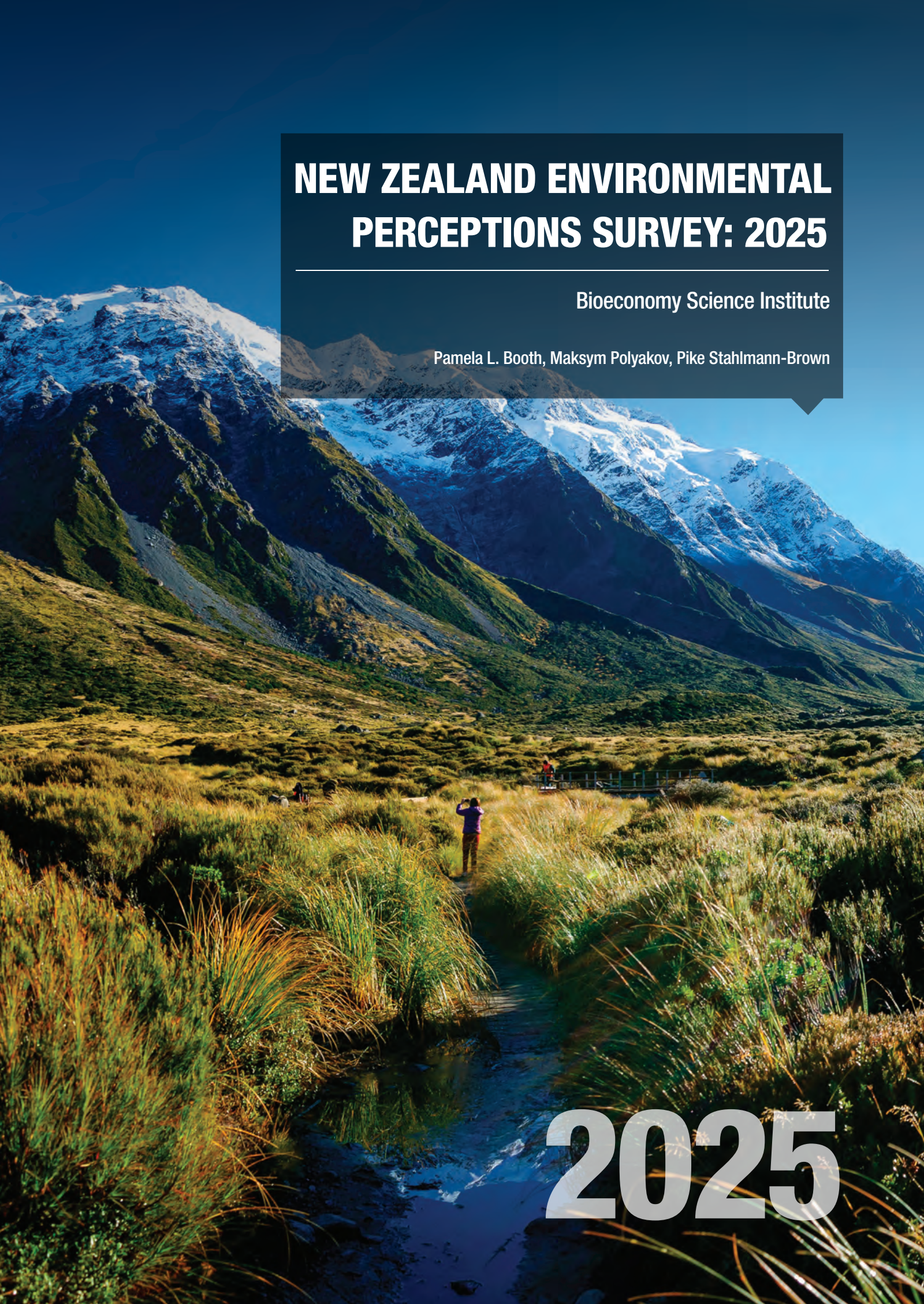

NEW ZEALAND ENVIRONMENTAL PERCEPTIONS SURVEY: 2025

Bioeconomy Science Institute

Pamela L. Booth, Maksym Polyakov, Pike Stahlmann-Brown

2025

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FOREWORD

The New Zealand Environmental Perceptions Survey (EPS), originally known simply as the "Lincoln Survey", was first conducted in 2000 by economists Ken Hughey, Geoff Kerr, Ross Lawrence, and Andrew Cook at Lincoln University. Over the past 25 years it has been repeated regularly – this is the 11th time – making it the longest running survey of its kind in the world.

In 2022, the EPS was handed on from Lincoln University to Manaaki Whenua – Landcare Research, which became part of the newly-formed Bioeconomy Science Institute in 2025, bringing its world-leading capabilities in environmental economics and social science.

The 2025 EPS contains responses from 2,000 people across the country. The sample is nationally representative, enabling an accurate insight into the public perceptions of New Zealand's environment, not only at a country-level, but also by region and population group. The longitudinal nature of the survey enables robust trend analysis over time.

I'm proud that the Bioeconomy Science Institute is able to build on the impressive legacy of research encapsulated in the EPS. I'm also encouraged that people's environmental perceptions seem to be lifting – as seen in the summary below – although there is, of course, much still to do, especially in mitigating the environmental effects of climate change, waste and pollution, and ensuring the wisest future use of our land and freshwater resources. These are all complex, interlinked, global challenges that our cross-disciplinary scientists at the Institute are well-placed to help address into the future.

Mark Piper
Interim Chief Executive
Bioeconomy Science Institute

SUMMARY

The 11th iteration of the New Zealand Environmental Perceptions Survey (EPS) was conducted during autumn 2025. The survey was based on the Pressure-State-Response (PSR) framework of environmental reporting and reports on public perceptions of the pressures on, state of, and response to pressures across 10 environmental domains.

The EPS was conducted by researchers from Lincoln University biennially from 2000 to 2010 and then triennially from 2010 to 2019. Manaaki Whenua – Landcare Research (a group in Bioeconomy Science Institute) has undertaken the survey since 2022 in partnership with the original researchers.

Notable findings from the 2025 EPS include:

- The overall state of the New Zealand environment was perceived to be 'adequate' to 'good'.
- The perceived state of New Zealand's air and protected natural areas was rated as 'good', the perceived state of native bush and forests and terrestrial plants and animals was rated as 'adequate' to 'good', and the perceived state of the remaining environmental domains was rated as 'adequate'.
- The perceived quality of management of protected natural areas was rated as 'good', air and native bush and forests management quality were rated as 'adequate' to 'good', and the perceived quality of management of the remaining environmental domains were perceived to be 'adequate'.
- Sewage and stormwater were thought to exert significant pressure on marine environments, coastal waters and beaches, marine plants and animals, terrestrial plants and animals, wetlands, and river and lakes.
- Pests and weeds were thought to exert the most pressure on protected natural areas, terrestrial plants and animals, and wetlands; while commercial fishing was thought to exert the most pressure on marine environments, and marine plants, and animals.

Key trends since 2010 include:

- The perceived states of air, coastal waters and beaches, rivers and lakes, native bush and forests, and natural environments in towns and cities has improved since 2010, while the perceived state of wetlands is similar to its 2010 average, and the perceived states of marine environment, marine plants, and animals, terrestrial plants and animals, and protected areas has improved significantly since 2022.
- The perceived quality of management of most environmental domains declined between 2010 and 2016 but has been improving since. Perceptions of management quality of all environmental domains in 2025 were significantly different from their 2022 levels.
- The proportion of respondents who thought sewage, stormwater, dumping of solid waste, hazardous chemicals, and forestry exerted pressure on any environmental domain has increased since 2010, while the proportion of respondents who thought farming exerted pressure on any environmental domain peaked in 2016 and subsequently declined.

Other findings include:

- Recycling household waste was the most popular pro-environmental activity in 2025. The proportion of respondents who recycled, reduced their electricity use, used public transport, and obtained environmental information increased in 2025 compared with 2022, but remained below pre-2022 proportions.
- Respondents believed that flooding poses the highest risk to their property, feel moderately informed about the natural hazard risks that could affect their property, and felt moderately informed about what actions they can take to minimise those risks.
- Eel/tuna, whitebait, and trout were the top three species found locally by respondents, but fewer than 40% of respondents who fish had caught those species within the last 12 months. Respondents agreed more than disagreed that there are not enough freshwater fish and disagreed more than agreed that freshwater fish are not healthy to eat. Fishers were more likely to agree than non-fishers that people should be able to eat what they catch, that our freshwater lakes, rivers, and streams are well managed for fishing, and that Māori are adequately involved in management of local freshwater lakes, rivers, and streams. All respondents would prefer to see at least 'somewhat more' of any freshwater fish and would prioritise improvements in whitebait abundance.
- Goats, deer and feral pigs were the top three non-native wild animals both found locally by respondents and harvested within the past 12 months by hunters, but respondents also believed the population of wallabies was most likely increasing. Respondents agreed more than disagreed that non-native wild animals negatively affect native plants and animals and that rural landowners should receive government support to help control non-native wild animals. Hunters were more likely to agree than non-hunters that non-native wild animals are an important source of food for New Zealand communities, that non-native wild animals provide benefits to the respondent, and that the Department of Conservation (DOC) should maintain healthy herds of non-native wild animals in national parks to support the tourism industry.

There is increasing alignment of perceptions of the important issues facing New Zealand and the world:

- Climate change was identified by respondents as the most important issue facing the world since 2010 and New Zealand since 2022.
- Waste, sewage, sanitation, and pollution have ranked among the top five most important issue facing New Zealand since 2013 and the world since 2019. Freshwater was considered the most important issue facing New Zealand from 2010 to 2019 and the second most important issue facing New Zealand since 2022, while freshwater issues were among the top five most important issue facing the world until 2016.

ACKNOWLEDGEMENTS

We thank Helen O'Leary (Manaaki Whenua – Landcare Research Group of the Bioeconomy Science Institute)* for her detailed editing. Data processing and analysis and report writing and formatting was supported by the Strategic Science Investment Fund for Landcare Research New Zealand Ltd/ Crown Research Institutes from the Ministry of Business, Innovation, and Employment.

* On 1 July 2025 Landcare Research New Zealand Ltd became the New Zealand Institute for Bioeconomy Science Ltd; Manaaki Whenua – Landcare Research operates as an internal group within this Institute, which is less formally known as the Bioeconomy

CONTENTS

*Silver fern/koru (*Alsohila dealbata*)*

01 INTRODUCTION

1.1 BACKGROUND

The New Zealand Environmental Perceptions Survey (EPS) is based on the Pressure-State-Response (PSR) framework for environmental reporting (Organisation for Economic Co-operation and Development, 1996; Ministry for the Environment [MfE], 1997). Initiated in 2000, the survey was run every 2 years as a paper-based postal survey from 2000 to 2010, and then every 3 years as an electronic survey from 2010 onwards (Hughey *et al.*, 2001, 2002, 2004, 2006, 2008, 2010, 2013, 2016, 2019; Booth *et al.*, 2022). This report provides an overview of the results from the 11th EPS, which was conducted in summer 2025. It compares results from the 2025 wave to the 2010, 2013, 2016, 2019 and 2022 waves of the survey in order to describe trends.

1.2 OBJECTIVES

The main objectives of the EPS are to measure, analyse, and monitor changes in New Zealanders' perceptions of, attitudes to, and preferences towards a range of environmental issues in order to improve environmental reporting. The more specific aims of the survey are to:

- monitor changes in New Zealanders' environmental attitudes, perceptions, and preferences over time through repeated surveys
- publicly report on findings from the survey, and trends in environmental attitudes, perceptions, and preferences
- provide independent commentary on environmental issues of public concern, both as a contribution to public debate and as a way to alert government and others to these issues
- provide opportunities for organisations and/or other researchers to derive one-off research data for their areas of interest.

1.3 CHANGES FROM PREVIOUS REPORTS

Manaaki Whenua – Landcare Research (a group in Bioeconomy Science Institute) has undertaken the EPS since the 2022 wave. We decided to report the trends for only the electronic versions of the survey in this report (i.e., 2010 onwards). This decision was motivated by the desire to present easily interpretable graphical results and to ensure representativeness by weighting results for demographic representation. However, the paper-based results are still available and analysed in previous reports (see Hughey *et al.* 2019) and may be included in future reports. There are three 'Special topics' covered in this wave: natural hazards and risk, freshwater fish and fishing in freshwater environments, and non-native wild animals.

Changes to the questionnaire content and methods are discussed in Section 2. Section 3 covers the 2025 PSR for 10 environmental domains and the time series trends for these 10 environmental domains individually, Sections 4 and 5 cover additional questions in the survey, Section 6 covers the 'Special topics', Section 7 discusses key trends in the PSR results, and Section 8 discusses all the EPS results and presents overall conclusions. Background empirical and biophysical information on the current state, trends and pressures on the 10 environmental domains is available in the 2022 report (Booth *et al.*, 2022). Background empirical and biophysical information will be updated in future reports.

Aoraki/Mount Cook
CASEY HORNER, UNSPLASH

02

METHODS

2.1 BACKGROUND

We used an electronic questionnaire based on the PSR framework (OECD, 1996; MfE, 1997) complemented by belief statements and participation in environmental activities to gather information on New Zealanders' perceptions of the environment and environmental management. The electronic version was introduced in 2010 and has been used since (see Hughey *et al.* 2010 for more detail). This report covers all waves of the survey since 2010. Results from earlier waves of the survey, which were paper based, are available in previous reports (see Hughey *et al.* 2019).

2.2 QUESTIONNAIRE

There are 36 core and 24 'Special topics' questions and statements in the 2025 survey wave in addition to the demographic questions (see Appendix 1). The questions are divided into six sections:

1. Impressions of the environment
2. Pressure-State-Response
3. Participation in environmental activities
4. Most important environmental issues
5. Special topics
6. Demographics

These questions are explained in detail below.

2.2.1 Impressions of the Environment

The survey begins by asking respondents for their impression of the state of the environment. Respondents were asked to complete the statement 'The overall state of the natural environment in New Zealand is:' on a five-point scale, where 1 equals 'very good' and 5 equals 'very bad'. A sixth option of 'don't know' was also included.

2.2.2 Pressure-State-Response

The second section of the survey asked respondents about their perceptions of the state of the environment, the management of the environment, and the causes of damage to the environment as guided by the PSR framework. These questions covered the following environmental domains:

- air quality
- marine environments
- coastal waters and beaches
- rivers and lakes
- wetlands
- native bush and forests
- protected natural areas
- natural environment in towns and cities
- marine plants and animals
- terrestrial plants and animals.

Perceptions of pressures on each environmental domain were measured by asking, 'What are the main causes of damage, if any, to New Zealand's [environmental domain]?'. Respondents could choose up to three pressures from the following list of 15 pressures:

- motor vehicles and transport
- household waste and emissions
- industrial activities
- pests and weeds
- farming
- forestry
- urban development
- mining
- sewage and stormwater
- tourism
- commercial fishing
- recreational fishing
- dumping of solid waste
- hazardous chemicals
- other pressure.

Perceptions of the state of the environment were measured on a five-point scale, from 1 ('very good') to 5 ('very bad'), in response to the question 'How would you describe the condition of these environmental domains in New Zealand?'. Respondents could also choose 'don't know'. The five-point scale is consistent with previous surveys.

Perceptions of New Zealand's response to environmental pressures were measured on a five-point scale, from 1 ('very good') to 5 ('very bad') in response to the question 'How would you describe current management of these environmental domains in New Zealand?'. Respondents could also choose 'don't know'.

The five-point scale used in the response questions was rephrased in 2022 from previous surveys to be consistent with the five-point scale used in state questions to reduce potential cognitive loading on respondents. Pre-2022 survey waves measured response on a five-point scale, from 1 ('very well managed') to 5 ('extremely poorly managed').

The survey was significantly revised in 2022 to create a consistent set of environmental domains across pressures, states, and responses. Some environmental domains were rephrased from previous survey waves and some environmental domains were not repeated across pressures, states, and responses in previous survey waves. As a result, some domains do not have time series before 2022. (See Booth *et al.* 2022 for details on changes). An identical list of pressures was used in all previous waves of the survey included in this report.

2.2.3 Participation in Environmental Activities

In the third section of the survey, respondents were asked about their participation in activities related to the environment. Participation in activities was measured to explore the relationships between environmental behaviour and responses

to the PSR framework. The 2025 questionnaire included the same list of 15 activities as previous waves of the survey and added 'Controlled rats, possums, stoats, ferrets, feral cats, and/or hedgehogs' as a 16th activity. In response to the question, 'In the past 12 months, have you undertaken any of the following activities?' respondents ticked an activity to indicate 'Yes'. Not ticking to an activity implied no participation in that activity within the last 12 months. Pre-2022 survey waves measured responses as 'Yes', 'Regularly', 'No', and 'Don't know' for each activity. Pre-2022 survey responses were recoded to the binary categorisation in which (a) 'Yes' and 'Regularly' were recoded 'Yes'; and (b) 'No' and 'Don't know' were recoded to 'No'.

2.2.4 Most Important Environmental Issues

Since the 2006 wave, the EPS has asked, 'What do you think is the most important environmental issue facing New Zealand today?' and 'What do you think is the most important environmental issue facing the world today?' All responses are qualitative and were coded into themes post-survey.

2.2.5 Special Topics

The 2025 survey included three 'Special topics' on (1) natural hazards and risk, (2) freshwater fish and fishing in freshwater environments, and (3) management and personal hunting of non-native wild animals. All respondents were shown questions on natural hazards. Respondents were randomly assigned to be shown questions on either freshwater fish and fishing in freshwater environments or on management and personal hunting of non-native wild animals. See the full questionnaire in Appendix 1 for the wording of each of the 'Special topic' questions.

2.2.6 Demographics

Respondents were asked to provide their gender, age, ethnicity, education, functional urban area and residential location, generally using the same categories employed in the New Zealand Census. Functional urban area was added in 2025. Demographic information for the 2025 survey is provided in Appendix 2.

2.3 SOCIAL ETHICS

The 2022 and 2025 survey instruments were approved by the Manaaki Whenua – Landcare Research social ethics process (SE#2122/18 and SE#2425/27). Previous waves of the survey were approved by the Lincoln University Human Ethics Committee.[1]

2.4 SAMPLING

The 2025 survey was programmed and enumerated using Qualtrics by Manaaki Whenua – Landcare Research and was open for three weeks in March 2025. Anonymous survey links were distributed using a national panel from the survey company Dynata. A modest incentive was offered to participants who completed the survey by the panel provider. To ensure the sample was broadly representative of the New Zealand population, interlocked quotas were applied based on region, age, and gender, using population statistics from the 2023 Census (Statistics New Zealand [StatsNZ], 2023). Separate quotas were applied for ethnicity.

A series of quality control checks was implemented to ensure data integrity. Responses underwent several quality control checks, including timing thresholds, automated fraud detection (using Qualtrics' RelevantID and reCAPTCHA scores), and manual review of open-ended answers. Responses flagged as low-quality or potentially invalid were removed, quotas were adjusted, and replacements were obtained. The survey closed with a total of 2,028 complete responses.

The 2010 to 2022 waves were programmed and enumerated by Horizon Research. Random Iterative Method weights were applied to the 2010 to 2022 responses to account for minor deviations from a fully representative sample. See Booth *et al.* 2022 for details on weighting previous survey waves.

2.5 ANALYSIS

The survey data were analysed using the statistical software Stata and figures were created using Microsoft Excel. Where possible, results from the 2010, 2013, 2016, 2019, and 2022 surveys are presented alongside the 2025 results. The 2025 survey wave results are presented descriptively. Analysis of trends uses a one-way ANOVA with a post hoc pairwise comparison of means using a Bonferroni procedure (preferred) or a multivariate regression to test significant changes in means across years. Only statistically significant results are described in the text. Summary statistics of all questions are provided in Appendix 3, and full results from these statistical tests are provided in Appendix 4.

[1] *See previous reports for details at: www.landcareresearch.co.nz/discover-our-research/environment/sustainable-society-and-policy/environmental-perceptions-survey*

2.6 MAJOR CHANGES IN THE 2025 SURVEY

Questions measuring public perceptions of the environmental performance of farms in their region were not included in the 2025 wave. Results for these questions are in Booth *et al.* 2022. Three 'Special topics' on (1) natural hazards and risk, (2) freshwater fish and fishing in freshwater environments, and (3) management and personal hunting of non-native wild animals were included in the 2025 wave. Descriptive results for these questions are discussed in Section 6 and summary statistics are provided in Appendix 3.

Boats in Whangamatā
LEONIE CLOUGH, UNSPLASH

Black Swan/Kakīānau Cygnus atratus *incubating her eggs in a nest constructed among the bullrushes at Tomahawk Lagoon in Dunedin*

LEI ZHU

03

PRESSURE-STATE-RESPONSE

This section reports on the perceived state, quality of management, and causes of damage to 10 environmental domains. Subsection 3.1 discusses the results of the 2025 wave of the EPS, Subsection 3.2 discusses the overall trends in perceptions from 2010 to 2025, and Subsections 3.3 to 3.12 discuss the trends in perceptions from 2010 to 2025 for each environmental domain.

3.1 THE 2025 SURVEY

3.1.1 Overall State of the Environment in 2025

Survey respondents were asked, 'The overall state of the natural environment in New Zealand is…'. Responses were based on a five-point Likert scale, ranging from 'very good' to 'very bad'. Respondents generally considered the state of the New Zealand environment to be 'adequate' (30%) to 'good' (45%; Figure 3.1). Fourteen percent of respondents consider the overall environment to be 'very good' while 9% consider it 'bad' and 1% 'very bad'.

3.1.2 State of the Environment in 2025

Perceptions of the quality of the New Zealand environment were measured on a five-point Likert scale, ranging from 'very good' to 'very bad'. Figure 3.2 shows that the majority of respondents rated the state of New Zealand's environmental domains 'adequate' to 'good'. The state of New Zealand's air, protected natural areas, and native bush and forests was rated higher, on average, ranging from 'good' to 'very good'. However, 18% of respondents think the state of wetlands and 28% of respondents think the state of rivers and lakes are in a 'bad' to 'very bad' condition. The perceived condition of resources and environments, ranked in order from best to worst, is: air (mean score of 4.13), protected natural areas (4.10), native bush and forests (3.83), terrestrial plants and animals (3.53), marine environments (3.49), coastal waters and beaches (3.49), marine plants and animals (3.46), natural environments in towns and cities (3.36), wetlands (3.27), and rivers and lakes (3.14).

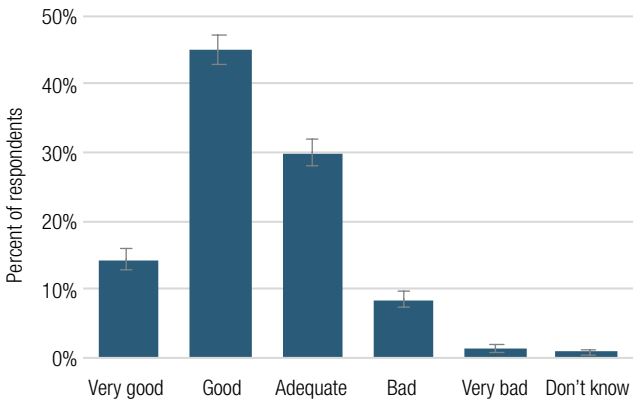


Figure 3.1. Perception of the overall state of New Zealand's natural environment in 2025.

Note: Error bars are 95% confidence bands around percent of respondents.

3.1.3 Response to Pressures on the Environment in 2025

The quality of management of the 10 environmental domains was assessed on a scale ranging from 'very good' to 'very bad' (Figure 3.3). Respondents think the current management of most environmental domains is 'adequate' on average, with a few exceptions. Management of air and native bush and forests is considered 'adequate' to 'good' while management of protected natural areas is considered 'good'. However, nearly a fifth of respondents think the current management of marine environments, coastal waters and beaches, and wetlands is 'bad' to 'very bad', and 29% think management of rivers and lakes is 'bad' or 'very bad'. The perceived quality of management, ranked in order from best to worst condition, is: protected environments (mean score of 3.90), air (3.71), native bush and forests (3.71), terrestrial plants and animals (3.47), marine plants and animals (3.42), marine environments (3.41), coastal waters and beaches (3.38), natural environments in towns and cities (3.36), wetlands (3.29), and rivers and lakes (3.15).

3.1.4 Pressures on the Environment in 2025

Respondents were asked to identify what they considered to be the main pressures on the 10 environmental domains, choosing up to three pressures from a list of 15. Table 3.1 shows the proportion of respondents who chose each cause of damage for each resource or environment. Dark blue–highlighted cells signify the most frequently cited pressure; middle blue indicates the second-most-frequently-cited pressure; and pale blue the third-most-frequently-cited pressure.

For some environmental domains, several pressures were identified. Similar proportions of respondents think that urban development (50%), motor vehicles and transport (47%) and household waste and emissions (45%) are damaging natural environments in towns and cities, while 47% think that pests and weeds and 55% think that forestry are damaging native bush and forests. Approximately 50% of respondents think that sewage and stormwater (58%) and commercial fishing (56%) are significant pressures on marine plants and animals, while 60% to 61% think these pressures are also damaging marine environments. At least 35% of respondents think that sewage and stormwater (36%) and pests and weeds (37%) are damaging wetlands.

For other environmental domains, there was one dominant perceived pressure. Seventy-eight percent of respondents think that motor vehicles and transport causes poor air quality – the highest proportion for any damage across all domains. Pests and weeds are the leading attributed pressure on protected

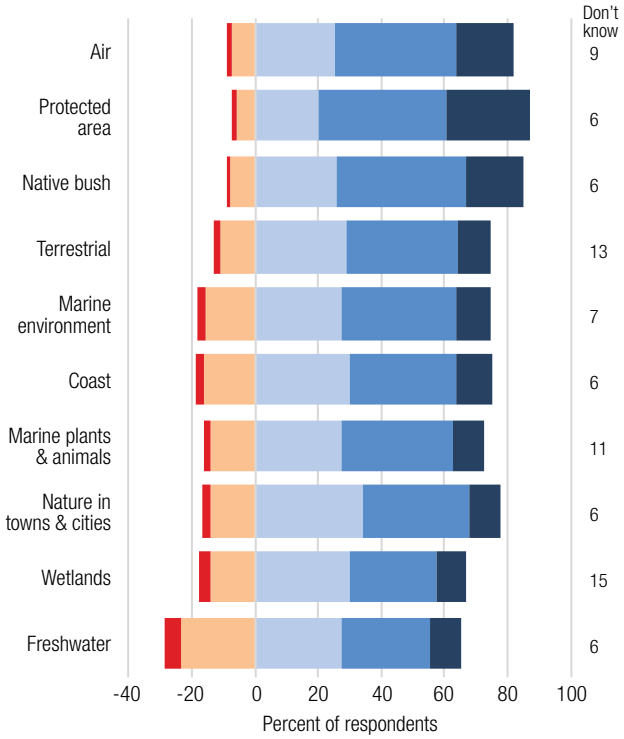


Figure 3.2. Perceived state of environmental domains in 2025.

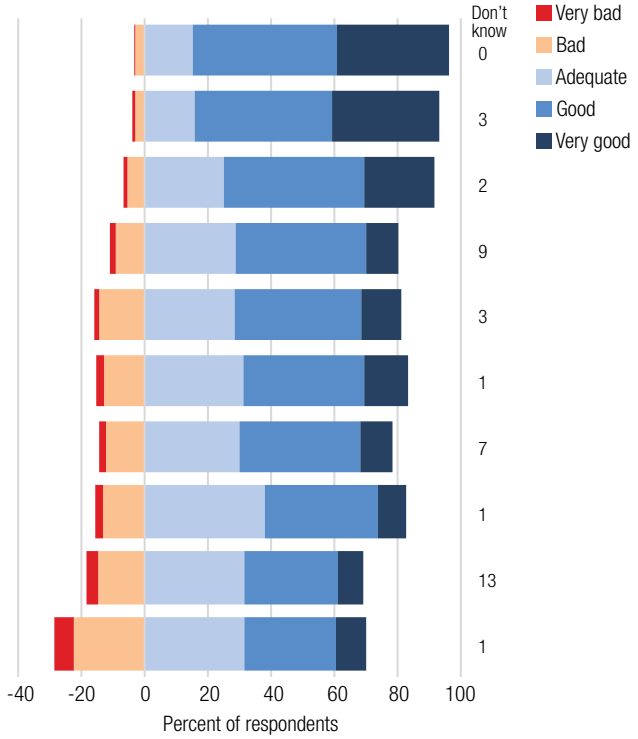


Figure 3.3. Perceived quality of management of environmental domains in 2025.

Table 3.1. Perceived main pressures on environmental domains in 2025. The fill colours (■ ■ ■) indicate, in order, the three most-frequently-cited pressures on the environmental domain (%).

Perceived Cause of Damage	Air quality	Protected natural areas	Native bush & forests	Marine environment	Coastal waters & beaches	Marine plants & animals	Terrestrial plants & animals	Wetlands	Natural environment in towns	Rivers & lakes
Sewage & stormwater	7	12	6	60	62	48	32	36	26	49
Dumping of solid waste	14	21	17	38	40	26	23	28	23	37
Pests & weeds	3	45	47	9	10	23	41	37	11	27
Urban development	21	21	35	5	14	7	24	28	50	13
Hazardous chemicals	33	13	12	29	25	28	26	22	13	29
Motor vehicles & transport	78	7	4	4	4	3	6	3	47	3
Commercial fishing	2	8	0	61	23	56	8	2	1	6
Household waste & emissions	22	9	5	13	20	10	12	10	45	15
Industrial activities	58	20	21	19	20	18	25	23	32	24
Farming	12	8	16	6	7	6	18	24	1	31
Forestry	5	20	55	4	8	6	20	15	2	16
Tourism	4	32	14	4	12	5	5	4	13	5
Mining	7	11	15	5	4	7	9	6	2	5
Recreational fishing	1	8	0	17	11	21	6	2	1	8
Other	1	3	2	1	2	1	2	4	2	1

Note: Percentages in each column do not sum to 100 because respondents could identify up to three causes of damage to each environmental domain.

natural areas (45%) and terrestrial plants and animals (41%). Sewage and stormwater are the leading attributed pressures on rivers and lakes (49%) and on coastal waters and beaches (62%).

There was also an overlap in the environmental domains affected by a given pressure. Sewage and stormwater are thought to cause significant damage to marine environments (60%), coastal waters and beaches (62%), marine plants and animals (48%), wetlands (36%), rivers and lakes (49%), and terrestrial plants and animals (32%). Pests and weeds are perceived to contribute to pressure on protected natural areas (45%), native bush and forests (47%), terrestrial plants and animals (41%), and wetlands (37%). At least one-third of respondents think dumping of solid waste caused significant pressure to marine environments (38%), coastal waters and beaches (40%), and rivers and lakes (37%).

3.2 2010–2025 SURVEYS

In this section, time-series trends are discussed for each environmental domain. The discussion and statistical analysis of trends relate to the electronic waves of the survey from 2010 to the present. Results from ANOVA and multivariate regression analysis are presented in simple form in this chapter, and full results are provided in Appendix 4.

3.2.1 Trends in Perceived Overall State of the Environment, 2010–2025

Perceptions of the overall state of the environment declined from 2010 to 2013 and 2013 to 2016, but improved between 2016 and 2019, between 2019 and 2022 and between 2022 and 2025 (Table 3.2). This u-shaped pattern is mimicked in the proportion of respondents who said the overall state of the environment is either 'good' or 'bad' (Figure 3.4). There was a significant jump in the proportion of respondents who think the overall state of the environment is 'very good' in 2019 compared with previous survey waves and another significant jump in the proportion of respondents who think the overall state of the environment is 'good' in 2025 compared with previous survey waves.

3.2.2 Trends in the State of the Environmental Domains, 2010–2025

Figures 3.5 to 3.7 show average scores and 95% confidence intervals for 10 environmental domains over time. As discussed in Section 2, the wording was updated in 2022 to improve consistency across the PSR framework. Time series for four environmental domains, marine plants and animals, terrestrial plants and animals, marine environments, and protected areas, began in the 2022 wave of the survey.

The perceived condition of air continues to improve year-on-year since 2010 (Figure 3.5).[1] The perceived condition of wetlands, rivers and lakes, and native bush and forests trended downward from 2010 to 2016 (Figures 3.5 and 3.7). Wetlands and rivers and lakes improved in 2019 compared to 2016, did not change in 2022 compared to 2019, but improved in 2025 compared to 2022.[2] The perceived condition of native bush and forests improved in 2022 compared to 2019 and in 2025 compared to 2022.[3] The perceived condition of rivers and lakes and native bush and forests finally improved from their 2010 averages in 2025 while the average condition of wetlands in 2025 was not significantly different from its 2010 average. The perceived condition of coastal waters and beaches declined in 2019 compared to 2010, 2013, and 2016 (Figure 3.6), but improved in 2022 compared to 2019 and in 2025 compared to 2022. All three coastal and marine domains improved in 2025 compared to 2022.[4] The perceived condition of protected natural areas, terrestrial plants and animals, and natural environments in towns and cities also improved in 2025 compared to 2022 (Figure 3.7).[5]

Table 3.2. Yearly mean, difference in means, and test for significance of the difference for overall state of the environment for each wave of the survey since 2010. Overall state of the natural environment was ranked from 1 = very bad to 5 = very good. Significance is indicated by p-value *(in parentheses)* below each difference.

Year		2010	2013	2016	2019	2022
	Mean	3.38	3.24	3.17	3.25	3.39
2013	3.24	-0.140				
		(0.00)				
2016	3.17	-0.212	-0.073			
		(0.00)	*(0.09)*			
2019	3.25	-0.131	0.009	0.081		
		(0.00)	*(1.00)*	*(0.04)*		
2022	3.39	0.010	0.150	0.223	0.141	
		(1.00)	*(0.00)*	*(0.00)*	*(0.00)*	
2025	3.63	0.247	0.387	0.460	0.378	0.237
		(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

[1] *See Appendix 4, Table A4.1, for full Bonferroni pairwise comparison results.*

[2] *See Appendix 4, Table A4.4 and A4.5 for full Bonferroni pairwise comparison results.*

[3] *See Appendix 4, Table A4.6 for full Bonferroni pairwise comparison results.*

[4] *See Appendix 4, Table A4.2, A4.3, and A4.9 for full Bonferroni pairwise comparison results.*

[5] *See Appendix 4, Table A4.7, A4.8, and A4.10 for full Bonferroni pairwise comparison results.*

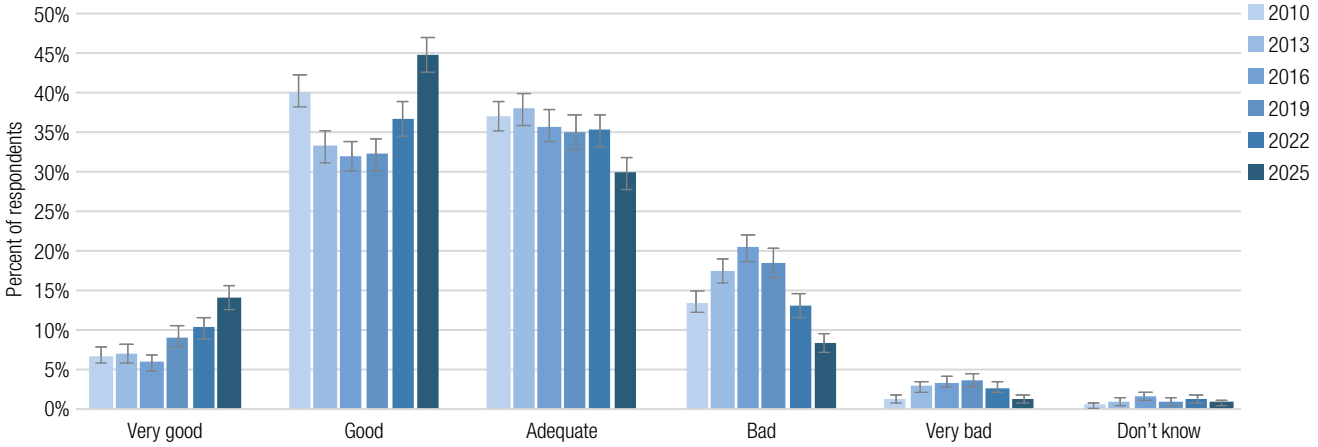


Figure 3.4. Perceived overall state of the natural environment, 2010–2025. *Note: Error bars are the 95% confidence bands around the percent of respondents.*

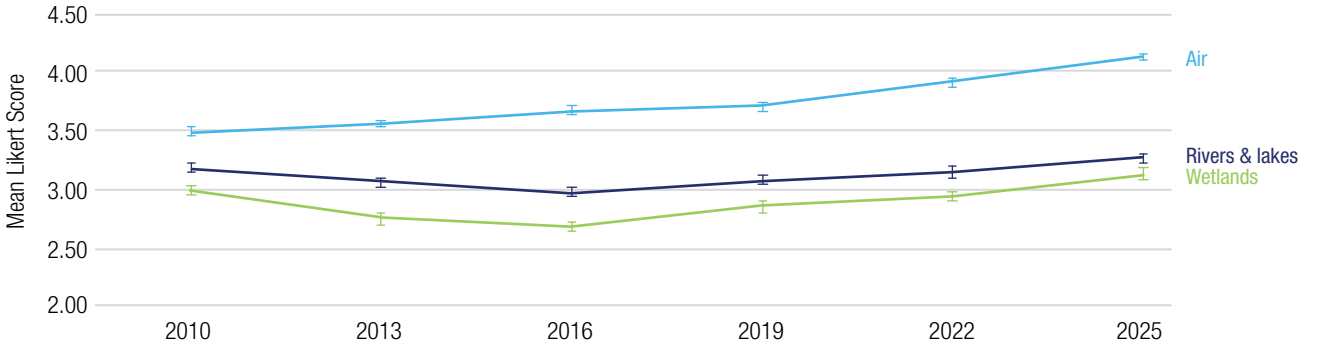


Figure 3.5. Trends in average perceived state of the environment for air, rivers and lakes, and wetlands, 2010–2025.

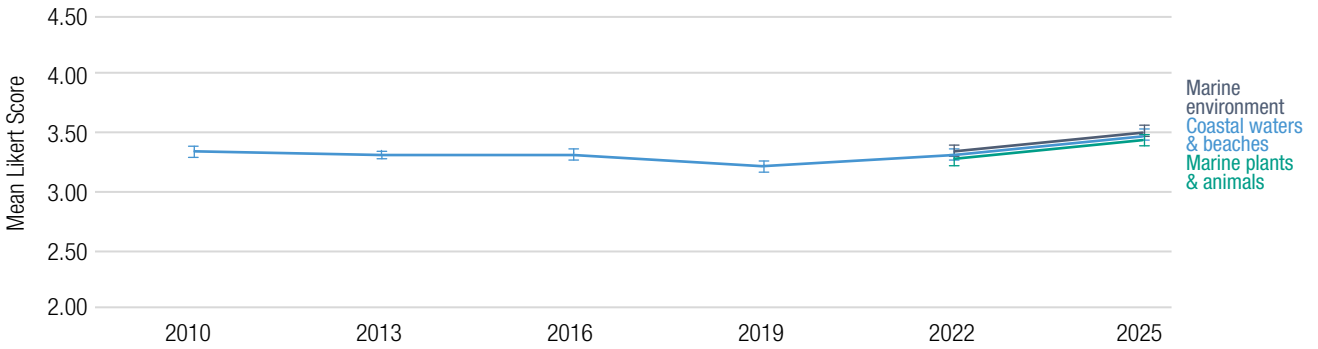


Figure 3.6. Trends in average perceived state of the environment for marine environments, coastal waters and beaches, and marine plants and animals, 2010–2025.

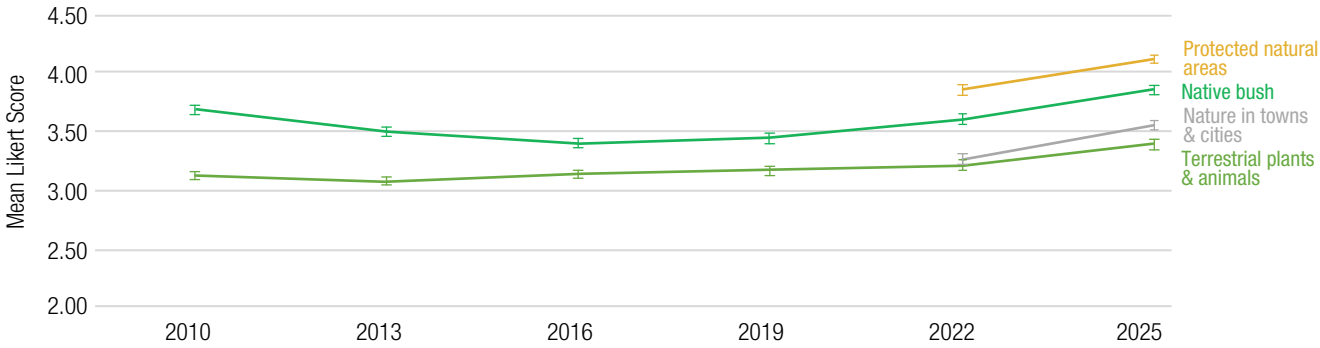


Figure 3.7. Trends in average perceived state of the environment for protected natural areas, natural environments in towns and cities, native bush and forests, and terrestrial plants and animals, 2010–2025.

Notes for Figures 3.5, 3.6 and 3.7: Scale is 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good. Error bars are the 95% confidence bands around the average.

3.2.3 Trends in Responses to Pressures, 2010–2025

Figures 3.8 to 3.10 show mean scores and 95% confidence intervals for six environmental domains over time. As discussed in Section 2, the wording was updated in 2022 to improve consistency across the PSR framework. Time series for four environmental domains, marine plants and animals, terrestrial plants and animals, marine environments and protected areas, began in the 2022 wave of the survey.

Perceptions of the quality of management of air, natural environments in towns and cities, and coastal waters and beaches were statistically stable for most of the time series (Figures 3.8, 3.9 and 3.10). In comparison to previous waves of the survey, perceptions of management of natural environments in towns and cities and of air quality did not change until 2019, while perceptions of management of coastal waters and beaches did not improve until 2022.[6] All three domains improved significantly in 2025 compared to all previous survey waves. Respondents' perceptions of the quality of management of native bush, rivers and lakes, and wetlands (Figures 3.8 and 3.10) in 2016 were worse than in 2010, but all these environmental domains started to see improvements in the 2019 and/or 2022 waves of the survey.[7] Similar to other domains, the perceptions of the quality of management of marine environments, marine plants and animals, protected natural areas and terrestrial plants and animals all improved in 2025 compared to 2022.[8]

3.2.4 Trends in Pressures on Environmental Domains, 2010–2025

Respondents were asked to select what they considered to be the main pressures on the 10 environmental domains, choosing up to 3 from a list of 15. As discussed in Section 2, the wording was updated in 2022 to improve consistency across the PSR framework. Time series for five environmental domains, marine plants and animals, terrestrial plants and animals, marine environments, protected areas, and natural environments in towns and cities, began in the 2022 wave of the survey.

A significant proportion of respondents since 2010 think motor vehicles and transport and industrial activities damage air quality while an increasing proportion of respondents think motor vehicles and transport put pressure on natural environments in towns and cities since 2022.[9] A similar and steady proportion of respondents since 2010 think urban development and household waste and emissions damage air quality. However, 13% more respondents in 2025 than in 2010 thought hazardous chemicals put pressure on air quality.

Farming was a significant and increasing pressure on rivers and lakes, and to wetlands between 2010 and 2016, but has decreasingly been identified as a key pressure since.[10] Pests and weeds have been identified as putting significant, but stable, pressure on wetlands since 2010 and on rivers and lakes in 2022. A steady, significant and increasing proportion of respondents since 2013 attribute damage to rivers, lakes, and wetlands to sewage, stormwater, dumping of solid waste and hazardous chemicals while a steady, significant and increasing proportion of respondents since 2010 also attribute damage to wetlands to industrial activities.

Similarly, the proportion of respondents who think pests and weeds are putting pressure on native bush and forests has been steadily declining over time, while farming was seen as a significant pressure on native bush and forests before the 2022 survey. However, the proportion of respondents who think forestry, urban development, and dumping of solid waste are putting pressure on native bush and forests has been steadily increasing over time. Forestry is also perceived to be an increasing pressure on terrestrial plants and animals while dumping of solid waste is perceived to be an increasing pressure on protected natural areas and terrestrial plants and animals since 2022.[11]

Since the 2010 wave of the survey, damage to coastal waters and beaches has been attributed primarily to sewage and stormwater. In the 2022 survey way, sewage and stormwater was also perceived to be the primary pressure on marine environment, and to marine plants and animals. However, the perceived primary pressure on these domains changed in 2025 to commercial fishing.[12] Significantly more respondents in 2025 than in all previous surveys think dumping of solid waste puts pressure on coastal waters and beaches and marine environment, plants and animals. For example, 10% more respondents in 2025 than in 2022 think dumping of solid waste is causing damage to marine environments, 5.4% more respondents in 2025 than in 2022 think dumping of solid waste is causing damage to marine plants and animals and 7.4% to 22% more respondents in 2025 than in the previous five survey waves think dumping of solid waste is damaging coastal waters and beaches.

