



AGENDA

Policy & Planning

Tuesday 23 July 2024 10.30am

Policy and Planning Committee

23 July 2024 10:30 AM



Agenda Topic	Page
1. Cover	1
2. Apologies	
3. Confirmation of Policy and Planning Minutes - 30 April 2024	3
4. 11 June 2024 Policy and Planning Committee meeting items	7
5. Freshwater Implementation Update July 2024	316
6. Land and Water Plan – Conflicts of Interest	322
7. Parliamentary Commissioner of Environment Report on Land Use Change	337
8. Karakia to close meeting	426
9. Agenda Authorisation	427



Date: 23 July 2024

Subject: Policy and Planning Committee Minutes – 30 April 2024

Author: M Jones, Governance Administrator

Approved by: A D McLay, Director - Resource Management

Document: 3288306

Recommendations

That Taranaki Regional Council:

- a) takes as read and confirms the minutes of the Policy and Planning Committee meeting of the Taranaki Regional Council held in the Taranaki Regional Council chambers, 47 Cloten Road, Stratford on Tuesday 30 April 2024
- b) notes the recommendations therein were adopted by the Taranaki Regional Council on Tuesday 14 May 2024.

Appendices/Attachments

Document 3269781: [Policy and Planning Committee Minutes – 30 April 2024](#)



Date:	30 April 2024
Venue:	Taranaki Regional Council Boardroom, 47 Cloten Road, Stratford
Document:	3269781
Present:	C S Williamson Chairperson S W Hughes B J Bigham zoom D M Cram D H McIntyre A L Jamieson C L Littlewood (ex officio) N W Walker (ex officio) P Moeahu Iwi Representative E Bailey Iwi Representative (zoom) M Ritai Iwi Representative (zoom joined at 11.03am) L Gibbs Federated Framers B Haque New Plymouth District Council G Boyde Stratford District Council C Filbee South Taranaki District Council
Attending:	S J Ruru Chief Executive A D McLay Director – Resource Management M J Nield Director – Corporate Services A J Matthews Director – Environment Quality L Hawkins Planning Manager F Kiddle Strategy lead zoom L Hawkins Policy Manager F Jansma Scientist – Water Quality T McElroy Manager - Science and Technology A Collins Scientist – Water Quality B Levine Scientist – Land and Soil B Mahoney Team Lead – Land and Water G Marcroft Senior Policy Analyst – Regional Planning Lead C Woollin Communications Advisor M Jones Governance Administrator N Chadwick Executive Assistant

The meeting opened at 10.56am.

1. Confirmation of Minutes Policy and Planning 19 March 2024

Resolved

That the Taranaki Regional Council:

- a) took as read and confirmed the minutes of the Policy and Planning Committee of the Taranaki Regional Council held at 10.30 on 19 March 2024 at Taranaki Regional Council 47 Cloten Road Stratford
- b) noted the recommendations therein were adopted by the Taranaki Regional Council on Tuesday 2 April 2024.

Walker/Littlewood

2. Opportunities for Freshwater Reform

2.1 F Kiddle gave an update on the initial analysis on opportunities to improve the freshwater management regime.

2.2 L Hawkins provided clarification on the values that define an outstanding water body.

Resolved

That the Taranaki Regional Council:

- a) received the memorandum titled *Opportunities for Freshwater Reform*
- b) noted that opportunities to influence the initial form of the Government's freshwater reforms will likely require quick response over the coming months
- c) noted the initial analysis presented in Attachment One Comments on Reform of the Resource Management Act 1991 Freshwater Regime
- d) noted that none of the policy suggestions presented would necessitate a change in the notification target of mid-2025 for the Council's Land and Freshwater Plan
- e) noted Council officers will continue to refine the analysis, including specific drafting options, and engage closely with Te Uru Kahika in the reform process.

Hughes/Gibbs

3. Fast Track Bill: Te Uru Kahika Submission

3.1 F Kiddle gave an update of the Te Uru Kahika submission and the fast track process.

Resolved

That the Taranaki Regional Council:

- a) received the memorandum titled Fast Track Bill: Te Uru Kahika Submission
- b) noted the submission contained in Attachment One.

Hughes/Walker

4. Freshwater Implementation Update

4.1 L Hawkins provided an update on the Freshwater Implementation project.

Resolved

That the Taranaki Regional Council:

- a) received the March 2024 update on the Freshwater Implementation Programme.

McIntyre/Walker

5. Freshwater Target Attribute State Overview

5.1 T McElroy provided a presentation on the investigations and analysis undertaken to identify draft Target Attribute States (TAS) to inform the freshwater plan development process, and importantly the upcoming public consultation process.

(B Haque left meeting 12.16pm)

(P Moeahu left meeting 12.17pm)

Resolved

That the Taranaki Regional Council:

- a) received this memorandum Target Attribute State Overview
- b) noted the attached presentation and the detail which will be presented during the Committee meeting.

Williamson/Cram

There being no further business the Committee Chairperson, C S Williamson, declared the meeting of the Policy and Planning Committee closed at 12.51pm.

Policy and Planning

Committee Chairperson: _____

C S Williamson



Date: 23 July 2024

Subject: 11 June 2024 Policy and Planning Committee meeting items

Author: N Chadwick, Executive Assistant to the Chief Executive and Chair

Approved by: S J Ruru, Chief Executive

Document: 3290333

Purpose

1. The purpose of this memorandum is to discuss the agenda items from the abandoned 11 June 2024 Committee meeting and seek confirmation of the recommendations for each item.

Recommendations

That Taranaki Regional Council:

- a) receives this agenda memorandum titled 11 June 2024 Policy and Planning Committee Agenda items
- b) receives the memorandum Future Development Strategy for Ngāmotu New Plymouth
- c) notes the decision made by the Future Development Subcommittee to adopt the Future Development Strategy for Ngāmotu New Plymouth on behalf of the Taranaki Regional Council and New Plymouth District Council
- d) receives the memorandum Office of the Auditor General – Audit on Managing Freshwater Quality
- e) notes the Office of the Auditor General’s Regional councils’ relationships with iwi and hapū for freshwater management – a follow up report (2024)
- f) notes the positive progress made in the relationship between the Council and iwi and hapū in the region
- g) receives the memorandum and attached report entitled Regional Pest Management Plan for Taranaki – Interim Review 2023
- h) notes that the Regional Pest Management Plan for Taranaki – Interim Review 2023 report gives effect to a Council commitment in the 2022/2023 Annual Plan to undertake an interim review of the Regional Pest Management Plan
- i) notes that the Regional Pest Management Plan for Taranaki continues to be efficient, effective and relevant and that no immediate change is required.
- j) notes the opportunities to build on efficiency and effectiveness of the Regional Pest Management Plan for Taranaki as part of an earlier review of the Taranaki Regional Council Biosecurity Strategy will be investigated
- k) receives the June 2024 update on the Freshwater Implementation Programme
- l) receives the memorandum Target Attribute State Overview – Nutrients in Rivers

- m) receives the memorandum Source Water Risk Management Areas for Municipal Drinking Water Supplies and the accompanying report Delineation of Source Water Risk Management Areas for selected municipal water supplies in the Taranaki Region
- n) notes the item titled Submission on the Local Government (Water Services Preliminary Arrangements) Bill was subsequently presented to Council for consideration and endorsement due to the meeting being abandoned.

Background

- 2. The Policy and Planning Committee (the Committee) meeting which was to be held on 11 June 2024 was abandoned due to a lack of quorum.
- 3. While there were a number of Committee members attending via zoom, under the relevant legislation and Standing Orders, they were not able to be counted as a part of the quorum. Changes to the legislation, which allow members attending via zoom to be counted as part of the quorum, take effect from October 2024, at which point officers will update Standing Orders.
- 4. Standing Orders state that where a meeting is abandoned, the agenda items should be carried forward to the next meeting of the Committee.

Issues

- 5. There is a need for the Policy and Planning Committee to formally receive the items that were scheduled to be considered at the abandoned 11 June 2024 meeting.

Discussion

- 6. The following items were on the agenda for the 11 June 2024 meeting:
 - Future Development Strategy for Ngāmotu New Plymouth
 - Office of the Auditor General – Audit on Freshwater Quality
 - Interim Review of Regional Pest Management Plan for Taranaki
 - Freshwater Implementation Update
 - Freshwater Target Attribute State Overview - Nutrients in Rivers
 - Source Water Risk Management Areas for Municipal Drinking Water Supplies
- 7. The information and associated presentations were provided to members in the form of an impromptu workshop.
- 8. There was also an item titled Submission on Local Government (Water Services Preliminary Arrangements) Bill, which due to a submission deadline was presented for consideration and decision at the Council's Ordinary meeting on 27 June 2024. As all of the remaining reports were for noting and as such did not require any formal decisions or recommendations to be made. Hence, it is proposed that the Committee formally resolve to note and receive the remaining reports.

Financial considerations—LTP/Annual Plan

- 9. This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

- 10. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to,

the Local Government Act 2002, the Resource Management Act 1991 and the Local Government Official Information and Meetings Act 1987.

Iwi considerations

11. This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the Local Government Act 2002) as outlined in the adopted Long-Term Plan and/or Annual Plan.

Community considerations

12. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this memorandum.

Legal considerations

13. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 3277213: [Future Development Strategy for Ngāmotu New Plymouth](#)

Document 3263227: [Office of the Auditor General – Audit on Managing Freshwater Quality](#)

Document 3272565: [Interim Review of Regional Pest Management Plan for Taranaki](#)

Document 3278064: [Freshwater Implementation Update June 2024](#)

Document 3278520: [Freshwater Target Attribute State Overview – Nutrients in Rivers](#)

Document 3275523: [Source Water Risk Management Areas for Municipal Drinking Water Supplies](#)

Document 3280559: [Submission on the Local Government \(Water Services Preliminary Arrangements\) Bill](#)



Date: 11 June 2024

Subject: Future Development Strategy for Ngāmotu New Plymouth

Author: N Bradley-Archer, Policy Analyst

Approved by: A D McLay, Director - Resource Management

Document: 3277213

Purpose

1. The purpose of this memorandum is to update the Policy and Planning Committee on the process and decision by the Future Development Strategy Subcommittee (FDS Subcommittee) regarding adoption of the Future Development Strategy for Ngāmotu New Plymouth (the FDS) and associated Implementation Plan.

Executive summary

2. The purpose of the FDS is to promote the achievement of a well-functioning urban environment in the existing and future urban area and provide at least sufficient development capacity over the next 30 years to meet expected demand.
3. The National Policy Statement on Urban Development (NPS-UD) 2020 requires Taranaki Regional Council (TRC) and the New Plymouth District Council (NPDC) (the Councils) to jointly prepare, and make available, the FDS.
4. Both the Councils' Ordinary Meetings agreed to publicly notify a FDS Statement of Proposal (draft FDS) and formed the Subcommittee to hear submissions on the draft FDS, using the Special Consultative Procedure under section 83 of the Local Government Act (LGA) 2002. The Subcommittee were delegated authority from both Councils to jointly make the decision to adopt the FDS. The adopted FDS would therefore not need to be formally adopted by each Council individually.
5. The draft FDS and Implementation Plan were notified on 6 March 2024 and the submission period ended on 8 April 2024.
6. The Subcommittee heard from submitters across three hearings dates, which took place from 22 April to 24 April 2024.
7. Key issues raised during submissions were addressed within the officer's report were:
 - establishment of the Ngāmotu Growth Advisory Panel
 - retirement residential living
 - infill housing and intensification feasibility
 - supply of sufficient development capacity
 - modelling assumptions used within the Housing and Business Capacity Assessment 2024.

8. The Subcommittee deliberated on the written and verbal submissions on Friday 10 May 2024. They subsequently made a decision to adopt the FDS and provided their feedback for the associated FDS Implementation Plan.

Recommendations

That Taranaki Regional Council:

- a) receives this memorandum Future Development Strategy for Ngāmotu New Plymouth.
- b) notes the decision made by Future Development Subcommittee to adopt the Future Development Strategy for Ngāmotu New Plymouth on behalf of Taranaki Regional Council and New Plymouth District Council
- c) notes the following attachments:
 - (I) Document 1: Future Development Strategy for Ngāmotu New Plymouth; and
 - (II) Document 2: Future Development Strategy Implementation Plan.

Background

9. This memorandum is a continuation from the previous Future Development Strategy reports that were presented to both the Policy and Planning Committee on 21 November 2023 (#3221487) and the Ordinary Council on 27 February 2024 (#3248008 & # 3246941).
10. In August 2020, the government released the NPS-UD. The NPS-UD 2020 requires the development of a FDS for districts such as New Plymouth, which are classified as Tier 2 Urban Environments. Consequently, the Councils are jointly required to implement a FDS.
11. The purpose of a FDS is to promote long-term strategic planning by outlining how the Councils intend to:
 - achieve well-functioning urban environments in their existing and future urban areas
 - provide at least sufficient development capacity over the next 30 years to meet expected demand
 - assist with the integration of planning decisions under the Resource Management Act (RMA) with infrastructure planning and funding decisions.
12. Current and previous long-term growth initiatives serve as key inputs to the draft FDS. Notable examples include the Proposed District Plan – Decisions Version (PDP) 2023 and the Housing and Business Capacity Assessment (HBA) 2024.
13. Additionally, other key inputs to the draft FDS include joint consultation and engagement led by NPDC with various key stakeholders. These stakeholders include the Ngā Kaitiaki Roopū, development and technical professionals, infrastructure providers, and government organisations. The feedback and high-level direction received from this engagement were integrated into development of the draft FDS, as required by the NPS-UD.
14. The NPS-UD requires the first FDS to be published in time to inform, or at the same time, as the 2024 Long-Term Plan. Councils must review the FDS every 3 years to determine if it requires updating, a full review must be done every 6 years. However, the FDS Implementation Plan must be updated annually separately from the FDS and does not require use of the special consultative process.
15. Ongoing consideration of the FDS is the requirement for councils to have regard to the FDS when preparing RMA planning documents. Additionally, councils are also strongly encouraged to consider the FDS when considering long-term plans (LTPs), along with other plans and strategies developed under the LGA, this is to ensure alignment of infrastructure and projects that facilitate delivery of a FDS.

Discussion

16. The Councils must implement a FDS by utilising the Special consultative procedure under section 83 of the LGA 2002. Under this process the Councils must prepare, adopt and notify a draft FDS/Statement of Proposal, seek public submissions, and provide the opportunity for submitters to present their submissions to the Councils or its representatives.
17. On 27 February 2024, both the Councils' endorsed the adoption of the draft FDS for public consultation. In addition, on the same day, they approved the establishment of the FDS Subcommittee and the draft Terms of Reference for the subcommittee. This subcommittee was led by accredited independent commissioner Mr Stephen Daysh. The remaining six members included two representatives each from the Councils and two representatives from Ngā Iwi o Taranaki. One of the tangata whenua positions on the subcommittee was left vacant due to difficulty in availability of desired candidates. Further it was advised by tangata whenua that Mr Daysh's extensive local knowledge through his involvement in recent NPDC Proposed District Plan hearings provided some further comfort that tangata whenua values would be well understood.
18. On 6 March 2024 the Councils notified the draft FDS and the FDS Implementation Plan. Submissions were taken until 8 April 2024, with a few late submissions being accepted by the FDS Subcommittee. The Councils received a total of 36 submissions on the draft FDS and FDS Implementation Plan.
19. Councils' staff prepared a joint officers report for the Subcommittee. This report included an analysis of the submissions and offered recommendations to the Subcommittee on options for resolving points of contention.
20. The Councils held three days of hearings between 22 April – 24 April 2024, where the FDS Subcommittee heard from both the Council's Officers and submitters who wished to speak in support of their submission. A total of 24 submitters were heard by the FDS Subcommittee. Following the hearing of verbal submissions, Councils officers were provided instruction by the FDS Subcommittee to incorporate amendments to the FDS and FDS Implementation Plan as a result of the written and verbal submissions.
21. The updated officer's report, included the following information and recommendations:
 - responses to questions raised by submitters and subcommittee members during the hearing
 - an updated summary of recommendations and minor amendments to be made to the FDS
 - an outline proposal for the Ngāmotu Growth Advisory Panel to be formed that will play a key role in improving the quality of planning for growth and development across the District
 - memo from Property Economics about the Retirement Market, intended to provide the subcommittee with a high-level economic overview of the current demand in New Plymouth's retirement residential market
 - case studies of infill housing under the Proposed New Plymouth District Plan
 - an updated housing capacity modelling to inform the FDS, which was received after the close of submissions and the hearing. This includes a memo from Property Economics on intensification (including infill) and advice on greenfield development (including undeveloped residential) land;
 - the draft FDS (with tracked changes) for the Subcommittee's consideration
 - the draft FDS Implementation Plan (with tracked changes) which includes an action list based on recommendations for the Subcommittee's consideration.
22. The FDS Subcommittee reconvened on 10 May 2024 to formalise adoption of the revised FDS and Implementation Plan. Councils' officers reported back to the Subcommittee on key matters within their officer's report. In addition, the officers were supported by two economists from Property Economics, a consultancy that assisted in developing the 2024 HBA for the New Plymouth District.
23. While a range of changes identified in the updated officer's report were seen as useful for improving the FDS, the most significant amendment came in response to a submitter on the peer review of the

most recent HBA. The peer review demonstrated that some of the HBA's assumptions required some revision. The recommendations within the updated officer's report resolved this issue to the satisfaction of both the Subcommittee and the submitters, who were present on 10 May. The recommendations for change include: an updated section in the FDS to demonstrate how the Councils will manage development capacity in the future, revised modelling in the HBA, and feasibility investigations of new or existing growth areas being brought forward in the FDS Implementation Plan.

24. Another notable outcome of this process is that NPDC has scheduled an omnibus plan change over the next three years to address some of the issues raised by submitters regarding the proposed District Plan.
25. The FDS Subcommittee resolved to adopt both the FDS and FDS Implementation Plan after having considered all matters raised in both of the officer's reports, written, verbal and late submissions. This resolution was subject to track changes and actions outlined by the Subcommittee on the FDS.
26. All revisions required by the FDS Subcommittee have now been incorporated, and as such the FDS and Implementation Plan have now been adopted on behalf of the Councils, as per the resolution from 10 May 2024 (see Appendix 1 & 2 for the final versions of the FDS and FDS Implementation Plan). Submitters were sent a final versions of the FDS and FDS Implementation Plan on 24 May 2024.

Financial considerations—LTP/Annual Plan

27. This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.
28. Note that implementation plan is aligned with TRC LTP, and future review of FDS alongside the LTP reviews will address any future discrepancies.

Policy considerations

29. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the Local Government Act 2002, the Resource Management Act 1991 and the Local Government Official Information and Meetings Act 1987.

Iwi considerations

30. This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the Local Government Act 2002) as outlined in the adopted Long-Term Plan and/or Annual Plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.

Community considerations

31. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this memorandum.

Legal considerations

32. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 3277848: Future Development Strategy for Ngāmotu New Plymouth - 24 May 2024.

Document 3277850: Future Development Strategy Implementation Plan - 24 May 2024.



Future Development Strategy for Ngāmotu New Plymouth 2024-2054



Contents

<u>1</u>	<u>Introduction</u>	<u>3</u>
1.1	What is the Future Development Strategy for Ngāmotu New Plymouth?	3
1.2	Policy framework - Where does the FDS fit?	4
1.3	Outcomes for the FDS	5
<u>2</u>	<u>Growth Planning in New Plymouth</u>	<u>6</u>
2.1	Previous Growth Planning	7
2.2	Future Growth Planning	8
<u>3</u>	<u>Development Context</u>	<u>13</u>
3.1	Providing for our Growing and Changing Population	13
3.2	Managing Urban Growth	15
3.3	Planning for and Provision of Infrastructure	16
3.4	Protecting the Natural Environment	17
3.5	Climate Change	18
<u>4</u>	<u>Inputs to our Spatial Response</u>	<u>21</u>
4.1	Hapū and Iwi: Values and Aspirations for Growth	21
4.2	Constraints on Development	24
4.3	Spatial Scenarios	26
4.4	Preferred Spatial Scenario	27
<u>5</u>	<u>Our Growth Strategy</u>	<u>28</u>
5.1	What capacity will this provide?	42
<u>6</u>	<u>Implementation</u>	<u>43</u>
6.1	Monitoring and Review	44

1 Introduction

1.1 What is the Future Development Strategy for Ngāmotu New Plymouth?

This Future Development Strategy for Ngāmotu New Plymouth (the FDS) has been prepared by Taranaki Regional Council and New Plymouth District Council (the Councils). Its purpose is to set out the strategic framework for providing for urban growth to meet the needs of New Plymouth district. It gives direction to the community about where new homes and businesses will be located. It describes the priority issues we need to start to address now, and the collective aspirations we have for the future of our urban areas.

This FDS is supported by a Technical Document that provides additional detail on the data and research that has been utilised to inform the FDS.

The Government introduced the National Policy Statement on Urban Development 2020 (NPS-UD) in August 2020 (updated 2022)¹. The NPS-UD outlines the requirements for what a FDS must show and be informed by. It states that the purpose of the FDS is to promote long-term strategic planning by setting out how the Councils intend to:

- Achieve well-functioning urban environments in their existing and future urban areas;
- Provide at least sufficient development capacity over the next 30 years to meet expected demand; and
- Assist with the integration of planning decisions under the Resource Management Act (RMA) with infrastructure planning and funding decisions.

To achieve a well-functioning urban environment, the NPS-UD requires that a FDS:

- Provides for a variety of homes that meet local needs and enable Māori to express their cultural traditions and norms;
- Provides a variety of land suitable for local business needs;
- Enables good accessibility for all people between housing, jobs, community services and open spaces, including by public or active transport;
- Supports the competitive operation of land and development markets;
- Supports reductions in greenhouse gas emissions; and
- Necessitates being resilient to the current and future effects of climate change.

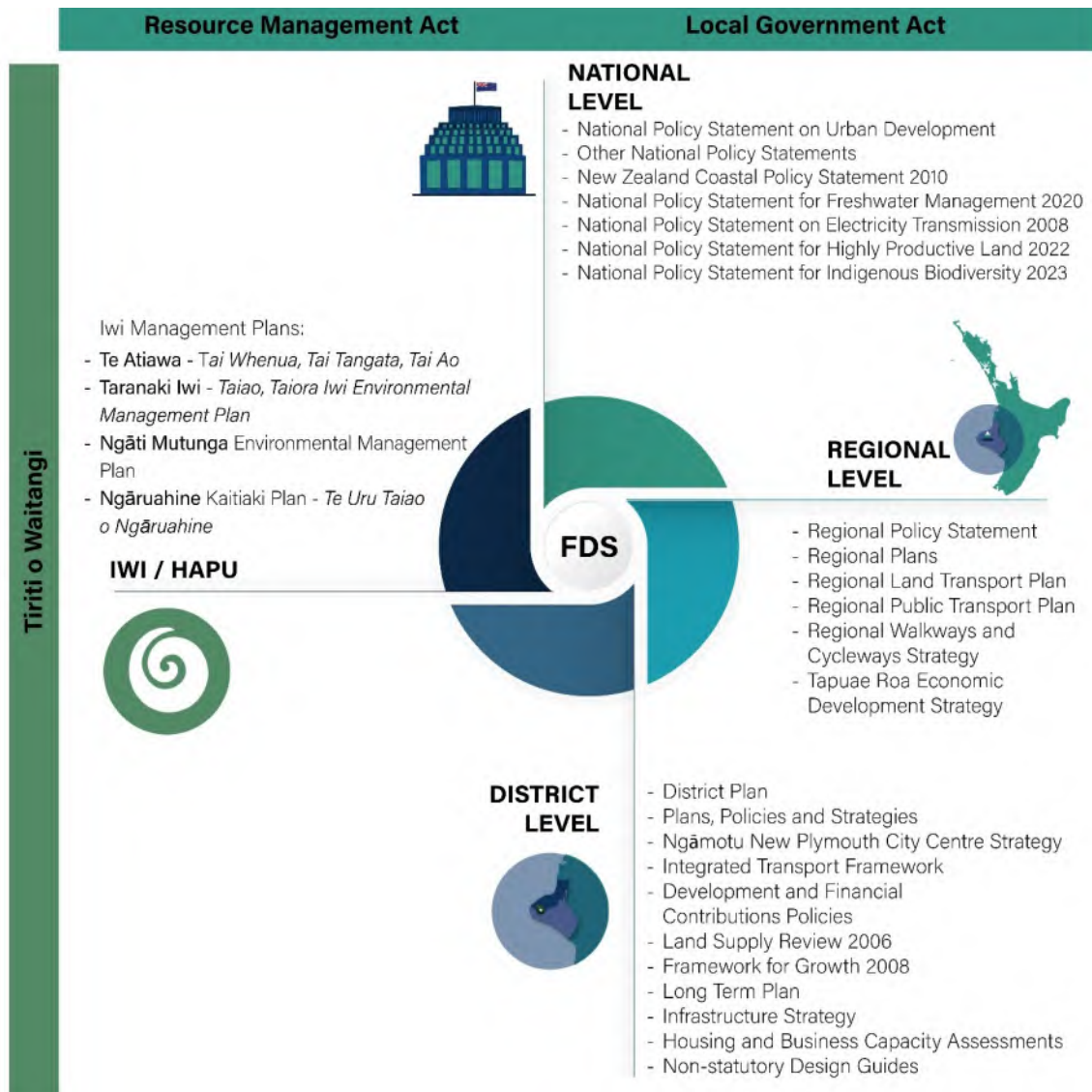
For more information on the content requirements of a FDS refer to Section 2 of the Technical Document.

