Waikato Regional Council Technical Report 2026/05

# Te rangahau tirohanga taiao a ngā kainoho o te rohe o Waikato | Waikato residents' environmental perceptions survey 2025

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# He kōrero whakarāpopoto | Abstract

The Waikato Residents' Environmental Perceptions Survey[1] 2025 tracks residents' perceptions and experiences of environmental change and their relationship to socio-economic conditions and quality of life. The survey has been undertaken by Waikato Regional Council every three years for over 20 years, building a long time series for tracking locally observed ecosystem changes.

This time series indicates continued concern about declining water quality from a large proportion of participants who want sources of declining water quality to be addressed – including urban stormwater runoff, municipal waste, and agricultural runoff, as well as rising concern about the need to secure water resources from the impacts of extreme weather events. Participants' concern over potential water shortages rose in the 2022 survey and continues to be a strong theme in 2025. Among these participants are rural participants' who comment on the challenges of farming in drought conditions and the prospect of reduced farm productivity. Some farmer participants make clear that they are experiencing drought conditions that they have not experienced before and call for more information on how to farm in drought conditions, including identifying plants and animals that will thrive in dry conditions. There has also been a noticeable increase in the numbers of residents who raise the issue of poor-quality drinking water. This issue was raised by participants spread evenly across the city and districts. Among these were concerns regarding the threat of invasive gold clams to the safety of our drinking water.

Concerns raised by many participants about residential developments in peri urban and rural areas, water security, waste, and rates indicates that participants perceive increasing urbanisation is degrading the quality of the environment and placing pressure on existing services such as waste and water supply, leading to increasing claims on rates spending. Population growth and attendant residential development particularly the urbanisation of rural areas is also viewed as in conflict with the need to protect food producing land and biodiversity, and the socio-economic benefits that flow from these.

Concern over the impacts of climate change has risen over time, including this year – with a strong focus on the need to prepare for extreme weather events. Participants are concerned about the impacts of climate change on the costs of energy, rates, food, and insurance. Alongside these concerns is growing support for investment to reduce emissions and adapt to these impacts. There is substantial agreement among participants about the need to manage natural resources in ways that anticipate extreme weather events, across participants of varying beliefs of climate change. These results indicate that prioritising investment in activities that preserve environmental resources and minimise the impacts of extreme weather is mobilising increasing social support.

Some participants recognised the need for increased investment in environmental protection to respond to multiple growing pressures on the environment. Meanwhile, some participants expressed concern that further rates rises could force people on small and fixed incomes out of their homes. These comments indicate that complaints about rates rises are largely driven by affordability concerns, in contrast to previous surveys where concern was focused more on perceptions of wasteful spending. While some participants showed awareness of challenges councils face, such as the need for investment in infrastructure upgrades due to population growth, other participants complain they do not understand what regional rates are for. When comments focused on Waikato Regional Council's responsibilities, most refer to perceptions of lack of enforcement of rules. These comments claim businesses who pollute the environment receive the benefit, while

[1] The Waikato Residents' Environmental Perception Survey was also previously known as 'Your environment – What matters?'.

the negative effects of pollution, including a degraded environment and the costs of remediating pollution, are borne by the ratepayer via rates rises and a reduced quality of life.

# Rārangi upoko | Table of Contents

# 1 He kōrero arataki | Introduction

The Waikato Residents' Environmental Perceptions Survey, also previously known as 'Your environment – What matters?', is a survey of residents' perceptions of environmental issues. This 2025 survey maps the spectrum of views of a sample of 1266 Waikato residents[2] providing a complete picture of the range of issues and positions held by the communities we serve. The spectrum of residents' views on the most important environmental issues facing our region allows us to compare the ways environmental change is understood by different groups and reveals their specific concerns and priorities for investment in environmental protection. The report, when compared with previous surveys, indicates that the public conversation about environmental issues, their causes and solutions is changing.

This 2025 survey report includes summary findings from our Regions State of the Environment (SOE) 2022 Report including updates from Waikato Regional Council scientists alongside an analysis of how residents perceive these issues. The inclusion of the regions state of the environment (SOE) reporting in the survey report supports community environmental knowledge needed to build greater recognition of our ongoing relationship with and dependence on ecosystem services as well as public understanding of Waikato Regional Council activities. In this way the report serves to both inform our communities and be informed of our communities' experiences and priorities.

State of the Environment reporting is increasingly important as sources of information become increasingly fragmented. Social media directs flows of information including misinformation in ways that can create confusion and fuel social division. Regional council rates fund the monitoring of local sites, using science-based indicators, creating long series data that can track environmental change over time. This information is crucial for understanding the effectiveness of policy and for building public awareness of the impacts of individual and collective decisions on our environment.

Residents' perceptions of environmental issues have changed dramatically over the past 20 years. Twenty years ago, environmental issues concerning Waikato communities were largely single issue based. The data collected in the 2025 residents' survey indicates greater public understanding of the relationships between different drivers and their impacts such as higher temperatures, flooding, sea level rise, and drought as well as population growth driving increasing waste, reduced water availability and loss of food producing land.

Awareness of the role of biodiversity in supporting ecological health, future human opportunities and pest control has also grown. Previous surveys called for more traditional pest control measures whereas this year there was an increase in comments recognising the role of biodiversity in inoculating ecosystems against pests.

Over the past decade, the survey has tracked increasing concern about climate change including this year a strong focus on the need to prepare for extreme weather events. The data indicates a large increase in support for investment in activities that can reduce the impact of extreme weather events on people, property and

[2] The sample is representative for gender and age.

ecosystems. These comments are expressed in terms of preparedness. Being prepared is understood to include among other things, investment in directing and attenuating flood flows and safeguarding water resources.

Concern about population growth has risen since 2022 and comments reflect on housing developments being poorly planned and executed and increased pressure on waste and water services. Participants claim the loss of food producing land to residential development is reducing food security and land based economic opportunities.

In 2025, there has been a noticeable increase in the numbers who raised the issue of poor drinking water. Complaints included muddy water, too much chlorine, and residents questioning the safety of drinking water. Gold clams were discovered in the Waikato River a little less than 12 months before the data collection and this uptick in concern over drinking water may, in part reflect safety concerns related to the impact of gold clams on drinking water sources and treatment.

Concern about water availability increased in the previous survey and has continued to be a strong theme in 2025 with participants also pointing to the challenges of farming in drought conditions, concerns about food security as well as complaints about summer water shortages/restrictions. A significant number of comments point to ageing infrastructure that is failing to keep up with the growing threats to water security including water quality and quantity.

The report indicates that many participants are acutely aware of the costs to the environment of business as usual and call for a revision of current settings to recognise and protect environmental stocks and flows crucial to the Waikato economy, the quality of life of residents, and future generations. Emergent issues – issues not seen in previous surveys – include energy and transition, ecosystem decline and human health, urbanisation and loss of green spaces, and information issues.

## 1.1 Report structure

The following report is divided into sections such as fresh and coastal water, land use and soils, air quality etc. These sections combine quantitative survey data and ‘What people are saying’ with state of the environment reporting, including updates from Waikato Regional Council scientists pertaining to more recent issues, such as invasive gold clams. The State of the Environment Reporting outlines what is known about the environmental issues participants raised.

# 2 Te tukanga rangahau | Method

## 2.1 Survey review

Waikato Regional Council staff reviewed the survey used in the preceding study (Your Environment – What Matters? 2022). This process involved:

- Editing previous questions when necessary
- Removing questions that did not align with the focus of this study
- Adding new questions that fit the purpose of this study

## 2.2 Data collection

Data was collected by a consultancy firm (Versus) via a mixed-methods approach that included online surveys and telephone interviews. The survey was completed by a sample of 1266 Waikato residents. The majority of these (1124) were via online survey and the remainder (142) by telephone interviews.

The survey took approximately 20 to 25 minutes for participants to complete. To see a copy of this questionnaire, please refer to Appendix A.

## 2.3 Weighting

Survey participants were self-selected and therefore not necessarily representative of the Waikato population. When doing calculations on the data set, gender and age distributions were weighted to increase the representativeness of the sample to the actual population. The weighting proportions were taken from the 2023 Census data for Waikato residents and are outlined in the tables below.

| Gender | Proportion |
|---|---|
| Male | 49% |
| Female | 51% |
| Other | 0.3% |

| Age Group | Proportion |
|---|---|
| 18 – 34 | 29% |
| 35 – 54 | 33% |
| 55 + | 39% |

## 2.4 Statistical significance

When comparing different groups within the sample, the phrase ‘statistically significant’ will be used. In this study, when a finding is said to be ‘statistically significant’ this means that the difference between the groups is unlikely to have occurred due to random chance. Instead, it is likely that a relationship between the variables does exist.

The chosen threshold of statistical significance for this study was p = .05. This means that for every significant finding, the probability of that finding being a result of random chance is 5% or less. Simultaneously, this means that for every significant finding, the probability of a 'true' relationship existing is 95% or more.

## 2.5 Sample[3]

### 2.5.1 Territorial authority

As the table below demonstrates, the largest proportion of the sample reported living in Hamilton City, Waikato District, and Waipā. In comparison, participants were least likely to say they lived in Hauraki, Ōtorohanga, or Waitomo.

| Territorial Authority | Proportion of sample |
|---|---|
| Hamilton City | 41% |
| Waikato | 18% |
| Waipā | 11% |
| Taupō | 7% |
| Matamata-Piako | 7% |
| South Waikato | 5% |
| Thames-Coromandel | 5% |
| Hauraki | 4% |
| Ōtorohanga | 2% |
| Waitomo | 2% |

### 2.5.2 Urban / rural

Over two-thirds (69%) of the sample indicated that they lived in an urban setting rather than a rural (including semi-rural) setting (31%).

[3] Please note that these are **weighted** demographics

### 2.5.3 Ethnicity

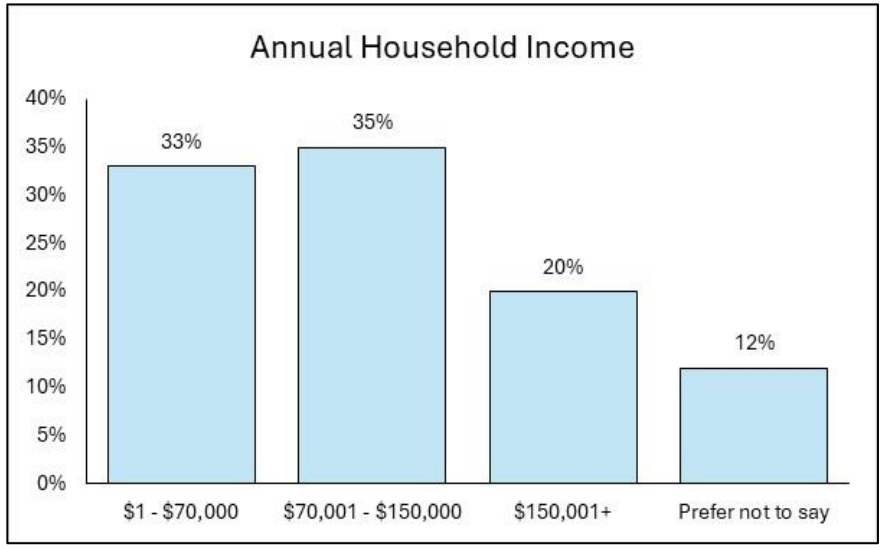
Most of the sample identified as 'New Zealand European'. Around one in eight participants identified as Māori.

| Ethnicity* | Percentage |
|---|---|
| New Zealand European | 86% |
| Māori | 13% |
| Pacific Islander | 2% |
| Asian | 5% |
| Other | 8% |
| Prefer not to say | 1% |

**Participants could identify with more than one ethnic group.*

### 2.5.4 Annual household income

Participants were most likely to say that their annual household income was either '$1 - $70,000' or '$70,001 - $150,000'.



### 2.5.5 Highest qualification

The most common qualification levels were ‘high school’, ‘certificate/diploma’, and ‘bachelor’s degree’.

| Highest qualification | Percentage |
|---|---|
| High School | 24% |
| Certificate/Diploma | 32% |
| Bachelor’s degree | 18% |
| Bachelors Honours Degree or Postgraduate Cert/Dip | 15% |
| Master’s degree | 7% |
| PhD or other doctoral degree | 1% |
| Other | 2% |
| Prefer not to say | 2% |

### 2.5.6 Employment status

Over half of the sample said that they were ‘working full-time or part-time’, and one-quarter indicated that they were ‘retired’.

| Employment status | Percentage |
|---|---|
| Working part-time or full-time | 59% |
| Retired | 25% |
| Home responsibilities | 4% |
| Student | 5% |
| Unemployed/beneficiary | 6% |
| Prefer not to say | 2% |

### 2.5.7 Industry

Participants who indicated that they worked, whether part or full time, were asked to indicate which industry they worked in. Below are the top five industries selected.

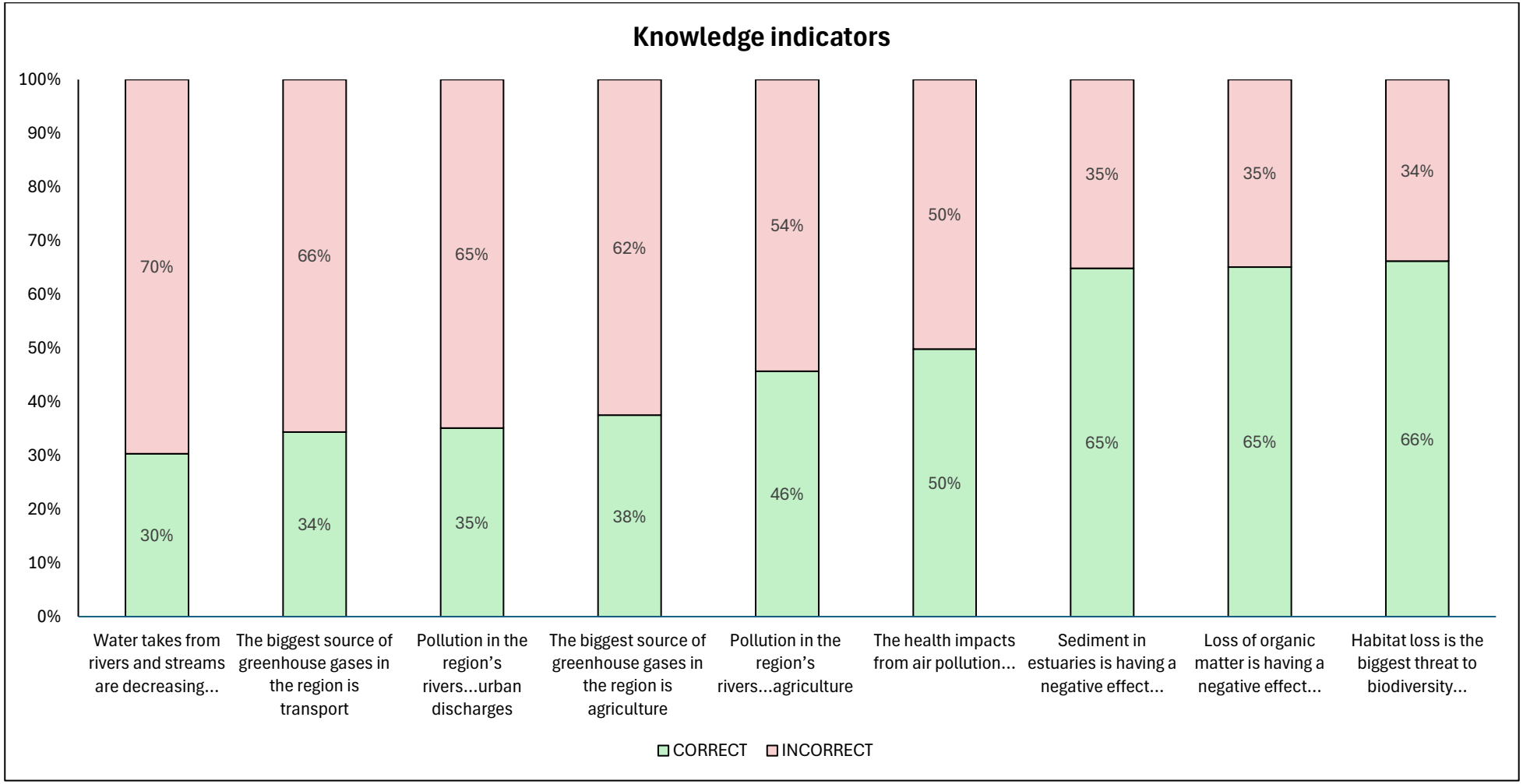
| Industry | Percentage of workers (*incl. full and part time*) |
|---|---|
| Education | 12% |
| Healthcare | 9% |
| Manufacturing & operations | 8% |
| Agriculture, fishing & | 7% |
| Architecture | 6% |

## 2.6 Knowledge indicators

This study presented participants with a series of (true/false/don't know) statements as indicators of participants' knowledge of regional environmental issues. The following nine statements were presented (with the correct answer given here, but not to the participants):

1) Pollution in the region's rivers and streams comes mainly from urban discharges *(False)*
2) Pollution in the region's rivers and streams comes mainly from agriculture *(True)*
3) Water takes from rivers and streams are decreasing in the region *(False)*
4) The health impacts from air pollution come mainly from home heating wood burners and motor vehicles *(True)*
5) The biggest source of greenhouse gases in the region is transport *(False)*
6) The biggest source of greenhouse gases in the region is agriculture *(True)*
7) Sediment in estuaries is having a negative effect on biodiversity *(True)*
8) Loss of organic matter is having a negative effect on soils in the region *(True)*
9) Habitat loss is the biggest threat to biodiversity in the region *(True)*

Within the graph below[4], the green portion indicates the percentage of the sample who correctly answered the question. The red portions indicate those who answered incorrectly, including those who selected 'don't know.' The graph shows that participants were typically unaware that water takes within the region are increasing. Furthermore, over half of the sample were unable to identify the biggest sources of greenhouse gases and water pollution within the region.




[4] See Appendix D for a table separating 'incorrect' and 'don't know' responses.

# 3 New Ecological Paradigm

## 3.1 Background

The New Ecological Paradigm (NEP) is the name of the scale developed by Dunlap and Van Liere in the 1970s that is widely used by researchers of environmental attitudes and behaviour globally. A field of research based on versions of this measure explores the link between ecological worldviews and pro-environment behaviour.

The NEP scale was developed out of recognition in the 1970s of a new conceptual paradigm that was contesting the Dominant Social Paradigm (DSP). The DSP, sometimes referred to as 'dominant worldview', is a set of cultural beliefs and values that define what is and what should be. The DSP that began to be contested in the 1970s is characterised as a belief in limitless resources, continuous progress, the necessity of growth, faith in the abilities of science and technology to deliver this project and a strong emotional commitment to a free-market economy and sanctity of private property rights. It is sometimes called the human exceptionalism paradigm – humans rule the physical world and are exempt from the laws of nature.

In contrast to this paradigm, social scientists in the late 1970s identified a new ecological paradigm was emerging, characterised by recognition that humans are part of the environment and the recognition of important new research[5] about limits to growth. Conversely, the DSP values the non-human world instrumentally for its use value. The NEP values the non-human world for its own sake and recognises the limits of environmental stocks and flows that support human life. These paradigms can be viewed as two poles with a range of positions in between.

## 3.2 Revised NEP

In previous survey years, the shortened version of the original scale was used. This version contained six-statements and sought to measure three different facets – the balance of nature, limits to growth, and anti-anthropocentrism[6]. In 2000, however, Dunlap et al. published an article[7] describing a revised NEP scale, which contains eight pro-ecological (PE) statements and seven anti-ecological (AE) statements:

1. We are approaching the limit of the number of people the earth can support (PE)
2. Humans have the right to modify the natural environment to suit their needs (AE)
3. When humans interfere with nature it often produces disastrous consequences (PE)
4. Human ingenuity will ensure that we do NOT make the earth unliveable (AE)
5. Humans are severely abusing the environment (PE)

[5] Meadows, Meadows, Randers and Behrens, The Limits to Growth, 1972.

[6] Anthropocentrism refers to the belief that humans are the most important entities on the planet.

[7] Dunlap, R., Van Liere, K., Mertig, A., & Jones, R. (2000). Measuring endorsement of the New Ecological Paradigm: A revised NEP scale. Journal of Social Issues, 56(3), pp. 425 – 442.

6. The earth has plenty of natural resources if we just learn how to develop them (AE)
7. Plants and animals have as much right as humans to exist (PE)
8. The balance of nature is strong enough to cope with the impacts of modern industrial nation (AE)
9. Despite our special abilities humans are still subject to the laws of nature (PE)
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated (AE)
11. The earth is like a spaceship with very limited room and resources (PE)
12. Humans were meant to rule over the rest of nature (AE)
13. The balance of nature is very delicate and easily upset (PE)
14. Humans will eventually learn enough about how nature works to be able to control it (AE)
15. If things continue on their present course, we will soon experience a major ecological catastrophe (PE)

Dunlap et al. (2000) explained that these fifteen statements seek to examine five different facets that are thought to create an ecological worldview:

- The reality of limits to growth
- Anti-anthropocentrism
- The fragility of nature's balance
- Rejection of exceptionalism
- The possibility of an eco-crisis

For this study, the decision was made to use the revised NEP scale as the larger number of statements can tap into more facets and provide a more comprehensive measure of participants' ecological worldviews.

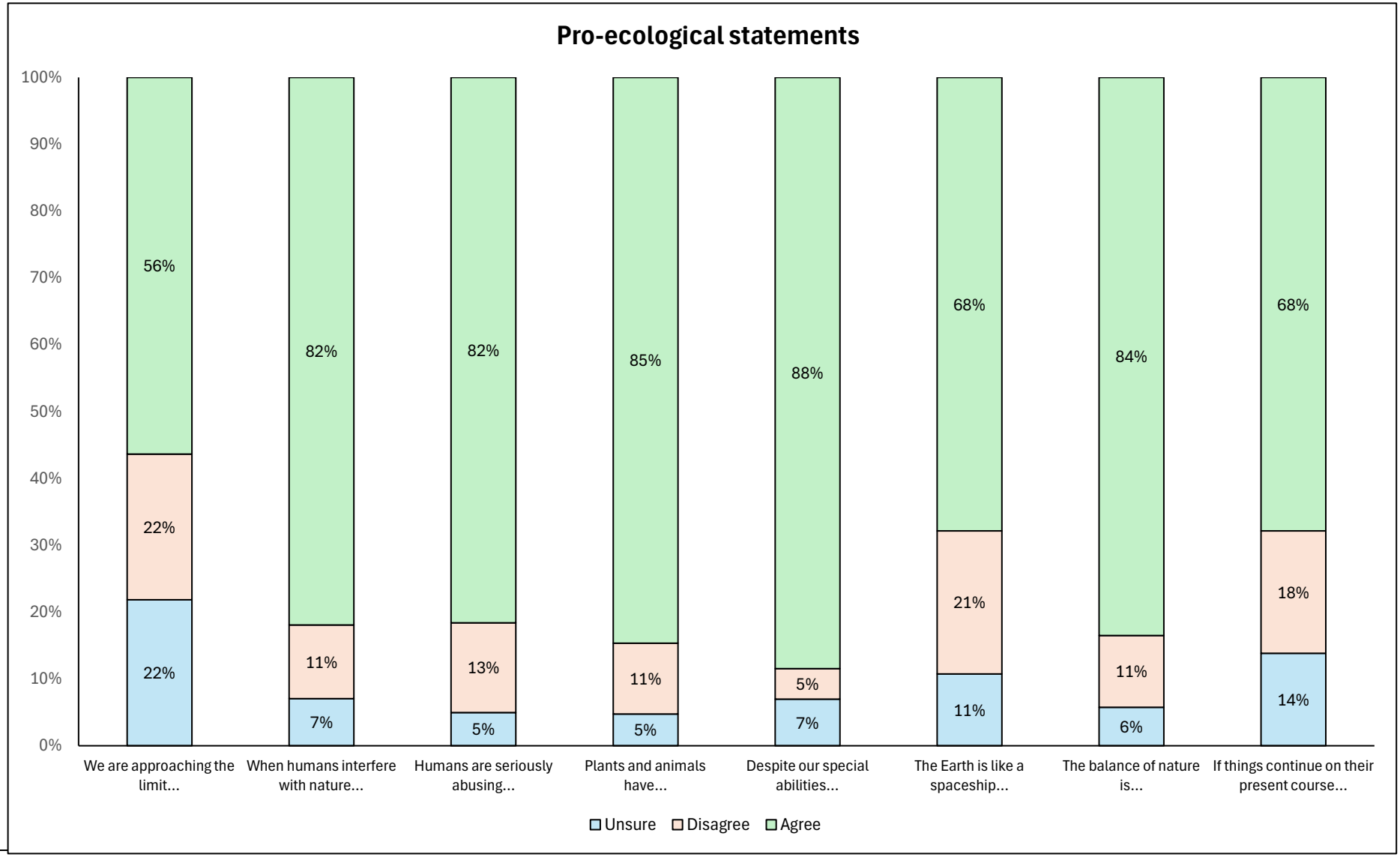
### 3.2.1 Why use NEP?

How humans relate to the environment is the object of NEP studies. NEP measures the distinction between an anti-ecological perspective associated with a society nature dualism found in liberal materialist thought, which views the Earth system as a consistent backdrop for the foreground of human activities and a pro ecological perspective, which views humans as active participants in the biosphere emphasising change in ecosystems, reciprocity and interconnectedness. Māori cultural practices demonstrate a pro-ecological view, evident in practices that recognise human dependence on ecosystem health and value social responsibility to protect ecosystems, such as Kaitiakitanga and Rāhui.

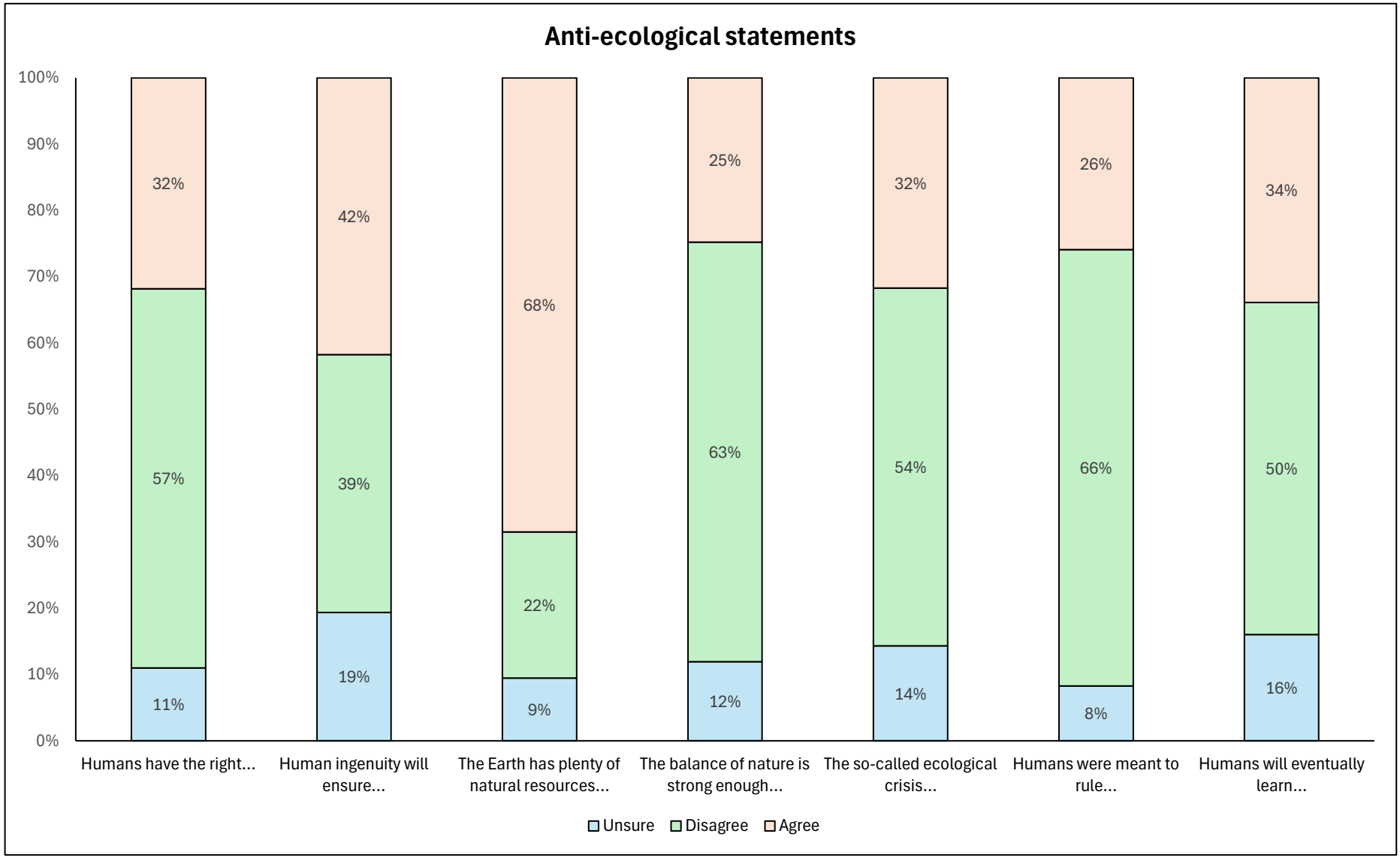
The relatively recent, general acceptance of the science of climate change, has played a role in elevating pro ecological consciousness. Climate change demonstrates how human activities have transformed the biosphere and raises consciousness of our co-evolution with nature and thus the expectation to consciously consider how we pursue that co-evolution.

