historic river plains of the Tūtaekurī, Ngaruroro, Clive and lower Tukituki Rivers. It provides protection against frequent flooding to most of Hastings, Flaxmere, Havelock North and Napier urban areas. The area directly benefiting from the Scheme covers approximately 39,000 hectares with a population of around 110,000 people living within the scheme boundary.
6. A survey of the general public undertaken in 2008 identified that the community consider flooding hazard to be in the top three most important threats in Hawke's Bay (earthquake and tsunami being the other two). The survey also identified it as the top issue where Council should allocate greater resources.
7. Through the 2015 LTP process, HBRC noted that Level of Services will be reviewed over time but no further specific consultation was carried out in 2018-2028.
8. The 2018 LTP consultation document "Facing our Future," listed some major infrastructure projects for next 30years. The project Heretaunga Plains Scheme named in this document states "Improve flood carrying capacity from a 1 in 100 year event level to a 1 in 500 year level, in response to climate change." No further consultation with public has been carried out since the Facing the Future document (2018-2028 Consultation document) was released.

**Discussion**

9. **March 2020** - Presentation to Māori Committee.
10. **July 2020- Hydraulic Modelling** – will indicate what effects the protection 1 in 500 flood event means for existing assets. 75% completed.
11. **Asset Condition Assessment** - Assessing the performance of the flood protection assets where the assessment method and frequency is aligned to risk to the community. To date we have completed the assessment for the Tūtaekurī River and assessment for remaining assets in the Scheme will follow this year (2020). 75% completed.
12. **September 2020-** Refined 3 year project plan with activities and budget expenditure for discussion with council.

13. ***Iwi communication*** – Hui with key Iwi groups to discuss future planning and identify significant cultural sites potentially impacted by the upgrade work.
14. **December 2020-** Refine 10 year plan with some high level engineering options and budgeting.
15. **March 2021-** *Preliminary Design and Economic Analysis* – Preliminary/concept design work and economic analysis from engineering optioneering work.
16. **July- 2021-** Council Report with findings and recommendations.

#### **Next Steps**

17. Milestone chart attached.

#### **Decision Making Process**

18. Staff have assessed the requirements of the Local Government Act 2002 in relation to this item and have concluded that, as this report is for information only, the decision making provisions do not apply.

#### **Recommendation**

That the Environment and Integrated Catchments Committee receives and notes the “*Heretaunga Plains Flood Control Scheme Level of Service Review Update*” staff report.

#### **Authored by:**

**Martina Groves**  
**ACTING REGIONAL ASSET MANAGER**

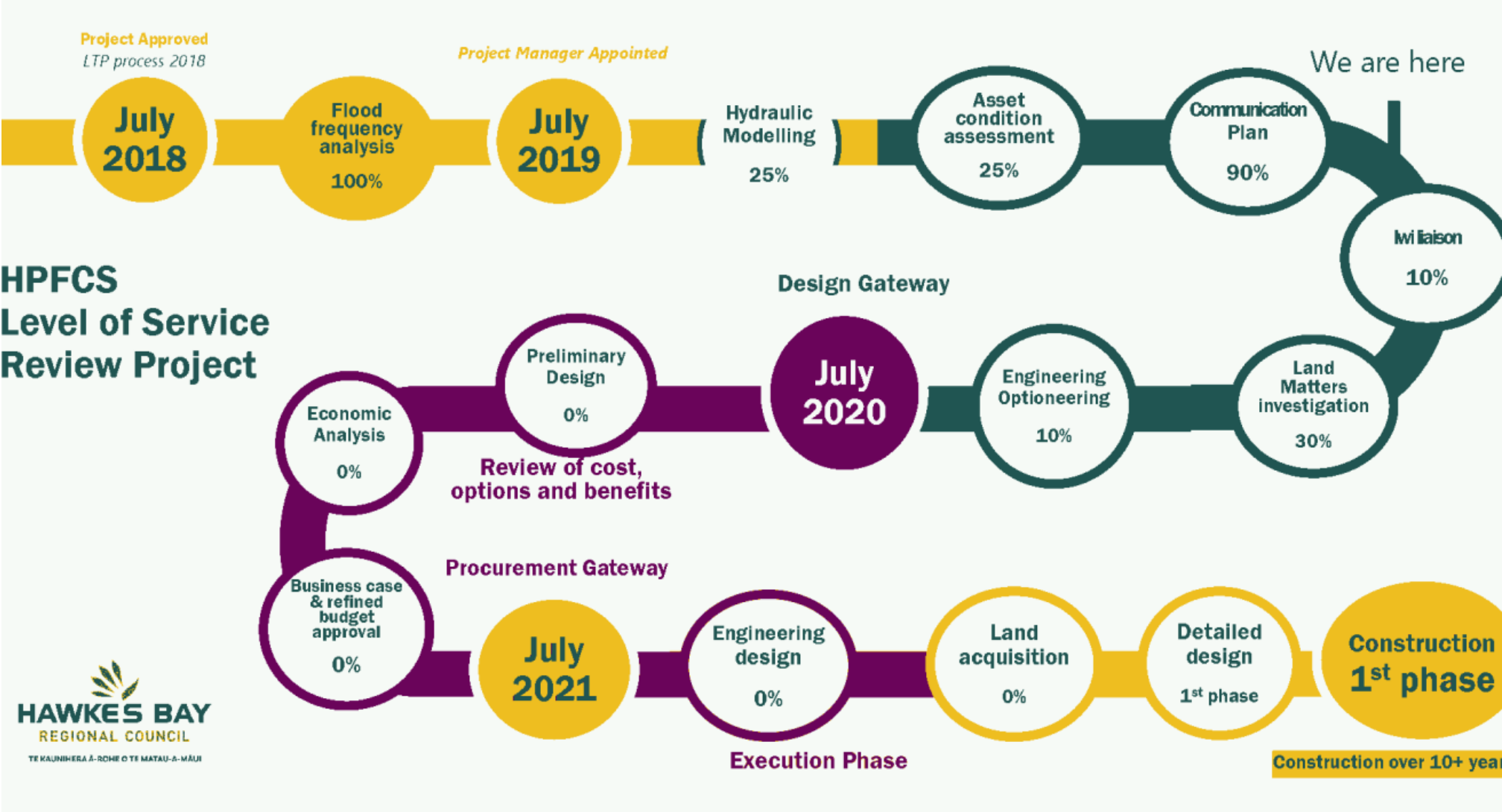
#### **Approved by:**

**Chris Dolley**  
**GROUP MANAGER**  
**ASSET MANAGEMENT**

#### **Attachment/s**

- [!\[\]\(93b46f02aeb0dec7325ae721eddb1f5c\_img.jpg\)1](#) HPFCS Level of Service Review Project





Item 14

Attachment 1