[6] *See Appendix 4, Table A4.11, A4.13 and A4.18 for full Bonferroni pairwise comparison results.*

[7] *See Appendix 4, Table A4.14, A4.15 and A4.16 for full Bonferroni pairwise comparison results.*

[8] *See Appendix 4, Table A4.12, A4.17, A4.19, and A4.20 for full Bonferroni pairwise comparison results.*

[9] *See Appendix 4, Table A4.21 and A4.28 for full regression results.*

[10] *See Appendix 4, Table A4.24 and A4.25 for full regression results.*

[11] *See Appendix 4, Table A4.26, A4.27 and A4.30 for full regression results.*

[12] *See Appendix 4, Table A4.22, A4.23 and A4.29 for full regression results*

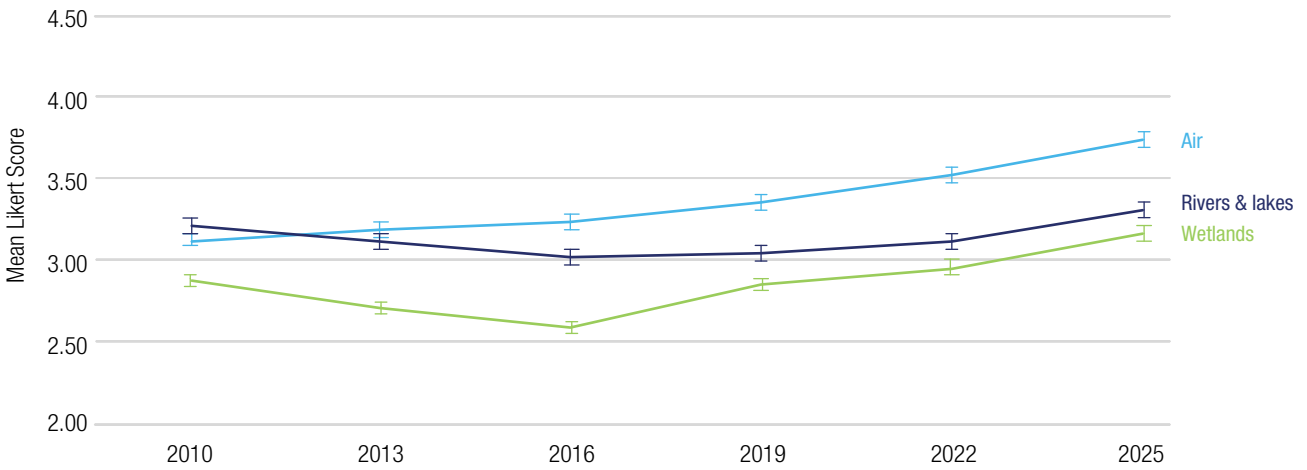


Figure 3.8. Trends in average perceived quality of management for air, rivers and lakes, and wetlands, 2010–2025.

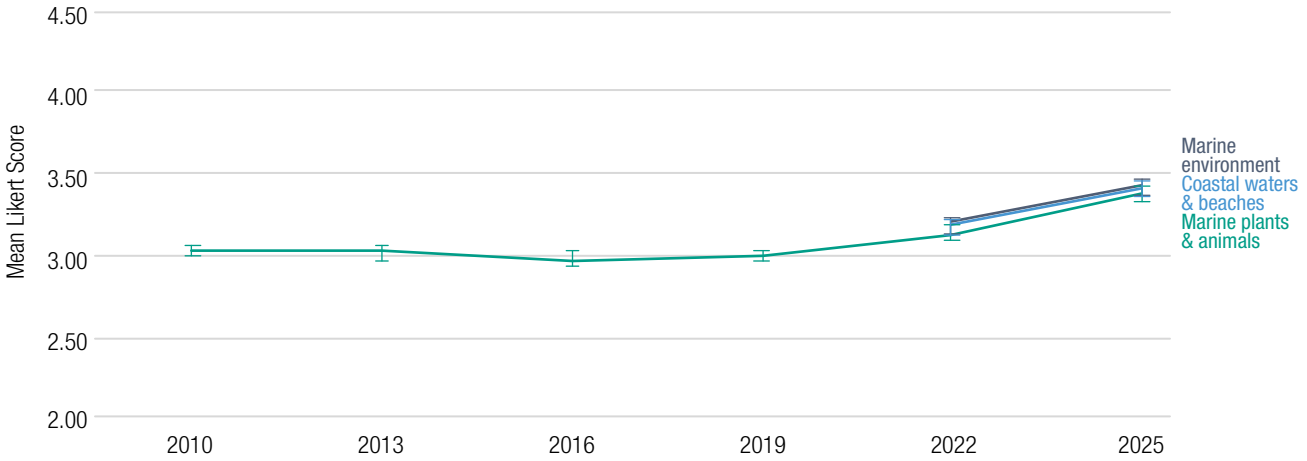


Figure 3.9. Trends in average perceived quality of management for marine environments, coastal waters and beaches, and marine plants and animals, 2010–2025.

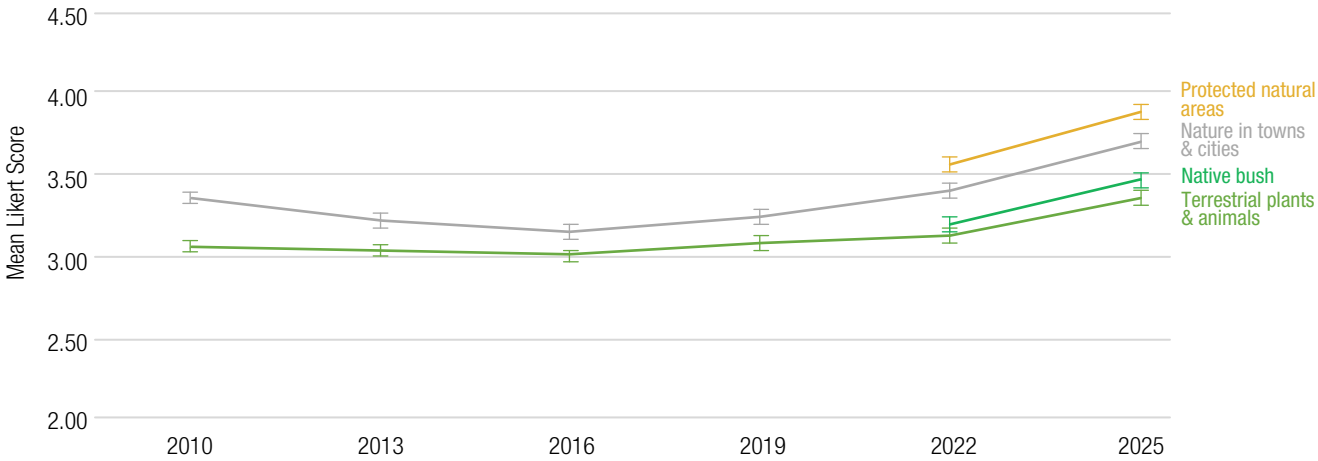


Figure 3.10. Trends in average perceived quality of management for protected natural areas, natural environments in towns and cities, native bush and forests, and terrestrial plants and animals, 2010–2025.

Notes for Figures 3.8, 3.9, and 3.10: Scale is 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good. Error bars are the 95% confidence bands around the average.

3.3 TRENDS IN THE AIR DOMAIN

3.3.1 Trends in Perceptions of State, Pressures, and Management

Air quality has been perceived to have improved continually year on year since 2010, with most New Zealanders considering air quality to be 'good' on average, a decreasing proportion considering air quality to be 'adequate' and an increasing proportion consider air quality to be 'very good' (Figure 3.11). The perceived condition in 2019, while not significantly different from 2016, was still an improvement over the 2010 and 2013 averages.[13] Also, the proportion of respondents who consider air quality to be 'bad' has been decreasing since 2010 while the proportion of respondents who consider air quality to be 'very bad' has remained relatively stable and low (between 1% and 2%). These trends are also apparent in some regions. For example, respondents in Auckland, Waikato, and Canterbury think the air quality has been improving each year since 2010 (Table 3.3).

Respondents think the quality of management of air is 'adequate' to 'good' on average, and this remained stable until 2019, when it improved from its 2016 average (Figure 3.12). The proportion of respondents who think management of air is 'adequate' or 'bad' has declined since 2010 while the proportion of respondents who think the management of air is 'good' or 'very good' has increased since 2010. This has meant the average perception of management continues to improve in 2025.[14] Similar to the state of air quality since 2010, respondents in Auckland and Canterbury think the management of air quality has been improving each year since 2010 (Table 3.4). However, respondents in Nelson, Tasman, Marlborough, and Southland think the management of air quality declined sharply in 2019 before rebounding by 2022.

Motor vehicles and transport, industrial activities and hazardous chemicals are the top three largest contributors to poor air quality according to respondents in 2025 (Figure 3.13). The proportion of respondents who think motor vehicles and transport or industrial activities are putting pressure on air quality increased from that reported in 2022, but remains below the proportion in past survey waves.[15] Pressures on air quality are increasingly attributed to hazardous chemicals: 33 of respondents in 2025 think hazardous chemicals are damaging air quality, which is 6% more than in 2022, 13% more than in 2019, 14% more than in 2016, 15% more than in 2013, and 13% more than in 2010.

3.3.2 Summary

Air quality has been improving across most indicators over the last 10 years, and survey respondents' perceptions of air quality reflect this improvement. Winter months and urban centres tend to have worse air quality because of particulate matter produced by vehicle emissions, manufacturing and industry, and wood burning for homes (MfE & StatsNZ, 2021a, 2025). Respondents concur that air quality is degraded by motor vehicles, transport, and industrial activities. However, of all the air quality indicators measured, PM_{10} is the only one that has not been trending down over time, most probably due to an increase in the number of motor vehicles on the road in NZ. Overall, it appears that air quality is improving, both empirically and in people's perception, and respondents are very attuned to the overall state of and pressures on air.

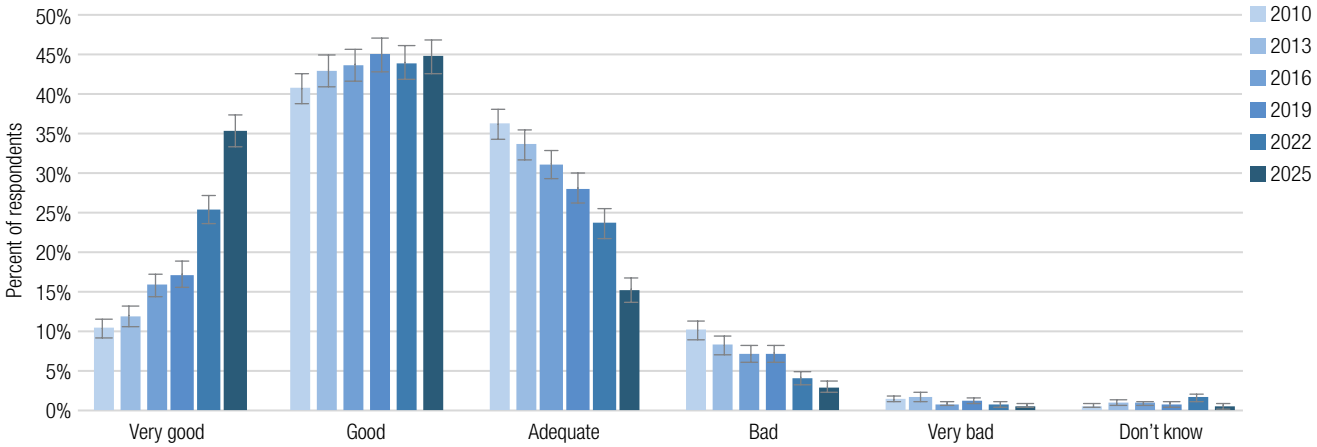


Figure 3.11. Perceived state of air quality, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around percentage of respondents.

[13] *See Appendix 4, Table A4.1 for full Bonferroni pairwise comparison results.*

[14] *See Appendix 4, Table A4.11 for full Bonferroni pairwise comparison results.*

[15] *See Appendix 4, Table A4.21 for full regression results.*

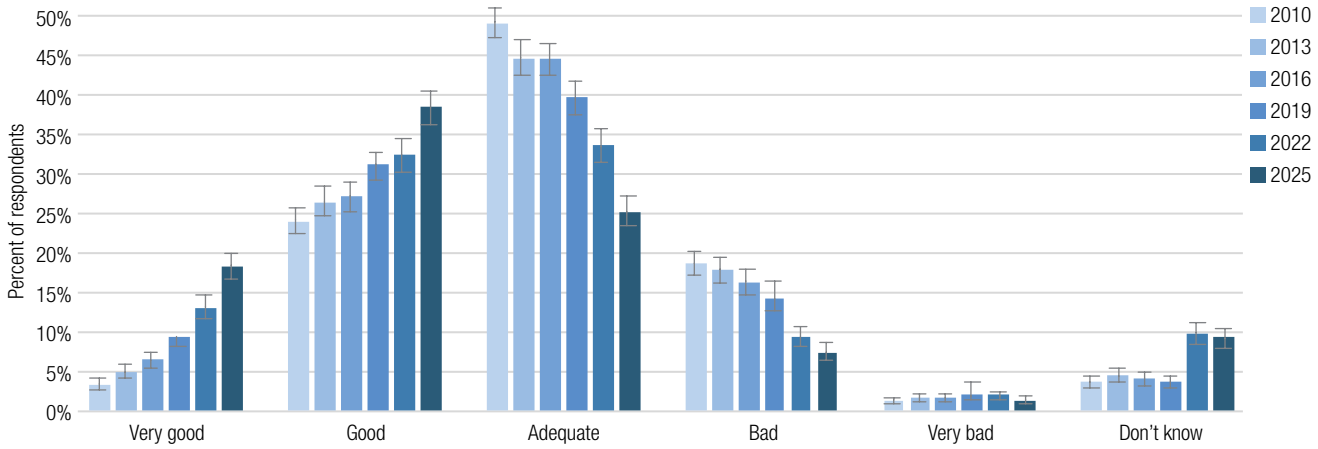


Figure 3.12. Perceived quality of management of air quality, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around percentage of respondents.

Table 3.3. Average perceived state of air quality, by region, 2010–2025.

	2010	2013	2016	2019	2022	2025
North Island						
Northland	3.58	3.30	3.56	3.47	4.07	4.00
Auckland	3.44	3.59	3.66	3.72	3.93	4.23
Waikato	3.51	3.52	3.69	3.83	3.91	4.10
Bay of Plenty	3.57	3.52	3.69	3.77	4.06	4.05
Gisborne	3.59	3.76	4.00	3.60	3.57	3.94
Hawke's Bay	3.63	3.76	3.57	3.85	3.89	4.01
Taranaki	3.46	3.93	3.83	3.66	3.91	4.24
Manawatū-Whanganui	3.68	3.47	3.81	3.94	3.89	3.98
Wellington	3.76	3.76	3.83	3.76	4.11	4.19
South Island						
Nelson	3.24	3.56	3.70	3.32	3.63	3.82
Tasman	3.46	3.42	3.79	3.46	3.82	4.13
Marlborough	3.69	3.49	3.81	3.55	3.89	4.09
Canterbury	3.29	3.36	3.50	3.60	3.84	4.38
West Coast	2.99	3.83	3.47	3.64	3.78	4.06
Otago	3.44	3.52	3.66	3.58	3.74	4.12
Southland	3.33	3.66	3.51	3.56	3.86	4.14
Overall	3.49	3.57	3.68	3.71	3.92	4.13

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Table 3.4. Average perceived quality of management of air quality, by region, 2010–2025.

	2010	2013	2016	2019	2022	2025
North Island						
Northland	3.09	2.98	2.94	2.95	3.33	3.62
Auckland	3.03	3.17	3.24	3.40	3.59	3.80
Waikato	3.16	3.00	3.24	3.31	3.41	3.84
Bay of Plenty	3.19	3.06	3.28	3.41	3.42	3.60
Gisborne	3.34	3.21	3.07	3.00	3.16	3.25
Hawke's Bay	3.02	2.99	3.10	3.34	3.54	3.67
Taranaki	3.11	3.56	3.37	3.43	3.32	3.73
Manawatū-Whanganui	3.26	3.27	3.27	3.51	3.47	3.55
Wellington	3.25	3.35	3.31	3.41	3.58	3.77
South Island						
Nelson	2.96	2.81	3.27	2.69	3.37	3.25
Tasman	3.12	3.23	3.26	2.91	3.20	3.25
Marlborough	3.06	3.21	3.14	2.98	3.47	3.77
Canterbury	3.02	3.02	3.11	3.28	3.59	3.60
West Coast	3.01	3.45	2.92	3.30	3.39	3.65
Otago	3.08	3.16	3.15	3.17	3.34	3.72
Southland	3.02	3.20	3.20	2.85	3.45	3.51
Overall	3.10	3.16	3.21	3.33	3.50	3.71

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

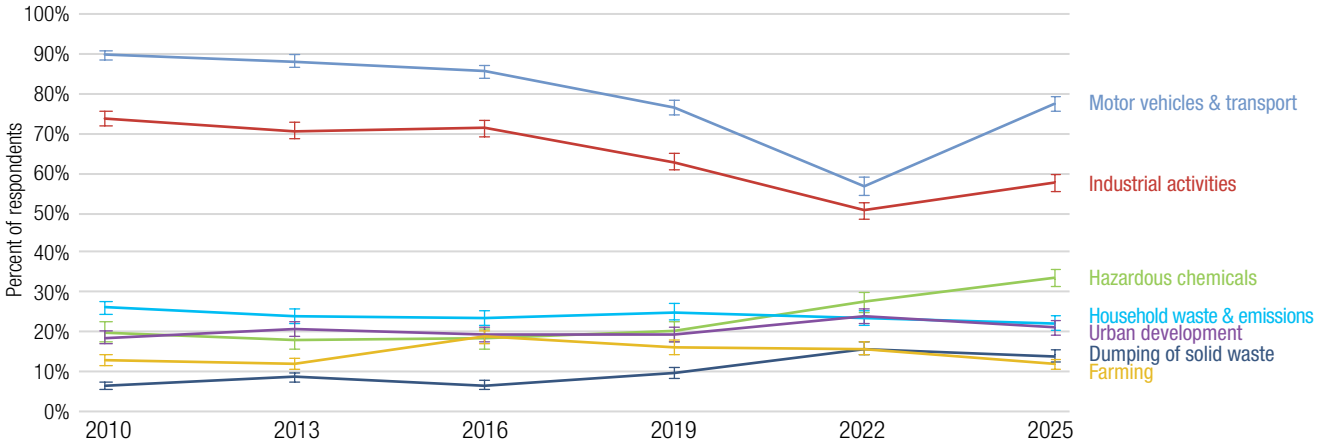


Figure 3.13. Trends in perceived pressures on air quality, 2010–2025.

Notes: Respondents could choose up to three pressures. Error bars are 95% confidence bands around the percentage of respondents.

3.4 TRENDS IN THE MARINE ENVIRONMENT DOMAIN

3.4.1 Perceptions of State, Pressures, and Management

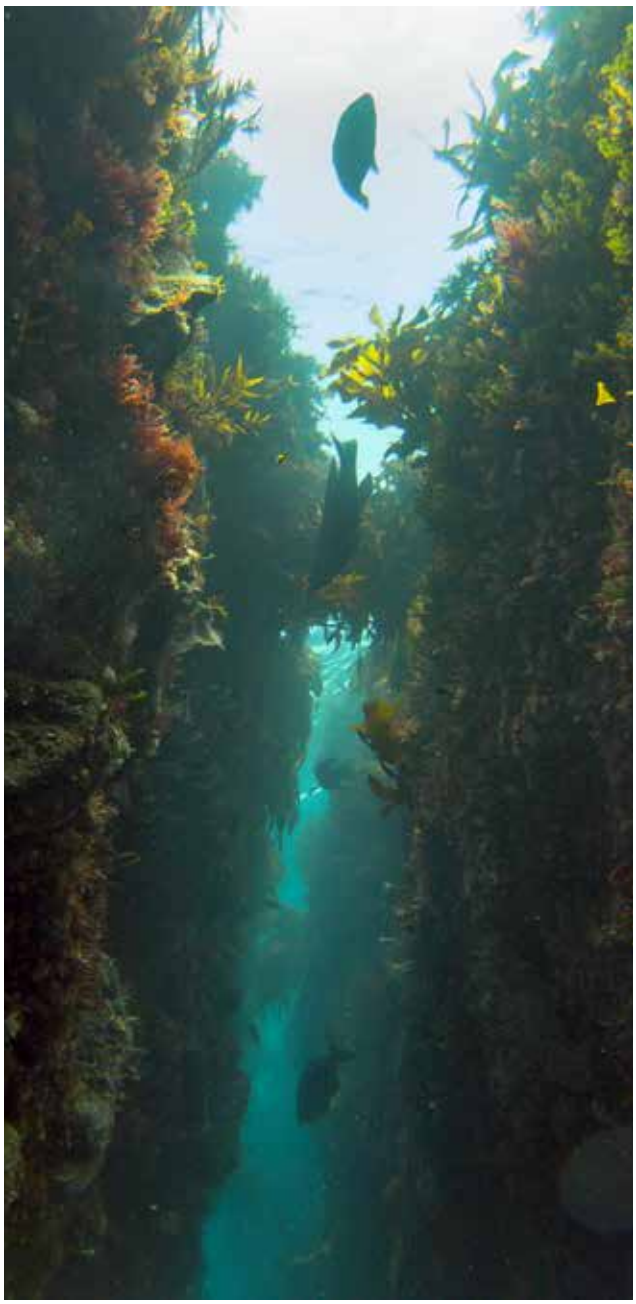
Respondents think marine environments are in an 'adequate' to 'good' condition on average in 2025 (Figure 3.14), a significant improvement from the 2022 average.[16] Sixteen percent of respondents think marine environments are in a 'bad' to 'very bad' state, 4% fewer than in 2022, but 53% of respondents think marine environments are in a 'good' to 'very good' state, an 8% improvement from 2022. Perceptions of state across regions was highly variable (Table 3.5). Respondents in Manawatū-Whanganui, Nelson, Tasman, and Southland scored the state of their marine environment the lowest while respondents in Taranaki and the West Coast scored the state of their marine environment the highest compared to other regions. Respondents in all but Manawatū-Whanganui, Tasman, and Southland thought the state of their marine environments improved in 2025.

Perceived quality of management of marine environments improved in 2025. This improvement includes 6% fewer respondents who think marine environments are in a 'bad' to 'very bad' state, and 12% more respondents who think marine environments are in a 'good' to 'very good' state than in 2022 (Figure 3.15).[17] Similar to perceived state, respondents in Tasman and Southland scored management of marine environments lower than other regions and lower in 2025 than in 2022 (Table 3.6).

Pressures on marine environments in 2025 are equally attributed to commercial fishing (61%) and sewage and stormwater (60%), but hazardous chemicals (29%) and dumping of solid waste (38%) are also considered significant pressures (Figure 3.16). The proportion of respondents who attributed pressure on marine environments to commercial fishing, recreational fishing and dumping of solid waste increased in 2025 compared to 2022.[18]

3.4.2 Summary

Survey respondents think marine environments are in relatively decent condition and are being managed adequately. Respondents also identified several pressures that mirror the known biophysical pressures. For example, 60% of respondents think sewage and stormwater are damaging marine environments which is consistent with evidence that nutrient loading from the land, including from sewage and stormwater, has increased over time, affecting water quality, habitats, and biodiversity in the marine environment (MfE & StatsNZ, 2019). Overall, respondents seem to be attuned to the variable management and pressures on the marine environment. However, with the increasing pressures from climate change, greenhouse gases, and acidification on marine habitats, future perception surveys may better capture the changes in condition of marine environments.



Marine environment
NICK GROBLER

[16] *See Appendix 4, Table A4.2 for full Bonferroni pairwise comparison results.*
[17] *See Appendix 4, Table A4.12 for full Bonferroni pairwise comparison results.*
[18] *See Appendix 4, Table A4.22 for full regression results.*

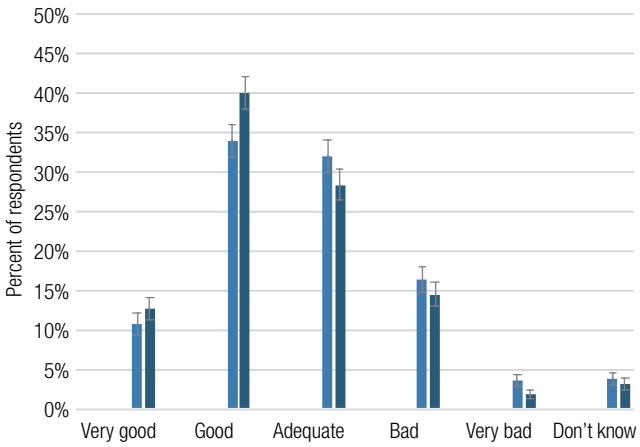


Figure 3.14. Perceived state of marine environments, 2022–2025.

Notes: Error bars on Figures are 95% confidence bands around percentage of respondents.

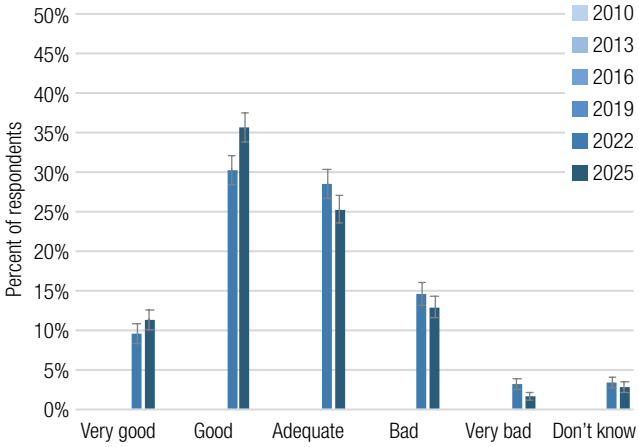


Figure 3.15. Perceived quality management of marine environments, 2022–2025.

Notes: Error bars on Figures are 95% confidence bands around percentage of respondents

Table 3.5. Average perceived state of marine environments, by region, 2022–2025.

	2022	2025
North Island		
Northland	3.24	3.38
Auckland	3.44	3.59
Waikato	3.21	3.53
Bay of Plenty	3.28	3.42
Gisborne	2.73	3.39
Hawke's Bay	3.16	3.36
Taranaki	3.29	3.71
Manawatū-Whanganui	3.31	3.24
Wellington	3.35	3.50
South Island		
Nelson	3.20	3.27
Tasman	3.48	3.27
Marlborough	3.31	3.52
Canterbury	3.31	3.67
West Coast	3.36	3.43
Otago	3.17	3.51
Southland	3.30	3.20
Overall	3.33	3.49

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Table 3.6. Average perceived quality of management of marine environments, by region, 2022–2025.

	2022	2025
North Island		
Northland	3.09	3.36
Auckland	3.25	3.52
Waikato	3.05	3.46
Bay of Plenty	3.12	3.45
Gisborne	2.73	3.22
Hawke's Bay	3.25	3.25
Taranaki	3.16	3.36
Manawatū-Whanganui	3.09	3.27
Wellington	3.21	3.37
South Island		
Nelson	2.96	3.32
Tasman	3.13	3.10
Marlborough	3.17	3.32
Canterbury	3.13	3.36
West Coast	3.24	3.36
Otago	3.01	3.38
Southland	3.15	3.05
Overall	3.17	3.41

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

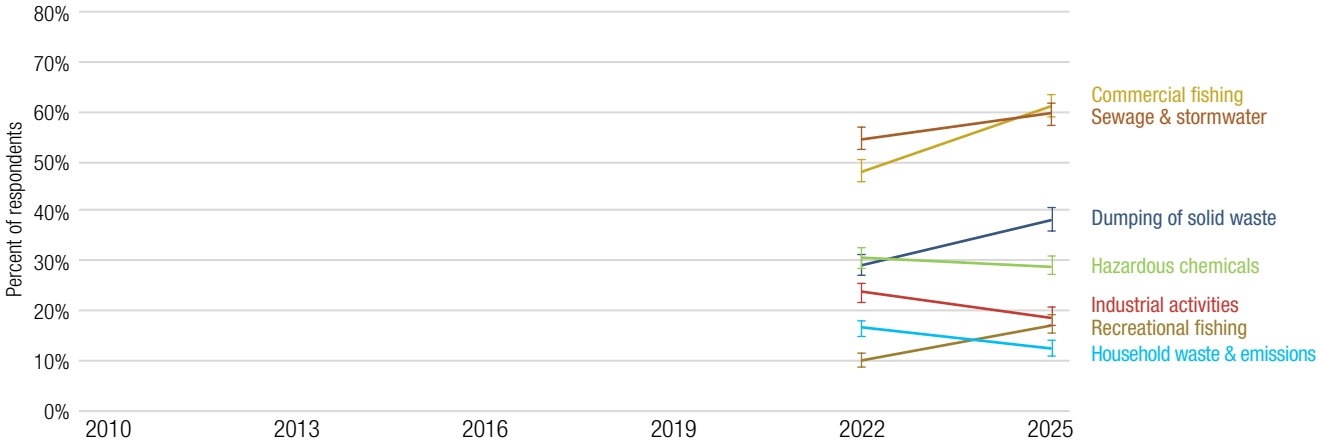


Figure 3.16. Trends in perceived pressures on marine environments,2022–2025.

Notes: Respondents could choose up to three pressures. Error bars are 95% confidence bands around the percentage of respondents.

3.5 TRENDS IN THE COASTAL WATERS AND BEACHES DOMAIN

3.5.1 Trends in Perceptions of State, Pressures, and Management

Most respondents consider the condition of coastal waters and beaches to be 'adequate' to 'good' while 9% to 14% of respondents think coastal areas are in 'very good' condition and 3% to 4% think coastal areas are in 'very bad' condition (Figure 3.17). The proportion of respondents who think coastal areas are in a 'bad' condition spiked in 2019, causing the average perceived condition to decline in 2019 compared to 2010, 2013, and 2016. However, the average condition improved in 2022 compared to 2019 and again in 2025 compared to 2022 and 2019.[19]

Between 2010 and 2022 a steadily decreasing proportion of respondents thought coastal areas were 'adequately' managed (43% in 2010, down to 35% in 2022) and a steady 22% to 24% of respondents thought management was 'good' (Figure 3.18). This translated into the average quality of management of coastal areas remaining stable until 2022, when it improved in comparison to all previous waves of the survey.[20] The 2025 wave saw a large jump in the proportion of respondents who think management is 'very good' (8% in 2022 up to 12% in 2025) to 'good' (24% in 2022 up to 34% in 2025) and a continued declined in the proportion of respondents who think management is 'adequate' – further improving the average quality score of management of coastal areas.

Tasman and Southland regions each saw large drops in perceived condition and management of their coastal areas in 2019 before seeing improvement in 2022. The perceived condition of coastal areas in Gisborne was similar to other regions until 2022 when perceived conditions deteriorated (Table 3.7 and 3.8) before improving somewhat in 2025. However, all regions saw some improvement in perceived management of their coastal areas in 2025 and all but Manawatū-Whanganui saw some improvement in perceived condition of their coastal areas.

The top perceived pressures on coastal areas in 2025 are sewage and stormwater (62%), dumping of solid waste (40%), and hazardous chemicals (25%; Figure 3.19). Sewage and stormwater continues to be the top perceived pressure on coastal areas, with small variation survey-to-survey, while household waste and emissions are decreasingly seen as a major pressure and dumping of solid waste is increasingly perceived as a major cause of damage to coastal areas. For example, 19% of respondents in 2010 thought dumping of solid waste was a cause of damage versus 33% of respondents in 2022 and 40% of respondents in 2025.[21]

3.5.2 Summary

Coastal waters and beaches tend to be in worse condition than open marine environments due to multiple human-induced pressures (MfE & StatsNZ, 2019). Over the last 10 years, concentrations of some nutrients, sediments, and pathogens have remained relatively high, but total phosphorus trends have improved for the majority of monitored sites (MfE & StatsNZ, 2019). Survey respondents' perceptions did not always mirror the biophysical condition of coastal regions, but respondents are aware of some of the human-induced pressures on water quality along the coast such as sewage and solid waste.

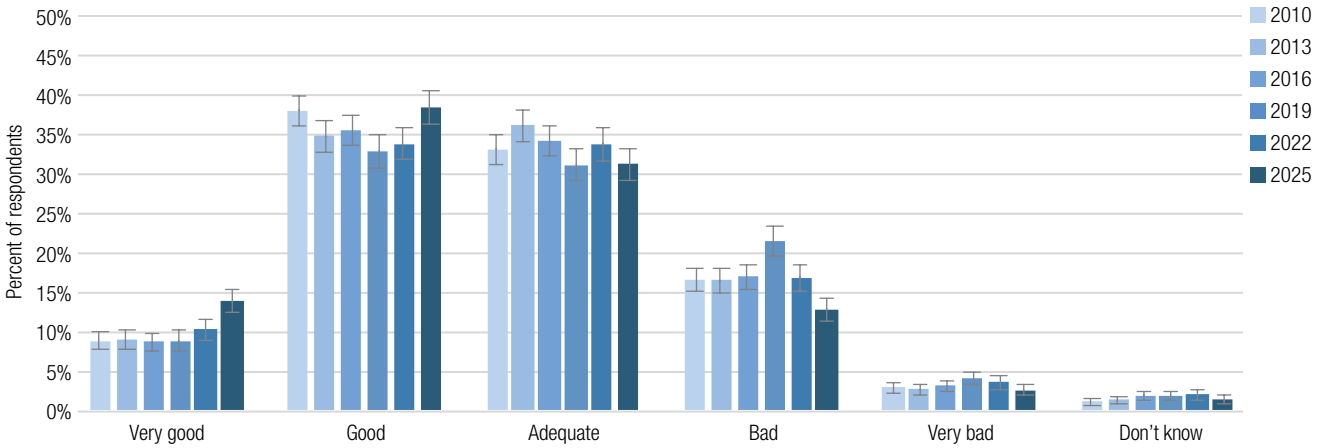


Figure 3.17. Perceived state of coastal waters and beaches, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around percentage of respondents.

[19] *See Appendix 4, Table A4.3 for full Bonferroni pairwise comparison results.*

[20] *See Appendix 4, Table A4.13 for full Bonferroni pairwise comparison results.*

[21] *See Appendix 4, Table A4.23 for full regression results.*

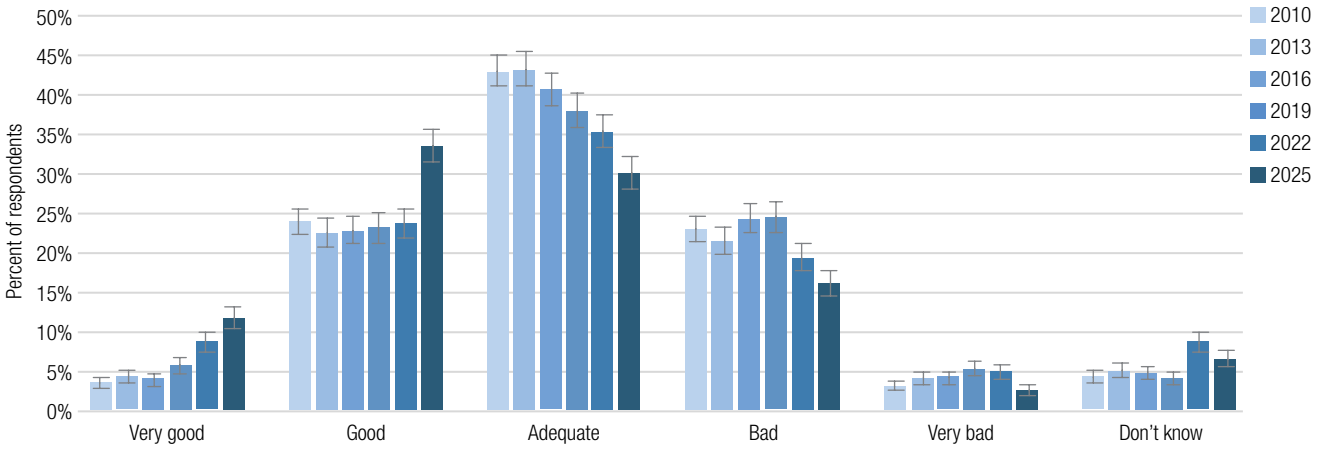


Figure 3.18. Perceived quality of management of coastal waters and beaches, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around percentage of respondents

Table 3.7. Average perceived state of coastal waters and beaches, by region, 2010–2025

	2010	2013	2016	2019	2022	2025
North Island						
Northland	3.48	3.21	3.04	3.18	3.21	3.49
Auckland	3.38	3.49	3.45	3.30	3.42	3.51
Waikato	3.30	3.35	3.40	3.33	3.15	3.48
Bay of Plenty	3.29	3.19	3.30	3.37	3.46	3.54
Gisborne	3.34	3.15	3.34	3.15	2.55	3.28
Hawke's Bay	3.40	3.17	3.17	3.15	3.21	3.31
Taranaki	3.37	3.63	3.38	3.13	3.36	3.46
Manawatū-Whanganui	3.26	3.19	3.18	3.20	3.24	3.09
Wellington	3.35	3.19	3.16	3.05	3.30	3.61
South Island						
Nelson	3.31	3.35	3.60	2.88	3.31	3.75
Tasman	3.46	3.23	3.51	3.14	3.06	3.75
Marlborough	3.17	3.21	3.51	3.27	3.33	3.65
Canterbury	3.31	3.20	3.21	3.09	3.33	3.44
West Coast	3.23	3.49	3.25	3.18	3.15	3.44
Otago	3.09	3.32	3.25	3.09	3.18	3.57
Southland	3.24	3.17	3.51	2.82	3.25	3.38
Overall	3.34	3.31	3.30	3.21	3.31	3.49

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Table 3.8. Average perceived quality of management of coastal waters and beaches, by region, 2010–2025

	2010	2013	2016	2019	2022	2025
North Island						
Northland	2.95	2.85	2.76	2.94	3.01	3.31
Auckland	3.08	3.21	3.12	3.09	3.25	3.44
Waikato	3.03	2.94	3.03	3.10	2.98	3.49
Bay of Plenty	3.07	2.96	3.17	3.07	3.13	3.44
Gisborne	3.04	2.86	3.22	2.76	2.82	3.22
Hawke's Bay	2.98	2.69	2.80	2.97	3.16	3.24
Taranaki	2.99	3.41	3.06	3.06	3.17	3.19
Manawatū-Whanganui	2.87	2.90	2.86	2.81	3.01	3.22
Wellington	3.03	2.90	2.88	2.84	3.09	3.38
South Island						
Nelson	2.97	3.17	2.92	2.51	3.07	3.48
Tasman	2.96	3.26	3.15	2.86	2.85	3.48
Marlborough	2.87	3.22	2.94	2.94	3.19	3.39
Canterbury	2.99	2.90	2.89	3.00	3.22	3.31
West Coast	2.79	2.58	2.56	2.73	3.16	3.35
Otago	2.79	3.01	2.84	2.80	2.99	3.45
Southland	2.80	3.08	3.06	2.67	3.02	3.10
Overall	3.02	3.02	2.98	3	3.13	3.39

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

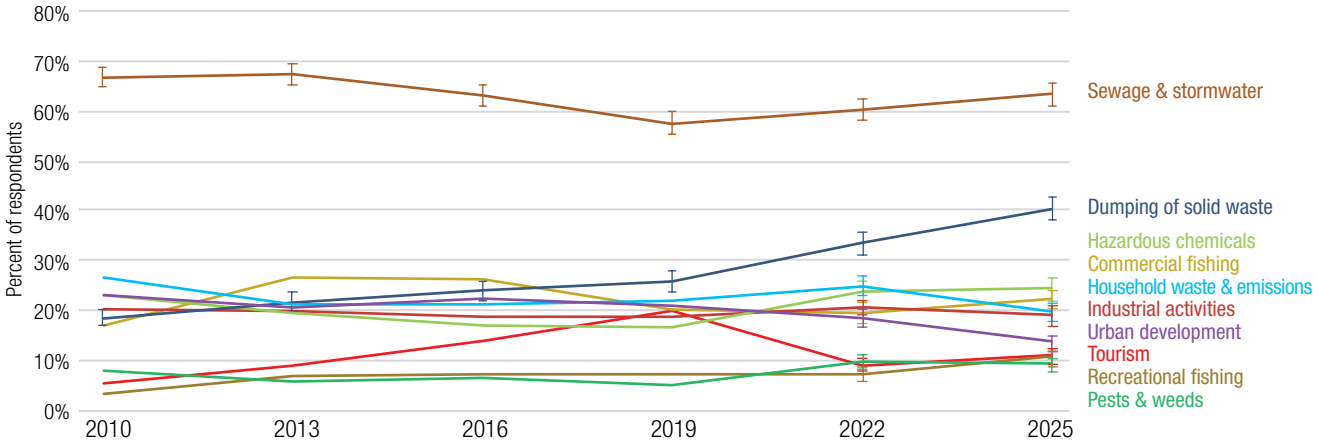


Figure 3.19. Trends in perceived pressures on coastal waters and beaches, 2010–2025.

Notes: Respondents could choose up to three pressures. Error bars are 95% confidence bands around the percentage of respondents.

3.6 TRENDS IN THE RIVERS AND LAKES DOMAIN

3.6.1 Trends in Perceptions of State, Pressures, and Management

Perceptions of the condition of rivers and lakes trended downward from 2010 to 2016, then upward in 2019 and remained stable in 2022 compared to 2013 and 2016. (Figure 3.20).[22] Perceived quality of management in 2016 was also worse than in 2010, but this improved in 2019 and then again in 2022 compared with 2013, 2016, and 2019 (Figure 3.21).[23] Both the perceived condition and quality of management of rivers and lakes improved in 2025 compared with all previous survey waves. These u-shaped trends in condition and management were largely driven by an increase in respondents who thought rivers and lakes were in bad to very bad condition and were being managed badly to very badly from 2010 to 2016, followed by a decrease from 2016 onward.

Most regions saw a slow decline in perceived river and lake conditions and stable perceived management quality from 2010 to 2016, and then a slow improvement in perceived condition and management of rivers and lakes from 2016 to 2025. Respondents in Gisborne, Marlborough, and Southland thought the condition and management of their rivers and lakes had improved in 2016 before declining in 2019 and then improving again in 2022. However, respondents in Tasman and Canterbury think the condition of their rivers and lakes has declined in 2025 compared to condition in 2022 (Table 3.9 and 3.10).

Respondents think sewage, stormwater, dumping of solid waste and farming are among the top three pressures putting the most pressure on the condition of rivers and lakes (Figure 3.22). However, the perceived impact of farming on rivers and lakes has been in decline since 2016 with 28% fewer respondents attributing declining river and lake quality to farming activities in 2025 compared with 2016. Dumping of solid waste, pests and weeds, and hazardous chemicals are also perceived to be putting increasing pressure on river and lake quality.[24] In 2025, 13% more respondents attribute declining river and lake quality to hazardous chemicals compared with 2010, 12% more respondents attribute declining river and lake quality to pests and weeds compared with 2019, and between 19% and 20% more respondents attribute declining river and lake quality to dumping of solid waste in 2025 compared with both 2013 and 2016.

3.6.2 Summary

The condition of rivers and lakes is highly dependent on the surrounding land uses. Improvement over the last 10 to 20 years across rivers and lakes quality indicators is also dependent on upstream land uses (MfE & StatsNZ 2020). Survey respondents have been able to pick up on these diverse biophysical conditions of lakes and rivers and are also relatively attuned to the pressures on river and lakes quality. Respondents' attribution of damage to rivers and lakes to farming (i.e., pastoral land use), sewage and stormwater (e.g., towns and cities) and dumping of solid waste (i.e., sanitation) is consistent with evidence that nutrients, pathogens, sediment, and chemical pollutants enter freshwater systems through sewage, stormwater and land runoff, degrading domestic, recreational and cultural values (MfE & StatsNZ, 2020).

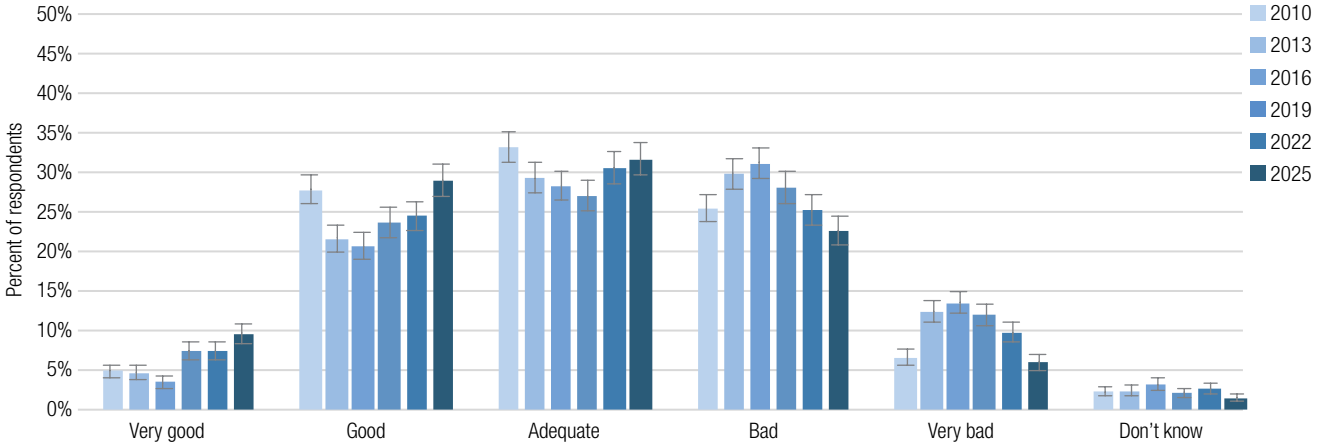


Figure 3.20. Perceived state of rivers and lakes, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around percentage of respondents.

[22] *See Appendix 4, Table A4.4 for full Bonferroni pairwise comparison results.*

[23] *See Appendix 4, Table A4.14 for full Bonferroni pairwise comparison results.*

[24] *See Appendix 4, Table A4.24 for full regression results.*

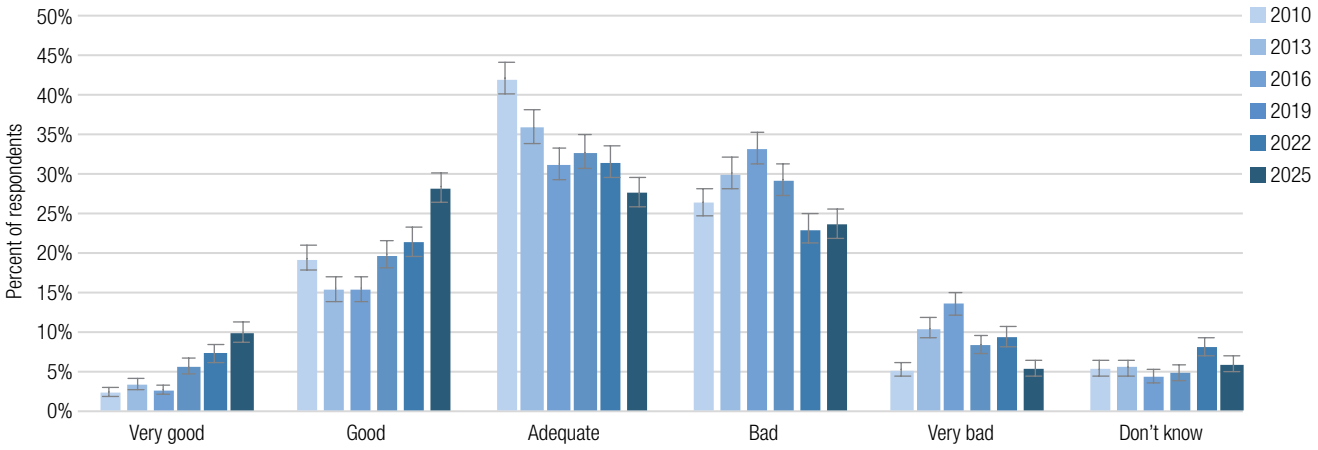


Figure 3.21. Perceived quality of management of rivers and lakes, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around percentage of respondents.