### 3.2.2 Current results

The two graphs below visualise whether participants agreed or disagreed with the pro- and anti-ecological statements provided[8].




[8] See Appendix E for tables outlining how strongly participants agreed/disagreed with each statement.

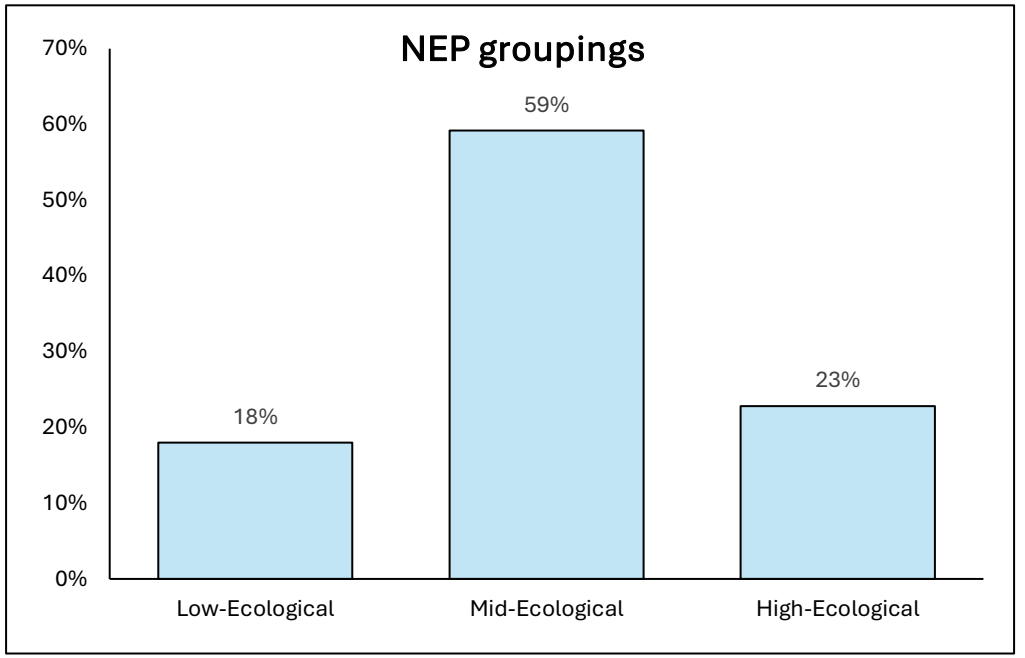

Anti-ecological statements
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
32%
57%
11%
42%
39%
19%
68%
22%
9%
25%
63%
12%
32%
54%
14%
26%
66%
8%
34%
50%
16%
Humans have the right...
Human ingenuity will ensure...
The Earth has plenty of natural resources...
The balance of nature is strong enough...
The so-called ecological crisis...
Humans were meant to rule...
Humans will eventually learn...
Unsure
Disagree
Agree

## 3.3 NEP – Groupings

Based on their composite scores, participants were assigned to one of three groups.

- 'Low-ecological' participants scored 15 to 45
- 'Mid-ecological' participants scored 46 to 60
- 'High-ecological' participants scored 61 to 75 points

As the graph to the right demonstrates, the majority (59%) of the sample fell into the grouping of 'mid-ecological' ('mid-eco'). Nearly one-fifth (18%) fit into the 'low-ecological' category ('low-eco'), and a little under one-quarter (23%) had scores that were classified as 'high-ecological' ('high-eco').




### 3.3.1 NEP groupings – Demographics

#### 3.3.1.1 Gender

There was a statistically significant relationship between gender and which NEP group they fell into. Low-Ecological participants, compared with Mid- and High-Ecological participants, were more likely to identify as male. Furthermore, Mid-Ecological participants, compared with High-Ecological, were also more likely to identify as male.

| Gender | Low-Eco | Mid-Eco | High-Eco |
|---|---|---|---|
| Male | 62% | 49% | 37% |
| Female | 38% | 51% | 62% |
| Other | 0% | 0% | 1% |

#### 3.3.1.2 Age, Highest qualification, Annual household income

There was no statistically significant relationship between participants NEP group and their age, highest qualification or annual household income.

#### 3.3.1.3 Employment status

There was a statistically significant relationship between a respondent's employment status and which NEP group they belonged to. Low-Ecological participants, compared with Mid and High, were more likely to indicate that they worked either full- or part-time. Mid-Ecological participants were more likely to indicate that

they were students, in comparison with those in the Low and High-Ecological groups. In addition, participants who fell into the High-Ecological group, compared with those in the Low category, were more likely to select 'home responsibilities' as their answer.

#### 3.3.1.4 Discussion

The NEP questions direct those surveyed to position their ecological worldview in relation to either the Dominant Social Paradigm or the New Ecological Paradigm. Those whose answers placed them in the low-ecological group were more likely to be male and employed, while female participants and those who selected home responsibilities were more likely to be in the High-Ecological group.

NEP studies show male environmental attitudes tend to be more diverse than female attitudes and females report having higher environmental awareness and concern for the environment than males[9, 10]. Females are also more likely than males to change their behaviour to reduce their environmental impact[10]. In one study, it was found that participants with stronger gender-egalitarian attitudes were more likely to be environmentally concerned than participants with weaker gender-egalitarian attitudes[9].

The gender and employment status differences in the NEP groupings reflect cultural and societal influences that place ecological values lower down the hierarchy of importance for males, especially working males. The culture of employment in a market economy, especially male dominated forms of employment, tend to maintain dimensions of the social dominance orientation such as the necessity or naturalness of social hierarchy, the transformative power of technology and support for a free market economy. These ideas may a have stronger socialisation effect on males than females and this difference is reinforced by their different experiences in the workplace. For instance, the social ethic of caring is more relevant in fields of female dominated employment and is centred in the private sphere of home responsibilities.

While cultural and societal norms clearly play some role in environmental perceptions, knowledge about ecology and its role in the maintenance of biophysical stocks and flows is positively correlated with pro-ecological attitudes[11]. This means that increasing residents' knowledge about the state of the regional environment plays an important role in increasing pro ecological values and behaviour.

[9] Echavarren, J.M. The Gender Gap in Environmental Concern: Support for an Ecofeminist Perspective and the Role of Gender Egalitarian Attitudes. *Sex Roles* **89**, 610–623 (2023). https://doi.org/10.1007/s11199-023-01397-3

[10] Gyurián Nagy, N. Gender Differences in Environmental Attitudes: An Analysis Using the NEP Scale. *Gend. Issues* **42**, 5 (2025). https://doi.org/10.1007/s12147-024-09349-1

[11] Wayan, Nadiroh and Neolaka, 2018, The effects of knowledge about ecology, biospheric and egoistic values toward New Environmental Paradigm, *Advances in Social Science, Education and Humanities Research,* 178.

# 4 Ngā wai māori me ngā wai tai | Freshwater and coastal water

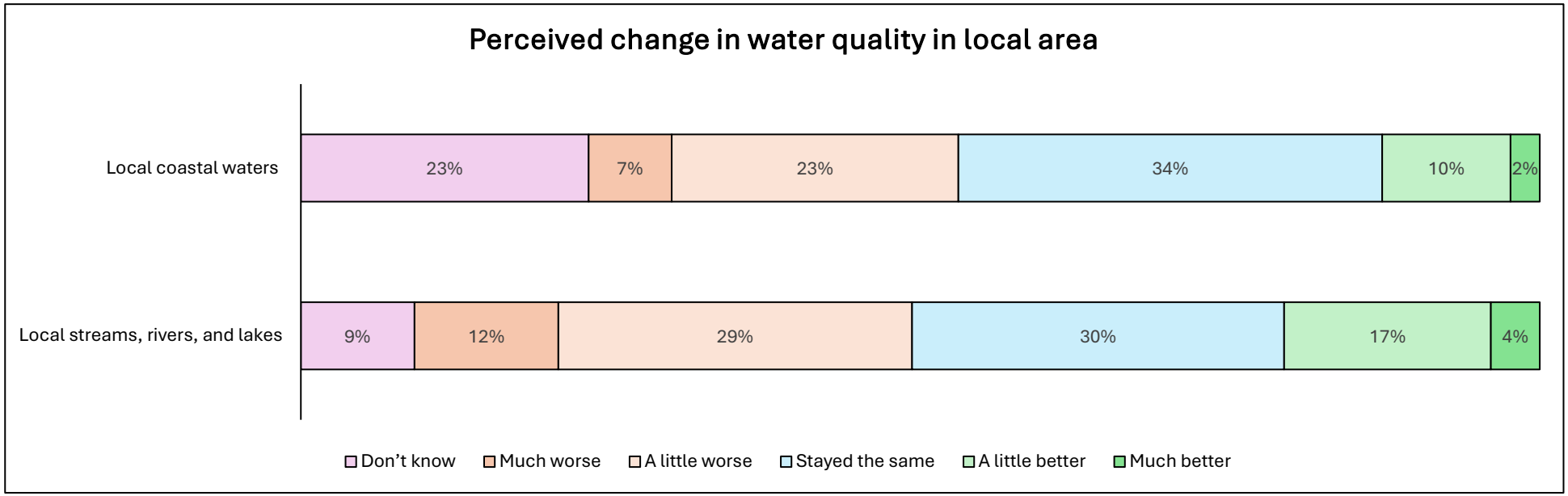
## 4.1 Findings

### 4.1.1 Water quality – State of local environment perceptions

When asked about water quality in their local streams, rivers, and lakes over the last few years, participants were (nearly) twice as likely to believe that the quality had worsened (40%) rather than improved (21%). Similarly, participants were more than twice as likely to state that water quality in local coastal waters had worsened (30%) rather than improved (13%) over the last few years.

#### 4.1.1.1 Urban vs. rural

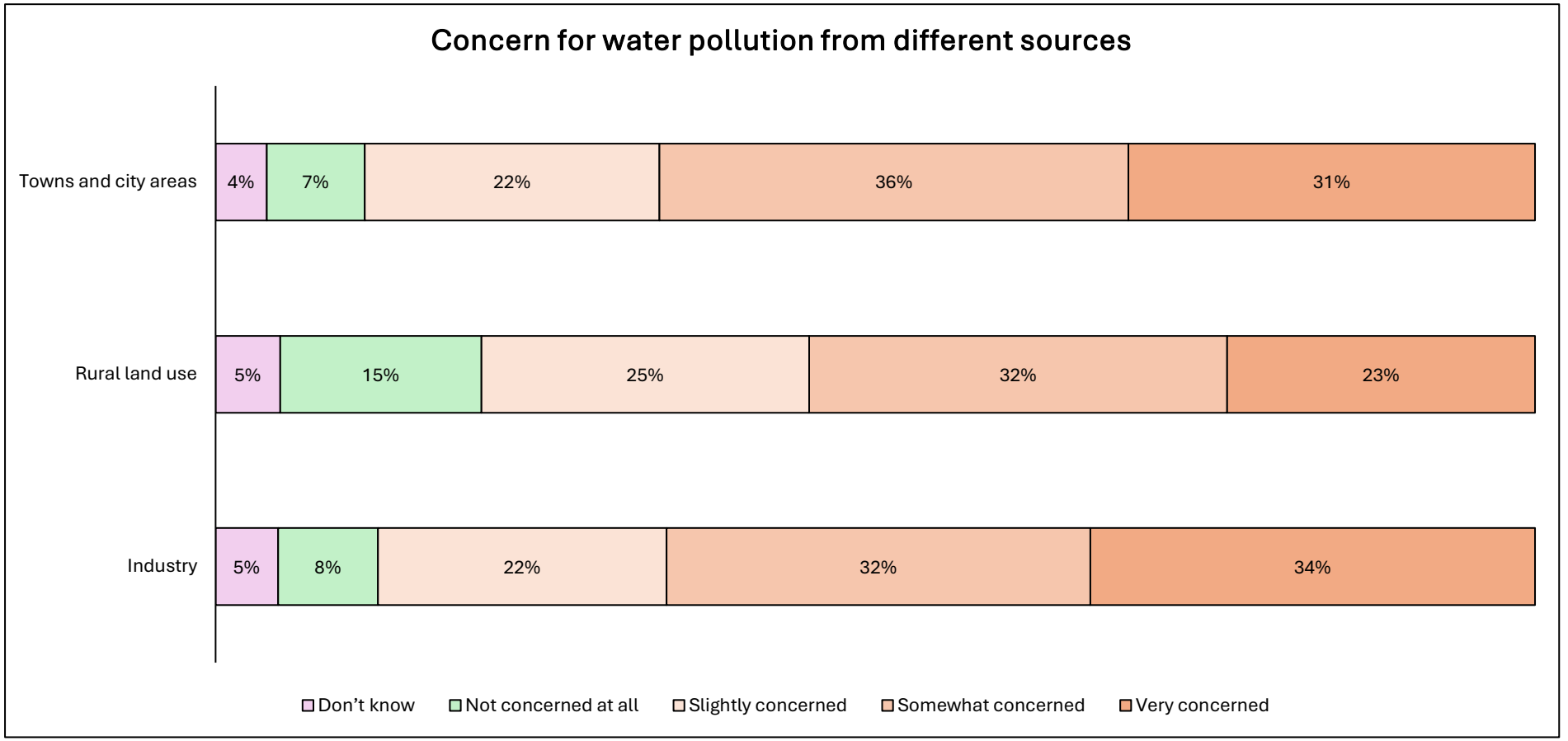
There were no significant differences between urban and rural participants when rating both local freshwater and coastal water quality.



### 4.1.2 Water pollution – Environmental concerns

Participants were predominantly 'very concerned' or 'somewhat concerned' with a smaller proportion 'slightly concerned' about water pollution from towns and city areas, rural land use and industry. More than one-third were 'very concerned' about water pollution from industry (34%) and similarly for those who were 'very concerned' about water pollution from towns and city areas (31%). Just under one-quarter of the participants were 'very concerned' about water pollution from rural land use (23%).

To a lesser extent proportion wise for the sample, participants were (almost) twice as likely to say that they were 'not concerned at all' about water pollution from rural land use (15%) than water pollution from industry (8%) and town and city areas (7%).



#### 4.1.2.1 Urban vs. rural

Rural participants demonstrated greater concern for water pollution from industry as they were more likely to say they were 'somewhat concerned', whereas urban participants were more likely to indicate they were 'slightly concerned.'

When asked how concerned they were about water pollution from rural land use, urban participants were more likely to express that they 'don't know', while rural participants were more likely to select 'not concerned at all.'

Regarding concern for water pollution from towns and city areas, there were no significant differences between the perceptions of rural and urban participants.

### 4.1.3 Water – Single most important issue

When presented with a list of environmental issues within the Waikato region and asked to indicate which one is the single most important today, over one-fifth (21%) of the sample selected some variation of 'water'[12]. When asked to indicate which issue would be the most important in five years' time, (18%) selected some variation of 'water'.

## 4.2 What people are saying – Freshwater and state of freshwater in the region

*"I believe water is most important because the quality and availability of water resources directly impact ecosystems, agriculture and resident's lives. With population growth and increased agricultural activities, issues of water pollution and scarcity are becoming more severe, threatening local biodiversity and potentially affecting people's health and economic development".*

Participants who selected water (including, in general, drinking water, management, pollution, quality, quantity, roading run-off into stormwater and freshwater, urban discharges) as the most important environmental issue were asked to comment. The following section includes participant responses for specific freshwater topics alongside relevant summaries of state of the region's freshwater.

### 4.2.1 Water use and availability

Participants who selected water availability were concerned about drought and a number complained of increased restrictions on water use:

[12] Including: 'in general', 'drinking water', 'management', 'pollution', 'quality', 'quantity', 'roading run-off into stormwater and freshwater', and 'urban discharges'. See Appendices B & C to view how many participants selected each individual issue within this group.

- *"I think a lot of people are facing water shortages and restrictions on water use regardless of not being in drought. It's a capacity issue at the treatment plants and will only become more of a problem as populations grow".*
- *"Every summer we have restrictions".*
- *"I think it is the most important environmental issue on the planet, in the country, not just Waikato Region specifically".*
- *"Population is growing but our ability to provide and manage our water isn't keeping pace. We also give a lot of water to Auckland to offset their lack of infrastructure and planning".*
- *"The way the water is managed at present there are major restrictions over the summer months this will continue to get worse as the population and visitor numbers increase".*
- *"The farming, there is going to be development rurally, lifestyle blocks, there is going to be greater demand on the water table".*
- *"With the level of growth, we need to manage the care of the water we have in the natural environment (i.e. streams, rivers etc) and we need to learn to reduce our water use".*
- *"With increasing housing and intensive farming, the water aquifers are getting heavily used".*

## 4.3 State of the environment

Water use has increased. Since 2010, most of the increase has been in agricultural use. Earlier, the municipal takes for Auckland from the Waikato region increased in 1998, adding a direct water take from the Waikato River to the many tributary diversions Auckland already had in place. The additional take represented a step change in total water use for the Waikato region, and one with no return flows.

The region is getting drier. Rainfall has decreased across the region – within the Hauraki area rainfall declined 26 per cent from 1960 to 2020. The decade to 2020 saw declines in summer rainfall across the region, and eastern areas also experienced declines in spring rainfall. Reductions in rainfall were compounded by an increase in potential evaporation, resulting in reduced river flows. Hauraki experienced an 83 per cent reduction in rainfall surplus (rainfall minus evaporation) over the period 1992 to 2020 and is one the driest areas in the Waikato region. Higher temperatures and lower rainfall mean that agriculture on the Hauraki Plains is more dependent on water resources to offset days of soil moisture deficit. Some waterways dried up completely during the 2020 drought. Even where streams do not dry up, low oxygen is a problem in low-gradient waterways with small flows, such as those found on the northern Hauraki Plains. Since the last report on the state of the environment, the region has seen both drought (e.g. 2021) and flood (2023). Over coming decades, there is high confidence that temperatures will rise, and evaporation with it. Changes in rainfall are less predictable going forward. The increase in evaporation alone will be enough to increase drought severity. Warmer air can hold more moisture, driving more intense flooding when it does rain.

### 4.3.1 Water quality

Among participants concerned about water quality some complained they observe poor water quality or the effects of poor water quality in the region's rivers, lakes and wetlands.

- *"The Waikato River is very polluted, and the council just allow businesses to continue adding pollutants to the river".*

- *'Water quality directly affects local ecosystems, including the biodiversity of rivers, lakes and wetlands. Polluted water will cause harm to aquatic life, destroy the ecological balance, and affect the survival of fish and other aquatic life".*
- *"I'm concerned about the health of our rivers as well as our drinking water supplies and failing / inadequate infrastructure. I do not want to move to a system where we have water meters and get charged for the amount of water we use. No one should have to pay a water bill; it's a basic human right. Our rivers and in particular the Waikato River is a disgrace, we need to be doing much more to improve its health".*
- *"Because we're not doing enough to protect it now. Get the water quality high solves other environmental issues along the way".*
- *"We always need water and for the natural species that live in the river need to survive".*

**State of the environment**

Nitrogen has continued to worsen in many (but not all) waterbodies. For example, increases in nitrogen were detected in groundwater and streams in horticultural areas such as Pukekawa and Pukekohe. Between 1990 and 2020, nitrogen trends also worsened in monitored tributaries of the Waikato River between Taupō and Karāpiro. More nutrients can fuel more algal blooms, and many of the shallow lakes have lost their natural plant communities and now experience persistent algal blooms. Pasture cannot capture all the nitrogen from livestock urine and fertiliser applications, and the excess nitrogen travels to streams via groundwater.

Phosphorus has improved in many rivers. For example, Hamilton's wastewater discharge of phosphorus to the Waikato River reduced between 2000 and 2020. Like nitrogen, phosphorus is a nutrient necessary for algae blooms in lakes and rivers. The mainstem of the Waikato River is large enough to support algae drifting as phytoplankton. The council monitors drifting algae in the Waikato River by measuring the green plant pigment, chlorophyll. Chlorophyll levels have improved between 2000 and 2020, coinciding with reduced phosphorus concentrations in the Waikato River. This is an important improvement – algae blooms threaten ecosystems, drinking water supply and recreation.

### 4.3.2 Ecological values of water

What residents had to say:

- *"The Waikato region has significant water pollution issues, such as the Ohinemuri River and Lake Waikare pollution incidents. Elevated arsenic levels in the Ohinemuri River due to abandoned mines and deteriorating water quality in Lake Waikare due to agricultural development and blue-green algae blooms pose a threat to the health of local residents and the ecosystem".*
- *"Every new farm means more nitrates in our waterways - even the council admits it's unsustainable".*
- *"We are currently suffering drought conditions, and the lake is receding as a result. The rivers are low and the power generators are holding back flow as well, in 5 years' time if this continues, what is going to be the impact on our water quality and environment as a whole".*
- *"If you look at our end of the river system you can see the beginning, it's nice and clean but by the time it goes past port Waikato its dirty and smelly".*
- *"With the increasing urban growth and the wastewater, urban runoff, in addition to rural runoff from intensified farming, there will be a greater threat to water quality".*

The ecosystem health of many of our waterways does not meet national bottom lines. The ecological health of these water ways is compromised by organic pollutants, such as wastewater and sediment, which affect macroinvertebrates. More than 50 per cent of streams in developed catchments scored poorly on the Macroinvertebrate Community Index, which measures the presence of sensitive animals, including insect larvae. For our freshwater native fish, barriers to their migration are more of a problem. A single perched culvert creates free falling water that can prevent native fish from accessing upstream habitat. For example, tuna and kōkopu populations are restocked by juveniles returning from the ocean as elvers and whitebait. Streams that offer access can support more diverse fish communities.

### 4.3.3 Drinking water quality

What residents had to say:

- *"Where we live, we have an issue with arsenic in the water".*
- *"I have heard that the Waikato River has elevated levels of arsenic and faces challenges with this and general water quality".*
- *"Our water has been terrible for years; we can't really drink it out of the tap and feel safe".*
- *"Having always had access to clean aquifer water prior to moving here 7 years ago, I am concerned with the taste and quality of drinking water in the Waikato and wonder if its quality is already declining due to environmental conditions".*
- *"Well, we have to drink the water and right now it tastes like chlorine and hope it doesn't get worse".*
- *"If there is anything we will need, it's quality drinking water. With the climate changing, we will become more reliant on this commodity long term. Water quality is not great and the chemical cleaners to provide drinking water are hormonal disrupters which trigger the onset of medical conditions."*
- *"Health Risks: Elevated nitrate levels in drinking water have been linked to health issues, including an increased risk of bowel cancer".*
- *"We must have clean drinking water".*
- *"Our tap water is yuck, we have to buy bottled water".*
- *"Drinking water is essential to human life and it needs to be as pure as possible".*
- *"I think it's maybe a mix between water management and water quality. However, we often have dirty tasting/looking water. As a result, we have put in a filtered system".*
- *"Not enough good drinking water for growing communities".*
- *"We need to keep our rivers & streams clean, people do drink the water".*
- *"Huntly water tastes disgusting, when we moved off the farm the dogs wouldn't even drink it. Had to collect the rainwater for them".*
- *"Water will be undrinkable".*
- *"We've had a lot of sicknesses and gastro bugs because of the water and it's important especially for the young and elderly".*
- *"Our water is not the best at the moment where we are, the farmers will be on tank".*
- *"It directly affects my health".*
- *"They want us to drink the water they can just make sure we can drink it unpolluted".*
- *"Just the water, the drinking water, we do need water".*
- *"Clean drinking water should be our right".*
- *"Because over the summer the water is undrinkable".*

**State of the environment**

Waikato Regional Council is responsible for monitoring water sources. Despite extensive fencing and planting of streambanks by farmers and community groups, bacteria levels in our rivers remain high. Both farmland and urban stormwater are likely sources of bacteria. The type of bacteria that the council monitors provides an indicator of water contaminated with animal effluent and any pathogens that come with it. Reforms in the drinking water legislation have promoted a multi barrier approach to ensure treatment systems are in place to deal with pathogens in the untreated water from rivers.

Cropping areas, including Pukekawa and Pukekohe, exhibited increasing nitrate in groundwater at nine of 11 monitoring wells, and streams in this area also reported increasing nitrogen. In contrast, all monitoring sites in the Piako catchment were improving or had no significant change in total nitrogen. In the Hamilton basin, nitrate decreased at 11 of the 12 monitoring wells from 2003 to 2020, and streams in this area were also generally improving.

*(See Biosecurity section for information on gold clams and drinking water).*

## 4.4 What people are saying – Coastal water

Participants who commented on coastal water as the most important issue were asked "why?" What follows is participants comments on coastal water issues followed by a summary of state of the region's coastal water:

- *"I see on TV people are picking plastic from the sea".*
- *"Sea level rising could flood the Hauraki area".*
- *"Sea level rise will affect the area people can live in".*
- *"I'm a fisherman. Love my sea fishing & my river fishing & over the last few years I've seen our waterways turn dirty & our fish start to look sickly. Was always an easy way to feed my family. Not so much anymore".*
- *"The sea is getting warmer".*
- *"Plastic is a problem because it is so difficult to break down and it is everywhere and especially in the sea".*
- *"In my opinion, the most important environmental issue facing the Waikato region is water pollution, which not only affects the water quality, but also poses a threat to the local ecosystem, fishing resources and the quality of life of the residents".*
- *"A large coastline which could be affected by rising sea levels".*
- *"All the rubbish he has been picking pick up the beaches. Matt Watson, who is the fisherman online, is a bit mortified on the rubbish he is picking up on a single day, is fairly concerning".*
- *"Then the issues of seabed and river care waterways our Maori people think differently in terms of kaitiakitanga".*
- *"Many people just don't care where or how they dispose of plastic and it's having a colossal impact on land, sea birds, fish and the overall health of our environment".*
- *"It (plastic pollution) causes so much environmental damage in general. The use of it is too high and, in many cases, unnecessary. The disposal is an issue, and it causes health issues to humans and animals. Damage to waterways and sea is astronomical, causing pollution and death to sea animals".*

- *“GHG emission affecting the survival of fish and other aquatic life, which in turn affects the entire ecological chain”.*
- *“I still think pollution of every kind is bad. But water pollution has the most impact on us. We already have 5 garbage patches in the ocean.... It's going to cost us our lives eventually if we don't do anything about it”.*
- *“Marine pollution threatens the survival of marine life”.*

## 4.5 State of coastal water in the region

The region’s estuaries and coastal ecosystems are being affected by a range of human activities:

- Within catchments: Land uses that increase sediment and nutrient runoff.
- Urban development and stormwater pollution in areas where many people live around estuary margins.
- Within the coastal environment: Activities such as channel dredging and fishing.