¹ MfE, National Policy Statement on Urban Development 2020, (<https://environment.govt.nz/acts-and-regulations/national-policy-statements/national-policy-statement-urban-development/>)

1.2 Policy framework - Where does the FDS fit?

The FDS sits within a framework informed by legislation, Government policy, regional and district strategies and plans, as well as the values and aspirations of tangata whenua and the local community. Figure 1 below shows examples of the documents that have been taken into account in its development.

Figure 1: Documents informing the development of the FDS



Importantly, the Councils must also have regard to the FDS when preparing RMA planning documents. The Councils are also strongly encouraged to consider the FDS when considering long-term plans (LTPs), along with other plans and strategies developed under the Local Government Act, this is to ensure alignment of infrastructure and projects that facilitate delivery of a FDS.

1.3 Outcomes for the FDS

The FDS is guided by the following outcomes that set out how we want to provide for growth. These have been informed by our understanding of national policy direction, hapū and iwi development aspirations, and community and stakeholder views.

FDS OUTCOMES	
ACCESS	The district develops as a compact urban environment, where people can access jobs, services, education and open space.
CAPACITY	There is sufficient development capacity available to meet the short, medium and long-term housing and business demands in the district.
CENTRES	The district has a hierarchy of vibrant and viable centres that are the location for shopping, leisure, cultural, entertainment, residential and social interaction experiences and provide for the community's employment and economic needs.
CHOICE	A variety of housing types, sizes and tenures, including papakāinga and other rohe-based housing responses and strategies, are available across the district in quality living environments to meet the community's diverse cultural, social and economic housing and well-being needs.
COLLABORATION	The Councils, tangata whenua and the development community working responsively together to support appropriate development
EMISSIONS	Urban form supports reductions in greenhouse gas emissions.
ENVIRONMENT	Urban environments are designed to integrate and enhance natural features and minimise environmental impacts.

FDS OUTCOMES	
HEALTH, EQUITY AND AFFORDABILITY	Urban development and housing supports equitable health and wellbeing outcomes for the diverse needs of all residents.
HIGHLY PRODUCTIVE LAND	New Plymouth district's highly productive land is protected from inappropriate urban development. Urban rezoning of highly productive land is only appropriate where it is necessary to provide sufficient development capacity for housing and business land and there are no other reasonable and feasible options.
INFRASTRUCTURE	New and existing infrastructure to support growth is planned, funded and delivered in an efficient and integrated manner to maximise investment
PARTNERSHIP WITH TANGATA WHENUA	Partnership between Councils and tangata whenua provides for urban development and growth, and protection and preservation of the relationship of tangata whenua with their culture, traditions, ancestral lands, waterbodies , sites , areas and landscapes and other taonga of significance.
RESILIENCE	The urban environment is resilient to the likely current and future effects of natural hazards including climate change.

2 Growth Planning in New Plymouth

One of the key functions of Council is planning the way the district is shaped (where people live and work) and how people get around it. This means prioritising and managing future growth so that the community will know the expectations around how we will grow, the standard of amenity required and the supporting infrastructure requirements so that informed investment decisions can be made. Such decisions last for many decades and impact on people's day-to-day lives, so it is important to get it right.



2.1 Previous Growth Planning

This strategy builds on many years of comprehensive review and planning undertaken by New Plymouth District Council to provide for urban growth in the district. Notably, the Land Supply Review (2007) and the Framework for Growth (2008)². This work considered and identified appropriate locations for urban expansion and District Plan rezoning changes. The more recent District Plan Review (2015-2019) and Proposed New Plymouth District Plan (PDP) (2019-2023)³ processes have involved comprehensive land use analysis/audits and rezoning. Together with a directive strategic policy framework, these efforts are designed to provide housing and businesses in the right locations to meet our community's long-term needs.

Some key Proposed New Plymouth District Plan decisions on urban development and growth include:



A timeline of this previous work is shown in Figure 2 below. This work has provided a sound evidence base and background for the development of this FDS, by setting out where development capacity can be provided and the policy direction to deliver a well-functioning urban environment. Further detail can be found in the Technical Document supporting this FDS.

² NPDC, *Framework for Growth* (2008), (<https://www.npdc.govt.nz/media/txeg5fvp/framework-for-growth.pdf>)

³ NPDC, *Proposed New Plymouth District Plan Homepage*, (www.proposeddistrictplan.npdc.govt.nz)

Figure 2: Timeline of Previous Growth Planning Work



Growth planning undertaken as part of the recent PDP process preceded this FDS. However, the PDP process involved detailed analysis of New Plymouth’s urban environment and significant work to determine the suitability of areas of land for various urban uses. In addition, the PDP itself is drafted to give effect to higher order policy direction, notably the NPS-UD and NPS-HPL.

2.2 Future Growth Planning

Collaboration and Transparency

The Councils recognise that the delivery of our district’s growth and development will come from our development community. Relationships will be crucial for effective growth planning, PDP implementation, and the realisation of development capacity in well-functioning urban environments.

The Councils are committed to facilitating transparent processes to improve and build the growth model with ongoing collaboration with the development community. To ensure confidence in the data and expertise relied on, the Councils seek a culture of working together to explore different and responsive ways of doing things. This collaboration will inform future Council work programs and respond to changing conditions.

Collaboration and transparency will be supported by the following mechanisms:

- Ngāmotu Growth Advisory Panel
- Engagement with iwi and hapū
- Developers Forum and Technical Professional Group
- Regular reporting to elected members

Ngāmotu Growth Advisory Panel

As part of the officers' response to submissions on the draft 2024-2054 FDS, a key initiative was to set up a Growth Advisory Panel to allow the Councils to work collaboratively with the development sector. The panel will be an independent advisory body and will not have statutory decision-making powers. However, the recommendations made by the group will inform the review and development of Council growth and development documents.

A key principle of the Ngāmotu Growth Advisory Panel is to provide more interactive opportunities to share and input on key issues, allowing issues to be raised early in the planning process to ensure a robust approach to growth planning. The group provides an elevated forum for information sharing and engagement with and between the development sector, iwi/hapū, and Council officers to identify opportunities for urban and other development.

The panel supports the provision of growth through best practice advice from interdisciplinary subject matter experts with experience in the District. The panel adds value to planning processes including (but not limited to):

- Housing and Business Capacity Assessments;
- Development Contributions Policy;
- Structure planning and master planning for development areas;
- Spatial planning;
- Infrastructure scheduling;
- FDS and annually reviewed Implementation Plan; and
- PDP maintenance and implementation.

The role of the panel is to:

- provide independent growth and development advice to identify significant future development opportunities;
- work in partnership with Council to provide pre-consultation advice to inform growth and development work;
- provide peer review and feedback on Council documents and modelling;
- assist with development of Council's modelling and data information as appropriate;
- provide advice to Council on the current state of play in the development sector to help guide future planning work programs; and

- assist Council with ongoing monitoring of planning provisions to identify efficiency opportunities.

The anticipated membership of the Ngāmotu Growth Advisory Panel would include a range of professional expertise.

The panel is supported by Council officers, who liaise and involve as appropriate other local, regional and national government agencies, tangata whenua and other stakeholders.

Iwi and hapū engagement

Both Councils have established relationships with iwi and hapū and meet regularly to address resource management planning issues.

Ngā Kaitiaki Roopū was formed in 2016 specifically to provide feedback as part of the New Plymouth District Plan Review but the scope of its work has evolved and expanded since then. Ngā Kaitiaki consists of mandated representatives from iwi and hapū throughout the district. Ngā Kaitiaki meet with NPDC officers multiple times per year to provide opportunities for engagement.

The Taranaki Regional Council (TRC) freshwater policy work features an agreement with the eight iwi of Taranaki which enables greater iwi and hapū involvement in freshwater policy development. Supported by a dedicated pou taiao planner, members of this group are directly involved in the policy development process and also assist the Council in improving hapū involvement and relationships in respect of freshwater management. Three iwi representatives are also appointed to TRC's Policy and Planning Committee and the Operations and Regulatory Committee. Appointees chosen must have connections to one of the three Taranaki waka, and act in the interests of the committee they are part of, while bringing an iwi perspective to the table.

The district's iwi and hapū play an important role in relation to growth. The FDS and PDP embed the role of tangata whenua as cultural experts in resource management processes. Funding is identified within LTPs to support tangata whenua involvement in Council processes.

Developer's Forum and Technical Professional Group

The Developers Forum first began in 2016 as the "CBD Landowners and Developers Forum" and consists of landowners with interests in large land development projects. The Technical Professional Group was established in 2021 and consists of development professionals, such as architects, designers, builders, surveyors, engineers and planners. Council established these two groups and hold regular update meetings. Looking forward, Council seeks to facilitate more interactive opportunities aligned with the Growth Advisory Panel to share and input on key issues.

Figure 3: Relationship between the Ngāmotu Growth Advisory Panel and other forums



Regular reporting to elected members

For increased transparency, NPDC will regularly report to the Strategy and Operations Committee to update on growth planning and implementation, to provide good information to elected members and the community using this public process. This would involve reporting at least every six months of statistics around infill, changes to the modelling since the last report, and actively show that housing capacity and growth planning is not static. This will give elected members, planning officers and the development community opportunities to identify and raise issues early.

Doing things differently

The way the district grows will need to differ from past patterns of development. In the past the district's large rural area provided opportunities for subdivision and lifestyle living. Along with the rest of the country, however, we have realised that the productive capacity of rural land is a finite resource and cumulative effects of rural lifestyle subdivision result in fragmentation of the rural environment. Previous urban development in the district was characterised by urban sprawl with low density development and car-dependent lifestyles.

The purpose of the new National Policy Statement for Highly Productive Land (NPS-HPL) is to ensure the availability of New Zealand's most favourable soils for food and fibre production, now and for future generations. It provides clear direction that using highly productive land for housing and

business growth is only appropriate where it is necessary to provide sufficient development capacity and there are no other reasonable and feasible options.

The Councils want to support the development community to approach growth differently. We need to consider whether the current model for greenfield developments in the district, which has largely resulted in large-lot residential sites, is an efficient use of land.

In order to deliver increased housing capacity in a more coherent manner, NPDC is taking a new strategic approach for enabling growth through the provision of infrastructure, instead of leaving it to developers to install this on a project-by-project basis as and when individual landowners decide to develop. The Puketapu Structure Plan Development Area is the first area intended to be approached in this manner, with roading, bridges, comprehensive stormwater management, parks, wastewater and water all budgeted for in the draft LTP.

The FDS and PDP signal a shift to modern master-planned suburbs instead of traditional greenfield development. It is considered appropriate that when master planning structure plan development areas and future urban zones, NPDC and the development community consider methods to provide greater densities with good urban design in appropriate locations. These methods could be regulatory, non-regulatory or a mix of both.

Examples of possible regulatory methods include:

- Removing minimum lot size and maximum building coverage requirements in the PDP General Residential Zones provided that housing developments will be well laid out and designed. This will help developers to supply a variety of lot sizes and housing designs, allowing a more diverse mix of people from a larger pool into the market.
- Use of inclusionary zoning. This is a planning technique implemented through district plan zoning which aims to address housing affordability by ensuring that a proportion of new residential units are offered at prices that are accessible to a broader range of income levels, e.g. developers could be required to sell or rent 10-30 percent of new residential units to lower income residents in new Residential Zones, developers could be required to pay an “affordable housing financial contribution” in new Residential Zones, whereby the money is given to a registered community housing provider supplying them with an ongoing funding stream to construct or facilitate access to affordable housing.

Examples of non-regulatory methods include:

- NPDC could enhance the services it provides to developers to help them navigate the consenting process, e.g. free pre-application meetings, case management and urban design peer review.
- Developers could be given density bonuses and financial incentives by NPDC if they will provide well laid out and designed developments that contribute positively to the district’s residential intensification needs, e.g. allowing them an extra floor over and above the height limit specified for the zone in the PDP, waiving resource/building consent fees, rates remission during the development phase, reduced development contributions.
- NPDC could improve the public’s perception of medium density housing through educational material.

Spatial Plans

Concurrent work is underway on spatial plans for Waitara and Bell Block, with a spatial plan for Inglewood scheduled to commence in 2026. Spatial plans help guide investment and provide much needed assurance to the people that live in those areas that the Council and other key agencies are committed to working collaboratively to develop a plan that connects the natural environment, built environment, infrastructure, land use and destination spaces for the benefit of all who live there now and future generations.

This work takes a holistic long-term strategic view of those areas and will help to inform any new growth opportunities for those communities. It will be an input for both residential, industry and business capacity and the outcomes of the spatial plans will inform the next FDS.

The spatial plans to be developed relate to a specific township as well as its wider surrounding area. The boundaries for each spatial plan would be identified as part of that planning process. Through the spatial planning process, new areas will be considered for additional residential and business growth.

Other next steps

Through submissions on the draft FDS 2024-2054, Council has acknowledged that an omnibus plan change is a mechanism to address some of the difficulties the development community have experienced with the Proposed District Plan. A decisions version of the Proposed District Plan was released in May 2023 and implemented a policy shift (and therefore a rules shift) in many Overlay chapters. The FDS submissions and hearings made a clear case there are pinch points in some of the District Plan rules. Council’s Growth and Services team are committed to looking into fine tuning the mechanics of plan that developers believe are impinging development implementation.

3 Development Context

3.1 Providing for our Growing and Changing Population

Population growth is a consistent trend in our district. Since 2001, we've experienced an annual growth rate of 1-2 per cent, resulting in a current population exceeding 89,000. This upward trajectory is projected to continue, with a population of approximately 98,800 by 2034 and around 110,400 by 2054.

NPDC forecasts that the district’s population will grow over the next 30 years as follows:⁴

	2024	2029	2034	2039	2044	2049	2054
Population	89,000	93,500	98,800	102,400	106,400	108,500	110,400

⁴ NPDC, Housing and Business Capacity Assessment (2024)

The key driver of population growth in New Plymouth has been, and will continue to be, people moving from other parts of New Zealand and overseas which drives housing demand. Other drivers, such as demand for visitor accommodation, student accommodation and seasonal worker accommodation, are relatively minor compared with other parts of New Zealand.

On average we will need an additional 368 houses per year over the next 30 years.

Our demographics are also changing. As a district, we are getting older, with the greatest increase in the 65 and over age group. By 2048, almost 30 per cent of the population will be aged over 65. A bigger ageing population and single-person and couple-only households will result in greater demand for rest homes and retirement villages and for smaller, accessible housing options. Noting that increased housing choice will have long-term benefits for our district, an ageing population means that we are likely to see an increased percentage of fixed income ratepayers resulting in downward pressure on rates.

New Plymouth is increasingly being enriched by a variety of cultures and demographics that require a variety of housing sizes and types, including different mixes of housing for both smaller and larger households. Typical housing options currently available aren't suitable for all family structures. This is particularly evident when considering housing concepts important to tangata whenua, such as intergenerational living arrangements.

The availability of affordable, healthy long-term rental options is closely tied to demographic factors, as is the need to increase the availability of accessible housing for disabled individuals, lower-cost accommodation, and social housing.

A mix of housing densities enables communities to respond to the changing needs and demographics of its residents through their lifecycle. The ability for people to remain living in the same community with their social networks nearby is hugely important.

Looking at the housing trends in the district, overwhelmingly the most predominant building type is the three-to-four-bedroom detached house and there is a considerable lack of other types of houses such as units, flats, townhouses, studio accommodation etc.:

	Standalone Houses	Townhouses, flats, units, and other dwellings	Apartments	Retirement Village Units
Last 12 months	81%	6%	2%	12%
Last five years	80%	7%	2%	11%
Last 10 years	61%	6%	10%	22%

The Housing and Business Capacity Assessment 2024 projects that:

- Based on market trends and projected household composition growth, it is estimated there will be an increase in the number of attached multi-units to about a quarter of all new housing in New Plymouth by 2051.
- The remaining three quarters of all new housing in New Plymouth will be standalone dwellings by 2051. Standalone dwellings will continue to require an average minimum floor space of 180m² and accommodate 3-4 bedrooms.

- In the long-term it is estimated that apartments will make up a small portion of the demand.
- The demand for retirement villages which presently is around 5-8 per cent of all resource consent applications, is expected to continue. Retirement Villages are anticipated within the residential and centres zones, however given their scale, finding suitable land within these areas to accommodate the scale of the activity can be challenging.

Under the current market offer, greenfield development is typically more feasible than infill development, with greater economic feasibility for residential greenfield development compared to infill development. Thinking about our changing demographics and the need to provide a for a variety of housing choices, it is anticipated that the increased demand for smaller houses, units, flats, etc. will drive a change in development trends.

Rezoning rural land for greenfield development needs to be carefully considered as this can result in ad hoc urban form and infrastructure networks and disconnected neighbourhoods.

3.2 Managing Urban Growth

Urban population growth comes with benefits and challenges. Benefits may include:

- New and modernised housing that increases supply, potentially reducing pressure on house and rental costs, and increases health and wellbeing;
- Economic growth and the development and expansion of the labour force;
- Greater availability and variety of consumer goods and services such as cafes and shops;
- New and varied amenities that increase health and wellbeing;
- Opportunities for education, employment and civic amenities;
- Opportunities for social cohesion and interaction and cultural diversity; and
- Cheaper transport costs.

Key challenges may include:

- Ensuring feasible, serviced and developable land is available to meet the growing population's demands;
- Ensuring that subdivision and development is carefully planned and managed;
- Managing the type and location of growth to minimise infrastructure servicing costs; and
- Maintaining housing affordability in the face of increased demand.

To ensure that we gain the benefits, we need to plan carefully so that future urban growth is appropriately located and managed, and that it occurs predominantly in identified areas that are suitable for growth.

Well-planned and 'compact' urban areas generally result in the most efficient use of land and provide for development where services and infrastructure already exist. Compact towns can improve the quality of life for residents and reduce the environmental footprint of growth. They also support a sustainable and effective transport system.

At a day-to-day level, the community benefits from being able to live within easy walking distance to efficient public transport, shops, community facilities and public amenities such as pools, and to areas of employment. These benefits make living in the district more affordable and better for our general health and wellbeing. They also counter the potential negative consequences of 'urban sprawl', such as increased traffic congestion and demand for new infrastructure and services. Compact towns reduce the need to commute, air pollution from the use of vehicles and the potential for traffic accidents. A community that rides and walks to their destinations can better manage any potential secondary health impacts caused by insufficient exercise.

3.3 Planning for and Provision of Infrastructure

The district's infrastructure, encompassing a combination of public and private network utilities as well as social infrastructure, is critical to the social, economic and cultural wellbeing of our community. Network utilities include transport networks (land, sea and air), piped networks (water, wastewater and stormwater reticulation), waste management infrastructure and services, flood protection infrastructure (stop banks and spillways), transmission and distribution networks (electricity, gas and liquid fuels) and radiocommunication and telecommunication networks (wired and wireless). Social infrastructure includes medical and health services, community corrections activities, justice facilities (such as police stations and courts), educational facilities, public open space and community infrastructure.

To support New Plymouth's growing population, there is a need to look after existing infrastructure networks through operational expenditure (i.e. maintenance and upgrades) and as well as to provide new infrastructure networks and services (i.e. capital expenditure/new builds).

From the Councils' perspective, the ability to provide infrastructure has limitations in relation to both affordability and deliverability. It is therefore essential that growth is appropriately located and connected to existing urban boundaries and can be efficiently serviced by infrastructure. It is also important that landowners pay an appropriate share of the infrastructure investment that they will benefit from. The Councils therefore need to have a clear understanding of what is required, what is affordable, how it will be paid for and how to get the best value from the investments we decide to make.

Ad hoc or isolated infrastructure networks can result in greater financial costs (capital and lifecycle) when compared to building in established urban areas.

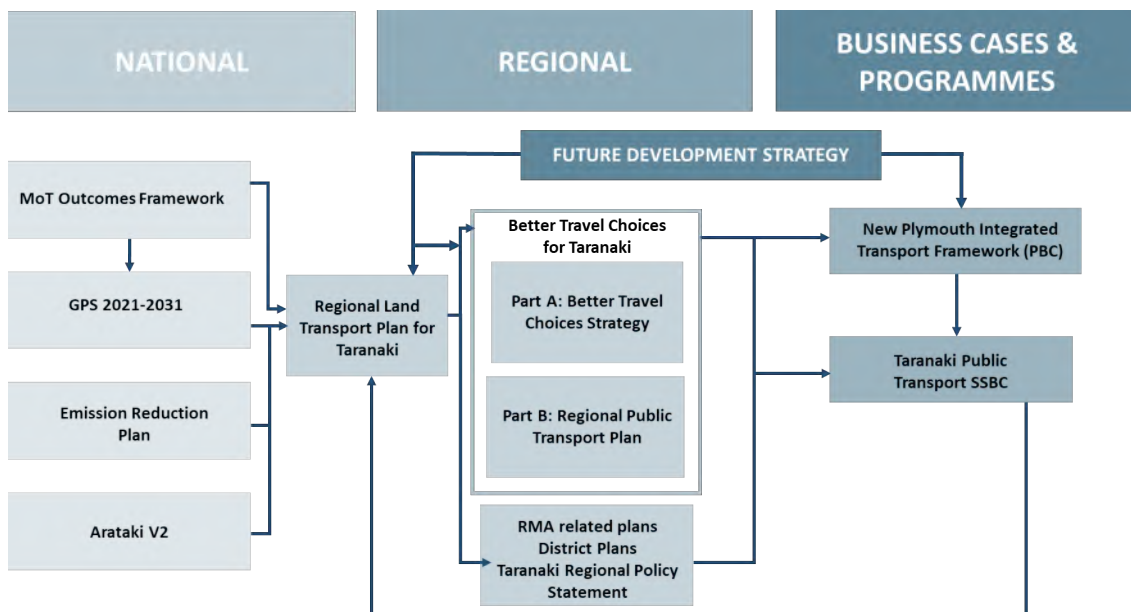
Clearly understanding and planning the timing of delivery for key infrastructure projects to support urban growth is also essential. The lead in times relating to investigation, design and delivery for these pieces of work all require considerable time. It is also not financially viable to deliver these projects at one time. As such, the Councils need to carefully consider how and when to fund and deliver infrastructure to enable growth and development in a cost-effective and efficient way. Strategic documents like NPDC's Draft Integrated Transport Framework (ITF) and Infrastructure Strategy help in this planning and decision making.

The Draft ITF is a 30-year framework to help guide transport decision making and investment in the district and to prioritise projects and initiatives for implementation in the next 10 years. The Draft ITF seeks to consolidate existing transport strategies to create clear, effective plans while working alongside our national and regional partners, such as Waka Kotahi, Taranaki Regional Council, and other key stakeholders. It seeks to highlight key drivers for change – drivers that will form the

foundation of our framework into the future. The Draft ITF identifies four key outcomes that it seeks to address through initiatives and interventions including: improving public transport; fixing a fragmented active travel network; reducing reliance on private cars and adapting to urban development.