Table 3.9. Average perceived state of rivers and lakes, by region, 2010–2025.

	2010	2013	2016	2019	2022	2025
North Island						
Northland	3.07	2.55	2.57	2.65	2.74	3.11
Auckland	3.11	2.99	2.90	3.04	3.18	3.35
Waikato	2.94	2.64	2.71	2.88	2.78	3.17
Bay of Plenty	2.99	2.88	2.81	3.01	2.90	3.06
Gisborne	2.84	2.84	3.33	2.59	2.39	2.83
Hawke's Bay	3.06	2.54	2.61	2.76	2.85	2.79
Taranaki	3.10	2.98	2.97	2.98	3.08	3.04
Manawatū-Whanganui	2.88	2.58	2.61	2.86	2.77	2.71
Wellington	2.85	2.61	2.40	2.52	2.82	3.10
South Island						
Nelson	2.98	2.65	2.51	2.68	2.95	3.38
Tasman	2.66	2.84	2.67	2.56	3.20	3.00
Marlborough	2.98	2.79	3.27	2.61	3.04	3.09
Canterbury	2.92	2.61	2.52	2.72	2.79	3.31
West Coast	2.87	2.96	2.55	2.87	3.09	2.98
Otago	2.80	2.64	2.63	2.71	2.78	3.08
Southland	2.84	2.73	2.86	2.56	2.83	2.90
Overall	2.99	2.76	2.68	2.86	2.95	3.14

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Table 3.10. Average perceived quality of management of rivers and lakes, by region, 2010–2025.

	2010	2013	2016	2019	2022	2025
North Island						
Northland	2.81	2.45	2.35	2.64	2.81	3.07
Auckland	2.96	2.94	2.79	2.99	3.11	3.31
Waikato	2.91	2.64	2.59	2.82	2.81	3.25
Bay of Plenty	2.93	2.60	2.70	2.94	2.83	3.17
Gisborne	2.83	2.77	2.94	2.61	2.66	2.78
Hawke's Bay	2.74	2.45	2.53	2.74	2.99	3.06
Taranaki	3.00	3.12	2.85	3.00	2.98	2.88
Manawatū-Whanganui	2.59	2.57	2.48	2.83	2.88	2.95
Wellington	2.81	2.59	2.40	2.59	2.84	3.04
South Island						
Nelson	2.80	2.70	2.71	2.92	2.84	3.04
Tasman	3.07	2.58	2.69	2.67	2.74	3.04
Marlborough	3.09	2.52	2.96	2.64	3.00	3.05
Canterbury	2.82	2.57	2.42	2.75	2.95	3.25
West Coast	2.68	2.40	2.57	2.96	2.76	3.00
Otago	2.70	2.67	2.47	2.60	2.80	3.07
Southland	2.67	2.60	2.88	2.72	2.81	3.02
Overall	2.87	2.7	2.59	2.84	2.94	3.15

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

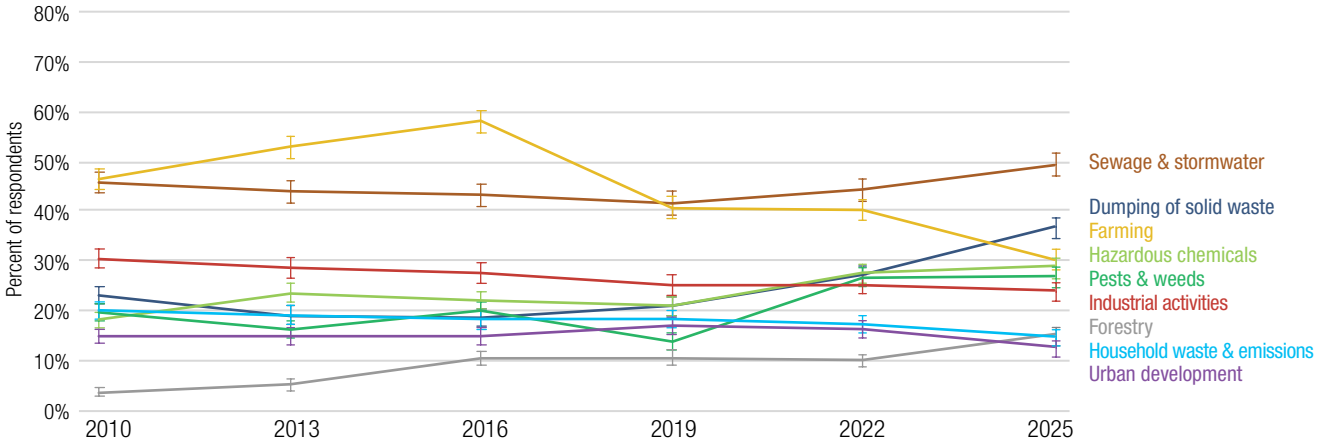


Figure 3.22. Trends in perceived pressures on rivers and lakes, 2010–2025.

Notes: Error bars are 95% confidence bands around percentage of respondents. Respondents could choose up to three pressures.

3.7 TRENDS IN THE WETLANDS DOMAIN

3.7.1 Trends in Perceptions of State, Pressures, and Management

Perceptions of the condition of wetlands trended downward from 2010 to 2016, mainly due to a declining proportion of respondents who think wetlands are in 'very good' or 'good' condition (Figure 3.23).[25] Perceived condition of wetlands improved in 2022 compared to 2016, remaining below the 2010 average, but improved again in 2025 compared to 2013, 2016, 2019 and 2022.

Perceptions of the management of wetlands declined from 2010 to 2016 while the proportion of respondents who thought management was of 'adequate' quality also declined from 2010 to 2025 (Figure 3.24). Perceived quality of management improved slightly in 2022 compared to the average in 2016, remaining below its 2010 average, but improved again in 2025 compared to all previous surveys.[26]

The average perceived condition of wetlands in Tasman, West Coast, and Taranaki peaked in 2013 then declined before improving again by 2022 and declining slightly in 2025 (Table 3.11). Marlborough and Southland saw the perceived condition and quality of management of their wetlands oscillate year-to-year while Gisborne saw the perceived condition and quality of management of their wetlands peak in 2016. Interestingly, the perceived condition of wetlands in most North Island regions bottomed out in 2016 while the perceived condition in most South Island regions bottomed out in 2019 (Table 3.11). However, the perceived quality of management of wetlands in most regions across the country bottomed out in 2019 suggesting some delay in perceptions (Table 3.12).

Respondents perceived pests, weeds, sewage and stormwater to be the largest among the top three pressures on wetland conditions over the time series (Figure 3.25). However, an increasing proportion of respondents attribute damage to wetlands to dumping of solid waste and industrial activities: 12.5% more respondents think dumping of solid waste is damaging wetlands in 2025 compared to 2010 and 5% more respondents think industrial activities are damaging wetlands in 2025 compared with 2010.[27]

3.7.2 Summary

The condition of wetlands across New Zealand is poorly understood, but less than 10% of pre-human wetland area remains today, and based on surrounding land uses, 60% are estimated to be in a moderately to severely degraded state (Ausseil *et al.*, 2011; MfE & StatsNZ, 2020). Survey respondents are relatively unaware of the condition of wetlands, perceiving them to be in 'adequate' to 'good' condition on average. However, a proportion are aware of their knowledge gaps, with over 13% of respondents saying they 'don't know' the condition and roughly 15% saying they 'don't know' the quality of management of wetlands. Survey respondents did identify a complex array of pressures from farming, pests, weeds, urban development, sewage, stormwater, and dumping solid waste.

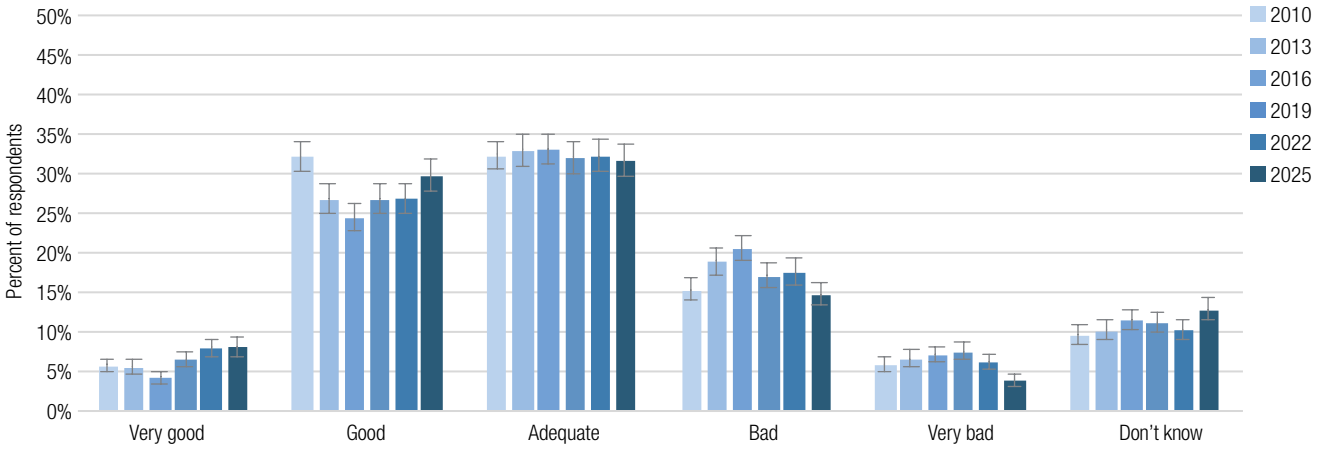


Figure 3.23. Perceived state of wetlands, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

[25] *See Appendix 4, Table A4.5 for full Bonferroni pairwise comparison results.*

[26] *See Appendix 4, Table A4.15 for full Bonferroni pairwise comparison results.*

[27] *See Appendix 4, Table A4.25 for full regression results.*

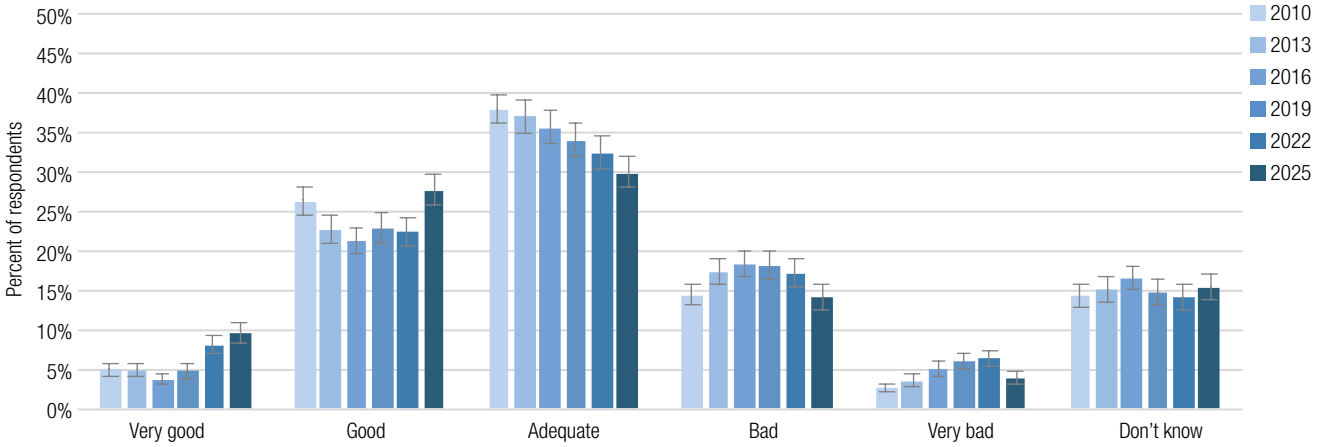


Figure 3.24. Perceived quality of management of wetlands, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

Table 3.11. Average perceived state of wetlands, by region, 2010–2025.

	2010	2013	2016	2019	2022	2025
North Island						
Northland	3.05	2.97	2.85	2.89	3.12	3.10
Auckland	3.30	3.25	3.16	3.26	3.28	3.35
Waikato	3.13	3.12	2.90	3.05	2.99	3.26
Bay of Plenty	3.21	2.96	3.04	3.20	3.09	3.24
Gisborne	2.79	2.77	3.18	2.79	2.43	2.93
Hawke's Bay	3.22	2.98	2.90	3.02	3.14	3.29
Taranaki	3.37	3.66	3.16	3.20	3.12	3.11
Manawatū-Whanganui	3.00	2.81	2.88	3.02	2.95	3.02
Wellington	3.09	2.98	2.76	2.80	3.02	3.18
South Island						
Nelson	3.27	3.08	2.76	2.66	2.83	3.27
Tasman	2.67	3.16	2.90	2.59	3.01	3.25
Marlborough	3.10	2.91	3.50	2.82	3.07	3.50
Canterbury	3.19	2.99	2.96	3.03	3.24	3.19
West Coast	3.10	3.38	2.72	2.70	3.15	3.36
Otago	3.24	2.90	2.95	3.01	3.08	3.33
Southland	2.98	2.81	3.11	2.64	3.17	2.90
Overall	3.19	3.07	2.98	3.09	3.14	3.27

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Table 3.12. Average perceived quality of management of wetlands, by region, 2010–2025.

	2010	2013	2016	2019	2022	2025
North Island						
Northland	2.97	3.01	2.73	2.78	3.09	3.16
Auckland	3.24	3.26	3.15	3.14	3.19	3.37
Waikato	3.29	3.04	2.97	3.10	2.98	3.34
Bay of Plenty	3.24	2.95	3.02	3.13	2.96	3.29
Gisborne	2.92	3.06	3.34	2.58	2.66	2.94
Hawke's Bay	3.16	3.10	3.05	3.01	3.28	3.25
Taranaki	3.13	3.54	3.12	3.12	3.09	3.10
Manawatū-Whanganui	2.98	3.07	2.89	2.98	3.01	3.23
Wellington	3.16	3.00	2.83	2.79	2.96	3.18
South Island						
Nelson	2.79	3.03	2.94	2.73	2.96	3.13
Tasman	3.25	3.11	2.54	2.89	2.83	2.90
Marlborough	3.31	2.95	3.20	2.81	3.28	3.50
Canterbury	3.17	3.05	2.98	3.02	3.25	3.00
West Coast	2.98	3.05	2.91	2.79	2.91	3.33
Otago	3.37	3.06	3.09	2.90	3.06	3.45
Southland	3.07	2.72	3.18	2.73	3.11	2.97
Overall	3.19	3.1	3.01	3.03	3.10	3.29

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

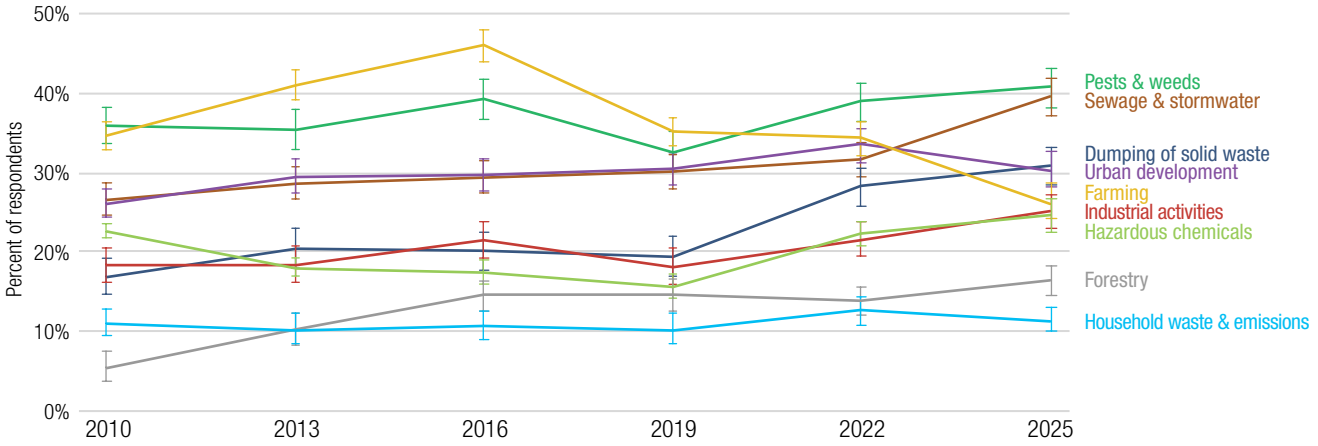


Figure 3.25. Trends in perceived pressures on wetlands, 2010–2025

Notes: Error bars are 95% confidence bands around the percentage of respondents. Respondents could choose up to three pressures.

3.8 TRENDS IN THE NATIVE BUSH AND FORESTS DOMAIN

3.8.1 Trends in Perceptions of State, Pressures and Management

Most respondents think native bush and forests are in 'good' condition and quality of management is 'good'. However, on average, the perceived condition of native bush and forests trended downward from 2010 to 2016, improved in 2022 compared to 2013, 2016, and 2019, and improved again in 2025 compared to all previous surveys (Figure 3.26).[28] The perceived quality of management of native bush and forests also declined from 2010 to 2016, but improved in 2019 from 2016, in 2022 from 2019 and again in 2025 from 2022 (Figure 3.27).[29]

While perceptions of the condition of native bush and forests in most regions have improved since 2019 and perceptions of their management have improved since 2016, the averages in Gisborne declined sharply in 2019 before recovering slightly in 2022 and improving again in 2025 (Table 3.13 and 3.14). However, the perceived average condition of native bush in both Gisborne and Taranaki remained lower in 2025 than at their respective peaks in 2010 and 2013.

Forestry, pests and weeds are the most common perceived pressures on native bush and forests over the time series, followed by urban development, and industrial activities (Figure 3.28). The perceived damage to native bush and forests attributed to farming has declined significantly over the time series, 15% fewer respondents think farming is a pressure in 2025 compared with 2010. However, the proportion of respondents who think urban development, industrial activities and dumping of solid waste are damaging native bush and forests has been steadily increasing.[30]

3.8.2 Summary

Despite significant losses of indigenous land cover from pre-human habitation that continues today (MfE & StatsNZ, 2021b), 67% of respondents think native bush and forests are in 'good' to 'very good' condition and 59% of respondents think management of native bush and forests is 'good' to 'very good'. Nevertheless, respondents across the country are cognisant of the diverse pressures affecting native bush and forests from pests to human activities.

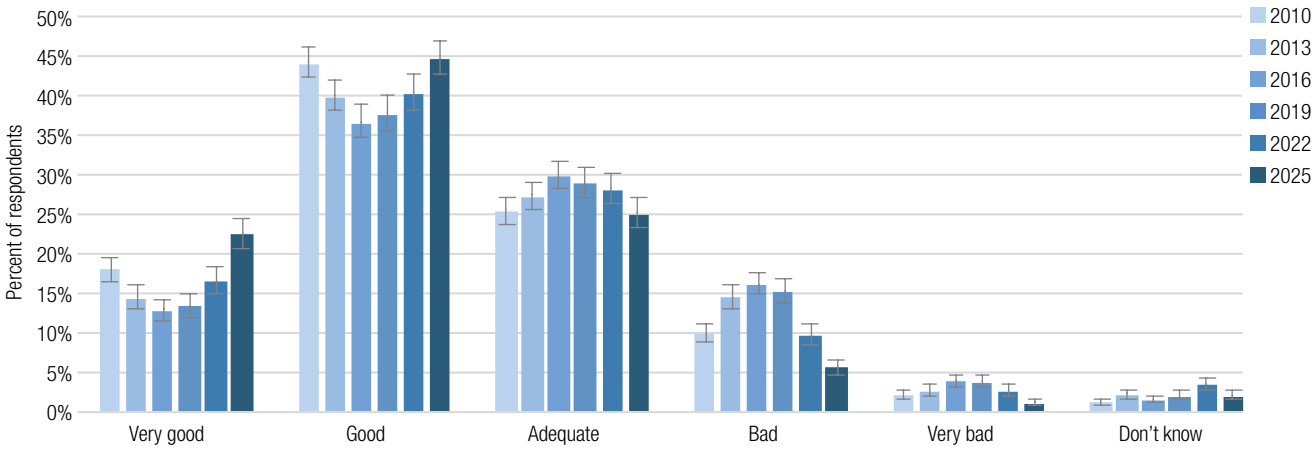


Figure 3.26. Perceived state of native bush and forests, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

[28] *See Appendix 4, Table A4.6 for full Bonferroni pairwise comparison results.*

[29] *See Appendix 4, Table A4.16 for full Bonferroni pairwise comparison results.*

[30] *See Appendix 4, Table A4.26 for full regression results.*

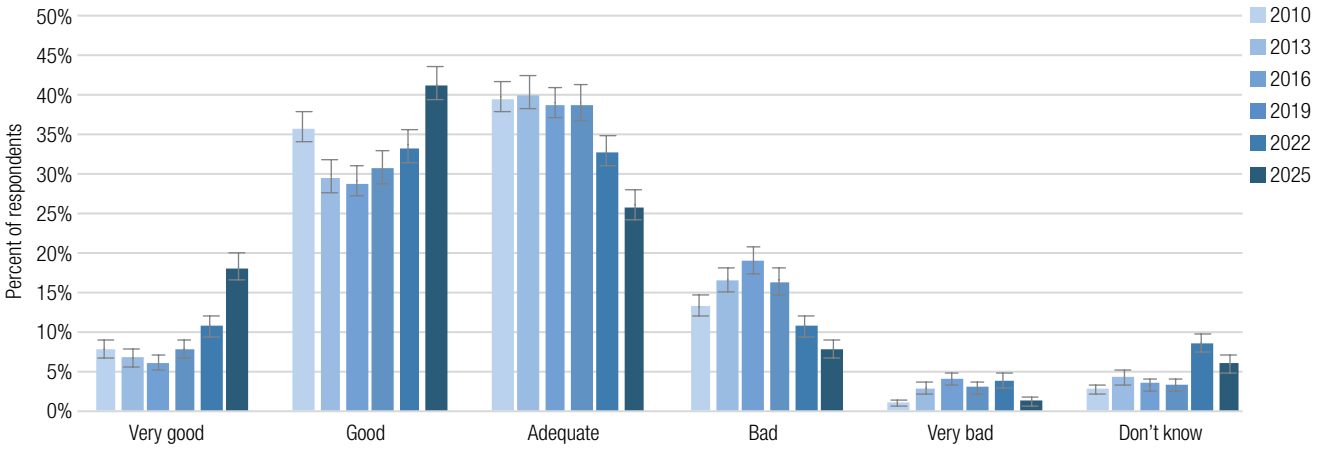


Figure 3.27. Perceived quality of management of native bush and forests, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

Table 3.13. Average perceived state of native bush and forests, by region, 2010–2025

	2010	2013	2016	2019	2022	2025
North Island						
Northland	3.44	3.40	3.05	3.25	3.42	3.63
Auckland	3.74	3.62	3.53	3.53	3.66	3.90
Waikato	3.65	3.40	3.31	3.43	3.59	3.77
Bay of Plenty	3.71	3.53	3.45	3.40	3.56	3.84
Gisborne	3.50	3.13	3.44	2.62	2.75	3.33
Hawke's Bay	3.75	3.70	3.30	3.42	3.47	3.85
Taranaki	3.71	3.92	3.61	3.44	3.62	3.78
Manawatū-Whanganui	3.54	3.39	3.30	3.45	3.43	3.66
Wellington	3.68	3.41	3.28	3.26	3.57	3.83
South Island						
Nelson	3.07	3.80	3.55	3.06	3.32	4.13
Tasman	3.78	3.39	3.34	3.24	3.61	3.82
Marlborough	3.47	3.04	3.89	3.52	3.66	4.14
Canterbury	3.64	3.39	3.30	3.40	3.63	4.06
West Coast	3.31	3.82	3.25	3.17	3.40	3.78
Otago	3.60	3.45	3.40	3.27	3.56	3.84
Southland	3.79	3.45	3.49	3.26	3.74	3.90
Overall	3.66	3.5	3.39	3.42	3.6	3.83

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Table 3.14. Average perceived quality of management of native bush and forests, by region, 2010–2025

	2010	2013	2016	2019	2022	2025
North Island						
Northland	3.15	3.02	2.73	2.88	3.24	3.57
Auckland	3.43	3.34	3.26	3.36	3.47	3.81
Waikato	3.44	3.14	3.12	3.25	3.35	3.72
Bay of Plenty	3.47	3.13	3.21	3.21	3.38	3.76
Gisborne	3.34	3.07	3.23	2.92	2.76	3.56
Hawke's Bay	3.33	3.21	3.12	3.33	3.53	3.68
Taranaki	3.18	3.68	3.37	3.41	3.21	3.64
Manawatū-Whanganui	3.09	3.13	2.99	3.21	3.16	3.56
Wellington	3.32	3.11	3.08	3.13	3.31	3.65
South Island						
Nelson	3.24	3.06	3.22	3.04	3.36	3.61
Tasman	3.33	3.42	3.01	2.91	3.20	3.62
Marlborough	3.17	3.19	3.49	3.20	3.53	3.78
Canterbury	3.35	3.16	3.16	3.25	3.48	3.63
West Coast	3.26	3.20	2.49	3.13	3.22	3.62
Otago	3.36	3.30	3.10	3.11	3.47	3.77
Southland	3.39	3.40	3.29	3.04	3.51	3.69
Overall	3.37	3.22	3.14	3.25	3.4	3.71

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

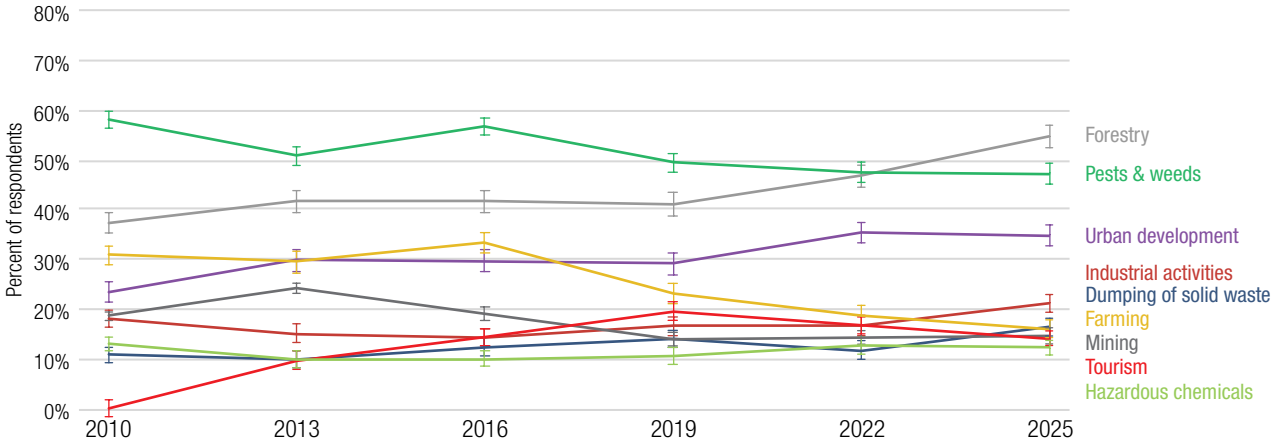


Figure 3.28. Trends in perceived pressures on native bush and forests, 2010–2025.

Notes: Error bars are 95% confidence bands around the percentage of respondents. Respondents could choose up to three pressures.

3.9 TRENDS IN PROTECTED NATURAL AREAS DOMAIN

3.9.1 Perceptions of State, Pressures, and Management

Most respondents think protected natural areas are in 'good' condition, and the quality of management is 'good'. The average perceived condition and quality of management improved in 2025 compared with 2022, driven by a 10% increase in the proportion of respondents who think the condition and quality of management of protected natural areas are 'very good' and a 11% to 13% decrease in the proportion of respondents who think the condition and quality of management of protected natural areas are 'adequate', 'bad' or 'very bad' (Figure 3.29 and 3.30).[31]

On average, respondents in Nelson and the West Coast are the most positive about the condition of their protected natural areas (mean scores of 4.30 and 4.31) and respondents in Gisborne and Manawatū-Whanganui the least positive about the condition of their protected natural areas (3.89 and 3.95) compared with respondents in other regions (Table 3.15). While respondents across all regions perceived an improvement in the condition of their protected natural areas in 2025 compared to 2022, respondents in Gisborne think the condition in their region improved the most.

Similar to condition, respondents in Gisborne think the quality of management of their protected natural areas improved the most in 2025 compared to 2022. Respondents in Bay of Plenty, Nelson and Otago scored management of their protected natural areas the highest, while respondents in Gisborne, Manawatū-Whanganui, and Tasman scored management of their protected natural areas the lowest in 2025 compared with other regions (Table 3.16).

Similar to 2022, pests, weeds and tourism are among the top three pressures on protected natural areas in 2025, with 4% more respondents indicating tourism as a significant pressure in 2025 compared to 2022 (Figure 3.31).[32] However, 5% and 3% more respondents attribute damage to protected natural areas to dumping of solid waste and industrial activities, respectively, in 2025 compared to 2022.

3.9.2 Summary

Protected natural areas (e.g., national parks, marine protected areas) are found across New Zealand and are often put under protection in response to declining conditions and/or increasing pressures to preserve rare ecosystems, threatened species, and areas of cultural significance (MfE & StatsNZ, 2022). These areas are also usually managed more restrictively to improve conditions and/or reduce pressures. For example, marine protected areas have management requirements that reduce fishing and usage pressures on the marine environments (MfE & StatsNZ, 2022). This level of management is reflected in the relatively positive perceived condition and quality of management by survey respondents. Respondents across the country were also aware that pests and weeds are a major source of pressure on this environmental domain.

Cathedral Cove, Coromandel Peninsula
ROBERT CHG, ISTOCK

[31] *See Appendix 4, Table A4.7 and A4.17 for full Bonferroni pairwise comparison results.*

[32] *See Appendix 4, Table A4.27 for full regression results.*

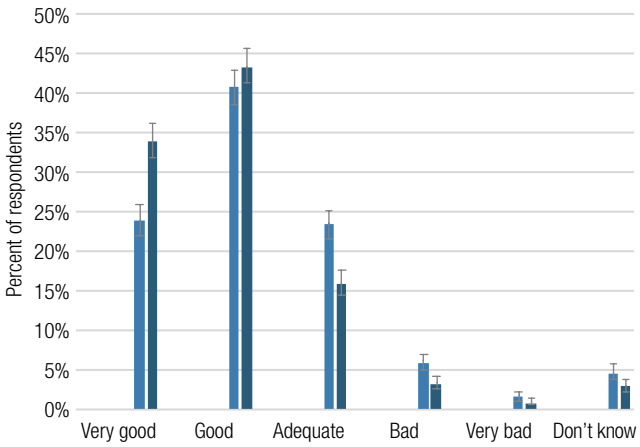


Figure 3.29. Perceived state of protected natural areas, 2022–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

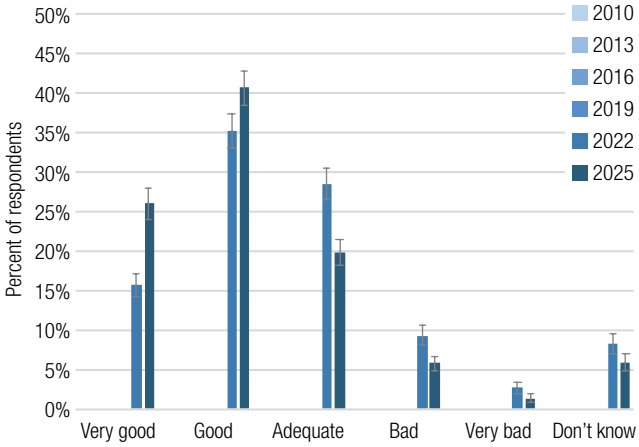


Figure 3.30. Perceived quality of management of protected natural areas, 2022–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

Table 3.15. Average perceived state of protected natural areas, by region, 2022–2025

	2022	2025
North Island		
Northland	3.86	4.00
Auckland	3.84	4.14
Waikato	3.78	4.01
Bay of Plenty	3.93	4.14
Gisborne	3.07	3.89
Hawke's Bay	3.87	4.03
Taranaki	3.78	4.08
Manawatū-Whanganui	3.68	3.95
Wellington	3.35	4.12
South Island		
Nelson	3.85	4.30
Tasman	3.78	4.05
Marlborough	3.95	4.22
Canterbury	3.88	4.31
West Coast	3.48	4.05
Otago	3.72	4.20
Southland	3.94	4.15
Overall	3.83	4.10

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Table 3.16. Average perceived quality of management of protected natural areas, by region, 2022–2025.

	2022	2025
North Island		
Northland	3.46	3.75
Auckland	3.62	3.99
Waikato	3.47	3.85
Bay of Plenty	3.61	4.01
Gisborne	2.77	3.56
Hawke's Bay	3.57	3.73
Taranaki	3.37	3.83
Manawatū-Whanganui	3.31	3.66
Wellington	3.57	3.87
South Island		
Nelson	3.63	4.00
Tasman	3.38	3.62
Marlborough	3.72	3.87
Canterbury	3.11	3.88
West Coast	3.73	3.84
Otago	3.50	4.00
Southland	3.68	3.95
Overall	3.56	3.90

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

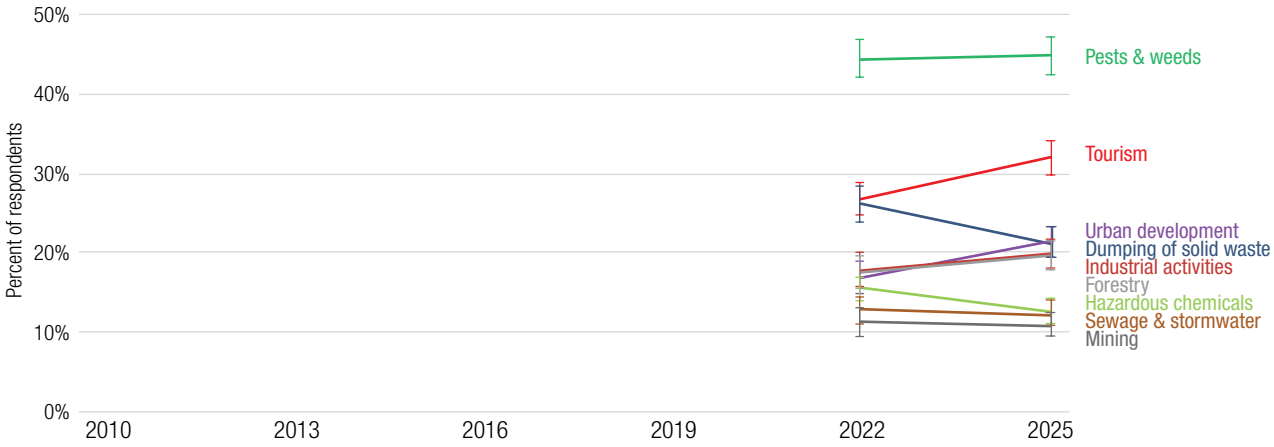


Figure 3.31. Trends in perceived pressures on protected natural areas, 2022–2025.

Notes: Error bars are 95% confidence bands around the percentage of respondents. Respondents could choose up to three pressures.

3.10 TRENDS IN THE NATURAL ENVIRONMENT IN TOWNS AND CITIES DOMAIN

3.10.1 Trends in Perceptions of State, Pressures, and Management

Most respondents think the condition and quality of management of natural environments in towns and cities are 'adequate' but improving over time. The perceived condition of natural environments in towns and cities was relatively stable from 2010 to 2016, but improved in 2019 in comparison to 2013, in 2022 compared to 2010, 2013, and 2016, and again in 2025 compared to all previous surveys (Figure 3.32).[33] Similarly, the perceived quality of management of natural environments in towns and cities was stable for most of the time series, improving slightly in 2019 and then more substantially in 2022 and 2025 (Figure 3.33).[34]

While most regions saw an improvement in average condition of their natural environments in towns and cities since 2016, respondents in Gisborne thought the condition of natural environments in their towns and cities in 2022 was significantly worse than in any earlier survey year; and respondents in Waikato and Nelson think the condition of natural environments in their towns and cities only improved in 2025 (Table 3.17). Similarly, respondents in Gisborne and West Coast thought the quality of management of natural environments in their towns and cities was worse in 2022 than in 2010, but improved in 2025 (Table 3.18).

Perceived pressures on natural environments in towns and cities are dominated by urban development (50%), household waste and emissions (45%), and motor vehicles and transport (47%; Figure 3.34). While 3% fewer respondents attribute damage to natural environments in towns and cities to urban development in 2025 compared with 2022, 11% more respondents attribute damage to natural environments in towns and cities to motor vehicles and transport in 2025 compared with 2022.[35]

3.10.2 Summary

The majority of New Zealanders live in urban areas that cover less than 1% of the country's land area. Access to green spaces in urban areas is important for well-being and health, but that access is not evenly distributed (MfE & StatsNZ, 2022, 2025). On average, survey respondents think the natural environment in their towns and cities is in adequate condition and that it has improved slowly over the last few years. However, those in Gisborne and Nelson are less positive about the state and management of the natural environment (i.e., green spaces and water) in their urban areas.

Urban areas have a significant impact on the surrounding rivers and lakes. More nutrients, sediments, pathogens, and heavy metals are found in catchments dominated by urban land cover compared with catchments dominated by other land types. These pollutants lead to algal blooms, poor water clarity, and fewer safe, swimmable waterways near and downstream from urban centres (MfE & StatsNZ, 2020). Most survey respondents also recognise the impacts that urban development and urban life (e.g., household waste and motor vehicles) have on the quality of the natural environment.

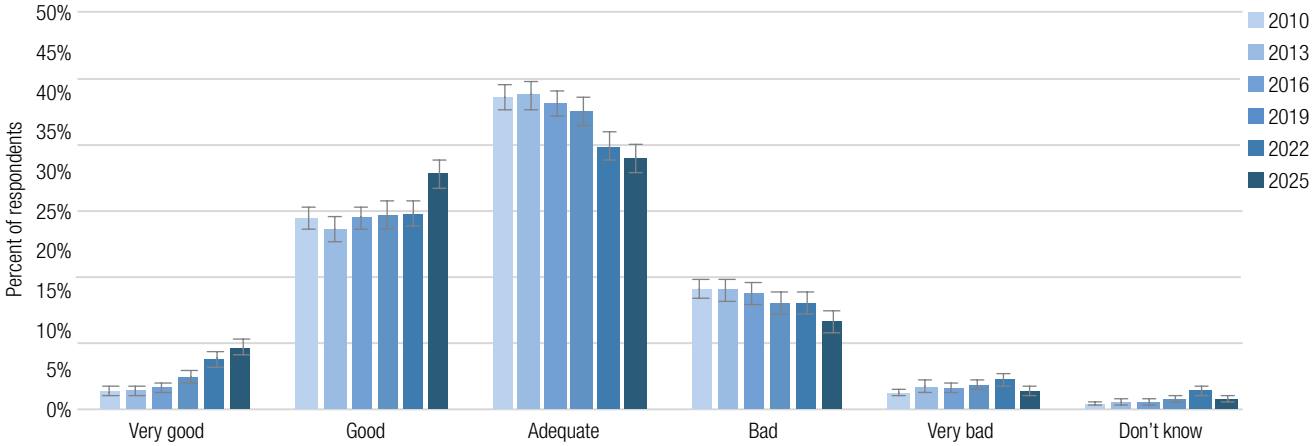


Figure 3.32. Perceived state of the natural environment in towns and cities, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

[33] *See Appendix 4, Table A4.8 for full Bonferroni pairwise comparison results.*

[34] *See Appendix 4, Table A4.18 for full Bonferroni pairwise comparison results.*

[35] *See Appendix 4, Table A4.28 for full regression results.*

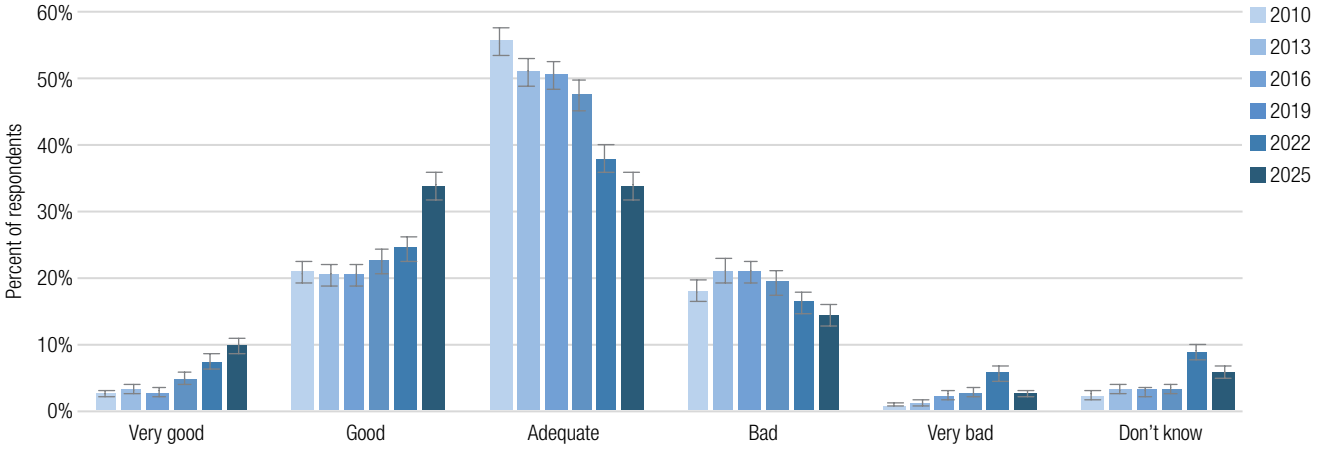


Figure 3.33. Perceived quality of management of the natural environment in towns and cities, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

Table 3.17. Average perceived state of natural environments in towns and cities, by region, 2010–2025.

	2010	2013	2016	2019	2022	2025
North Island						
Northland	3.16	2.85	2.83	3.00	3.04	3.07
Auckland	3.12	3.17	3.19	3.24	3.30	3.42
Waikato	3.04	2.94	3.09	3.06	3.01	3.40
Bay of Plenty	3.15	3.06	3.15	3.09	3.11	3.31
Gisborne	3.11	2.82	3.06	3.24	2.54	2.94
Hawke's Bay	3.15	2.98	3.05	3.14	3.19	3.25
Taranaki	2.98	3.16	3.15	2.94	3.30	3.46
Manawatū-Whanganui	3.14	2.93	3.06	3.23	3.16	3.31
Wellington	3.20	3.14	3.12	3.06	3.28	3.36
South Island						
Nelson	3.08	2.89	3.03	2.75	2.98	3.25
Tasman	2.87	3.01	2.98	2.36	3.32	3.14
Marlborough	3.05	3.23	3.00	3.05	3.40	3.39
Canterbury	3.13	3.00	3.09	3.18	3.19	3.47
West Coast	2.91	3.43	2.92	2.89	3.10	3.36
Otago	2.99	3.13	3.21	3.15	3.15	3.37
Southland	3.07	3.04	3.18	3.08	3.17	3.39
Overall	3.11	3.08	3.12	3.16	3.20	3.36

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Table 3.18. Average perceived quality of management of natural environments in towns and cities, by region, 2010–2025.

	2010	2013	2016	2019	2022	2022
North Island						
Northland	2.95	2.80	2.69	2.69	2.93	3.00
Auckland	3.08	3.15	3.06	3.19	3.23	3.40
Waikato	2.98	2.90	2.97	3.05	3.00	3.43
Bay of Plenty	3.07	2.88	2.92	3.04	2.95	3.32
Gisborne	3.20	2.91	2.88	2.84	2.60	3.17
Hawke's Bay	3.05	2.87	3.00	2.87	3.22	3.26
Taranaki	2.93	3.23	2.98	3.19	3.09	3.36
Manawatū-Whanganui	3.02	2.94	2.96	3.03	3.10	3.33
Wellington	3.18	3.03	3.01	3.03	3.04	3.36
South Island						
Nelson	3.04	2.79	3.01	2.88	3.04	3.17
Tasman	3.26	2.92	3.01	2.77	2.94	3.19
Marlborough	2.97	2.92	3.24	2.86	3.31	3.52
Canterbury	3.09	3.03	3.05	3.08	3.22	3.27
West Coast	2.94	3.28	2.84	3.11	2.67	3.36
Otago	2.97	3.08	2.99	3.04	3.12	3.46
Southland	3.12	2.98	3.07	2.84	3.16	3.46
Overall	3.06	3.03	3.01	3.08	3.13	3.36

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

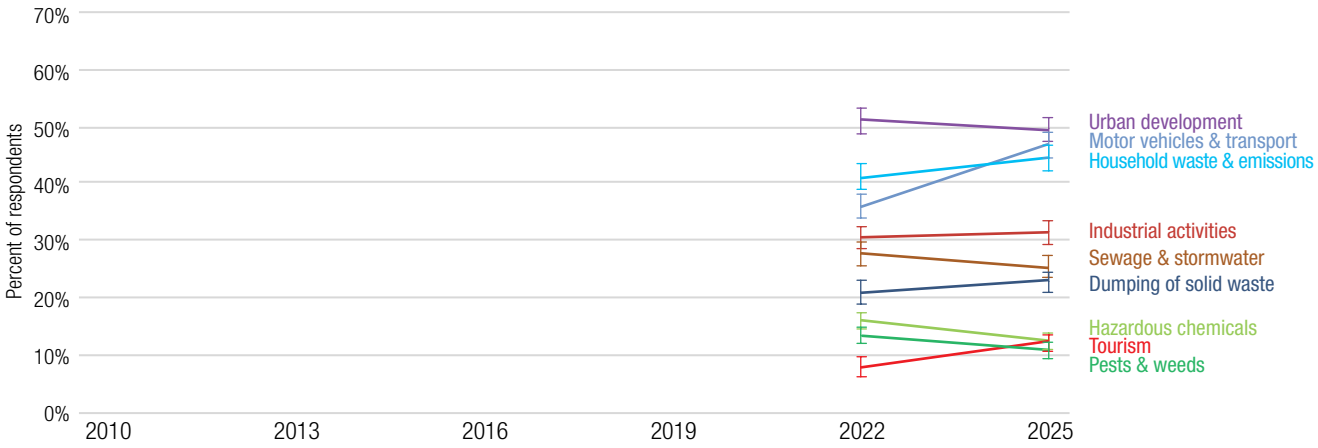


Figure 3.34. Trends in perceived pressures on natural environments in towns and cities, 2022–2025.