Over the past 1000 years, Waikato’s catchments have been dramatically transformed — most notably following European settlement. Large areas of natural forest, scrub, and wetlands were converted into pasture and exotic forests. These land-use changes fundamentally altered the way sediment and nutrients move through rivers and into estuaries and coastal waters. Nutrient inputs have also increased, especially since the widespread use of fertilisers began in the 1970s.

In nearshore areas, the biggest pressures come from land-based activities and sediment runoff is the most significant stressor, reducing water clarity and smothering coastal habitats. In some estuaries, rising nutrient levels — especially nitrogen — are also starting to have measurable effects.

Sediment can smother the organisms that live on or in the seabed, making it harder for them to breathe and feed. Even when sediment stays suspended in the water instead of settling, it can still harm species such as pipi, which are very sensitive to extended periods of murky, muddy water. Over time, fine sediment becomes part of the seafloor itself, making estuaries muddier. This reduces biodiversity and weakens the overall health and resilience of these ecosystems.

Of the 20 estuarine monitoring sites in the Waikato region, most are currently in moderate condition, but nine show signs of declining health — driven largely by increasing mud levels. These changes are visible across estuaries more broadly. Many have experienced a loss of seagrass, while species that prefer muddy environments, such as mud crabs, have become more common.

Coastal water quality monitoring in the Waikato region reveals a division between our open coasts and our estuaries and harbours. While open coasts and beaches often maintain excellent water quality, estuaries and harbours are being significantly impacted from land derived pollutants. These pollutants can have negative consequences in many of the Waikato’s coastal water bodies including poor water quality and water clarity, the loss of biodiversity, and harmful algal blooms. Today, estuaries are infilling with sediment at rates 10 to 100 times higher than they were 200 years ago. The effects of these pressures are visible from aerial photography and satellite imagery, which show sediment plumes from many estuaries and harbours regularly extend far offshore, sometimes reaching surrounding islands.

Further offshore, across the wider Coastal Marine Area (CMA), destructive fishing practices such as dredging, trawling, and Danish seining physically disturb the seafloor. Fishing disturbance is a major pressure. For example, between 2008–09 and 2018–19, more than 1,600 km² of the Waikato Coastal Marine Area (CMA) was trawled each year, and in half of those years over 2,000 km² was affected. This means that roughly one fifth, or more, of the entire CMA was impacted annually.

Marine habitats have also been heavily modified by destructive fishing practices. Scallop populations, for example, have collapsed across the Coromandel, leading to a complete ban on harvesting. Trawling disturbs the seafloor through contact with trawl doors, ground ropes, and other gear. This causes direct damage, including: loss of habitat complexity as the seabed is flattened and physical and biological structures are removed or broken; death or reduced survival of discarded catch (bycatch as well as target species); mortality of fragile seafloor dwelling species such as horse mussels, bryozoans, sponges, and tube building worms; shifts in the composition of sediment dwelling communities; as well as many indirect impacts.

These activities remove habitat complexity and lead to large losses of marine life and biodiversity. Along rocky reefs, “kina barrens” — areas overgrazed by kina — have become increasingly visible. These occur when kina (sea urchins) overgraze seaweed forests, usually because their natural predators — large snapper and crayfish — have been overharvested. The long-spined sea urchin is also becoming more common, adding further pressure to these ecosystems.

Rising sea temperatures and more frequent marine heatwaves directly affect marine organisms. Meanwhile, stronger or more frequent storms can increase the amount of sediment and contaminants washed from the land into the sea. In addition to known pressures made worse by the changing climate, new issues are emerging. Microplastics and other synthetic contaminants are appearing more frequently in coastal waters, although their long-term impacts are still not well understood. Coastal environments in the Waikato are coming under increasing pressure from a range of stresses that are building up over time. The changes being seen in many places are slow to recover from — and in some cases may not be reversible.

## 4.6 Summary

Water quality is a longstanding issue for Waikato residents with many observing a decline in water quality for decades. Many rivers and streams currently fall short of national bottom lines for ecosystem health and participants are worried about the negative impacts on freshwater and coastal ecosystems and human health. Participants observe more frequent algal blooms, poor quality drinking water, unswimmable water bodies and reduced plant life and fish stocks. There was some concern about the causes of water pollution from towns and city areas, rural land use and industry, yet many don’t realise agriculture is the main source of river and stream pollution (see section 2.6). Nitrogen levels have had a detrimental effect on fresh and coastal waters. Other contaminants, such as sediment, also undermine the ecological health of fresh and coastal waters and 65 per cent of participants correctly identify sediment as having a negative impact on biodiversity in estuaries (see section 2.6).

Water availability is another concern, with participants drawing attention to more frequent droughts and water restrictions. Awareness of the impacts of climate change on rainfall is high. Despite rising water use — largely for agricultural use — many residents think water takes have decreased (see section 2.6). Safe and

healthy drinking water remains a priority for participants who are concerned, among other things, about the security of drinking water sources. Ongoing monitoring and recent legislative reforms aim to strengthen protections and support good drinking water standards.

# 5 Te kounga hau me te parahanga o te hau | Air quality and air pollution

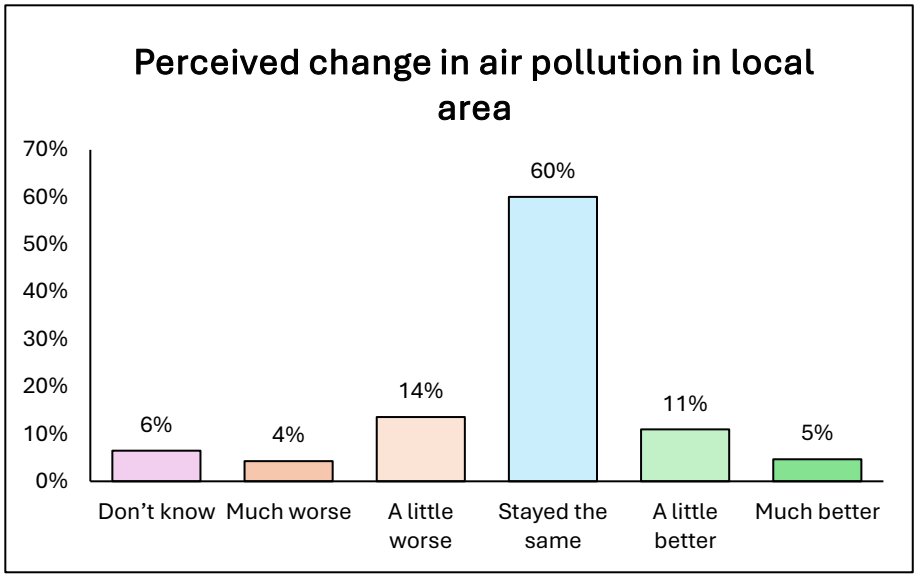
## 5.1 Findings

### 5.1.1 State of local environment perceptions

When asked about air pollution in their local area over the last few years, over half of the sample felt that air pollution had stayed the same (60%). Similar proportions of participants believed that it had worsened (18%) or improved (16%).

#### 5.1.1.1 Urban vs. Rural

There was no significant difference between urban and rural participants' perceptions of air pollution in their local areas.

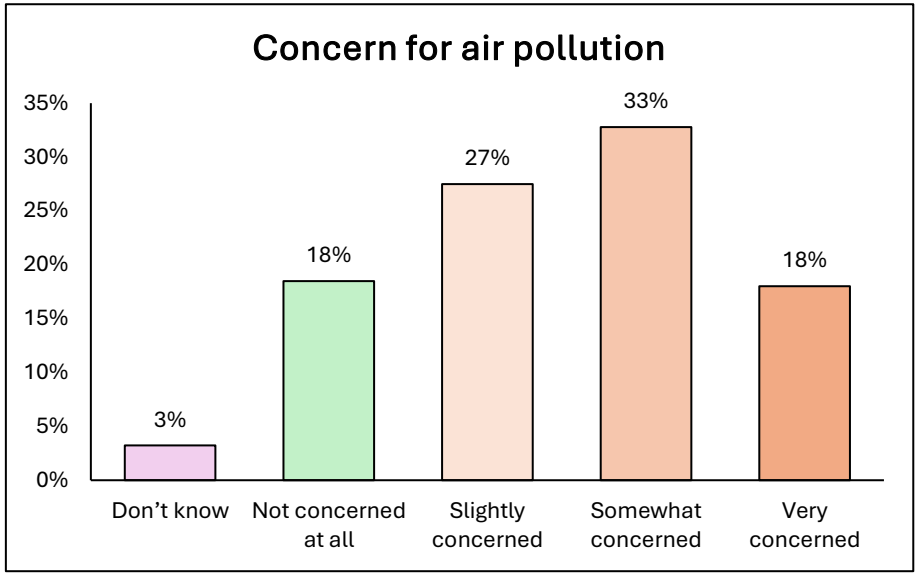



### 5.1.2 Environmental concerns

More than three-quarters expressed some level of concern about air pollution (78%). In comparison, a little under one-fifth of the sample said they were 'not at all concerned' about air pollution (18%).

#### 5.1.2.1 Urban vs. rural

There was no significant difference between urban and rural concerns for air pollution in local areas.




### 5.1.3 Single most important issue

When presented with a list of environmental issues within the Waikato region and asked to indicate which one is the single most important today, 4% selected 'air'[13]. When asked to indicate which issue would be the most important in five years, a similar proportion (4%) selected 'air'.

[13] Including: 'air quality' and 'air pollution'. See Appendices B & C to view how many participants selected each individual issue within this group.

## 5.2 What people are saying

Participants who selected air quality as the most important environmental issue identified the sources of air pollution including fires and petrol and diesel vehicles and expressed concerns about the impacts of air pollution on human and ecological health. The following are examples of what residents had to say:

- *"The Waikato region is an important farming region in New Zealand because of the impact of farming activities, and a large number of farming activities may have an impact on air quality. Farming activities are often accompanied by the use of livestock waste, pesticides and fertilisers, which can all be sources of air pollution. So, I think that's the most important issue for Waikato five years from now".*
- *"This is because with the increase of urbanisation and transportation, air quality decreases, which may have an impact on the health of residents, especially the incidence of respiratory diseases".*
- *"Air pollution has a serious impact on human health and can lead to respiratory diseases, cardiovascular problems and other health problems".*
- *"Good air is very important for humans and other living things".*
- *"Coming into winter we will once again be choked by smoke from chimneys causing extraordinary pollution and creating many health issues for residents".*
- *"Automobile exhaust pollution is very serious".*
- *"We are breathing plastic in the air and it's actually in our bodies now, we're buying plastic clothes which we are sending off to the dump".*
- *"I think it is if we can't breathe air, and we can't be safe, then you have health issues".*
- *"During the pandemic, when use of vehicles was restricted, the quality of our air was measured and rated to be the same as in the mid-1960s. I'm surprised that if it was possible to measure that during the pandemic, the same measures are not used on a daily basis now to make us aware and to take action. We publish/broadcast daily temps so why not pollution levels, or traffic activity town by town, region by region".*
- *"Air quality in the Waikato region is generally good, but is affected by factors such as household smoke, dust and agricultural chemicals".*

## 5.3 State of air quality in the region

Waikato Regional Council measures the very fine particles in the air called $PM_{10}$ and $PM_{2.5}$. During winter, the majority of $PM_{10}$ and $PM_{2.5}$ in the region's urban areas comes from home fires, mainly from burning wood. These particles can remain suspended in the air for long periods and pose a risk to human health. Air pollution can be particularly harmful for small children and adults with respiratory conditions.

Waikato Regional Council also measures nitrogen dioxide levels in the air in Hamilton, which mainly comes from petrol and diesel vehicles and is found in urban areas particularly near heavy traffic areas. Nitrogen dioxide also comes from the burning of fossil fuels, especially for industry and home heating. Air quality in the Waikato is generally good, however, Tokoroa, Taupo, Te Kuiti and Putaruru airsheds have $PM_{10}$ and $PM_{2.5}$ exceedances that are of concern. Hamilton City has lower $PM_{10}$ and $PM_{2.5}$ concentrations but still does not meet guidelines for $PM_{2.5}$ and nitrogen dioxide.

Waikato Regional Council has identified that monitoring of emerging contaminants, such as microplastics, present a current gap in state of environment monitoring programmes. Due to absence of standardised laboratory methods and health and environmental guidelines to assess monitoring results against, in addition to

budgetary constraints, there are no immediate plans to include monitoring of microplastics in routine state of environment monitoring; however, the emerging technology in this area will continue to be monitored.

## 5.4 Summary

Waikato residents are concerned about air pollution and the negative impacts on human and ecological health. Respondents mentioned fires and petrol and diesel vehicles as key sources, though only half of all participants know that the 'health impacts from air pollution come mainly from home heating wood burners and motor vehicles' (see section 2.6. While regional air quality is, in general, good, Tokoroa, Taupo, Te Kuiti and Putaruru communities experience high $PM_{10}$ and $PM_{2.5}$ levels (fine particle matter in the air affecting air quality and health) particularly in winter due to wood fires. Traffic-related pollution is also an issue in urban areas like Hamilton.

# 6 Te kanorau koiora me te ārai koiora | Biodiversity and biosecurity

## 6.1 Findings

### 6.1.1 Biodiversity – State of local environment perceptions

Participants were three times more likely to believe that the number of native plants in their local area had improved (43%) rather than worsened (14%). While over one-third (35%) of the sample believed that the number of native birds in their local area had improved over the last few years. In comparison, 20% felt that the number of native birds had worsened.

Nearly half of the sample (45%) said that they 'don't know' whether the number of native fish in their local area had worsened, stayed the same, or improved. Of those who observed changes, participants were twice as likely to say the number of native fish had worsened (20%) rather than improved (10%).

#### 6.1.1.1 Urban vs. rural

When asked about the number of native birds in their local areas, urban participants were more likely than rural participants to say they were 'a little better', whereas rural were more likely than urban to select 'much better'. Regarding the number of native plants and fish in their local areas, urban participants were more likely than rural participants to say that they 'don't know'.

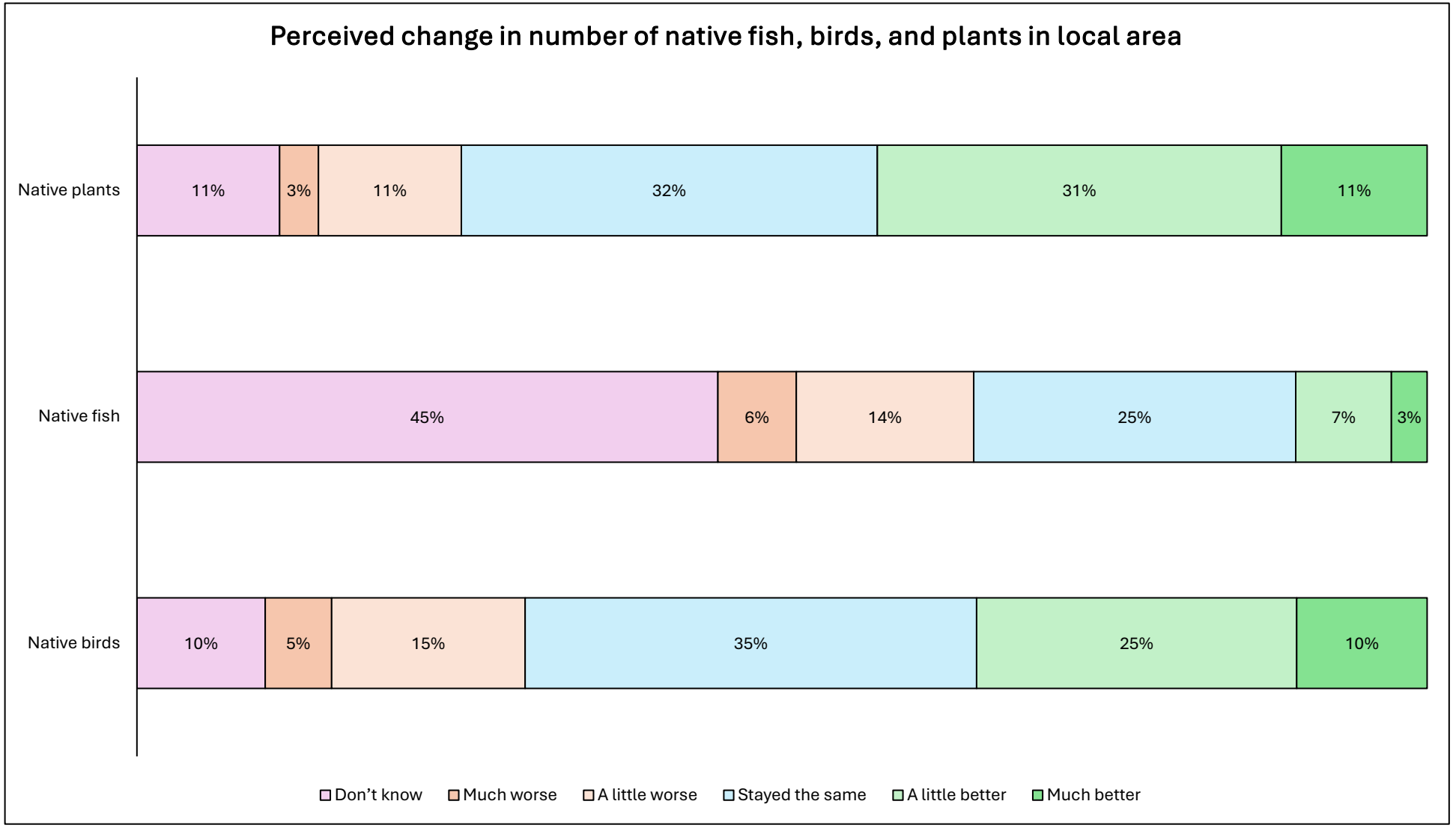
### 6.1.2 Biodiversity – Environmental concerns

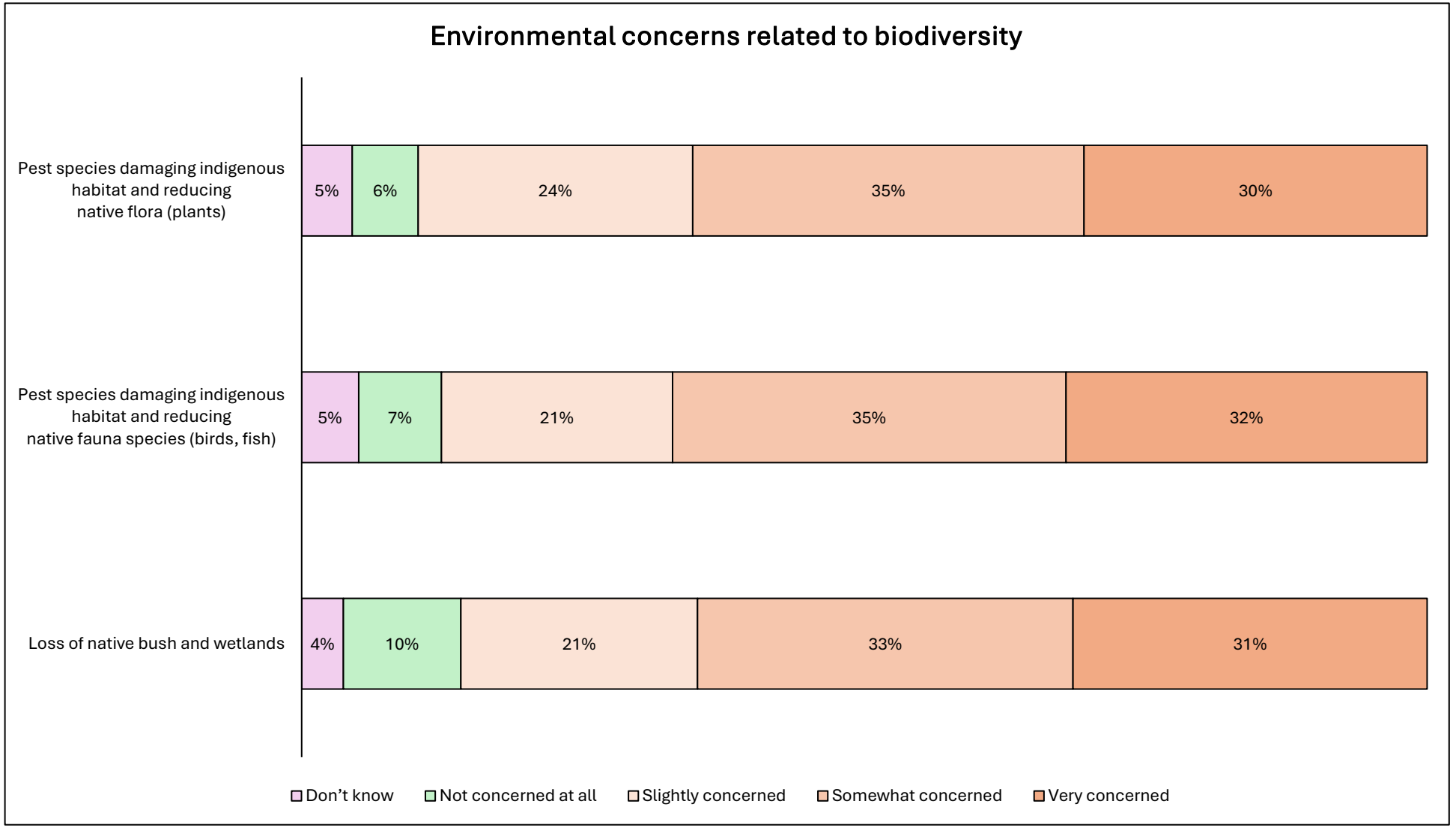
For each of the three issues (impact of pest species on native flora, native fauna and the loss of native bush and wetlands), a large majority (85% to 89%) expressed some level of concern (*includes slightly, somewhat, and very*).

#### 6.1.2.1 Urban vs. rural

There was **no** significant difference between urban and rural concerns regarding the loss of native bush and wetlands.

Compared with rural participants, urban participants were more likely to select 'don't know' when asked to indicate their level of concern for pest species damaging habitat and reducing native flora (plants) and fauna (birds/fish). In addition, rural participants were more likely than urban to say that they are 'somewhat concerned' about pest species damaging habitat and reducing native fauna (birds/fish).


Perceived change in number of native fish, birds, and plants in local area
Native plants
11%
3%
11%
32%
31%
11%
Native fish
45%
6%
14%
25%
7%
3%
Native birds
10%
5%
15%
35%
25%
10%
Don't know
Much worse
A little worse
Stayed the same
A little better
Much better


Environmental concerns related to biodiversity
Pest species damaging indigenous habitat and reducing native flora (plants)
5%
6%
24%
35%
30%
Pest species damaging indigenous habitat and reducing native fauna species (birds, fish)
5%
7%
21%
35%
32%
Loss of native bush and wetlands
4%
10%
21%
33%
31%
Don't know
Not concerned at all
Slightly concerned
Somewhat concerned
Very concerned

### 6.1.3 Biodiversity – Single most important issue

When presented with a list of environmental issues within the Waikato region and asked to indicate which one is the single most important today, 3% selected 'biodiversity'[14]. When asked to indicate which issue would be the most important in five years, a similar proportion (4%) selected 'biodiversity'.

## 6.2 What people are saying – Biodiversity

Participants who selected biodiversity as the most important environmental issue were concerned about the loss of biodiversity in the region and the consequences for the region's ecological health, understood as foundational for human health and economic and cultural opportunities. A number of these participants pointed to the cascading and nonlinear consequences of biodiversity loss. For example:

- *"In nature everything needs each other, so if we don't look after the soil the plants best for the area don't grow, if the plants don't grow there is soil erosion, loss of insects and birds which are required for pollination. Which we need to grow the plants to feed animals and people. It's a cycle".*
- *"Loss of biodiversity has a long-term domino effect wider than we can perceive and will affect food, water and nutrient supplies".*
- *"In nature everything needs each other, so if we don't look after the soil the plants best for the area don't grow, if the plants don't grow there is soil erosion, loss of insects and birds which are required for pollination which we need to grow the plants and feed the animals and people".*
- *"Many plants and animals are sources of medicines, and the loss of biodiversity can make it more difficult to find new drugs and treat diseases. In addition, the destruction of ecosystems can increase the risk of the spread of zoonotic diseases, threatening human health".*
- *"Another concern I have is the draining of wetlands in the Waikato area when all the research shows how important they are to the environment".*
- *"Wetlands have important ecological functions, such as water purification, flood regulation and habitat provision. However, wetlands in the Waikato region have been damaged to varying degrees in the past few decades due to development, construction, agricultural expansion and other reasons, wetland area has decreased and ecological functions have declined".*
- *"People should be encouraged to plant native trees or plants along berms that cannot be mown to provide additional shade to paddocks for animals and support the native birds".*
- "*Restricting use of poisonous sprays in parks and roadsides and no more pesticides which kill our good insects and bee populations".*
- *"Nature is a web of energy, interconnected. To select a single factor is as useless as selecting none. The web must be balanced and addressed as a whole".*
- *"Biodiversity directly impacts human well-being, including food security, sources of medicine, and cultural values. The disappearance of species can affect our health and way of life".*
- *"The Waikato region is rich in native species and ecosystems, but biodiversity has declined dramatically in recent years due to habitat loss, invasive alien species, climate change and the effects of human activities".*
- *"I would like to see a move to unite all the small groups working to better the districts environment come together so that all the little projects can be linked to form corridors for NZ native wildlife can move freely so that future generation benefit from actions taken today".*

[14] Including: 'loss of biodiversity' and 'pests (incl. flora, fauna, and fish)'. See Appendices B & C to view how many participants selected each individual issue within this group.

For participants who selected climate change as the most important environmental issue, when asked what concerns them most about climate change, a number of them selected biodiversity loss. These participants reflected on the irreversibility and systemic consequences of these losses. Others point to the consequences of biodiversity loss including the increased risks to human health and the loss of cultural identity and traditions. For example:

- *"Flora and fauna work together to create a balance in nature and we are disrupting that balance"*
- *"Diverse ecosystems provide essential environmental services, such as air and water purification, soil fertility, and climate regulation. The loss of biodiversity weakens these services".*
- *"Alters the food variety and supply"*
- *"Many communities have deep ties to the natural environment, and biodiversity is an important part of cultural identity and traditions".*
- *'The Waikato region is an important agricultural region of New Zealand, and the loss of biodiversity could affect agro-ecosystem services".*
- *"Biodiversity loss is a big concern for me. The Waikato Region has some unique ecosystems, and with habitat destruction from development, we're losing native species at an alarming rate".*
- *"We need biodiversity to keep our environment safe and active".*
- *"Because once you lose environmental options you can't get them back".*

Some participants point to the drivers of biodiversity loss, including loss of habitat from residential and agricultural development. For example:

- *"Habitat destruction due to human activities is one of the main causes of biodiversity loss. This includes deforestation, land development, urbanization and other activities, which directly reduce the living space of plants and animals".*
- *'Urban expansion and the increase of agricultural land have encroached on the habitats of wild animals and plants.*
- *"Our urban growth will lead to reduction in biodiverse environments".*
- *"Increasing intensification (population growth, rural areas converting to urban) will continue and increase degradation of our biodiversity".*

A number of participants reflect on the impacts of pest species on biodiversity:

- *"Huge tracts of land being converted to growing maize (monoculture) meaning removal of trees, vast increase in fossil fuel use & the practice means great likelihood of pests & diseases being spread".*
- *"The golden clams are invasive and spreading from one body of water to another. I've seen a lot of self-seeded cherry trees (the weedy kind) the last couple of years, I've come across possums in town sections, and we don't have the bird-life numbers and types that we had only a couple of years ago - very sad".*
- *"Because as fast as we plant our gullies in natives and try to improve the very untidy roadsides and try to improve farm pastures, we are confronted with numerous weed species taking over. Also, a large number of rabbits, opossums and rodents causing damage to young plants".*
- *"Planting trees and looking after the ones that are not pests. Think the council could do a lot more about eradicating the pest trees around our area".*
- *"A lot of people have no idea what a noxious weed is".*
- *"Get rid of toxic plants invading communities example privet".*

- *"The weed inspector should get rid privet and ragwort. The pest control officer should deal with rabbits and stray cats".*
- "*If we sorted the pests out, the other stuff would be easier to sort out".*

## 6.3 State of biodiversity in the region

Biodiversity is the variety of life that surrounds us including plants and animals, fungi and micro-organisms. Biodiversity interacts with the physical environment to form ecosystems that sustain life and recycle waste and nutrients. When ecosystems are healthy and diverse, they're more resilient to change and better able to support life and the provision of clean air, freshwater and fertile soil.