With regards to the provision of public transport (PT), the Councils recognise that broad changes will need to be undertaken to better integrate transport options with current and future urban development. TRC are currently in the process of undertaking a Single Stage Business Case with Waka Kotahi, to investigate options for a step change in PT provision. The FDS is a feeder document to this work stream. As such, the detail of how PT services will respond to future growth is not known at this point in time, but growth scenarios are informing the development of options and ultimately funding bids for future PT services. This work stream is reflected in TRC’s Regional Land Transport Plan (RLTP) (as a no.2-priority) and LTP.

Figure 4: Relationship between Transport Hierarchy and the FDS



The PDP has enabled a greater level of intensification across existing urban areas, which will increase the need to upgrade and provide new infrastructure to support this. Similarly, enablement of greenfield areas will require significant upfront planning and investment in infrastructure. The Implementation Plan in Section 6 provides an overview on proposed projects and their timing that will enable the Councils to accommodate the identified growth, in particular delivering the infrastructure that will be required for these areas.

3.4 Protecting the Natural Environment

The New Plymouth district is home to a unique natural environment with significant areas of indigenous vegetation, rivers and waterways, and black-sand beaches. The New Plymouth urban area has one of the highest vegetation coverage of any urban area in New Zealand.

The health and protection of the natural environment is a strategic issue for the district. The ecological health of the natural environment and the community’s access to it are critical to the success of urban

spaces. A well-functioning urban environment relies on a well-functioning natural environment, which is resilient to natural hazards and the effects of climate change.

Development and intensification can put pressure on the natural environment, particularly impacting on provision of connected areas for water, soils, plants and animals to thrive. Growth planning should work with the environment rather than against it and should be planned in a manner that allows space for natural environmental features and processes, improved biodiversity, enhanced water quality, ecological health, natural hazard resilience, water supply security, and recreational and amenity values. This will require the Councils and developers to prioritise outcomes that integrate the built and natural environment.

There is an opportunity to integrate in a balanced way protection of natural and cultural values with landowner aspirations. Past growth has negatively impacted the mauri (life force) of the natural environment. By taking a mātauranga Māori approach development can be planned to protect and restore our ecological taonga as urban spaces grow and change.

While certain natural areas may require modification to support urban development and the associated infrastructure needed for growth, not all areas will be suitable for expansion. Some might face constraints or limitations for providing additional residential and business capacity. Section 4.4 of this FDS recognises the importance of the natural environment in the spatial identification of constraints on development.

3.5 Climate Change

Taranaki is both one of the sunniest and windiest regions in Aotearoa. Our moderate climate often enjoys more than 2,500 sunshine hours a year, but we are exposed to weather systems migrating across the Tasman Sea that influence our rainfall intensity.

However, it is recognised that our local climate is changing. The National Institute of Water and Atmospheric Research (NIWA) in the report *Climate change projections and impacts for Taranaki (2022)*⁵ predicts increases of 0.5 to 1.0°C by 2040 and 1.25-3.0°C by 2090.

The impacts of climate change on our environment and communities are anticipated to be significant. Climate change will bring warmer temperatures, extreme weather patterns, including increased rainfall intensity, and rising sea levels. Natural hazards such as droughts and flooding will become more severe, and existing challenges around coastal erosion and stormwater flooding will be exacerbated. Ecosystem health, water quality and availability will need careful management. We need to make space for water and look after ecosystem services. These factors affect our existing urban areas and needs to inform where and how we accommodate growth.

⁵ NIWA, *Climate change projections and impacts for Taranaki (2022)*, (<https://www.trc.govt.nz/assets/Documents/Environment/Climate/Climate-change-projections-and-impacts-for-Taranaki-May-2022.PDF>)



Coastal Erosion at Motukari Reserve, Onaero

The NPS-UD sets direction for New Zealand’s urban environments to support reductions in greenhouse gas emissions and be resilient to the effects of climate change. Land use planning documents such as the District Plan and the FDS, and other planning documents such as Council’s Climate action framework (2019)⁶; Emissions Reduction Plan (2023)⁷; Adaptation Plan (drafting underway); and the 10-Year Plan for “Planting our Place”⁸ have a key role in supporting a reduction in greenhouse gas emissions and ensuring that communities can adapt to the effects of climate change.

The PDP contains provisions that relate to:

- Compact urban form that reduces the need for private motor vehicles and considers energy efficiency;
- Transportation planning that allows for electric vehicles and a reduced need for private vehicles;
- Managing growth and development carefully in respect of known risks from natural hazards, including the effects of climate change;
- Adaptive management to support communities impacted by natural hazards, including the effects of climate change;
- Protection of significant natural areas (SNAs) and promoting restoration of water bodies and indigenous biodiversity; and
- Recognising emerging technologies that offer potential for a transition to a low-emission economy.

⁶ NPDC, *Climate action framework*,

[\(https://www.npdc.govt.nz/community/a-greener-district/climate-response/\)](https://www.npdc.govt.nz/community/a-greener-district/climate-response/)

⁷ NPDC, *Emissions Reduction Plan*,

[\(https://www.npdc.govt.nz/council/strategies-plans-and-policies/plans/emissions-reduction-plan/\)](https://www.npdc.govt.nz/council/strategies-plans-and-policies/plans/emissions-reduction-plan/)

⁸ NPDC, *Te Korowai o Tāne - Planting Our Place*,

[\(https://www.npdc.govt.nz/community/community-partnerships/funding-and-grants/te-korowai-o-tane-planting-our-place/\)](https://www.npdc.govt.nz/community/community-partnerships/funding-and-grants/te-korowai-o-tane-planting-our-place/)

Our planning needs to take a long-term view of what our community will need to live, work and travel in a low-emissions future. The Councils can continue to encourage a compact urban form and focus on building communities with infrastructure that enables increased public transport use and active travel, such as walking and cycling. We can plant our green spaces to offset emissions and follow legislation to consent homes and buildings that are warmer and more energy efficient.



NPDC Electric Rubbish Truck



Planting our Place



Cycling to school along Paynters Ave overpass

Support electrification of the economy

The National Policy Statement on Electricity Transmission (NPS-ET) preamble states that ongoing investment in the transmission network and significant upgrades are expected to be required to meet the demand for electricity and to meet the Government's objective for a renewable energy future, therefore strategic planning to provide for transmission infrastructure is required.

Throughout New Zealand including New Plymouth, the National Grid will play a critical role in electrification of the economy to reduce greenhouse gas emissions. This means ensuring that existing National Grid assets in the district are able to be operated, maintained, upgraded and protected from inappropriate subdivision, land use and development. It also means that new development of the National Grid including transmission line connections to renewable energy generation will be required in the future.

4 Inputs to our Spatial Response



4.1 Hapū and Iwi: Values and Aspirations for Growth

The NPS-UD requires the FDS to include a statement of hapū and iwi values and aspirations for urban development. This statement was developed through NPDC's Ngā Kaitiaki hapū and iwi resource management working group. The Councils did not receive any further comments on or proposed changes to the aspiration statements through the submission period.



The preservation of the wider environment should be at the centre of urban design

It is imperative that urban design extends beyond the confines of physical structures. The vitality of our lands and waters, and the holistic well-being and preservation of the natural environment must be accorded greater significance compared to architectural design.

The alteration, contamination, and degradation of waterbodies, the imposition of inappropriate stormwater infrastructure, and the dismantling of natural landforms and established flora deeply unsettle tangata whenua within our district. These actions reverberate through the interconnected ecosystems, impacting not only the physical environment but also the socio-cultural fabric that binds us.

Development affecting sites and areas sacred to Māori, coupled with the preservation of heritage features and critical viewshafts, stands as an ongoing concern for tangata whenua within our district. The loss of these culturally significant spaces erodes the foundation of our identity, disrupts social structures, and hampers the intergenerational transmission of knowledge and connection to the whenua.

It is paramount that our approach to urban development transcends mere accommodation and integrates a profound respect for the intrinsic values held by mana whenua. This approach should not only mitigate the adverse effects of urban development on the environment and social structures but actively promote practices that rejuvenate, safeguard, and enhance the interconnected relationships between the land, water, people, and culture. This, in turn, will foster a sustainable, harmonious, and flourishing future for all within our district.



The integration and manifestation of the tangata whenua world view shapes the physical and cultural essence of our environment

Mana whenua seek not only recognition but a profound integration of their worldview into the very fabric of the environment. The desire is for tangata whenua to not only be seen but to witness a reflection of themselves in the landscapes that shape our collective existence. This approach safeguards the tangible markers of cultural heritage but also ensures an ongoing and dynamic presence within the evolving urban landscape.

Empowering tangata whenua in the co-creation of subdivisions, structure plan areas, public spaces, and built forms serves as a potent catalyst in amplifying the visibility of Te Ao Māori within our district. Historically, this visibility has been regrettably absent, despite the enduring historical and cultural presence of tangata whenua in the Ngāmotu district.

Recognising that each hapū possesses unique tikanga and a distinctive narrative for the cultural landscape within their rohe, our future urban development should champion the manifestation of these diverse expressions. The undertaking of Māori cultural and purposeful activities, coupled with the infusion of language, technology, design, and public art, as well as culturally significant signage for key developments, public spaces, buildings, and road names, becomes pivotal in bringing forth the richness of Te Ao Māori.

The preservation of sites and areas of profound significance to Māori, coupled with their adaptive management in the urban environment, emerges as a crucial element in fortifying their visibility.

In envisioning future urban development in the New Plymouth district, it is imperative that we go beyond token gestures and actively weave the tapestry of Te Ao Māori into the very essence of our surroundings. The collaborative engagement of tangata whenua in shaping the physical and cultural landscape ensures a vibrant, inclusive, and culturally rich environment for generations to come.



It is incumbent upon the community to dismantle the barriers to enable tangata whenua to participate in urban development decision making

The enduring impacts of colonisation, ramifications of the raupatu, the confiscation of whenua through the transgressions against Te Tiriti, and the perpetual loss of ancestral lands resonate profoundly within the hearts of iwi and hapū today.

In charting future urban development for the New Plymouth district, it is incumbent upon the community to dismantle the barriers of the past, fostering an environment that empowers the revitalisation of Māori land and the flourishing of papakāinga. This strategic vision must encapsulate not only physical development but also a commitment to redress historical injustices, honouring the values that underpin the enduring connection of tangata whenua to their whenua.

The far-reaching consequences of colonisation, encompassing physical, social, and cultural dimensions, demand a conscientious acknowledgment to pave the way for healing and reconciliation.

In Ngāmotu / New Plymouth district, the scarcity of Māori land stands in stark contrast to the historical abundance. Past policies and barriers, entrenched in district plans and legislative frameworks, have erected formidable obstacles hindering the development and utilisation of Māori and ancestral lands. This historical context underscores the imperative to rectify past injustices and pave the way for a more inclusive, equitable, and collaborative future.

The PDP represents a pivotal juncture, recognising the importance of papakāinga development across various zones in the district, including the Māori Purpose Zone. Papakāinga, reflective of the sacred values of kaitiakitanga, ūkaipōtanga, rangatiratanga, and kotahitanga, emerge as profound expressions of cultural identity. Papakāinga serves as a living testament to these values, showcasing multigenerational living and the potential for harmonious coexistence between tradition and progress.



Using Mātauranga Māori and Māori design principles benefits good urban design outcomes for the whole community



Harnessing Mātauranga Māori and embracing Māori design principles signifies not only good urban design but a harmonious relationship with the entire district, deeply rooted in mana whenua perspectives.

For Māori, urban design transcends physical structures. It intricately weaves together the relationship between buildings and the people who inhabit them, considering the interconnectedness of location, sense of place, and the profound impact on the mauri of the land, waterways, and biodiversity. It is a holistic approach that goes beyond aesthetics, emphasising the restoration and enhancement of the very essence of our environment.

Tangata whenua aspire to actively participate in the ongoing design of the urban environment. This engagement is not only a current desire but a commitment to future collaborations, ensuring that their values, aspirations, and principles are not only acknowledged but integral to the development trajectory. It is a call for recognition and proactive consideration of their enduring relationship with the district.

A shining example of co-design that embodies culturally distinctive expression and exquisite design is Te Hono – New Plymouth Airport. This project goes beyond being infrastructure; it stands as a testament to the unique identity not only of Ngāmotu but of Aotearoa / New Zealand as a whole. It encapsulates the potential for collaborative design that respects and celebrates the cultural richness of the land and its people. However, Mātauranga Māori can be incorporated in all scales of development, including landscaping, subdivision, and land use to provide for culturally distinctive expression and beauty that is unique not only to Ngāmotu, but to Aotearoa / New Zealand.

In envisioning urban development for the New Plymouth district, the integration of Mātauranga Māori and Māori design principles should be at its core. This approach not only fosters good urban design outcomes but ensures a sustainable, culturally enriched, and harmonious district that respects and uplifts the values of mana whenua.






4.2 Constraints on Development

When considering future growth and development capacity, it is important to understand potential constraints on development. All land could contain factors that constrain development to some extent. While some constraints may make any form of development or growth inappropriate, many others can be overcome with appropriate design and planning considerations. This may require additional expertise to explore opportunities or resolve issues, enabling development to occur (albeit at extra cost). The extent to which land is constrained varies based on the quantity and type of constraint present. There are also some gaps in the information we have available on some constraints that may need to be explored in more detail through pre-development scoping work (e.g. mapped wetlands). See the Technical Document for further information.

Table 1 below outlines the main types of constraints there may be on development.

Table 1: Development Constraints

DEVELOPMENT CONSTRAINT	EXPLANATION
<p>Highly Productive Land</p> 	<p>Growth areas should ideally avoid encroaching onto highly productive land. Maintaining access to some of this region's most productive soils is crucial for food production, generating economic gains from exports, providing employment opportunities, and supporting the social wellbeing of our rural communities.</p>
<p>Hazards and Risks</p> 	<p>Natural hazards such as slope instability, fault lines, flooding, and coastal erosion may pose risks to people, property and the environment. Some land is contaminated due to previous use involving hazardous substances. A risk management approach applies to existing development and infrastructure, while a risk reduction (including avoidance where appropriate) approach applies to new development within identified hazard areas. Climate change is expected to increase many types of natural hazard risk over time.</p>
<p>Scheduled Features and Protected Land</p> 	<p>In some localities, development may be considered inappropriate, or need to be carefully managed, because of important values and uses, such as significant natural, historic or cultural environmental values (for example notable trees, sites and areas of significance to Māori and heritage buildings). The presence of scheduled features does not necessarily preclude urban development but may have an impact on housing yield and increase costs. Land protected under the Conservation Act or Reserves Act is not appropriate for urban development.</p>
<p>Infrastructure</p> 	<p>Regionally and nationally significant infrastructure such as the National Grid, gas distribution pipelines, the roading network (including state highways) and provision of public transport must be considered when determining appropriate growth areas and designing subdivisions within them. The location and topography will influence whether the land is able to be feasibly serviced or 'infrastructure ready'.</p>
<p>Reverse Sensitivity and Direct Effects on Infrastructure</p> 	<p>Development may be inappropriate in some localities because of existing lawfully established uses that are not compatible next door to residential living, including highways, industrial activities and intensive farming and the National Grid.</p>

A lack of infrastructure or the need to upgrade infrastructure to cope with more dwellings can constrain development. While some localities are suitable, sometimes topography or ground conditions means that the cost of the infrastructure to service the area can only be realised in the long-term, or in some cases, not at all.

These have been key considerations in the evaluation of growth areas within the PDP as outlined in the scenario testing contained in section 4.5 below. Detailed information on spatial constraints, including maps of the major constraints across the study areas are shown in the FDS supporting Technical Document.

4.3 Spatial Scenarios

The physical growth pattern of the New Plymouth district has been influenced by many factors. Initially Māori, and later European, settlement was influenced by proximity to natural resources (such as the coast, waterbodies and fertile land) and topography. Later, factors like land availability and its capacity to be serviced by infrastructure, demand for affordable housing, and the ease of access to employment, education institutions, community amenities, along with retail and leisure opportunities, have all played a role in our growth story.

The FDS has looked at alternative ways the district may grow and change physically in the future. Understanding these various options for the future shape of the district helps us enable the best pathway forward. This section sets out the alternative spatial scenarios investigated and the learnings that inform the spatial response.

When thinking about the land available for local business needs, economic analysis undertaken as part of the PDP process indicates that the district has sufficient commercial and industrial zoned capacity to accommodate future business land demand over the long-term. Given future business growth of the district is well catered for (including an element of spare capacity), we primarily have looked at the alternative ways in which residential growth in the district can be delivered in the long term.

We have identified, analysed and discounted a number of different spatial scenarios including: further intensification of existing PDP Medium Density Residential Zones; rezoning PDP Rural Lifestyle Zone to General Residential Zone; intensification of rural land and dispersed development (market led in all zones).

For more detail on the alternative spatial scenarios considered, how the targeted spatial scenarios were developed and assessed, and maps showing the boundaries for new growth areas considered, refer to the Technical Document.

Residential growth assumptions and alternative spatial scenarios

The draft FDS has examined various spatial scenarios to understand the spatial distribution of residential land and how different models might support meeting the district's anticipated demand for housing over the next 30 years.

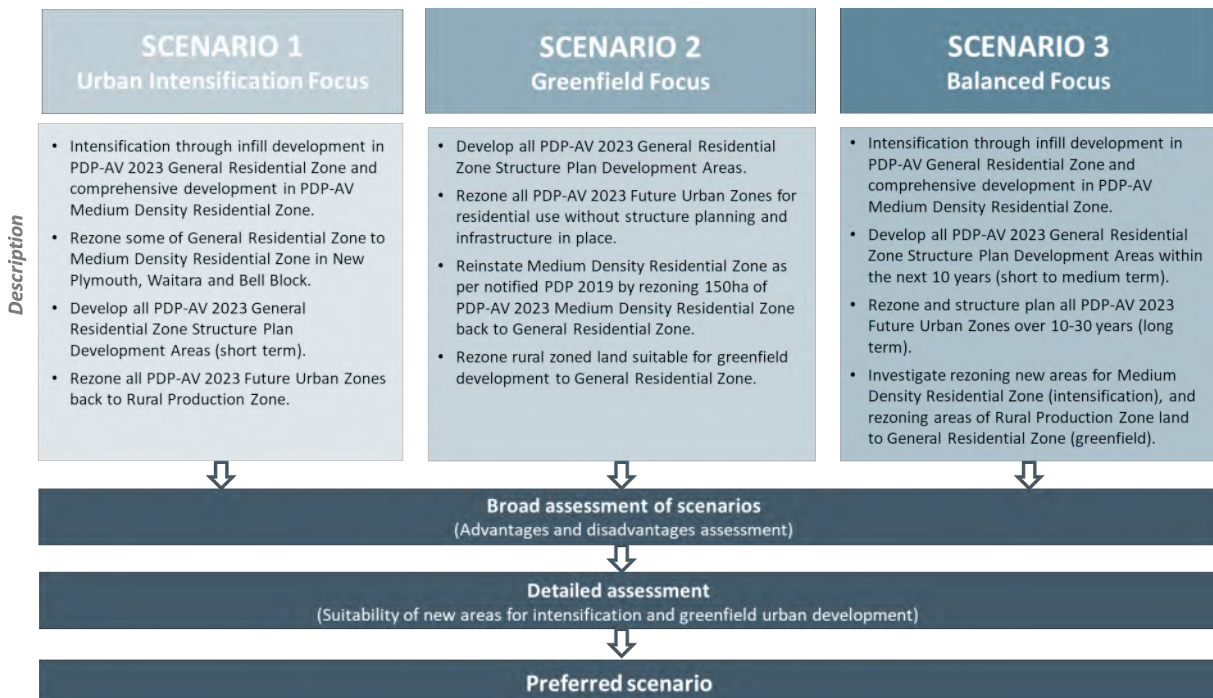
As required by the NPS-UD, we have considered the advantages and disadvantages of different spatial scenarios and whether they provide sufficient capacity to achieve a well-functioning urban environment and assist in the integration of planning decisions with infrastructure planning and funding decisions. The scenarios assessed include an urban intensification focus, a greenfield focus and a balanced focus. Following consideration of advantages and disadvantages, we have undertaken more detailed assessments of specific areas where land could be included to a preferred scenario, in order to determine their appropriateness for inclusion in the FDS. A summary of the scenarios considered, and the process followed for this assessment is outlined within Figure 3.

In developing and assessing the alternative spatial scenarios, the following assumptions have been applied across all scenarios:

- A range of housing typologies will be delivered in line with the PDP Medium Density Residential Zones (e.g. small-scale standalone, terraced and multi-unit developments);

- In time, existing PDP General Residential zoned greenfield areas will be built out and developed at densities consistent with their existing structure plans;
- Undeveloped or vacant parcels of zoned land across the existing urban area of New Plymouth, Inglewood and Waitara will be developed over the next 30 years in line with the planned character of the PDP General Residential Zone; and
- Projected business demand can be catered for in existing zoned commercial / industrial areas.

Figure 3: Summary of Scenarios Considered and Process for Assessment



For a full description of the other growth scenarios used for the consultation of the draft FDS 2024-2054, refer to our FDS Supporting Technical Document. This document provided the background and analysis undertaken in preparing the draft FDS.

4.4 Preferred Spatial Scenario

Scenario 3 – Balanced Focus was generally supported by submitters on the FDS and is the preferred scenario for managing future growth and the development capacity required to meet community needs in the district. It will provide opportunities for intensification and the benefits associated with this approach, while also allowing for flexibility and choice in the market through greenfield development.

This means enabling intensification in appropriate locations near amenities, along key transport routes etc. while providing greenfield expansion in a staged way which can be efficiently serviced by infrastructure.

Scenario 3 promotes:

- More intensive housing concentrated in and around the city centre, town centres, local centres, and key transport routes and amenities;
- More infill housing development located throughout the district;
- Greenfield residential development on undeveloped residential land and new residential communities on the fringes of existing urban environments; and
- The consolidation of commercial, community and industrial activities within existing commercial and industrial areas.

The HBCA 2024 has indicated that the PDP has an insufficiency in long-term supply of residential land available to meet projected demand. Recommendations are made in the FDS and FDS Implementation Plan to address this shortfall. In relation to the suggested rural greenfield areas to be considered for urban development (beyond what is already zoned through the PDP), based on the information we currently have available, there is justification to include some additional areas as shown in the Implementation Plan.

However, as our analysis has shown that greenfield rural areas (that are identified as highly productive land) in Scenario 2 may warrant further investigation for long term growth potential, subject to monitoring and review of land supply. Therefore these area have been included in the Implementation Plan.

In implementing this strategy, further consideration will be given to possible growth areas identified.

The existing Future Urban Zones still play a clear role in the future provision of residential land in the district. However, it is also apparent that these areas are not needed in the short-term and that there are significant advantages associated with delaying the development of these areas, particularly given the high cost of providing infrastructure to these areas and further investigations needed. At this stage it is most appropriate to consider the size, make-up and timing of these areas.

5 Our Growth Strategy

Residential Growth

Our growth strategy, which includes the zoning included in the PDP, provides for a balanced approach, through both intensification in appropriate locations as well as greenfield development opportunities. These areas will provide the number and variety of new houses we need to meet the demand over the short, medium, and long term.

The FDS promotes:

- A combination of residential and commercial activities within the city centre, as well as town and local centres;
- More intensive urban form and housing to be concentrated within and around the city centre;

- More intensified housing across New Plymouth and surrounding townships in areas with good access to centres, transport options and services;
- Greenfield growth in areas close to the existing urban areas. These areas are natural extensions to our existing transport networks and infrastructure;
- Residential development through infill within existing neighbourhoods and undeveloped residential land;
- Sufficient supply of land suitable for retirement living; and
- Commercial, business and industry activities to grow within our existing commercial and industrial zoned areas.

To do this, we will take a balanced two-pronged approach. Growth will be provided through a combination of geographic areas, which in themselves provide for varying housing typologies and densities. These can broadly be described as infill and undeveloped residential land, structure plan development areas, future urban areas and existing centres. Table 4 below outlines the indicative timing for the development of these areas.

Table 4: Indicative Timing for Growth Areas

Short / medium term	Infill	Five Structure Plan Development Areas		Undeveloped Residential Land		
	Medium Density Residential Zones General Residential Zones	Patterson Puketapu Carrington Junction Johnston	New Plymouth Inglewood Waitara			
Long term	Future Urban Zones					
	Smart Road	Area R	Frankley Cowling	Oakura South and West	Waitara East and Ranfurly	Oropuriri Junction

A compact city footprint offers a range of benefits for people, including easier access to goods and services, greater housing choices and lower long-term infrastructure costs. It also provides more opportunities to move towards a more carbon neutral urban environment, while protecting productive land.