Notes: Error bars are 95% confidence bands around the percentage of respondents. Respondents could choose up to three pressures.

3.11 TRENDS IN THE MARINE PLANTS AND ANIMALS DOMAIN

3.11.1 Perceptions of State, Pressures and Management

Marine plants and animals are perceived to be in 'adequate' condition and managed 'adequately' (Figure 3.35 and 3.36). The average perceived condition improved in 2025 compared with 2022, driven by an 8% decline in respondents who think marine plants and animals are in 'bad' to 'very bad' to condition and an 8% increase in respondents who think marine plants and animals are in 'good' to 'very good' to condition.[36] Average perceived quality of management also improved in 2025 compared with 2022, driven mostly by an 11% increase in respondents who think management of marine plants and animals is 'good' to 'very good'.[37]

Respondents in Northland and Southland scored the condition of their marine plants and animals the lowest while respondents in Northland, Nelson, Tasman, and Southland scored perceptions of the management of their marine flora and fauna the lowest (Table 3.19 and 3.20). The perceived condition and management of marine plants and animals in Gisborne improved the most between 2022 and 2025; and the perceived average condition and quality of management marine plants and animals in Otago also improved substantially between 2022 and 2025, relative to other regions.

Most respondents think commercial fishing, sewage, and stormwater are among the top three pressures on marine plants and animals in 2025, similar to results in 2022 (Figure 3.37). A similar proportion of respondents in 2025 as in 2022 think hazardous chemicals (28%) are damaging marine plants and animals; however, 5% more think dumping of solid waste is a pressure and 7% more think recreational fishing is a pressure on marine plants and animals in 2025 compared to 2022.[38]

3.11.2 Summary

Marine plants and animals along the 15,000 km of New Zealand's coastline and in the over 4 million km^2 of its exclusive economic zone (EEZ) are under complex pressures and in a mixed condition (MfE & StatsNZ, 2019). Despite an estimated 17,000 species – accounting for 30% of New Zealand's biodiversity – having been recorded in the EEZ, only 642 species are managed under the quota management and a few hundred more have been studied and assessed for risk and threats (MfE & StatsNZ, 2019). Of the species assessed, 84% of fish stocks that are managed under the quota system are in good condition but 9% are considered to have collapsed, and 22% of marine mammals, 90% of seabirds, and 80% of shorebirds were considered 'threatened' or 'at risk' of extinction (MfE & StatsNZ, 2019). However, the 2025 survey respondents were more positive than the available biophysical data would suggest, with 48% of respondents thinking marine plants and animals were in at least a 'good' condition. Respondents were a bit more uncertain about the quality of management with 11% to 12% saying they 'don't know'. Respondents were aware, though, of some of the pressures on marine plants and animals, including commercial fishing, sewage, and stormwater.

Royal Spoonbill

[36] *See Appendix 4, Table A4.9 for full Bonferroni pairwise comparison results.*

[37] *See Appendix 4, Table A4.19 for full Bonferroni pairwise comparison results.*

[38] *See Appendix 4, Table A4.29 for full regression results.*

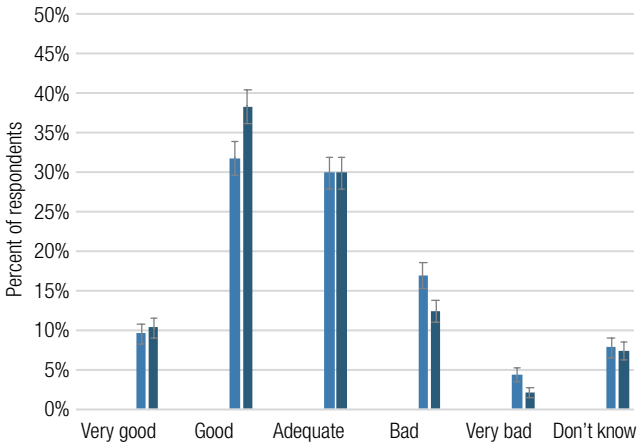


Figure 3.35. Perceived state of marine plants and animals, 2022–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

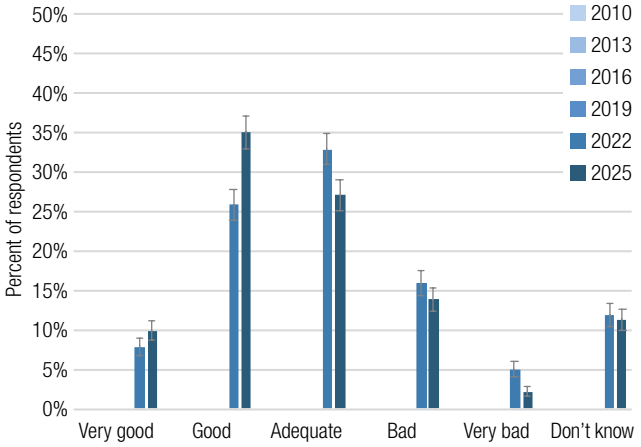


Figure 3.36. Perceived quality of management of marine plants and animals, 2022–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

Table 3.19. Average perceived state of marine plants and animals, by region, 2022–2025

	2022	2025
North Island		
Northland	3.13	3.22
Auckland	3.42	3.53
Waikato	3.14	3.48
Bay of Plenty	3.23	3.45
Gisborne	2.58	3.28
Hawke's Bay	3.17	3.29
Taranaki	3.31	3.47
Manawatū-Whanganui	3.09	3.28
Wellington	3.21	3.47
South Island		
Nelson	3.15	3.45
Tasman	3.04	3.33
Marlborough	3.37	3.59
Canterbury	3.15	3.50
West Coast	3.28	3.44
Otago	3.07	3.53
Southland	3.29	3.21
Overall	3.27	3.46

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Table 3.20. Average perceived quality of management of marine plants and animals, by region, 2022–2025

	2022	2025
North Island		
Northland	3.09	3.16
Auckland	3.27	3.49
Waikato	3.05	3.55
Bay of Plenty	3.11	3.40
Gisborne	2.67	3.29
Hawke's Bay	3.18	3.35
Taranaki	3.24	3.42
Manawatū-Whanganui	3.09	3.40
Wellington	3.17	3.35
South Island		
Nelson	3.17	3.14
Tasman	3.02	3.10
Marlborough	3.20	3.41
Canterbury	2.95	3.31
West Coast	3.26	3.37
Otago	3.08	3.56
Southland	3.20	3.17
Overall	3.18	3.42

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

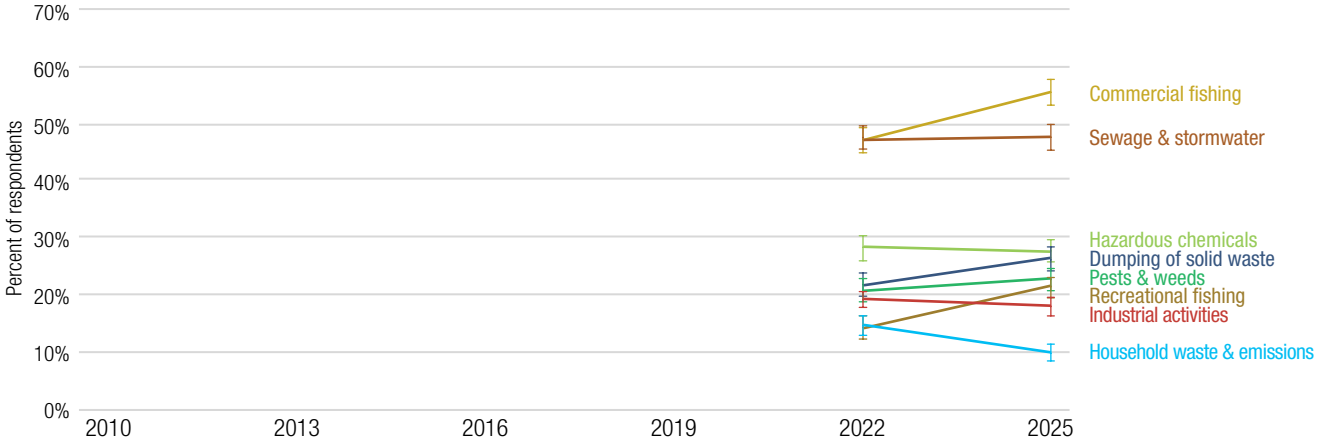


Figure 3.37. Trends in perceived pressures on marine plants and animals, 2022–2025.

Notes: Error bars are 95% confidence bands around the percentage of respondents. Respondents could choose up to three pressures.

3.12 TRENDS IN THE TERRESTRIAL (LAND AND FRESHWATER) PLANTS AND ANIMALS DOMAIN

3.12.1 Perceptions of State, Pressures, and Management

Most respondents perceived terrestrial plants and animals to be in 'adequate' to 'good' condition, the quality of management to be 'adequate' to 'good', and both the condition and management to be improving over time (Figure 3.38 and 3.39).[39] Fifty-one percent of respondents in 2025 think the condition of terrestrial plants and animals is 'good' to 'very good', compared to 40% in 2022, while 45% of respondents in 2025 think management of terrestrial plants and animals is 'good' to 'very good', compared to 34% of respondents 2022.

Respondents in Gisborne and Tasman thought the condition of their terrestrial plants and animals improved the most between 2022 and 2025, compared with other regions, while respondents in Waikato, the West Coast and Otago though the management of their terrestrial plants and animals improved the most between 2022 and 2025, compared with other regions (Table 3.21 and 3.22). In 2025, respondents in Auckland, Marlborough and the West Coast were the most positive about the condition of their terrestrial plants and animals and respondents in Marlborough and Otago were the most positive about the quality of management of terrestrial plants and animals.

Similar to previous surveys, most respondents think pests, weeds, sewage and stormwater are among the top three pressures on terrestrial plants and animals (Figure 3.40). A similar proportion of respondents also think damage to terrestrial plants and animals can be attributed to urban development (24%), hazardous chemicals (26%), industrial activities (25%) and dumping of solid waste (23%). By comparison with 2022, more respondents in 2025 think that sewage and stormwater (+3.3%), dumping of solid waste (+2.1%) and forestry (+5.9%) are pressures on terrestrial plants and animals; while 9.3% fewer respondents think farming is a significant pressure.[40]

3.12.2 Summary

Available biophysical knowledge indicators show that terrestrial plants and animals are in relatively poor condition and continue to face pressures from non-native plants and animals, climate change, land development, and legacy habitat degradation. Among relatively recently assessed terrestrial species, most native freshwater fish, terrestrial birds, native birds, bats, and reptiles are either 'threatened' or 'at risk' of being threatened with extinction (MfE & StatsNZ, 2020). Among ecosystems classified as rare, 63% are threatened with collapse (MfE & StatsNZ, 2022). However, similar to marine plants and animals, respondents perceive the condition of terrestrial plants and animals to be improving over time. Also, as with marine plants and animals, however, there is a high degree of uncertainty about the quality of management of terrestrial plants animals with 12% to 13% of respondents indicating they 'don't know' about management. Respondents are aware, though, of some of the known pressures – including pests, weeds, and land use.

*Turkey-tail (*Stereum Ostrea*)*
ADOBE STOCK

[39] *See Appendix 4, Table A4.10 and A4.20 for full Bonferroni pairwise comparison results.*

[40] *See Appendix 4, Table A4.30 for full regression results.*

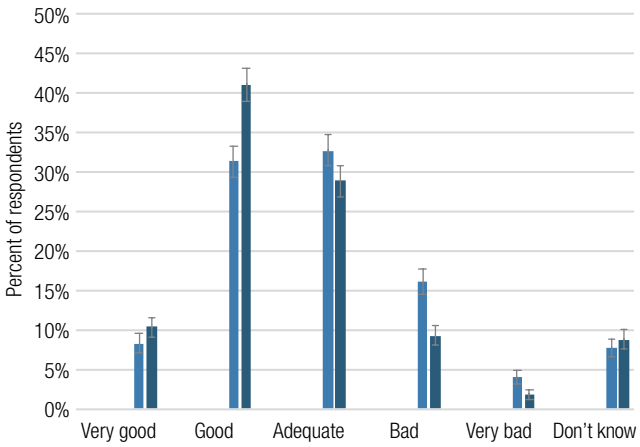


Figure 3.38. Perceived state of terrestrial plants and animals, 2022–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

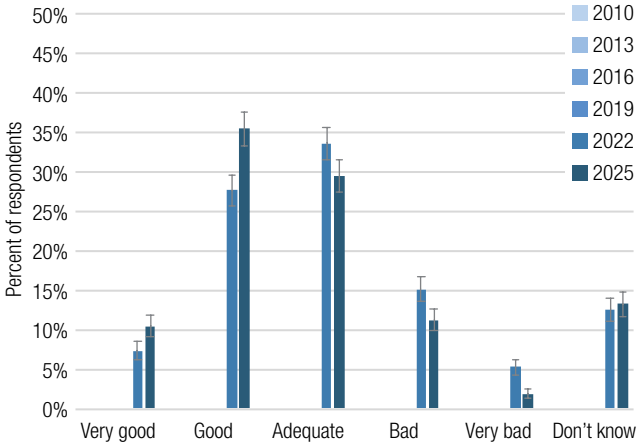


Figure 3.39. Perceived quality of management of terrestrial plants and animals, 2022–2025.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

Table 3.21. Average perceived state of terrestrial plants and animals, by region, 2022–2025

	2022	2025
North Island		
Northland	3.12	3.26
Auckland	3.45	3.63
Waikato	3.14	3.57
Bay of Plenty	3.23	3.54
Gisborne	2.47	3.12
Hawke's Bay	3.08	3.57
Taranaki	3.30	3.52
Manawatū-Whanganui	3.13	3.35
Wellington	3.15	3.50
South Island		
Nelson	3.00	3.48
Tasman	2.82	3.55
Marlborough	3.44	3.70
Canterbury	3.15	3.67
West Coast	3.27	3.46
Otago	3.03	3.58
Southland	3.15	3.39
Overall	3.26	3.53

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Table 3.22. Average perceived quality of management of terrestrial plants and animals, by region, 2022–2025

	2022	2025
North Island		
Northland	3.08	3.20
Auckland	3.28	3.56
Waikato	3.04	3.58
Bay of Plenty	3.11	3.46
Gisborne	2.75	3.12
Hawke's Bay	3.16	3.32
Taranaki	3.25	3.36
Manawatū-Whanganui	3.15	3.40
Wellington	3.20	3.43
South Island		
Nelson	3.13	3.18
Tasman	3.04	3.29
Marlborough	3.18	3.60
Canterbury	2.77	3.40
West Coast	3.30	3.39
Otago	3.09	3.61
Southland	3.16	3.42
Overall	3.19	3.47

Notes: Scale: 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

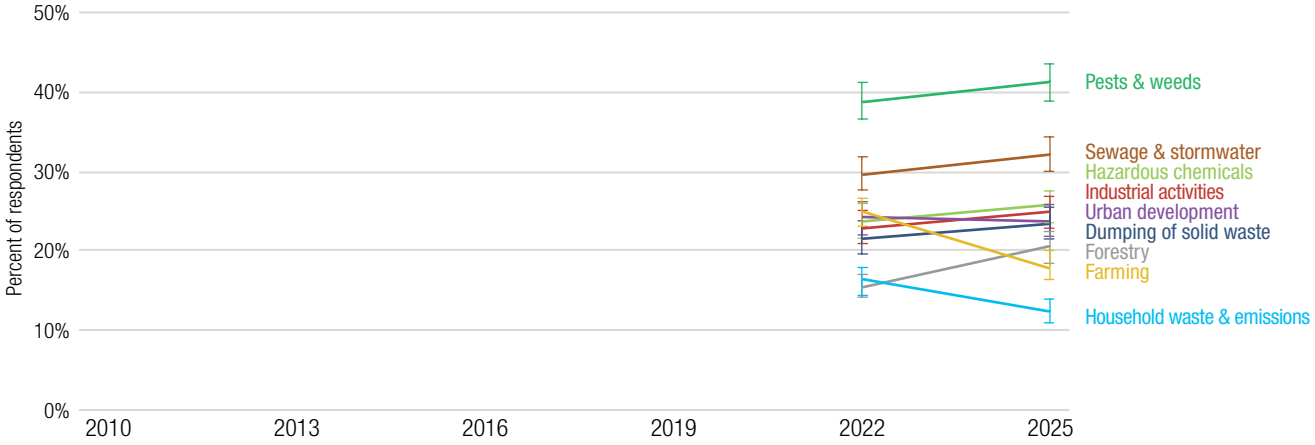


Figure 3.40. Trends in perceived pressures on terrestrial plants and animals, 2022–2025.

Notes: Error bars are 95% confidence bands around the percentage of respondents. Respondents could choose up to three pressures.

Tree ferns from above, Coromandel Peninsula
GEORGE CLERK, ISTOCK

04

PARTICIPATION IN ENVIRONMENTAL ACTIVITIES

4.1 THE 2025 SURVEY

Figure 4.1 shows respondents' levels of participation in 16 environment-related activities during the preceding 12 months. Recycling is the most common activity (85%), followed by growing one's own vegetables (60%), using less electricity (55%), composting (54%), and buying environmentally friendly products (50%). Taking part in hearings or consent processes about the environment (5%), participating in an environmental organisation (8%), and being an active member of a club or group that restores and/or replants natural environments (6%) are the least common activities.

The rates of participation were evaluated against gender, age group, education, and ethnicity (Table 4.1). Some of the notable findings are:

- Males and respondents younger than 50 years are more likely to have used public transport, visited a marine reserve, been involved in environmental projects, or participated in environmental restoration. Males are also more likely to have participated in environmental hearings and consent processes.
- Respondents younger than 50 years, respondents who identified as Māori, and respondents who had a tertiary qualification are more likely to have bought environmentally friendly products, obtained environmental information, participated in an environmental organisation, or participated in environmental restoration.
- Females or gender diverse people, or respondents 50 years old and older are more likely to have recycled, to have grown their own vegetables, or to have reduced their electricity and freshwater use. Females or gender diverse people are also more likely to have bought environmentally friendly products while those 50 years old and older are also more likely than younger people to have composted and controlled mammalian pests.
- Respondents with at least a tertiary qualification are also more likely than those without a tertiary qualification or a secondary/vocational qualification to have recycled, used public transport, visited a national park, or made a financial donation to an environmental NGO.
- Those who identified as Māori are more also likely to have participated in most activities except recycling, growing their own vegetables, composting, using public transport, visiting a national park and/or controlling mammalian pests.

4.2 2010–2025 SURVEYS

Recycling household waste has been the most common activity across all survey waves with 4% more respondents indicating they recycled in 2025 compared with 2022 (Figure 4.2 and 4.3).[1] Before 2022, buying environmentally friendly products and reducing electivity use were also among the top three activities, but the popularity of buying environmentally friendly products was surpassed by growing your own vegetables after 2019 and was the second most common activity in 2022 and 2025.

Participation in environmental activities dropped significantly in 2022 compared with 2019, but rebounded in 2025 for some activities: 25 percent more respondents in 2025 than in 2022 used public transport, 4% more respondents in 2025 than in 2022 reduced their electricity use, and 3% more respondents in 2025 than in 2022 obtained environmental information. However, 2% fewer respondents visited a marine reserve in 2025 compared with 2022 and participation rates for all activities remain significantly below their 2010 rates.[2]

[1] *See Appendix 4, Table A4.32 for full regression results.*

[2] *See Appendix 4, Table A4.32 for full regression results.*

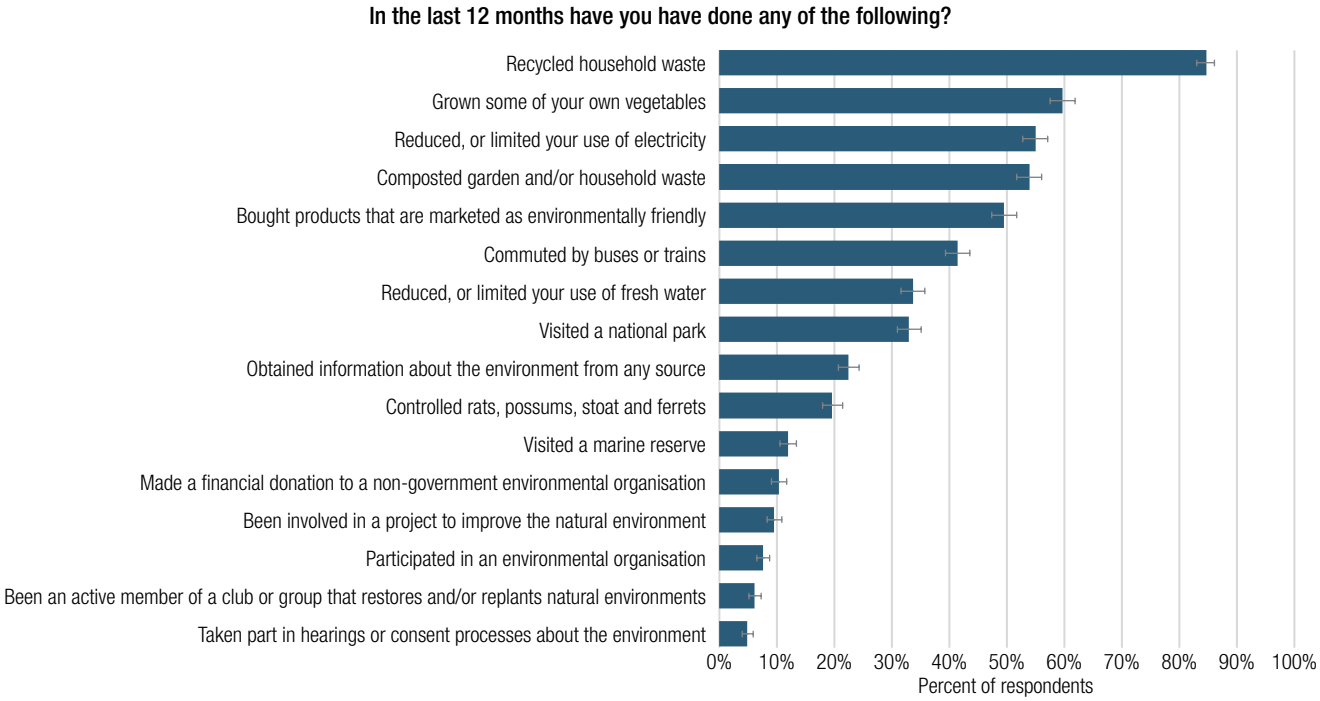


Figure 4.1. Proportion of 2025 survey respondents who participated in environmental activities.

Notes: Error bars on Figures are 95% confidence bands around the percentage of respondents.

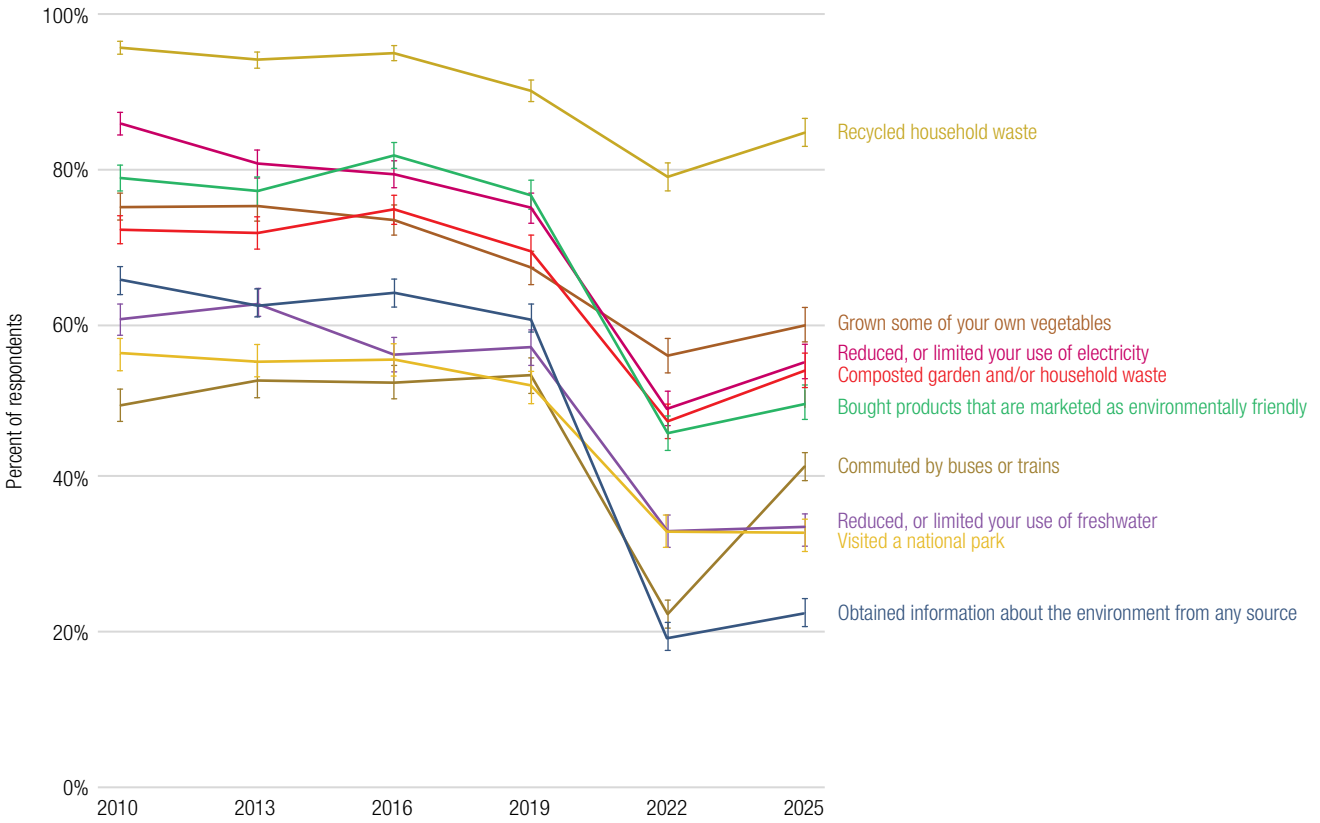


Figure 4.2. Trends in participation in environmental activities, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around percentage of respondents.

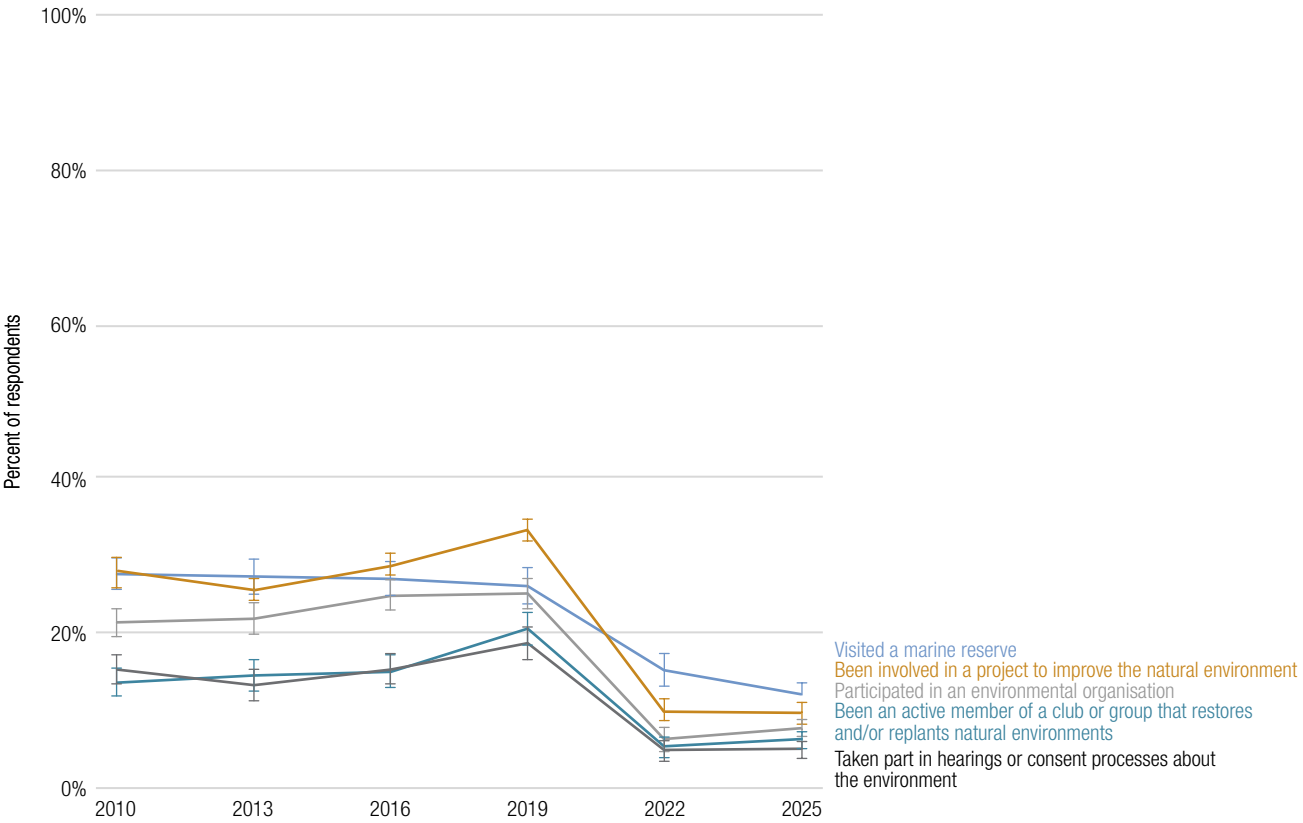


Figure 4.3. Trends in participation in environmental activities, 2010–2025.

Notes: Error bars on Figures are 95% confidence bands around percentage of respondents.

Rubbish pulled from gullies around Otari Wilton Bush, Wellington

PAMELA BOOTH

Table 4.1. Probability of participating in an activity in 2025, by demographic characteristics.

	Male	Female or gender diverse	Younger than 50 years old	50 years old+	No tertiary qualification	Tertiary qualification	Māori	Other ethnicities	**Proportion of activity in sample**
Recycled	82.8	86.3***	79.6	90.6***	81.7	85.5**	83.7	84.9	**84.7**
Grown one's own vegetables	55.7	63.5***	54.6	66.0***	57.6	60.4	59.0	59.9	**59.7**
Reduced electricity	49.8	59.9***	50.4	60.5***	53.9	55.4	61.1*	53.7	**55.0**
Composted	52.9	54.9	47.2	62.0***	52.5	54.4	53.7	54.0	**54.0**
Bought environmentally friendly products	43.0	55.6***	51.5*	47.2	43.0	51.6***	55.9**	48.2	**49.6**
Used public transport	43.9**	39.2	45.3***	36.7	34.5	43.6*	43.1	41.1	**41.5**
Reduced use of freshwater	30.9	36.3***	28.6	39.9***	31.9	34.3	41.1***	32.2	**33.7**
Visited a national park	34.7	31.4	41.1***	23.1	27.0	34.7***	27.9	34.1**	**33.0**
Obtained environmental information	23.0	22.0	24.0*	20.4	11.2	26.0***	29.7***	21.0	**22.5**
Controlled mammalian pests	20.1	19.2	17.0	22.9***	20.0	19.5	23.3	18.9	**19.6**
Visited a marine reserve	13.3**	10.6	14.5**	8.6	9.2	12.7*	13.3*	11.6	**11.9**
Made financial donation	11.1	9.7	11.1	9.4	8.3	11.0*	15.2**	9.3	**10.3**
Involved in environmental projects	11.5***	7.6	10.4**	8.2	5.1	10.9***	13.8**	8.6	**9.5**
Participated in environmental organisation	8.6	6.7	9.1***	5.6	3.6	8.8***	9.6***	7.2	**7.6**
Participated in environmental hearings/consents	7.4**	5.0	6.7	5.4	5.0	6.5	9.8***	5.4	**6.1**
Participated in environmental restoration	6.3***	3.5	5.8***	3.6	3.1	5.4**	7.5***	4.3	**4.8**
Participated in environmental restoration	**48.0**	**52.0**	**54.6**	**45.5**	**60.6**	**39.4**	**17.4**	**82.6**	

*Notes: Values in green are significantly larger than their alternative demographic (e.g., male vs female or gender diverse); values in red are significantly smaller than their alternative demographic; values in grey are not significantly different from their alternative demographic. The probability of participating in an environmental activity (row) given gender, age group, schooling level and ethnicity (columns) was estimated using a multivariate logit regression with demographic weights and standard errors clustered at the regional council level. Marginal effects are reported in Table A4.31 in Appendix 4. Average marginal effects multiplied by 100 are presented in this table and have asterisks representing significance, where *** means* $p < .01$, *** means* $p < .05$, *and * means* $p < .10$.

Forest fire in the Wai-o-Tapu geothermal area in Rotorua
CHRISTIAN MÜRINGER

05

MAJOR ENVIRONMENTAL ISSUES FACING NEW ZEALAND AND THE WORLD

Respondents were asked to identify what they consider the most important environmental issues facing New Zealand and the world today in two open-ended questions. As in previous reports, the qualitative responses were grouped by themes, and care was taken to limit interpretation of individual responses. The majority of responses were grouped into direct or indirect environmental issue or pressure themes. However, some respondents considered other non-environmental issues to be more important to them. These latter issues were also grouped together.

5.1 THE 2025 SURVEY

Climate change is identified as the most important environmental issue facing New Zealand and the world according to 20% and 42% of respondents, respectively (Figure 5.1). Respondents also think freshwater (19%), sanitation (17%), and pollution (14%) are among the top five important environmental issues facing New Zealand, while pollution (18%) and environmental pressures from war/conflict (17%) are among the top five important environmental issues facing the world. Issues captured in the 'other environmental topics' category included packaging, disinterest in helping the environment, erosion, historic contamination, and natural disasters (Figure 5.2).

5.2 2010–2025 SURVEYS

Perceptions of environmental issues have evolved considerably since 2010. While climate change has consistently been the dominant world issue across all survey waves, it has only recently become the top environmental concern for New Zealand (Figure 5.1). Until 2022, freshwater issues were the most frequently mentioned concern for New Zealand, reflecting long-standing concerns over water quality (e.g., MfE & StatsNZ, 2020). Waste and sanitation emerged as the third most mentioned issue for New Zealand from 2019 onwards, overtaking pollution, which had ranked third in earlier waves. On the global scale, concern for the environmental pressures from war and conflict, pollution, and overpopulation have remained among the top five issues since 2010 (Figure 5.2). Freshwater issues were among the top five issues globally until 2019 when concern for waste and sanitation become more pronounced.

Motueka, Tasman Region – July 17, 2021
GARY WEBBER

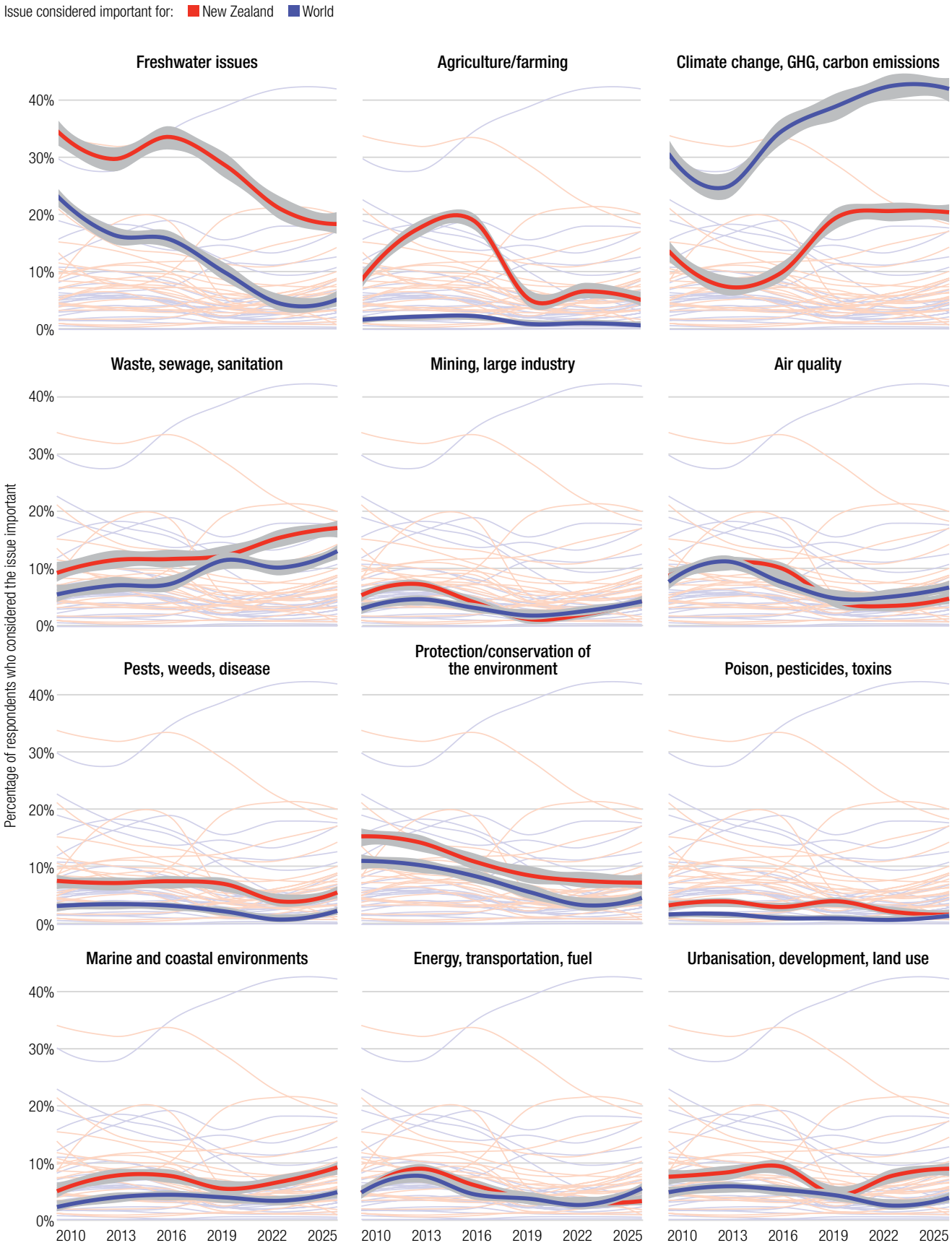


Figure 5.1. Trends in the top 12 most important environmental issues facing New Zealand and the world according to survey respondents, 2010–2025.

Notes: Respondents provided open-ended answers about what they considered the most important environmental issues facing New Zealand Aotearoa (red) and the world (blue). These qualitative responses were coded into thematic categories after the survey. Each panel shows one issue, with bold lines indicating the smoothed trend over time and grey bands representing 95% confidence intervals. Thin background lines show trends for other issues. Percentages do not sum to 100% as respondents could indicate more than one issue.

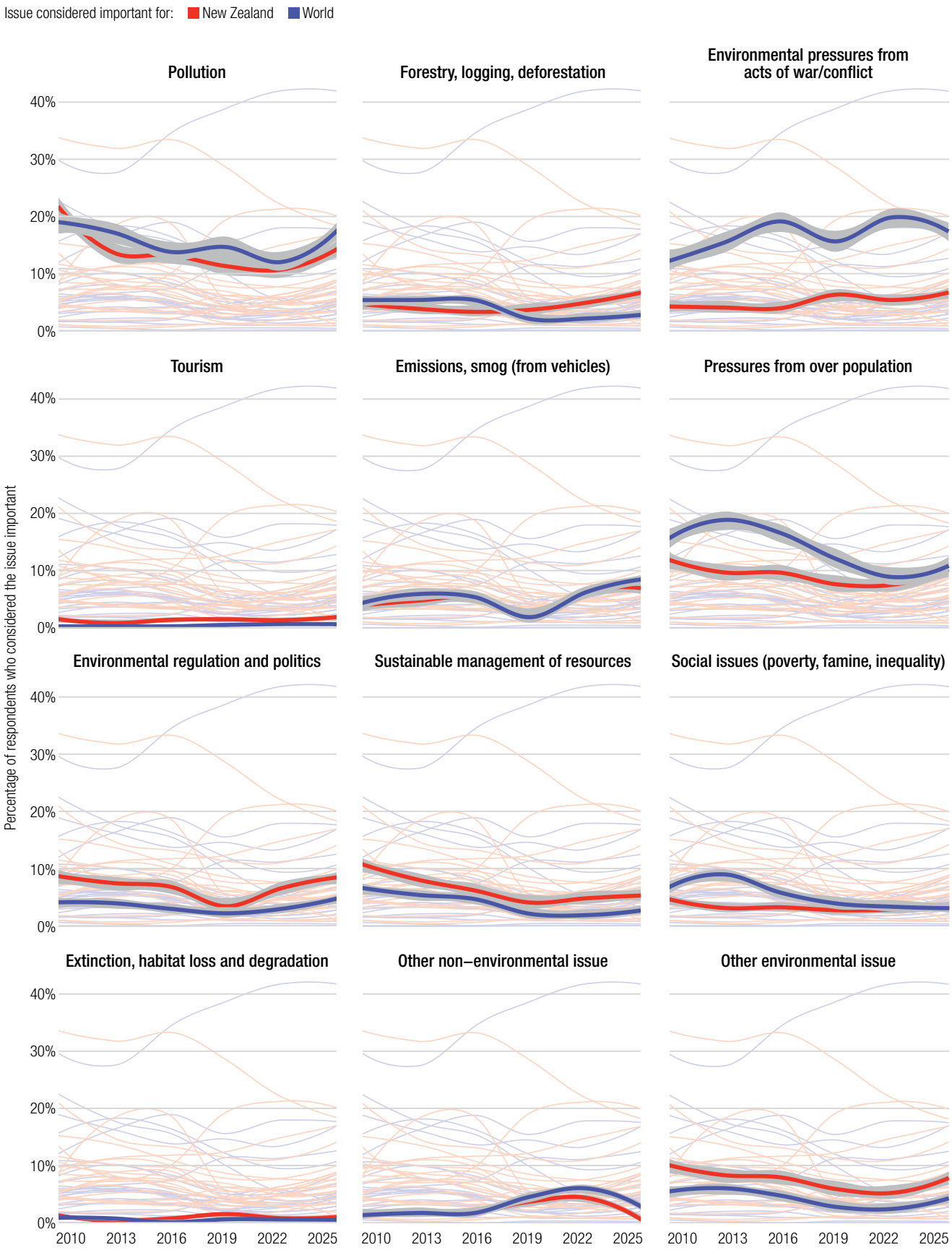


Figure 5.2. Trends in the bottom 12 most important environmental issues facing New Zealand and the world according to survey respondents, 2010–2025.

Notes: Respondents provided open-ended answers about what they considered the most important environmental issues facing New Zealand Aotearoa (red) and the world (blue). These qualitative responses were coded into thematic categories after the survey. Each panel shows one issue, with bold lines indicating the smoothed trend over time and grey bands representing 95% confidence intervals. Thin background lines show trends for other issues. Percentages do not sum to 100% as respondents could indicate more than one issue.

Flooded farmland in Foxton, 2015
ROSS GORDON HENRY

06 SPECIAL TOPICS

There were three special topic sections in the 2025 survey wave. The first topic on perceived natural hazard risks to property contained three questions and was shown to all survey respondents. Respondents were then randomly assigned to be shown questions on freshwater fish and personal fishing activity (topic two) or on non-native wild animal management and hunting activities (topic three). The second topic contained 10 questions, and the third topic contained 11 questions. Details of the questions are available in Appendix 1 and summary statistics are in Appendix 3. Analysis is presented descriptively below.

6.1 PERCEIVED NATURAL HAZARD RISKS TO PROPERTY

Respondents feel, on average, moderately informed about the natural hazard risks that could affect their property (mean score of 3.3) and moderately informed about what actions they can take to minimise natural hazards risks on their property (3.1). Forty-five percent of respondents feel 'very well' or 'well' informed about the natural hazard risks that could affect their property while 18% feel 'slightly informed' or 'not at all informed' about the natural hazard risks that could affect their property (Figure 6.1). In contrast, 40% of respondents feel 'very well' or 'well' informed about what actions they can take to minimise natural hazards risks on their property and 24% feel 'slightly informed' or 'not at all informed' about what actions they can take to minimise natural hazards risks on their property.

About one-third of respondents believe that flooding poses the greatest risk to their property (Figure 6.2) followed by, in order, wind (16%), wildfires (10%), earthquakes (6%), drought (5%), slips (5%), and erosion (4%). Some 3% of respondents identified a different natural hazard risk including pests, rising sea levels, sinkholes, storms and tornados, tsunamis and volcanic eruptions. An additional 18% are 'unsure' which natural hazard poses the greatest risk to their property.