The biggest threat to native biodiversity in the Waikato region is native habitat loss and modification through pressures such as land use change, invasive pests, disease and pollution. Climate change is also an emerging threat to native biodiversity as species and habitats are exposed to increased extreme weather events and rising temperatures, which will require them to adapt to changing environmental conditions. This may include movement in suitable habitat ranges and coping with altered range and abundance in pest species and disease.

Native biodiversity in the Waikato region is in a critical state. Much of our native vegetation has been removed, especially in lowland areas, and over 300 of our native plants and animals are threatened with, or at risk of, extinction. Many of our native species are unique to New Zealand and some are found only in the Waikato region including plant, beetle, wētā and frog species. There is a large suite of introduced predators, browsers and diseases that contribute to the decline of our native ecosystems. Possums, rats, cats and stoats are the main predators of birds, bats and reptiles, while goats and deer impact our native forest vegetation through selective browsing of preferred species. Emerging pathogens affecting native plants include myrtle rust, kauri dieback and kahikatea decline in some districts. native vegetation covered most of the Waikato at the time of European settlement. This was predominantly forest cover (just over half) and other large areas of scrub and shrubland or tussock land, particularly where fires were frequent or it was too wet or cold for forest. Now only around 25 per cent remains in scrub and forest vegetation – below 10 per cent in lowlands – and much of this is highly modified by human impacts and introduced animal and plant pests.

The Waikato region remains a North Island strong hold for wetlands. An estimated 44 per cent of the North Island's remaining freshwater wetlands occur in the Waikato region, which also has three of New Zealand's six internationally significant Ramsar Wetlands. In 2012, 1.1 per cent of the region's land area remained in freshwater wetlands (less than one quarter of the pre-European extent). Some 75 per cent of our peat wetlands have been drained or filled for pastoral or urban use. Native vegetation clearance, including wetland and forest habitat, has slowed in recent decades but still occurs across the region. The rate of vegetation loss reduced from an average of 85 hectares per year between 1996 and 2012, to 60 hectares per year between 2012 and 2018. Recent forest and shrubland loss is greatest in the central and south-west of the region.

Lowland waterways are in poor condition, with more than 50 per cent of streams in developed catchments falling below national bottom lines for ecosystem health. Damming of rivers, flood prevention schemes, freshwater infrastructure, and straightening/cleaning of rivers and streams can all impact biodiversity habitat. This includes prevention of fish migration, wetland drainage, reduction in foraging grounds for wetland and terrestrial avifauna, water flowing faster impacting on colonisation of freshwater plants and fish and sedimentation effects.

Marine ecosystems are also facing growing pressure. Key habitats like seagrass beds, shellfish reefs and sponge gardens, support diverse marine life, but are vulnerable to a range of environmental and human-induced stressors.

## 6.4 What people are saying – Biosecurity

Participants who selected pests as the most important regional environmental issue raised concern about the threat of pest plants and animals to biodiversity and the importance of biodiverse ecosystems to the bioeconomy. Many also commented on how climate change is amplifying the risks pest species pose to biodiversity and the region's bioeconomy:

- *"Because it is an immediate threat and if pests destroy our environment, it could become irreversible. This would have significant negative effects on our environment our services and economy".*
- *"We don't want plant & animal pests destroying our native species or productive plant life".*
- *"The native forests here are crucial for our biodiversity. But with climate change, they're under threat. Changes in rainfall patterns and more pests due to warmer temperatures are damaging these precious ecosystems. And think about our small towns and rural areas. When extreme weather hits, they often don't have the resources to bounce back quickly".*
- *"If feral pests are not controlled, it will have detrimental effect on the natural fauna".*
- *"Warm and humid environments may increase the risk of invasive pests and weeds and affect the living space of native species".*
- *"There's no education programs or promotions in the community". (Pests)*
- *"They cause problems in the drainage and river system and water".*
- *"Gold Clams in the Waikato River, are they being eradicated"?*
- *"Gorse seems to be increasing. One lake near Te Awamutu was full of dead fish a couple of years ago. Wake from boating eroding banks of Waikato River".*
- *"It would be great if WR actually responded to requests e.g. removal of invasive weeds and trees e.g. privet".*
- *"Pest plants and non-predator pests such as rabbits and pest fish are causing big issues and are not getting the support required to control them. Community groups doing this work need so much more help to raise awareness and get residents volunteering - starting with their own back yards".*
- *"Pest plants are becoming a real issue. You can't clear these out when your neighbours don't. They just keep coming back".*
- *"The amount of pest flora and fauna on absentee owners' property is overtaking and covering the roadsides".*
- *"They should be doing more about pest control, in particular the Canadian geese, which are major polluters of lake environments".*
- *"Waikato should do more to control pests in the area, especially toxic plants. There is a whole lot of Woolly nightshade and Pampas grass growing along the roads in the area which are slowly taking over and increase the fire danger".*
- *"There are multiple groups in the region endeavouring to control pests that receive no support from the council. In the past 10 weeks alone we have trapped 18 ferrets and two stoats. This indicates that our neighbours are not trapping at all, the lack of funding to support them with admin, traps and baits is definitely contributing to this. Council Programmes in the Waikato seem to be limited to a massive possum kill once every few years. It is simply not enough".*

- *"I am very concerned by the spread of pest plants throughout Hamilton city, particularly spread by train corridor movements. I believe that WRC should take a walk along the path beside the rail line from the WRC building to Kahikatea Drive (and further) loads of pest plants, tobacco plants moth plant all along the rail corridor and spreading out from there. I had heard that NZ rail was not interested in controlling this".*

## 6.5 State of biosecurity in the region

Pest species can reshape landscapes, reduce biodiversity and negatively impact the environmental stocks and flows upon which our economy is based. With increasing volumes of travel and trade (people and cargo) and a changing climate, conditions are becoming more favourable for both new and existing pest species to spread. Within the Waikato region over 100 pest plant and animal species are managed by Waikato Regional Council according to the level of threat the pest poses, how widely each species is spread, how dense the infestation, and the control methods available.

Priority pest species are managed within five programmes: keeping pests out of the region (e.g. Chilean needle grass and Bennett's wallabies), eliminating certain species entirely (e.g. thistle (variegated) and rook), containing or reducing pests within defined areas (e.g. alligator weed, yellow flag iris and velvetleaf), ongoing control of widespread pests (e.g. common brushtail possum, feral rabbits, and gorse), and managing pests that potentially cause damage to the values of specific places (e.g. Wetland pests, Project Yellow).

### 6.5.1 Gold clams

*"The clams in the Waikato River are alarming…You can't even use Waka Ama boats in lake Taupo if from the Waikato, as to stop the spread, so what is it doing to our river".*

Gold clams are an invasive species that reproduces quickly and can spread easily. The gold clam infestation is ongoing and is being closely monitored. Their presence in the Waikato River has a range of potential impacts including competing with native species and degrading water quality. Their rapid reproduction and ability to spread, via contaminated gear and watercraft, can clog up infrastructure, such as drinking water treatment plants and hydroelectric power generation facilities.

Gold clams can also reduce dissolved calcium in the water. Calcium is crucial for water treatment because it helps bind and remove arsenic in drinking water. In late 2024, arsenic levels in treated Waikato River water briefly exceeded the New Zealand drinking water standard. Waikato Regional Council scientists are determining whether gold clams are causing the depletion of calcium in the river or whether it was related to a geothermal spike in the upper hydro lakes. Gold clams are challenging to manage due to the absence of control tools and the impracticality of applying control tools in large flowing water bodies such as the Waikato River. Physical and/or chemical control tools can only be effective in contained water bodies such as lakes.

Biosecurity New Zealand leads the national long term management programme, supported by iwi, Waikato Regional Council, Department of Conservation, Earth Sciences NZ (formerly NIWA) and other partners. Waikato Regional Council is supporting research led by Earth Sciences NZ, who are investigating potential control

tools for containing gold clams. Biosecurity New Zealand has issued a controlled area notice for the whole of the Waikato River, downstream of Whakamaru dam to Port Waikato and is deploying Ambassadors at key boat ramps within the infestation zone to promote Clean, Check and Dry of watercraft to slow the clams spread. As well as ongoing monitoring, Waikato Regional Council has invested in equipment, training and operational protocols to ensure its own activities do not transport clams.

## 6.6 Summary

Biodiversity underpins healthy ecosystems but in the Waikato, it is in critical decline. Participants are concerned about biodiversity loss and its impacts on ecological health, human wellbeing, and cultural and economic opportunities. Within the region, native habitats have been heavily cleared, over 300 native species are at risk, and pests, diseases and climate change are increasing threats to biodiversity. Wetlands and forests have been drastically reduced, lowland waterways are degraded, and key marine habitats are under strain. The region's natural systems are struggling — and the loss of biodiversity threatens the resilience of the environment that sustains life. Sixty-six per cent of the sample correctly believe that habitat loss is the biggest threat to biodiversity in the region (see section 2.6).

Pest species can reshape landscapes, erode biodiversity, and undermine the natural systems our economy relies on. Growing travel, trade, and a changing climate are creating favourable conditions for pests to spread, including new species. Residents are concerned about biosecurity, particularly the control and management of pest species and the maintenance of biodiverse ecosystems. Within the Waikato, the regional council manages more than 100 pest plants and animals, prioritised by their threat, spread and available control tools. Management focuses on five areas: keeping new pests out, eliminating targeted species, containing or reducing pests in set areas, ongoing control of widespread pests, and protecting high-value places from species that threaten them.

Gold clams are a relatively new invasive pest species that is well established in the Waikato River, threatening native species, degrading water quality, and clogging key infrastructure. Their rapid reproduction, ease of spread, and lack of effective control tools in large rivers make management extremely difficult. With a focus on long term control, Biosecurity New Zealand, iwi, Waikato Regional Council and partners are responding through monitoring, research, strict protocols, and a controlled area notice requiring Clean, Check, Dry to slow the clams' spread.

# 7 Te hauora o te oneone me te whakamahinga whenua | Soil health and land use

## 7.1 Findings

### 7.1.1 Environmental concerns

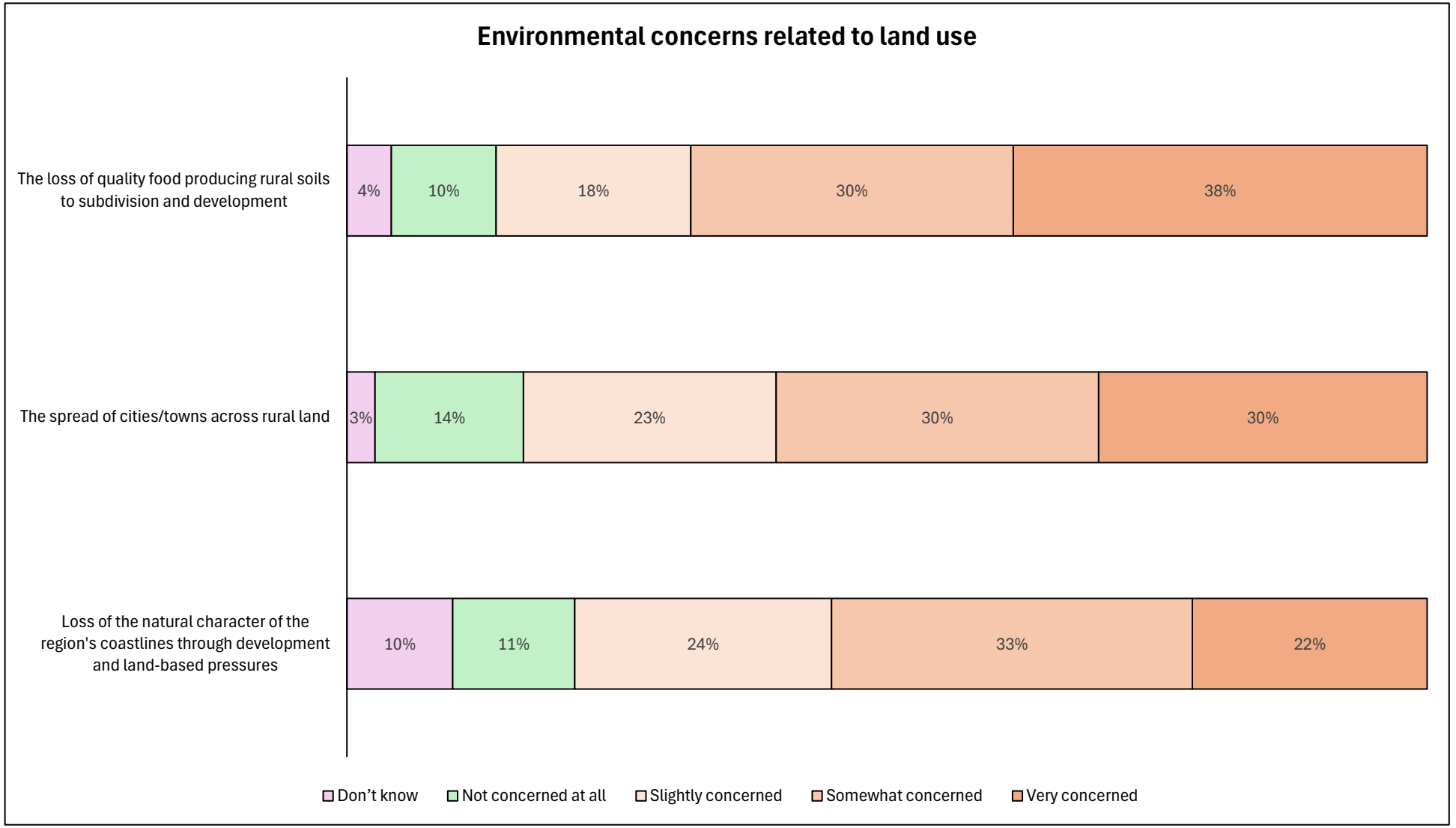
For each of the three land use related issues (loss of quality rural soils to subdivision and development, spread of cities/towns across rural land, and loss of natural character of the region's coastlines through development), a large majority (79% to 86%) expressed some level of concern (*includes slightly, somewhat, and very*). Participants expressed the greatest concern for the loss of quality rural soils to subdivision and development and the spread of cities/towns across rural land, with 38% and 30% of the sample selecting 'very concerned' for these issues, respectively. Selecting 'don't know' was the least likely option chosen for both of these issues.

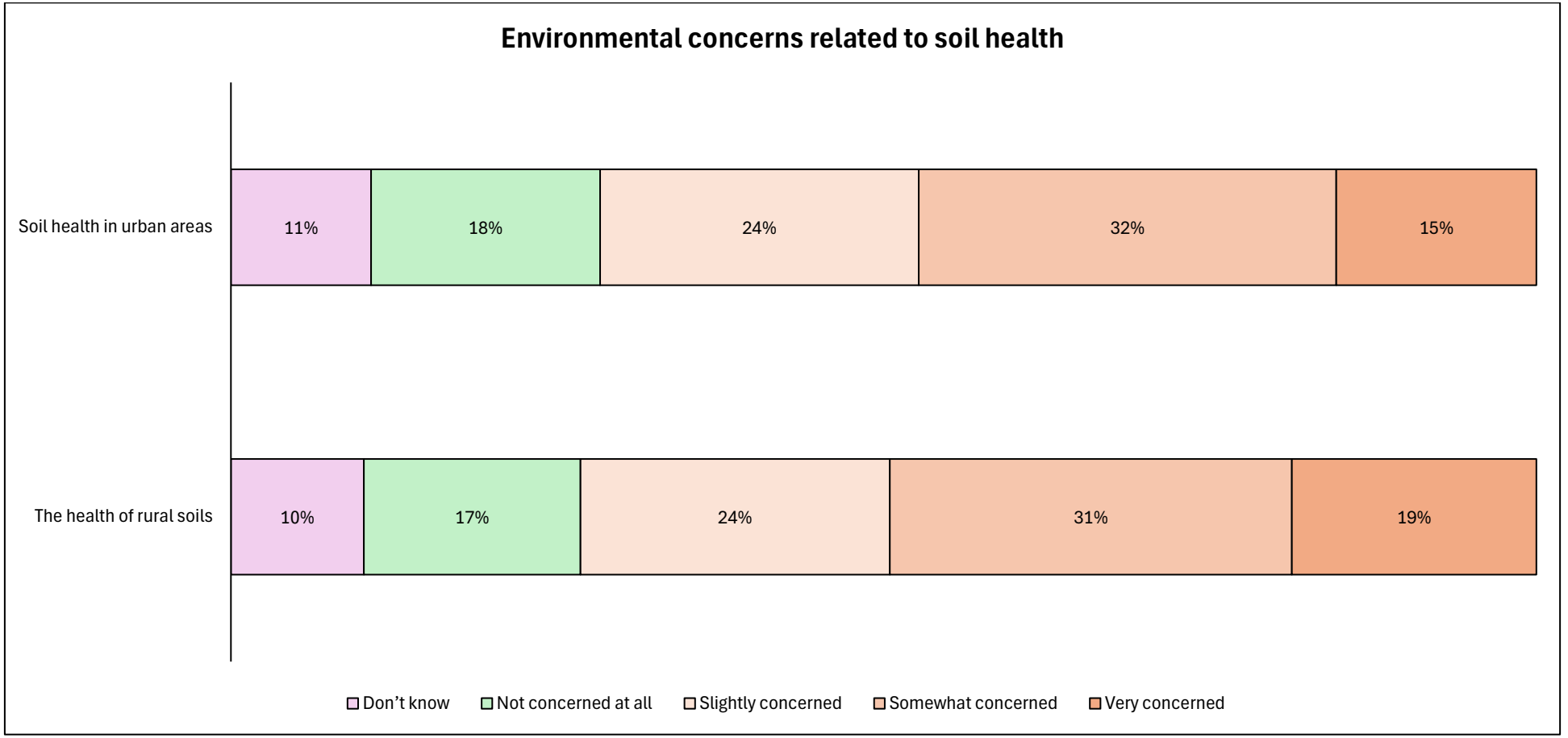
Regarding soil health in urban areas and the health of rural soils, most participants (71% to 74%) had some level of concern (*includes slightly, somewhat, and very*). A proportion of participants were 'not concerned at all' about the health of rural soil (17%) and soil health in urban areas (18%).

#### 7.1.1.1 Urban vs. rural

There were **no** significant differences between urban and rural concerns for the loss of natural character in the region's coastlines. Rural participants, compared with urban participants, were **more** likely to say that they were 'very concerned' about the spread of cities/towns across rural land and the loss of quality food producing rural soils to subdivision and development. Compared with rural participants, urban participants were **more** likely to say 'don't know' when asked about their level of concern regarding the health of rural soils.

Rural participants, when asked to indicate how concerned they were for the health of rural soils, were **more** likely than urban participants to select either end of the spectrum with 'not concerned at all' and 'very concerned'.


Environmental concerns related to land use
The loss of quality food producing rural soils to subdivision and development
4%
10%
18%
30%
38%
The spread of cities/towns across rural land
3%
14%
23%
30%
30%
Loss of the natural character of the region's coastlines through development and land-based pressures
10%
11%
24%
33%
22%
Don't know
Not concerned at all
Slightly concerned
Somewhat concerned
Very concerned




### 7.1.2 Single most important issue

When presented with a list of environmental issues within the Waikato region and asked to indicate which one is the single most important today, 17% selected 'soil health and land use'[15]. When asked to indicate which issue would be the most important in five years, a similar proportion (18%) selected 'soil health and land use'.

[15] Including: 'soil health' (degradation in quality) and 'land use' '(incl. 'intensive agriculture/farming', 'forestry conversion', 'loss of productive land', 'urban population growth', and 'pollution (land)'). See Appendices B & C to view how many participants selected each individual issue within this group.

## 7.2 What people are saying

Participants who selected soil health as the most important environmental issue facing the region were most concerned about the loss of soil fertility and its long-term consequences for productivity and biodiversity:

- *"The soil and the land is renowned for top quality, therefore a lot of people don't know how to look after and maintain it. They don't appreciate its quality".*
- *"Without good soil health there is no growth".*
- *"Impacts on food production".*
- *"As land is developed and farming intensity increases we will start to see reduced output".*
- *"Soil is the life stream".*
- *"Intensive agriculture often overuses fertilizers and pesticides, which can damage soil structure, reduce soil fertility, and affect long-term land productivity".*
- *"The quality of soil seems to be rapidly decreasing".*
- *"Soil pollution affects food safety".*

Those who selected land use, identified drivers of the loss of productive land and the implications for food security:

- *"The population is growing fast and housing development now sprawls a long way North. Some of the land was not productive, but we need to think about food security. Loss of productive land is a serious threat to that".*
- *"New Zealand is a small country and the areas of land available for food production have been significantly reduced over recent decades. If food producing lands are not protected there is the probability there will soon be less such land than what will be required to produce food for later generations".*
- *"We need to conserve our agricultural land for food production. It is imperative that we feed ourselves and not rely on imports. In the present climate the tariffs are crippling and could result in more families starving or going without. In my opinion we should look at building up rather than out to house our population but maintain the status quo".*

Some referred to loss of productive land for urban development:

- *"The considerable acreage lost for motorways is bad enough. These by-pass the small towns who then lose custom and jobs. Even worse are the 'Ticky Tacky unit like 'homes' built all around the motorways. All the same shape and colour. They are an eyesore. The on-going problem then escalates involving stress on water supplies, sewage, more cars on the roads which are already constantly in need of repair".*
- *"Pressure to use unsuitable areas will grow with little thought of conservation".*
- *"The city is spreading out too far encroaching on productive land and causing traffic congestion".*
- *"Waikato has good soil for growing things and we will lose all that".*
- *'There is a limited amount of fertile soils in the Waikato with favourable contour for use in either agriculture or horticulture".*

Some participants complain about councils pursuing population-based growth strategies that are leading to reduced levels of service for residents and rates increases. Among participants who selected loss of productive land as the most important regional environmental issue, some questioned the capacity of current infrastructure to cope with further population growth. For example, the expansion of existing settlements without upgrading water treatment, stormwater and wastewater systems. One resident had this to say:

- *"The loss of productive land, whether it be to housing development, forestry, industrial uses or anything else has wide reaching impacts. It reduces the capacity for local food production, reduces biodiversity, puts more pressure on infrastructure (roading, wastewater, sewerage etc), changes the nature of an area, may cause an increase in pollution of all types. The impact is wide reaching".*

Some participants point to what they perceive as unsustainable farming practices, including some who note the difficulty in shifting away from existing farming systems. For example:

- *"All regions including Waikato are facing the problem of over stocking farmland, causing high nitrogen deposits in soil and waterway pollution. Farmers are expected to provide environmental solutions which are costly and difficult to carry out in this present economic time. I think most farmers are environmentally aware and do their best, but the problem will take many years to overcome".*
- *"Intensive monoculture farming continues to be one of the biggest polluters and destroyers of our natural environment here in the Waikato and across NZ. Farming practises are not sustainable, environmentally friendly or adaptable".*
- *"Huge tracts of land being converted to growing maize (monoculture) meaning removal of trees, vast increase in fossil fuel use & the practice means great likelihood of pests & diseases being spread".*
- *"The lifestyle block we bought has had cows run on it for 100 years. The ground is ruined. It is compacted beyond belief, and the soil condition is awful. We are slowly bringing it back to life because we WANT to, but we are surrounded by farms we watch deep plough the fields regularly (destroying soil biome), spray to kill everything, then plant monocrops like maize before stripping the ground back to bare dirt by either ploughing again or setting fire to the paddocks. That isn't being a responsible custodian of the land. I don't expect 2 or 3 generations of farm upscaling to be altered in 5 years especially when the rhetoric in the public sphere is pro-farmers".*

## 7.3 State of soil quality in the region

The main soil quality issues in the Waikato region are soil compaction, excessive nutrient levels caused by fertiliser overuse, and loss of soil organic matter (resulting from soil disturbance such as cultivation, and the removal of decaying plant and animal matter that feeds the soil). Soil compaction reduces the capacity of the soil to absorb water, resulting in increased run-off when it rains. Run-off picks up contaminants including sediment, nutrients, and pathogens and transports them into rivers, streams, lakes, and coastal waters impacting the quality of the water. Soil compaction also reduces the capacity of plants to take up nutrients as plant root growth is restricted. Soil compaction in rural areas is often caused by grazing animals too intensively and the use of heavy machinery in forestry and cropping operations.

Accumulation of organic material performs a key function in soil formation and fertility. When these processes are interrupted due to intensive production practices, soil fertility is reduced, creating a vicious cycle in which more fertiliser is required to produce the same yield (of milk, crops, etc.), which in turn reduces soil fertility and increasingly pollutes freshwater. Soil absorbs and filters rainfall. As green spaces in urban areas are replaced by impervious surfaces such as concrete, they are unable to absorb water. This increases the temperature in urban areas by reducing the cooling effect of evaporation, plant transpiration, and vegetation shading, putting increasing pressure on stormwater systems during heavy rainfall events. Healthy urban soils support trees and other vegetation. Trees can reduce the temperature between 4.0 and 4.5 degrees Celsius. Deep soils can soak up more rainfall. Residential development practices such as soil stripping and compaction remove and undermine deep healthy soils, reducing their capacity to absorb heavy rainfall and increasing the risk of flood damage.

## 7.4 Summary

Participants recognise the importance of quality rural food-producing soils for food security and the region's bioeconomy. Participants view the spread of cities/towns across rural land as a threat to the bioeconomy and biodiversity. While the loss of quality rural soils to subdivision and development is especially concerning for rural participants, compared with urban respondents, were more likely to either say they were 'very concerned' or 'not concerned at all' about the health of rural soils. This cleavage identified in the quantitative data indicates that rural participants include those that recognise the soil as a living ecosystem that delivers soils fertility and those who may view soils more narrowly, as a growing medium.

The main soil issues within the Waikato are compaction, excess nutrients from fertiliser overuse and declining organic matter. Sixty-five per cent of the sample agree that loss of organic matter is having a negative effect on soils in the region (See section 2.6). Compacted soils absorb less water, causing more run-off that carries sediment, nutrients and pathogens into waterways, while also restricting plant root growth. Intensive grazing, heavy machinery, and production practices further degrade soil structure and fertility, creating a cycle of declining soil health and increasing fertiliser use. In urban areas, the loss of green space and deep soils reduces water absorption, raises temperatures, and puts pressure on stormwater systems. Healthy soils — rural and urban — are essential for absorbing rainfall, supporting vegetation and reducing flood risk.