The development capacity and the infrastructure required to support this approach is discussed within the following sections.

Infill and Undeveloped Residential Land

Infill and Intensification

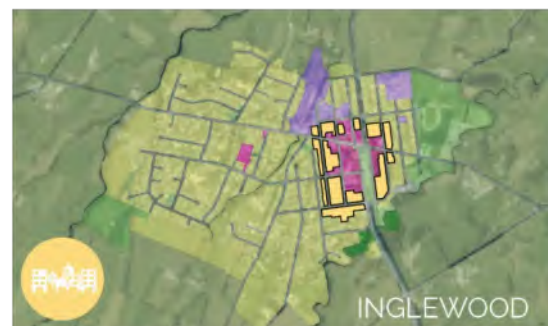
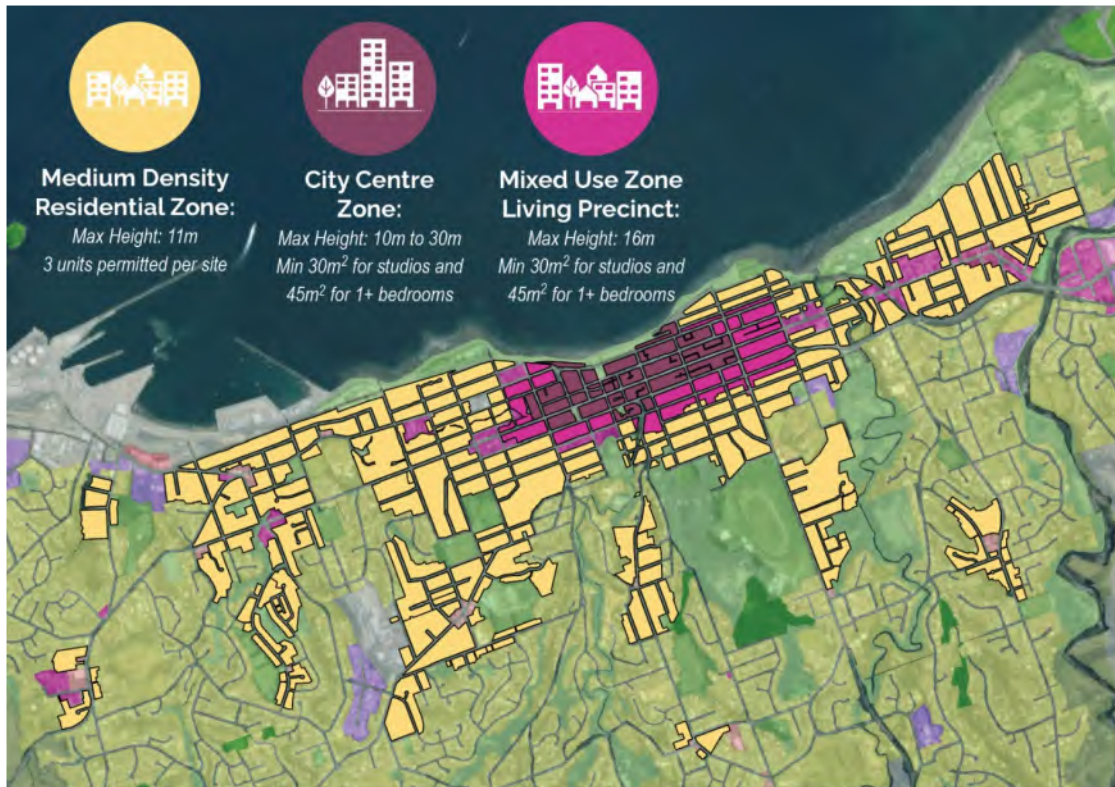
A key part of our growth strategy will be to make use of our existing urban environments through encouraging and enabling infill and intensification via the PDP General Residential and Medium Density Residential Zones. Residential infill development is the establishment of new dwellings within

existing residential areas and is facilitated by the division of existing residential properties into smaller sections or using sites for multiple dwellings. Infill includes development where:

- The existing house is retained and an extra dwelling/s is added;
- The existing house is removed and the entire site is used for an extra dwelling/s; and
- Comprehensive redevelopment where the existing house is removed and the entire site is redeveloped typically for multi-unit developments.

The FDS supports increased infill development up to two stories with the General Residential Zone. A greater level of residential infill development will be provided in the Medium Density Residential Zone, supported by the PDP provisions that enable and support comprehensive multi unit developments. Other options for intensification are enabled in the city, town and local centres. Figure 4 below illustrates the location of key zones that provide for intensification.

Figure 4: Location of Key Zones that Provide for Intensification



Medium density housing is typically underutilised within the district, where more traditional, detached housing typologies predominate.

The provision of land suitable for intensification (e.g. through the PDP Medium Density Residential Zone) may not lead to these areas developing in a way that achieves a well-functioning urban environment. Pre- FDS feedback has indicated that certain priority areas (for example Westtown in New Plymouth) should be identified, and more detailed spatial planning of these areas undertaken. We support future work in this space as we agree the Councils will need to play a role in encouraging and incentivising further residential intensification and complementary business activities. This would provide additional certainty and direction to landowners and the community on how we will grow over the medium to long term.

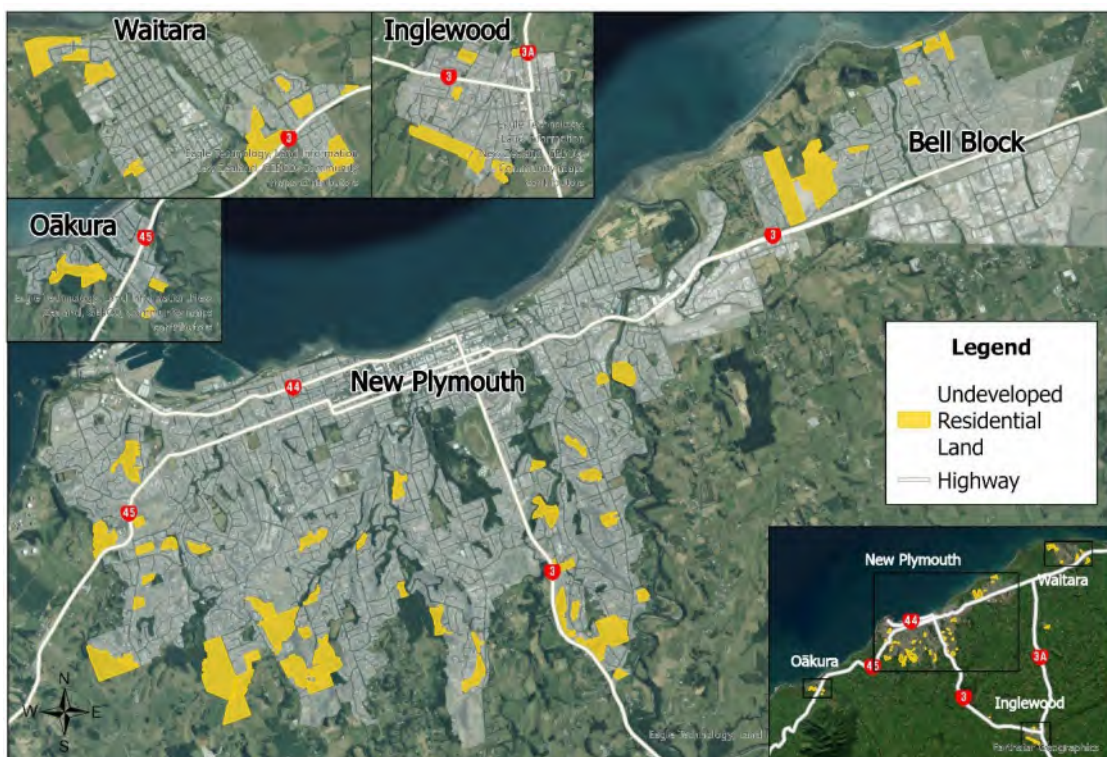
Undeveloped Residential Land

In addition to this intensification, undeveloped residential land and infill development potential are dispersed throughout the district as shown in Figure 5.

These areas are generally in locations within, or on the fringes of, New Plymouth’s existing residential limits. As such, they are relatively accessible to centres and other services. Waitara, Inglewood and Ōākura all currently have significant parcels of undeveloped residential land available. New Plymouth also contains large amounts of undeveloped residential land.

While zoned for development, at times undeveloped residential land can have challenges in delivering good quality urban development. This zoning can be perceived as a “green light”. However, there are often other matters to consider, such as the cultural and ecological values of an area. Early engagement with NPDC and other interested partners is a key step in ensuring the consenting process runs smoothly.

Figure 5: Undeveloped Residential Land



Infrastructure

The infrastructure required to realise the development potential within areas proposed for intensification as well as undeveloped residential land varies significantly across the district.

In relation to Medium Density Residential Zone areas, water modelling undertaken by NPDC show certain discrete issues in relation to servicing these areas. However, these known issues generally have solutions available that are budgeted for through NPDC's LTP.

In relation to undeveloped residential land, of particular note are current levels of service for stormwater and sewer within the Waitara and Inglewood networks. Upgrades to these networks are planned and have funding allocated through NPDC's LTP.

Full details of the planned infrastructure projects supporting this growth be found within the Technical Document.

Growth Areas

In addition to the existing residential areas, a key component of providing for future growth in the district will be through Structure Plan Development Areas that are included in the PDP.

Structure Plan Development Areas

Five structure plan development areas have been identified as being suitable for urban growth purposes. These form the basis for greenfield growth in the district over the short to medium term. Structure plans have been developed for each area which shows future development and land use patterns, the layout and nature of infrastructure, open space and other key features and constraints that influence how the effects of development will be managed.

Each of these areas are located on the periphery of New Plymouth and Waitara's existing urban boundaries, offering natural extensions to these urban boundaries. Being near existing infrastructure, these areas offer a relatively cost-effective approach to providing for greenfield growth in the district.

Tangata whenua have been heavily involved in the structure planning exercises for these areas. Of note, was the involvement during the preparation of the PDP where tangata whenua worked on the content of the structure plans and their associated provisions to better reflect tangata whenua values in relation to these areas.

NPDC has an extensive understanding of the infrastructure required to enable the development of these areas. Key projects requiring NPDC delivery are included within the LTP and Infrastructure Strategy.

There are instances where more "fine grained" structure planning can assist in ensuring these areas are developed appropriately, while giving landowners and developers confidence on what is expected in these areas. NPDC has recently been undertaking this work on certain priority areas (e.g. Puketapu Structure Plan Development Area). Both Councils will continue to consider the need to undertake these exercises on the remaining development areas.

The five structure plan development areas are described in detail within the Technical Document, while the following series of maps (Figures 6-11) spatially identify the infrastructure necessary to support them.

Figure 6: Location of Structure Plan Development Areas and Future Urban Zones

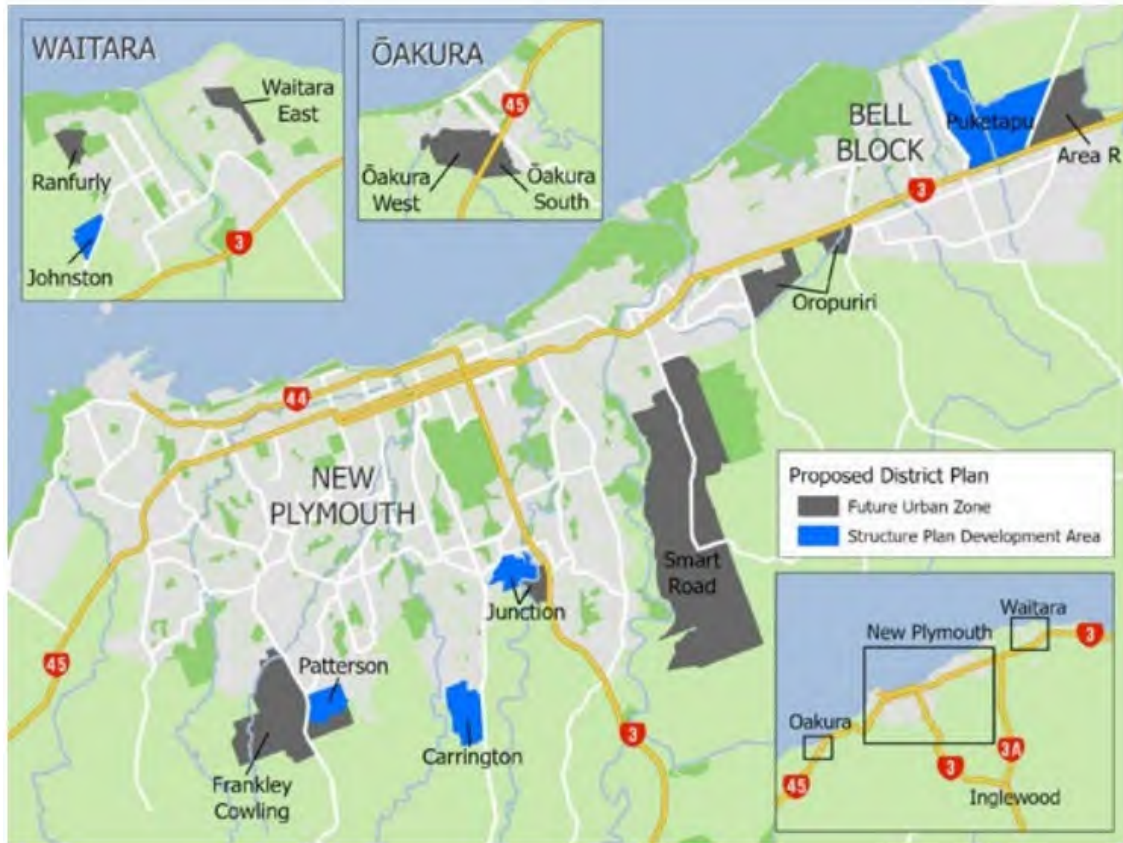


Figure 7: Puketapu Structure Plan Development Area

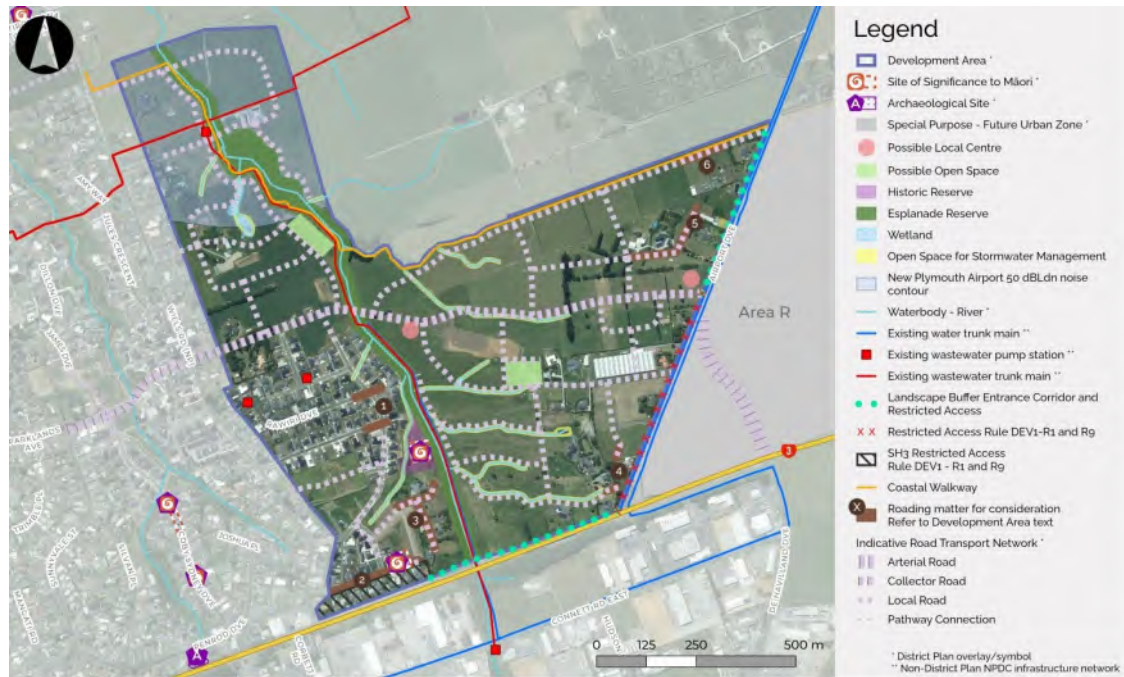


Figure 8: Carrington Structure Plan Development Area



Figure 9: Junction Structure Plan Development Area



Figure 10: Johnston Structure Plan Development Area



Figure 11: Patterson Structure Plan Development Area



Business Growth

Business Land

The district has a set of existing centres that operate in the following hierarchy:

- City Centre Zone – the principal centre that provides a wide range of retail and business service activities, living activities, community facilities and visitor accommodation that serve the district and Taranaki region.
- Town Centre Zone – the town centres of Fitzroy, Waitara and Inglewood that provide a range of business, retail and entertainment activities that serve the needs of each town centre’s community and surrounding rural areas.
- Local Centre Zone – rural service centres, village centres, suburban shopping centres and neighbourhood shops providing convenience-based business and retail activities that serve the needs of each local centre’s community and surrounding areas.

The PDP also provides for businesses and retail activities located outside of the centres. These zones are:

- Mixed Use Zone – covers a large part of the one-way network wrapping around the City Centre Zone but is also located in parts of Inglewood, Waitara, small areas of New Plymouth and the Waiwhakaiho Valley. This zone is predominantly used for and characterised by commercial service, sport and recreation and community activities. The type and frequency of business and retail activities is limited in this zone to ensure the viability and vibrancy of the centres is not compromised. Commercial service activities may not be appropriate for the centres

because of the effects they generate or because of the unavailability of site large enough to accommodate store footprint requirements.

- Large Format Retail Zone – an area in the Waiwhakaiho Valley. This zone is predominantly used for and characterised by large format activities. Further investigation of availability for these specialist activities is included in the Implementation Plan.
- The Commercial Zone – is currently only applied in one location, being the [site](#) of the former Moturoa Coolstores at 20 Hakirau Street, New Plymouth. This land is identified as having specific values and presenting specific and unique opportunities for a new Commercial Zone, enabling mixed use, commercial and residential development near to the coast, Port Zone and culturally significant [sites](#) at the western end of New Plymouth City.

Industrial Land

The PDP consolidated four Industrial Environment Areas from the Operative District Plan (ODP) into one General Industrial Zone. Industrial land in the district is located near key transport routes at Glen Avon, Bell Block and Paraiti, and around Port Taranaki. There is also General Industrial zoned land in Waitara, Inglewood and Egmont Village and some smaller industrial areas in suburban New Plymouth.

The General Industrial Zone provisions aim to prioritise the zone for industrial activities. The General Industrial Zone has a strategic role in supporting the Commercial and Mixed-Use zones. The non-complying activity status for retail and office activities (that are not ancillary to industrial activities) seeks to arrest the leakage of these activities out of the centre zones. The discretionary activity status for commercial service activities seeks to support the integrity of the Mixed-Use Zone. This role in supporting the vitality and vibrancy of the Commercial and Mixed-Use zones is captured in the objectives and policies of the General Industrial Zone.

A June 2021 report undertaken by Property Economics⁹ indicates that the district has sufficient industrial zoned capacity to accommodate future industrial land demand over the long-term. Future growth of the industrial sector is well catered for, including an element of spare capacity.

Future Urban Zones

Future Urban Zones will provide long-term growth (10-30 years) within the district. These areas apply to land that has been identified as being suitable for urban development in the future and are identified in Figure 12 below. When the land is needed for urban purposes, it will be rezoned to enable that to occur (e.g. to a residential or industrial zone). Through the hearing of submissions on the FDS, the timing for feasibility, master planning and plan changes have been brought forward for Frankley/Cowley, Area R, Oakura South, Smart Road and Oropuriri, as shown in the FDS Implementation Plan.

⁹ Property Economics (2021), *New Plymouth Future Industrial Land Demand Economic Assessment*, (<https://proposeddistrictplan.npdc.govt.nz/media/hcsn00ag/hearing-10-appendix-3-property-economics-report.pdf>)

Figure 12: Future Urban Zones



Each of these areas are located to provide logical extensions to existing urban boundaries.

Well-considered structure planning of Future Urban Zones will be vital to ensure development occurs in such a way that ensures the outcomes of this FDS are achieved. These processes can have long lead in times. As such, it is important that the Councils recognise the time and resource these processes take and begin to prioritise areas for future development.

Smart Road FUZ

Smart Road Future Urban Zone is the largest urban growth area in the district and totals 372.1 hectares. This area will see the logical extension of the New Plymouth urban area and maintain a relatively compact urban form, and allow access to schools, community services and the city centre.

Members of the development sector have strongly advocated for enabling the development of portions of this area within the short-term. In particular, interest has been shown in developing approximately 20 ha of land at the northern extent of the current boundary of Future Urban Zoning.

Significant investment in the planning, design and delivery of infrastructure is required prior to development of this area. Full details of the infrastructure required can be found within the Technical Document supporting this strategy. Of particular note is the need to increase level of service in relation to water supply. At present it is not possible to provide adequate firefighting flow to this area. The solution for resolving this requires an “all of catchment” approach, requiring the construction of a new reservoir at the southern end of Smart Road and an associated trunk main. Both wastewater and stormwater also require solutions to enable development of the land, including consideration of impact on existing river management schemes. As such, it will be difficult to develop a portion of the area “out of sync”.

It is also important to note that no structure planning exercise has taken place for Smart Road. The typologies and densities of development enabled would be best determined through this process. Given the size of the area, it is likely that some provision for commercial services and social infrastructure would be appropriate. The Ministry of Education has also indicated that the development of Smart Road is likely the point at which additional education facilities would be required for the district.

Given the timing involved in the planning, design and delivery of both structure planning for the area and solutions to current three waters levels of service, it is considered appropriate for the area to remain as a long-term option for growth. However, given the importance of Smart Road to New Plymouth’s overall growth, it would be appropriate for the Councils, over the short-term, to give further consideration to how and when the area will develop. Master planning of the Smart Road FUZ is included in the Implementation Plan.

Junction FUZ

The Junction Future Urban Zone is located next to the Junction Structure Plan Development Area. This area is located in Upper Vogeltown. The topography of the area is steep to undulating with the land dropping towards the south from Tarahua Road and a steep ridge extending north to south from the eastern end of Junction Street. The Te Henui Stream frames the area and provides high recreational value to the area. Totalling 9.9 hectares in area, this zone has the potential for 113 feasible lots although this is dependent on ground conditions which will be determined through subdivision.

Additional wastewater services to enable future development of the area are included in the LTP.

Ōakura South/West FUZ

The Ōakura growth areas were identified as part of the Ōakura Structure Plan process, under the guidance of the Coastal Strategy. Located on either side of State Highway 45 these areas provide potential land supply for the district.

Ōakura South is 13 hectares in size with the potential for 117 feasible lots. Areas along the Ōakura River have been removed from the area as they are not developable for residential use.

This area has been subject of a recent unsuccessful private plan change application. The landowner also pursued residential rezoning through the PDP hearings. These processes did not question the suitability of the land for development in the long-term (as it is currently earmarked), but rather that at present, there were sufficient reasons to not rezone to urban at this time.

The landowner has also indicated that this area should be included within this FDS as suitable for residential use in the short term. As per the decisions in each of these previous processes, it is considered appropriate to maintain this area for long-term development potential.

The Ōakura West area is 39.5 hectares with the potential for 355 feasible lots.

Both growth areas require comprehensive structure planning which will likely need to be informed by a social impact assessment. In order for Ōakura to grow, we need to understand how the social impacts of growth will be managed. Infrastructure considerations also need to be worked through. There are particular issues regarding access and the intersection of Wairau Road, with an intersection and consideration to the three waters is also required. Provision of open and recreation space, medical and educational facilities will also form part of this future analysis.

Frankley/Cowling FUZ

This Future Growth Zone is located on the south western pocket of the New Plymouth urban boundary. It is a large area of 138.5 hectares, with the potential for 814 feasible lots. The growth area is accessible to services and schools and has good roading connections to the central city. Located on the western side of the city the identification of this area balances future growth pressures and maximises the use of existing community facilities and resources. It provides for the outward extent of urban growth, clearly defining the future urban boundary of New Plymouth city.