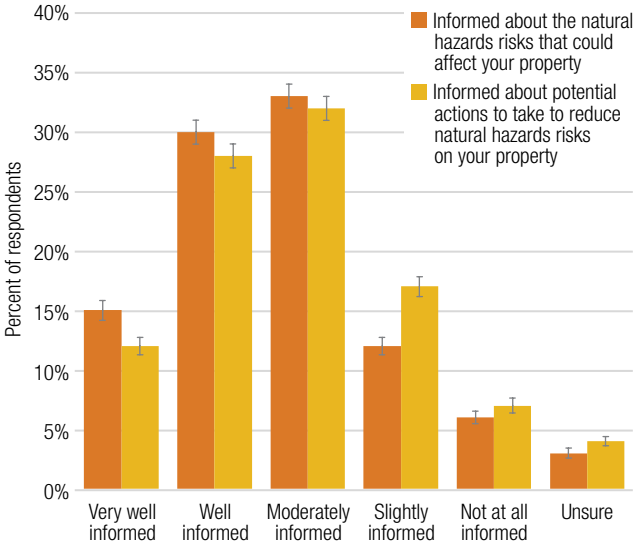


Figure 6.1. How well-informed do respondents feel about the natural hazard risks to their property (dark yellow) and what actions they could take to minimise natural hazard risk to their property (light yellow) (%).

6.2 FRESHWATER FISH AND PERSONAL FISHING IN FRESHWATER ENVIRONMENTS

Of the freshwater species mentioned in the survey, respondents said that eel/tuna, whitebait/inanga, and trout are the top three species that can be found in their local area (Figure 6.3). These proportions are also reflected in the 22% of respondents who currently fish (Figure 6.4): 29% of respondents who fish caught eel/tuna, 26% of respondents who fish caught whitebait/inanga, and 34% of respondents who fish caught trout during the past 12 months (Figure 6.5). Similarly, 17% of all respondents think freshwater crayfish/kōura can be found in their area versus 19% of respondents who currently fish said they have caught them in the last 12 months. However, 29% of respondent are unsure which freshwater species are in their area (Figure 6.3) and 66% to 94% of respondents who currently fish have not caught any freshwater species during the past 12 months (Figure 6.5).

About one-third of respondents think fishing's popularity has stayed about the same over the past 10 years while 16% think it has become more popular, 17% think it has become less popular, and 33% are unsure how its popularity has changed (Figure 6.6). These proportions varied over regions:

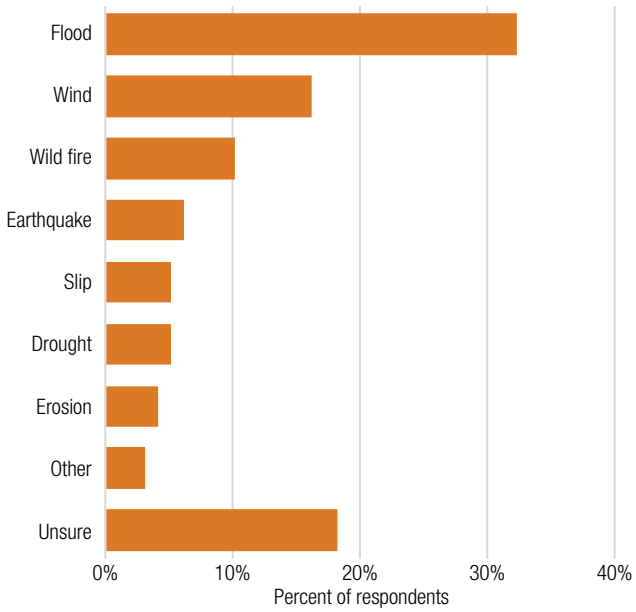


Figure 6.2. Perceived greatest natural hazard risk to respondents' property (%).

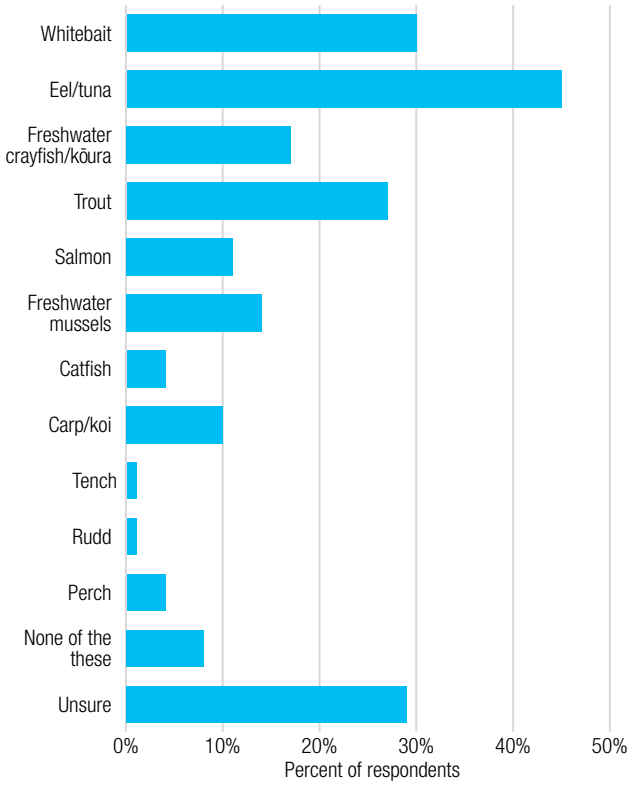


Figure 6.3. Freshwater species that respondents have found in their local area during the past 12 months (%).

Note: Respondents could choose more than one species.

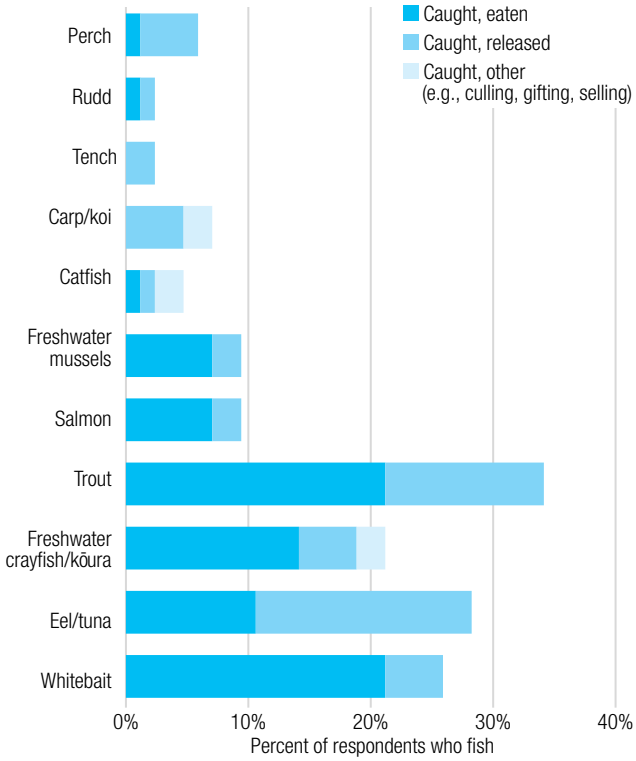


Figure 6.5. Freshwater species that respondents have personally caught in their local area during the past 12 months by what they did with the catch (%).

Note: Proportions within species sum to 100 with the un-label proportion indicating that the respondent did not catch that species during the past 12 months.

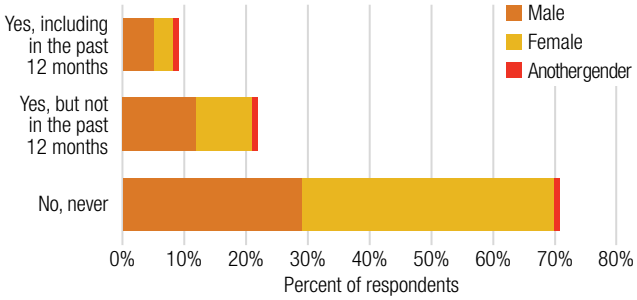


Figure 6.4. Proportion of respondents who currently fish, have fished in the past, or have never fished by gender (%).

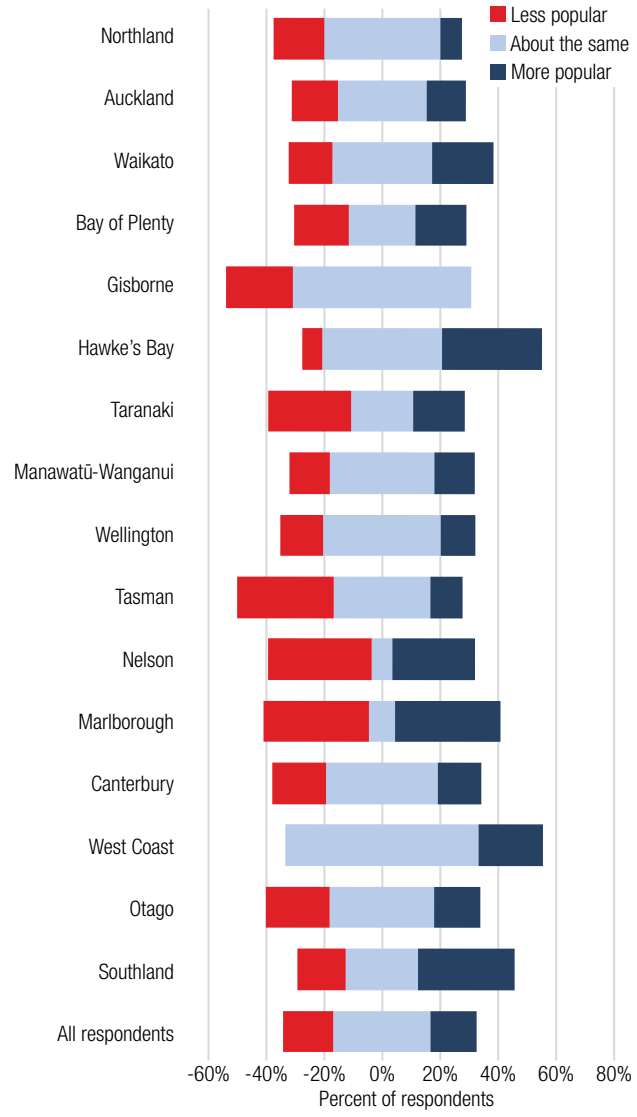


Figure 6.6. Perceived change in popularity of fishing in freshwater lakes, rivers, and streams in respondents' local area over the last 10 years by region (%).

for example, more respondents think fishing has become 'more popular' rather than 'less popular' in Waikato, Hawke's Bay, the West Coast, and Southland, while 33% to 36% of respondents in Tasman, Nelson, and Marlborough think fishing has become 'less popular'. Of the respondents who currently fish or have fished in the past, the majority have been fishing for less than 10 years, including 9% of who are aged 60 years or older, while 4% of respondents have been fishing their entire lives (Figure 6.7). Over 50% of respondents learned how to fish from an older male relative – split evenly between male and female respondents – 22% learned from friends and 13% taught themselves how to fish (Figure 6.8).

Respondents neither agreed nor disagreed, on average, that, "There are too many fishers for freshwater lakes, rivers, and streams." (mean score of 3.1) and "Our freshwater lakes, rivers, and streams are clean." (2.8), and disagreed more than agreed that, "Freshwater fish are not healthy to eat." (2.4; Figure 6.9). Non-fishers agreed more than fishers, on average, that "There are not enough freshwater fish." (3.4 vs 3.6) while fishers agreed more than non-fishers that "People should be able to eat what they catch." (3.6 vs 3.3), "Our freshwater lakes, rivers, and streams are well managed for fishing." (3.0 vs 2.9), and "Māori are adequately involved in management of local freshwater lakes, rivers, and streams." (3.3 vs 3.1).

Nearly all respondents said they would prefer to see at least 'somewhat more' whitebait/inanga, eel/tuna, freshwater crayfish/kōura, trout, salmon and/or freshwater mussels (Figure 6.10). Respondents who are aware of whitebait/inanga, eel/tuna, freshwater crayfish/kōura, salmon and freshwater mussels in their local area are more likely to prefer at least 'somewhat more' of these species (as opposed to the species numbers staying the same or decreasing) when compared to respondents who are unaware of these species being in their local area. Interestingly, 36% of respondents who are unaware of eel/tuna in their local area said they would prefer at least 'somewhat more' of these species compared to 53% of respondents who are aware of eel/tuna preferring the same outcome. When asked to prioritise which species respondents would like to see increase in abundance, respondents chose: whitebait/inanga (30%), freshwater crayfish/kōura (20%), salmon (18%), eel/tuna (13%), trout (11%), and freshwater mussels (7%; Figure 6.11).

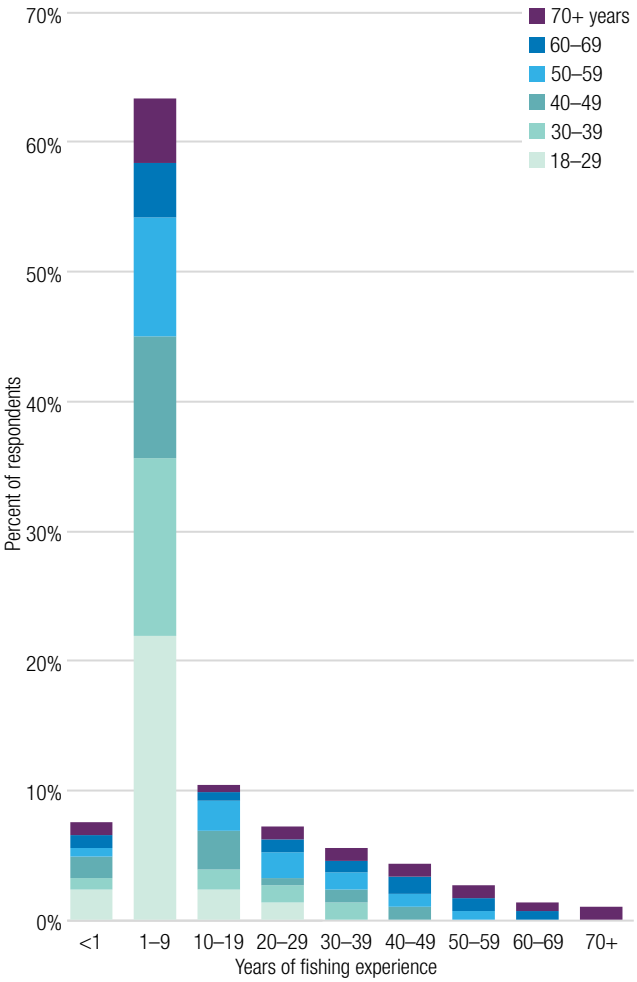


Figure 6.7. Years of fishing experience by age of fisher (%).

Note: Among respondents who currently fish or who have fished in the past.

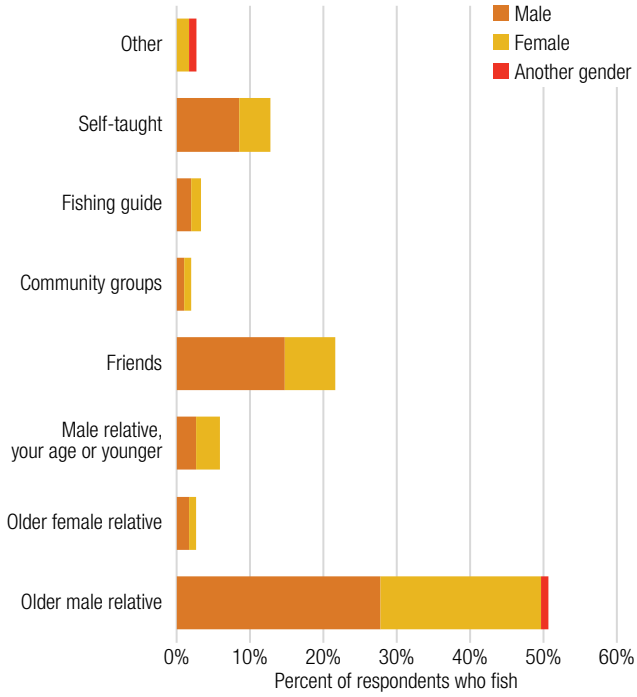


Figure 6.8. Who taught respondents the most about fishing for freshwater species? By gender (%).

Note: Among respondents who currently fish or who have fished in the past.

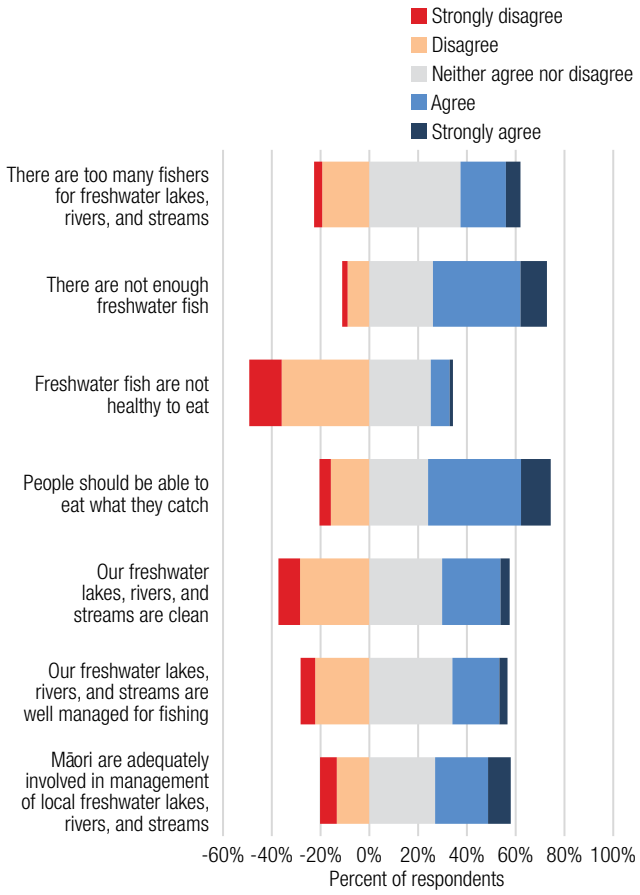


Figure 6.9. Agreement with statements on management, fishing, and benefits of freshwater species (%).

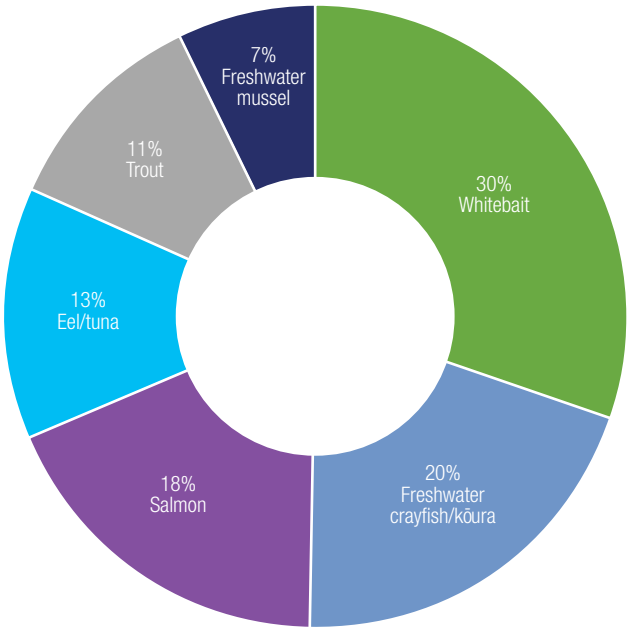


Figure 6.11. Prioritisation of species that respondents would prefer to see increase in abundance (%).

Note: Prioritisation occurred when respondents indicated that they preferred somewhat more or much more of more than one species.

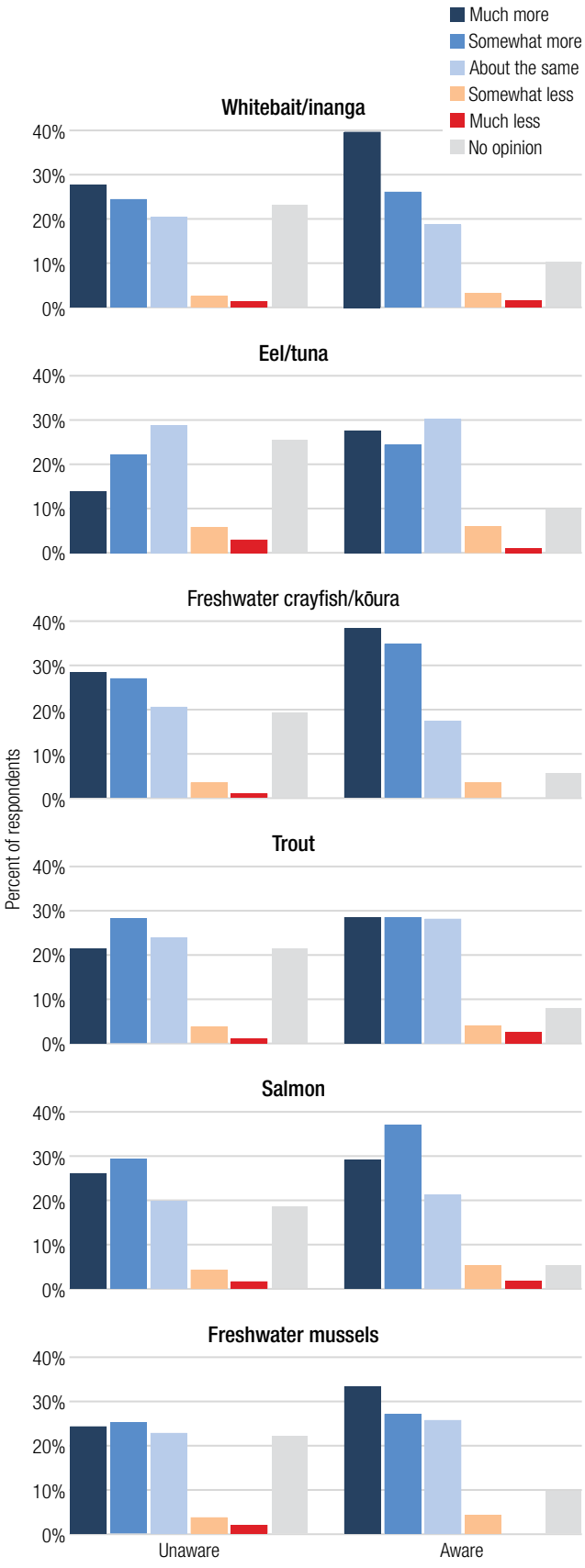


Figure 6.10. Preferences for seeing more or less of freshwater species in freshwater lakes, rivers, and streams in New Zealand by awareness of the species in one's local area (%).

Note: 'Aware' indicates that the respondent found that species in their local area during the past 12 months. 'Unaware' indicates that the respondent did not find that species in their local area during the past 12 months.

6.3 PERSONAL HUNTING OF NON-NATIVE WILD ANIMALS

Of the non-native wild animals mentioned in the survey, goats, deer and feral pigs are the most commonly found locally by respondents (Figure 6.12). However, 52% of respondents said none of these animals are in their local area. The majority of respondents who think goats, deer, feral pigs, chamois and tahr were present locally, also think the populations of these animals have been holding constant (Figure 6.13). Between 20% and 25% of respondents think the populations of goats, deer, feral pigs, and tahr are increasing and 37% of respondents think the population of wallabies is increasing. In addition, while 8% of respondents who found at least one non-native wild animal within the last 12 months think management of these animals has increased over the last 10 years, 24% think management has been 'about the same', 5% think management is decreasing, and 15% do not think these wild animals are managed (Figure 6.14). These perceptions are slightly different among those who currently hunt or have hunted in the past: 23% of this group think management has increased, 48% think management has been about the same, 16% think management is decreasing and 0% do not think these wild animals are being managed. Respondents are also relatively unsure about the state of management of wild animals: 36% of respondents are unsure if any management has occurred and 12% are unsure how management has changed over the last 10 years.

Most respondents have never hunted non-native wild animals, split evenly between males and females (Figure 6.15). Of those who currently hunt or have hunted in the past, 71% have less than 10 years of hunting experience (Figure 6.16) and include hunters across a broad range of ages. Forty-three percent of hunters learned how to hunt from an older male relative, 25% learned to hunt from a friend, and 10% taught themselves how to hunt (Figure 6.17). More males than females learned to hunt from an older male relative or from friends, or were self-taught. No respondent learned to hunt from an older female relative.

Of the 15% of respondents who currently hunt, 44% caught goats, 36% caught feral pigs, 28% caught red deer, 24% caught fallow deer, and fewer than 15% caught chamois (12%), wallabies (12%), sika deer (4%) and/or whitetail deer (4%) within the past 12 months (Figure 6.18). Hunters who caught the more common wild animals (i.e., goats, feral pigs, red deer, and fallow deer) predominately consumed the meat from these animals themselves or gave the meat from these animals to friends/family (Figure 6.19). However, 67% of respondents who caught wallabies did so for reasons other than for a trophy or for meat to be consumed, given away, donated, or sold.

Respondents neither agreed nor disagreed, on average that, "I am confident that non-native wild animals are well-managed in my region." (mean score of 3.3), and agreed more than disagreed, on average, that, "Non-native wild animals negatively affect native plants and animals." (3.8)

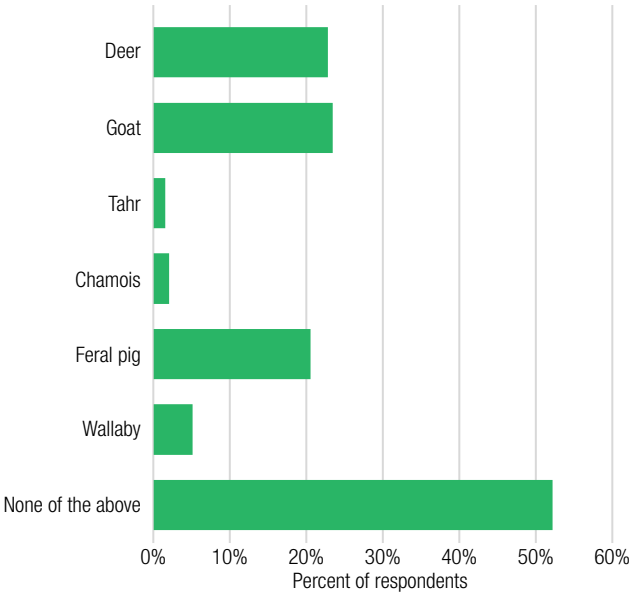


Figure 6.12. Non-native wild animals that respondents have found in their local area during the past 12 months (%).

Note: Respondents could choose more than one species.

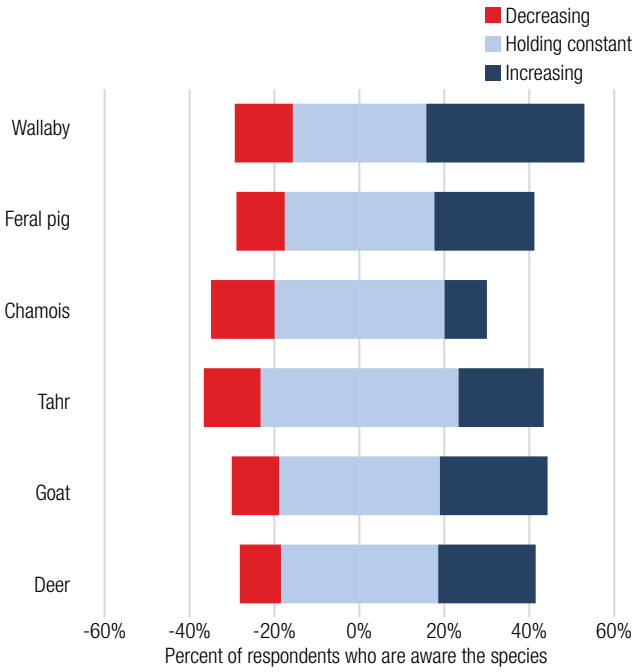


Figure 6.13. Perceived change in populations of non-native wild animals in respondents' local area (%).

Note: Among respondents who found that non-native wild animal in their local area during the last 12 months.

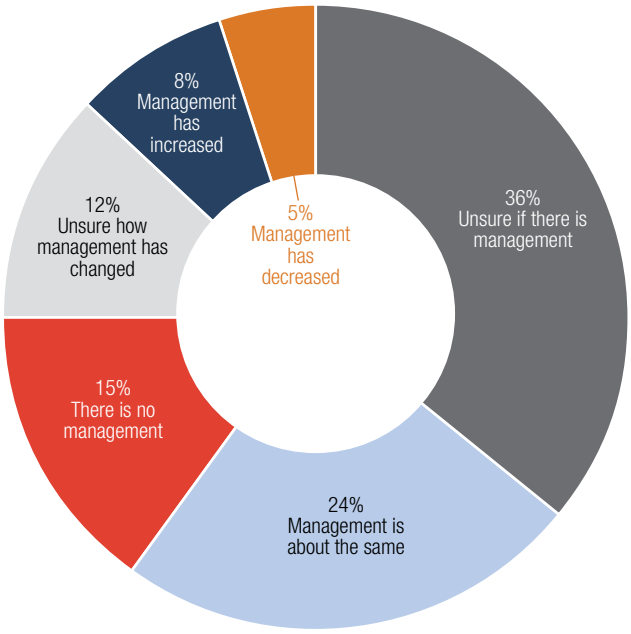


Figure 6.14. Perceived change in management of non-native wild animals in respondents' local area (%).

Note: Among respondents who found at least one non-native wild animal in their local area during the last 12 months.

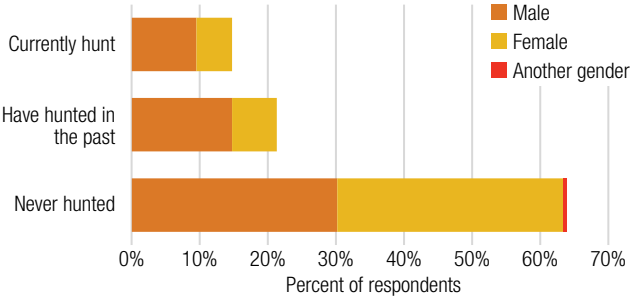


Figure 6.15. Proportion of respondents who currently hunt, have hunted in the past or have never hunted, by gender (%).

Note: Among respondents who are aware of management of non-native wild animals in their local area.

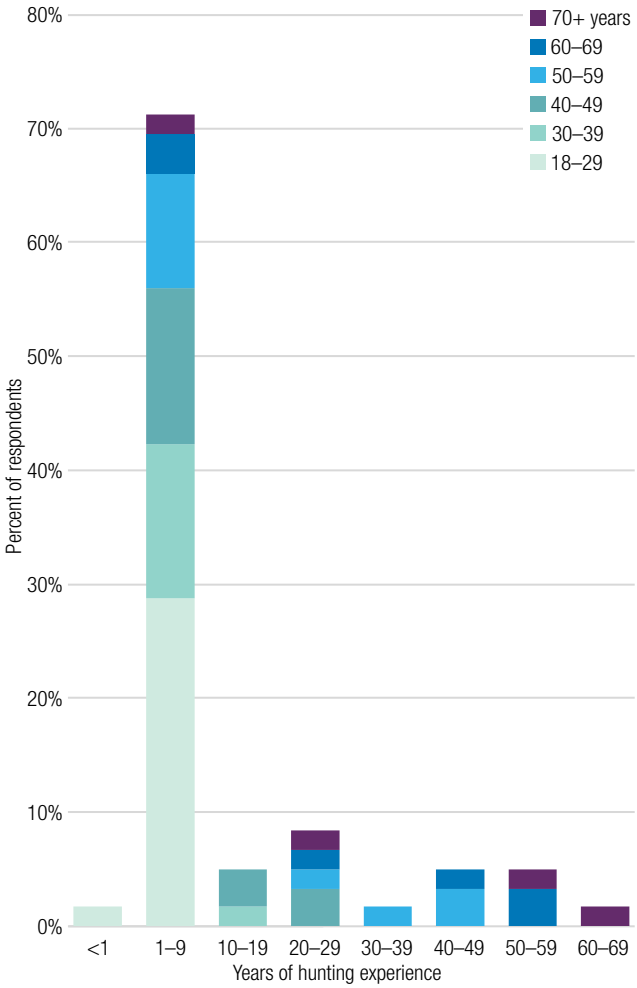


Figure 6.16. Years of hunting experience by age of hunter (%).

Note: Among respondents who currently hunt or who have hunted in the past.

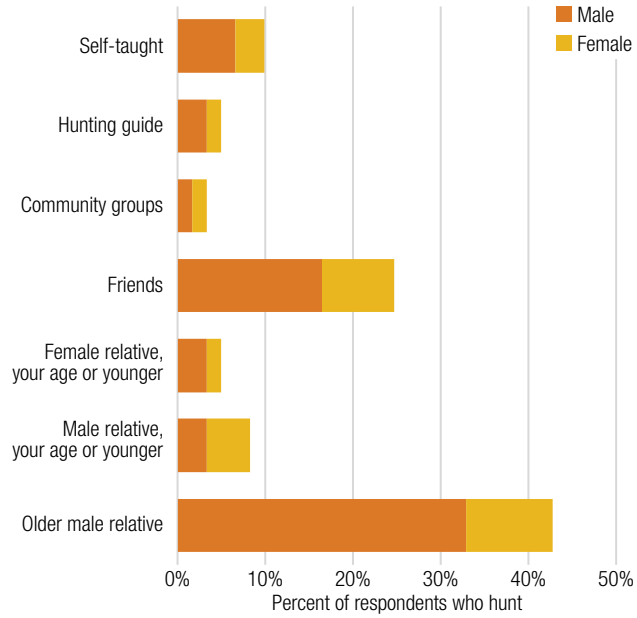


Figure 6.17. Who taught respondents how to hunt? By gender (%).

Note: Among respondents who currently hunt or who have hunted in the past.

and "Rural landowners should receive government support to control non-native wild animals on their land." (3.7; Figure 6.20). Hunters were more likely to agree than non-hunters that "Non-native wild animals are an important source of food for New Zealand communities." (3.6 vs 3.1), "Non-native wild animals negatively affect native plants and animals." (3.9 vs 3.7), "The Department of Conservation should maintain healthy herds of non-native wild animals in national parks to support the tourism industry." (3.4 vs 3.1) and "Non-native wild animals provide benefits to me." (3.4 vs 2.5).

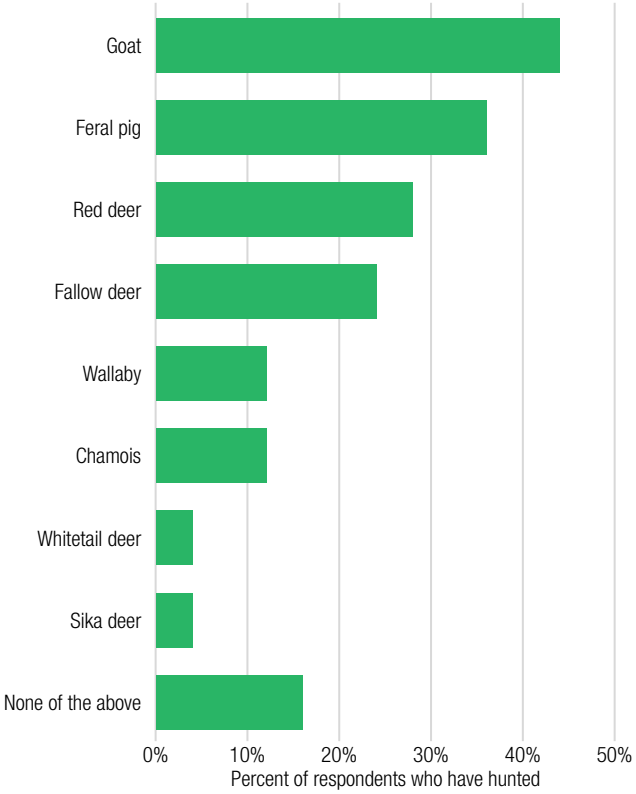


Figure 6.18. Type of non-native wild animals that respondents have caught within the past 12 months (%).

Note: Among respondents who currently hunt.

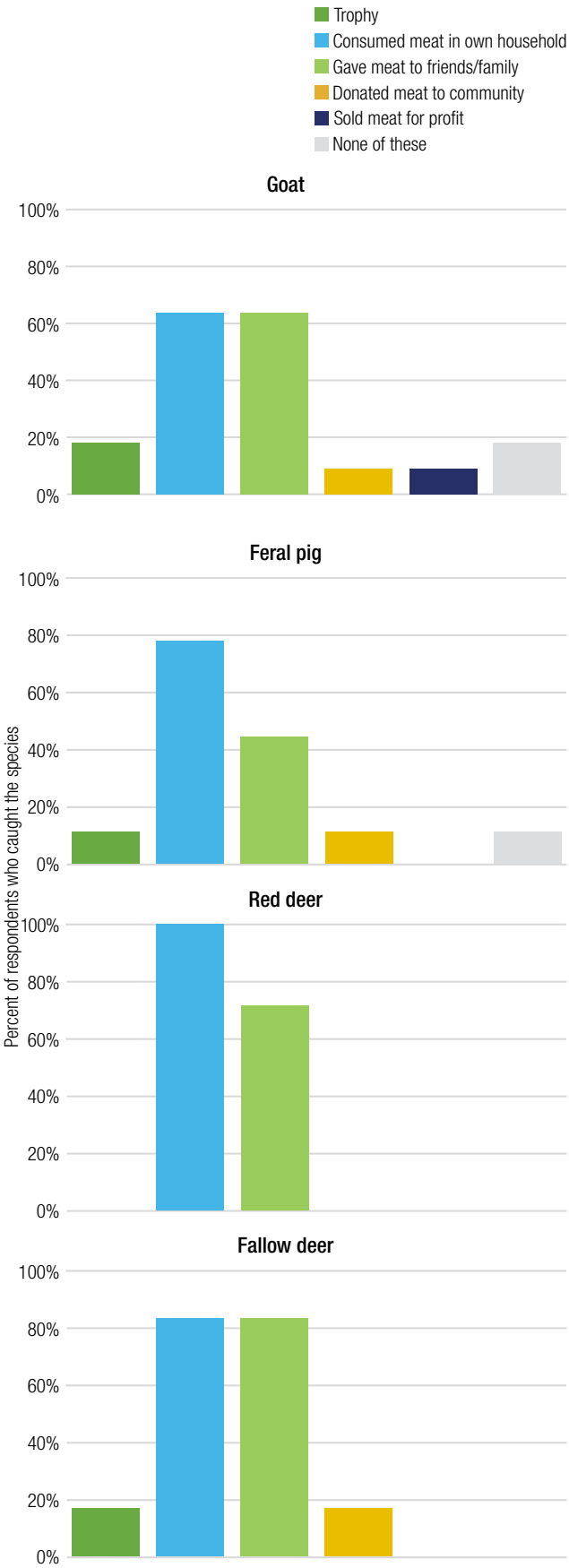


Figure 6.19. What respondents did with their harvest of goats, feral pigs, red deer, and fallow deer (%).

Note: Among respondents who harvested goats, feral pigs, red deer, or fallow deer during the past 12 months.

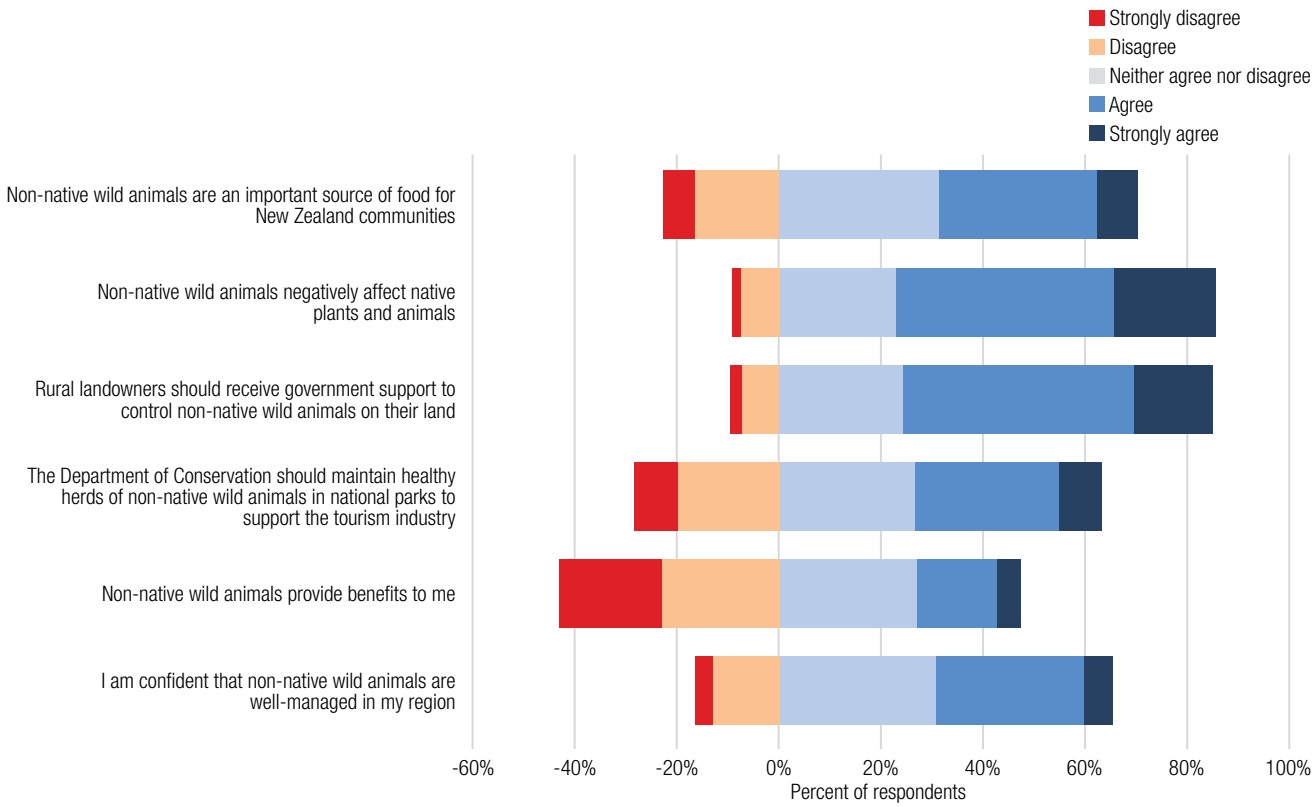


Figure 6.20. Agreement with statements on management, hunting, and benefits of non-native wild animals (%).

Close up of whitebait

CRAIG BUCKLAND

New Brighton Pier at sunset, Christchurch
VIVIAN WONG

07

DISCUSSION OF PRESSURE-STATE-RESPONSE

This section discusses cross-domain PSR 2025 results and time series trends. Trends in pressures were derived from weighting the ranking of pressures within each domain by the proportion of respondents who chose that pressure, averaged across all domains by year. In comparison to the trends analysis in the 2022 survey (Booth *et al.*, 2022), this approach combines both a ranking of pressures, from 1 (smallest pressure) to 15 (largest pressure), and weighting by proportion to allow for more consistent comparison across domains and years.

7.1 PRESSURES ON THE ENVIRONMENTAL DOMAINS

Since 2010, respondents have increasingly ranked sewage and stormwater among the top three pressures on the environment (Figure 7.1). The perceived pressure from commercial fishing, dumping of solid waste, and hazardous chemicals on any environmental domain has slowly been increasing since 2010; perceived pressure from industrial activities on any environmental domain has been slowly decreasing since 2010; and perceived pressure from farming on any environmental domain peaked in 2016 and has been in decline since. In addition, urban development, pests, and weeds have consistently been ranked among the top five pressures on the environment and the perceived pressures from household waste and emissions, motor vehicles and transport, and forestry have remained significant for one or two domains – but relatively low ranking across all domains.

Respondents to the 2025 survey wave also identified pressures that are perceived to be among the top three pressures on multiple environmental domains:

- Sewage and stormwater are in the top three pressures for six environmental domains.
- Pests and weeds are in the top three pressures for four environmental domains.
- Dumping of solid waste is in the top three pressures for four environmental domains.
- Urban development is in the top three pressures for three environmental domains.
- Hazardous chemicals are in the top three pressures for three environmental domains.
- Commercial fishing is in the top three pressures for three environmental domains.
- Motor vehicles and transport are in the top three pressures for two environmental domains.

A review of the empirical pressures on the environmental domains showed several overlapping sources, including land densification and intensification, municipal waste, invasive species, and climate change. Land, air, water, and marine environments are all negatively affected by human-induced and -created pollution from development, land use, and the everyday life of communities (MfE & StatsNZ, 2025). Survey respondents have also increasingly perceived overlapping human-related pressures on marine, freshwater, terrestrial, and air environments, including sewage and stormwater, dumping of solid waste, pests and weeds, and urban development over the survey waves.

The most recent 'Our Environment' report (MfE & StatsNZ, 2025) made several changes to its reporting of environmental pressures. Urban densification and municipal waste have increasingly affected rivers and lakes, coastal and marine environments, and natural environments in towns and cities as well as surrounding native forest, wetlands, and agricultural land through conversion (MfE & StatsNZ, 2025). Since 2010, respondents have also increasingly identified dumping of solid waste among their top three pressures on multiple domains and on wetlands, freshwater, marine environments, and coastal waters in particular in 2025.

Pests, weeds, and non-native species continue to be the largest threat to terrestrial plant and animals, native bush and forests, and wetlands (MfE & StatsNZ, 2025) and increasingly perceived to be so by respondents over time. In addition to these environmental domains, marine environments, plants, and animals are also plagued by non-native species that displace native species, destroy habitats, and adapt better to climate change than native ones (MfE & StatsNZ, 2019).

Climate change and greenhouse gases in the atmosphere are pressures on environmental domains and exacerbate many of the other pressures, such as invasive species (MfE & StatsNZ, 2025). Two open-ended questions in the survey asked respondents what they considered to be the most important environmental issues facing New Zealand and the world (Section 5). Climate change has been identified as the most important issue facing the world since 2010. Within New Zealand, freshwater issues were identified as the most important issue facing the country until 2022, when more respondents thought climate change was the most important issue.

Figure 7.1. Trends in ranking of perceived pressures, averaged across all environmental domains, 2010–2025.

Note: Pressures were ranked from 1 (smallest pressure) to 15 (largest pressure) for each domain within year and then weighted by the proportion of respondents who indicated that pressure for that domain in that year. The weighted pressures were then averaged across all domains. Scale is 1 = smallest pressure to 15 = largest pressure.