# 8 Te huringa āhuarangi | Climate change

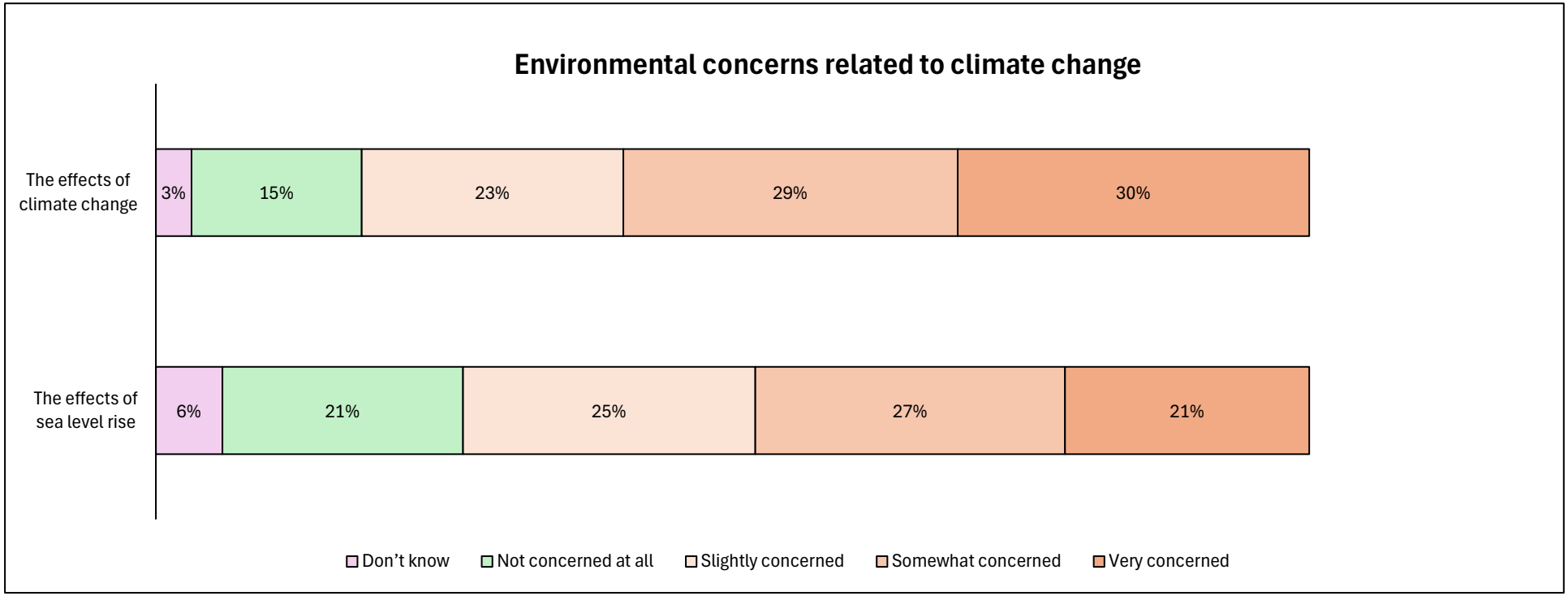
## 8.1 Findings

### 8.1.1 Environmental concerns

A large majority (82% and 73%) expressed some level of concern (*includes very somewhat, and slightly*) about the effects of climate change and the effects of sea level rise. Participants were more likely to express that they were 'not concerned at all' about the effects of sea level rise (21%) compared with the effects of climate change (15%). Similarly, participants were more likely to indicate that they were 'very concerned' about the effects of climate change (30%) compared with the effects of sea level rise (21%).

#### 8.1.1.1 Urban vs. rural

There were **no** significant differences between rural and urban concerns for the effects of sea-level rise and climate change.



### 8.1.2 What concerns people the most about climate change?

As the graph shows, when asked what concerns you the most about climate change, over one-third selected 'extreme weather events.' Participants were three times more likely to pick 'extreme weather events' than the second most popular issue 'rising temperatures'.

#### 8.1.2.1 Urban vs. rural

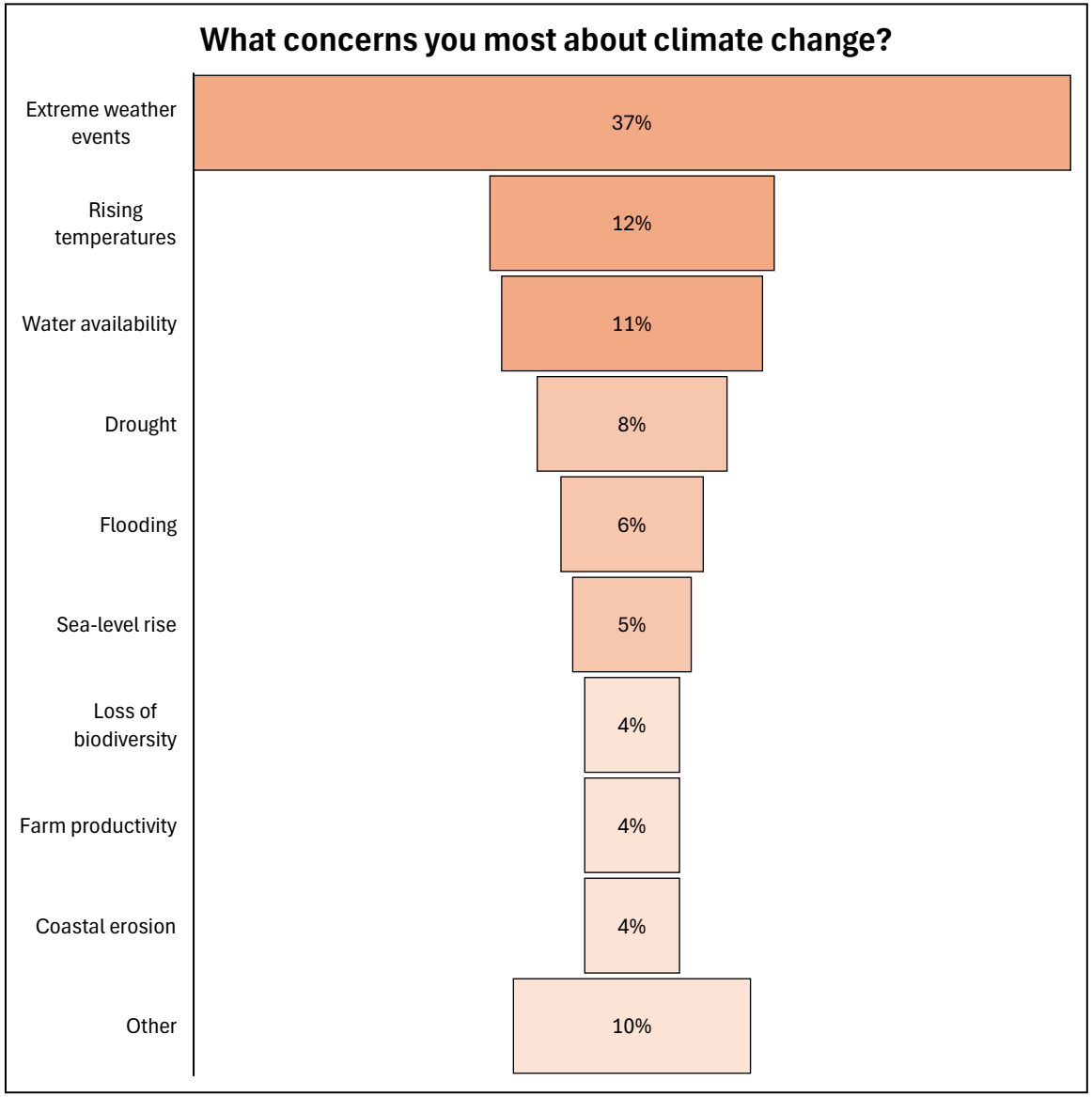
When asked what concerns them the most about climate change, urban and rural participants indicated different priorities.

Urban participants, compared to their rural counterparts, were more likely to pick 'extreme weather events', 'flooding', 'rising temperatures', and 'water availability.'

In comparison, rural participants were more likely than urban to be concerned with 'drought', 'farm productivity' and 'sea-level rise.'

### 8.1.3 Single most important issue

When presented with a list of environmental issues within the Waikato region and asked to indicate which one is the single most important today, over one-fifth (22%) selected 'climate change'[16]. When asked to indicate which issue would be the most important in five years, nearly one-third (30%) selected 'climate change.'




[16] Including: 'in general', 'extreme weather events', 'greenhouse gas emissions', and 'rising sea levels'. See Appendices B & C to view how many participants selected each individual issue within this group.

## 8.2 What people are saying

### 8.2.1 Most important environmental issue today and in five years

Participants who selected climate change as the most important regional environmental issue were concerned about how climate change has and will continue to impact natural resources and quality of life. Participants who selected climate change as most important recognise climate change is having a systemic impact on all environmental issues facing the region:

- *"'Our beautiful landscapes here are what make this place special. But climate change is already messing with that. Rising temperatures mean glaciers are melting faster. Those glaciers are not just a pretty sight; they're an important water source. If they keep shrinking, our water supply will be in big trouble. And then there's the crazy weather".*
- *"Climate change is like a headline- covering most of the other issues".*
- *"Climate changes are already having an unpredictable impact on what I can grow. This is a food production area. We need to know what sort of plants/animals etc are likely to be able to survive and thrive in whatever changes we are likely to see".*
- *"The Waikato region is generally well managed with none of the other issues looking to get out of hand. Climate change, however, is not taken seriously and changes in weather patterns are accepted rather than considered an urgent problem to sort out right now".*
- *"There will be a tipping point, we just don't know how close it is".*
- *"Climate change won't get better by itself & if we aren't prepared to do anything about it now then it'll just get worse".*
- *"Because farming may have to change to suit a new climate, snow falls may be lighter so the ski fields may close, coastal erosion may affect roading and settlements on the coast".*
- *"It is the overarching issue for everything in our future environment from drought to physical and mental health wellbeing to safety from extreme weather events".*
- *"Every part of the damage done to the environment affects and worsens climate change".*
- *"Our agriculture is a huge part of our economy. But warmer temperatures are playing havoc with crop cycles. Some fruits are ripening too early, and the quality is going down. Pastures aren't growing as well, which means less food for our livestock. And the warming oceans are changing the distribution of fish".*

### 8.2.2 What concerns you most about climate change?

The survey has tracked increasing concern over the past decade about the impacts of climate change, including this year a strong focus on the need to prepare for extreme weather events. Comments reflect on the unpredictability and increasing frequency of extreme weather events and question whether we are investing enough in adaptation – articulated in terms of "being prepared". Participants frequently express concern about the lack of maintenance and/or investment in new infrastructure to reduce the impacts of extreme weather events. For example:

- *"These events are likely to increase over the years and cause a great deal of damage, fear and increasingly a huge financial burden on people (and insurance companies). The unpredictable nature of future weather events can't necessarily be regulated but good forward thinking from the experiences of other areas In NZ can surely assist when planning major developments/services in the region".*

The data indicates a marked increase in concern that current infrastructure is inadequate and growing support for investment in infrastructure and activities that can reduce the impacts of extreme weather events:

- *"As the infrastructure is not designed to deal with it".*
- *"Due to the cost to the communities after the events and the cost of future proofing".*
- *"The extreme weather conditions affect rural and town people alike. Flooding, drought. I don't think our infrastructure is enough to cope with the flooding. I think flooding has been at its worst over the past 12 months".*
- *"Adverse climatic events will be inevitable as global warming progresses. These events will be extremely damaging to people and property. The regional authorities must commit funds for research into mitigation of these effects and also for rebuilding/restoring the infrastructure".*
- *"Many of the towns stormwater disposal systems are at full capacity and or at the end of their structural life. Climate change has resulted in a significant increase in rain intensities. This is going to be huge problem in the future in terms of ratepayers' costs and associated short term flooding".*
- *"Because our infrastructure has not been designed to cope with extreme events".*
- *"Water systems in towns need upgrading to cope with extreme weather".*
- *"If extreme weather occurs, it will cause damage to infrastructure and affect people's normal life and regional economic development".*

Many of those who said extreme weather events concerned them most were concerned about flooding and drought impacts. For example:

- *"It is markedly different from before, so we are not experienced with answers. Drought is the worst aspect at the moment".*
- *"There has been very little rain".*
- *"With global warming, although the annual average rainfall in many areas of New Zealand where Waikato is located has changed little, extreme rainfall and droughts have significantly increased".*
- *"We are farmers. Drought brings lack of money & stress".*
- *"I live on the Tauranga Taupo River, which has flooded twice in the last 30 years I have lived here, necessitating sand bagging and significant, damaging erosion to the road I live on. With climate change, we are seeing more weather events and a great higher risk of flooding, putting homes and SH1 at risk. Ongoing flood management is paramount".*
- *"It's worldwide but we experience it daily. Month long drought then sudden floods. This influences everything".*

Participants call for investment in being prepared for extreme weather. Being prepared is discussed in terms of emergency response and undertaking work to reduce the impacts of extreme weather events such as directing flood flows, securing water resources, and infrastructure upgrades to reduce the impacts of extreme weather, floods and droughts. For example:

- *"They are happening more often and we need to be better prepared".*

- *"We are experiencing more & more extreme weather events & I feel it can be quite daunting as to how I can prepare for them. We can only rely on weather reports".*
- *"We are unprepared and the economy is so tight there's little in the bank for repairs".*
- *"Because the weather events we have had in the region recently have had a significant impact on our community and we need to continue to install measures to protect people and the environment".*
- *"Are we prepared for more dangerous and damaging storms?".*
- *"Our apparent inability to even look at developing strategies to attempt to mitigate or raise local awareness of the types of events we are likely to have to deal with. I've been dealing with cyclones, flooding and drought. Is fire an issue too?".*
- *"There are more major events happening and people are not prepared, or do not know how they can help".*
- *"It's how you manage a weather disaster by offering the right help".*
- *"Remedial work to prevent the inevitable climate change damage to the environment needs to be prioritised".*

In general, climate change comments in 2025 reflect a shift towards an expectation to adapt systems and services to better respond to climate change. A small number of participants view climate change as a myth or overblown. Others perceive climate change as a threat but not something we can effectively change. Comments also indicate a growing belief among a small proportion of participants in naturally occurring climate change and the need to adapt:

- *"Climate has always changed. We just have to adapt to it. It's a natural process".*
- *"Climate change is always changing naturally so requires we adapt as a species".*

Previous surveys included comments about how floods and droughts have always occurred. There were no such comments in the 2025 survey – rather comments indicate growing acceptance the climate is changing, but a small portion of the sample interpret this change as naturally occurring, rather than human induced. This shift, alongside the surge in concern about extreme weather events, indicates increasing social support for investment in adaptation to mitigate the impacts of climate change. Comments indicate agreement about the need to manage natural resources in ways that anticipate extreme weather events, across respondents with varying beliefs about climate change. These results indicate that investment to preserve environmental resources and adapt to minimise the impacts of climate change has broad social support.

A number of participants raise the principle that environmental management should satisfy the needs of the present without compromising the needs of the future:

- *"That my 16-year-old daughter is not going to grow up in the environment I did".*
- *"All of these issues mean there won't be a liveable earth for our youth".*
- *"The next generation will suffer".*
- *"End of world? I want my children's generation to survive. I don't consider myself to be a doomsayer, but it actually seems worse"*
- *"Because that's when I will be in the prime of my career and looking to start a family. Or not".*
- *"It has concerned me for a long time, and for future generations".*

- *"I like a healthy world for grandchildren to live".*
- *"I want to know the environment is safe for the next generation, needs to be looked after".*
- *"It worries me for my children having children I personally do not want them bringing beings into this earth as the next. Things are bad enough now what is it going to be like years to come".*

## 8.3 Summary

The impacts of climate change are a concern for a large majority of participants. Although just over 20% of respondents see climate change as the top issue now, one-third expect it to be the most important environmental issue in five years. Participants from both rural and urban settings were most likely to say that their biggest concern for climate change was 'extreme weather events'; however, urban respondents were more likely than rural to select this issue. Comparing the two settings, rural respondents were also likely to be more concerned about drought and farm productivity while urban respondents are more concerned about flooding, rising temperatures, and water availability.

Many participants are concerned about climate change as they see it having the most far-reaching impacts of any environmental issue. Their comments focus on the need to be prepared for more frequent and unpredictable extreme weather, and many feel that the current infrastructure is inadequate for the task. While participants rarely use the word "resilience," they consistently call for better preparation, investment and adaptation — from upgrading infrastructure to managing natural resources with extreme events in mind. The 2025 responses indicate a clear shift toward accepting that the climate is changing, with some viewing it as naturally occurring but still emphasising the need to adapt. Overall, there is growing support for investment in adaptation to reduce the impacts of extreme weather, alongside increasing concern for how climate change will affect future generations.

It is worth noting that a number of those who selected climate change made complaints about the question itself. These comments expressed the idea that these issues are not discrete and complained they were forced by the nature of the question to choose between issues that are interconnected and mutually determined. This, and the nature of participants comments, indicate that a growing number of participants understand that issues of food, energy and water security intersect with climate change in a system of mutual reinforcement. For example, participants said climate change is affecting the cost of living by making food production more challenging and climate change impacts globally are increasing the price of food in New Zealand - food prices in New Zealand are high because of rising prices in the global commodity market.

# 9 Te taiōhanga me te taiao | The economy and the environment

## 9.1 Findings

Respondents were asked to indicate how strongly they agreed or disagreed with the following statements describing the relationship between the economy and the environment:

1) Businesses should be required to minimise negative impacts on the environment
2) A healthy environment is necessary for a healthy economy
3) More should be done to invest in water quality
4) Environmental protection and economic development can go hand in hand
5) Water quality in streams and rivers should be protected even if that means businesses have to bear the expense of meeting environmental standards
6) Businesses find it is too expensive to be more environmentally friendly
7) Businesses generally take care to minimise negative impacts on the environment
8) The benefits of maximising agricultural productivity outweigh the costs of harming waterways

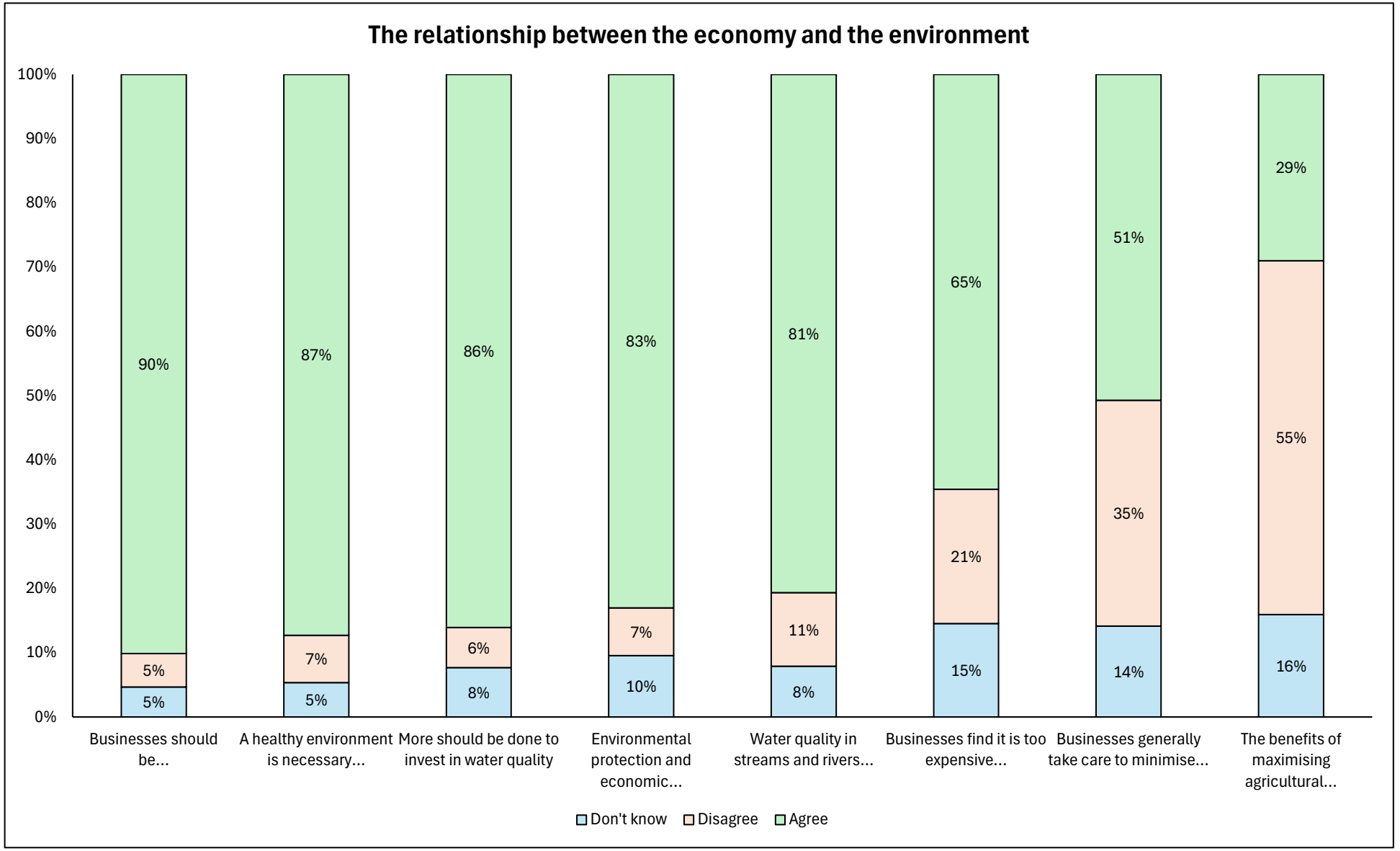
As the graph on the following page shows[17], most participants (83%) agreed that environmental protection and economic development can go hand-in-hand. A similar proportion (87%) agreed that a healthy environment is necessary for a healthy economy.

The majority (90%) believe businesses should minimise their environmental impacts but only half (51%) believe that businesses meet this expectation. This might be explained by the perception that businesses find it too expensive to be environmentally friendly, a notion that nearly two-thirds (65%) of the sample agreed with.

Most of the sample (86%) agreed that more should be done to invest in water quality, and a similar proportion (81%) agreed that water quality in streams and rivers should be protected, even if that means businesses have to bear the cost of meeting environmental standards.

Just over half of the sample (55%) disagreed with the notion that the benefits of maximising agricultural productivity outweigh the costs of harming waterways. Fewer than one-third (29%) agreed with this perspective.

[17] See Appendix F for a table outlining how strongly participants agreed/disagreed with each statement.


The relationship between the economy and the environment
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14%
29%
55%
16%
Businesses should be...
A healthy environment is necessary...
More should be done to invest in water quality
Environmental protection and economic...
Water quality in streams and rivers...
Businesses find it is too expensive...
Businesses generally take care to minimise...
The benefits of maximising agricultural...
Don't know
Disagree
Agree

## 9.2 What people are saying

### 9.2.1 Population growth, loss of productive land, increasing waste to the environment: reducing residents' quality of life

Participants who selected population growth as the most important issue claim the loss of productive land to residential development to support population-based growth is driving up pollution and waste, reducing food security, habitat for biodiversity and natural resources including water and soil. There were also comments on the poor quality of some residential development and claims that short-term profits are being sought at the expense of lasting economic and social benefits:

- *"Te Awamutu is growing so fast. There are new homes and communities being built all around the out skirts of town. Increase in new housing, eventually overtakes the environment. So, I guess what I'm saying is we may not have an environment to look after... if we don't watch our step".*
- *"Urban growth reduces flora and fauna, food production and increases water consumption and wastewater production".*
- *"Development is taking over both urban and rural areas which causes density of population and loss of productive land".*
- *"I worry that the roading, water, waste removal, storm water, and services that the council does not supply like doctors, schooling, etc cannot keep up with the growing population".*
- *"As the region attracts more people there will be pressure to subdivide more arable land. We will need to import food we could grow in the region thus reducing food miles, concreted soils and increasing our sustainability in the event of environmental disasters".*
- *"As the population increases, so does the demand for all kinds of natural resources, such as water, energy and land".*
- *"Growth puts more pressure on all environmental issues".*
- *"More people=more resources are needed".*
- *"We are a fertile region that should be producing food for our nation, so we don't have to import more expensive basics from overseas. Productive land should not be used for housing or forestry".*
- *"Rural towns are expanding into arable land and native bush areas reducing native wildlife and food production".*
- *"With the increase of the urban population and the development of industry, the Waikato region has seen an increase in vehicle exhaust emissions, industrial exhaust emissions and pollutants from energy consumption".*
- *"I feel that in the near future we will have lost a lot of our green spaces to housing. Green spaces including farms will diminish and that will be devastating to the environment".*

Of those participants who selected population growth, loss of productive land, rates or waste as their most important environmental issue, some claimed the extent of residential and industrial development being pursued is straining local waste and water infrastructure and the social and environmental costs of these land use changes are falling on ratepayers – leading to rates rises and a reduction in the quality of life of residents. These participants claim that population-based growth is leading to waste and pollution, straining water and waste management systems, and degrading ecosystems. With some noting that quality of life in the region is reduced by increased traffic, water quality decline, reduction in water security, and increased demand on energy resources. For example:

- *"Urban sprawl puts stress on infrastructure. Produces more waste in the form of grey water recycling and clean water supply. Potentially productive arable land is lost to housing. Additional roading for cars is required which leads to more pollution. More land is required for landfill. More power needs to be generated through hydro or wind farms. Theres also the potential impact on deforestation of land or the underground routing of streams and wetlands".*
- *"As population grows so does growth of businesses, more vehicles on the road, more fuel polluting the air. It then affects the land, especially in the coastal areas, does not benefit the next generation".*
- *"I believe water is the most important environmental issue facing the Waikato region currently because the quality and availability of water resources directly impact ecosystems, agriculture, and residents' lives. With population growth and increased agricultural activities, issues of water pollution and scarcity are becoming more severe, threatening local biodiversity and potentially affecting people's health and economic development".*

Participants connect perceptions of a declining level of service with population growth, leading to more rates revenue being allocated to infrastructure upgrades as water and waste issues intensify:

- *"Urban development makes the population increase, domestic sewage discharge if not properly treated, will enter the water system. The quality of water is directly related to the quality of life, so water quality is the focus of urgent attention".*
- *"Because whilst this growth may be financially viable the infrastructure is not".*
- *"There's a general lack of investment into areas that will grow - amenities that will be required for more residents aren't being upgraded to future proof their operations (water treatment, water catchment areas)".*
- *"Because of the services required to support this growth".*
- *'We can't keep up with the infrastructure without a lot of capital investment, and this isn't feasible with the state of the economy".*
- *"The region is relatively unpopulated and massive building expansion is occurring. The infrastructure does not exist to support this in an environmentally conscious manner".*

Participants claim that rates increases coincide with reduced benefit to ratepayers. A good proportion of comments made about regulation complain that they observe a decline in service, with many noting that local services are under pressure from population growth and agricultural intensity. Comments about the regional economy reflect on the reduced benefit of economic activity to residents, including low incomes that cannot support peoples' basic needs and the degradation and depletion of natural ecosystems. Among these participants some point to the unfairness of ratepayers paying for the downstream costs of business activity. Comments about the environmental costs of economic activity point to the costs to residents' quality of life, including water restrictions, quality of drinking water, unswimmable rivers lakes and coasts, and increasing waste to water and landfill:

- *"Key. Industry affects all waterways in the region. Water quality degraded. Makes it unsafe/unpleasant for consumption recreation and as a habitat for native species".*
- *"We have got the Waikato River, the Punui river, and they are polluted. They are unswimmable. They don't have the biodiversity in them because of the pollution released into them".*

- *"The incredibly tainted run-off from dairy farms around Taupo, combined with industry in the Tokoroa area is having a seriously detrimental impact on water quality all down the river. Contact Energy's geothermal discharges for the past 50 years haven't helped much either, and it will take generations for all of the cumulative damage to be remediated, especially the poorly controlled dairy effluent. Having a profitable export dairy sector does NOT excuse this sort of abuse to the environment".*
- *"With population growth and climate change, rainfall patterns have changed. Coupled with irrational water resource utilisation, it has led to water shortages, affecting agricultural irrigation and domestic water use for residents".*
- *"Because it impacts native flora and fauna and deteriorates the experience for residents and visitors who may wish to swim/fish".*
- *"Businesses are closing, crime is rising and pushing retail prices up, staff are not safe at work - there is very little to appeal about the region and draw people into the urban area".*

Residents are counting the cost of economic activities in terms of their impacts on common resources – water, soil, air, coasts, biodiversity – as well as the need for more infrastructure to manage pollution effects and climate change impacts:

- *"Does not just effect the environment but the economy as well" (water pollution)*
- *"Allowing multinational mining companies into our environment of rainforests mountains and pristine coastlines is an environmental disaster. Te Aroha Tui mine is testimony to this and Waihi mine and tailing lakes a disgrace! "*
- *"Intensive agriculture often overuses fertilizers and pesticides, which can damage soil structure, reduce soil fertility, and affect long-term land productivity".*
- *"One of the most important environmental issues in the Waikato region is water pollution. Industrial activities, agricultural runoff and sewage discharges all contribute to the problem".*
- *"Because we have the largest body of water in the North Island, which is fed by multiple rivers and also affected by numerous different users at all times. How do we maintain the pristine quality of that water for now and for all future generations. We cannot lapse on maintaining a close relationship with the water and all it's facets".*
- *"The incredibly tainted run-off from dairy farms around Taupo, combined with industry in the Tokoroa area is having a seriously detrimental impact on water quality all down the river. Contact Energy's geothermal discharges for the past 50 years haven't helped much either, and it will take generations for all of the cumulative damage to be remediated, especially the poorly controlled dairy effluent. Having a profitable export dairy sector does NOT excuse this sort of abuse to the environment".*

The data suggests that some participants are unhappy with the environmental impacts of intensive dairy farming, with others also concerned about the impacts of mining, energy and tourism:

- *"Intensive dairy farming in New Zealand leads to the production of large amounts of animal waste, cow and sheep waste and nitrates in cow urine into the water, which can lead to the growth of toxic algae and potentially contaminate groundwater".*
- *"While I think water pollution is the most pressing, I'm also aware other types of pollution are also a problem, e.g. those created by mining, farming practices, and over development".*

- *"Too many farmers are blind to the environmental effects of their activities & quite frankly don't want to know as it affects the bottom line, which is not very low although they argue high & low about how badly off they are".*
- *"Farmers need to be made to realise they are not the backbone of the country. They are 5% of the nation's GDP but create 50% of the pollution. They need more regulations to control the pollution they cause. Some care about the environment, but where I live, many don't and they just think they own the environment and can do whatever they like".*
- *"Nitrate levels", "Farmers run off".*
- *"Limit farmers to X cattle per acre of grazing".*
- *"The dairy industry is still a significant contributor to climate change and very prominent in the area. Everything possible should be done to reduce its impact by encouraging/ enforcing proven strategies and technologies for reducing its contribution to climate change".*
- *"All regions including Waikato are facing the problem of over stocking farmland, causing high nitrogen deposits in soil and waterway pollution. Farmers are expected to provide environmental solutions which are costly and difficult to carry out in this present economic time. I think most farmers are environmentally aware and do their best but the problem will take many years to overcome".*
- *"Lots of dairy farmers who only care about profits".*
- *"Heavy dairy farming region, the waste goes into the water table".*
- *"Huge tracts of land being converted to growing maize (monoculture) meaning removal of trees, vast increase in fossil fuel use & the practice means great likelihood of pests & diseases being spread".*
- *"Provide support and encouragement for organic and regenerative farming processes in the district".*
- *"Both farmers and urban people are worried about the environment. Instead of blaming each other, we should work together to find a solution. Regional and local city councils should look for solution together".*
- *"I think that Waipa District Council should maybe help the farmers with disposing of cow muck in order to get our rivers back to free clean running water. And council could look at reinforcing the riverbanks by planting plants to stabilise the land. As a lot of land is lost from floods etc".*
- *"Over the 50+ years I have lived or had holidays in the Taupo & Waikato region I have watched as the introduction of Dairy farming in the region has destroyed the water quality".*
- *"I strongly disagree in mining in hilly areas and Conservation lands. Mining companies should not leave toxic waste for future Councils to cleanup, put right after extreme weather conditions".*
- *"Goven the major tourist destinations within the region, I was surprised that the effects of tourism (both in travelling here - usually very long distances) and while here were not included in the survey. Their increasing numbers have a major effect on some regions eg the Coromandel and Waitomo districts".*
- *"The negative impact from open cast gold silver mineral mining on our fragile environment and our rainforest, leaching toxins into water ways and the sea, the dreadful consequences to flora and fauna and to humans will be an ongoing battle between environmentalists and greedy politicians and mining companies who don't give a damn about the consequences".*

- *"The pressures from urban growth and forestry will be put on productive land especially when farming families can't succession plan".*

- *"At the rate the subdivisions are going up, in 5 years' time there will be very little open land left. The farms are selling off at a rate of knots, really noticeable in our area".*
- *"Because of the increased pressure on infrastructure. Sewage, water, transport, and the amount of additional food trucked between all the additional supermarkets. And the food is getting trucked in as all the local agricultural land has more value as a subdivision than it does as a broccoli field. You could say grow food vertically but that still impacts on water supply and then your adding chemicals or incomplete nutrients to the water to grow food hydroponically that should have been grown in the soil locally. Everything is about fast profits".*
- *"With subdivisions etc land values go up, so land won't be available close to the cities plus it won't be economically viable for producers to use land near the cities".*
- *"People are not encouraged enough to reduce pollution. This government supports profits and big business at the expense of our natural resources. Basically, they are selling NZ off".*
- *"Because this government is rolling back environmental protections and fast-tracking industrial development".*
- *"Loss of productive land equals loss of income which means less dollars to fix all the other problems".*
- *"We depend on farming for much of our local income so anything that affects productivity negatively will have a bad effect on the region".*

As many of the region's farmers reach retirement age and increasingly find it difficult to succession plan, a number of participants raised concerns that more family farms are being sold and replaced by either large scale more intensive industrial dairy operations or by residential development, at the expense of local food production.

### 9.2.2 Economy, waste and pollution

Some participants are unhappy with the inefficiency of economic activities that are depleting natural resources and generating a large and increasing quanta of waste. Some point out that waste streams contain valuable resources that are lost in landfills, which then create contamination and degradation of the land:

- *"How can we go on with all the waste we are creating. There should be things done at the production level".*
- *"The production of a large amount of waste means the waste of valuable resources. Many recyclable or reusable materials are discarded, resulting in over-exploitation of resources and an increased burden on the environment".*
- *"Waste contains many resources that can be recycled and reused. If the waste is disposed of improperly, these resources will not be used effectively, resulting in a waste of resources".*
- *"The production of a large amount of waste means the waste of valuable resources. Many recyclable or reusable materials are discarded, resulting in over-exploitation of resources and an increased burden on the environment".*
- *"Not enough being done to utilise items that finish up in landfill".*
- *"We need to develop better ways of combating the growth in waste materials, and in their disposal. The present focus is largely on futile attempts to persuade people to reduce the quantum".*

Some participants express concern that climate change impacts on growing conditions and ecosystems will increase the cost of living and undermine business productivity:

- *"I reckon climate change will be the most pressing issue in Waikato in five years. Our agriculture is a huge part of our economy. But warmer temperatures are playing havoc with crop cycles. Some fruits are ripening too early, and the quality is going down. Pastures aren't growing as well, which means less food for our livestock".*
- *"Dairying will be affected and uneconomic".*
- *"Climate changes are already having an unpredictable impact on what I can grow. This is a food production area. We need to know what sort of plants/animals etc are likely to be able to survive and thrive in whatever changes we are likely to see".*

The management of water security, water quality, biodiversity, soil, and air quality is important for the quality of the environment and quality of life, but also for keeping the cost of living affordable by supporting local benefits of economic activities now and in the future:

- *"If global warming continues to increase then water availability/management will become important to support agriculture, food production generation of electricity".*
- *"I am worried about floods and drought both will add to the cost of living in the Waikato and will impact economically our region".*
- *"The Waikato River is very polluted, and the council just allow businesses to continue adding pollutants to the river".*
- *"Biodiversity is vital to economic activities such as agriculture, fishing and tourism".*
- *"There is always a risk that greater water take will reduce the water quality. Water management is key to ensuring the viability of water in future".*

# 10 Te waeture | Regulation

## 10.1 Findings

### 10.1.1 Single most important issue

When presented with a list of environmental issues within the Waikato region and asked to indicate which one is the single most important today, 17% selected 'regulation'[18]. When asked to indicate which issue would be the most important in five years, the proportion of those selecting 'regulation' decreased to 11%.

### 10.1.2 Regulation statements

Respondents were asked to indicate how strongly they agreed or disagreed with the following statements describing environmental regulation within the region:

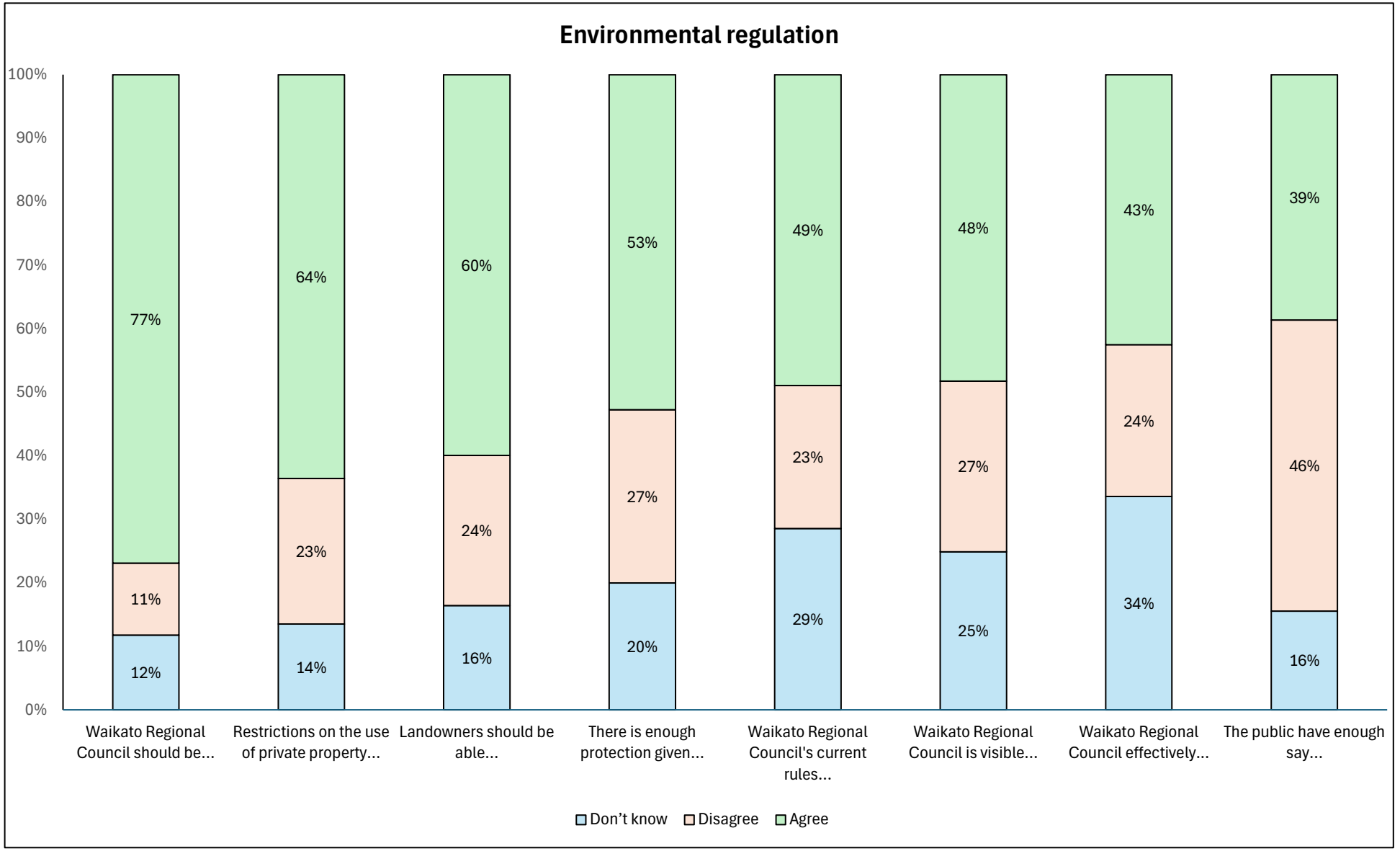
1) Waikato Regional Council should be doing more to protect native birds, plants, and fish from introduced pests
2) Restrictions on the use of private property are necessary so that the environment will not be harmed
3) Landowners should be able to do more than they are currently allowed on their land
4) There is enough protection given to local significant natural sites
5) Waikato Regional Council's current rules ensure the environment is well looked after
6) Waikato Regional Council is visible in responding to environmental concerns
7) Waikato Regional Council effectively enforces its rules
8) The public have enough say in the way the environment is managed

As the graph on the following page shows[19], participants were most likely to agree that Waikato Regional Council should be doing more to protect native birds, plants, and fish from introduced pests (77%). In comparison, participants were most likely to disagree that the public has enough say in the way the environment is managed (46%).

Participants expressed the least certainty (*i.e., most likely to select 'don't know'*) about whether Waikato Regional Council's current rules ensure the environment is well looked after (29%) and whether Waikato Regional Council effectively enforces its rules (34%).

[18] Including: 'in general', 'enforcement', 'rates/costs', and 'stringency'. See Appendices B & C to view how many participants selected each individual issue within this group.

[19] See Appendix G for a table outlining how strongly participants agreed/disagreed with each statement.


Environmental regulation
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Waikato Regional Council should be...
Restrictions on the use of private property...
Landowners should be able...
There is enough protection given...
Waikato Regional Council's current rules...
Waikato Regional Council is visible...
Waikato Regional Council effectively...
The public have enough say...
Don't know
Disagree
Agree

## 10.2 What people are saying

Those who selected regulation as the most important environmental issue, more often than not, highlight rates increases. A few comments indicate awareness of issues councils face, such as funding for investment in infrastructure upgrades due to population growth. For example:

- *"Environment Waikato struggles on limited budgets with inadequate staffing for the needs of the region. Greater financial input from Central Government is essential as local rates are insufficient and ratepayers hard-pressed to meet ever-increasing rates rises. My thanks to the dedicated employees who do their utmost to protect our precious environment".*
- *"Councils are going to need more funds as costs go up. More money will be needed for environment"*

While some participants recognised the need for further investment in environmental protection in order to keep up with growing pressures on the environment, a number of participants express concern that rate rises could drive people on small and fixed incomes out of their homes – indicating that complaints about rate rises are largely about affordability. In comparison, in previous surveys, participants focused more exclusively on perceptions of wasteful spending. A number of these comments point to incomes that are not keeping pace with the rising cost of living. Income insufficiency is likely driving rates resentment, which sits alongside other bills that are also rising, such as the cost of food and energy. As the cost of basic needs rises, people are unable to adapt by reducing spending:

- *"Costs have risen at a far greater rate than incomes, which is especially problematic for those on low or fixed incomes".*
- *"Because rates are going up quicker than wages. We struggle to pay the rates".*
- *"Increasing rates put a strain on a household budget and if people are struggling to put a roof over their heads, put food on the table, cloth their children and send them to school with a full tummy, environmental issues don't mean a thing to them".*
- *"Incomes are not able to sustain these exceeding costs which continue to rise".*
- *"You can't care about anything else if your people can't afford to live".*
- *"I'm a pensioner and am trying to live to feed myself. We can't pay the rates we got to move".*
- *"Because everything seems to reflect in increased costs, therefore increased rates. It is a common problem across all local authorities and a long-term solution other than expecting ratepayers to carry the burden - it simply cannot continue in the present set-up".*

A number of participants comment they struggle to pay rates and complain they are not aware of what it is they are paying for. A number of these comments call for more information from Waikato Regional Council on what the most important environmental issues are and what is being done:

- *"We need to see more evidence of what specific benefits our regional rates are making to the environment".*
- *"I pay my Waikato regional council rates every year and they go up every year, but other than the flyer they include with your rates account, you don't really hear much about them".*
- *"I never really understand their purpose, just that I have to pay them rates".*
- *"There needs to be far more education and community participation rather than regulation".*

- *"Regional council must be able to support the people and advise the people to see that the environment effect is reduced".*
- *"Rates are becoming unaffordable and we see little that actually we get for what we pay out".*
- *"The area covered by WRC is a large area. More awareness to rate payers as to what you do would be helpful. Many complain about rates (especially how much they increase) more knowledge on what it covers would be helpful".*
- *"More info' on issues should be published and what the council is planning to do to solve issues".*
- *"People need to be made more aware of what is going on in the environment BEFORE there is a major catastrophe without harping on things. If things are put to people in black and white without sensationalism and pointed out how we can help I think that is a step in the right direction".*
- *"I just think this issue of environmental crisis needs to be raised and publicly aware of what's going on".*
- *"I consider people are not considering the environment because it is not on their minds or in front of them all the time. If the councils and towns took environment as their biggest issue, they could provide more education, more marketing, more community incentives, more in-the-face discussion and posters and other things of that nature so that people would begin to take more personal responsibility and maybe get rewarded for doing so".*
- *"Hard hitting education is the only way to raise awareness, backed up with financial deterrents and rewards".*
- *"More visibility if what Waikato council is doing and how we can contribute or participate in improving our environment".*
- *"More visibility of WRC in social media space".*

Comments that focused on Waikato Regional Council responsibilities were primarily concerned with lack of enforcement of rules with some claiming that it is the general ratepayer rather than the polluter who is paying the costs, both in terms of rates rises and in terms of lost services and environmental benefits. A few participants also commented on the process of enforcement relying too heavily on ratepayer complaints rather than investigation of known issues. For example:

- *"Waikato compliance officers need to look around and see what is happening within their area or sector".*
- *"The costs of population growth waste and ag and industry pollution is borne by ratepayers not those who profit from the polluting activity this is seen as a fundamental unfairness and councils are blamed for this".*
- *"Why lump the people doing good with costs, get them through fining people who are shit at complying".*
- *"It needs to be regulated so it doesn't compound and get worse if it's not regulated people can do anything like dump their rubbish, pollute our water it can get into everything, and we don't want that for our land".*
- *"No point in having rules and standards if no-one is monitoring and enforcing them".*
- *"Regulations need to be clear, help the environment and be enforced".*
- *"The enforcement of environmental regulations is the most important issue because without enforcement all the rules and regulations will have no effect. It has been a tactic used by past councils, and governments, to set rules and targets, but under-fund the enforcement, to look green without changing the status quo".*
- *"Because waste is more a problem now and man is the problem and will continue to be so unless we penalise those responsible. (In a real manner and not a hand slap)".*
- *"Environmental Waikato need to do what they are appointed to do and not turn a blind eye to some agricultural operators".*
- *"Regulation needs to be made more suitable for what is actually required in the Waikato Region long-term, not just how there has been a focus on short-term!"*

- *"Because living beside Waipas dirty secret makes me angry especially considering how many of their resource consent conditions they aren't meeting...and no one oversees that sort of thing".*
- *"Pollution will not stop until enforcement is required".*
- *"Regional council compliance is OFTEN seen as TOO BLOODY SLOW, too slow to find fault /non-compliance and too slow to EFFECTIVELY stop ongoing non-compliance. Public calls may be good, but if your checkers were better at their job, fewer and simpler actions could surely be taken?"*
- *"We should be doing more everywhere. Reducing plastics, packaging, aerosols, gas emissions, farming plus many more things. There should be more things that are banned and alternatives used. I don't see things going well if we continue with what we are currently doing but you feel stuck between a rock and a hard place because things aren't changing at the source of the issues".*

The comment above and the following challenge the generalisation of responsibility for environmental consequences often pointing out that individuals cannot solve systemic problems. Participants express dissatisfaction with rates spending, questioning whether rates are funding collective investment in the management of the environment for the greater good. Some comments reflect on the appropriate relationship between local councils and residents/ratepayers, for example:

- *"I would like to reiterate my statement about Council actually listening to the public, with an open mind and remembering that we are not customers, we are shareholders".*
- *"I think people in power and councils should not put all the blame of protecting the environment on individuals and start looking at the big environmental issues and protect them in a group effort".*
- *"The world is expecting everyone to be more environmentally friendly but this comes at a cost to people who may not be able to continue to afford the rate rises".*

There are participant comments that reflect discontent with the rising cost of rates coinciding with reduced benefit for residents, including water restrictions, poor quality of drinking water, under investment in public transport, unswimmable rivers and lakes, and inadequate and/or outmoded waste management services. For example:

- *"Because increasing rates but not providing services e.g. promised buses etc and really getting nowhere".*
- *"We have rates increases recently and have not seen any benefits in our immediate community".*
- *"The cost of Rates is high, and we cannot see any return. The rates, along with the Regional Rates, are far too expensive. Where is the money going"?*
- *"Rates have skyrocketed almost beyond what we can afford. It's grossly unfair to the average rate payer who struggle to pay their rates. And for what you get in return is definitely not balanced. The city has gone backwards & is getting shabby & very untidy. To the point it is embarrassing when having visitors".*
- *"Rates are at an all-time high with ongoing increases expected. The amount of work seen that impacts residents is low".*
- *"People struggling to stay afloat due to rates rising and nothing to show for it".*

# 11 Te para | Waste

## 11.1 Findings

### 11.1.1 Single most important issue

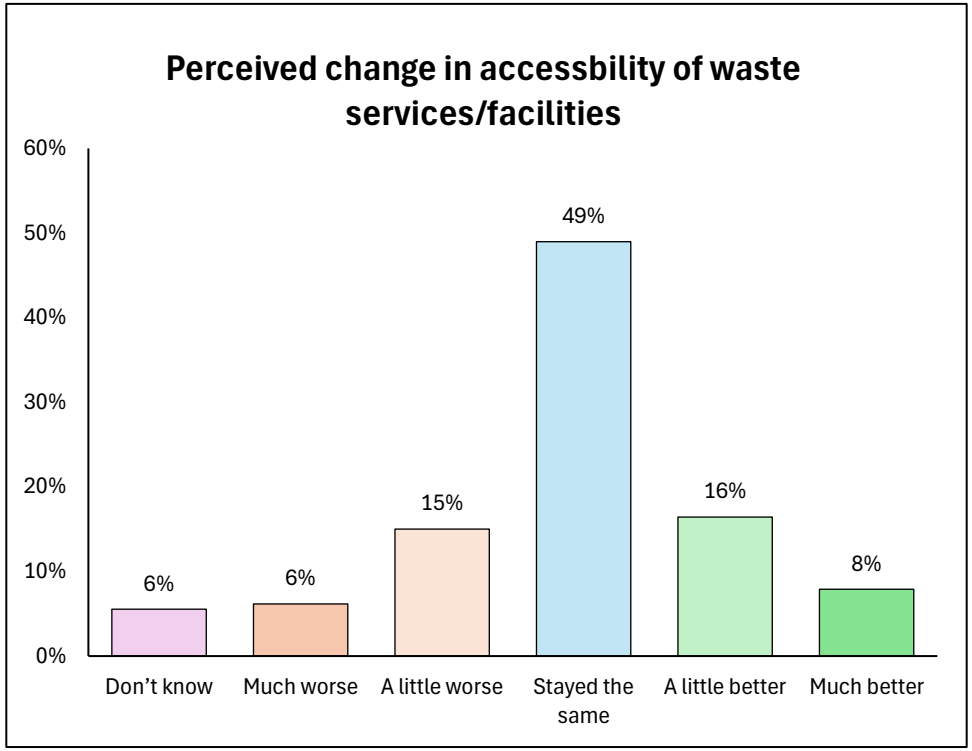
When presented with a list of environmental issues within the Waikato region and asked to indicate which one is the single most important today, 15% selected 'waste and pollution'[20]. When asked to indicate which issue would be the most important in five years, a similar proportion (14%) selected 'waste and pollution.'

### 11.1.2 State of local environment perceptions

Almost half of participants indicated that the accessibility of waste services and facilities in their local areas had stayed the same over the past few years. Similar proportions of participants felt that waste services had either improved (24%) or worsened (21%).

### 11.1.3 Urban vs. rural

Urban participants were more likely than rural participants to say that the accessibility of waste services in their local areas was 'a little better', whereas rural participants were more likely than urban to select 'don't know'.




[20] Including: 'waste' (incl. 'in general', 'disposal', 'food waste', 'reduction', and 'plastic pollution') and 'pollution' (in general). See Appendices B & C to view how many participants selected each individual issue within this group.

### 11.1.4 Waste reduction behaviours

Participants were asked to indicate which of the following statements best described their waste reduction behaviours:

| Statement | Percentage |
|---|---|
| My household does everything they can do to reduce our waste | 42% |
| My household takes some steps to reduce our waste and intend on doing more | 37% |
| My household takes some steps to reduce our waste and are interested in doing more but are not sure how | 13% |
| My household takes some steps to reduce our waste and are not interested in doing more | 7% |
| My household is not interested in reducing our waste | 1% |

#### 11.1.4.1 Urban vs. rural

There was no significant difference between the self-reported waste reduction behaviours of urban and rural participants.

## 11.2 What people are saying

Those who selected waste as the single most important environmental issue in the region were concerned about a range of waste issues including the excessive use of landfills, lack of processing of food waste, plastic packaging, population growth generating increasing waste, and the need to invest in better waste infrastructure and change the way we manage waste, in particular reducing and reusing. For example:

- *"Effective waste management is key to achieving sustainable development. By reducing, reusing, and recycling, communities can reduce the need for new resources and promote a circular economy".*
- *"We need to develop better ways of combating the growth in waste materials, and in their disposal. The present focus is largely on futile attempts to persuade people to reduce the quantum".*
- *"There are new methods to deal with waste starting up that need support. Council's need to be proactive in this area particularly wastewater treatment which can produce energy and clear water for recycling".*

Some participants draw attention to the futility of moral inducements to reduce waste, pointing out that the generalisation of responsibility for waste is denying that waste is inherent in the growth imperative of our economic system, which leaves regulators the task of slowing pollution through rules rather than designing it out of production processes.

### 11.2.1 Landfills

Participants frequently commented that time is running out on landfills as a solution to the increasing quantities of solid waste being generated. Landfills are seen as unsustainable because they use and can contaminate valuable land in the context of increasing quantities of waste. Increasing fees is not seen as effective, instead increased fees are perceived to be causing observed increases in illegal dumping in the community. Participants question this approach and some suggest incentives for reducing waste might achieve better results than increasing the costs of 'disposal':

- *"Waste management, specifically landfills are a country wide if not worldwide issue. We are running out of land to contain the rubbish the community is producing".*
- *"Food waste not only results in a direct loss of resources, but also in the waste to energy and water during production, transportation and disposal".*
- *Landfills are maturing and alternative disposal require expensive transport removal from the region".*
- *Because tip fees are so expensive people are dumping rubbish anywhere".*
- *"We still have large waste dumps".*
- *"Landfills / consents are maturing in a number of communities. This means that non-renewal of consents will increase the cost of disposal of waste due to the need to remove from the region for processing/ final disposal".*

### 11.2.2 Population growth

Some participants refer to the impact of population growth and the consumption driven end of waste:

- *"More people, more waste, no infrastructure to cope with it".*
- *"Population is growing and so is waste".*
- *"The production of a large amount of waste means the waste of valuable resources and an increased burden on the environment".*
- *"Over population cost of living making processed food cheaper meaning more non recycling packaging in landfill"*
- *"The growth is so rapid and the infrastructure can't handle it".*
- *"As the population increases the current method of waste disposal will become increasingly overloaded".*
- *'The region is developing fast urban wise. Waste management will be a concern and waste disposal a major part of that.*
- *"Waste is always increasing as population grows and we don't seem to be doing much about it".*
- *"Pollution effects every part of our lives from health, to care of the water ways, to the removal of waste which includes use of asbestos in buildings that were built pre-1980's. Factories/businesses that do not have the correct oversites in place and have fires and other pollutant preventions in place. The importing of cheap products that do not last and become an issue to depose of for example Temu".*
- *"More people, more waste".*

Comments include those that focus on consumption and population drivers of waste. Some reflect on the waste built into production processes. Others are clear that the system is not delivering on waste reduction, reuse or recycling and point to the need to take decisive action from households, businesses, councils and central government:

- *"Politicians need to lead the way and ban all plastic, or anything that won't breakdown in the earth's system".*
- "*We produce a lot of rubbish which is shipped out of our district. We don't want an incinerator here, but we need council to lead the way in waste reduction. All ultimately affects climate change and pollution".*
- *"They have got to reduce the production of plastic".*
- *"The use of plastics is quite dangerous we need to return to using bottles paper bags since it is so difficult to get rid of plastic".*

## 11.3 State of waste in the region

The waste generated, and how we manage that waste, impacts our natural resources. Waste is a direct consequence of natural resource use. Solid waste – the rubbish that businesses and households generate – is just one component of this. Our economy also generates gaseous and liquid wastes, and the environment is the ultimate receptacle for these wastes[21] Waikato Regional Council recognises that disposal to landfills is increasing and waste from areas outside the region (such as from Auckland, Tauranga and as far as Gisborne) is being imported into the Waikato region for disposal. This means environmental resources, as well as ratepayers, may be disproportionately affected by the long-term negative effects of landfilling. Construction and demolition (27.5%) and putrescible waste (food and green waste, 25.9%) are the two largest categories of waste going to landfill. Nationwide, the amount of material being disposed to landfill is increasing while the amount of resources diverted from landfill (via composting, reuse, recycling or other methods of diversion) is decreasing.