There are infrastructure constraints associated with the development of this land, particularly in regard to wastewater and potable water supply. Upgrades have been included in the Infrastructure Strategy.

Ranfurly Street, Waitara

This is a new area included in the PDP and is 11.6 hectares. This land is part of the original survey plans for Waitara and contains a grid layout of paper roads. It represents a logical boundary for urban containment of the western edge of Waitara. Using this area will allow existing pathways and road networks to be utilised and will help to ensure that the town is not compromised by sporadic and/or disconnected development. Whereas there are many natural hazards impacting Waitara, the Ranfurly FUZ contains no known hazards.

Waitara East

This Future Urban Zone is 19.2 hectares in size with the potential for 231 feasible lots. Through the PDP process, this area was reduced substantially in size due to the cultural values associated with the whenua and awa of the area and to better meet the urban growth needs of Waitara. Two other areas have been identified as more appropriate for growth in Waitara (further rezoning along Armstrong Avenue and a new Future Urban Zone over Ranfurly Park). These two new areas are considered to be more logical for residential development given their location to existing amenities and infrastructure, however this area also holds cultural importance to Manukoriki hapū. These cultural values will need to be taken into account in future subdivision processes. Note: The ODP Waitara West Future Urban Development Overlay has not been carried over into the PDP.

Area R

Area R is the eastern extent of development in the Bell Block area. There are access issues with the State Highway intersection that are being addressed through the Airport Drive Realignment project. NPDC has accelerated planning in this area and is progressing a designation to support the changes to the local roading network that will accommodate and support a local roading upgrade. The land is earmarked for future employment land, although there is potential for residential land to the west of the proposed Airport Drive realignment. Further economic work will help determine how the land should be utilised to complement established business land in and around Bell Block.

Oropuriri

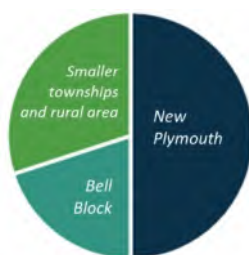
This area of 25.8 hectares is located between the State Highway and Oropuriri Road and has been investigated for future industry zoning (continuing the land-uses at either side) through previous district planning processes. Significant cultural values have been identified in this area by Puketapu and Ngāti Tawhirikura hapū. Any further roading connection is likely to impact cultural values impacting the ability for the area to be comprehensively developed. Further investigations are required regarding stormwater management and roading.

5.1 What capacity will this provide?

Residential Land

The FDS provides potential capacity for about 12,043 new houses in and around the New Plymouth district. This is slightly more than the projected demand of 11,027 New Plymouth district is required to accommodate over the next 30 years (by the end of 2054). This capacity is calculated based on the assumption that the measures associated with future plan changes identified in the FDS Implementation Plan are completed.

We estimate that the FDS will provide capacity for new houses across the New Plymouth district as follows:

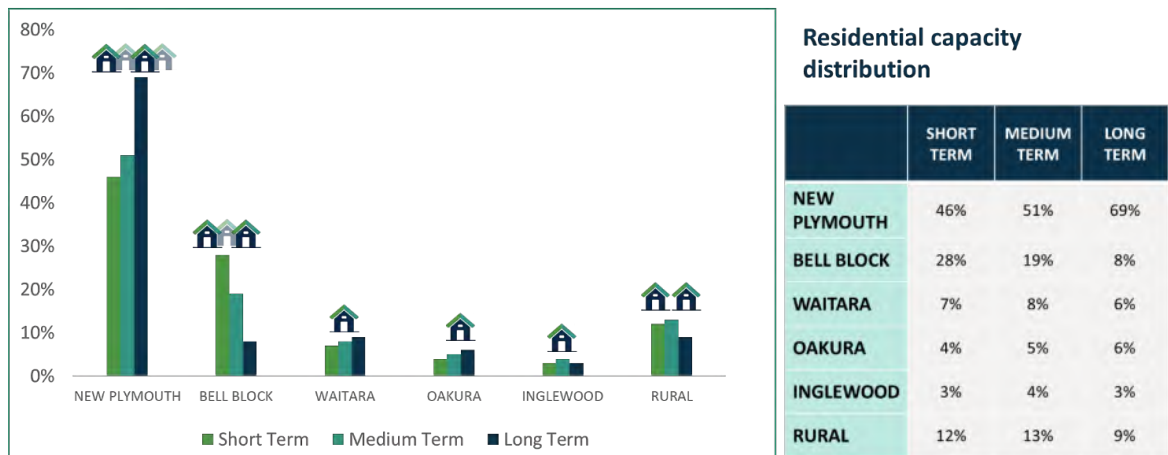


Over the last five years, around 50 per cent of all new dwellings were in residential areas of New Plymouth, with an additional 20 per cent in the Bell Block residential area. The remaining 30 per cent are either in the residential areas of our smaller townships or the rural area. Bell Block is expected to continue to have a high number of consents in the short term to medium term, with the development of the Puketapu Structure Plan Development Area and a large proportion of undeveloped residential land.

Historically NPDC has seen a high proportion of consents in Rural Production Zone. However, policy changes to the PDP aim to decrease the number of applications in the rural environment (short to medium term) along with the zoning to Rural Lifestyle Zone.

The anticipated residential capacity distribution throughout the New Plymouth district is shown in Figure 13.

Figure 13: Anticipated Residential Capacity Distribution Throughout New Plymouth District



Business Land

Most of the district’s long-term capacity designated for retail and commercial use is in the city centre and the adjacent Mixed-Use Zone. The overall potential plan-enabled, feasible, and suitable for development capacity amounts to 44.3 hectares.

In the short to medium term, the current potential capacity for industrial land in the district is met by the existing industrial land, totaling 163 hectares. To ensure sufficient capacity for long-term demands, NPDC has identified the Oropuriri FUZ, encompassing 44 hectares, as the designated area for future industrial development.

6 Implementation

The FDS is intended to provide direction, give confidence to, and help our partners to play their part in the growth and development of our urban areas. The FDS will not be delivered by the Councils alone and the delivery of many of the actions will require wider engagement through other processes. The Councils will need to partner with iwi and hapū, the Government, non-government organisations, businesses and community groups to achieve positive growth.

How can we best manage and foster relationships between the Council, the development community and other stakeholders for increased understanding of expectations and intentions?

The FDS is a long-term strategic document with a 30-year view of growth and development, and it cannot be delivered all at once. To achieve the FDS outcomes and implement the growth strategy, we need to take actions over a long period of time. The timing and staging of development are key components of implementation.

A FDS Implementation Plan will sit alongside the FDS as a single document, as required by the NPS-UD. An Implementation Plan provides guidance on how and where growth and associated infrastructure will occur. It also provides a framework for prioritising actions over the short, medium and long term.

The Structure Plan Development Areas identified in the FDS form a key component of the FDS Implementation Plan. Where Council activities to support growth are included in the LTP, these have been included in the Implementation P

lan. We will align future LTP and FDS processes, to deliver the planning and delivery of key infrastructure to support growth.

In addition to the FDS Implementation Plan, NPDC already promotes the use of the Residential, Subdivision and City and Town Centre Design Guides in its day-to-day implementation of the PDP. In the future, opportunities to encourage and incentivise intensification may be explored. This will support a key outcome of the FDS, that being to achieve a compact city where people can easily access jobs, services, education and quality open spaces. It also follows the District Plan Review where a considerable area of land was upzoned to provide for intensification. The district now has over 400 hectares of medium density zoned land, and infrastructure upgrades will be required to support infill.

Implementation with a focus on collaboration:

As part of the ongoing implementation of the FDS, NPDC will continue to meet regularly with the Technical Professionals Group and Developers Forum. This will be complemented by the Ngāmotu Growth Advisory Panel which is envisaged to provide an elevated collaborative platform for the District's growth planning.

Collaboration with tangata whenua and a Māori growth planning project is also included in the FDS Implementation Plan. This will investigate opportunities for accelerated structure planning, future urban planning and papakāinga in partnership with iwi and / or hapū.

The Councils' role in future infrastructure planning will be transparent through the Implementation Plan, and there will be flexibility to consider out-of-sequence growth where developers wish to lead master planning and plan changes.

The FDS Implementation Plan does not require public consultation under the NPS-UD. It is a stand-alone document that sits alongside this FDS and will be reviewed and updated annually.

6.1 Monitoring and Review

The FDS is a long-term strategic document that cannot be delivered all at once and in itself will not result in immediate change. To achieve the FDS outcomes and to deliver housing, we need to take actions over a long period of time. Ongoing monitoring of development will assist evaluating how our urban areas are growing and whether there is a need to bring forward, push back, or re-align the zoning and infrastructure servicing of land in response to demand.

Monitoring, review and responding to change as necessary is essential. The Councils are committed to working alongside iwi, hapu and the development sector to continue to improve and refine modelling. This is an area of continuous improvement and also a continual cycle of monitoring, modelling and pivoting where needed.



Future Development Strategy for Ngāmotu New
Plymouth
2024-2054

Implementation Plan

Introduction

What is the Future Development Strategy for Ngāmotu New Plymouth?

This Future Development Strategy for Ngāmotu New Plymouth (the FDS) has been prepared by Taranaki Regional Council and New Plymouth District Council (the Councils). Its purpose is to set out the strategic framework for providing for urban growth to meet the needs of New Plymouth district. It gives direction to the community about where new homes and businesses will be located. It describes the priority issues we need to start to address now, and the collective aspirations we have for the future of our urban areas.

This FDS is supported by a Technical Document that provides additional detail on the data and research that has been utilised to inform the FDS.

The Government introduced the National Policy Statement on Urban Development 2020 (NPS-UD) in August 2020 (updated 2022)¹. The NPS-UD outlines the requirements for what a FDS must show and be informed by. It states that the purpose of the FDS is to promote long-term strategic planning by setting out how the Councils intend to:

- Achieve well-functioning urban environments in their existing and future urban areas;
- Provide at least sufficient development capacity over the next 30 years to meet expected demand; and
- Assist with the integration of planning decisions under the Resource Management Act (RMA) with infrastructure planning and funding decisions.

To achieve a well-functioning urban environment, the NPS-UD requires that a FDS:

- Provides for a variety of homes that meet local needs and enable Māori to express their cultural traditions and norms;
- Provides a variety of land suitable for local business needs;
- Enables good accessibility for all people between housing, jobs, community services and open spaces, including by public or active transport;
- Supports the competitive operation of land and development markets;
- Supports reductions in greenhouse gas emissions; and
- Necessitates being resilient to the current and future effects of climate change.

For more information on the content requirements of a FDS refer to Section 2 of the Technical Document.

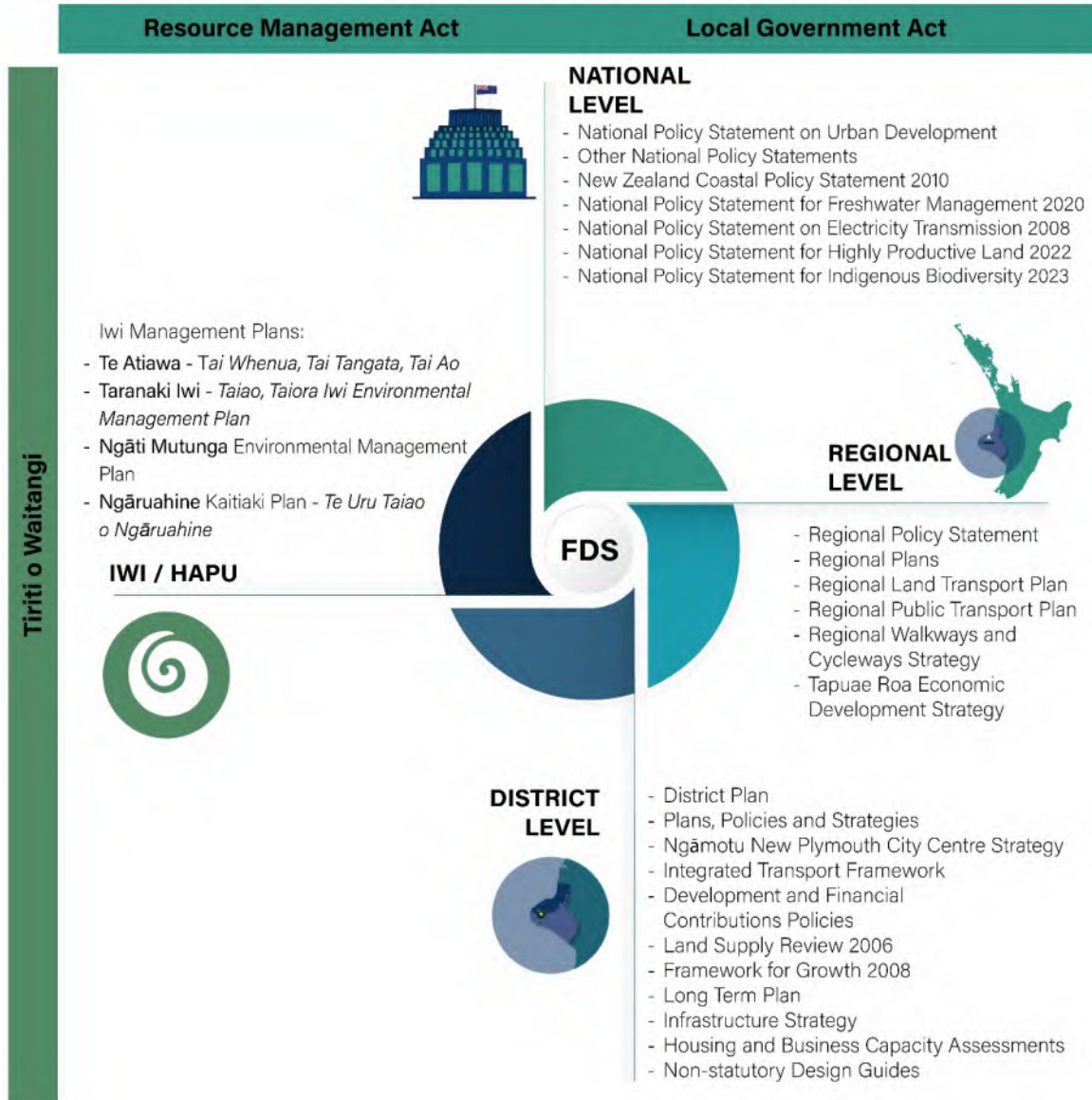
Policy framework - Where does the FDS fit?

The FDS sits within a framework informed by legislation, Government policy, regional and district strategies and plans, as well as the values and aspirations of tangata whenua and the local community.

¹ MfE, National Policy Statement on Urban Development 2020, (<https://environment.govt.nz/acts-and-regulations/national-policy-statements/national-policy-statement-urban-development/>)

Figure 1 below shows examples of the documents that have been taken into account in its development.

Figure 1: Documents informing the development of the FDS



Importantly, the Councils must also have regard to the FDS when preparing RMA planning documents. The Councils are also strongly encouraged to consider the FDS when considering long-term plans (LTPs), along with other plans and strategies developed under the Local Government Act, this is to ensure alignment of infrastructure and projects that facilitate delivery of a FDS.

FDS Implementation

The FDS is intended to provide direction, give confidence to, and help our partners to play their part in the growth and development of our urban areas. The FDS will not be delivered by the Councils alone and the delivery of many of the actions will require wider engagement through other processes. The Councils will need to partner with iwi and hapū, the Government, non-government organisations, businesses and community groups to achieve positive growth.

The FDS is a long-term strategic document with a 30-year view of growth and development, and it cannot be delivered all at once. To achieve the FDS outcomes and implement the growth strategy, we need to take actions over a long period of time. The timing and staging of development are key components of implementation.

A FDS Implementation Plan will sit alongside the FDS as a single document, as required by the NPS-UD. An Implementation Plan provides guidance on how and where growth and associated infrastructure will occur. It also provides a framework for prioritising actions over the short, medium and long term.

The Structure Plan Development Areas identified in the FDS form a key component of the FDS Implementation Plan. Where Council activities to support growth are included in the LTP, these have been included in the Implementation Plan. We will align future LTP and FDS processes, to deliver the planning and delivery of key infrastructure to support growth.

In addition to the FDS Implementation Plan, NPDC already promotes the use of the Residential, Subdivision and City and Town Centre Design Guides in its day-to-day implementation of the PDP. In the future, opportunities to encourage and incentivise intensification may be explored. This will support a key outcome of the FDS, that being to achieve a compact city where people can easily access jobs, services, education and quality open spaces. It also follows the District Plan Review where a considerable area of land was upzoned to provide for intensification. The district now has over 400 hectares of medium density zoned land, and infrastructure upgrades will be required to support infill.

Implementation with a focus on collaboration:

As part of the ongoing implementation of the FDS, NPDC will continue to meet regularly with the Technical Professionals Group and Developers Forum. This will be complemented by the Ngāmotu Growth Advisory Panel which is envisaged to provide an elevated collaborative platform for the District's growth planning.

Collaboration with tangata whenua and a Māori growth planning project is also included in the FDS Implementation Plan. This will investigate opportunities for accelerated structure planning, future urban planning and papakāinga in partnership with iwi and / or hapū.

The Councils' role in future infrastructure planning will be transparent through the Implementation Plan, and there will be flexibility to consider out-of-sequence growth where developers wish to lead master planning and plan changes.

The FDS Implementation Plan does not require public consultation under the NPS-UD. It is a stand-alone document that sits alongside this FDS and it will be reviewed and updated annually.

Monitoring and Review

The FDS is a long-term strategic document that cannot be delivered all at once and in itself will not result in immediate change. To achieve the FDS outcomes and to deliver housing, we need to take actions over a long period of time. Ongoing monitoring of development will assist evaluating how our urban areas are growing and whether there is a need to bring forward, push back, or re-align the zoning and infrastructure servicing of land in response to demand.

Monitoring, review and responding to change as necessary is essential. The Councils are committed to working alongside iwi, hapu and the development sector to continue to improve and refine modelling. This is an area of continuous improvement and also a continual cycle of monitoring, modelling and pivoting where needed.

* Subject to 2024 Long Term Plan decisions

FDS IMPLEMENTATION PLAN	SHORT TERM 0-3 years			MEDIUM TERM 3-10 years						LONG TERM 10-30 years	
	24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	2034-2054
KEY											
✓	= Included as a line item in the draft 2024 LTP										
▶	= Funded via the Kāinga Ora Homes and Communities Infrastructure Acceleration Fund										
⚠	= No funding included in the draft 2024 LTP or Developer-led										
●	= Structure Plan Development Areas implementation timings										
●	= Future Urban Zone implementation timings										
●	= Urban intensification implementation timings										
STRUCTURE PLAN DEVELOPMENT AREAS											
Puketapu Structure Plan Development Area											
- Three waters: Parklands Ave Extension Sewer	✓			●							
- Three waters: Water supply upgrades	✓	●									
- Three waters: Stormwater modelling completed to inform development	✓	●									
- Complete finer grained structure planning	✓	●									
- Three waters: Construction of stormwater assets – Phase 1	✓	●									
- Three waters: Construction of stormwater assets – Phase 2	✓						●				
- Transport: Parklands Ave Extension Waitaha Stream Bridge to Airport Dr	✓			●							
- Transport: Airport Drive/Parklands Avenue Roundabout	✓	●		●							
- Three Waters Bell Block Trunk Sewer – Capacity Upgrade	✓		●								
- Transport: Shared pathway along the Waitaha Stream	✓			●							
- Transport: Construction of bridge over the Waitaha Stream	✓		●	●							
- Transport: Construction of two underpasses - Waitaha Stream	✓			●							
- Land purchase – Area Q/Puketapu Growth Area	✓	●									
- Investigation of additional adjoining land for inclusion in Puketapu Structure Plan	✓	●									
Johnston Structure Plan Development Area											
- Three waters: New sewer main and road upgrading	⚠										
- Potential Reserve purchases	⚠										
Carrington Structure Plan Development Area											
- Three waters: Stormwater modelling completed to inform development	✓	●									
- Complete finer grained structure planning	✓	●									
- Land purchase – Upper Carrington Growth Area	✓		●								
- Three waters: Upgrading of the Huatoki Valley Sewer Main	✓	●									
- Transport: Upper Carrington Road widening	✓						●				
- Three waters: Construction of stormwater ponds	⚠										
- Three waters: Water supply improvements	✓	●									
Junction Structure Plan Development Area											
- Three waters: Stormwater modelling completed to inform development	✓	●									
- Complete finer grained structure planning and investigations into flooding and liquefaction issues	✓	●									
- Three waters: Upgrade to sewer, construction of new sewer pump station and further downstream sewer upgrades	✓					●					
- Three waters: Construction of stormwater ponds	⚠										
- Transport: Upgrade to Junction Street Bridge and seal widening	✓	●									
- Land purchase – Junction Growth Area	✓					●					
Patterson Structure Plan Development Area											
- Transport: Frankley Road shared pathway	▶	●									
- Transport: Frankley Road Tukapa Street Intersection Upgrades	▶	●									
- Transport: Patterson Road Seal Widening	▶	●									
- Transport: Patterson Road Extension	▶	●									
- Transport: Cycleway and Walkway over Sutherland Sewer	▶	●									
- Three Waters: Sutherland Sewer	▶	●									
- Three Waters: Veale Road Pump Station inlet/outlet upgrade	✓					●					
- Three Waters: Patterson Road Water Main	▶	●									
- Land purchase – Patterson Growth Area (esplanade reserve)	✓	●				●					
- Three Waters: Stormwater modelling completed to inform development	✓	●									

- Three Waters: Stormwater detention ponds	⚠													
- Transport: Potential walkway over water main	⚠													
- Complete finer grained structure planning	✓	●												
Armstrong Ave (Specific Control Area)		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34		2034-2054	
- Three Waters: Tangaroa stormwater management	✓	●												
- Three Waters: Waiari stormwater management	✓				●									
- Complete finer grained structure planning and cultural values assessment	⚠	●												
- Transport: Upgrade of Armstrong Ave, Upgrade of Waitara High School driveway and pedestrian/driveway upgrade for School buses.	⚠													
FUTURE URBAN ZONES		SHORT TERM 0-3 years			MEDIUM TERM 3-10 years						LONG TERM 10-30 years			
Junction (Stage 2) Future Urban Zone		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34		2034-2054	
- Three Waters: Stormwater modelling completed to inform development	✓		●											
- Feasibility of FUZ / wider Junction areas	✓									●				
- Structure planning	✓												●	
- Three Waters: Investigation work for all stormwater	⚠												●	
- Three Waters: Investigation work for water supply	⚠												●	
- Three Waters: Investigation work for sewer, including a potential new sewer pump station	⚠												●	
- Transport: Investigation work for roading	⚠												●	
Frankley/Cowling Future Urban Zone		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34		2034-2054	
- Three Waters: Stormwater modelling completed to inform development	✓					●								
- Feasibility of FUZ (including consideration of adjoining sites)	✓	●								●				
- Potential Plan Change					●									
- Structure planning	✓												●	
- Transport: Cowling Road widening	⚠												●	
- Three Waters: Investigation work for all stormwater	⚠												●	
- Three Waters: Investigation work for water supply	⚠												●	
- Three Waters: Investigation work for sewer, including a potential new sewer pump station	⚠												●	
- Three Waters: Waimea sewer extension	✓		●											
Area R Future Urban Zone		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34		2034-2054	
- Three Waters: Stormwater modelling completed to inform development	✓		●											
- Feasibility of FUZ (Master planning as part of Bell Block Spatial Plan)	✓				●					●				
- Structure planning	✓												●	
- Three Waters: Investigation work for all stormwater	⚠												●	
- Three Waters: Investigation work for water supply	⚠												●	
- Three Waters: Investigation work for sewer, including a potential new sewer pump station	⚠												●	
- Transport: Investigation work for roading	⚠												●	
- Transport: Airport Drive/round-about realignment roading master planning	✓				●								●	
Ōakura Future Urban Zones (South and West)		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34		2034-2054	
- Feasibility of FUZ West	✓									●				
- Feasibility of FUZ South (including investigation into a retirement village proposal)	✓		●							●				
- Potential Plan Change for Ōakura South				●										
- Structure planning	⚠										●			
- Transport: Wairau/South Road round-about	⚠													
- Transport: SH45 Wairau Road underpass	⚠													
- Three Waters New water supply main	✓		●											
- Three Waters Investigation work for stormwater	⚠												●	
- Three Waters Investigation work for water supply	⚠												●	
- Three Waters Investigation work for sewer, including a potential new sewer pump station	⚠												●	
- Transport: Investigation work for roading	⚠												●	
Smart Road Future Urban Zone		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34		2034-2054	