7.2 STATE OF ENVIRONMENTAL DOMAINS

The perceived condition of environmental domains, ranked in order from best to worst in the 2025 survey, are: air quality (mean score of 4.13), protected natural areas (4.10), native bush and forests (3.83), terrestrial plants and animals (3.53), marine environments (3.49), coastal waters and beaches (3.49), marine plants and animals (3.46), natural environments in towns and cities (3.36), wetlands (3.27), and rivers and lakes (3.14). Since 2010, the average perceived condition of air has improved nearly year-on-year (Figure 7.2). As of 2025, the average perceived conditions of coastal waters and beaches, rivers and lakes, native bush and forests, and natural environments in towns and cities have significantly improved from their 2010 averages, while the average perceived condition of wetlands has improved but is statistically indistinguishable from its 2010 average (Figure 7.2). In addition, all 10 domains saw significant improvements in perceived average condition between 2022 and 2025.

7.3 RESPONSE TO PRESSURES ON ENVIRONMENTAL DOMAINS

The perceived quality of management, ranked in order from best to worst condition in the 2022 survey wave, is: protected environments (mean score of 3.90), air (3.71), native bush and forests (3.71), terrestrial plants and animals (3.47), marine plants and animals (3.42), marine environments (3.41), coastal waters and beaches (3.38), natural environments in towns and cities (3.36), wetlands (3.29), and rivers and lakes (3.15). Perceived quality of management of air quality, coastal areas, and natural environments in towns and cities was relatively stable from 2010 until 2016/2019, but has been improving since and is significantly improved from their 2010 averages (Figure 7.2). The average perceived quality of management of rivers, lakes, wetlands, and native bush and forests has also been on an upward trend since 2016 and as of 2025 is significantly improved from their 2010 averages. In addition, all 10 domains saw significant improvements in perceived average condition between 2022 and 2025.

Trends in perceptions of the condition and quality of management of natural environments in towns and cities, wetlands, rivers, and lakes have been nearly identical since 2010 while trends in perceptions of air, protected natural areas, and terrestrial plants and animals have mirrored each other over time with perceptions of condition being scored higher than perceptions of quality management (Figure 7.2). Interestingly, trends in perceived condition and quality of management of the coastal and marine domains are moving closer together with each survey wave. The close relationship between perceived condition and perceived quality of management is unsurprising though given the relationship between management and impact on the environment. Conversion of impervious surface in urban areas to green spaces and tree canopy, for example, directly improves the ground temperatures, air quality, and natural environments in towns and cities as well as reduces the transport of sediments, heavy metals, and other pollutions into the nearby fresh- and coastal-waters.

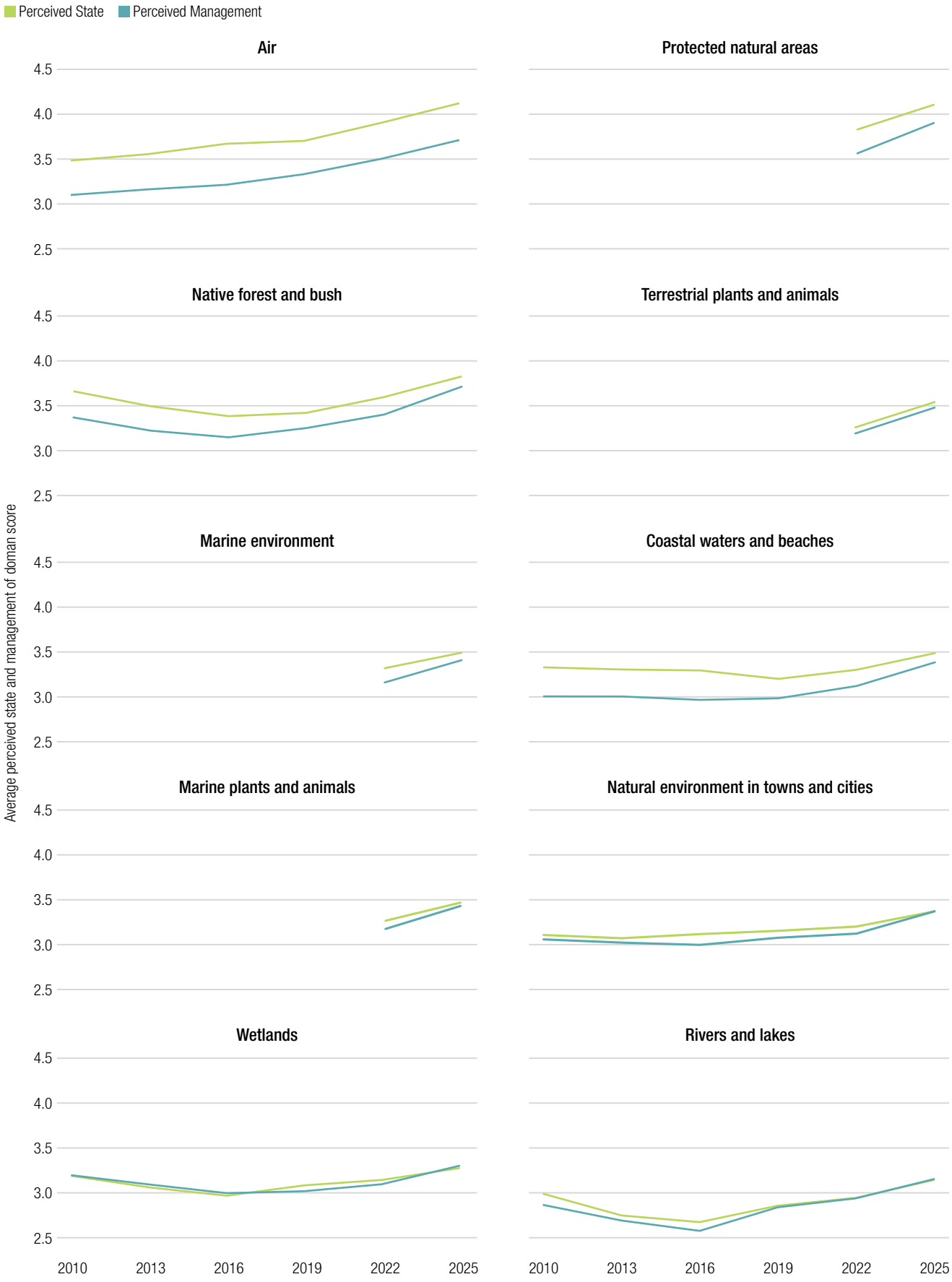


Figure 7.2. Direction of trends in average perceived state of and average perceived response to pressures on environmental domains, 2010–2025.

Note: Scale is 1 = very bad, 2 = bad, 3 = adequate, 4 = good, 5 = very good.

Humpback whale breaching off the coast of Kaikoura
KERRY HARGROVE, SHUTTERSTOCK

08

GENERAL DISCUSSION AND CONCLUSIONS

The New Zealand Environmental Perceptions Survey (EPS) was established in 2000 by researchers at Lincoln University (see Hughey *et al.*, 2001) and is based on the Pressure-State-Response (PSR framework for environmental reporting (OECD, 1996; MfE, 1997). This report overviews results from the 11th EPS and compares these results to the 2010, 2013, 2016, 2019 and 2022 waves of the survey to describe trends over time. The main findings and implications from the 2025 survey are discussed in this section. The PSR findings were discussed in detail in Section 7.

The perceived overall state of the environment declined between 2010 and 2016 mirroring perceptions of state and quality of management of rivers, lakes, wetlands, and native forest and bush (Section 3). However, respondents think the overall state of the environment has been improving since 2016 and is significantly improved from its 2010 state. This post-2016 trend in perceptions is mirrored in the perceived state and quality of management of most environmental domains as well as several environmental pressures from 2010 to 2025.

The degree of familiarity with freshwater species and non-native wild animals influences respondent's' perceptions of the state and management of those resources, which is a finding not uncommon in the literature (e.g., Aretano *et al.*, 2017). Respondents who have seen and/or caught whitebait/inanga, eel/tuna, freshwater crayfish/kōura, salmon and freshwater mussels in their local area are more likely to prefer an increase in abundance of these species compared to respondents who have not seen/caught these species (Section 6). Respondents who hunt currently or in the past were more likely to have an opinion about the existence and direction of management of non-native wild animals than respondents who have never hunted. Perceptions of management quality and abundance of freshwater fish were also significantly different between those who have and have not fished, while those who have hunted agreed that non-native wild animals negatively affect native plants and animals more strongly than those who have not hunted. Those who have fished and those who have hunted also agreed more strongly than those who have not fished or hunted that people should be allowed to eat what they catch.

Participation in pro-environmental activities declined in 2022 and while it has rebounded slightly for some activities, participation in pro-environmental activities in 2025 remains significantly below their 2010 averages (Section 4). The drop in participation across all activities in 2022 and then subsequent increase in participation in a few activities in 2025 suggests exogenous pressure may be influencing respondents' ability to participate. For example, the average cost of living increased by 5.2% over the 12 months prior to 2021, by 8.2% over the 12 months prior to 2022, by 7% over the 12 months prior to 2023, and by 3% over the 12 months prior to 2024 compared to 1% to 2% increases per year before 2021 (StatsNZ, 2025). Well-being also declined: between 2018 and 2021, the proportion of people with poor mental health increased from 22% to 28% (StatsNZ, 2022), probably as a result of the COVID-19 pandemic. The proportion of people with poor mental health remained statistically unchanged between 2021 and 2023 (StatsNZ, 2024). These and other stressors could contribute to a decreased financial, mental, and physical ability and willingness to participate in environmental activities.

Participation rates in nature-based recreational activities, such as freshwater fishing and hunting, within the last 12 months was also relatively low, possibly as a result of the exogenous factors discussed above. However, respondents did think that the popularity of fishing over the last 10 years has been increasing in most regions. Knowledge about fishing and hunting was also being passed along to others predominately from older male relatives and friends. This finding is similar to those from other recreational fishing studies (e.g., Hayes *et al.*, 2023).

Similar to trends in perceived pressures across domains, the prominence of farming and agriculture as a major environmental issue in New Zealand has declined over time. While farming was the second most frequently mentioned issue in 2013 and 2016, fewer than 6% of respondents mentioned it in 2019, 2022, and 2025. In contrast, the most frequently mentioned environmental issues facing New Zealand since 2019 were climate change, freshwater, sanitation and waste, and pollution. These responses reflect enduring national-level concerns that have persisted across multiple survey waves. Freshwater issues, in particular, were the most commonly cited environmental problem in New Zealand until 2022, and continue to rank highly, highlighting ongoing public concern around water quality and land use. Similarly, waste, sewage, and sanitation have become increasingly prominent since 2019, overtaking earlier concerns such as pollution. These perceived challenges echo many of the key pressures and areas of future concern identified in the 'Our Environment' report (MfE & StatsNZ, 2025) and identified as top pressures on multiple environmental domains, signalling a shift in how environmental impacts are perceived by the public.

Climate change has been mentioned increasingly as a major issue facing New Zealand since 2013 but has been the most frequently mentioned issue facing the world since 2010. The increasing local concern for climate change mirrors that found in many international surveys on global public issues (e.g., Lorenzoni & Pidgeon 2006; Bell *et al.*, 2021; Flynn *et al.*, 2024;). However, other globally significant issues, such as war and conflict, overpopulation, and social inequality, are rarely mentioned in a national context, highlighting how local experiences, perceived risks, and geographic proximity may be influencing environmental concern. This localisation of environmental perception has been widely observed in both qualitative and quantitative studies of public environmental values (Hoffmann *et al.*, 2022; Park & Chang, 2024).

New Zealand faces a broad range of natural hazards, from flooding to earthquakes to wildfires. Within the last few years, the intensity of flooding from storms and cyclones as well as frequency of wildfire risk days has been increasing (MfE &

StatsNZ, 2025), with both risk and intensity exacerbated by a changing climate (Stone *et al.*, 2022). This is in addition to an average of 50–80 earthquakes detected across New Zealand per day,[1] most too small to be felt, and the on-going threat of volcanic eruption from one of the eight active volcanos across the country.[2] While respondents identified all these hazards as potential risks to their property, flooding was the most salient. However, respondents also felt moderately informed about both the risks they face personally and the actions they could take to mitigate those risks.

Stormwater

[1] *See: www.geonet.org.nz/earthquake/statistics*

[2] *See: www.geonet.org.nz/volcano*

Relaxing outside at Britomart, Auckland
NZSTORY

09

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Hagley Park, Christchurch
TRAVELLINGLIGHT, ISTOCK

10 APPENDICES

10.1 APPENDIX 1 – 2025 QUESTIONNAIRE

Q1.1 In what region do you usually live?

- Northland (1)
- Auckland (5)
- Waikato (7)
- Bay of Plenty (19)
- Gisborne (27)
- Hawke's Bay (29)
- Taranaki (36)
- Manawatū-Wanganui (40)
- Wellington (51)
- Tasman (61)
- Nelson (63)
- Marlborough (65)
- West Coast (67)
- Canterbury (71)
- Otago (82)
- Southland (88)
- Chatham Islands (92)
- Prefer not to say (94)

Q1.2 In which local authority/district do you usually live?

- Far North District (2)
- Kaipara District (3)
- Whangārei District (4)
- Auckland (6)
- Hamilton City (8)
- Hauraki District (9)
- Matamata-Piako District (10)
- Ōtorohanga District (11)
- Rotorua District (12)
- South Waikato District (13)
- Taupō District (14)
- Thames-Coromandel District (15)
- Waikato District (16)
- Waipa District (17)
- Waitomo District (18)
- Kawerau District (20)
- Ōpōtiki District (21)
- Rotorua District (22)
- Taupō District (23)
- Tauranga City (24)
- Western Bay of Plenty District (25)
- Whakatāne District (26)
- Gisborne District (28)
- Central Hawke's Bay District (30)
- Hastings District (31)
- Napier City (32)
- Rangitikei District (33)
- Wairoa District (34)
- Taupō District (35)
- New Plymouth District (37)
- South Taranaki District (38)
- Stratford District (39)
- Horowhenua District (41)
- Manawatu District (42)
- Palmerston North City (43)
- Rangitikei District (44)
- Ruapehu District (45)
- Stratford District (46)
- Tararua District (47)
- Whanganui District (48)
- Waitomo District (49)
- Taupō District (50)
- Carterton District (52)
- Hutt City (53)
- Kāpiti Coast District (54)
- Masterton District (55)
- Porirua City (56)
- South Wairarapa District (57)
- Tararua District (58)
- Upper Hutt City (59)
- Wellington City (60)
- Tasman District (62)
- Nelson City (64)
- Marlborough District (66)
- Buller District (68)
- Grey District (69)
- Westland District (70)
- Ashburton District (72)
- Christchurch City (73)
- Hurunui District (74)
- Kaikōura District (75)
- Mackenzie District (76)
- Selwyn District (77)
- Timaru District (78)
- Waimakariri District (79)
- Waimate District (80)
- Waitaki District (81)
- Central Otago District (83)
- Clutha District (84)
- Dunedin City (85)
- Queenstown-Lakes District (86)
- Waitaki District (87)
- Gore District (89)
- Invercargill City (90)
- Southland District (including Stewart Island) (91)
- Chatham Islands (93)
- NA (95)

Q1.3 What is your post code?

Q2. How would you describe where you usually live?

- City (1)
- City fringe (2)
- Town (3)
- Town fringe (4)
- Rural (5)
- Prefer not to say (6)

Q3. What is your gender?

- Male (1)
- Female (2)
- Gender diverse (3)
- Prefer not to say (4)

Q4. Which of these age groups are you in?

- Under 18 years (1)
- 18-29 years (2)
- 30-39 years (3)
- 40-49 years (4)
- 50-59 years (5)
- 60-69 years (6)
- 70+ years (7)
- Prefer not to say (8)

Q5. Which of these best describes your highest educational qualification?

- No formal school qualification (1)
- NCEA level 1 or school certificate (2)
- Sixth form/UE/NCEA level 2 (3)
- University bursary/7th form/NCEA level 3 (4)
- Vocational qualification (includes trade certificates, diplomas etc) (5)
- Undergraduate (bachelor) degree (6)
- Postgraduate degree (masters' degree or PhD) (7)
- Prefer not to say (8)

Q6. Which of these ethnic groups do you primarily identify with?

- Māori (1)
- NZ European/Pakeha (2)
- Pacific Islander/Pasifika (3)
- Asian (4)
- Indian (5)
- Middle Eastern/Arabic (6)
- Other European (7)
- Other (8)

Q7. The overall state of the natural environment in New Zealand is.

- Very good (1)
- Good (2)
- Adequate (3)
- Bad (4)
- Very bad (5)
- Don't know (6)

Q8. How would you describe the condition of these environmental domains in New Zealand?

	Very good (1)	Good (2)	Adequate (3)	Bad (4)	Very bad (5)	Don't know (6)
Air						
Marine environment						
Coastal waters and beaches						
Rivers and lakes						
Wetlands						
Native bush and forests						
Protected natural areas (e.g., national parks and marine reserves)						
Natural environment in towns and cites						
Marine plants and animals						
Terrestrial (land and freshwater) plants and animals						

Q9. How would you describe current management of these environmental domains in New Zealand?

	Very good (1)	Good (2)	Adequate (3)	Bad (4)	Very bad (5)	Don't know (6)
Air						
Marine environment						
Coastal waters and beaches						
Rivers and lakes						
Wetlands						
Native bush and forests						
Protected natural areas (e.g., national parks and marine reserves)						
Natural environment in towns and cites						
Marine plants and animals						
Terrestrial (land and freshwater) plants and animals						

Q10. What are the main causes of damage, if any, to New Zealand's air? Tick up to 3

- Motor vehicles and transport (1)
- Household waste and emissions (2)
- Industrial activities (3)
- Pests and weeds (4)
- Farming (5)
- Forestry (6)
- Urban development 7)
- Mining (8)
- Sewage and stormwater (9)
- Tourism (10)
- Commercial fishing (11)
- Recreational fishing (12)
- Dumping of solid waste (13)
- Hazardous chemicals (14)
- Other (15)

Q11. What are the main causes of damage, if any, to New Zealand's marine environment? Tick up to 3.

- Motor vehicles and transport (1)
- Household waste and emissions (2)
- Industrial activities (3)
- Pests and weeds (4)
- Farming (5)
- Forestry (6)
- Urban development 7)
- Mining (8)
- Sewage and stormwater (9)
- Tourism (10)
- Commercial fishing (11)
- Recreational fishing (12)
- Dumping of solid waste (13)
- Hazardous chemicals (14)
- Other (15)

Q12. What are the main causes of damage, if any, to New Zealand's coastal waters and beaches? Tick up to 3.

- Motor vehicles and transport (1)
- Household waste and emissions (2)
- Industrial activities (3)
- Pests and weeds (4)
- Farming (5)
- Forestry (6)
- Urban development 7)
- Mining (8)
- Sewage and stormwater (9)
- Tourism (10)
- Commercial fishing (11)
- Recreational fishing (12)
- Dumping of solid waste (13)
- Hazardous chemicals (14)
- Other (15)

Q13. What are the main causes of damage, if any, to New Zealand's rivers and lakes? Tick up to 3.

- Motor vehicles and transport (1)
- Household waste and emissions (2)
- Industrial activities (3)
- Pests and weeds (4)
- Farming (5)
- Forestry (6)
- Urban development 7)
- Mining (8)
- Sewage and stormwater (9)
- Tourism (10)
- Commercial fishing (11)
- Recreational fishing (12)
- Dumping of solid waste (13)
- Hazardous chemicals (14)
- Other (15)

Q14. What are the main causes of damage, if any, to New Zealand's wetlands? Tick up to 3.

- Motor vehicles and transport (1)
- Household waste and emissions (2)
- Industrial activities (3)
- Pests and weeds (4)
- Farming (5)
- Forestry (6)
- Urban development 7)
- Mining (8)
- Sewage and stormwater (9)
- Tourism (10)
- Commercial fishing (11)
- Recreational fishing (12)
- Dumping of solid waste (13)
- Hazardous chemicals (14)
- Other (15)

Q15. What are the main causes of damage, if any, to New Zealand's native bush and forests? Tick up to 3.

- Motor vehicles and transport (1)
- Household waste and emissions (2)
- Industrial activities (3)
- Pests and weeds (4)
- Farming (5)
- Forestry (6)
- Urban development 7)
- Mining (8)
- Sewage and stormwater (9)
- Tourism (10)
- Commercial fishing (11)
- Recreational fishing (12)
- Dumping of solid waste (13)
- Hazardous chemicals (14)
- Other (15)

Q16. What are the main causes of damage, if any, to New Zealand's protected natural areas (e.g., national parks and marine reserves)? Tick up to 3.

- Motor vehicles and transport (1)
- Household waste and emissions (2)
- Industrial activities (3)
- Pests and weeds (4)
- Farming (5)
- Forestry (6)
- Urban development 7)
- Mining (8)
- Sewage and stormwater (9)
- Tourism (10)
- Commercial fishing (11)
- Recreational fishing (12)
- Dumping of solid waste (13)
- Hazardous chemicals (14)
- Other (15)

Q17. What are the main causes of damage, if any, to New Zealand's natural environment in towns and cities? Tick up to 3.

- Motor vehicles and transport (1)
- Household waste and emissions (2)
- Industrial activities (3)
- Pests and weeds (4)
- Farming (5)
- Forestry (6)
- Urban development 7)
- Mining (8)
- Sewage and stormwater (9)
- Tourism (10)
- Commercial fishing (11)
- Recreational fishing (12)
- Dumping of solid waste (13)
- Hazardous chemicals (14)
- Other (15)

Q18. What are the main causes of damage, if any, to New Zealand's marine plants and animals? Tick up to 3.

- Motor vehicles and transport (1)
- Household waste and emissions (2)
- Industrial activities (3)
- Pests and weeds (4)
- Farming (5)
- Forestry (6)
- Urban development 7)
- Mining (8)
- Sewage and stormwater (9)
- Tourism (10)
- Commercial fishing (11)
- Recreational fishing (12)
- Dumping of solid waste (13)
- Hazardous chemicals (14)
- Other (15)

Q19. What are the main causes of damage, if any, to New Zealand's terrestrial (land and freshwater) plants and animals? Tick up to 3.

- Motor vehicles and transport (1)
- Household waste and emissions (2)
- Industrial activities (3)
- Pests and weeds (4)
- Farming (5)
- Forestry (6)
- Urban development 7)
- Mining (8)
- Sewage and stormwater (9)
- Tourism (10)
- Commercial fishing (11)
- Recreational fishing (12)
- Dumping of solid waste (13)
- Hazardous chemicals (14)
- Other (15)

Q20. In the past 12 months, have you undertaken any of the following activities? Tick all that apply.

- Reduced, or limited your use of fresh water (1)
- Reduced, or limited your use of electricity (2)
- Visited a marine reserve (3)
- Visited a national park (4)
- Bought products that are marketed as environmentally friendly (5)
- None of these (6)

Q21. In the past 12 months, have you undertaken any of the following activities? Tick all that apply.

- Recycled household waste (1)
- Composted garden and/or household waste (2)
- Grown some of your own vegetables (3)
- Been involved in a project to improve the natural environment (4)
- Obtained information about the environment from any source (5)
- None of these (6)

Q22. In the past 12 months, have you undertaken any of the following activities? Tick all that apply.

- Taken part in hearings or consent processes about the environment (1)
- Participated in an environmental organisation (2)
- Commuted by buses or trains (3)
- Been an active member of a club or group that restores and/or replants natural environments (4)
- Made a financial donation to a non-government environmental organisation (5)
- Controlled rats, possums, stoats, ferrets, feral cats, and/or hedgehogs (6)
- None of these (7)

Q23. What do you think is the most important environmental issue facing New Zealand today?

- _____

Q24. What do you think is the most important environmental issue facing the world today?

- _____

SPECIAL TOPIC 2 – FRESHWATER FISH

Q25. As far as you are aware, which of the following freshwater species can be found in your local area? Tick all that apply.

- Whitebait (1)
- Eel/tuna (2)
- Freshwater crayfish/kōura (3)
- Trout (4)
- Salmon (5)
- Freshwater mussels (6)
- Catfish (7)
- Carp/koi (8)
- Tench (9)
- Rudd (10)
- Perch (11)
- None of the these (12)
- Unsure (13)

Q26. To the best of your knowledge, has fishing in freshwater lakes, rivers, and streams in your local area become more or less popular over the last 10 years?

- More popular (1)
- About the same (2)
- Less popular (3)
- Unsure (4)

Q27. Have you personally fished in freshwater lakes, rivers, or streams in your local area?

- Yes, including in the past 12 months (1)
- Yes, but not in the past 12 months (2)
- No, never (3)

Q28. Which freshwater species have you personally caught in your local area during the past 12 months? What did you typically do with the harvest?

	Caught & eaten (1)	Caught & released (2)	Other (e.g., culling, gifting, selling) (3)	Did not catch during the past 12 months (4)
Whitebait (1)				
Eel/tuna (2)				
Freshwater crayfish/kōura (3)				
Trout (4)				
Salmon (5)				
Freshwater mussels (6)				
Catfish (7)				
Carp/koi (8)				
Tench (9)				
Rudd (10)				
Perch (11)				
None of the these (12)				
Unsure (13)				

Q29. Among the following, who taught you the most about fishing for freshwater species? Select one.

- Older male relative (1)
- Older female relative (2)
- Male relative, your age or younger (3)
- Female relative, your age or younger (4)
- Friends (5)
- Community groups (6)
- Fishing guide (7)
- Self-taught (8)
- Other (9) _____

Q30. How many years in total have you actively fished in New Zealand freshwater lakes, rivers, and streams?

- Years _____

Q31. How many years in total did you actively fish in New Zealand freshwater lakes, rivers, and streams?

- Years _____

Q32. To what extent do you agree or disagree with each of the following statements?

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)	Unsure (6)
There are too many fishers for freshwater lakes, rivers, & streams (1)						
There are not enough freshwater fish (2)						
Freshwater fish are not healthy to eat (3)						
People should be able to eat what they catch (4)						
Our freshwater lakes, rivers, & streams are clean (5)						
Our freshwater lakes, rivers, & streams are well managed for fishing (6)						
Māori are adequately involved in management of local freshwater lakes, rivers, & streams (7)						

Q33. In general, would you prefer to see more or less of each of the following species in freshwater lakes, rivers, and streams in New Zealand?

	Much more (1)	Somewhat more (2)	About the same (3)	Somewhat less (4)	Much less (5)	No opinion (6)
Whitebait (1)						
Eel/tuna (2)						
Freshwater crayfish/ kōura (3)						
Trout (4)						
Salmon (5)						
Freshwater mussels (6)						

Q34. Among the species that you would like to increase in abundance, which is your highest priority?

- Whitebait (1)
- Eel/tuna (2)
- Freshwater crayfish/kōura (3)
- Trout (4)
- Salmon (5)
- Freshwater mussels (6)

SPECIAL TOPIC 3 – WILD ANIMALS

Q35. As far as you are aware, which of the following non-native wild animals can be found in your local area, if any? Tick all that apply.

- Deer (1)
- Goats (2)
- Tahr (3)
- Chamois (4)
- Feral pigs (5)
- Wallabies (6)
- None of the above (7)
- Unsure (8)

Q36. As far as you are aware, are populations of non-native wild animals increasing, decreasing, or holding constant in your local area?

	Increasing (1)	Holding constant (2)	Decreasing (3)	Unsure (4)
Deer (1)				
Goats (2)				
Tahr (3)				
Chamois (4)				
Feral pigs (5)				
Wallabies (6)				
None of the above (7)				
Unsure (8)				

Q37. As far as you are aware, is there any management (recreational hunting, commercial hunting, government culling, etc.) of non-native wild animals in your local area?

- Yes (1)
- No (2)
- Unsure (3)

Q38. To the best of your knowledge, has management (recreational hunting, commercial hunting, government culling, etc.) of non-native wild animals in your local area increased, decreased, or stayed about the same over the last 10 years?

- Increased (1)
- About the same (2)
- Decreased (3)
- Unsure (4)

Q39. Have you personally hunted non-native wild animals in your local area?

- Yes, including in the past 12 months (1)
- Yes, but not in the past 12 months (2)
- No, never (3)

Q40. Which non-native wild animals have you personally hunted in your local area during the past 12 months? Select all that apply.

- Elk/wapiti (1)
- Red deer (2)
- Fallow deer (3)
- Sika deer (4)
- Sambar deer (5)
- Rusa deer (6)
- Whitetail deer (7)
- Goats (8)
- Tahr (9)
- Chamois (10)
- Feral pigs (11)
- Wallabies (12)
- None of the above (13)

Q41. What did you do with the harvest? Tick all that apply.

	Trophy (1)	Consumed meat in own household (2)	Gave meat to friends/ family (3)	Donated meat to community (4)	Sold meat for profit (5)	None of these (6)
Elk/wapiti (1)						
Red deer (2)						
Fallow deer (3)						
Sika deer (4)						
Sambar deer (5)						
Rusa deer (6)						
Whitetail deer (7)						
Goats (8)						
Tahr (9)						
Chamois (10)						
Feral pigs (11)						
Wallabies (12)						
None of the above (13)						

Q42. Among the following, who taught you the most about hunting for non-native wild animal species? Select one.

- Older male relative (1)
- Older female relative (2)
- Male relative, your age or younger (3)
- Female relative, your age or younger (4)
- Friends (5)
- Community groups (6)
- Hunting guide (7)
- Self-taught (8)
- Other (9) _____

Q43. How many years in total have you hunted non-native wild animals?

- Years _____

Q44. How many years in total did you hunt non-native wild animals?

- Years _____

Q45. To what extent do you agree or disagree with each of the following statements?

	Strongly agree (1)	Agree (2)	Neither agree nor disagree (3)	Disagree (4)	Strongly disagree (5)	Unsure (6)
Non-native wild animals are an important source of food for New Zealand communities (1)						
Non-native wild animals negatively affect native plants and animals (2)						
Rural landowners should receive government support to control non-native wild animals on their land (3)						
The Department of Conservation should maintain healthy herds of non-native wild animals in national parks to support the tourism industry (4)						
Non-native wild animals provide benefits to me (5)						
I am confident that non-native wild animals are well-managed in my region (6)						

SPECIAL TOPIC 1 – NATURAL HAZARDS

Q46. How well informed do you feel about the natural hazards risks (e.g., floods, wild fires, slips) that could affect your property?

- Very well informed (1)
- Well informed (2)
- Moderately informed (3)
- Slightly informed (4)
- Not at all informed (5)
- Unsure (6)

Q47. How well informed do you feel about what actions you can take to minimise natural hazards risks on your property?

- Very well informed (1)
- Well informed (2)
- Moderately informed (3)
- Slightly informed (4)
- Not at all informed (5)
- Unsure (6)

Q48. Which of the following do you see as the greatest natural hazard risk to your property

- Flood (1)
- Drought (2)
- Wild fire (3)
- Wind (4)
- Slip (5)
- Erosion (6)
- Other (7)_____
- Unsure (8)

10.2 APPENDIX 2 – RESPONDENT DEMOGRAPHICS, 2010–2025

Table A2.1. Gender (%).

	2010	2013	2016	2019	2022	2025
Male	44.97	46.89	44.00	43.98	45.86	48.02
Female	55.03	53.11	56.00	56.02	53.66	51.34
Another gender					0.48	0.64
N	2,477	2,220	2,468	1,960	2,091	2,022

Note: 'Another gender' was added in 2022.

Table A2.2. Age of respondents (%).

	2010	2013	2016	2019	2022	2025
Under 18 years	0.0	0.0	0.3	0.6	0.0	
18 to 24	3.4	5.4	4.4	12.4	5.6	
25 to 34	13.1	9.2	10.7	16.0	16.6	
35 to 44	18.5	15.1	16.7	17.6	21.5	
45 to 54	23.3	19.8	22.6	19.0	21.7	
55 to 64	24.3	25.6	20.8	17.2	14.9	
65 to 74	14.5	19.8	18.7	15.1	12.2	
75 and over	2.9	5.1	5.7	2.2	7.5	
18 to 29						21.32
30 to 39						16.72
40 to 49						16.52
50 to 59						16.77
60 to 69						14.59
70+ years						14.00
Prefer not to say						0.10
N	2,477	2,220	2,467	2,011	2,091	2,022

Table A2.3. Ethnicity (%) .

	2010	2013	2016	2019	2022	2025
Māori	8.0	9.1	18.9	8.8	14.7	17.5
NZ European	85.3	85.2	78.0	77.0	71.2	64.9
Pasifika/Pacific Islander	2.7	2.3	3.9	3.4	2.4	6.3
Asian	2.1	2.7	3.3	9.9	8.4	4.1
Indian	0.9	1.5	1.4	1.5	3.6	4.7
Middle Eastern/Arabic	0.2	0.3	0.2	0.2	0.7	0.9
Other European	8.8	11.0	10.0	7.9	7.6	6.4
Other	0.0	1.1	2.0	2.9	3.2	4.3
N	2,451	2,168	2,411	1,888	2,058	2,022

Table A2.4. Respondent's regional council (%).

	2010	2013	2016	2019	2022	2025
Northland	3.8	4.0	4.2	4.1	3.3	3.7
Auckland	26.2	30.3	28.2	31.4	20.5	32.7
Waikato	9.7	8.1	8.0	7.0	14.2	9.5
Bay of Plenty	5.4	6.9	5.5	5.9	5.5	6.4
Gisborne	0.8	0.5	0.7	0.7	1.2	0.9
Hawke's Bay	3.5	2.8	3.7	2.9	2.9	3.5
Taranaki	1.7	1.8	1.8	2.2	2.2	2.6
Manawatū-Whanganui	6.2	6.3	6.6	5.8	5.9	4.9
Wellington	15.0	14.4	18.8	16.1	10.2	11.0
Tasman	1.4	1.2	1.0	1.1	0.9	1.2
Nelson	1.3	1.1	1.1	1.5	1.0	1.1
Marlborough	1.2	0.8	0.9	1.4	1.1	1.1
West Coast	1.2	0.6	0.7	0.5	0.8	0.8
Canterbury	14.6	14.1	11.7	13.5	14.4	13.3
Otago	5.7	5.4	5.7	4.4	4.6	5.3
Southland	2.3	1.8	1.8	1.5	11.5	2.1
N	2,475	2,203	2,454	1,914	2,095	2,027

Note: Respondents were recoded into Wairarapa based on their Local Governance Area.

Table A2.5. Education status (%).

	2010	2013	2016	2019	2022	2025
No formal school qualification	10.7	8.4	7.9	7.2	7.4	6.7
High school, with qualification	1.1	1.3	1.2	10.5	-	-
NCEA level1 or school certificate	9.2	9.3	8.1	4.5	9.0	8.5
Sixth form/UE/NCEA level 2	6.9	7.6	7.0	3.1	11.7	8.8
University bursary/ 7th form/NCEA level 3	3.3	4.6	4.9	2.1	8.3	10.9
Trade/technical qualification or something similar	5.1	4.8	4.6	8.9	-	-
Vocational qualification (inc. trade or technical qualification)	15.9	16.3	16.4	9.0	27.4	24.2
Undergraduate diploma/certificate	11.6	12.7	11.9	14.7	-	-
Undergraduate (Bachelor) degree	8.7	17.8	17.7	22.1	24.3	27.8
Postgraduate degree (Master's degree or PhD)	24.6	13.6	16.8	16.2	10.2	11.6
Prefer not to say	2.9	3.6	3.2	1.7	1.7	1.5
N	2,456	2,188	2,419	1,909	2,084	2,022

Note: Educational groups were changed in 2022.

Table A2.6. Respondent's functional urban area (%).

	2010	2013	2016	2019	2022	2025
City	-	-	-	-	-	27.0
City fringe	-	-	-	-	-	27.6
Town	-	-	-	-	-	26.1
Town fringe	-	-	-	-	-	8.3
Rural	-	-	-	-	-	10.2
Prefer not to say	-	-	-	-	-	0.8
N	-	-	-	-	-	2,028

10.3 APPENDIX 3 – SUMMARY STATISTICS, 2010–2025

Tables A3.1 to A3.21 summarise the overall state of the natural environment and perceived state of and perceived quality of management for all 10 environmental domains. Each table includes columns for:

- total observations
- percentage of respondents who choose 'very good', 'good', 'adequate', 'bad', 'very bad', and 'don't know'
- average score across 'very good', 'good', 'adequate', 'bad', and 'very bad'
- standard deviation (std. dev.) of the average.

These summary statistics are by survey waves 2010 to 2025 and include a total.

Tables A3.22 to A3.34 summarise perceived pressures of each of the 10 environmental domains, participation in environmental activities, and perceived most important issues in New Zealand and the world. Each table includes columns for each of the survey waves from 2010 to 2025 and a total of the percentage of respondents who chose that environmental pressure (Tables A3.22 to A3.31), activity (Table A3.32), and issue (Tables A3.33 and A3.34).

Tables A3.35 to A3.37 summarise perceptions of natural hazard risks by region. Tables A3.35 and A3.36 include columns for:

- total observations
- percentage of respondents who choose 'very well', 'well', 'moderately', 'slightly', and 'not at all' informed, and 'unsure'
- average (mean) score across 'very well', 'well', 'moderately', 'slightly', and 'not at all' informed
- standard deviation (std. dev.) of the mean.

Tables A3.38 to Table A3.46 summarise activities and perceptions of fishing and freshwater species. Table A3.38, A3.39, A3.40 and A3.46 summarise responses by region. Table A3.44 and A3.45 include columns for: total observations, percentage of respondents who choose each scale option (5 in total), the percentage who choose 'unsure', average (mean) score across the five-point scale, and standard deviation (std. dv.) of the mean.

Tables A3.47 to A3.56 summarise activities and perceptions of hunting and non-native wild animals. Table A3.47, A3.49, A3.50, A3.51, and A3.52 summarise responses by region. Table A3.55 includes columns for, total observations, percentage of respondents who chose each scale option (5 in total), the percentage who choose 'unsure', average (mean) score across the five-point scale, and standard deviation (std. dv.) of the mean.

Table A3.1. Overall state of the natural environment in New Zealand, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,440	6.9	40.4	37.2	13.6	1.3	0.6	3.38	0.85
2013	2,182	7.1	33.3	38.1	17.6	2.9	1.1	3.24	0.93
2016	2,392	6.0	32.2	36.0	20.5	3.5	1.8	3.17	0.95
2019	1,977	9.2	32.3	35.1	18.6	3.6	1.1	3.25	0.99
2022	2,064	10.4	36.8	35.4	13.1	2.8	1.4	3.39	0.94
2025	2,022	14.3	45.0	29.9	8.5	1.3	0.9	3.63	0.88
Total	13,077	8.9	36.8	35.4	15.3	2.5	1.2	3.35	0.93

Table A3.2. Perceived state of air quality, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,448	10.4	41.2	36.6	10.2	1.3	0.4	3.49	0.86
2013	2,200	11.9	43.5	34	8.2	1.5	0.8	3.57	0.86
2016	2,373	15.9	44.2	31.4	7.0	0.7	0.7	3.68	0.85
2019	1,977	17.3	45.5	28.4	7.1	1.1	0.7	3.71	0.87
2022	2,033	25.6	44.4	23.8	4.0	0.7	1.5	3.92	0.85
2025	2,022	35.7	45.3	15.3	2.9	0.4	0.4	4.13	0.81
Total	13,052	19.1	43.9	28.6	6.7	1.0	0.7	3.74	0.88

Table A3.3. Perceived state of marine environment, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010									
2013									
2016									
2019									
2022	2,026	10.7	33.9	32.0	16.2	3.5	3.7	3.33	0.99
2025	2,022	12.7	40.0	28.3	14.4	1.6	3.0	3.49	0.95
Total	4,048	11.7	36.9	30.2	15.3	2.6	3.4	3.41	0.98

Table A3.4. Perceived state of coastal waters and beaches, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,465	8.7	37.9	33.0	16.4	2.9	1.1	3.34	0.95
2013	2,207	9.0	34.6	36.0	16.4	2.6	1.3	3.31	0.94
2016	2,388	8.7	35.4	34.1	16.9	3.1	1.9	3.30	0.96
2019	1,982	8.8	32.8	31.0	21.4	4.1	1.9	3.21	1.02
2022	2,022	10.3	33.7	33.7	16.8	3.5	2.0	3.31	0.99
2025	2,022	13.8	38.3	31.2	12.8	2.6	1.4	3.49	0.97
Total	13,085	9.8	35.6	33.2	16.7	3.1	1.6	3.33	0.97

Table A3.5. Perceived state of rivers and lakes, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,464	4.8	27.8	33.2	25.4	6.6	2.2	2.99	1.01
2013	2,203	4.6	21.6	29.2	29.8	12.4	2.3	2.76	1.08
2016	2,376	3.4	20.7	28.2	31.1	13.4	3.2	2.68	1.06
2019	1,983	7.3	23.6	27.0	28.1	11.9	2.1	2.86	1.14
2022	2,030	7.4	24.5	30.6	25.2	9.8	2.6	2.94	1.10
2025	2,022	9.5	28.9	31.6	22.6	5.9	1.4	3.14	1.06
Total	13,077	6.1	24.6	30.1	27.0	9.9	2.3	2.90	1.08

Table A3.6. Perceived state of wetlands, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,454	5.5	32.1	32.2	15.1	5.6	9.4	3.19	0.99
2013	2,180	5.3	26.7	32.9	18.7	6.4	10.0	3.07	1.01
2016	2,367	4.0	24.3	33.0	20.4	7.0	11.4	2.98	1.00
2019	1,965	6.3	26.6	31.9	16.9	7.3	11.0	3.09	1.05
2022	2,026	7.7	26.7	32.1	17.4	5.9	10.1	3.14	1.04
2025	2,022	7.9	29.6	31.6	14.6	3.7	12.6	3.27	0.98
Total	13,013	6.1	27.8	32.3	17.2	6.0	10.7	3.12	1.01

Table A3.7. Perceived state of native forest and bush, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,466	17.9	43.9	25.2	9.9	2.1	1.1	3.66	0.95
2013	2,204	14.3	39.6	27.0	14.4	2.6	2.1	3.50	1.00
2016	2,386	12.7	36.4	29.6	16.0	3.9	1.4	3.39	1.03
2019	1,980	13.2	37.4	28.8	15.1	3.6	1.9	3.42	1.02
2022	2,024	16.3	40.1	28.0	9.7	2.6	3.3	3.60	0.97
2025	2022	22.3	44.4	24.9	5.5	1.0	1.8	3.83	0.88
Total	13,081	16.2	40.4	27.2	11.7	2.6	1.9	3.57	0.99

Table A3.8. Perceived state of protected natural areas, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010									
2013									
2016									
2019									
2022	2,032	23.8	40.7	23.4	5.9	1.6	4.6	3.83	0.93
2025	2,022	34.0	43.3	15.9	3.2	0.7	2.9	4.10	0.84
Total	4,054	28.9	42.0	19.6	4.5	1.2	3.8	3.97	0.89

Table A3.9. Perceived state of natural environments in towns and cities, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,466	2.6	28.9	47.3	18.1	2.4	0.6	3.11	0.81
2013	2,205	2.8	27.1	47.6	18.1	3.4	1.0	3.08	0.84
2016	2,383	3.3	29.0	46.3	17.4	3.0	1.1	3.12	0.84
2019	1,977	4.7	29.3	45.1	16.0	3.6	1.4	3.16	0.88
2022	2,031	7.5	29.5	39.7	16.0	4.5	2.9	3.20	0.96
2025	2,022	9.2	35.6	38.0	13.2	2.6	1.5	3.36	0.92
Total	13,083	4.9	29.8	44.2	16.6	3.2	1.4	3.17	0.88

Table A3.10. Perceived state of terrestrial plants and animals, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010									
2013									
2016									
2019									
2022	2,027	8.3	31.3	32.7	16.0	4.0	7.7	3.26	1.02
2025	2,022	10.2	38.2	29.9	12.3	2.0	7.3	3.46	0.93
Total	4,047	9.9	35.0	29.9	14.6	3.2	7.5	3.36	0.98

Table A3.11. Perceived state of marine plants and animals, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010									
2013									
2016									
2019									
2022	2,025	9.5	31.7	29.9	16.9	4.3	7.7	3.27	0.99
2025	2,022	10.3	41.0	28.8	9.2	1.8	8.8	3.53	0.89
Total	4,049	9.3	36.2	30.7	12.6	2.9	8.3	3.40	0.95

Table A3.12. Perceived quality of management of air quality, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,454	3.4	24.1	49.1	18.6	1.3	3.6	3.10	0.79
2013	2,051	5.0	26.5	44.7	17.9	1.5	4.4	3.16	0.84
2016	2,221	6.4	27.1	44.5	16.3	1.6	4.0	3.21	0.86
2019	1,925	9.4	31.3	39.6	14.2	1.9	3.6	3.33	0.91
2022	1,999	13.1	32.4	33.5	9.3	1.9	9.8	3.50	0.93
2025	2,022	18.3	38.4	25.2	7.4	1.4	9.2	3.71	0.93
Total	12,671	9.1	29.7	39.8	14.1	1.6	5.7	3.32	0.90

Table A3.13. Perceived quality of management of marine environments, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010									
2013									
2016									
2019									
2022	1,993	7.9	27.5	32.4	18.3	4.7	9.1	3.17	1.01
2025	2,022	11.1	36.1	27.4	15.4	2.5	7.5	3.41	0.99
Total	4,015	9.5	31.8	29.9	16.9	3.6	8.3	3.29	1.01

Table A3.14. Perceived quality of management of coastal waters and beaches, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,459	3.3	23.8	42.9	22.9	3.0	4.1	3.02	0.87
2013	2,053	4.2	22.4	43.3	21.3	4.0	4.9	3.02	0.90
2016	2,219	3.8	22.7	40.7	24.3	4.0	4.6	2.98	0.90
2019	1,912	5.6	23.0	37.9	24.4	5.1	3.9	3.00	0.97
2022	1,986	8.5	23.6	35.4	19.3	4.8	8.4	3.13	1.02
2025	2,022	11.6	33.6	30.0	16.1	2.4	6.4	3.38	0.99
Total	12,650	6.1	24.9	38.5	21.4	3.8	5.4	3.08	0.95