Current forms of production and consumption result in the use of natural resources faster than they can be replenished and creates more waste than can be absorbed by the environment without degrading it. Our natural resources are depleting – we are using water, soil, metals, and minerals faster than they can be replenished and creating waste that cannot be absorbed by the environment without degrading it. Reducing the quality of water, soils, and air reduces the future supply of goods and services our natural resources can provide, further reducing the capacity of the environment to generate abundant natural resources. Addressing the growing quantities of waste generated by economic activities and consumption requires addressing waste at the point of extraction, production *and* disposal. Forty per cent of waste sent to landfills in New Zealand is divertible, which means we have an opportunity to use materials more efficiently and avoid the need to buy or produce material and reduce the cost of disposal.

Reducing waste is fundamental to sustaining our natural resources. Addressing the increasing quantum of waste, without compromising economic outcomes, is achieved by decoupling economic activity from natural resource use and the generation of polluting waste. Unfortunately, while the resource intensity of economic production in some high-income countries has decreased, this is offset by increases in the quantity of resources embedded in imported goods. Reducing waste generated in the production of goods and services can be expected to reduce the discharge of contaminants into the environment and is the goal of Waikato Regional Council's Waste Prevention Action Plan 2020-2025.

[21] Parliamentary Commissioner for the Environment, 2024, Resource use and waste generation in Aotearoa New Zealand: A literature review.

## 11.4 Economy, regulation and waste summary

Many participants claim that residents' quality of life is being undermined by population growth and attendant urbanisation, pollution from agriculture, mining, forestry, tourism, energy, wastewater and stormwater, and wasteful production and consumption. Some observe a reduction in natural landscapes and productive farmland. Farms, especially on the outskirts of small towns and the perimeter of Hamilton City, are being lost to residential developments. Among these participants some observe reduced green space in towns and cities and a reduction in the quality of water, including unswimmable water bodies, more frequent algal blooms, reduced clarity, and smelly water and poor-quality drinking water. Many participants express concern about potential risks to drinking water sources including the potential for arsenic and nitrogen to harm human health with some commenting on reduced fish stocks and plastic pollution.

Residents are worried about a wide range of waste issues — from the unsustainable reliance on landfills and growing volumes of food and plastic waste to the pressures of population growth and inadequate waste infrastructure. Many feel landfills are running out of time as a solution and link rising fees to more illegal dumping. Comments highlight concerns about consumption-driven waste, waste built into production systems, and a belief that current approaches to reduction, reuse and recycling are falling short. Overall, people want stronger, more decisive action from households, businesses, councils and central government to change how waste is managed but recognise that this activity needs coordination and new systems that can achieve this outcome.

Depletion of foundational resources including water, soil, and biodiversity is undermining the region's future wealth, restricting future economic opportunities. Some participants call for a long-term view of economic activity that considers both benefits and costs, including who receives benefits and who pays the costs. Some participants complain that it is ratepayers and the environment that are shouldering costs and receiving the negative effects. Environmental costs are also seen as restricting more genuinely sustainable alternative economic activities that could make the most efficient use of the region's land and freshwater resources while delivering social and economic benefits for communities.

Some participants observe that businesses that pollute are not being sanctioned by Waikato Regional Council in meaningful ways. This, they claim, means ratepayers pay twice for profitable businesses to pollute common resources and for expensive drinking water and wastewater processing infrastructure to address the consequences of the pollution from economic activities. Of the industries mentioned, the dairy industry is mentioned most often as a source of water pollution. Other industries identified as polluting include mining, tourism, forestry, solid waste management, wastewater facilities, proposals for waste to energy 'solutions', and energy businesses, particularly hydro and thermal, degrading river and lake ecology. Reducing waste is essential to protecting natural resources, but true progress requires decoupling economic activity from resource use and pollution – a challenge made harder by the growing resource footprint of imported goods.

Rate rises are perceived in the context of the rising cost of living and purchasing power debasement, leaving many people with hard choices. In this context, many participants believe they are not getting an expected return on their rates payments. Most participants support economic activities that generate benefits for local communities (including jobs and quality local food), use natural resources efficiently, and maintain the stocks and flows of biophysical resources fundamental to their quality of life and health – freshwater quality, locally produced healthy food, biodiversity, high quality soils, clean air and coastal ecology that supports recreation and fisheries.

# 12 Te whai wāhi a te marea | Public Participation

## 12.1 Findings – Community involvement

### 12.1.1 Opportunities for the community to be involved in activities to protect the environment?

When asked if they thought there are sufficient opportunities for the community to be involved in activities to protect the environment, two-thirds (67%) of participants said 'yes'.

## 12.2 What people are saying – Community involvement

### 12.2.1 Suggestions for community activities

The 33% of participants who thought that there were not sufficient opportunities were asked to describe what ways they think the community could be more involved in activities to protect the environment. Below are the most prevalent themes.

### 12.2.2 Ways residents want to be involved in protecting our environment

A number of comments reflect on the need for councils to bring issues to community attention and connect communities with environmental groups who can organise practical community action to support environmental protection or restoration projects. For example:

- *"Environmental activity is undertaken by a small percentage of the community. Publicity and improved support from Local Council and Govt will greatly improve participation and effect".*

In general, residents wish to understand what they can do at the household level, but also to be offered opportunities to be part of practical community efforts to improve the state of their local environment.

Some participants want the council to bring environmental issues to communities' attention:

- *"First the community needs to be made aware of more ways that they can be involved in activities to protect the environment. Then once they are made aware of this, they will then want to be more involved!"*
- *"There needs to be more education on the impact of the small things individuals can do to get over the mental barriers like 'I'm just one person'".*
- *"By being made more aware of what the most important issues are and kept better informed of how they can help".*

Among participants who commented on this many felt that local environmental groups are best placed to bridge the gap between local government efforts and residents:

- *"Community ran environment groups that have a knowledge of what government and local government are doing. Informing the wider community of this knowledge and having action plans in place to help support the environment at local level".*
- *"More needs to be done to make people aware of what can be done and get them involved. E.g instead of getting Minecraft cubes from Woolworths, we need seeds and planting pots".*
- *"Advertise initiatives more. Get more businesses to do volunteer days".*
- *"Advertise (use Antenno!!) liaise and work with Wairere and local nurseries; advertise Maungatatare events".*
- *"Maybe the council could email rates payers and let them know of activities. Could be advertisements at places like supermarkets or schools".*
- *"A list of activities sent to households with info about how groups and individuals can help. Involve schools more".*
- *"Better funding and/or donations to volunteering groups who give their time to environmental issues in their area or interests".*

Many participants who commented want councils to facilitate and upscale action to support the setting to bring the community together to care for the local environment:

- *"Restoring natural areas. Converting grassy parks to native bush and wetlands".*
- *"Council could organise small scale events in local areas and specifically invite local residents to attend".*
- *"Have fun learning days to expand your knowledge about the environment".*
- *"Working bees to bring communities together to clean up water ways and bush areas. Put on free food to encourage people".*
- *"Monetary rewards/ fee reduction or incentives for demonstrating environmental care & sustainability".*
- *"More involvement in maintaining local spaces, more info re managing waste".*
- *"More community inclusive projects for example rather than having tree planting for the oldies and something for the kids put it all together so that everyone is involved not one particular group".*
- *"They could be involved in planning/ purchasing/ planting trees on land being retired by the council or private landowners. Involved in monitoring live and kill traps etc.*
- *"There should be more initiatives for communal activities. Building community by caring for it".*

Many participants who commented on this section requested that events or opportunities be well advertised. Some comments such as, *"There needs to be more information from council on help we could provide"* indicate these participants would like to be informed about different ways they can contribute at a household and community level.

## 12.3 Findings – Public and personal actions

### 12.3.1 Public actions

Participants were provided with a list of pro-environmental public actions and asked to indicate which ones they had done over the last 12 months[22]. The most frequent activity was 'filled out a survey', with half of the sample selecting this option. Participants were more than twice as likely to fill in a survey than the second most frequent activity – 'signed a petition' (20%). Similar proportions of participants said that they 'took part in a group activity' (18%) and 'donated to one or more pro-environmental organisations (17%). Over one-quarter (29%) of the participants indicated that they did not undertake any public pro-environmental behaviours during the past 12 months.

#### 12.3.1.1 Perceived effectiveness of public actions

For each public action a participant selected, they were asked to indicate how effective they perceived the action to be[23]. The activities perceived to be the most effective *(i.e., most likely to select 'very effective')* were 'other' (e.g., neighbourhood activities, gully restoration, crop-swaps, pest control)' (63%) and 'took part in a group activity' (47%). In contrast, the activities perceived to be the least effective *(i.e., most likely to select 'not at all effective')* were 'raised an issue to council organisation' (26%) and 'filled out a survey' (18%).

Despite being the most common activity, participants were least certain *(i.e., most likely to select 'don't know')* about the perceived effectiveness of filling in a survey (24%).

### 12.3.2 Personal actions

Participants were provided with a list of pro-environmental private actions and asked to indicate which ones they had done over the last 12 months[24]. Below is a list of the top ten actions.

1. Recycling (incl. plastic, paper, tins/cans, and glass) (77%)
2. Appropriate waste disposal (74%)
3. Used more eco-friendly products (e.g., fabric bags when shopping) (59%)
4. Grown own fruits and/or vegetables (55%)
5. Reduced packaging/less plastic (48%)
6. Repaired and reused products (48%)
7. Reduced household waste (46%)
8. Reduced electricity consumption (45%)
9. Composting garden waste (incl. worm farm) (43%)
10. Buy more locally produced goods (42%)

[22] See Appendix H for a full list of these actions, the percentage of participants who selected them, and the written responses to 'Other'.

[23] See Appendix I for a table outlining the effectiveness of each action.

[24] See Appendix J for a full list of these actions, the percentage of participants who selected them, and the written responses to 'Other'.

## 12.4 Summary

Community collaboration to protect or restore natural resources depends on a bundle of motivators ranging from community or organisational ties, material benefits, recognition of interdependence with nature, trusted networks, and action oriented to clear achievements.

Some participants perceive a lack of civic opportunities to act on behalf of their environment. Among these many perceive councils as key institutional actors in bringing environmental issues to community attention and to support the initiatives of local groups that can deliver practical environmental benefits. Levels of concern over the impacts of especially extreme weather on existing environmental stressors are high and comments made throughout the survey indicate that participants are motivated to act but believe they lack meaningful opportunities to do so.

# 13 Ngā take pāpori-taiao e puta ake ana | Emerging socio-environmental issues

Some issues were raised by participants for the first time in 2025. These include energy costs and transition, information issues (trusted sources), loss of green spaces, and comments that raise concerns about the human health consequences of polluting activities. The fact that these issues are highlighted by a small number of participants does not make them minor issues. Surveys should not be interpreted as opportunities for participants to vote for priorities, rather they reflect the environmental perceptions of a range of people with particular experiences of, and relationship to, the environment. Comments that speak to new issues not raised in the survey previously can indicate social and environmental outcomes that are emerging as new socio-economic and biophysical realities take shape.

## 13.1 Energy costs and transition

Residential energy costs and the environmental impacts of energy use is an emerging issue for Waikato residents. In 2025 some participants raised issues around the social and environmental costs of energy. These participant comments focused on the costs of electricity and called for government incentives to electrify. Some also raised concerns about our reliance on hydroelectricity generation, given the impacts of climate change on water availability and population growth. Others complained about the impacts of hydro operations on the condition of Lake Taupo and the Waikato River, and some called for the electrification of agriculture and industry to protect air quality. For example:

- "*I would happily change from gas to electricity if there was financial support to do so!"*
- *"Water management for power use governs the lake levels. This has been mismanaged for ages".*
- *"The impact on the water levels of Lake Taupo".*
- *"In Waikato, ammonia emissions in agricultural dense areas lead to an average annual PM2.5 concentration exceeding 40%, threatening the respiratory health of residents. It is recommended to promote electric farm machinery and set up township level real-time air quality monitoring stations".*
- *"I live near Lake Taupo, have noticed the weed build up, and other issues within the lake including water levels and management of this".*
- *"Watching the lake strain to fill in spring from lack of snow on the mountains and then drain to worrying lows almost overnight when it is sent up the way from Lake Taupo - there isn't enough of it and more needs to be done in all areas of conservation, use, etc".*
- *"If global warming continues to increase then water availability/management will become important to support agriculture, food production generation of electricity".*
- *'If the powers that be make switching from solid fuel heaters to inverter type heat pumps or similarly electrically powered methods of heating, more people would change. The air quality will improve. It has a flow down effect. Give Joe Citizen a bit of incentive, maybe reap the benefits in 5 years time.*
- *"We are currently suffering drought conditions, and the lake is receding as a result. The rivers are low and the power generators are holding back flow as well, in 5 years' time if this continues, what is going to be the impact on our water quality and environment as a whole".*

- *'Because we do NOT want an 'Energy to Waste Incineration Plant' in Waipa!!!!!! Incineration Plants Can Still Be a Source of Pollutants. On the subject of energy diversification and energy security, there are other alternative sources that are cleaner and more sustainable. Waste-to-energy facilities are essentially not a clean source of energy!!!*
- *"I think we can encourage the use of renewable energy sources such as solar and wind and reduce our dependence on fossil fuels. Governments can provide subsidies or tax incentives to promote the adoption and adoption of renewable energy technologies".*

## 13.2 Information issues

Several survey participants claim it is increasingly difficult to make sense of competing claims. For example:

- *"The most worrying thing is the number of conflicting reports from \'international experts\'. No one really knows who or what to believe".*
- *"The so-called experts have different opinions".*

Sources of information have fragmented over the last 20 years. As the quantity of information has increased the quality of information has declined. This makes trusted sources of information particularly important as we have experienced in the last few decades more information does not build understanding and consensus rather, a free market in information has generated a flood of fake and junk information while online social media platforms encourage polarisation.

Participants also seek information on how to prepare for climate change impacts including how businesses and households can invest to reduce personal and community losses – how they might prepare and adapt to a different climate:

- *"In my opinion, to improve the environment, we should improve the accuracy and timeliness of weather forecasts, establish a sound early warning system, ensure that residents can receive early warning information of extreme weather in advance, formulate emergency plans for different types of extreme weather, including floods, tornadoes, rainstorms, etc., and conduct regular exercises to ensure rapid and effective response in emergency situations".*
- *"People need to be made more aware of what is going on in the environment BEFORE there is a major catastrophe without harping on things. If things are put to people in black and white without sensationalism and pointed out how we can help I think that is a step in the right direction".*
- *"We are experiencing more & more extreme weather events & I feel it can be quite daunting as to how I can prepare for them. We can only rely on weather reports".*

## 13.3 Human health

The number of participants who point to the impacts on human health of various types of pollution has increased in 2025. Local food is valued for its health benefits as well as economic benefits and imported food is viewed as less healthy and undermining local food security. These participants are more aware of micro plastics and their potential adverse consequences for ecosystems and human health. Lastly, the threat of drinking water source contamination is a rising concern for people who recognise the fragility of ecosystems under increasing pressure from economic activity and climate change:

- *"We need to keep our land productive. Once it is taken for other uses it must affect our ability to feed our population. It is non-negotiable! We must not rely on manufactured foods that may not be healthy and could cause health risks".*

- *"Well its not biodegradable (plastic) at all, it has got to be disposed of. It dangerous for children and animals".*
- *"We are breathing plastic in the air and it's actually in our bodies now, we're buying plastic clothes which we are sending off to the dump".*
- *"You've got to have good water to survive".*
- *"I think that the pollution that we are living in is going to be so detrimental to us all that we are going to end up very ill".*
- *"Crops grown in polluted land may absorb harmful substances in the soil, such as heavy metals and pesticide residues, and enter the human body through the food chain, endangering the health of residents".*
- *"Emerging research re microplastics being found in our bodies".*
- *"If the contaminated water source is used for domestic use, it will threaten the health of the residents".*
- *"If the quality of water is not kept at a healthy level it will create health problems".*

## 13.4 Loss of green spaces

The loss of green spaces and the environmental benefits they provide has not featured in previous surveys and is an emergent issue as more green spaces are lost to residential developments. Participant comments reflect on how this diminishing of the quantum of accessible natural landscape reduces their quality of life by limiting opportunities for recreation and social interaction, while also reducing ecosystem services, including, especially, resilience to high temperatures and extreme weather, air filtration and habitat provision:

- *"Housing infill means many trees are disappearing from the city environment".*
- *"loss of vegetation from infill housing".*
- *"There is not much of native vegetation left".*
- *"I feel that in the near future we will have lost a lot of our green spaces to housing. Green spaces including farms will diminish and that will be devastating to the environment".*
- *"More people, less green places, trees, more pollution".*
- *"If we over crowd our towns we will over crowd our cities and then we will over crowd our rural community this will impact the land because we will be developing our agricultural land into housing then that will limit employment for everybody. End up clearing forestry land, parks and reserves, rural farms to house".*

Social science research suggests access to natural areas shapes ecological values and provides the experiences needed to gauge changes in the environment – it is otherwise easy to view the environment as unchanging. Urban populations, in particular, experience nature in backyards, parks, and other community green spaces. As these spaces are reduced due to development intensification pressures, the opportunities for people to exercise and socialise in their local green spaces is restricted and the remaining green spaces tend to become overcrowded. The experience of COVID may have increased the value of community green spaces as those communities that had good quality green spaces enjoyed a much less constrained experience of lockdowns than those without them. In addition, the intensification of housing is itself making community green spaces more important.

# 14 He kōrero whakamutunga | Conclusion

A large proportion of participants view water as a critical resource and believe that freshwater ecosystems that support water quality and water security must be accorded a greater value. Since this survey began over 20 years ago, water quality has dominated participants concerns. Water availability and the impacts of climate change on water security is a growing concern for participants alongside continued concern about water quality. Recent drought experiences and ongoing summer water restrictions in some areas of the region have heightened public awareness of water security and some farmer participants ask for advice on how they might adapt beyond farm system management towards new crops and animals better suited dry conditions.

Many participants questioned the long-term impacts of the loss of food producing farmland to development, especially for food security and biodiversity. Food and water security have increased as a proportion of the comments, including claims that the encroachment of residential development on productive land increases the cost and reduces the availability of healthy locally grown food. The loss of green spaces noted by some is also seen as a negative consequence of urban intensification in both existing towns and Hamilton city but also in peri urban and rural areas. Population growth is not popular with a large proportion of participants and among other things, is seen as a key factor in increasing rates costs, including especially the need for more investment in waste, water and energy infrastructure. Among these some note how pressures on food producing land from urbanisation are amplified by the ageing of farmers without succession plans, which is facilitating a shift towards larger scale intensive big ag operations that can increase pollution to land, air and water.

The salience of climate change for participants is reflected in both the quantitative and qualitative data as more residents gain firsthand experience of extreme weather and its flow on effects. The responses count the cost of actual and potential impacts of climate change and ask for information about how to prepare for extreme weather as well as collective investments, via rates, in biodiverse ecosystems, warning systems, resilient community assets, and other activities that can reduce the risks and impacts of storms, floods and droughts.

Support for councils to lead the way in adapting infrastructure to safeguard water resources, support depleted ecosystems and invest in activities to mitigate the impacts of extreme weather is high. With many also looking for information on how best to prepare for extreme weather events at a household, business and local community level.

While different participants highlight different costs and losses from climate change, some participants see climate change as a lens to view all issues. Complaints about the question ‘What is the most important environmental issue facing the region?’ show that increasing numbers of participants view environmental issues as intersecting in a system of mutual reinforcement.

Residents’ experiences of recent extreme weather and anticipated downstream effects, such as the threat (and growing reality) of insurer withdrawal and expected rates increases associated with infrastructure upgrades, is occurring alongside rising cost of essentials that is leaving many in the community unable to respond by reducing spending and participant comments indicate that this is fuelling rates resentment.

Differences in participants' perspectives are more about priorities for action and less about disagreement regarding the problems to be solved. Participants want councils to make decisions that; build resilience to the impacts of climate change; reduce waste at source including especially waste to water; secure the health of drinking water supplies and increase food security by supporting local food production for domestic food supply as well as export earnings.

Waste is an area of growing concern for respondents and is increasingly understood as much broader than rubbish collection and recycling. Many participants are concerned about waste to land and water from agriculture, industry, wastewater and stormwater, as well as imported waste, particularly plastic packaging. Among these participants some claim that aiming to make polluting activities less bad does not achieve much and call for a stronger focus on reducing waste in extraction, production and consumption. There were calls for the practice of landfilling to be phased out and replaced with modern forms of waste management that restrict the production of waste from economic activity and reuse resources as much as possible, including some who support opportunities to turn environmental liabilities such as biomass and food waste into energy assets.

Different perspectives on the proper relationship between local councils and residents/ratepayers are expressed in the comments about regulation and the economy. Some object to being reduced to the consumer of local government services via rates and see themselves instead as shareholders in regional collective investment.

The rise in comments about compliance and enforcement in 2025 reflect frustration with 'business as usual' and a system of incentives that is perceived as fuelling rate rises and/or reducing residents' quality of life. Support for reliable information on the state of the environment and what is and can be done to address ongoing environmental issues is high. A recurring view expressed by participants reflects frustration with the generalisation of responsibility for waste pollution and call for increased enforcement effort. These participants express the view that unpunished behaviour is being reinforced, encouraging continued pollution and normalising the transfer of business costs to the community and future generations.

# Āpitihanga | Appendices

## Appendix A: Questionnaire

**Q1. Do you, or does anyone in your household work for, or contract to, Waikato Regional Council?**

- ☐ Yes *(Disqualified potential participants)*
- ☐ No

**Q2. Which district do you live in?**

- ☐ Thames-Coromandel
- ☐ Hauraki
- ☐ Waikato
- ☐ Hamilton City
- ☐ Matamata-Piako
- ☐ Waipā
- ☐ South Waikato
- ☐ Ōtorohanga
- ☐ Waitomo
- ☐ Rotorua
- ☐ Taupō

**Q3. Do you live in town or in the country?**

- ☐ Country (rural)
- ☐ Town (urban)
- ☐ Semi-rural

***Most of the following questions will focus on the entire Waikato region which extends from the Bombay Hills to Ruapehu and includes the Coromandel Peninsula. Some questions, however, will focus on your 'local' area which is the area where you live and the area where you work.***

## SECTION ONE: ENVIRONMENTAL AWARENESS & CONCERNS

**Q4. Below is a list of environmental issues present within the Waikato Region. Please indicate which issue you think is the single most important facing the region today.**

- ☐ Air quality
- ☐ Climate change (in general)
- ☐ Climate change (extreme weather events)
- ☐ Climate change (rising sea levels)
- ☐ Food waste
- ☐ Greenhouse gas emissions
- ☐ Land use (intensive agriculture/farming)
- ☐ Land use (forestry conversion)
- ☐ Land use (loss of productive land)
- ☐ Loss of biodiversity
- ☐ Pests (including flora, fauna, and fish)
- ☐ Pollution (in general)
- ☐ Pollution (air)
- ☐ Pollution (land)
- ☐ Pollution (plastic)
- ☐ Pollution (water)
- ☐ Regulation (in general)
- ☐ Regulation (enforcement)
- ☐ Regulation (rates/costs)
- ☐ Regulation (stringency)
- ☐ Roading (run-off into stormwater and freshwater)
- ☐ Soil health (degradation in quality)
- ☐ Urban and population growth
- ☐ Waste (in general)
- ☐ Waste (disposal)
- ☐ Waste (reduction)
- ☐ Water (in general)
- ☐ Water (drinking water)
- ☐ Water (management)
- ☐ Water (quality)
- ☐ Water (quantity)
- ☐ Water (urban discharges)
- ☐ Other (please specify)

**Q5. Why do you think this is the most important environmental issue the Waikato Region is currently facing?**

_____
_____
_____

**Q6. Below is a list of local environmental issues. Please indicate whether you feel each of these issues has improved, stayed the same, or become worse over the last few years.**

| | | Much worse | A little worse | Stayed the same | A little better | Much better | Don't know |
|---|---|---|---|---|---|---|---|
| **A** | The water quality in your local streams, rivers, and lakes. | | | | | | |
| **B** | The accessibility of waste services and facilities in your area. | | | | | | |
| **C** | The air pollution in your local area. | | | | | | |
| **D** | The number of native birds in your local area. | | | | | | |
| **E** | The number of native fish in your local area. | | | | | | |
| **F** | The number of native plants in your local area. | | | | | | |
| **G** | The water quality in local coastal waters. | | | | | | |
| **H** | The overall state of your local environment. | | | | | | |

**Q7. Please indicate how concerned you are about the following environmental issues within the Waikato region.**

| | | Not concerned at all | Slightly concerned | Somewhat concerned | Very concerned | Don't know |
|---|---|---|---|---|---|---|
| **A** | Water pollution from industry | | | | | |
| **B** | Water pollution from rural land use | | | | | |
| **C** | Loss of the natural character of the region's coastlines through development and land-based pressures | | | | | |
| **D** | Water pollution from towns and city areas | | | | | |
| **E** | The loss of native bush and wetlands | | | | | |
| **F** | The spread of cities/towns across rural land | | | | | |
| **G** | Pest species damaging indigenous habitat and reducing native flora (plants). | | | | | |
| **H** | Pest species damaging indigenous habitat and reducing native fauna species (birds, fish) | | | | | |
| **I** | The effects of sea level rise | | | | | |
| **J** | The effects of climate change | | | | | |

| | | Not concerned at all | Slightly concerned | Somewhat concerned | Very concerned | Don't know |
|---|---|---|---|---|---|---|
| **K** | Air pollution | | | | | |
| **L** | The health of rural soils | | | | | |
| **M** | The loss of quality food producing rural soils to subdivision and development | | | | | |
| **N** | Soil health in urban areas | | | | | |

**Q8. What concerns you <u>most</u> about climate change?**

- ☐ Coastal erosion
- ☐ Drought
- ☐ Extreme weather events
- ☐ Farm productivity
- ☐ Flooding
- ☐ Loss of biodiversity
- ☐ Rising temperatures
- ☐ Sea-level rise
- ☐ Water availability
- ☐ Other (please specify)

**Q9. <u>Why</u> does this issue concern you the most?**

_____
_____
_____

**Q10. Overall, taking everything into account, how satisfied are you with your local environment in general?**

- ☐ Completely dissatisfied
- ☐ Somewhat dissatisfied
- ☐ Neither satisfied nor dissatisfied
- ☐ Somewhat satisfied
- ☐ Completely satisfied
- ☐ Don't know