- Smart Road FUZ feasibility	☑	●										
- Potential Stage 1 Plan Change		●										
- Investigate the impacts of development on Mangaone Stream	⚠									●		
- Structure planning	⚠									●		
- Three Waters Investigation work for all stormwater	⚠									●		
- Three Waters Investigation work for water supply	☑									●		
- Three Waters Investigation work for sewer, including a potential new sewer pump station	☑									●		
- Land acquisition for Smart Road reservoir	☑	●										
- Three waters: Smart Road reservoir	☑									●		
- Transport: Investigation work for roading, including ring road	☑									●		
- Transport: Waiwhakaiho second bridge crossing investigation	☑										●	
Oropuriri Future Urban Zone		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	2034-2054
- Oropuriri Road FUZ feasibility (in conjunction with NZTA, landowners and developers to review the most appropriate zoning for the Oropuriri FUZ).			●									
URBAN INTENSIFICATION		SHORT TERM 0-3 years			MEDIUM TERM 3-10 years						LONG TERM 10-30 years	
- Three waters: Inglewood sewer projects	☑	●										
- Three waters: Waitara sewer projects	☑	●										
- Three waters: Wastewater treatment plant storage (district-wide growth)	☑	●										
- Three waters: Inglewood stormwater	☑	●										
- Identify priority areas for intensification (areas already zoned MRZ)	⚠	●										
- Waimea sewer extension	☑	●										
- Three waters: Urenui and Onaero sewer system (investigate further areas for possible intensification in Urenui, including Māori land, which are supported by the wastewater treatment plant)	☑	●										
- Investigate further areas for possible intensification (future rezoning to MRZ) Long term response to monitoring and review of uptake of infill and land supply)	⚠	●										
TANGATA WHENUA		SHORT TERM 0-3 years			MEDIUM TERM 3-10 years						LONG TERM 10-30 years	
- Māori growth planning project		●										
- Work with tangata whenua to explore opportunities to develop guidance notes and other documents that provide support and clarity on process and scope issues.		●										
- Ongoing communication with Ngā Kaitiaki Roopū (including investigate accelerated structure planning, future urban planning and papakāinga in partnership with iwi and / or hapū)		●										
SPATIAL PLANNING		SHORT TERM 0-3 years			MEDIUM TERM 3-10 years						LONG TERM 10-30 years	
Waitara Spatial Plan		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	2034-2054
- Development of the Spatial Plan		●										
- Constraints and hazard assessments												
- Rezoning assessments												
- Investigate the provision and type of industrially and commercially zoned land as part of spatial plan												
Bell Block Spatial Plan		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	2034-2054
- Development of the Spatial Plan		●										
- Investigate the provision and type of industrially and commercially zoned land as part of spatial plan	⚠											
- Assessment of rezoning of 108 Henwood Road, New Plymouth as part of the Bell Block spatial plan.												
- Area R Future Urban Zone master planning					●							
Inglewood Spatial Plan		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	2034-2054
- Development of the Spatial Plan (including investigate the provision and type of industrially and commercially zoned land as part of spatial plan)	⚠			●								
INVESTIGATE AREAS IDENTIFIED FOR POSSIBLE GREENFIELD GROWTH		SHORT TERM 0-3 years			MEDIUM TERM 3-10 years						LONG TERM 10-30 years	
Long term potential* <i>(*depending on other strategic planning processes, monitoring and review of land supply)</i>		24/25	25/26	26/27	27/28	28/29	29/30	30/31	31/32	32/33	33/34	2034-2054
- Carrington North	⚠											
- Carrington South (to investigate the rezoning of land to either RLZ or GRZ)	⚠				●							

COUNCIL PROCESSES	SHORT TERM 0-3 years	MEDIUM TERM 3-10 years	LONG TERM 10-30 years
- Development of a PDP Implementation Plan to proactively assist change management and to achieve the outcomes sought by the PDP.	●		
- District Plan - Plan Change (omnibus plan change: to finetune the PDP and reduce duplication, inefficiencies and/or pinch points that are creating challenges for the provision of housing and development (in collaboration with the Growth Advisory Panel)	●		
- District Plan - Plan Change (plan change specific to SASM/AS)	●		
- Retirement investigation/collaboration			
- Investigation of commercial land and land supply for LFR			
- Establish Ngāmotu Growth Advisory Panel	●		
- Ongoing regular meetings with Technical Professionals Group and Developers Forum			



Date: 30 April 2024

Subject: Office of the Auditor General - Audit on Managing Freshwater Quality

Author: A D McLay, Director-Resource Management

Approved by: S J Ruru, Chief Executive

Document: 3263227

Purpose

1. The purpose of this memorandum is to update members on Council's participation in a follow up from the Office of the Auditor General (OAG) on regional councils' relationship with iwi and hapū for freshwater management.

Recommendations

That Taranaki Regional Council:

- a) receives this memorandum
- b) notes the Office of the Auditor General's Regional councils' relationships with iwi and hapū for freshwater management – a follow-up report (2024)
- c) notes the positive progress made in the relationship between the Council and iwi and hapū in the region.

Background

2. In 2011 the Office of the Auditor General (OAG) published a report on how effectively Waikato Regional Council, Horizons Regional Council, Environment Southland and Taranaki Regional Council (the Council) managed the effects of land use on freshwater quality in their regions.
3. A subsequent report was published in 2019 titled 'Managing freshwater quality: Challenges and opportunities'. In this report, the OAG assessed the progress that each council had made since the 2011 report.
4. Within the 2019 report, the need to strengthen Council's relationships with iwi and hapū within the rohe (region) to manage freshwater quality better was identified.
5. Since the 2019 report, changes to the National Policy Statement for Freshwater Management (NPS-FM) have strengthened the requirements for regional councils to work with tangata whenua on managing freshwater.
6. In 2023, the OAG followed up with council officers and engaged with iwi and hapū representatives to see what progress had been made.
7. The report was released on 21 May 2024 and received some media coverage.

Discussion

8. In the OAG's 2019 report, it was noted that iwi and hapū felt their relationship with Council was transactional in nature, which resulted in a shift in our approach to engaging with iwi and hapū. The change from a consultative approach to a more collaborative approach has supported this and is noted within the report.
9. This change has allowed the Council to strengthen its commitment to bringing iwi and hapū aspirations into understanding freshwater planning and is improving the level of trust and confidence iwi and hapū have in their relationships with Council.
10. The report notes the positive changes in attitudes that Council staff have towards building relationships with iwi and hapū at all levels, and is shown through recruitment of strategic positions to build capabilities in areas such as matauranga māori. Engagement with iwi Chief Executives has also been a positive strategic step.
11. There is a desire from some iwi and hapū for these recent improvements to go further and the Council is committed to continue this mahi (work) as part of our journey.
12. The changes required to better manage freshwater and the relationship with iwi and hapū are long term journeys, and maintaining a positive relationship is imperative.
13. The Māori voice has been an integral part of our freshwater journey. The Council can't work to protect Taranaki's rivers, streams, lakes and wetlands without the invaluable contribution from iwi and hapū across the region.
14. Council's relationship with iwi and hapū is expanding with the development of a joint management agreement with Ngāti Maru and continuing work to establish the Waitara River Committee.
15. To facilitate the freshwater mahi, the Council funded two Pou Taiao. The Pou Taiao have worked closely with Council staff, contributing views and position papers so the views of iwi and hapū are part of the foundational work underway to create a new Land and Freshwater Plan for the region. The knowledge and understanding provided by the Pou Taiao of the Māori world has been really useful and appreciated. This mahi is continuing and is a vital element of the development of the Land and Freshwater Plan and ensuring iwi and hapū have the capacity to contribute effectively to this process.
16. The other three councils that were part of the investigation also showed improved relationships between the councils and iwi and hapū. Feedback from councils who were not part of the investigation also shows the same positive trends.

Financial considerations—LTP/Annual Plan

17. This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

18. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the Local Government Act 2002, the Resource Management Act 1991 and the Local Government Official Information and Meetings Act 1987.

Iwi considerations

19. This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the Local Government Act 2002) as outlined in the adopted Long-Term Plan and/or Annual Plan.

Community considerations

20. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this memorandum.

Legal considerations

21. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

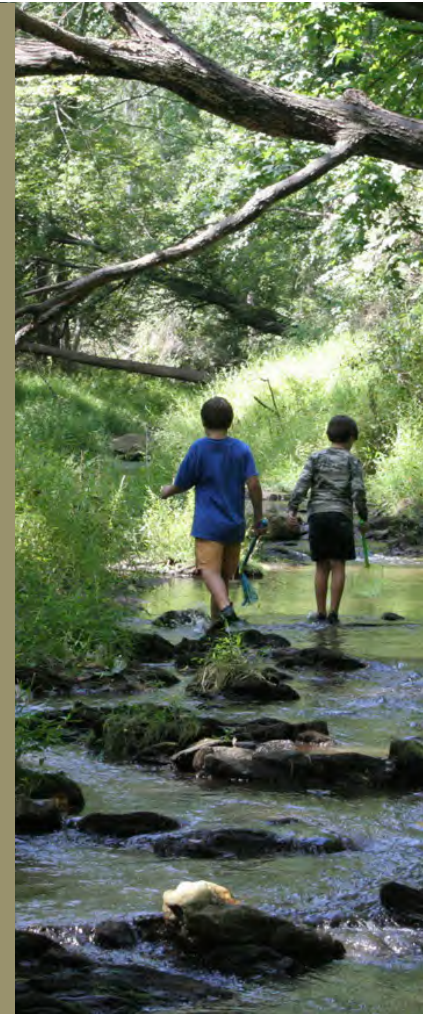
Appendices/Attachments

Document 3278600: Regional Council's relationships with iwi and hapū for freshwater management – a follow-up report.



B.29[24d]

Regional councils' relationships with iwi and hapū for freshwater management – a follow-up report



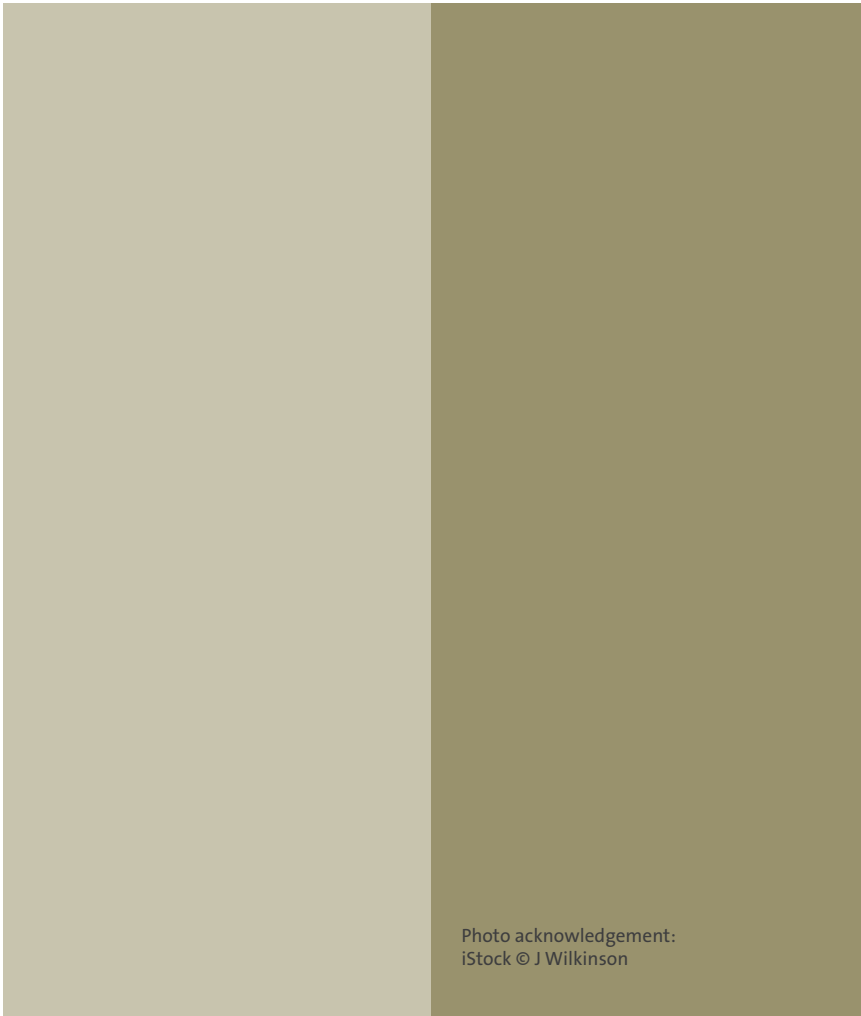


Photo acknowledgement:
iStock © J Wilkinson

Regional councils'
relationships with
iwi and hapū for
freshwater
management – a
follow-up report

Presented to the House of
Representatives under section 20 of
the Public Audit Act 2001.

May 2024

Contents

Auditor-General’s overview	3
Why we did this work	5
What we did	7
What we found	9
Regional councils getting to know individual iwi and hapū creates the foundation for meaningful relationships	10
Responding to individual iwi and hapū views on freshwater supports more effective freshwater management	12
Mutually beneficial relationships lay the foundations for effective long-term strategic freshwater management	14
Waikato Regional Council’s progress since 2019	16
Summary of key findings	16
Changes to freshwater management in the Waikato since 2019	17
Waikato Regional Council has improved its approach to working with iwi and hapū	18
Iwi in Waikato want more meaningful and enduring relationships with the Council	19
Taranaki Regional Council’s progress since 2019	21
Summary of key findings	21
Changes to freshwater management in Taranaki since 2019	22
Taranaki Regional Council is focused on working with iwi and hapū more collaboratively	23
Iwi and hapū in Taranaki want recent improvements at the Council to go further	24
Horizons Regional Council’s progress since 2019	26
Summary of key findings	26
Changes to freshwater management in Manawatū-Whanganui since 2019	26
Horizons Regional Council has strengthened its work with iwi and hapū on managing freshwater	28
Iwi and hapū want strong relationships with a wider range of teams within the Council	29
Environment Southland’s progress since 2019	31
Summary of key findings	31
Changes to freshwater management in Southland since 2019	31
Environment Southland and Ngāi Tahu ki Murihiku are achieving positive freshwater outcomes	32

Auditor-General's overview

E ngā mana, e ngā reo, e ngā karangarangatanga maha o te motu, tēnā koutou.

Freshwater is one of New Zealand's most important natural resources. The quality of the water that flows through our lakes and rivers affects the lives and livelihoods of all New Zealanders. Changes to the way we use and manage land have affected many of our waterways, and climate change is putting further pressure on our freshwater ecosystems.

Improving how we manage freshwater quality in New Zealand is important work. It is particularly important for regional councils, who are responsible for managing freshwater quality in their regions.

Regional councils have statutory obligations to involve iwi and hapū in managing freshwater resources through the National Policy Statement for Freshwater Management, the Resource Management Act 1991, Treaty settlements and other legislation. Many iwi also exercise kaitiakitanga over freshwater in their rohe.

Regional councils need meaningful relationships with iwi and hapū because of the deep cultural and traditional connections that tangata whenua have with water bodies and water. These relationships can help regional councils better understand the values and aspirations that iwi and hapū have for freshwater management.

In 2019, we looked at how effectively Waikato Regional Council, Taranaki Regional Council, Horizons Regional Council, and Environment Southland were managing freshwater quality. We recommended that, to manage freshwater quality better, three of these regional councils (Waikato, Taranaki, and Horizons) strengthen their relationships with iwi and hapū in their regions. In 2023, we followed up with all four regional councils and spoke with iwi and hapū representatives to see what progress the regional councils had made.

We found that all four regional councils are focused on strengthening their relationships with iwi and hapū. We saw improvements in how they work with iwi and hapū to manage freshwater quality, and they all now involve tangata whenua in governance structures that oversee regional freshwater management.

However, we heard from iwi and hapū representatives that they want more enduring and meaningful relationships with regional councils. Some iwi and hapū still feel that regional councils tend to engage with them only on specific projects and focus only on what the councils want to prioritise.

At times this can lead to regional councils not taking the time to understand iwi perspectives on the different waterways in their rohe, or engaging with the wrong people.

Auditor-General's overview

Meaningful relationships that will endure, even when circumstances change or challenges arise, require a more strategic approach. A strategic approach should focus on shared long-term goals for freshwater management; a common understanding of each other's interests in, and concerns for, freshwater; appropriate structures for councils to hear and respond to iwi and hapū voices; and effective processes for sharing information. Working with iwi and hapū in this way should be a core capability for councils, as it is critical to good environmental planning, and a range of other responsibilities regional councils have.

A strategic approach will assist councils to better prioritise and manage freshwater projects in ways that benefit everyone, adapt processes to ensure they work for all those involved, avoid engagements feeling transactional, and sustain and strengthen relationships.

The four regional councils we looked at all intend to continue to improve relationships and involve iwi and hapū in freshwater management and policy. Iwi and hapū representatives we spoke with recognised this. I encourage all councils to consider how they can learn from the observations in this report and the approaches that different councils have taken to working more effectively with iwi and hapū to manage freshwater quality.

I thank the staff of the four regional councils and the iwi and hapū representatives who volunteered their time and expertise to support this work. My Office will continue to have an interest in how regional councils are working to build meaningful and enduring relationships with iwi and hapū in their regions.

Nāku noa, nā



John Ryan
Controller and Auditor-General | Tumuaiki o te Mana Arotake

10 May 2024

1

Why we did this work

- 1.1 Effective freshwater management is an important focus for all regional councils who are responsible for managing freshwater quality in their regions. The quality of New Zealand's freshwater environment affects the lives of all New Zealanders. However, the way we use and manage land and freshwater is putting many of our freshwater ecosystems under pressure.
- 1.2 In 2019, we published a report looking at how well Waikato Regional Council, Taranaki Regional Council, Horizons Regional Council, and Environment Southland manage freshwater quality in their regions.¹ We also looked at how well the Ministry for the Environment and Statistics New Zealand were using the data that regional councils collect to create a national picture of freshwater quality.
- 1.3 One of our recommendations in that report was:

... that Waikato Regional Council, Taranaki Regional Council, and Horizons Regional Council strengthen relationships with iwi and hapū, especially those yet to complete Treaty settlement processes, by formally seeking their aspirations for involvement in strategic decision-making and identifying how those aspirations can be met.
- 1.4 The purpose of this follow-up work was to see what progress the three regional councils have made on this recommendation since 2019. Although we did not direct the recommendation at Environment Southland, we included it in this work to see how its relationships had also developed during this period. We followed up the four other recommendations we made in our 2019 report in a separate piece of work in 2023.²
- 1.5 Māori have deep cultural, traditional, and customary connections with waterways. These relationships to water have a special significance in Treaty settlements. As a result, regional councils have statutory obligations to involve iwi and hapū in managing freshwater resources through the National Policy Statement for Freshwater Management (NPS-FM) and the Resource Management Act 1991, as well as Treaty settlements and other pieces of legislation.
- 1.6 As we noted in our 2019 report, effective relationships help regional councils to better understand Māori values and aspirations for freshwater management and reflect them in freshwater management objectives. We expect regional councils to have enduring and meaningful relationships with iwi and hapū so that all parties can work towards shared long-term goals for managing freshwater.

1 Controller and Auditor-General (2019), *Managing freshwater quality: Challenges and opportunities*, at oag.parliament.nz.

2 Controller and Auditor-General (2023), *Responses to our recommendations about managing freshwater quality*, at oag.parliament.nz.

Part 1
Why we did this work

- 1.7 The operating context for managing freshwater is changing. Enduring and meaningful relationships between regional councils and iwi and hapū can assist in navigating these changes.
- 1.8 The NPS-FM introduced the concept of Te Mana o te Wai, the life-supporting capacity of freshwater, in 2014. The NPS-FM was updated in 2020, and the update strengthened and clarified the role of Te Mana o te Wai as a fundamental concept in managing freshwater.³
- 1.9 The NPS-FM requires each regional council to give effect to Te Mana o te Wai by developing a long-term vision for freshwater management through discussions with communities and tangata whenua. Councils must involve tangata whenua in managing freshwater resources to the extent that they wish to be (including in decision-making processes and in monitoring and preparing policy statements and plans).
- 1.10 Councils must also investigate using tools available under the Resource Management Act as ways of involving tangata whenua.⁴ These tools include joint management arrangements, Whakahono ā Rohe: Iwi participation agreements, and the transfer or delegation of powers.
- 1.11 Regional councils are also required to monitor progress towards achieving target attribute states and environmental outcomes for water bodies in their regions.⁵ They must include mātauranga Māori measures in the methods they use to do this. They also need to submit updated regional freshwater plans to the Ministry for the Environment by 31 December 2027.⁶
- 1.12 The Resource Management Act requires regional councils to involve iwi and hapū in managing freshwater resources. The Local Government Act 2002, Treaty settlement legislation, and other pieces of legislation also include provisions that require regional councils to involve Māori in decision-making processes. Treaty settlements can require regional councils to enter into joint management

3 Ministry for the Environment (2023), *Essential Freshwater policies and regulations: implementation guidance*, at environment.govt.nz/acts-and-regulations/freshwater-implementation-guidance/.

4 Mana Whakahono ā Rohe is a tool designed to assist tangata whenua and local authorities to discuss, agree, and record how they will work together under the Resource Management Act.

5 An attribute is something that can be measured or monitored that describes the state of a river or lake. For example, the amount of nitrogen or phosphorus in the water. There are 22 compulsory attributes in the NPS-FM, many of which have a minimum standard, or national bottom line – these contribute to understanding how freshwater provides for ecosystem health and human contact. Ministry for the Environment (2020), *Action for health waterways: Information on attributes for managing the ecosystem health and human contact values in the National Policy Statement for Freshwater*, at environment.govt.nz.

6 On 19 December 2023, the deadline for notifying changes to freshwater plans was extended from 31 December 2024 to 31 December 2027 to allow the Government time to do the work needed to replace the NPS-FM and for regional councils to respond to the changes.

agreements with post-settlement governance entities to manage natural resources.⁷

- 1.13 There are opportunities to develop relationships between regional councils and iwi and hapū through different types of work on managing freshwater. These include regional councils consulting with iwi and hapū on updates to their regional freshwater plans, seeking cultural impact assessments on resource consents from iwi and hapū, and working with iwi and hapū to monitor freshwater quality.
- 1.14 Expected changes to legislation might shift the context for freshwater management. In December 2023, the Government said that it would consult to replace the NPS-FM. It has signalled elsewhere that this work will include work to rebalance Te Mana o te Wai.⁸
- 1.15 The Spatial Planning Act and the Natural and Built Environment Act were repealed under urgency in December 2023. As a result, the Resource Management Act remains the primary legislation that controls how our environment is managed. It is also set to be amended as part of the Government's coalition agreements.
- 1.16 Changes to these pieces of legislation might affect how regional councils are required to involve tangata whenua in managing freshwater. However, meaningful relationships are the basis for constructive dialogue about water management.

What we did

- 1.17 For relationships between regional councils, iwi, and hapū to support effective freshwater management, all parties need a high level of trust and confidence in each other.
- 1.18 We examined how the four regional councils work with iwi and hapū to strengthen their relationships for managing freshwater quality. That included how they incorporate the views of iwi and hapū on freshwater into their strategic decision-making. This allowed us to understand some of the drivers of meaningful and enduring relationships in managing freshwater.
- 1.19 We spoke with staff at each of the four regional councils about their work with iwi and hapū on managing freshwater. We also reviewed relevant documents

⁷ Joint management agreements are an instrument under the Resource Management Act that provides for agreements between a local authority with one or more public authorities, iwi authorities, or groups that represent hapū to jointly perform or exercise any of the local authority's functions, powers, or duties under the Resource Management Act relating to a natural or physical resource. Post-settlement governance entities are legal entities set up to manage the collective assets received by the claimant group of a Treaty settlement.

⁸ New Zealand National Party (2023) *Primary Sector Growth Plan*, at national.org.nz.

Part 1

Why we did this work

and talked to 25 representatives from a range of iwi, hapū, and post-settlement governance entities in the four regions about their views.