Table A3.15. Perceived quality of management of rivers and lakes, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,455	2.4	19.1	41.7	26.2	5.2	5.4	2.87	0.88
2013	2,044	3.4	15.4	35.6	29.8	10.4	5.5	2.70	0.98
2016	2,221	2.7	15.3	31.1	33.1	13.5	4.4	2.59	1.01
2019	1,925	5.6	19.6	32.5	29.1	8.4	4.8	2.84	1.04
2022	1,994	7.3	21.2	31.3	22.8	9.3	8.0	2.94	1.09
2025	2,022	9.9	28.0	27.4	23.4	5.3	5.9	3.15	1.08
Total	12,660	5.1	19.8	33.6	27.3	8.5	5.7	2.85	1.03

Table A3.16. Perceived quality of management of wetlands, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,433	4.8	26.2	37.9	14.3	2.5	14.2	3.19	0.88
2013	2,033	4.8	22.6	37.1	17.2	3.3	15.0	3.10	0.92
2016	2,190	3.6	21.2	35.7	18.2	4.9	16.5	3.01	0.94
2019	1,913	4.6	22.8	34.0	18.1	5.9	14.7	3.03	0.99
2022	1,989	7.9	22.4	32.4	17.1	6.2	14.0	3.10	1.05
2025	2,022	9.4	27.6	29.9	14.0	3.7	15.3	3.29	1.01
Total	12,579	5.8	23.9	34.6	16.4	4.3	14.9	3.13	0.97

Table A3.17. Perceived quality of management of native bush and forests, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,462	7.8	35.6	39.4	13.3	1.1	2.9	3.37	0.86
2013	2,051	6.8	29.6	39.9	16.6	2.8	4.3	3.22	0.91
2016	2,219	6.0	28.8	38.7	18.9	4.0	3.4	3.14	0.94
2019	1,917	7.9	30.7	38.7	16.4	3.1	3.3	3.25	0.94
2022	1,993	10.8	33.3	32.7	10.7	3.9	8.6	3.40	0.98
2025	2,022	18.1	41.1	25.8	7.8	1.3	5.9	3.71	0.92
Total	12,663	9.5	33.3	35.9	13.8	2.6	4.7	3.35	0.94

Table A3.18. Perceived quality of management of protected natural areas, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010									
2013									
2016									
2019									
2022	1,994	15.7	35.4	28.5	9.3	2.9	8.2	3.56	0.99
2025	2,022	26.1	40.8	19.9	5.8	1.4	5.9	3.90	0.93
Total	4,016	21.0	38.1	24.2	7.6	2.1	7.1	3.73	0.97

Table A3.19. Perceived quality of management of natural environments in towns and cities, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010	2,463	2.6	20.8	55.5	17.9	0.9	2.4	3.06	0.73
2013	2,056	3.1	20.4	50.9	21.1	1.3	3.2	3.03	0.78
2016	2,228	2.8	20.5	50.6	20.9	2.3	3.0	3.01	0.80
2019	1,920	5.0	22.5	47.4	19.2	2.6	3.3	3.08	0.86
2022	1,988	7.2	24.4	37.8	16.3	5.5	8.8	3.13	0.99
2025	2,022	9.7	33.9	33.9	14.2	2.5	5.7	3.36	0.95
Total	12,676	5.0	23.7	46.3	18.2	2.5	4.3	3.11	0.86

Table A3.20. Perceived quality of management of marine plants and animals, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010									
2013									
2016									
2019									
2022	1,992	7.9	26.1	33.3	16.0	4.9	11.9	3.18	1.01
2025	2,022	9.9	35.5	27.3	13.9	2.0	11.3	3.42	0.96
Total	4,014	8.9	30.8	30.3	14.9	3.5	11.6	3.30	0.99

Table A3.21. Perceived quality of management of terrestrial plants and animals, 2010–2025 (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
2010									
2013									
2016									
2019									
2022	1,984	7.2	27.3	33.1	14.9	5.2	12.3	3.19	1.01
2025	2,022	10.2	35.0	29.1	11.0	1.7	13.0	3.47	0.93
Total	4,006	8.7	31.2	31.1	12.9	3.4	12.7	3.33	0.98

Table A3.22. Perceived pressures on air quality, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Motor vehicles and transport	89.6	88.1	85.5	76.4	56.7	77.5	79.2
Household waste and emissions	26.1	24.1	23.4	25	23.8	22.2	24.1
Industrial activities	73.8	70.6	71.2	62.8	50.4	57.5	64.6
Pests and weeds	2.7	2.6	3.0	5.3	7.9	3.3	4.1
Farming	12.9	12.2	18.7	16.3	15.8	11.9	14.6
Forestry	2.7	1.5	2.4	3.8	6.0	4.9	3.5
Urban development	18.6	20.6	19.3	19.5	24.1	21.2	20.5
Mining	0.7	3.0	3.8	4.7	6.0	6.5	4.0
Sewage and stormwater	3.6	4.6	4.3	5.2	13.3	7.2	6.3
Tourism	0.2	0.7	1.8	5.1	5.5	4.2	2.8
Commercial fishing	0.1	0.3	1.6	1.6	5.9	1.5	1.8
Recreational fishing	1.9	0.4	0.2	0.4	2.0	0.6	1.0
Dumping of solid waste	6.7	8.7	6.8	9.7	15.8	14.0	10.2
Hazardous chemicals	20.1	18.2	18.4	20.2	27.6	33.5	23.0
Other	1.3	1.7	1.7	2.5	2.4	1.4	1.8
N	2,330	1,878	1,989	1,829	2,006	2,016	12,048

Table A3.23. Perceived pressures on marine environments, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Motor vehicles and transport					4.4	3.6	4.0
Household waste and emissions					16.7	12.6	14.6
Industrial activities					23.9	19	21.4
Pests and weeds					10.5	9.1	9.8
Farming					11.7	6.1	8.9
Forestry					4.5	4.1	4.3
Urban development					10.2	4.7	7.4
Mining					4.9	4.5	4.7
Sewage and stormwater					54.7	59.6	57.2
Tourism					4.2	3.7	3.9
Commercial fishing					48.2	61.2	54.7
Recreational fishing					10.2	17.2	13.7
Dumping of solid waste					29.4	38.3	33.9
Hazardous chemicals					30.9	29.1	30.0
Other					2.0	1.3	1.6
N					1,996	2,021	4,017

Table A3.24. Perceived pressures on coastal waters and beaches, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Motor vehicles and transport	5.0	4.4	5.9	4.4	4.3	4.3	4.7
Household waste and emissions	26.6	21.5	21.7	22.2	25.2	20.2	23.0
Industrial activities	20.8	20.3	19.3	19.2	21.0	19.6	20.1
Pests and weeds	8.5	6.7	7.3	6.1	10.3	10.0	8.2
Farming	11.4	14.1	15.7	12.1	12.0	6.6	11.9
Forestry	2.0	1.7	2.7	4.3	6.3	7.8	4.1
Urban development	23.4	20.8	22.8	21.3	18.8	14.3	20.3
Mining	12.6	2.4	3.3	2.5	3.9	4.2	5.1
Sewage and stormwater	65.8	66.4	62.2	56.9	59.5	62.4	62.3
Tourism	6.4	9.7	14.6	20.3	9.8	11.8	11.8
Commercial fishing	17.5	26.7	26.2	20.6	20.1	22.8	22.1
Recreational fishing	4.2	7.8	8.0	8.0	8.1	11.3	7.8
Dumping of solid waste	19.0	22.1	24.3	26.1	33.4	40.2	27.4
Hazardous chemicals	23.2	20.1	17.7	17.1	24.0	24.8	21.3
Other	2.1	3.8	2.9	5.6	2.9	2.3	3.2
N	2,322	1,823	1,941	1,795	1,984	2,016	11,881

Table A3.25. Perceived pressures on rivers and lakes, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Motor vehicles and transport	2.7	1.5	1.5	2.9	3.4	2.7	2.5
Household waste and emissions	20.3	19.4	18.4	18.6	17.6	15.2	18.3
Industrial activities	30.7	28.7	27.8	25.4	25.6	24.4	27.2
Pests and weeds	20.0	16.6	20.3	14.2	26.9	27.2	21
Farming	46.6	52.9	58.1	40.9	40.5	30.7	44.9
Forestry	4.0	5.4	10.8	10.8	10.3	15.6	9.4
Urban development	15.1	15.3	15.2	17.2	16.5	13.2	15.4
Mining	5.5	6.3	5.3	5.6	4.6	4.8	5.3
Sewage and stormwater	45.7	44.1	43.4	41.8	44.4	49.4	44.9
Tourism	4.7	3.9	4.6	8.5	7.8	5.4	5.8
Commercial fishing	3.7	4.0	4.0	7.4	4.4	5.6	4.8
Recreational fishing	5.5	5.3	5.5	5.8	4.7	7.8	5.8
Dumping of solid waste	23.3	19.4	19	21.2	27.4	36.9	24.7
Hazardous chemicals	18.5	23.9	22.3	21.2	27.7	29.1	23.7
Other	1.6	3.6	2.9	5.0	2.4	1.3	2.7
N	2,304	1,831	1,958	1,790	1,980	2,014	11,877

Table A3.26. Perceived pressures on wetlands, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Motor vehicles and transport	2.6	3.0	3.5	3.9	4.8	3.4	3.5
Household waste and emissions	10.1	9.4	9.8	9.4	11.4	10.3	10.1
Industrial activities	16.7	16.8	19.6	16.6	19.6	22.6	18.7
Pests and weeds	32.7	32.3	35.6	29.7	35.4	36.9	33.8
Farming	31.6	37.3	41.8	32	31.3	23.9	32.8
Forestry	5.1	9.2	13.1	13.2	12.5	14.7	11.1
Urban development	23.7	26.9	27.0	27.7	30.3	27.6	27.1
Mining	5.3	6.7	5.3	6.3	5.5	5.5	5.7
Sewage and stormwater	24.3	26.2	26.8	27.4	28.7	35.8	28.2
Tourism	13.2	6.1	7.1	9.2	5.5	3.7	7.6
Commercial fishing	1.0	1.0	1.0	2.4	3.0	2	1.7
Recreational fishing	0.8	1.4	1.4	3.6	3.7	2.3	2.1
Dumping of solid waste	15.5	18.5	18.3	17.7	25.6	27.9	20.5
Hazardous chemicals	20.5	16.4	15.8	14.3	20.3	22.3	18.5
Other	4.7	10.5	7.2	10.8	3.2	3.8	6.5
N	2,305	1,776	1,892	1,742	1,928	1,998	11,641

Table A3.27. Perceived pressures on native bush and forests, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Motor vehicles and transport	4.4	3.0	3.3	5.6	4.6	4.3	4.2
Household waste and emissions	3.9	3.6	3.5	5.3	7.6	5.4	4.9
Industrial activities	18.3	15.4	14.5	16.8	17.0	21.4	17.3
Pests and weeds	58.5	51.2	57.0	50.0	47.9	47.5	52.2
Farming	31.1	29.7	33.7	23.5	19	16.3	25.7
Forestry	37.7	42.0	42.0	41.5	47.2	54.9	44.1
Urban development	23.9	30.1	29.9	29.4	35.7	35.2	30.5
Mining	18.9	24.4	19.4	14.2	14.4	14.9	17.7
Sewage and stormwater	4.0	3.3	3.6	5.8	6.0	5.7	4.7
Tourism	0.2	9.9	14.6	19.8	16.9	14.3	12.2
Commercial fishing	0.9	0.3	0.6	1.7	2.9	0.0	1.1
Recreational fishing	4.5	0.7	0.9	1.2	1.9	0.1	1.6
Dumping of solid waste	11.0	10.2	12.6	14.2	11.9	16.6	12.7
Hazardous chemicals	13.3	10.1	10.2	10.7	12.8	12.4	11.7
Other	2.6	4.5	3.5	4.7	2.1	1.9	3.2
N	2,324	1,852	1,969	1,795	1,950	2,008	11,898

Table A3.28. Perceived pressures on protected natural areas, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Motor vehicles and transport					8.0	7.5	7.7
Household waste and emissions					9.7	9.1	9.4
Industrial activities					17.9	19.7	18.8
Pests and weeds					44.6	44.9	44.8
Farming					13.5	8.2	10.8
Forestry					17.6	19.5	18.6
Urban development					26.1	21.3	23.6
Mining					11.2	10.9	11.0
Sewage and stormwater					12.7	12.3	12.5
Tourism					26.9	31.9	29.5
Commercial fishing					4.9	7.8	6.4
Recreational fishing					3.5	7.8	5.7
Dumping of solid waste					16.9	21.2	19.1
Hazardous chemicals					15.4	12.6	14.0
Other					2.7	2.7	2.7
N					1,899	1,990	3,889

Table A3.29. Perceived pressures on natural environments in towns and cities, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Motor vehicles and transport					36.2	46.8	41.6
Household waste and emissions					41.3	44.6	43.0
Industrial activities					30.7	31.6	31.2
Pests and weeds					13.4	11.2	12.3
Farming					3.5	0.9	2.2
Forestry					2.6	2.3	2.4
Urban development					51.2	49.5	50.3
Mining					3.4	1.9	2.6
Sewage and stormwater					27.8	25.6	26.7
Tourism					8.3	12.6	10.5
Commercial fishing					1.8	1.1	1.4
Recreational fishing					2.1	1.2	1.6
Dumping of solid waste					21.1	23.1	22.1
Hazardous chemicals					16.3	12.8	14.5
Other					2.6	1.8	2.2
N					1,957	2,008	3,965

Table A3.30. Perceived pressures on marine plants and animals, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Motor vehicles and transport					3.2	3.1	3.1
Household waste and emissions					14.8	10.0	12.4
Industrial activities					19.2	18.1	18.6
Pests and weeds					21.0	22.7	21.9
Farming					9.3	6.0	7.6
Forestry					5.8	5.8	5.8
Urban development					10.0	6.6	8.3
Mining					4.3	6.5	5.4
Sewage and stormwater					47.7	47.8	47.8
Tourism					6.7	4.6	5.6
Commercial fishing					47.4	55.8	51.7
Recreational fishing					14.3	21.4	17.9
Dumping of solid waste					21.9	26.5	24.2
Hazardous chemicals					28.3	27.8	28.0
Other					1.6	1.1	1.3
N					1,940	2,010	3,950

Table A3.31. Perceived pressures on terrestrial plants and animals, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Motor vehicles and transport					5.7	6.0	5.9
Household waste and emissions					16.1	12.4	14.2
Industrial activities					23.0	24.9	24.0
Pests and weeds					39.0	41.3	40.2
Farming					24.9	18	21.4
Forestry					15.5	20.4	18.0
Urban development					24.1	24	24.0
Mining					8.2	9.4	8.8
Sewage and stormwater					29.8	32.1	31.0
Tourism					6.8	4.6	5.7
Commercial fishing					6.6	8.1	7.4
Recreational fishing					5.2	6.1	5.7
Dumping of solid waste					21.8	23.4	22.6
Hazardous chemicals					23.8	25.7	24.8
Other					2.0	1.9	1.9
N					1,922	1,991	3,913

Table A3.32. Proportion of respondents who participate in environmental activities, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Reduced, or limited your use of electricity	85.9	80.7	79.3	75.0	49.0	55.0	71.1
Reduced, or limited your use of fresh water	60.6	62.6	56.0	56.9	33.1	33.7	50.6
Visited a marine reserve	27.7	27.2	27.0	26.0	15.1	11.9	22.5
Visited a national park	56.2	55.0	55.4	52.0	33.1	33.0	47.6
Bought products that are marketed as environmentally friendly	78.9	77.2	81.8	76.7	45.9	49.6	68.5
Recycled household waste	95.7	94.1	95.0	90.2	79.0	84.7	89.9
Composted garden and/or household waste	72.1	71.7	74.8	69.3	47.4	54.0	65.0
Grown some of your own vegetables	75.1	75.2	73.4	67.3	55.9	59.7	67.9
Been involved in a project to improve the natural environment	28.0	25.5	28.7	33.4	9.7	9.5	22.5
Obtained information about the environment from any source	65.7	62.4	64.0	60.5	19.3	22.5	49.3
Taken part in hearings or consent processes about the environment	15.2	13.2	15.3	18.6	4.7	4.8	12.0
Participated in an environmental organisation	21.3	21.8	24.8	25.1	6.2	7.6	17.8
Commuted by buses or trains	49.5	52.7	52.4	53.3	22.4	41.5	45.3
Been an active member of a club or group that restores and/or replants natural environments	13.6	14.4	15.0	20.5	5.1	6.1	12.4
Made a financial donation to a non-government environmental organisation	27.0	28.0	32.8	31.5	10.1	10.3	23.2
Controlled rats, possums, stoat and ferrets						19.6	19.6
N	2,330	1,878	1,989	1,829	2,006	2021	11,933

Table A3.33. Most important environmental issues facing New Zealand according to survey respondents, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Freshwater issues	31.8	27.7	32.6	27.7	18.4	18.5	25.7
Agriculture/farming	8.7	17.2	19.7	5.3	5.8	5.2	10.3
Climate change, GHG, carbon emissions	14.2	8.0	10.5	18.7	20.6	20.2	15.5
Waste, sewage, sanitation	9.4	11.6	11.8	12.4	15.5	17	13.2
Mining, large industry	5.0	8.5	4.2	1.6	2.3	4.5	4.3
Air quality	9.2	10.2	9.7	4.8	3.7	4.9	7.0
Pests, weeds, disease	7.0	6.6	7.0	6.9	3.9	5.5	6.1
Protection/conservation of the environment	13.3	13.3	10.4	8.4	7.2	7.4	9.8
Poison, pesticides, toxins	2.8	3.4	2.6	4	2.3	1.8	2.8
Marine and coastal environments	4.5	7.0	7.2	5.3	6.4	8.9	6.7
Energy, transportation, fuel	4.4	10.1	6.1	3.9	2.9	3.3	5.1
Urbanisation, development, land use	8.0	7.6	9.0	4.4	8.1	8.7	7.7
Pollution	21.1	13.8	13.4	11.7	10.5	14.4	13.9
Forestry, logging, deforestation	4.4	4.3	3.4	3.8	4.8	6.5	4.6
Environmental pressures from acts of war/conflict	4.6	3.6	4.1	6.7	5.5	6.5	5.2
Tourism	1.1	0.6	0.9	1.1	0.8	1.4	1.0
Emissions, smog (from vehicles)	4.7	5.2	5.3	2.4	6.8	6.7	5.3
Pressures from over population	13.3	9.2	9.5	8.1	7.4	10.1	9.5
Environmental regulation and politics	9.4	7.5	6.8	3.8	6.5	8.4	7.1
Sustainable management of resources	10.1	8.3	6.6	4.1	4.8	5.5	6.4
Social issues (poverty, famine, inequality)	3.8	3.1	3.5	3.0	2.8	3.4	3.3
Extinction, habitat loss and degradation	1.0	0.2	0.8	1.5	0.8	0.9	0.9
Other non-environmental issue	2.1	1.9	2.3	4.1	5.2	0.7	2.7
Other environmental issue	10.7	8.2	7.9	6.8	5.1	8.0	7.7
Unsure	3.5	1.5	2.2	4.0	7.4	5.0	4.0
N	1,442	1,698	1,801	1,580	1,870	2,022	10,413

Table A3.34. Most important environmental issues facing the world according to survey respondents, 2010–2025 (%).

	2010	2013	2016	2019	2022	2025	Total
Freshwater issues	21.7	14.9	14.6	9.8	4.0	5.3	11.2
Agriculture/farming	1.6	1.9	2.2	1.1	1.1	0.8	1.4
Climate change, GHG, carbon emissions	30.7	27.8	36.9	38.7	41.9	41.8	36.7
Waste, sewage, sanitation	4.8	6.1	6.9	10.3	9.2	12.9	8.6
Mining, large industry	3.8	3.9	3.1	2.0	2.7	4.2	3.3
Air quality	6.9	10.3	7.3	5.1	5.5	6.8	7.0
Pests, weeds, disease	2.9	3.5	3.1	2.4	0.9	2.3	2.5
Protection/conservation of the environment	11	9.9	7.6	5.9	3.3	4.7	6.8
Poison, pesticides, toxins	1.5	1.4	0.9	1.1	0.7	1.4	1.2
Marine and coastal environments	2.3	3.5	4.1	3.4	3.2	4.5	3.6
Energy, transportation, fuel	4.5	7.3	4.8	3.7	2.7	5.3	4.7
Urbanisation, development, land use	5.1	6.0	5.0	4.6	2.4	3.8	4.4
Pollution	18.9	18.4	13.6	15.3	12	17.5	15.8
Forestry, logging, deforestation	5.7	4.5	4.8	2.2	2.1	2.8	3.6
Environmental pressures from acts of war/conflict	13.1	16.7	19.9	16	20	17.3	17.4
Tourism	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Emissions, smog (from vehicles)	4.5	5.7	5.5	1.9	5.7	8.3	5.4
Pressures from over population	15.7	16.6	15.5	12.3	8.8	10.9	13.1
Environmental regulation and politics	4.9	4.5	2.9	2.8	3.1	4.7	3.8
Sustainable management of resources	6.1	5.6	4.5	1.9	2.1	2.9	3.8
Social issues (poverty, famine, inequality)	6.2	8	5.5	4.3	3.4	3.3	5.0
Extinction, habitat loss and degradation	0.8	0.4	0.1	0.4	0.4	0.4	0.4
Other non-environmental issue	1.6	2.2	1.9	5.1	7.2	2.9	3.5
Other environmental issue	5.4	6.6	4.7	3.3	2.7	4.4	4.5
Unsure	2.2	2.1	2.4	3.5	4.3	3.2	3.0
N	1,430	1,678	1,797	1,558	1,854	2,020	10,337

Table A3.35. How well-informed respondents feel about the natural hazards risks that could affect their property, by region (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
Northland	73	19.2	34.2	34.2	6.8	2.7	2.7	3.62	0.98
Auckland	662	13.7	30.7	35.0	12.1	6.2	2.3	3.34	1.07
Waikato	192	16.1	25.5	31.8	14.1	6.8	5.7	3.32	1.14
Bay of Plenty	129	19.4	28.7	31.0	10.9	5.4	4.7	3.48	1.11
Gisborne	18	16.7	50.0	22.2	11.1	0.0	0.0	3.72	0.89
Hawke's Bay	70	20.0	31.4	31.4	7.1	7.1	2.9	3.51	1.13
Taranaki	50	16.0	26.0	32.0	16.0	8.0	2.0	3.27	1.17
Manawatū-Whanganui	100	11.0	30.0	39.0	10.0	5.0	5.0	3.34	1.00
Wellington	221	13.1	28.1	33.5	14.9	6.3	4.1	3.28	1.09
Tasman	24	29.2	20.8	33.3	16.7	0.0	0.0	3.63	1.10
Nelson	22	9.1	50.0	13.6	4.5	18.2	4.5	3.29	1.31
Marlborough	23	8.7	43.5	30.4	4.3	13.0	0.0	3.30	1.15
Canterbury	268	16.0	29.5	31.0	14.6	6.0	3.0	3.36	1.11
West Coast	16	6.3	50.0	37.5	6.3	0.0	0.0	3.56	0.73
Otago	107	14.0	33.6	31.8	12.1	5.6	2.8	3.39	1.07
Southland	43	23.3	30.2	20.9	18.6	0.0	7.0	3.63	1.08
Total	2018	15.2	30.3	32.9	12.4	5.9	3.2	3.38	1.08

Table A3.36. How well-informed respondents feel about potential actions to minimise natural hazards risks to their property, by region (%).

	N	Very good (5)	Good (4)	Adequate (3)	Bad (2)	Very bad (1)	Don't know	Mean (1–5)	Std. dev.
Northland	73	15.1	28.8	34.2	13.7	6.8	1.4	3.32	0.98
Auckland	663	11.2	25.8	36.8	15.8	8.0	2.4	3.17	1.07
Waikato	192	13.0	27.1	31.3	16.7	4.7	7.3	3.29	1.14
Bay of Plenty	129	14.7	24.8	35.7	13.2	8.5	3.1	3.25	1.11
Gisborne	18	16.7	44.4	22.2	5.6	11.1	0.0	3.50	0.89
Hawke's Bay	70	15.7	27.1	34.3	8.6	8.6	5.7	3.35	1.13
Taranaki	50	14.0	26.0	28.0	20.0	6.0	6.0	3.23	1.17
Manawatū-Whanganui	100	14.0	24.0	38.0	16.0	4.0	4.0	3.29	1.00
Wellington	222	11.3	26.6	33.3	19.4	5.4	4.1	3.20	1.09
Tasman	24	29.2	20.8	33.3	16.7	0.0	0.0	3.63	1.10
Nelson	22	13.6	40.9	13.6	9.1	18.2	4.5	3.24	1.31
Marlborough	23	13.0	52.2	21.7	8.7	4.3	0.0	3.61	1.15
Canterbury	269	9.7	33.8	24.2	24.5	5.9	1.9	3.17	1.11
West Coast	16	12.5	43.8	31.3	6.3	0.0	6.3	3.67	0.73
Otago	107	14.0	29.9	24.3	17.8	8.4	5.6	3.25	1.07
Southland	43	14.0	27.9	23.3	23.3	4.7	7.0	3.25	1.08
Total	2021	12.4	28.1	32.2	17.0	6.8	3.5	3.23	1.08

Table A3.37. Perceived greatest natural hazard risk to respondent's property, by region (%).

	N	Flood	Drought	Wildfire	Wind	Slip	Erosion	Earthquake	Other	Unsure
Northland	73	27.4	9.6	23.3	13.7	8.2	9.6	0.0	4.1	4.1
Auckland	663	38.8	4.7	8.9	14.0	4.4	5.4	0.6	2.3	21.0
Waikato	192	25.0	12.5	10.4	15.6	3.1	4.2	2.6	1.6	25.0
Bay of Plenty	129	34.9	6.2	3.1	14.7	10.1	3.9	4.7	3.9	18.6
Gisborne	18	55.6	11.1	5.6	0.0	0.0	0.0	11.1	11.1	5.6
Hawke's Bay	70	60.0	0.0	5.7	8.6	4.3	1.4	4.3	4.3	11.4
Taranaki	50	18.0	0.0	6.0	34.0	4.0	4.0	0.0	10.0	24.0
Manawatū-Whanganui	100	29.0	7.0	4.0	24.0	4.0	1.0	9.0	2.0	20.0
Wellington	222	21.6	3.6	10.8	19.4	9.0	4.5	14.9	1.8	14.4
Tasman	23	26.1	4.3	34.8	4.3	4.3	0.0	17.4	4.3	4.3
Nelson	22	45.5	4.5	4.5	0.0	13.6	4.5	9.1	4.5	13.6
Marlborough	23	13.0	13.0	34.8	8.7	4.3	0.0	13.0	4.3	8.7
Canterbury	269	26.8	3.0	14.1	14.5	1.1	3.0	17.1	1.1	19.3
West Coast	16	43.8	6.3	6.3	18.8	6.3	0.0	12.5	6.3	0.0
Otago	107	27.1	2.8	13.1	20.6	13.1	6.5	5.6	0.0	11.2
Southland	43	37.2	0.0	4.7	34.9	0.0	0.0	2.3	7.0	14.0
Total	2020	32.3	5.2	10.3	16.0	5.2	4.3	6.2	2.6	18.0

Table A3.38. Freshwater species respondents found in their local area, by region (%).

	N	Whitebait	Eel/ tuna	Freshwater crayfish/ kōura	Trout	Salmon	Freshwater mussels	Catfish	Carp/koi	Tench	Rudd
Northland	40	20.0	50.0	17.5	10.0	2.5	7.5	0.0	2.5	0.0	0.0
Auckland	333	9.6	29.4	6.6	7.2	4.5	10.8	5.1	7.8	1.5	0.6
Waikato	99	18.2	57.6	19.2	36.4	7.1	6.1	12.1	34.3	1.0	1.0
Bay of Plenty	75	43.2	54.1	25.7	41.9	5.4	16.2	5.4	17.6	1.4	0.0
Gisborne	13	53.8	76.9	38.5	23.1	0.0	15.4	0.0	0.0	0.0	0.0
Hawke's Bay	29	55.2	58.6	34.5	31.0	0.0	27.6	0.0	3.4	0.0	0.0
Taranaki	28	42.9	53.6	32.1	28.6	0.0	14.3	7.1	14.3	0.0	0.0
Manawatū-Whanganui	50	42.0	54.0	16.0	30.0	6.0	6.0	0.0	4.0	0.0	0.0
Wellington	101	30.7	42.6	16.8	23.8	7.9	18.8	0.0	4.0	1.0	3.0
Tasman	9	66.7	77.8	33.3	22.2	22.2	11.1	0.0	11.1	0.0	0.0
Nelson	14	42.9	71.4	7.1	28.6	7.1	14.3	0.0	7.1	0.0	7.1
Marlborough	11	81.8	72.7	63.6	63.6	36.4	45.5	0.0	0.0	0.0	0.0
Canterbury	140	50.0	48.6	12.1	42.1	29.3	16.4	3.6	7.1	0.7	2.9
West Coast	9	88.9	88.9	66.7	100.0	44.4	44.4	0.0	0.0	0.0	0.0
Otago	50	36.0	46.0	30.0	50.0	36.0	22.0	2.0	8.0	0.0	0.0
Southland	24	66.7	58.3	29.2	58.3	25.0	20.8	0.0	0.0	0.0	0.0
Total	1024	30.3	45.4	16.8	26.8	11.1	14.1	4.0	9.9	0.9	1.1

Table A3.39. Perceived change in popularity of fishing in local freshwater lakes, rivers, and streams over the last 10 years, by region (%).

	N	More popular	About the same	Less popular	Unsure
Northland	40	7.5	40.0	17.5	35.0
Auckland	333	13.5	30.6	15.9	39.9
Waikato	99	21.2	34.3	15.2	29.3
Bay of Plenty	74	17.6	23.0	18.9	40.5
Gisborne	13	0.0	61.5	23.1	15.4
Hawke's Bay	29	34.5	41.4	6.9	17.2
Taranaki	28	17.9	21.4	28.6	32.1
Manawatū-Whanganui	50	14.0	36.0	14.0	36.0
Wellington	101	11.9	40.6	14.9	32.7
Tasman	9	11.1	33.3	33.3	22.2
Nelson	14	28.6	7.1	35.7	28.6
Marlborough	11	36.4	9.1	36.4	18.2
Canterbury	140	15.0	38.6	18.6	27.9
West Coast	9	22.2	66.7	0.0	11.1
Otago	50	16.0	36.0	22.0	26.0
Southland	24	33.3	25.0	16.7	25.0
Total	1024	16.0	33.5	17.3	33.2

Table A3.40. Personally fished in local freshwater lakes, rivers, or streams, by region (%).

	N	Yes, including in the past 12 months	Yes, but not in the past 12 months	No, never
Northland	40	12.5	17.5	70.0
Auckland	333	4.5	17.4	78.1
Waikato	99	7.1	25.3	67.7
Bay of Plenty	74	16.2	16.2	67.6
Gisborne	13	7.7	53.8	38.5
Hawke's Bay	29	17.2	27.6	55.2
Taranaki	28	3.6	21.4	75.0
Manawatū-Whanganui	50	2.0	20.0	78.0
Wellington	101	4.0	19.8	76.2
Tasman	9	0.0	11.1	88.9
Nelson	14	0.0	7.1	92.9
Marlborough	11	18.2	18.2	63.6
Canterbury	140	13.6	25.7	60.7
West Coast	9	22.2	55.6	22.2
Otago	50	14.0	32.0	54.0
Southland	24	16.7	33.3	50.0
Total	1024	8.3	21.7	70.0

Table A3.41. Action(s) taken after catching freshwater species during the past 12 months (%).

	N	Caught, eaten	Caught, released	Caught, other (e.g., culling, gifting, selling)	Did not catch during the past 12 months
Whitebait	85	21.2	4.7	0.0	74.1
Eel/tuna	85	10.6	17.6	0.0	71.8
Freshwater crayfish/kōura	85	14.1	4.7	2.4	78.8
Trout	85	21.2	12.9	0.0	65.9
Salmon	85	7.1	2.4	0.0	90.6
Freshwater mussels	85	7.1	2.4	0.0	90.6
Catfish	85	1.2	1.2	2.4	95.3
Carp/koi	85	0.0	4.7	2.4	92.9
Tench	85	0.0	2.4	0.0	97.6
Rudd	85	1.2	1.2	0.0	97.6
Perch	85	1.2	4.7	0.0	94.1

Table A3.42. Who taught respondents the most about fishing for freshwater species (%).

Teacher	%
Older male relative	49.8
Older female relative	2.6
Male relative, same age or younger	5.9
Friends	21.5
Community groups	2.0
Fishing guide	3.3
Self-taught	13.0
Other	2.0
N	307

Table A3.43. Respondents' years of experience fishing for freshwater species (%).

	N	Minimum (year)	Median (year)	Mean (year)	Maximum (year)	Std. dev.
Fished in the past 12 months	84	0.0	6.5	15.2	60.0	16.9
Fished, but not in the past 12 months	222	0.0	3.0	7.9	70.0	12.8
Total	306	0.0	3.0	9.9	70.0	14.4

Table A3.44. Perceptions of fishing freshwater species, by fishing experience (%).

	Fishing experience	N	Strongly agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Strongly disagree (1)	Unsure	Mean (1–5)	Std. dev
There are too many fishers for freshwater lakes, rivers, & streams	Never fished	717	5.0	17.6	37.4	17.6	2.9	19.5	3.54	1.46
There are not enough freshwater fish	Never fished	717	10.9	35.3	25.1	7.1	1.5	20.1	3.13	1.65
Freshwater fish are not healthy to eat	Never fished	717	0.7	7.7	24.3	35.6	11.0	20.8	4.11	1.24
People should be able to eat what they catch	Never fished	717	10.0	37.1	24.4	16.3	5.6	6.6	2.90	1.32
Our freshwater lakes, rivers, & streams are clean	Never fished	717	2.9	23.2	30.4	28.2	8.8	6.6	3.36	1.20
Our freshwater lakes, rivers, & streams are well managed for fishing	Never fished	717	1.7	17.7	34.6	21.5	5.7	18.8	3.68	1.38
Māori are adequately involved in management of local freshwater lakes, rivers, & streams	Never fished	717	8.2	20.4	27.2	12.4	7.8	24.0	3.63	1.65
There are too many fishers for freshwater lakes, rivers, & streams	Have fished	306	8.2	21.2	37.9	23.2	4.2	5.2	3.10	1.19
There are not enough freshwater fish	Have fished	306	11.1	37.3	28.8	13.1	3.6	6.2	2.79	1.27
Freshwater fish are not healthy to eat	Have fished	306	2.6	8.2	27.5	36.6	19.0	6.2	3.80	1.11
People should be able to eat what they catch	Have fished	306	17.0	41.2	23.5	14.1	2.6	1.6	2.49	1.11
Our freshwater lakes, rivers, & streams are clean	Have fished	306	5.9	25.5	29.1	28.4	9.2	2.0	3.15	1.14
Our freshwater lakes, rivers, & streams are well managed for fishing	Have fished	306	7.2	23.2	33.3	23.9	6.2	6.2	3.17	1.24
Māori are adequately involved in management of local freshwater lakes, rivers, & streams	Have fished	306	12.4	24.8	26.8	15.4	4.6	16.0	3.23	1.57
There are too many fishers for freshwater lakes, rivers, & streams	Total	1023	6.0	18.7	37.5	19.3	3.3	15.2	3.41	1.40
There are not enough freshwater fish	Total	1023	10.9	35.9	26.2	8.9	2.2	15.9	3.03	1.55
Freshwater fish are not healthy to eat	Total	1023	1.3	7.8	25.2	35.9	13.4	16.4	4.02	1.21
People should be able to eat what they catch	Total	1023	12.1	38.3	24.1	15.6	4.7	5.1	2.78	1.27
Our freshwater lakes, rivers, & streams are clean	Total	1023	3.8	23.9	30.0	28.3	8.9	5.2	3.30	1.19
Our freshwater lakes, rivers, & streams are well managed for fishing	Total	1023	3.3	19.4	34.2	22.2	5.9	15.1	3.53	1.36
Māori are adequately involved in management of local freshwater lakes, rivers, & streams	Total	1023	9.5	21.7	27.1	13.3	6.8	21.6	3.51	1.64

Table A3.45. Preferred change in abundance of freshwater species in freshwater lakes, rivers, and streams in New Zealand (%).

	N	Much more (5)	Somewhat more (4)	About the same (3)	Somewhat less (2)	Much less (1)	No opinion	Mean (1–5)	Std. dev.
Whitebait	1022	31.4	25.0	20.0	2.7	1.5	19.4	4.02	0.97
Eel/tuna	1022	20.3	23.4	29.6	6.0	2.2	18.6	3.66	1.01
Freshwater crayfish/kōura	1022	30.1	28.4	20.1	3.4	0.8	17.2	4.01	0.93
Trout	1022	23.4	28.4	25.0	3.8	1.5	17.9	3.83	0.95
Salmon	1022	26.5	30.2	20.0	4.4	1.7	17.2	3.91	0.97
Freshwater mussels	1022	25.5	25.4	23.2	3.7	1.7	20.5	3.87	0.99

Table A3.46. Prioritisation of freshwater species for increase in abundance, by region (%).

	N	Whitebait	Eel/ tuna	Freshwater crayfish/ kōura	Trout	Salmon	Freshwater mussels
Northland	19	15.8	21.1	42.1	0.0	0.0	21.1
Auckland	119	31.1	7.6	18.5	12.6	20.2	10.1
Waikato	36	16.7	22.2	13.9	16.7	22.2	8.3
Bay of Plenty	31	29.0	12.9	9.7	12.9	29.0	6.5
Gisborne	3	33.3	33.3	33.3	0.0	0.0	0.0
Hawke's Bay	7	28.6	28.6	0.0	14.3	14.3	14.3
Taranaki	6	83.3	0.0	16.7	0.0	0.0	0.0
Manawatū-Whanganui	15	46.7	20.0	20.0	0.0	6.7	6.7
Wellington	37	18.9	18.9	35.1	2.7	21.6	2.7
Tasman	4	25.0	0.0	50.0	0.0	25.0	0.0
Nelson	5	40.0	40.0	20.0	0.0	0.0	0.0
Marlborough	6	33.3	16.7	33.3	16.7	0.0	0.0
Canterbury	60	33.3	8.3	15.0	13.3	25.0	5.0
West Coast	5	80.0	20.0	0.0	0.0	0.0	0.0
Otago	10	30.0	10.0	20.0	20.0	10.0	10.0
Southland	11	36.4	9.1	27.3	18.2	9.1	0.0
Total	374	30.2	13.1	20.1	10.7	18.4	7.5

Table A3.47. Non-native wild animals that respondents have found in their local area, by region (%).

	N	Deer	Goats	Tahr	Chamois	Feral pigs	Wallabies	None of the above	Unsure
Northland	33	9.1	21.2	0.0	0.0	45.5	0.0	42.4	9.1
Auckland	330	7.0	8.8	0.0	0.6	7.3	1.2	73.3	12.1
Waikato	93	25.8	32.3	0.0	2.2	25.8	8.6	39.8	10.8
Bay of Plenty	55	18.2	20.0	0.0	1.8	20.0	23.6	43.6	14.5
Gisborne	5	60.0	100.0	0.0	0.0	60.0	0.0	0.0	0.0
Hawke's Bay	41	31.7	19.5	4.9	2.4	17.1	2.4	31.7	31.7
Taranaki	22	27.3	50.0	0.0	0.0	22.7	0.0	45.5	4.5
Manawatū-Whanganui	50	48.0	52.0	0.0	4.0	36.0	4.0	30.0	12.0
Wellington	121	24.0	19.8	0.8	0.0	16.5	0.8	52.9	16.5
Tasman	15	53.3	66.7	6.7	0.0	53.3	0.0	13.3	6.7
Nelson	8	50.0	50.0	0.0	0.0	62.5	0.0	25.0	12.5
Marlborough	12	66.7	66.7	8.3	0.0	66.7	16.7	16.7	16.7
Canterbury	129	24.8	20.2	3.9	4.7	19.4	7.8	55.0	10.9
West Coast	7	71.4	100.0	14.3	28.6	57.1	0.0	0.0	0.0
Otago	57	40.4	35.1	5.3	3.5	33.3	14.0	33.3	14.0
Southland	19	63.2	36.8	5.3	10.5	42.1	10.5	26.3	5.3
Total	997	22.8	23.4	1.5	2.0	20.5	5.1	52.2	12.8

Table A3.48. Perceived change in local populations of non-native wild animals (%).

	N	Increasing	Holding constant	Decreasing	Unsure
Deer	227	22.9	37.0	9.7	30.4
Goats	233	25.3	37.8	11.2	25.8
Tahr	15	20.0	46.7	13.3	20.0
Chamois	20	10.0	40.0	15.0	35.0
Feral pigs	204	23.5	35.3	11.3	29.9
Wallabies	51	37.3	31.4	13.7	17.6

Table A3.49. Perceived management of non-native wild animals in respondent's local area, by region (%).

	N	Non-native wild animals are managed	Non-native wild animals are not managed	No, never
Northland	16	68.8	18.8	12.5
Auckland	48	35.4	16.7	47.9
Waikato	46	54.3	15.2	30.4
Bay of Plenty	23	52.2	4.3	43.5
Gisborne	4	50.0	25.0	25.0
Hawke's Bay	15	40.0	13.3	46.7
Taranaki	11	45.5	18.2	36.4
Manawatū-Whanganui	29	41.4	10.3	48.3
Wellington	37	48.6	18.9	32.4
Tasman	12	50.0	25.0	25.0
Nelson	5	40.0	0.0	60.0
Marlborough	8	37.5	0.0	62.5
Canterbury	44	40.9	22.7	36.4
West Coast	7	71.4	14.3	14.3
Otago	30	63.3	13.3	23.3
Southland	13	69.2	7.7	23.1
Total	348	48.9	15.2	35.9

Table A3.50. Perceived change in management of non-native wild animals in respondent's local area over the last 10 years, by region (%).

	N	Increased	About the same	Decreased	Unsure
Northland	11	36.4	27.3	0.0	36.4
Auckland	17	41.2	41.2	0.0	17.6
Waikato	25	8.0	44.0	12.0	36.0
Bay of Plenty	12	8.3	66.7	0.0	25.0
Gisborne	2	50.0	50.0	0.0	0.0
Hawke's Bay	6	16.7	66.7	16.7	0.0
Taranaki	5	0.0	20.0	40.0	40.0
Manawatū-Whanganui	12	16.7	50.0	25.0	8.3
Wellington	18	5.6	55.6	0.0	38.9
Tasman	6	16.7	50.0	0.0	33.3
Nelson	2	0.0	50.0	0.0	50.0
Marlborough	3	66.7	33.3	0.0	0.0
Canterbury	18	11.1	61.1	5.6	22.2
West Coast	5	20.0	40.0	40.0	0.0
Otago	19	15.8	42.1	10.5	31.6
Southland	9	11.1	55.6	22.2	11.1
Total	170	17.1	48.2	9.4	25.3

Table A3.51. Personally hunted non-native wild animals, by region (%).

	N	Yes, including in the past 12 months	Yes, but not in the past 12 months	No, never
Northland	11	18.2	45.5	36.4
Auckland	17	11.8	23.5	64.7
Waikato	25	12.0	20.0	68.0
Bay of Plenty	12	8.3	25.0	66.7
Gisborne	2	50.0	50.0	0.0
Hawke's Bay	6	33.3	33.3	33.3
Taranaki	5	20.0	0.0	80.0
Manawatū-Whanganui	11	36.4	45.5	18.2
Wellington	18	5.6	5.6	88.9
Tasman	6	16.7	16.7	66.7
Nelson	2	0.0	0.0	100.0
Marlborough	3	33.3	0.0	66.7
Canterbury	18	5.6	22.2	72.2
West Coast	5	40.0	0.0	60.0
Otago	19	10.5	10.5	78.9
Southland	9	11.1	33.3	55.6
Total	169	14.8	21.3	63.9

Table A3.52. Non-native wild animals that respondents have personally hunted in their local area during the past 12 months, by region (%).

	N	Elk/ wapiti	Red deer	Fallow deer	Sika deer	Sambar deer	Rusa deer	Whitetail deer	Goats	Tahr	Chamois
Northland	2	0	0	0	0	0	0	0	0	0	0
Auckland	2	0	0	0	0	0	0	0	0	0	50
Waikato	3	0	0	0	0	0	0	0	0	0	0
Bay of Plenty	1	0	0	100	0	0	0	0	100	0	0
Gisborne	1	0	100	100	0	0	0	100	0	0	0
Hawke's Bay	2	0	50	0	0	0	0	0	50	0	50
Taranaki	1	0	0	0	0	0	0	0	100	0	0
Manawatū-Whanganui	4	0	50	50	25	0	0	0	100	0	0
Wellington	1	0	0	0	0	0	0	0	0	0	0
Tasman	1	0	100	100	0	0	0	0	100	0	0
Nelson	0	0	0	0	0	0	0	0	0	0	0
Marlborough	1	0	100	0	0	0	0	0	100	0	0
Canterbury	1	0	100	0	0	0	0	0	100	0	100
West Coast	2	0	0	50	0	0	0	0	50	0	0
Otago	2	0	0	0	0	0	0	0	0	0	0
Southland	1	0	0	0	0	0	0	0	0	0	0
Total	25	0.0	28.0	24.0	4.0	0.0	0.0	4.0	44.0	0.0	12.0

Table A3.53. What did respondents do with the harvest (%).

	N	Trophy	Consumed meat in own household	Gave meat to friends/ family	Donated meat to community	Sold meat for profit	None of these
Red deer	7	0	100	71.4	0	0	0
Fallow deer	6	16.7	83.3	83.3	16.7	0	0
Sika deer	1	0	100	0	100	100	0
Whitetail deer	1	0	100	100	0	0	0
Goats	11	18.2	63.6	63.6	9.1	9.1	18.2
Chamois	3	66.7	0	66.7	0	33.3	0
Feral pigs	9	11.1	77.8	44.4	11.1	0	11.1
Wallabies	3	0	33.3	0	0	0	66.7

Table A3.54. Who taught respondents how to hunt non-native wild animal species (%).