## SECTION TWO: ENVIRONMENTAL KNOWLEDGE

**Q11. Please rate your knowledge about regional environmental issues on the scale below.**

- ☐ Very poor
- ☐ Poor
- ☐ Average
- ☐ Good
- ☐ Very good

***For the questions below, please indicate whether each statement is true or false.***

**Q12. Pollution in the region's rivers and streams comes mainly from urban discharges.**

- ☐ True
- ☐ False
- ☐ Don't know

**Q13. The health impacts from air pollution come mainly from home heating wood burners and motor vehicles.**

- ☐ True
- ☐ False
- ☐ Don't know

**Q14. The biggest source of greenhouse gases in the region is agriculture.**

- ☐ True
- ☐ False
- ☐ Don't know

**Q15. Pollution in the region's rivers and streams comes mainly from agriculture.**

- ☐ True
- ☐ False
- ☐ Don't know

**Q16. Water takes from rivers and streams are decreasing in the region.**

- ☐ True
- ☐ False
- ☐ Don't know

**Q17. Sediment in estuaries is having a negative effect on biodiversity.**

- ☐ True
- ☐ False
- ☐ Don't know

**Q18. Loss of organic matter is having a negative effect on soils in the region.**

- ☐ True
- ☐ False
- ☐ Don't know

**Q19. The biggest source of greenhouse gases in the region is transport.**

- ☐ True
- ☐ False
- ☐ Don't know

**Q20. Habitat loss is the biggest threat to biodiversity in the region.**

- ☐ True

☐ False
☐ Don't know

## SECTION THREE: ENVIRONMENTAL REGULATION

**Q21. Please indicate how strongly you agree or disagree with each of these statements about environmental regulation?**

| | | Strongly disagree | Disagree | Agree | Strongly agree | Don't know |
|---|---|---|---|---|---|---|
| **A** | The public have enough say in the way the environment is managed. | | | | | |
| **B** | Waikato Regional Council's current rules ensure the environment is well looked after. | | | | | |
| **C** | Waikato Regional Council effectively enforces its rules. | | | | | |
| **D** | Landowners should be able to do more than they are currently allowed on their land. | | | | | |
| **E** | Waikato Regional Council should be doing more to protect native birds, plants and fish from introduced pests. | | | | | |
| **F** | Restrictions on the use of private property are necessary so that the environment will not be harmed. | | | | | |
| **G** | Waikato Regional Council is visible in responding to environmental concerns. | | | | | |
| **H** | There is enough protection given to local significant natural sites. | | | | | |

**Q22. Please indicate whether you agree or disagree with the following statements about the relationship between the economy and the environment.**

| | | Strongly disagree | Disagree | Agree | Strongly agree | Don't know |
|---|---|---|---|---|---|---|
| **A** | A healthy environment is necessary for a healthy economy. | | | | | |
| **B** | Environmental protection and economic development can go hand in hand. | | | | | |
| **C** | Businesses generally take care to minimise negative impacts on the environment. | | | | | |
| **D** | Businesses find it is too expensive to be more environmentally friendly | | | | | |
| **E** | Businesses should be required to minimise negative impacts on the environment. | | | | | |
| **F** | More should be done to invest in water quality. | | | | | |
| **G** | The benefits of maximising agricultural productivity outweigh the costs of harming waterways. | | | | | |
| **H** | Water quality in streams and rivers should be protected even if that means businesses have to bear the expense of meeting environmental standards. | | | | | |

## SECTION FOUR: ENVIRONMENTAL PERCEPTIONS & ATTITUDES

**Q23. The statements below refer to the relationship between human beings and the environment. Even though the statements might sound a bit 'different', these are used worldwide as a measure of environmental attitudes. Please indicate how strongly you agree or disagree with each statement.**

| | | Strongly disagree | Disagree | Agree | Strongly agree | Unsure |
|---|---|---|---|---|---|---|
| **A** | We are approaching the limit of the number of people the Earth can support. | | | | | |
| **B** | Humans have the right to modify the natural environment to suit their needs. | | | | | |
| **C** | When humans interfere with nature it often produces disastrous consequences. | | | | | |
| **D** | Human ingenuity will ensure that we do not make the Earth unliveable. | | | | | |
| **E** | Humans are seriously abusing the environment. | | | | | |
| **F** | The Earth has plenty of natural resources if we just learn how to develop them. | | | | | |
| **G** | Plants and animals have as much right as humans to exist. | | | | | |
| **H** | The balance of nature is strong enough to cope with the impacts of modern industrial nations. | | | | | |
| **I** | Despite our special abilities, humans are still subject to the laws of nature. | | | | | |
| **J** | The so-called “ecological crisis” facing humankind has been greatly exaggerated. | | | | | |
| **K** | The Earth is like a spaceship with very limited room and resources. | | | | | |
| **L** | Humans were meant to rule over the rest of nature. | | | | | |
| **M** | The balance of nature is very delicate and easily upset. | | | | | |
| **N** | Humans will eventually learn enough about how nature works to be able to control it. | | | | | |
| **O** | If things continue on their present course, we will soon experience a major ecological catastrophe. | | | | | |

## SECTION FIVE: PERSONAL & PUBLIC ENVIRONMENTAL ACTIONS

**Q24. Thinking about waste reduction behaviours, which one of the following statements best describes your household?**

- ☐ My household does everything they can do to reduce our waste.
- ☐ My household takes some steps to reduce our waste and intend on doing more.
- ☐ My household takes some steps to reduce our waste and are interested in doing more but are not sure how.
- ☐ My household takes some steps to reduce our waste and are not interested in doing more.
  My household is not interested in reducing our waste.

**Q25. Below is a list of personal pro-environmental behaviours. Please indicate which of these actions you have undertaken in the past 12 months. *Select all that apply.***

- ☐ Appropriate waste disposal
- ☐ Buy more locally produced goods
- ☐ Changed diet (decreased meat consumption)
- ☐ Changed heating (gas to electricity)
- ☐ Composting garden waste (incl. worm farm)
- ☐ Fenced off native bush/river/streams
- ☐ Grown own fruits and/or vegetables
- ☐ Pest removal (incl. flora, fauna, & fish)
- ☐ Picked up litter/waste in public areas (road/beaches/parks)
- ☐ Planted trees/plants
- ☐ Purchased an electric car/vehicle/mode of transport
- ☐ Purchasing organic products
- ☐ Recycling (incl. plastic, paper, tins/cans, and glass)
- ☐ Reduced air travel
- ☐ Reduced electricity consumption
- ☐ Reduced packaging/less plastic
- ☐ Reduced use of harmful chemicals/aerosols
- ☐ Reduced use of vehicle
- ☐ Reduced household waste
- ☐ Reduced water consumption
- ☐ Repaired and reused products
- ☐ Used local ingredients
- ☐ Read or sought out environmental information
- ☐ Used more eco-friendly products (e.g., fabric bags when shopping)
- ☐ Used more eco-friendly travel methods (e.g., public transport or active modes of transport)
- ☐ Use products with more eco-friendly ingredients
- ☐ Other (please specify)
- ☐ I did not undertake any personal pro-environmental behaviours during the past 12 months

**Q26. Below is a list of <u>public pro-environmental behaviours</u>. Please indicate which of these actions you have undertaken in the past 12 months. *Select all that apply.***

- ☐ Attended a meeting or public hearing
- ☐ Raised an issue to a council or organisation
- ☐ Donated to one or more pro-environmental organisations/charities
- ☐ Shared information on environmental issues
- ☐ Filled out a survey
- ☐ Joined/belonged to/started an environmental action group/initiative
- ☐ Made a formal submission
- ☐ Participated in resource consent process
- ☐ Signed a petition
- ☐ Supported and/or took part in a project/initiative
- ☐ Took part in a group activity (e.g., tree planting, pest removal, picking up rubbish on roads/beaches, etc)
- ☐ Other (please specify)
- ☐ I did not undertake any public pro-environmental behaviours during the past 12 month

## SECTION SIX: EFFECTIVENESS OF & OPPORTUNITIES FOR PUBLIC ENVIRONMENTAL ACTIONS

**Q27. Regarding the public pro-environmental behaviours you undertook, how effective do you feel each of those actions were?**

| | | Not effective at all | Slightly effective | Fairly effective | Very effective | Don't know |
|---|---|---|---|---|---|---|
| **A** | Attended a meeting or public hearing | | | | | |
| **B** | Raised an issue to a council or organisation | | | | | |
| **C** | Donated to one or more pro-environmental organisations/charities | | | | | |
| **D** | Shared information on environmental issues | | | | | |
| **E** | Filled out a survey | | | | | |
| **F** | Joined/belonged to/started an environmental action group/initiative | | | | | |
| **G** | Participated in resource consent process | | | | | |
| **H** | Signed a petition | | | | | |
| **I** | Supported and/or took part in a project/initiative | | | | | |
| **J** | Took part in a group activity (e.g., tree planting, pest removal, picking up rubbish on roads/beaches, etc) | | | | | |
| **K** | Text from "Other (please specify)" comment box | | | | | |

**Q28. Do you think there are sufficient opportunities for the community to be involved in activities to protect the environment?**

- ☐ Yes
- ☐ No. *Please describe what ways you think the community could be more involved in activities to protect the environment.*

  _____
  _____

## SECTION SEVEN: FUTURE ENVIRONMENTAL ISSUES

**Q29. Below is a list of environmental issues present within the Waikato Region. Please indicate which issues you think is the single most important facing the region in five years' time.**

- ☐ Air quality
- ☐ Climate change (in general)
- ☐ Climate change (extreme weather events)
- ☐ Climate change (rising sea levels)
- ☐ Food waste
- ☐ Greenhouse gas emissions
- ☐ Land use (intensive agriculture/farming)
- ☐ Land use (forestry conversion)
- ☐ Land use (loss of productive land)
- ☐ Loss of biodiversity
- ☐ Pests (including flora, fauna, and fish)
- ☐ Pollution (in general)
- ☐ Pollution (air)
- ☐ Pollution (land)
- ☐ Pollution (plastic)
- ☐ Pollution (water)
- ☐ Regulation (in general)
- ☐ Regulation (enforcement)
- ☐ Regulation (rates/costs)
- ☐ Regulation (stringency)
- ☐ Roading (run-off into stormwater and freshwater)
- ☐ Soil health (degradation in quality)
- ☐ Urban and population growth
- ☐ Waste (in general)
- ☐ Waste (disposal)
- ☐ Waste (reduction)
- ☐ Water (in general)
- ☐ Water (drinking water)
- ☐ Water (management)
- ☐ Water (quality)
- ☐ Water (quantity)
- ☐ Water (urban discharges)
- ☐ Other (please specify)

**Q30. <u>Why</u> do you think this will be the most important issue within the Waikato Region in five years' time?**

_____
_____
_____

**Q31. If there is any additional feedback you would like to provide regarding the environment within the Waikato region, please do so in the textbox below**

_____
_____
_____

## SECTION EIGHT: DEMOGRAPHICS

**Q32. What is your gender?**

- ☐ Male
- ☐ Female
- ☐ Prefer not to say
- ☐ Other (please specify)

**Q33. Which of the following age groups do you fit into?**

- ☐ 18 to 24 years
- ☐ 25 to 34 years
- ☐ 35 to 44 years
- ☐ 45 to 54 years
- ☐ 55 to 59 years
- ☐ 60 + years
- ☐ Prefer not to say

**Q34. Which ethnic group(s) do you belong to? *Select all that apply.***

- ☐ New Zealand European
- ☐ Māori
- ☐ Pacific Islander
- ☐ Asian
- ☐ Other (please specify)
- ☐ Prefer not to say

**Q35. What is your highest qualification?**

- ☐ High School
- ☐ Certificate/Diploma
- ☐ Bachelor's Degree
- ☐ Bachelor's Honours Degree or Postgraduate Certificate/Diploma
- ☐ Master's Degree
- ☐ PhD or other doctoral degree
- ☐ Other (please specify)
- ☐ Prefer not to say

**Q36. What is your annual household income (before tax or anything else is taken out)?**

- ☐ $1 – $70,000
- ☐ $70,001 - $150,000
- ☐ $150,001 +
- ☐ Prefer not to say

**Q37. What is your main employment situation?**

- ☐ Working part-time or full-time
- ☐ Retired
- ☐ Home responsibilities
- ☐ Student
- ☐ Unemployed/beneficiary
- ☐ Prefer not to say

**Q38. Which industry do you currently work in?**

- ☐ Accounting
- ☐ Agriculture, fishing & forestry
- ☐ Architecture
- ☐ Automotive
- ☐ Banking, finance & insurance
- ☐ Construction & roading
- ☐ Customer service
- ☐ Education
- ☐ Engineering
- ☐ Executive & general management
- ☐ Government & council
- ☐ Healthcare
- ☐ Hospitality & tourism
- ☐ HR & recruitment
- ☐ IT
- ☐ Legal
- ☐ Manufacturing & operations
- ☐ Marketing, media & communications
- ☐ Office & administration
- ☐ Property
- ☐ Retail
- ☐ Sales
- ☐ Science & technology
- ☐ Trades & services
- ☐ Transport & logistics
- ☐ Other (please specify)

# Appendix B: Single most important issue (now)

Below is a list of environmental issues present within the Waikato Region. Please indicate which issue you think is the single most important facing the region today.

| Issue | Percentage |
|---|---|
| Air quality | 3% |
| Climate change (in general) | 12% |
| Climate change (extreme weather events) | 7% |
| Climate change (rising sea levels) | 1% |
| Food waste | 2% |
| Greenhouse gas emissions | 1% |
| Land use (intensive agriculture/farming) | 1% |
| Land use (forestry conversion) | 1% |
| Land use (loss of productive land) | 5% |
| Loss of biodiversity | 1% |
| Pests (including flora, fauna, and fish) | 2% |
| Pollution (in general) | 5% |
| Pollution (air) | 1% |
| Pollution (land) | 0.3% |
| Pollution (plastic) | 1% |
| Pollution (water) | 2% |
| Regulation (in general) | 2% |
| Regulation (enforcement) | 1% |
| Regulation (rates/costs) | 14% |
| Regulation (stringency) | 0% |
| Roading (run-off into stormwater and freshwater) | 2% |
| Soil health (degradation in quality) | 0.1% |
| Urban and population growth | 9% |
| Waste (in general) | 5% |
| Waste (disposal) | 2% |
| Waste (reduction) | 1% |
| Water (in general) | 4% |

| Issue | Percentage |
|---|---|
| Water (drinking water) | 3% |
| Water (management) | 3% |
| Water (quality) | 5% |
| Water (quantity) | 0.4% |
| Water (urban discharges) | 1% |
| Other - Write In (Required) | 2% |

# Appendix C: Single most important issue (five years)

Below is a list of environmental issues present within the Waikato Region. Please indicate which issue you think is the SINGLE most important facing the region in FIVE YEARS' time.

| Issue | Percentage |
|---|---|
| Air quality | 3% |
| Climate change (in general) | 15% |
| Climate change (extreme weather events) | 12% |
| Climate change (rising sea levels) | 2% |
| Food waste | 2% |
| Greenhouse gas emissions | 2% |
| Land use (intensive agriculture/farming) | 1% |
| Land use (forestry conversion) | 1% |
| Land use (loss of productive land) | 5% |
| Loss of biodiversity | 2% |
| Pests (including flora, fauna, and fish) | 2% |
| Pollution (in general) | 5% |
| Pollution (air) | 1% |
| Pollution (land) | 0.1% |
| Pollution (plastic) | 1% |
| Pollution (water) | 3% |
| Regulation (in general) | 2% |
| Regulation (enforcement) | 1% |
| Regulation (rates/costs) | 8% |
| Regulation (stringency) | 0.1% |
| Roading (run-off into stormwater and freshwater) | 1% |
| Soil health (degradation in quality) | 1% |
| Urban and population growth | 10% |
| Waste (in general) | 4% |
| Waste (disposal) | 1% |
| Waste (reduction) | 1% |

| Issue | Percentage |
|---|---|
| Water (in general) | 4% |
| Water (drinking water) | 3% |
| Water (management) | 2% |
| Water (quality) | 4% |
| Water (quantity) | 1% |
| Water (urban discharges) | 0.2% |
| Other - Write In (Required) | 2% |

# Appendix D: Knowledge indicators

For the questions below, please indicate whether each statement is true or false.

| | Don't know | True | False |
|---|---|---|---|
| Pollution in the region's rivers and streams comes mainly from urban discharges | 20% | 45% | 35%* |
| Pollution in the region's rivers and streams comes mainly from agriculture | 15% | 46%* | 39% |
| Water takes from rivers and streams are decreasing in the region | 40% | 30% | 30%* |
| The health impacts from air pollution come mainly from home heating wood burners and motor vehicles | 16% | 50%* | 34% |
| The biggest source of greenhouse gases in the region is transport | 23% | 43% | 34%* |
| The biggest source of greenhouse gases in the region is agriculture | 21% | 38%* | 42% |
| Sediment in estuaries is having a negative effect on biodiversity | 27% | 65%* | 8% |
| Loss of organic matter is having a negative effect on soils in the region | 24% | 65%* | 11% |
| Habitat loss is the biggest threat to biodiversity in the region | 21% | 66%* | 13% |

** The correct answer*

# Appendix E: New Ecological Paradigm

The statements below refer to the relationship between human beings and the environment. Even though the statements might sound a bit 'different', these are used worldwide as a measure of environmental attitudes. Please indicate how strongly you agree or disagree with each statement.

**Pro-Ecological Statements**

| | Unsure | Strongly disagree | Disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| We are approaching the limit of the number of people the Earth can support | 22% | 4% | 18% | 36% | 20% |
| When humans interfere with nature it often produces disastrous consequences | 7% | 2% | 9% | 55% | 27% |
| Humans are seriously abusing the environment | 5% | 2% | 11% | 46% | 35% |
| Plants and animals have as much right as humans to exist | 5% | 2% | 9% | 47% | 38% |
| Despite our special abilities, humans are still subject to the laws of nature | 7% | 1% | 4% | 55% | 34% |
| The Earth is like a spaceship with very limited room and resources | 11% | 3% | 18% | 45% | 23% |
| The balance of nature is very delicate and easily upset | 6% | 1% | 10% | 51% | 32% |
| If things continue on their present course, we will soon experience a major ecological catastrophe | 14% | 3% | 15% | 43% | 25% |

**Anti-Ecological Statements**

| | Unsure | Strongly disagree | Disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| Humans have the right to modify the natural environment to suit their needs | 11% | 15% | 42% | 26% | 6% |
| Human ingenuity will ensure that we do not make the Earth unlivable | 19% | 8% | 31% | 32% | 10% |
| The Earth has plenty of natural resources if we just learn how to develop them | 10% | 5% | 17% | 54% | 15% |
| The balance of nature is strong enough to cope with the impacts of modern industrial nations | 12% | 17% | 46% | 19% | 6% |
| The so-called ecological crisis facing humankind has been greatly exaggerated | 14% | 19% | 35% | 22% | 10% |
| Humans were meant to rule over the rest of nature | 8% | 26% | 40% | 19% | 7% |
| Humans will eventually learn enough about how nature works to be able to control it | 16% | 12% | 39% | 27% | 7% |

# Appendix F: The relationship between the economy and the environment

Please indicate whether you agree or disagree with the following statements about the relationship between the economy and the environment.

| | Don't know | Strongly disagree | Disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| The public have enough say in the way the environment is managed | 16% | 10% | 36% | 31% | 8% |
| Waikato Regional Council's current rules ensure the environment is well looked after | 29% | 3% | 20% | 41% | 8% |
| Waikato Regional Council effectively enforces its rules | 34% | 5% | 19% | 34% | 8% |
| Landowners should be able to do more than they are currently allowed on their land | 16% | 4% | 20% | 41% | 19% |
| Waikato Regional Council should be doing more to protect native birds, plants, and fish from introduced pests | 12% | 1% | 10% | 51% | 25% |
| Restrictions on the use of private property are necessary so that the environment will not be harmed | 14% | 5% | 18% | 48% | 15% |
| Waikato Regional Council is visible in responding to environmental concerns | 25% | 4% | 23% | 40% | 8% |
| There is enough protection given to local significant natural sites | 20% | 4% | 23% | 43% | 10% |

# Appendix G: Regulation statements

Please indicate how strongly you agree or disagree with each of these statements about environmental regulation.

| | Don't know | Strongly disagree | Disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| The public have enough say in the way the environment is managed | 16% | 10% | 36% | 31% | 8% |
| Waikato Regional Council's current rules ensure the environment is well looked after | 29% | 3% | 20% | 41% | 8% |
| Waikato Regional Council effectively enforces its rules | 34% | 5% | 19% | 34% | 8% |
| Landowners should be able to do more than they are currently allowed on their land | 16% | 4% | 20% | 41% | 19% |
| Waikato Regional Council should be doing more to protect native birds, plants, and fish from introduced pests | 12% | 1% | 10% | 51% | 25% |
| Restrictions on the use of private property are necessary so that the environment will not be harmed | 14% | 5% | 18% | 48% | 15% |
| Waikato Regional Council is visible in responding to environmental concerns | 25% | 4% | 23% | 40% | 8% |
| There is enough protection given to local significant natural sites | 20% | 4% | 23% | 43% | 10% |

# Appendix H: Public pro-environmental actions

Below is a list of public pro-environmental behaviours. Please indicate which of these actions you have undertaken in the past 12 months. Select all that apply.

| Actions | Percentage |
|---|---|
| Attended a meeting or public hearing | 8% |
| Raised an issue to a council or organisation | 12% |
| Donated to one or more pro-environmental organisations/charities | 17% |
| Shared information on environmental issues | 13% |
| Filled out a survey | 50% |
| Joined/belonged to/started an environmental action group/initiative | 7% |
| Made a formal submission | 7% |
| Participated in resource consent process | 5% |
| Signed a petition | 20% |
| Supported and/or took part in a project/initiative | 9% |
| Took part in a group activity (e.g., tree planting, pest removal, picking up rubbish on roads/beaches, etc) | 18% |
| Other - Write In (Required) | 1% |
| I did not undertake any public pro-environmental behaviours during the past 12 months | 29% |

**'Other (please specify)' responses:**

- ☐ *Lions Tree Grove on Highway 36 at TECT All Terrain Park*
- ☐ *Voted for Councillors who hold supportive positions on the environment*
- ☐ *Attended local crop swap which encourages sharing of resources*
- ☐ *Home gardening*
- ☐ *Looked for help to reduce feral cats but nothing available!*
- ☐ *monitor with spectrograph*
- ☐ *Queried Supermarket pricing on fruit - charging wrong prices*
- ☐ *Age stops me doing many things am93am*
- ☐ *pestplant removal around the neighbourhood*

- ☐ *Recycle*
- ☐ *Helped with pest control at home*
- ☐ *Not a group activity but I take care of the public field and walkways near where I live by picking up any rubbish I see every day.a*
- ☐ *maintained my own section of restored gully*
- ☐ *Restored own gully*
- ☐ *Grow own food and trees*
- ☐ *to elderly to undertake any of the actions many of the action*

# Appendix I: Perceived effectiveness of public pro-environmental actions

Regarding the public pro-environmental behaviours you undertook, how effective do you feel each of those actions were?

| | Don't know | Not effective at all | Slightly effective | Fairly effective | Very effective |
|---|---|---|---|---|---|
| Attended a meeting or public hearing | 5% | 16% | 34% | 30% | 15% |
| Raised an issue to a council or organisation | 4% | 26% | 31% | 26% | 13% |
| Donated to one or more pro-environmental organisations/charities | 8% | 2% | 32% | 40% | 17% |
| Shared information on environmental issues | 8% | 3% | 42% | 33% | 14% |
| Filled out a survey | 24% | 18% | 35% | 19% | 4% |
| Joined/belonged to/started an environmental action group/initiative | 4% | 0% | 21% | 43% | 32% |
| Made a formal submission | 11% | 12% | 36% | 32% | 9% |
| Participated in resource consent process | 5% | 7% | 17% | 30% | 41% |
| Signed a petition | 17% | 14% | 40% | 23% | 6% |
| Supported and/or took part in a project/initiative | 2% | 1% | 20% | 38% | 39% |
| Took part in a group activity (e.g., tree planting, pest removal, picking up rubbish on roads/beaches, etc) | 1% | 3% | 20% | 30% | 47% |
| Other | 0% | 12% | 0% | 28% | 60% |

# Appendix J: Personal pro-environmental actions

Below is a list of personal pro-environmental behaviours. Please indicate which of these actions you have undertaken in the past 12 months. Select all that apply.

| Action | Percentage |
|---|---|
| Appropriate waste disposal | 74% |
| Buy more locally produced goods | 42% |
| Changed diet (decreased meat consumption) | 22% |
| Changed heating (gas to electricity) | 13% |
| Composting garden waste (includes worm farm) | 43% |
| Fenced off native bush/river/streams | 7% |
| Grown own fruits and/or vegetables | 55% |
| Pest removal (includes flora, fauna, & fish) | 19% |
| Picked up litter/waste in public areas (road/beaches/parks | 33% |
| Planted trees/plants | 38% |
| Purchased an electric car/vehicle/mode of transport | 7% |
| Purchasing organic products | 15% |
| Recycling (includes plastic, paper, tins/cans, and glass) | 77% |
| Reduced air travel | 16% |
| Reduced electricity consumption | 45% |
| Reduced packaging/less plastic | 48% |
| Reduced use of harmful chemicals/aerosols | 31% |
| Reduced use of vehicle | 27% |
| Reduced household waste | 46% |
| Reduced water consumption | 25% |
| Repaired and reused products | 47% |
| Used local ingredients | 28% |
| Read or sought out environmental information | 15% |
| Used more eco-friendly products (e.g., fabric bags when shopping) | 59% |
| Used more eco-friendly travel methods (e.g., public transport or active modes of transport) | 14% |
| Used products with more eco-friendly ingredients | 23% |

| | |
|---|---|
| Other - Write In (Required) | 2% |
| I did not undertake any personal pro-environmental behaviours during the past 12 months | 1% |

**'Other (please specify)' responses**

- ☐ *A group of us have been developing 2.4 hectares of cut over Pine forest back into NZ native bush with NZ Trees*
- ☐ *Actively choose products that have less packaging*
- ☐ *Added solar panels and battery*
- ☐ *Attended local community crop swap to swap excess produce, preserve the produce we get there and the produce we grow, we get when possible*
- ☐ *Avoided use of plastic containers*
- ☐ *Bought hybrid car*
- ☐ *Buy second-hand clothing rather than fast fashion to reduce my pollution footstep.*
- ☐ *Cook from fresh rather than ready made.*
- ☐ *Created an environmental park*
- ☐ *Decreased plant based processed foods e.g., artificial meats or plant foods with high environmental effects e.g., rice.*
- ☐ *Did less than 2000 km in car for whole year. I struggle to drive with multiple myeloma so only going to hospital but still travel 50kms each time to meet health shuttle. Driving miss daisy wants 480 dollars per trip for the same thing but could me up at*
- ☐ *Do everything we can to minimize our impact on the planet. Don't use air travel. Haven't got access to other forms of travel. Recycle everything possible. Joinedan ag recovery organisation etc etc etc*
- ☐ *Gave due respect to the environment*
- ☐ *Grow our own fruit and veges using a worm farm and own composting. Only natural product used in the garden and as much as possible in the home*
- ☐ *I would happily change from gas to electricity if there was financial support to do so!*
- ☐ *Live completely off the grid.*
- ☐ *monitor Co2 emissions*
- ☐ *NO air travel & keep all travel to a minimum*
- ☐ *Reduce landfill by reuse, recycle*
- ☐ *Reduced listening to and taking notice of unscientific sources about 'climate-change.'*
- ☐ *Repaired clothing instead of buying new.*
- ☐ *Self-sustainable, grow our own fruit, vegies and meat and east seasonally*
- ☐ *Septic tank for waste. Rainwater collect in water tank to use. Make my own clothes recycle clothes repair clothes*

- ☐ *Solar panels*
- ☐ *Solar Power*
- ☐ *solar power panels*
- ☐ *Take clothing to Op.shops*
- ☐ *try to do the right thing*
- ☐ *Upcycle*
- ☐ *use organic fertilizers*
- ☐ *Very hard to reduce packaging when everything in oackaged*
- ☐ *We collect energy from solar panels and use it to power our home without any connection to the national grid.*
- ☐ *We undertake as many of the above as possible, but for much longer than the past 12 months, we work hard to take care of the environment, we grow a lot of our own fruit, compost, are careful with waste etc*
- ☐ *Worked on educating my grandchildren on how best to become environmentally friendly.*
- ☐ *Would love to reduce our vehicle use, but there needs to be more viable public transport options.*