- 1.20 The findings of our 2022 report *Māori perspectives on public accountability* helped us to think about what might be important to iwi and hapū in building trusting relationships and informed our approach to this work.⁹
- 1.21 Iwi and hapū have a range of distinct views about their relationships with regional councils. Approaches to managing freshwater may differ in each region, as do the relationships between regional councils and each iwi and hapū.
- 1.22 We were not able to speak to all iwi and hapū working on freshwater in these regions, and our conclusions do not cover all the relationships that regional councils have with iwi and hapū. Instead, we focused on understanding what is working well (and not so well) in general so that our work can support councils to develop these relationships further.

⁹ Controller and Auditor-General (2022), Commissioned report: *Māori perspectives on public accountability*, Haemata Limited, at oag.parliament.nz.

2

What we found

- 2.1 Since our 2019 report, each of the four regional councils has carried out work to further understand iwi and hapū aspirations for managing freshwater. All four councils are working with iwi and hapū to develop freshwater plan updates as part of their work towards the NPS-FM.
- 2.2 Each council has also taken steps to involve tangata whenua in its formal governance structures. This includes providing for tangata whenua representation on key council committees for strategy and/or planning, which both have connections to freshwater policy.
- 2.3 Council staff who we spoke with were committed to working with iwi and hapū to improve freshwater quality. However, each council faces different challenges. The different regions vary in their geographical extent, their topography, the size and quality of their freshwater catchments,¹⁰ the number of iwi and hapū in their region, the amount of progress towards Treaty settlements, and existing arrangements for managing freshwater.
- 2.4 All these factors influence how councils, iwi, and hapū work together. Despite this, all four councils share an appreciation of the importance and value of their relationships with iwi and hapū for making progress on managing freshwater.
- 2.5 Many of the iwi and hapū representatives we spoke with highlighted the growing strength of their relationships with their respective regional councils and their trust and confidence in council staff. However, some also told us that regional councils could still do more to support more enduring and meaningful relationships.
- 2.6 In our view, regional councils need to take a more strategic approach to building relationships with iwi and hapū that will support effective freshwater management. A more strategic approach should focus on shared long-term goals for freshwater management; a common understanding of each other's interests in, and concerns for, freshwater; appropriate structures for the council to hear and respond to iwi and hapū voices; and effective processes for sharing information. Working with iwi and hapū in this way should be a core capability for councils, as it is critical to good environmental planning, and a range of other responsibilities of regional councils.
- 2.7 A more strategic approach will allow councils to better prioritise and manage freshwater projects in ways that benefit everyone.
- 2.8 This includes being willing to adapt to fit the circumstances of different iwi and hapū and avoid engagements feeling transactional. This will support regional councils to meet their statutory requirements to work with tangata whenua while sustaining and strengthening relationships.

¹⁰ A catchment, or whaitua, is an area of land where rain flows into a common river, lake, or other body of water.

Part 2
What we found

- 2.9 We found that all four regional councils had good intent and had made progress in their relationships with iwi and hapū. Where there are effective relationships, iwi, hapū, and the council learn from each other, build their capabilities, and work towards positive freshwater outcomes that reflect the broad needs of everyone in the community.
- 2.10 At times, regional councils, iwi, and hapū will have different or competing views on managing freshwater. When council staff, iwi, and hapū know each other well, relationships will be more resilient and people will be better able to work constructively through disagreement.
- 2.11 Our findings highlight what is needed to strengthen relationships and build trust and confidence. We acknowledge what the four regional councils have done since our 2019 report and that each council faces unique challenges in building enduring and meaningful relationships with iwi and hapū. We discuss each of the four regions individually in subsequent parts of this report.

Regional councils getting to know individual iwi and hapū creates the foundation for meaningful relationships

- 2.12 The foundation for relationships to grow is set when regional council staff understand each iwi and hapū in their region and how they prefer to work. Trust and confidence can be built when iwi and hapū see that regional councils are committed to learning about their unique perspectives, including their histories and the ways they work.

Invest time in learning about iwi, hapū, and their histories

- 2.13 Iwi and hapū representatives told us that meaningful relationships involve knowing people and feeling that they have a relationship with them, as well as understanding their position or role within the organisation.
- 2.14 This could mean being able to pick up the phone to get a quick answer from a familiar council contact, feeling comfortable to drop in at council or iwi offices for a cup of tea, or going the extra mile to give personal support to a staff member at a difficult time. In one example, we heard that the relationship between an iwi and regional council was built on strong personal connections like these, that had developed over a long time.
- 2.15 Iwi and hapū told us about the importance of being able to spend time with council staff. Some iwi and hapū representatives invest time with council staff to support them to better understand iwi and hapū histories and values more generally. These representatives saw these engagements as opportunities to lift

the council's capability and as a way to build trust between council members, staff, iwi, and hapū. Some of the iwi representatives we spoke with were interested in regularly setting aside time for whakawhanaungatanga with the council to maintain relationships, meet new staff, and talk about long-term aspirations.

- 2.16 However, we also heard frustration from iwi and hapū about some councils' staff's level of understanding, particularly where there was significant staff turnover. Some iwi and hapū felt that they had to explain their perspectives and values every time the council wanted to engage. In one instance, this was described as "an expectation that iwi would deliver 'Treaty 101' workshops" at every hui. Iwi representatives felt that needing to do this repeatedly wasted time that should be used to work together on managing freshwater.
- 2.17 Some councils are investing in the capability of their staff to better engage with and understand the views of iwi and hapū. For example, one council has developed a series of workshops that include visits to sites of significant cultural importance to iwi and hapū. It is offering this to staff throughout the organisation progressively. To date, feedback from staff has been positive, with comments focusing on how enriching staff had found the opportunities.
- 2.18 In our view, this kind of capability work can help reduce the burden that iwi and hapū feel to educate council staff about their iwi or hapū.

Understand how iwi and hapū operate and want to work

- 2.19 We heard that iwi and hapū approaches to making decisions can vary and that this has implications for how regional councils engage with them. Regional councils need to understand these different approaches and plan appropriate time and resources to allow for iwi and hapū representatives to seek input to form their views or make decisions.
- 2.20 For example, some iwi representatives felt that councils, in their planning, were not allowing appropriate time to engage with them on resource consent applications. Delays to iwi and hapū receiving resource consent applications can create the perception that it is iwi holding up the process.
- 2.21 It is also important for regional councils to take the time to make sure they understand who iwi and hapū representatives can speak on behalf of. This ensures that the council engages with the right people. We heard examples of councils engaging with iwi representatives on particular projects when it would have been more appropriate to engage with particular hapū. Not only does this waste time

Part 2
What we found

but this lack of understanding of who to talk to also makes it harder for iwi and hapū to have confidence in the council's processes.

- 2.22 We also heard of times when a regional council's approach to involving iwi and hapū was at odds with how iwi and hapū wanted to work. For example, some regional councils use collective consultation processes to bring together the views of tangata whenua from throughout the region. However, we heard that iwi prefer to be engaged independently, so that their distinct perspectives can be heard. This is particularly important where there are joint management agreements (or other arrangements) that have been secured through Treaty settlements.
- 2.23 Regional councils also need to understand who is best placed at the council to work with iwi and hapū so that relationships are meaningful. Some of the regional councils have specific roles to support their relationships with iwi and hapū, and many council staff, iwi, and hapū felt that these roles help ensure that tangata whenua perspectives feature more prominently in the council's thinking. We heard that iwi and hapū trust these staff to understand and reflect their views and that these roles can open doors to collaborative working and support better processes for councils to work with iwi and hapū.
- 2.24 However, at times, there is a tendency for regional councils to rely on these staff to manage all their relationships with iwi and hapū.¹¹ Not only is this a large workload for an individual staff member (or a small group of staff) but, in some instances, iwi and hapū also want to be able to engage and build relationships with staff from other teams, such as staff in freshwater monitoring or resource consent.

Responding to individual iwi and hapū views on freshwater supports more effective freshwater management

- 2.25 Regional councils need to understand and respond to the views of iwi and hapū on managing freshwater to build trust and ensure that their relationships are meaningful. We saw evidence that freshwater management is more effective when it is driven by local knowledge and appropriately resourced.
- 2.26 Regional councils need to be able to support iwi and hapū to have enough time and resources to develop and share their views on, and aspirations for, managing freshwater. The NPS-FM requires regional councils to work with tangata whenua to give effect to Te Mana o te Wai. As a result, many iwi and hapū representatives we spoke with had been involved in work with regional councils to share their views on Te Mana o te Wai.

¹¹ This is similar to what we observed in other government initiatives in a recent performance audit. See Controller and Auditor-General (2023), *Four initiatives supporting improved outcomes for Māori*, at oag.parliament.nz.

- 2.27 We heard that some limited funding was provided through the Ministry for the Environment to support iwi engagement in Te Mana o te Wai. In some instances, this funding was helpful in developing the statements of iwi and hapū values that underpin Te Mana o te Wai. We also heard that some iwi had to compete with other iwi for this limited funding. As a result, some iwi did not get funding and had fewer resources for developing their values and working with councils.
- 2.28 In one example, a regional council engaged with an iwi early to develop its Te Mana o te Wai values. The council and iwi worked together to weave these values into the regional values underpinning freshwater management that the council had developed with the community. Early engagement enabled robust discussions and built trust between the regional council and iwi.
- 2.29 We also heard that understanding iwi and hapū views and aspirations can help councils to better respond to the tikanga and mātauranga that shape iwi and hapū approaches to managing freshwater.
- 2.30 In one example, an iwi took over the defishing of a river after the council's approach, which used an electric shock treatment, had killed a large tuna. The iwi removed the remaining fish by hand, demonstrating how their approach to defishing was safer for the fish and better for the health of the river.¹² The iwi told us that it now leads more of the regional council projects in its rohe.
- 2.31 A consistent frustration from iwi and hapū was that regional council staff didn't understand their views on managing freshwater. Iwi and hapū representatives sometimes felt that council staff view freshwater as a commodity and that when developing initiatives they do not use existing knowledge and documents, such as management plans, that outline iwi and hapū aspirations and values for managing freshwater.
- 2.32 For example, some iwi and hapū representatives we spoke with explained how the concept of awa tūpuna means that river catchments cannot be easily grouped with other waterways into a freshwater management unit.¹³
- 2.33 One person we spoke with told us a more diversified system of river management would reflect the distinct identities of three water catchments whose different land uses, such as forestry or farming, affect freshwater quality differently.

12 Defishing ensures that freshwater species that would be affected by construction on a waterway are relocated to another habitat before construction begins.

13 Awa tūpuna or awa tūpuna was explained to us as the ancestral connections that iwi and hapū have to waterways. For example, the Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010 states that, to Waikato Tainui, the Waikato River is a tūpuna that has mana and in turn represents the mana and mauri of the iwi. A freshwater management unit is a spatial area that includes a water body or multiple water bodies and catchments. They are intended to be the framework for freshwater planning and should be at a scale – deemed by the regional council – where freshwater can be appropriately cared for and give effect to Te Mana o te Wai.

Part 2
What we found

Mutually beneficial relationships lay the foundations for effective long-term strategic freshwater management

- 2.34 Relationships that are mutually beneficial lead to more effective freshwater management. Not only does this support regional councils to meet their statutory requirements but it can have wider and long-term benefits for other work.
- 2.35 For iwi and hapū, we heard that there are mutual benefits in the way they work with regional councils on decision-making for resource consent applications or monitoring freshwater quality. Iwi and hapū see this work as valuable because it is more aligned with the way iwi work. For example, it can involve iwi and hapū working with council staff in their rohe, with their awa, directly in the place where freshwater outcomes are being sought.
- 2.36 These relationships also allow iwi and hapū to learn from the approaches that councils' scientific teams use, develop their understanding of council processes, and provide access to council equipment, information, and expertise to support their activities.
- 2.37 This can create the building blocks for more enduring relationships between the regional council, iwi, and hapū. However, we consider that councils do not always see the connection between this type of work and their engagements with iwi and hapū in other areas, such as consulting on regional plan updates.
- 2.38 In our view, iwi and hapū and regional councils will see greater benefit from their relationships if councils can integrate their engagement with iwi and hapū across different areas of their work.
- 2.39 By better integrating how different teams and areas of their work engage with iwi and hapū a wider range of staff can deepen their understanding of tikanga and mātauranga Māori about managing freshwater, and more generally, because of the time they spend working with iwi and hapū.
- 2.40 We saw examples where partnerships led to improvements in managing freshwater for the community. Reported benefits realised from co-governing a water catchment in one region included reducing contaminants flowing into the water, creating jobs, and developing mahinga kai for the iwi,¹⁴ as well as building knowledge and resources for farmers to reduce their business risk from future environmental regulations.

¹⁴ Mahinga kai generally refers to freshwater species that have traditionally been used as food, tools, or other resources. Their presence indicates the overall health of the water. It also refers to the places those species are found and to the act of catching them.

- 2.41 This had built trust between those in the farming sector and the iwi more generally, leading to the development of further initiatives to manage freshwater.
- 2.42 We also saw how mutually beneficial relationships can solve long-term issues in managing freshwater, such as workforce capacity issues. For example, we heard that collaboration with a council on monitoring work had led to increased education opportunities for young Māori, exposing them to potential careers in science and environmental management, and developing their practical and team-working skills. Some people felt that engaging with council scientific staff in the field (that is, in rivers and wetlands) is a valuable way of exploring the relationships between western science and mātauranga Māori for monitoring and managing water quality.

3

Waikato Regional Council's progress since 2019

Summary of key findings

- 3.1 In 2019, iwi who we spoke with in the Waikato said that their relationships with Waikato Regional Council were working well. However, representatives of iwi and hapū in the Waikato who were yet to settle Treaty claims were less positive. We encouraged the Council to continue to improve these relationships.
- 3.2 Although there has been significant progress in Treaty settlements for iwi and hapū in the Waikato, there are still a large number of iwi and hapū at different stages of their Treaty settlements. This has created challenges for the Council (and for some iwi and hapū) in strengthening relationships with all iwi and hapū. Council staff told us that these problems have been compounded by the significant reforms taking place in the local government sector and stretched the Council's limited resources.
- 3.3 Since 2019, Waikato Regional Council has continued to work with many iwi and hapū in its region to manage freshwater quality, focusing on being more agile and flexible in the way it operates. Several iwi and hapū representatives who we spoke with said that these relationships were mostly strong. However, the Council's effort still focuses on engaging with iwi and hapū to carry out specific pieces of work.
- 3.4 Other iwi representatives we spoke with said that their engagements with the Council needed to be more meaningful. They felt that it was not always clear how their views on, and aspirations for, managing freshwater were influencing decision-making or being embedded in policies and processes for managing freshwater. They felt that staff turnover at the Council made it hard to build enduring relationships. We heard similar concerns about turnover at the other councils.
- 3.5 In our view, the Council needs a more strategic approach to building relationships with iwi and hapū. Council staff need to be more responsive to the ways iwi and hapū want to work with the Council and their views on, and aspirations for, managing freshwater.
- 3.6 We note that Waikato Regional Council has joint management agreements for river management with several iwi who have Treaty settlements in the region. Joint management agreements can outline agreed processes for input into resource consents, water monitoring, enforcement, and policy and planning. Joint management committees usually include representatives from iwi and the regional council.

- 3.7 While we did not look at the effectiveness of these joint management agreements in this follow-up work specifically, in our view these committees are a significant opportunity to strengthen relationships.
- 3.8 The Council also needs to ensure that it prioritises appropriate resources to support a more strategic approach to relationship building.

Changes to freshwater management in the Waikato since 2019

Recent legislation sets out new freshwater management arrangements between iwi and Waikato Regional Council

- 3.9 The Ngāti Tūwharetoa Claims Settlement Act 2018 provided for the establishment of a statutory joint committee, Te Kōpu ā Kānapanapa. Te Kōpu ā Kānapanapa comprises members from Te Kotahitanga o Ngāti Tūwharetoa, Waikato Regional Council, and Taupō District Council.
- 3.10 The Maniapoto Claims Settlement Act 2022 required Waikato Regional Council, Waitomo District Council, Ōtorohanga District Council, Waikato District Council, and Waipā District Council to enter into a joint management agreement with Te Nehenehenui – Ngāti Maniapoto's post-settlement governance entity.
- 3.11 The Pare Hauraki Collective Redress Bill was introduced into the House in December 2022 and is still awaiting its first reading. As currently drafted, the Bill requires Waikato Regional Council to enter into a joint management agreement with the Hauraki iwi post-settlement governance entity.
- 3.12 Waikato Regional Council has been through a process to transfer functions to allow the Tūwharetoa Māori Trust board to take control of monitoring functions for freshwater at Lake Taupō. The power to do this is granted under the Resource Management Act.
- 3.13 Tūwharetoa is the first iwi to be granted these powers under the Resource Management Act. Under the new arrangement, Tūwharetoa Māori Trust Board now carries out water quality monitoring functions for summer bathing, regional rivers, rainfall, and groundwater.

Part 3

Waikato Regional Council's progress since 2019

Waikato Regional Council has set up a tangata whenua technical group to review its freshwater policy in line with the requirements of the National Policy Statement for Freshwater Management

- 3.14 Since our 2019 report, Waikato Regional Council has set up a tangata whenua forum, called Ngā Tira Mātauranga. The purpose of Ngā Tira Mātauranga is to increase the involvement of iwi, hapū, and tangata whenua in the freshwater policy review, provide a forum for technical discussion to assist council staff with developing policy, and disseminate project information to tangata whenua groups.
- 3.15 Ngā Tira Mātauranga comprises nominated representatives from tangata whenua entities within the Waikato region who wish to have representation at Ngā Tira Mātauranga. The work programme and terms of reference for the group incorporated tangata whenua representatives' recommendations about how the group should function.
- 3.16 Waikato Regional Council has also hosted open drop-in sessions for the freshwater policy review in different catchments in the region. Some tangata whenua have participated in these.

Waikato Regional Council has improved its approach to working with iwi and hapū

- 3.17 Council staff felt that the direction of travel in their relationships with iwi and hapū on freshwater quality management has been positive but that there is still progress to be made.
- 3.18 As we heard from the other regional councils, the demands on the Council to meet external deadlines makes it hard to invest the time needed to build trust with iwi and hapū in some areas. This is particularly so where the Council is forming new relationships with iwi or wanting to engage with iwi who have limited capacity and/or other priorities.
- 3.19 The Council is working to improve its approach to engaging with iwi and hapū. This includes contracting with individuals who have long-standing relationships with iwi and hapū to work on behalf of the Council, paying iwi and hapū for their participation in freshwater policy review work, and broadening the Council's engagement with iwi and hapū beyond post-settlement governance entities. These changes were described as the start of a "shift in mindset" within the Council to support iwi and hapū to work with the Council to achieve better freshwater outcomes.

- 3.20 Council staff told us that the open engagement approach with tangata whenua facilitated by Ngā Tira Mātauranga enabled the broadest range of iwi voices across the Waikato region to be included within the Council's limited resources. However, they also recognised that some iwi prefer to be engaged individually and that it was likely they would be unhappy with the process the Council took.
- 3.21 When we carried out our work, we heard that the deadline to update the Council's regional freshwater plan by the end of 2024 placed some iwi and hapū at a disadvantage by limiting the time and resources available for them to develop their guiding values for Te Mana o Te Wai.¹⁵
- 3.22 Council staff recognised that building trust with iwi and hapū takes time and commitment from all parties. Council staff we spoke with want to be able to focus on building long-term enduring relationships with iwi and hapū. However, they are conscious that most opportunities for forming relationships come from engagements on individual pieces of work and do not offer the continuity needed to build deeper trust in the relationships.

Iwi in Waikato want more meaningful and enduring relationships with the Council

- 3.23 Iwi and hapū representatives we spoke with felt that some relationships with council staff for working on freshwater quality are strong.
- 3.24 Factors in strong relationships include council staff being able to invest time in understanding the iwi, engaging with iwi over a longer period of time, and being open to working collaboratively. Iwi in these relationships said that council staff were quick to offer support when it was requested.
- 3.25 Iwi and hapū representatives we spoke with also spoke highly of the Council's contractors who work with iwi. However, it is a challenge for iwi to see how using contractors supports long-term relationship building with the Council. Some representatives want to work more directly with senior staff at the Council and are concerned about the loss of institutional knowledge when contractors move on.
- 3.26 We heard that relationships between members of the joint management committees are generally good and that the people involved are able to have difficult conversations. However, some people we spoke with are concerned that the Council has not used their respective joint management committee meetings to consult with iwi about the Council's approach to updating its regional freshwater plan in line with the NPS-FM.
- 3.27 We heard concerns from some iwi and hapū that their relationships with the Council had not improved as much as they had expected since our 2019 report.

¹⁵ Our interviews took place before the Government extended the deadline to update regional freshwater plans to December 2027.

Part 3

Waikato Regional Council's progress since 2019

They felt that many engagements with the Council are “tick-box” – in that they are driven by the Council’s priorities and time frames – and that it is not always clear how the Council uses their contribution. A lack of transparency about the Council’s processes and decision-making creates barriers to building greater trust and confidence in the Council.

- 3.28 Iwi want to move forward in their relationships with the Council. However, cultural capability within the Council is a consistent issue that iwi feel is a barrier.
- 3.29 Some iwi felt they spend too much time educating council staff about the Treaty and/or explaining their iwi values related to freshwater. Others felt council staff might avoid engaging with iwi for fear of doing something wrong or inadvertently causing offense.
- 3.30 Resourcing is a significant issue for iwi when trying to engage with the Council. This means that iwi and hapū have to carefully manage their time and resources to ensure that their engagements with council are meaningful and valuable.
- 3.31 Iwi are sympathetic to the pressures that the Council faces. However, they told us that the views of iwi and hapū are specific and unique to their rohe and cannot quickly be aggregated into a regional tangata whenua perspective for Waikato.
- 3.32 Some people we spoke with felt that the Council would be in a much stronger position if it engaged with iwi individually to understand their values relating to freshwater management. This would allow the Council to understand the nuances of different iwi positions and different freshwater catchments, as well as the common points of agreement that can improve regional freshwater management.

Taranaki Regional Council's progress since 2019

4

Summary of key findings

- 4.1 In 2019, iwi and hapū representatives in Taranaki told us that they respected Taranaki Regional Council's staff and appreciated that staff make a genuine effort to work with them on freshwater. However, there was frustration at the "one way" and "transactional" nature of the relationship.
- 4.2 Since 2019, Taranaki Regional Council has shifted its approach to engaging with iwi and hapū. We heard that the Council is moving away from consultation and towards collaboration in its work with iwi and hapū. This was particularly evident in the Council's agreement with Ngā Iwi o Taranaki for resourcing and completing the review of its regional freshwater policy.
- 4.3 In our view, Taranaki Regional Council has improved its approach to bringing iwi and hapū aspirations into freshwater planning. Leaders of the region's eight iwi and senior staff at the Council have increased the frequency of engagement. In other areas, such as work on freshwater monitoring, we saw some improvements in the trust and confidence iwi and hapū have in their relationships with the Council.
- 4.4 The Council's commitment to building its mātauranga Māori knowledge and capability, including appointing a mātauranga Māori science advisor, has played a particularly important role in supporting iwi and hapū in their freshwater work. It has also helped to improve the Council's approach to monitoring freshwater quality. Integrating and aligning the Council's approach to freshwater management with mātauranga Māori provides a strong foundation for its work with iwi and hapū.
- 4.5 However, the Council still needs to do more to develop a strategic approach to building relationships. In our view, there are opportunities for the Council to draw on the strong relationships some of its staff have when developing a council-wide approach to working with iwi and hapū on freshwater. This will enable the Council to better respond to iwi and hapū views on, and aspirations for, freshwater. Less reliance on a small group of council staff to maintain relationships will also support more enduring engagement.

Part 4

Taranaki Regional Council's progress since 2019

Changes to freshwater management in Taranaki since 2019

Recent Treaty settlements have introduced new mechanisms for Taranaki Regional Council to work with iwi and hapū

- 4.6 In September 2023, Ngā Iwi o Taranaki and the Crown signed Te Ruruku Pūtakerongo – the Taranaki Maunga Collective Redress Deed. Ngā Iwi o Taranaki is the collective name for eight iwi of Taranaki: Ngāti Tama, Ngāti Mutunga, Taranaki Iwi, Te Ātiawa, Ngāti Maru, Ngāruahine, Ngāti Ruanui, and Ngāa Rauru Kiiitahi. Taranaki Maunga and the National Park were vested in a legal person, named Te Kāhui Tupua. A representative entity of Crown and iwi appointees will be set up to act in the best interests of Te Kāhui Tupua.
- 4.7 The Ngāti Maru (Taranaki) Settlement Act 2022 requires Taranaki Regional Council to have a joint management agreement with Ngāti Maru.
- 4.8 The Maniapoto Claims Settlement Act 2022 requires Taranaki Regional Council to have a joint management agreement with Te Nehenehenui – the post-settlement governance entity of Ngāti Maniapoto.