Teacher	%
Older male relative	42.6
Male relative, your age or younger	8.2
Female relative, your age or younger	4.9
Friends	24.6
Community groups	3.3
Hunting guide	4.9
Self-taught	9.8
Other teacher	1.6
N	61

Table A3.55. Respondents' years of experience hunting non-native wild animals (%).

	N	Minimum (year)	Median (year)	Mean (year)	Maximum (year)	Std. dev.
Hunted within last 12 months	24	1.0	4.5	16.5	60	19.8
Hunted, but not within last 12 months	35	0.0	2.0	7.2	50	11.0
Total	59	0.0	4.0	11.0	60	15.7

Table A3.56. Perceptions of hunting non-native wild animals, by hunting experience (%).

	Hunting experience	N	Strongly agree (5)	Agree (4)	Neither agree nor disagree (3)	Disagree (2)	Strongly disagree (1)	Unsure	Mean (1–5)	Std. dev
Non-native wild animals are an important source of food for New Zealand communities	Never hunted	935	6.7	31.3	31.6	17.1	6.2	7.1	3.16	1.03
Non-native wild animals negatively affect native plants and animals	Never hunted	934	18.3	43.7	23.4	7.5	1.5	5.6	3.74	0.91
Rural landowners should receive government support to control non-native wild animals on their land	Never hunted	935	14.8	45.7	24.7	7.3	2.2	5.3	3.67	0.91
The Department of Conservation should maintain healthy herds of non-native wild animals in national parks to support the tourism industry	Never hunted	935	7.5	28.1	27.0	20.1	8.4	8.9	3.07	1.11
Non-native wild animals provide benefits to me	Never hunted	934	4.0	14.2	27.1	24.0	20.8	10.0	2.52	1.14
I am confident that non-native wild animals are well-managed in my region	Never hunted	935	4.7	29.4	30.5	13.0	3.2	19.1	3.24	0.93
Non-native wild animals are an important source of food for New Zealand communities	Have hunted	61	27.9	29.5	26.2	11.5	4.9	0.0	3.64	1.16
Non-native wild animals negatively affect native plants and animals	Have hunted	61	42.6	29.5	14.8	9.8	3.3	0.0	3.98	1.13
Rural landowners should receive government support to control non-native wild animals on their land	Have hunted	61	27.9	41.0	18.0	9.8	3.3	0.0	3.80	1.06
The Department of Conservation should maintain healthy herds of non-native wild animals in national parks to support the tourism industry	Have hunted	61	19.7	34.4	19.7	16.4	9.8	0.0	3.38	1.25
Non-native wild animals provide benefits to me	Have hunted	61	16.4	36.1	27.9	9.8	9.8	0.0	3.39	1.17
I am confident that non-native wild animals are well-managed in my region	Have hunted	61	18.0	27.9	34.4	13.1	6.6	0.0	3.38	1.13
Non-native wild animals are an important source of food for New Zealand communities	Total	996	8.0	31.2	31.2	16.8	6.1	6.6	3.20	1.04
Non-native wild animals negatively affect native plants and animals	Total	995	19.8	42.8	22.9	7.6	1.6	5.2	3.76	0.93
Rural landowners should receive government support to control non-native wild animals on their land	Total	996	15.6	45.4	24.3	7.4	2.3	5.0	3.68	0.92
The Department of Conservation should maintain healthy herds of non-native wild animals in national parks to support the tourism industry	Total	996	8.2	28.5	26.5	19.9	8.5	8.3	3.09	1.12
Non-native wild animals provide benefits to me	Total	995	4.7	15.6	27.1	23.1	20.1	9.3	2.58	1.16
I am confident that non-native wild animals are well-managed in my region	Total	996	5.5	29.3	30.7	13.1	3.4	18.0	3.25	0.94

10.4 APPENDIX 4 – BONFERRONI PAIRWISE MULTIPLE COMPARISON AND REGRESSION TABLES

Tables A4.1 to Table A4.10 give a comparison in the perceived condition of environmental domains from survey to survey.

For each environmental domain, a one-way ANOVA (not shown) was run with a post hoc pairwise comparison of means using a Bonferroni procedure (shown) comparing the average perceived condition of that domain for those survey years. Perceived condition of that domain was measured on a 1 to 5 Likert scale, where 1 equals 'very bad' and 5 equals 'very good'.

The estimates are the average change in perceived condition of that domain from row year survey to column year survey. Significance is indicated by the p-value below each estimate in parentheses and italics.

Table A4.1. Bonferroni multiple comparison test for perceived state of air quality, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	0.072				
	(0.06)				
2016	0.187	0.115			
	(0.00)	*(0.00)*			
2019	0.219	0.147	0.032		
	(0.00)	*(0.00)*	*(1.00)*		
2022	0.423	0.351	0.235	0.203	
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	
2025	0.641	0.569	0.453	0.421	0.218
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.2. Bonferroni multiple comparison test for perceived state of marine environment, 2022–2025.

Year	2022
2025	0.159
	(0.00)

Table A4.3. Bonferroni multiple comparison test for perceived state of coastal waters and beaches, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	-0.023				
	(1.00)				
2016	-0.033	-0.010			
	(1.00)	*(1.00)*			
2019	-0.122	-0.099	-0.089		
	(0.00)	*(0.02)*	*(0.04)*		
2022	-0.026	-0.003	0.007	0.096	
	(1.00)	*(1.00)*	*(1.00)*	*(0.03)*	
2025	0.151	0.173	0.183	0.273	0.176
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.4. Bonferroni multiple comparison test for perceived state of rivers and lakes, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	-0.233				
	(0.00)				
2016	-0.304	-0.071			
	(0.00)	*(0.40)*			
2019	-0.128	0.105	0.176		
	(0.00)	*(0.03)*	*(0.00)*		
2022	-0.044	0.189	0.206	0.084	
	(1.00)	*(0.00)*	*(0.00)*	*(0.21)*	
2025	0.150	0.382	0.453	0.277	0.193
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.5. Bonferroni multiple comparison test for perceived state of wetlands, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	-0.121				
	(0.00)				
2016	-0.209	-0.088			
	(0.00)	*(0.08)*			
2019	-0.100	0.021	0.110		
	(0.03)	*(1.00)*	*(0.01)*		
2022	-0.043	0.078	0.166	0.057	
	(1.00)	*(0.25)*	*(0.00)*	*(1.00)*	
2025	0.082	0.203	0.291	0.182	0.125
	(0.16)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.6. Bonferroni multiple comparison test for perceived state of native bush and forests, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	-0.168				
	(0.00)				
2016	-0.278	-0.110			
	(0.00)	*(0.00)*			
2019	-0.241	-0.073	0.037		
	(0.00)	*(0.26)*	*(1.00)*		
2022	-0.065	0.103	0.213	0.176	
	(0.43)	*(0.01)*	*(0.00)*	*(0.00)*	
2025	0.165	0.333	0.443	0.406	0.230
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.7. Bonferroni multiple comparison test for perceived state of protected natural areas, 2022–2025.

Year	2022
2025	0.267
	(0.00)

Table A4.8. Bonferroni multiple comparison test for perceived state of natural environments in towns and cities, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	-0.034				
	(1.00)				
2016	0.009	0.043			
	(1.00)	*(1.00)*			
2019	0.043	0.077	0.034		
	(1.00)	*(0.07)*	*(1.00)*		
2022	0.088	0.122	0.079	0.044	
	(0.01)	*(0.00)*	*(0.05)*	*(1.00)*	
2025	0.248	0.282	0.238	0.204	0.16
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.9. Bonferroni multiple comparison test for perceived state of marine plants and animals, 2022–2025.

Year	2022
2025	0.185
	(0.00)

Table A4.10. Bonferroni multiple comparison test for perceived state of terrestrial plants and animals, 2022–2025.

Year	2022
2025	0.277
	(0.00)

TABLE A4.11 TO TABLE A4.20 SHOW A COMPARISON IN PERCEIVED QUALITY OF MANAGEMENT OF ENVIRONMENTAL DOMAINS FROM SURVEY TO SURVEY.

For each environmental domain a one-way ANOVA (not shown) was run with a post hoc pairwise comparison of means using a Bonferroni procedure (shown) comparing the average perceived quality of management of that domain for those survey years. Perceived quality of management of that domain is measured on a 1 to 5 Likert scale, where 1 equals 'very bad' and 5 equals 'very good'.

The estimates are the average change in perceived quality of management of that domain from row year survey to column year survey. Significance is indicated the by p-value below each estimate in parentheses.

Table A4.11. Bonferroni multiple comparison test for perceived quality of management of air quality, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	0.063				
	(0.27)				
2016	0.114	0.051			
	(0.00)	*(0.94)*			
2019	0.232	0.169	0.118		
	(0.00)	*(0.00)*	*(0.00)*		
2022	0.405	0.342	0.291	0.173	
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	
2025	0.613	0.550	0.499	0.381	0.209
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.12. Bonferroni multiple comparison test for perceived quality of marine environments, 2022–2025.

Year	2022
2025	0.235
	(0.00)

Table A4.13. Bonferroni multiple comparison test for perceived quality of management of coastal waters and beaches, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	-0.001				
	(1.00)				
2016	-0.038	-0.036			
	(1.00)	*(1.00)*			
2019	-0.021	-0.020	0.017		
	(1.00)	*(1.00)*	*(1.00)*		
2022	0.112	0.113	0.150	0.133	
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	
2025	0.367	0.368	0.405	0.388	0.255
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.14. Bonferroni multiple comparison test for perceived quality of management of rivers and lakes, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	-0.168				
	(0.00)				
2016	-0.280	-0.112			
	(0.00)	*(0.01)*			
2019	-0.024	0.144	0.255		
	(1.00)	*(0.00)*	*(0.00)*		
2022	0.072	0.240	0.352	0.097	
	(0.33)	*(0.00)*	*(0.00)*	*(0.06)*	
2025	0.280	0.448	0.560	0.305	0.208
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.15. Bonferroni multiple comparison test for perceived quality of management of wetlands, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	-0.097				
	(0.03)				
2016	-0.188	-0.092			
	(0.00)	*(0.06)*			
2019	-0.168	-0.071	0.021		
	(0.00)	*(0.48)*	*(1.00)*		
2022	-0.095	0.002	0.094	0.073	
	(0.04)	*(1.00)*	*(0.05)*	*(0.42)*	
2025	0.100	0.197	0.289	0.268	0.195
	(0.02)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.16. Bonferroni multiple comparison test for perceived quality of management of native bush and forests, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	-0.149				
	(0.00)				
2016	-0.223	-0.074			
	(0.00)	*(0.15)*			
2019	-0.119	0.030	0.104		
	(0.00)	*(1.00)*	*(0.01)*		
2022	0.032	0.181	0.255	0.152	
	(1.00)	*(0.00)*	*(0.00)*	*(0.00)*	
2025	0.345	0.494	0.568	0.465	0.313
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.17. Bonferroni multiple comparison test for perceived quality of management of protected natural environments, 2022–2025.

Year	2022
2025	0.332
	(0.00)

Table A4.18. Bonferroni multiple comparison test for perceived quality of management of natural environments in towns and cities, 2010–2025.

Year	2010	2013	2016	2019	2022
2013	-0.035				
	(1.00)				
2016	-0.058	-0.024			
	(0.31)	*(1.00)*			
2019	0.017	0.052	0.076		
	(1.00)	*(0.88)*	*(0.08)*		
2022	0.061	0.096	0.119	0.044	
	(0.31)	*(0.01)*	*(0.00)*	*(1.00)*	
2025	0.297	0.332	0.356	0.280	0.236
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*

Table A4.19. Bonferroni multiple comparison test for perceived quality of management of marine plants and animals, 2022–2025.

Year	2022
2025	0.238
	(0.00)

Table A4.20. Bonferroni multiple comparison test for perceived quality of management of terrestrial plants and animals, 2022–2025.

Year	2022
2025	0.284
	(0.00)

TABLE A4.21 TO TABLE A4.17 SHOW THE AVERAGE MARGINAL CHANGE IN PROBABILITY FROM 2025 OF ATTRIBUTING DAMAGE TO FIVE ENVIRONMENTAL DOMAINS TO 14 DIFFERENCE PRESSURES.

For each environmental domain 14 logit regressions were run, one for each perceived cause of damage, estimating the marginal change in probability of respondents choosing that cause in each year compared to the baseline 2025 survey. Estimates are the average marginal change in the given year from the 2025 baseline holding all other years constant. probability Significance is indicated by asterisks, where:

*** means P < .01,
** means P < .05, and
* means P < .10.

Standard errors are given in parentheses below. Standard errors are clustered at the regional council level.

Table A4.21. Average marginal change in probability from 2025 of attributing damage to air quality to 14 different pressures, 2010–2025.

	Dependent variable: Cause of damage						
	Motor vehicles & transport	Household waste & emissions	Industrial activities	Pests & weeds	Farming	Forestry	Urban development
Baseline probability (2025 avg.)	0.78	0.22	0.58	0.03	0.12	0.05	0.21
2010	0.129	0.049	0.187	-0.008	0.005	-0.025	-0.025
	(0.010)***	(0.017)***	(0.010)***	(0.006)	(0.006)	(0.006)***	(0.021)
2013	0.102	0.014	0.145	-0.008	-0.007	-0.037	-0.023
	(0.012)***	(0.022)	(0.012)***	(0.005)*	(0.009)	(0.007)***	(0.013)*
2016	0.079	0.002	0.139	0.000	0.058	-0.028	-0.017
	(0.010)***	(0.017)	(0.018)***	(0.005)	(0.011)***	(0.005)***	(0.018)
2019	0.002	0.028	0.070	0.015	0.047	-0.014	-0.012
	(0.013)	(0.008)***	(0.013)***	(0.005)***	(0.013)***	(0.006)**	(0.020)
2022	-0.194	0.024	-0.057	0.043	0.049	0.009	0.025
	(0.014)***	(0.016)	(0.015)***	(0.008)***	(0.011)***	(0.003)***	(0.025)
Num. of obs.	11,989	11,989	11,989	11,989	11,989	11,989	11,989
Wald χ^2	755.8	37.96	895.3	141.8	154.5	190.9	29.01
Pseudo R^2	0.0673	0.00145	0.0266	0.0222	0.00685	0.0285	0.00178
Log likelihood	-5632	-6630	-7496	-1970	-4900	-1680	-6037

Table A4.21. *...continued...*Average marginal change in probability from 2025 of attributing damage to air quality to 14 different pressures, 2010–2025.

	Dependent variable: Cause of damage						
	Mining	Sewage & stormwater	Tourism	Commercial fishing	Recreational fishing	Dumping of solid waste	Hazardous chemicals
Baseline probability (2025 avg.)	0.07	0.07	0.04	0.02	0.01	0.14	0.33
2010	-0.058	-0.037	-0.039	-0.015	0.007	-0.076	-0.131
	(0.007)***	(0.012)***	(0.005)***	(0.002)***	(0.002)***	(0.008)***	(0.009)***
2013	-0.036	-0.031	-0.032	-0.009	-0.005	-0.055	-0.150
	(0.009)***	(0.012)***	(0.006)***	(0.003)***	(0.001)***	(0.010)***	(0.015)***
2016	-0.024	-0.027	-0.027	0.000	-0.004	-0.069	-0.135
	(0.013)*	(0.008)***	(0.006)***	(0.003)	(0.001)***	(0.008)***	(0.017)***
2019	-0.025	-0.018	0.006	0.000	-0.001	-0.049	-0.134
	(0.005)***	(0.008)**	(0.005)	(0.005)	(0.001)	(0.007)***	(0.013)***
2022	-0.006	0.055	0.009	0.041	0.009	0.011	-0.064
	(0.007)	(0.016)***	(0.008)	(0.006)***	(0.005)*	(0.013)	(0.022)***
Num. of obs.	11,989	11,989	11,989	11,989	11,989	11,989	11,989
Wald χ^2	332.2	121.8	170.9	331.6	88.41	288.8	629.8
Pseudo R^2	0.0373	0.0324	0.0670	0.0898	0.0495	0.0189	0.0141
Log likelihood	-1921	-2709	-1396	-984.5	-489.7	-3818	-6413

Table A4.22. Average marginal change in probability from 2025 of attributing damage to marine environments to 14 different pressures, 2022–2025.

	Dependent variable: Cause of damage						
	Motor vehicles & transport	Household waste & emissions	Industrial activities	Pests & weeds	Farming	Forestry	Urban development
Baseline probability (2025 avg.)	0.04	0.13	0.19	0.09	0.06	0.04	0.05
2022	0.004	0.037	0.058	0.014	0.065	0.002	0.052
	(0.008)	(0.011)***	(0.012)***	(0.009)	(0.011)***	(0.009)	(0.005)***
Num. of obs.	4,013	4,013	4,013	4,013	4,013	4,013	4,013
Wald χ^2	0.282	10.41	21.27	2.630	23.40	0.0511	79.30
Pseudo R^2	0.000337	0.00343	0.00475	0.000838	0.0204	7.65e-05	0.0199
Log likelihood	-649.7	-1650	-2094	-1285	-1223	-694.4	-1023

	Dependent variable: Cause of damage						
	Mining	Sewage & stormwater	Tourism	Commercial fishing	Recreational fishing	Dumping of solid waste	Hazardous chemicals
Baseline probability (2025 avg.)	0.05	0.60	0.04	0.61	0.17	0.38	0.29
2022	0.001	-0.035	0.007	-0.118	-0.074	-0.100	0.008
	(0.004)	(0.024)	(0.005)	(0.018)***	(0.012)***	(0.018)***	(0.011)
Num. of obs.	4,013	4,013	4,013	4,013	4,013	4,013	4,013
Wald χ^2	0.0852	2.050	1.633	42.10	36.19	29.59	0.498
Pseudo R^2	1.92e-05	0.000901	0.000829	0.0103	0.0151	0.00880	6.27e-05
Log likelihood	-743.8	-2728	-671.7	-2730	-1567	-2533	-2436

Table A4.23. Average marginal change in probability from 2025 of attributing damage to coastal waters and beaches to 14 different pressures, 2010–2025.

	Dependent variable: Cause of damage						
	Motor vehicles & transport	Household waste & emissions	Industrial activities	Pests & weeds	Farming	Forestry	Urban development
Baseline probability (2025 avg.)	0.04	0.20	0.20	0.10	0.07	0.08	0.14
2010	0.010	0.061	0.014	-0.016	0.054	-0.059	0.081
	(0.004)**	(0.012)***	(0.010)	(0.008)*	(0.014)***	(0.010)***	(0.010)***
2013	0.003	0.007	-0.003	-0.031	0.068	-0.065	0.080
	(0.011)	(0.015)	(0.011)	(0.007)***	(0.009)***	(0.011)***	(0.012)***
2016	0.015	0.010	0.002	-0.026	0.096	-0.053	0.091
	(0.007)**	(0.011)	(0.015)	(0.007)***	(0.009)***	(0.009)***	(0.016)***
2019	-0.003	0.027	-0.000	-0.042	0.053	-0.037	0.072
	(0.006)	(0.012)**	(0.008)	(0.008)***	(0.014)***	(0.013)***	(0.015)***
2022	0.003	0.044	0.020	0.004	0.061	-0.021	0.052
	(0.006)	(0.013)***	(0.014)	(0.007)	(0.008)***	(0.012)*	(0.017)***
Num. of obs.	11,826	11,826	11,826	11,826	11,826	11,826	11,826
Wald χ^2	64.02	40.57	11.74	59.07	135.4	282.5	109
Pseudo R^2	0.00214	0.00264	0.000455	0.00613	0.0112	0.0419	0.00601
Log likelihood	-2274	-6339	-5947	-3351	-4316	-1872	-5977

	Dependent variable: Cause of damage						
	Mining	Sewage & stormwater	Tourism	Commercial fishing	Recreational fishing	Dumping of solid waste	Hazardous chemicals
Baseline probability (2025 avg.)	0.04	0.62	0.12	0.23	0.11	0.40	0.25
2010	0.069	0.053	-0.056	-0.054	-0.075	-0.220	-0.026
	(0.006)***	(0.009)***	(0.008)***	(0.010)***	(0.010)***	(0.011)***	(0.023)
2013	-0.020	0.064	-0.020	0.022	-0.045	-0.187	-0.051
	(0.007)***	(0.011)***	(0.006)***	(0.014)	(0.008)***	(0.025)***	(0.016)***
2016	-0.008	0.004	0.029	0.029	-0.039	-0.172	-0.068
	(0.005)*	(0.011)	(0.006)***	(0.009)***	(0.009)***	(0.012)***	(0.021)***
2019	-0.019	-0.034	0.077	-0.011	-0.040	-0.135	-0.084
	(0.007)***	(0.015)**	(0.007)***	(0.010)	(0.006)***	(0.019)***	(0.019)***
2022	-0.008	-0.030	-0.017	-0.021	-0.036	-0.074	-0.012
	(0.006)	(0.018)*	(0.009)*	(0.013)	(0.009)***	(0.019)***	(0.017)
Num. of obs.	11,826	11,826	11,826	11,826	11,826	11,826	11,826
Wald χ^2	525	145	630.6	155.9	80.05	773.6	77.04
Pseudo R^2	0.0511	0.00457	0.0230	0.00457	0.0151	0.0247	0.00521
Log likelihood	-2131	-7726	-4169	-6213	-3046	-6716	-6034

Table A4.24. Average marginal change in probability from 2025 of attributing damage to rivers and lakes to 14 different pressures, 2010–2025.

	Dependent variable: Cause of damage						
	Motor vehicles & transport	Household waste & emissions	Industrial activities	Pests & weeds	Farming	Forestry	Urban development
Baseline probability (2025 avg.)	0.03	0.15	0.24	0.27	0.31	0.16	0.13
2010	-0.005	0.060	0.078	-0.057	0.196	-0.109	0.018
	(0.005)	(0.014)***	(0.015)***	(0.016)***	(0.021)***	(0.009)***	(0.010)*
2013	-0.010	0.047	0.057	-0.079	0.254	-0.096	0.022
	(0.004)**	(0.010)***	(0.014)***	(0.018)***	(0.015)***	(0.008)***	(0.018)
2016	-0.012	0.037	0.040	-0.056	0.283	-0.048	0.024
	(0.004)***	(0.010)***	(0.016)**	(0.018)***	(0.014)***	(0.010)***	(0.011)**
2019	-0.002	0.031	0.018	-0.123	0.128	-0.048	0.036
	(0.004)	(0.017)*	(0.017)	(0.016)***	(0.015)***	(0.009)***	(0.013)***
2022	0.002	0.013	0.016	0.014	0.127	-0.046	0.037
	(0.006)	(0.011)	(0.015)	(0.013)	(0.011)***	(0.008)***	(0.015)**
Num. of obs.	11,822	11,822	11,822	11,822	11,822	11,822	11,822
Wald χ^2	54.02	22.90	69.29	223.4	505	454.8	10.07
Pseudo R^2	0.00545	0.00295	0.00316	0.0112	0.0259	0.0253	0.00137
Log likelihood	-1280	-5631	-6982	-6207	-7963	-3674	-5069

	Dependent variable: Cause of damage						
	Mining	Sewage & stormwater	Tourism	Commercial fishing	Recreational fishing	Dumping of solid waste	Hazardous chemicals
Baseline probability (2025 avg.)	0.05	0.49	0.05	0.06	0.08	0.37	0.29
2010	0.002	-0.028	-0.006	-0.028	-0.034	-0.137	-0.127
	(0.004)	(0.020)	(0.007)	(0.008)***	(0.006)***	(0.017)***	(0.012)***
2013	0.015	-0.065	-0.014	-0.025	-0.028	-0.202	-0.057
	(0.008)*	(0.019)***	(0.009)	(0.010)**	(0.008)***	(0.016)***	(0.015)***
2016	0.007	-0.059	-0.006	-0.021	-0.030	-0.190	-0.070
	(0.007)	(0.024)**	(0.008)	(0.008)***	(0.006)***	(0.011)***	(0.015)***
2019	0.004	-0.060	0.030	0.014	-0.017	-0.157	-0.084
	(0.008)	(0.020)***	(0.006)***	(0.009)	(0.007)**	(0.014)***	(0.013)***
2022	-0.007	-0.057	0.024	-0.018	-0.032	-0.106	-0.018
	(0.006)	(0.018)***	(0.009)***	(0.006)***	(0.008)***	(0.011)***	(0.013)
Num. of obs.	11,822	11,822	11,822	11,822	11,822	11,822	11,822
Wald χ^2	15.55	15.71	286.5	161.6	126.3	500	337.7
Pseudo R^2	0.00220	0.00162	0.0104	0.0145	0.00628	0.0217	0.00994
Log likelihood	-2379	-8122	-2569	-2044	-2473	-6351	-6319

Table A4.25. Average marginal change in probability from 2025 of attributing damage to wetlands to 14 different pressures, 2010–2025.

	Dependent variable: Cause of damage						
	Motor vehicles & transport	Household waste & emissions	Industrial activities	Pests & weeds	Farming	Forestry	Urban development
Baseline probability (2025 avg.)	0.03	0.10	0.23	0.37	0.24	0.15	0.28
2010	-0.008	-0.009	-0.049	-0.013	0.082	-0.097	-0.021
	(0.007)	(0.015)	(0.013)***	(0.017)	(0.013)***	(0.011)***	(0.014)
2013	-0.010	-0.004	-0.057	0.005	0.153	-0.061	-0.013
	(0.006)*	(0.018)	(0.013)***	(0.012)	(0.015)***	(0.013)***	(0.019)
2016	-0.002	-0.005	-0.035	0.010	0.185	-0.018	-0.005
	(0.007)	(0.009)	(0.018)*	(0.013)	(0.016)***	(0.015)	(0.016)
2019	0.001	-0.010	-0.061	-0.055	0.089	-0.021	0.013
	(0.007)	(0.012)	(0.012)***	(0.012)***	(0.013)***	(0.013)	(0.010)
2022	0.008	0.007	-0.034	-0.009	0.097	-0.022	0.046
	(0.007)	(0.012)	(0.013)***	(0.017)	(0.015)***	(0.010)**	(0.021)**
Num. of obs.	11,590	11,590	11,590	11,590	11,590	11,590	11,590
Wald χ^2	72.31	22.79	135.4	73.81	183.1	213.9	10.16
Pseudo R^2	0.00445	0.000598	0.00276	0.00139	0.0121	0.0197	0.00199
Log likelihood	-1614	-3759	-5577	-7561	-7324	-3912	-6840

	Dependent variable: Cause of damage						
	Mining	Sewage & stormwater	Tourism	Commercial fishing	Recreational fishing	Dumping of solid waste	Hazardous chemicals
Baseline probability (2025 avg.)	0.06	0.36	0.04	0.02	0.02	0.28	0.22
2010	0.007	-0.112	0.091	-0.010	-0.016	-0.125	-0.044
	(0.011)	(0.016)***	(0.009)***	(0.003)***	(0.003)***	(0.015)***	(0.015)***
2013	0.005	-0.095	0.022	-0.009	-0.011	-0.113	-0.055
	(0.006)	(0.023)***	(0.007)***	(0.003)***	(0.005)**	(0.014)***	(0.015)***
2016	-0.002	-0.093	0.037	-0.010	-0.011	-0.101	-0.066
	(0.010)	(0.014)***	(0.006)***	(0.004)***	(0.003)***	(0.012)***	(0.013)***
2019	-0.000	-0.078	0.056	0.001	0.010	-0.101	-0.080
	(0.008)	(0.022)***	(0.008)***	(0.004)	(0.004)**	(0.013)***	(0.008)***
2022	-0.003	-0.081	0.017	0.007	0.009	-0.034	-0.033
	(0.008)	(0.012)***	(0.005)***	(0.004)*	(0.007)	(0.011)***	(0.014)**
Num. of obs.	11,590	11,590	11,590	11,590	11,590	11,590	11,590
Wald χ^2	4.724	280.3	158.5	44.62	59.56	314.1	204.5
Pseudo R^2	0.000581	0.00549	0.0251	0.0181	0.0298	0.0132	0.00464
Log likelihood	-2497	-6852	-3012	-923.7	-1054	-5718	-5397

Table A4.26. Average marginal change in probability from 2025 of attributing damage to native bush and forests to 14 different pressures, 2010–2025.

	Dependent variable: Cause of damage						
	Motor vehicles & transport	Household waste & emissions	Industrial activities	Pests & weeds	Farming	Forestry	Urban development
Baseline probability (2025 avg.)	0.04	0.05	0.21	0.47	0.16	0.55	0.35
2010	-0.003	-0.019	-0.042	0.147	0.145	-0.185	-0.101
	(0.004)	(0.006)***	(0.011)***	(0.022)***	(0.013)***	(0.016)***	(0.028)***
2013	-0.015	-0.027	-0.079	0.081	0.125	-0.143	-0.055
	(0.005)***	(0.005)***	(0.015)***	(0.023)***	(0.019)***	(0.017)***	(0.013)***
2016	-0.010	-0.022	-0.072	0.118	0.162	-0.138	-0.058
	(0.010)	(0.004)***	(0.013)***	(0.013)***	(0.013)***	(0.017)***	(0.011)***
2019	0.007	-0.006	-0.051	0.042	0.075	-0.125	-0.046
	(0.007)	(0.004)	(0.013)***	(0.014)***	(0.016)***	(0.015)***	(0.011)***
2022	0.003	0.016	-0.048	0.024	0.036	-0.075	0.000
	(0.005)	(0.009)*	(0.007)***	(0.022)	(0.008)***	(0.013)***	(0.011)
Num. of obs.	11,841	11,841	11,841	11,841	11,841	11,841	11,841
Wald χ^2	32.91	148.3	85.82	252.4	436.2	338	206.6
Pseudo R^2	0.00419	0.0135	0.00504	0.00835	0.0169	0.0110	0.00514
Log likelihood	-1985	-2120	-5299	-8090	-6606	-8024	-7263

	Dependent variable: Cause of damage						
	Mining	Sewage & stormwater	Tourism	Commercial fishing	Recreational fishing	Dumping of solid waste	Hazardous chemicals
Baseline probability (2025 avg.)	0.15	0.06	0.14	0.00	0.00	0.17	0.12
2010	0.032	-0.026	-0.141	0.005	0.039	-0.053	0.002
	(0.015)**	(0.003)***	(0.006)***	(0.001)***	(0.006)***	(0.013)***	(0.011)
2013	0.091	-0.028	-0.041	0.004	0.002	-0.069	-0.022
	(0.020)***	(0.007)***	(0.012)***	(0.002)*	(0.001)*	(0.011)***	(0.009)**
2016	0.053	-0.022	0.007	0.006	0.005	-0.046	-0.019
	(0.018)***	(0.009)**	(0.011)	(0.002)***	(0.002)***	(0.008)***	(0.014)
2019	0.000	-0.003	0.054	0.011	0.010	-0.029	-0.025
	(0.016)	(0.005)	(0.008)***	(0.004)***	(0.003)***	(0.009)***	(0.009)***
2022	-0.003	-0.002	0.031	0.022	0.015	-0.054	-0.008
	(0.016)	(0.007)	(0.009)***	(0.006)***	(0.003)***	(0.007)***	(0.007)
Num. of obs.	11,841	11,841	11,841	11,841	11,841	11,841	11,841
Wald χ^2	122.2	486.8	377.2	75.33	152	152	79.41
Pseudo R^2	0.00808	0.00964	0.0789	0.0606	0.0893	0.00584	0.00164
Log likelihood	-5506	-2082	-4082	-537.5	-791.4	-4408	-4162

Table A4.27. Average marginal change in probability from 2025 of attributing damage to protected natural areas to 14 different pressures, 2022–2025.

	Dependent variable: Cause of damage						
	Motor vehicles & transport	Household waste & emissions	Industrial activities	Pests & weeds	Farming	Forestry	Urban development
Baseline probability (2025 avg.)	0.07	0.09	0.20	0.45	0.08	0.20	0.21
2022	0.000	0.005	-0.025	0.015	0.064	-0.022	0.046
	(0.007)	(0.009)	(0.010)***	(0.016)	(0.009)***	(0.013)	(0.015)***
Num. of obs.	3,886	3,886	3,886	3,886	3,886	3,886	3,886
Wald χ^2	9.25e-06	0.316	6.506	0.902	57.29	2.662	9.097
Pseudo R^2	2.75e-09	0.000121	0.00108	0.000161	0.0144	0.000836	0.00274
Log likelihood	-1034	-1206	-1861	-2678	-1351	-1858	-2114

	Dependent variable: Cause of damage						
	Mining	Sewage & stormwater	Tourism	Commercial fishing	Recreational fishing	Dumping of solid waste	Hazardous chemicals
Baseline probability (2025 avg.)	0.11	0.12	0.32	0.08	0.08	0.21	0.13
2022	0.001	0.000	-0.038	-0.033	-0.044	-0.048	0.015
	(0.009)	(0.006)	(0.016)**	(0.009)***	(0.005)***	(0.010)***	(0.007)**
Num. of obs.	3,886	3,886	3,886	3,886	3,886	3,886	3,886
Wald χ^2	0.00476	0.00191	5.284	13.06	40.33	22.99	4.756
Pseudo R^2	1.51e-06	2.39e-07	0.00140	0.0102	0.0207	0.00390	0.000638
Log likelihood	-1337	-1447	-2372	-896.9	-833.4	-1874	-1523

Table A4.28. Average marginal change in probability from 2025 of attributing damage to natural environments in towns and cities to 14 different pressures, 2022–2025.

	Dependent variable: Cause of damage						
	Motor vehicles & transport	Household waste & emissions	Industrial activities	Pests & weeds	Farming	Forestry	Urban development
Baseline probability (2025 avg.)	0.47	0.45	0.32	0.11	0.01	0.02	0.50
2022	-0.105	-0.024	-0.003	0.034	0.021	-0.002	0.030
	(0.025)***	(0.017)	(0.013)	(0.015)**	(0.005)***	(0.004)	(0.016)*
Num. of obs.	3,962	3,962	3,962	3,962	3,962	3,962	3,962
Wald χ^2	17.58	1.957	0.0520	5.746	44.26	0.377	3.600
Pseudo R^2	0.00833	0.000411	8.55e-06	0.00341	0.0301	0.000335	0.000630
Log likelihood	-2668	-2711	-2468	-1518	-372.1	-414.3	-2744

	Dependent variable: Cause of damage						
	Mining	Sewage & stormwater	Tourism	Commercial fishing	Recreational fishing	Dumping of solid waste	Hazardous chemicals
Baseline probability (2025 avg.)	0.02	0.26	0.13	0.01	0.01	0.23	0.13
2022	0.007	0.026	-0.042	0.002	0.008	-0.023	0.026
	(0.008)	(0.018)	(0.005)***	(0.002)	(0.003)**	(0.014)*	(0.011)**
Num. of obs.	3,962	3,962	3,962	3,962	3,962	3,962	3,962
Wald χ^2	0.804	2.203	41.82	1.090	7.253	2.815	5.468
Pseudo R^2	0.00264	0.000739	0.00703	0.000828	0.00600	0.000722	0.00173
Log likelihood	-432.2	-2304	-1324	-268.1	-329.6	-2083	-1608

Table A4.29. Average marginal change in probability from 2025 of attributing damage to marine plants and animals to 14 different pressures, 2022–2025.

	Dependent variable: Cause of damage						
	Motor vehicles & transport	Household waste & emissions	Industrial activities	Pests & weeds	Farming	Forestry	Urban development
Baseline probability (2025 avg.)	0.03	0.10	0.18	0.23	0.06	0.06	0.07
2022	-0.007	0.046	0.016	-0.016	0.030	-0.005	0.026
	(0.007)	(0.010)***	(0.014)	(0.014)	(0.007)***	(0.009)	(0.013)**
Num. of obs.	3,946	3,946	3,946	3,946	3,946	3,946	3,946
Wald χ^2	0.929	19.89	1.275	1.497	17.61	0.263	4.094
Pseudo R^2	0.00161	0.00667	0.000405	0.000370	0.00622	0.000232	0.00413
Log likelihood	-497.9	-1455	-1911	-2076	-1040	-845.8	-1084

	Dependent variable: Cause of damage						
	Mining	Sewage & stormwater	Tourism	Commercial fishing	Recreational fishing	Dumping of solid waste	Hazardous chemicals
Baseline probability (2025 avg.)	0.07	0.48	0.05	0.56	0.21	0.26	0.28
2022	-0.022	0.007	0.017	-0.061	-0.070	-0.054	0.001
	(0.006)***	(0.025)	(0.008)**	(0.016)***	(0.017)***	(0.016)***	(0.012)
Num. of obs.	3,946	3,946	3,946	3,946	3,946	3,946	3,946
Wald χ^2	10.46	0.0767	4.390	15.08	22.15	10.10	0.00189
Pseudo R^2	0.00552	3.48e-05	0.00342	0.00273	0.00885	0.00362	2.99e-07
Log likelihood	-830	-2732	-828.9	-2722	-1845	-2160	-2334

Table A4.30. Average marginal change in probability from 2025 of attributing damage to terrestrial plants and animals to 14 different pressures, 2022–2025.

	Dependent variable: Cause of damage						
	Motor vehicles & transport	Household waste & emissions	Industrial activities	Pests & weeds	Farming	Forestry	Urban development
Baseline probability (2025 avg.)	0.06	0.12	0.25	0.41	0.18	0.20	0.24
2022	-0.006	0.032	-0.014	-0.012	0.093	-0.059	0.012
	(0.010)	(0.010)***	(0.018)	(0.015)	(0.010)***	(0.018)***	(0.014)
Num. of obs.	3,909	3,909	3,909	3,909	3,909	3,909	3,909
Wald χ^2	0.315	11.75	0.564	0.635	85.12	11.12	0.748
Pseudo R^2	0.000334	0.00266	0.000232	0.000107	0.0116	0.00641	0.000174
Log likelihood	-854.9	-1578	-2163	-2642	-2062	-1806	-2179

	Dependent variable: Cause of damage						
	Mining	Sewage & stormwater	Tourism	Commercial fishing	Recreational fishing	Dumping of solid waste	Hazardous chemicals
Baseline probability (2025 avg.)	0.09	0.32	0.05	0.08	0.06	0.23	0.26
2022	-0.016	-0.033	0.022	-0.024	-0.012	-0.021	-0.021
	(0.009)*	(0.011)***	(0.008)***	(0.005)***	(0.008)	(0.011)**	(0.017)
Num. of obs.	3,909	3,909	3,909	3,909	3,909	3,909	3,909
Wald χ^2	2.909	8.879	9.110	16.24	2.183	3.977	1.553
Pseudo R^2	0.00135	0.00104	0.00497	0.00425	0.00174	0.000602	0.000517
Log likelihood	-1146	-2401	-848.1	-985.6	-828.3	-2075	-2182

Table A4.31. Average marginal change in probability of participating in 16 environmental activities by demographics in 2025.

A multi-variate logit regression was run for each of the 16 activities estimating the marginal change in probability of respondents participating in each activity based on their gender, age group, education attainment, and ethnicity in 2025. All variables are binary. Estimates are the average difference in probability of participating in a given activity between the stated demographic (e.g., Male) and its respective alternative (e.g., Female or Gender diverse) holding all other demographics constant. Asterisks represent significant differences where:

*** means P < .01,
** means P < .05, and
* means P < .10.

Standard errors are given in parentheses below. Standard errors are clustered at the regional council level.

	Dependent variable: Participation in activity							
	Recycled	Grown your own veggies	Reduced electricity	Composted	Bought environ. friendly	Used public transport	Reduced use of fresh water	Visited a national park
Male (=1)	-0.035	-0.078	-0.101	-0.019	-0.126	0.047	-0.053	0.033
	(0.013)***	(0.028)***	(0.024)***	(0.015)	(0.028)***	(0.018)**	(0.013)***	(0.021)
Aged 44 and over (=1)	0.109	0.115	0.100	0.149	-0.043	-0.086	0.113	-0.180
	(0.012)***	(0.016)***	(0.016)***	(0.014)***	(0.024)*	(0.018)***	(0.020)***	(0.016)***
Tertiary qualification (=1)	0.038	0.028	0.014	0.019	0.085	0.091	0.023	0.077
	(0.018)**	(0.023)	(0.020)	(0.023)	(0.021)***	(0.056)*	(0.023)	(0.025)***
Māori (=1)	-0.012	-0.009	0.074	-0.003	0.077	0.020	0.089	-0.062
	(0.023)	(0.028)	(0.039)*	(0.018)	(0.032)**	(0.022)	(0.028)***	(0.027)**
Num. of obs.	2,021	2,021	2,021	2,021	2,021	2,020	2,021	2,021
Wald χ^2	304.3	60.12	61.74	167.1	59.29	35.43	61.88	197.7
Pseudo R^2	0.0311	0.0147	0.0162	0.0161	0.0203	0.0134	0.0154	0.0382
Log likelihood	-839.1	-1342	-1368	-1372	-1372	-1352	-1271	-1232

	Dependent variable: Participation in activity							
	Obtained environ. information	Controlled mammalian pests	Visited a marine reserve	Made financial donation	Involved in environ. project	Participate in environ. organisation	Participate in environ. hearings	Participate in environ. restoration
Male (=1)	0.010	0.009	0.027	0.014	0.040	0.019	0.025	0.028
	(0.013)	(0.018)	(0.012)**	(0.011)	(0.011)***	(0.014)	(0.010)**	(0.007)***
Aged 44 and over (=1)	-0.036	0.059	-0.059	-0.017	-0.022	-0.035	-0.013	-0.022
	(0.019)*	(0.015)***	(0.024)**	(0.011)	(0.011)**	(0.009)***	(0.010)	(0.007)***
Tertiary qualification (=1)	0.148	-0.005	0.035	0.027	0.058	0.051	0.015	0.023
	(0.022)***	(0.012)	(0.020)*	(0.014)*	(0.011)***	(0.008)***	(0.013)	(0.010)**
Māori (=1)	0.087	0.044	0.017	0.059	0.052	0.025	0.044	0.032
	(0.025)***	(0.027)	(0.010)*	(0.023)**	(0.021)**	(0.009)***	(0.011)***	(0.011)***
Num. of obs.	2,021	2,020	2,021	2,020	2,021	2,020	2,020	2,020
Wald χ^2	168.3	16.60	6.346	57.80	40.03	63.17	30	77.07
Pseudo R^2	0.0314	0.00661	0.0191	0.0115	0.0283	0.0294	0.0179	0.0312
Log likelihood	-1043	-994.4	-722.4	-664.2	-614.4	-525.9	-457.8	-379.9

Table A4.32. Average marginal change in probability from 2025 of participating in 15 environmental activities, 2010–2025.

A logit regression was run for each activity estimating the marginal change in probability of respondents participating in each activity in each year compared to the baseline 2025 survey proportion. Estimates are the average marginal change in the given year from the 2025 baseline holding all other years constant. Asterisks represent significance, where:

*** means P < .01,
** means P < .05, and
* means P < .10.

Standard errors are given in parentheses below. Standard errors are clustered at the regional council level.

	Dependent variable: Participation in activity						
	Recycled	Grown your own veggies	Reduced electricity	Composted	Bought environ. friendly	Used public transport	Reduced use of fresh water
Baseline probability (2025 avg.)	0.847	0.597	0.550	0.540	0.496	0.415	0.337
2010	0.108	0.184	0.322	0.201	0.319	0.058	0.289
	(0.017)***	(0.016)***	(0.013)***	(0.019)***	(0.016)***	(0.028)**	(0.015)***
2013	0.100	0.180	0.265	0.200	0.285	0.062	0.287
	(0.017)***	(0.015)***	(0.015)***	(0.012)***	(0.018)***	(0.014)***	(0.011)***
2016	0.109	0.157	0.249	0.217	0.324	0.094	0.242
	(0.012)***	(0.021)***	(0.014)***	(0.012)***	(0.014)***	(0.024)***	(0.015)***
2019	0.068	0.085	0.194	0.160	0.284	0.110	0.225
	(0.011)***	(0.014)***	(0.013)***	(0.018)***	(0.013)***	(0.021)***	(0.013)***
2022	-0.035	-0.003	-0.035	-0.032	-0.008	-0.210	-0.009
	(0.019)*	(0.024)	(0.021)*	(0.026)	(0.016)	(0.021)***	(0.023)
Num. of obs.	11,875	11,878	11,908	11,881	11,890	11,880	11,821
Wald χ^2	397	261.2	1104	2119	1135	393.6	1797
Pseudo R^2	0.0574	0.0247	0.0778	0.0354	0.0802	0.0361	0.0481
Log likelihood	-3495	-7077	-6521	-7311	-6708	-7836	-7798

	Dependent variable: Participation in activity							
	Visited a national park	Obtained environ. information	Visited a marine reserve	Made financial donation	Involved in environ. project	Participate in environ. organisation	Participate in environ. restoration	Participate in environ. hearings
Baseline probability (2025 avg.)	0.330	0.225	0.119	0.103	0.095	0.076	0.061	0.048
2010	0.223	0.427	0.135	0.163	0.173	0.130	0.068	0.090
	(0.012)***	(0.018)***	(0.014)***	(0.012)***	(0.008)***	(0.009)***	(0.010)***	(0.008)***
2013	0.197	0.365	0.130	0.163	0.146	0.123	0.070	0.069
	(0.018)***	(0.014)***	(0.021)***	(0.010)***	(0.011)***	(0.009)***	(0.009)***	(0.006)***
2016	0.203	0.407	0.144	0.229	0.192	0.174	0.093	0.105
	(0.013)***	(0.017)***	(0.019)***	(0.013)***	(0.013)***	(0.013)***	(0.009)***	(0.006)***
2019	0.183	0.380	0.125	0.201	0.223	0.161	0.123	0.113
	(0.012)***	(0.018)***	(0.015)***	(0.009)***	(0.013)***	(0.010)***	(0.015)***	(0.011)***
2022	0.008	-0.027	0.022	-0.003	0.002	-0.013	-0.010	-0.005
	(0.015)	(0.012)**	(0.009)**	(0.008)	(0.010)	(0.009)	(0.009)	(0.006)
Num. of obs.	11,857	11,842	11,864	11,879	11,858	11,861	11,854	11,893
Wald χ^2	552.1	2004	575.2	1199	2387	1831	600.6	480.2
Pseudo R^2	0.0264	0.115	0.0213	0.0489	0.0484	0.0473	0.0313	0.0365
Log likelihood	-7975	-7261	-5992	-6072	-5900	-5175	-4166	-3980