Taranaki Regional Council and Ngā Iwi o Taranaki have entered into an agreement to carry out the freshwater policy review for the National Policy Statement for Freshwater Management

- 4.9 Taranaki Regional Council entered into an agreement with Te Runanga o Ngāti Tama, Te Runanga o Ngāti Mutunga, Te Kāhui Maru, Te Kotahitanga o Te Ātiawa, Te Kāhui o Taranaki Iwi, Te Korowai o Ngāruahine, Te Runanga o Ngāti Ruanui, and Te Kāhui o Rauru to carry out the freshwater policy review for the Taranaki region.
- 4.10 The agreement was intended to assist with resourcing to meet the obligation for the Council to complete the review by 31 December 2024.¹⁶ The agreement set up an independent environmental unit that includes two full-time positions to carry out the review, funded by the Council. The iwi parties appointed these positions, and Te Kotahitanga o Te Ātiawa provides administrative support for the unit.
- 4.11 The Council and iwi partners review the agreement's deliverables and outcomes every six months.

¹⁶ The agreement was made before the Government extended the deadline to update regional freshwater plans to December 2027.

Taranaki Regional Council is focused on working with iwi and hapū more collaboratively

- 4.12 Council staff told us that they consider that the foundations for positive relationships with iwi and hapū in the region are now in place. In their view, relationships between the Council, iwi, and hapū are healthier than they have ever been.
- 4.13 The recently set up senior-level governance group brings together chief executives of Ngā Iwi o Taranaki and senior council members to discuss freshwater and facilitate the process for updating the regional freshwater plan. The group has helped to build connections between iwi leaders and senior council staff.
- 4.14 We heard that Taranaki Regional Council is trying to take a more strategic approach to some aspects of the way it engages with iwi. For example, it is mindful of how challenging working with councils on issues such as freshwater can be for iwi, particularly when an iwi rohe spans more than one regional council boundary. Taranaki Regional Council is talking to other regional councils about working together more effectively for the benefit of those iwi.
- 4.15 The Council wants to form relationships that have long-term benefits for the Council, iwi, and hapū. It recognises that there is some way to go. Translating existing strong relationships between the Council, iwi, and hapū in specific areas to wider, lasting, and mutually beneficial relationships across a range of areas is a challenge. As with the other regional councils, limited council and iwi resources and high rates of staff turnover at the Council are persistent issues.
- 4.16 We heard about the challenge of integrating western scientific approaches to monitoring freshwater with mātauranga Māori. The Council acknowledged that there is still a tendency for the Council, iwi, and hapū to “talk past” each other. Council staff told us that a recent approach to studying eels and lamprey in the Waitara River helped to bring the different perspectives together and proved to be a very fruitful way of working for the Council and the hapū involved.
- 4.17 Council representatives were aware that some iwi prefer the Council to be engaging at the hapū level. They recognised that their engagement with hapū is currently not as strong as they would like. Council relationships with hapū generally focus on the day-to-day management of the resource consenting process rather than on processes for developing policy.

Part 4
Taranaki Regional Council's progress since 2019

- 4.18 When we carried out our work, council staff told us that the pressure of the NPS-FM deadline had not been conducive to building long-term relationships.¹⁷ In the Council's view discussions focused on meeting the deadline, rather than on how to use the update of the NPS-FM plans as a vehicle for deeper conversations about relationship building. However, the Council is committed to building longer-term relationships that extend beyond individual projects.

Iwi and hapū in Taranaki want recent improvements at the Council to go further

- 4.19 Iwi and hapū representatives who we spoke with consider that their engagements with the Council have improved since 2019. They felt this was driven by the NPS-FM. They told us about positive changes in attitudes that council staff have towards building relationships with iwi and hapū. Examples include the Council hiring a mātauranga Māori specialist and more opportunities to work alongside council scientists on, and contribute to, monitoring freshwater.
- 4.20 We also heard that, since Ngā Iwi o Taranaki was set up, there has been greater engagement between senior staff in the Council and the chief executives of the post-settlement governance entities of the eight iwi.
- 4.21 However, iwi and hapū representatives said that they want the Council to take a collaborative approach to relationships at all levels; with iwi, hapū, and mana whenua. Some iwi and hapū still used words such as "transactional" and phrases such as "tick-box" to describe their engagements with the Council.
- 4.22 Some iwi and hapū representatives told us that there is a tendency for the Council to make engagement work the responsibility of a small number of Māori staff. Iwi and hapū we spoke with have built strong relationships with these staff members. However, some felt that the Council's reliance on these staff is limiting opportunities for iwi and hapū to form relationships with other specialists at the Council who have knowledge and skills that iwi and hapū could benefit from.
- 4.23 In our view, it is a risk to rely on a few key staff for maintaining iwi and hapū relationships. If these staff leave, the relationships they have built for the Council with iwi and hapū could be lost.
- 4.24 Iwi and hapū representatives want the Council to build and maintain long-lasting engagement on managing freshwater. In areas such as policy development, iwi felt that the Council still tends to wait to consult them when policy proposals are well advanced rather than involve them when there is still an opportunity to influence the policy's direction.

¹⁷ Our interviews took place before the Government extended the deadline to update regional freshwater plans to December 2027.

- 4.25 We also heard frustrations that council staff do not always let iwi and hapū know when they are working in their rohe, which misses opportunities for the Council, iwi, and hapū to work alongside each other. Some of those we spoke with felt that, despite the Council's greater interest in exploring mātaruanga Māori, some council staff do not understand the significance or value of it. This can be a barrier to closer working relationships.
- 4.26 Some iwi and hapū representatives told us that their resources are stretched but that they consider that their work on consents or freshwater monitoring could be the foundation for longer-term relationships with the Council. One person described their freshwater monitoring work as an opportunity for hapū to open the eyes of their young people to the possibilities of a career in science.

5

Horizons Regional Council's progress since 2019

Summary of key findings

- 5.1 In our 2019 report, we found that the strength of Horizons Regional Council's relationships with the many iwi and hapū it works with varied. We encouraged Horizons to "build on its positive experiences, and further apply these good practices to wider iwi and hapū in the region".
- 5.2 Since 2019, there have been further Treaty settlements in the region. The Council is working to be more responsive to the ways that different iwi and hapū operate. The Council has also started funding iwi and hapū for the time they spend on developing partnerships with the Council for freshwater work. It has also supported tangata whenua involvement in the governance of environmental issues in the region.
- 5.3 We saw evidence that the Council is incorporating tikanga and mātauranga Māori in its management of freshwater quality, and that this is building trust and confidence. However, as with the other regional councils, this is happening in only some areas of the Council's engagement with iwi and hapū.
- 5.4 The location of the Council's offices and the centralisation of decision-making in Palmerston North mean that some iwi further from Palmerston North feel more disconnected from the Council than closer iwi. The Council needs to take a more strategic and consistent approach to building relationships with iwi and hapū that is more responsive to the ways that different iwi and hapū want to work.
- 5.5 In our view, this could involve supporting council staff to work with iwi and hapū in their rohe and alongside the rivers and waterways more often. Iwi and hapū in the region view this type of visible support as a sign of the Council's long-term commitment to working together to manage freshwater quality. They consider that this is important to further build trust and confidence.
- 5.6 Some iwi also felt that more opportunities for iwi and hapū to sit down with senior staff at the Council to build relationships would be beneficial.

Changes to freshwater management in Manawatū-Whanganui since 2019

Treaty settlement legislation influences Horizons Regional Council's work on managing freshwater quality

- 5.7 Te Awa Tupua (Whanganui River Claims Settlement) Act was passed in 2017. This legislation is believed to be the first in the world to declare a river a legal person, recognising the significance of the Whanganui River to Whanganui iwi.
- 5.8 As required by the Act, Te Kōpuka was set up in 2019. Te Kōpuka is a strategy group made up of individuals and organisations with interests in the Whanganui River,

led by iwi representatives. Its purpose is to work collaboratively to advance the environmental, social, cultural, and economic health and well-being of Te Awa Tupua.

- 5.9 The Ngāti Rangī Claims Settlement Act was passed in 2019. The Act established a framework for the Whangaehu River and catchment called Te Waiu-o-te Ika. Horizons Regional Council must recognise and provide for the values of Te Waiu-o-te Ika when making decisions about any application involving the Whangaehu River or catchment.
- 5.10 The Ngāti Kahungunu ki Wairarapa Tāmaki nui-a-Rua Claims Settlement Act was passed in 2022. This requires the appointment of a member to an advisory board (established under the Rangitāne o Manawatu Claims Settlement Act 2016) to provide advice to Horizons Regional Council on freshwater management issues concerning the Manawatū River catchment.

Oranga Wai is Horizons Regional Council's work programme to update its regional plan and policies for managing freshwater

- 5.11 Oranga Wai is Horizons Regional Council's work programme to meet the requirements of the NPS-FM. The Council's website describes it as a way for people to learn about, and be involved in, some key changes to freshwater management in the region.
- 5.12 One piece of work in Oranga Wai is developing the Council's approach to Te Mana o Te Wai in partnership with tangata whenua.

The Climate Action Joint Committee involves tangata whenua in governance of the region's response to climate change

- 5.13 Horizons Regional Council and the district councils in the Manawatū-Whanganui region set up the Climate Action Joint Committee in March 2021. The Committee is responsible for supporting a co-ordinated response to climate change from the councils and communities of the Manawatū-Whanganui region.
- 5.14 The Committee members work together to promote the social, economic, environmental, and cultural well-being of their communities – in accordance with the principles of the Treaty of Waitangi and of sustainable management for current and future generations.
- 5.15 The Committee is made up of a member from each of the eight delegated local authorities in the Manawatū-Whanganui region and up to eight non-councillor members to represent the views of tangata whenua. The Council appointed the tangata whenua members on the recommendation of iwi leaders from throughout the region. A councillor and tangata whenua member co-chair the Committee.

Horizons Regional Council has strengthened its work with iwi and hapū on managing freshwater

- 5.16 Council staff told us that the Council has taken a more strategic approach to working with iwi and hapū on freshwater management since 2019. We were told that Oranga Wai had given greater strategic intent to the Council's engagement with iwi and hapū. Council staff also told us that Oranga Wai is a way to look at initiatives and work programmes as a whole and think more strategically about what better partnership looks like.
- 5.17 As with the other councils we spoke with, council staff told us that the pressure of the NPS-FW deadline and a lack of resources have challenged the Council's engagement strategy with iwi and hapū.¹⁸ Council staff told us that they would like to take time to build relationships with iwi and hapū. However, the Council's regulatory role and the demands of the annual planning and reporting cycle make it difficult to set aside the time to do this.
- 5.18 We heard that better staff cultural awareness throughout the Council could lead to stronger partnerships. Council staff pointed to the Council's programme for improving the cultural awareness of its staff as a recent positive factor in the Council's approach to partnership with Māori. They highlighted a cultural competency course, including opportunities for visiting marae, and support for increased use of te reo Māori as examples of progress.
- 5.19 Other staff acknowledged this council-wide effort to improve organisational capability but also highlighted that "on the job" experience had been the most useful way of building their understanding of te ao Māori.
- 5.20 The Council's decision to appoint a navigator to help with the consenting process in Whanganui is helping to build relationships between hapū and those seeking consents. Council staff talked about how this council-funded role could be developed further to help hapū build understanding of consent legislation and their role in it.
- 5.21 Council staff told us that, at the early stages, some iwi and hapū representatives had raised concerns about the Council's approach to Oranga Wai. The Council had engaged with iwi representatives collectively as part of Oranga Wai. Iwi indicated they would have preferred to be engaged about their views on managing freshwater individually.
- 5.22 Council staff were responsive to these concerns, and the Council now focuses on engaging with iwi and hapū individually or in smaller groupings. Staff noted that not all iwi and hapū have taken up the invitation to engage.

¹⁸ Our interviews took place before the Government extended the deadline to update regional freshwater plans to December 2027.

- 5.23 Council staff felt that short timelines for completing projects do not always allow them to spend time forming strong and lasting relationships. One staff member told us that there can be a difference between how much iwi want to be involved in freshwater work and how much they can be involved. Staff sometimes find it hard to know what factors influence current levels of iwi or hapū engagement.
- 5.24 We heard that a significant challenge for the Council is how to navigate the NPS-FM's focus on targeted catchments while respecting Te Awa Tupua and the evolution of Te Heke Ngahuru.¹⁹ The Council is working with Whanganui iwi and hapū, and the Ministry for the Environment, on these issues.

Iwi and hapū want strong relationships with a wider range of teams within the Council

- 5.25 The location of the Council's offices and the centralisation of decision-making in Palmerston North mean that some iwi further from Palmerston North feel more disconnected from the Council than closer located iwi.
- 5.26 Iwi we spoke with felt that their relationships with Horizons Regional Council are moving in the right direction, but some felt that it is going slowly. They spoke positively about council staff who visit them in their rohe to carry out freshwater work and take the time to understand iwi and hapū perspectives on managing freshwater.
- 5.27 They also consider that increases in the number of resource consents that they receive for cultural impact assessment are a positive step forward in their relationships with the Council.
- 5.28 We heard that Oranga Wai, after some initial challenges, is enabling stronger relationships between the Council and some iwi and hapū. Iwi told us that the initial meetings about the Oranga Wai programme were difficult and that some problems persist, including the short time frames that the work has to be completed in.
- 5.29 Short time frames are a significant issue preventing people from taking time to establish relationships and build trust. We were told that "true partnership" will grow when government representatives are willing to spend time with iwi and hapū in their rohe, because this kind of engagement opens doors to better mutual understanding.
- 5.30 Ensuring that engagements with the Council are mutually beneficial is important to iwi and hapū. Some people we spoke with were interested in learning about the Council's approaches to freshwater management and creating opportunities for rangatahi to learn about managing freshwater. Others cited sharing their iwi's

¹⁹ Te Heke Ngahuru is the strategy for the Whanganui River required by Te Awa Tupua Act 2017.

Part 5
Horizons Regional Council's progress since 2019

freshwater values as an opportunity to build council staff's capability in effective approaches to managing freshwater.

- 5.31 Relationships are stronger where iwi and hapū feel that council staff understand the value of mātauranga Māori and te reo Māori in freshwater management. People we spoke with appreciated the teams who worked with them on freshwater projects within their rohe and alongside the awa. Some acknowledged improvements in the Council's work to embrace mātauranga Māori and to listen and adapt when iwi want to manage freshwater in their rohe in different ways.
- 5.32 However, this has not always been a smooth process. Iwi described having to challenge the Council's standard processes to incorporate tikanga Māori and/or mātauranga Māori into freshwater management.
- 5.33 Sometimes, the Council responded positively to being challenged and changed its processes. One example of this – which was described to us as “ground-breaking” – was when an iwi was able to make a consent application orally in the presence of the awa that the resource consent related to. In another example, the Council made changes to an ecological plan to reflect an iwi's preferred ways of working.
- 5.34 Although this is positive, iwi and hapū felt that there needs to be a wider shift throughout the Council to support a more responsive approach to working with iwi and hapū.
- 5.35 Another area that iwi and hapū felt could be improved was more timely access to information from the Council. For example, one iwi told us that it had not yet heard back about a request for up-to-date water allocations in its rohe after several months.
- 5.36 Some people we spoke with felt that consent requests take too long to get to iwi or hapū for them to carry out their cultural assessments. This results in longer than necessary delays in processing consents for applicants, and creates the perception that iwi are holding up applications.
- 5.37 Iwi we spoke with wanted stronger relationships with a wider range of teams within the Council, from the senior level to operational staff. Being more responsive to the ways iwi and hapū want to work with the Council on managing freshwater was an important aspect of all of our discussions with iwi.
- 5.38 For example, some iwi want a greater council presence in their rohe, while iwi whose rohe cross multiple regional council boundaries would like regional councils to work together when engaging them on freshwater issues.

Environment Southland's progress since 2019

6

Summary of key findings

- 6.1 In 2019, we saw that Environment Southland had built strong collaborative relationships with Ngāi Tahu ki Murihiku on freshwater initiatives over many years. In this follow-up work, we wanted to see whether these relationships remained strong.
- 6.2 In our view, the foundations built from long-standing personal relationships between the Council and Ngāi Tahu ki Murihiku have created the conditions for enduring and meaningful relationships. This results in more effective freshwater management.
- 6.3 The Council has a flexible and responsive approach to working with the iwi, and there is a shared understanding of partnership in their relationship. The Council and the iwi successfully integrated community and iwi values for managing freshwater in their work on the NPS-FM.
- 6.4 We heard that trust and confidence between Environment Southland and Ngāi Tahu ki Murihiku has continued to improve since 2019. This has led to mana whenua being appointed to governance roles, improvements in iwi access to mahinga kai, and improvements in water quality in some catchments.

Changes to freshwater management in Southland since 2019

Environment Southland and Ngāi Tahu are developing their relationship through several freshwater management projects

- 6.5 Environment Southland has partnered with Te Ao Mārama – the entity that represents the four rūnanga of Ngāi Tahu ki Murihiku on environmental issues – on Plan Change Tuatahi.²⁰ The purpose of this work is to update the Southland Water and Land Plan in keeping with the 2020 update to the NPS-FM.
- 6.6 As part of this work, Te Ao Mārama and Environment Southland have worked together to identify values that describe what matters about freshwater to the people of Southland. This was a two-year programme that involved Environment Southland identifying and consulting on community values to guide freshwater management and Te Ao Mārama identifying values at a catchment level.
- 6.7 Environment Southland and Te Ao Mārama staff then worked to bring together the iwi's and community's freshwater values into one set as the first step in preparing a national framework for freshwater management under the NPS-FM.

²⁰ Plan Change Tuatahi is Environment Southland's work programme to update the Southland Water and Land Plan in line with the NPS-FM.

Part 6
Environment Southland's progress since 2019

- 6.8 On 20 February 2019, the Council approved the appointment of two mana whenua members to each of the Regional Services Committee and the Strategy and Policy Committee.²¹ On 9 March 2022, the Council formally appointed the first mana whenua representatives to these committees.
- 6.9 Environment Southland has partnered with Hokonui Rūnanga to co-fund the surveying and monitoring of mahinga kai. It has also worked with Te Ao Mārama to develop a catchment context tool to provide easy access to catchment information for property owners preparing farm plans.
- 6.10 Environment Southland has worked with Te Rūnanga o Ngāi Tahu and other agencies on Whakamana te Waituna – a trust set up in 2018 to co-ordinate activities to restore the mana of the Waituna Lagoon and catchment.
- 6.11 The Council is also part of the Enviroschools programme alongside Te Rūnanga o Ngāi Tahu, schools and kindergartens, and other local councils which involves students in environmental management.

Environment Southland and Ngāi Tahu ki Murihiku are achieving positive freshwater outcomes

- 6.12 Council staff spoke about how their recent work on freshwater has benefited from the Council's long-standing relationship with Te Ao Mārama. Council staff felt that the iwi and the Council have a mutual understanding of this partnership and that this has resulted in ongoing discussions about involving iwi in freshwater and environmental management.
- 6.13 Council staff spoke about being flexible and responsive to the way iwi want to work and the importance of ensuring safety for iwi and council staff in freshwater discussions to allow difficult conversations and different views to be worked through.
- 6.14 The iwi felt that council staff are helpful and that they understand the importance of Te Mana o Te Wai for achieving freshwater outcomes for the region. They spoke of a strong commitment to building and maintaining relationships throughout the Council.
- 6.15 The iwi felt that relationships with councillors are positive but that the three-year election cycle can make it hard to maintain long-term relationships. This means that the iwi needs to rebuild relationships when councils change. Recent appointments of mana whenua to council committees are a positive step that show that the Council's senior staff value iwi input.

²¹ The Regional Services Committee's responsibilities include governance for the Council on its non-regulatory implementation of council plans. The Strategy and Policy Committee's responsibilities include governance for the Council on its plans, policies, and strategies.

- 6.16 We heard that the approach that Environment Southland and Te Ao Mārama have taken to integrate freshwater management values has built trust. Both the Council and the iwi invested a lot of time in making the process respectful and thorough. The Council set up reporting and feedback mechanisms at all levels of the Council and made conscious efforts to set up mechanisms for co-governance as part of the overall process.
- 6.17 We heard examples of partnerships between Environment Southland and mana whenua that have led to positive freshwater and social outcomes. Iwi involvement has led to sewerage being disposed on land rather than into Lake Te Anau, protecting its water quality. A recent evaluation of Whakamana te Waituna found improvements to the ecological health of the Waituna catchment and to mana whenua access to mahinga kai.²²
- 6.18 In their work on improving freshwater quality, Ngāi Tahu ki Murihiku and Environment Southland rely on a strong foundation of trust and confidence built over many years. This has proved to be effective, but without a Mana Whakahono ā Rohe agreement there is a potential risk to their enduring relationships if council staff or iwi representatives move on.²³
- 6.19 A strength of Environment Southland's relationship with mana whenua in managing freshwater is the value placed on discussions about their long-term relationship and how it might develop further. For example, we heard that the charter of understanding between Te Ao Mārama and local authorities in Murihiku, including Environment Southland, is being reviewed to consider how Te Rūnanga o Ngāi Tahu wants to work with councils.
- 6.20 We heard that the iwi and the Council felt that their joint work is leading to positive freshwater outcomes for the region, even though it takes a long time and can be frustrating for them both. They agreed that they need to better communicate this success to the public. The Council and the iwi both consider that it is important to keep the community aware and involved with their work in the future.
- 6.21 Implementing Plan Change Tuatahi will be the next big challenge for the iwi and the Council. Although there is uncertainty about potential changes in national policy settings, both the iwi and the regional council felt that their relationship will remain strong.

22 Whakamana te Waituna is the trust set up between Te Runanga o Ngāi Tahu, the Department of Conservation, Environment Southland, Southland District Council, and Fonterra to restore the mana of the Waituna Lagoon and catchment.

23 Mana Whakahono ā Rohe is a tool designed to assist tangata whenua and local authorities to discuss, agree, and record how they will work together under the Resource Management Act.

About our publications

All available on our website

The Auditor-General's reports are available in HTML and PDF format, and often as an epub, on our website – oag.parliament.nz. We also group reports (for example, by sector, by topic, and by year) to make it easier for you to find content of interest to you.

Our staff are also blogging about our work – see oag.parliament.nz/blog.

Notification of new reports

We offer facilities on our website for people to be notified when new reports and public statements are added to the website. The home page has links to our RSS feed, Twitter account, Facebook page, and email subscribers service.

Sustainable publishing

The Office of the Auditor-General has a policy of sustainable publishing practices. This report is printed on environmentally responsible paper stocks manufactured under the environmental management system standard AS/NZS ISO 14001:2004 using Elemental Chlorine Free (ECF) pulp sourced from sustainable well-managed forests.

Processes for manufacture include use of vegetable-based inks and water-based sealants, with disposal and/or recycling of waste materials according to best business practices.

Office of the Auditor-General
PO Box 3928, Wellington 6140

Telephone: (04) 917 1500

Email: reports@oag.parliament.nz
Website: www.oag.parliament.nz



Date: 11 June 2024

Subject: Interim Review of Regional Pest Management Plan for Taranaki

Author: L Hawkins, Policy Manager

Approved by: A D McLay, Director - Resource Management

Document: 3272565

Purpose

1. The purpose of this memorandum is to introduce the report Regional Pest Management Plan for Taranaki – Interim Review 2023 (the Report). A copy of the Report is appended to this item.

Executive summary

2. The Taranaki Regional Council (Council) adopted the Regional Pest Management Plan for Taranaki (the Plan) on 20 February 2018. The 10-year Plan was prepared under the *Biosecurity Act 1993* (BSA) and is the Council's rulebook for pest management in the region.
3. Five years on, the Council has undertaken a **non-statutory** interim review of the Plan to ensure it is efficient, effective and remains relevant.
4. The interim review process involved a desktop analysis of key indicators and metrics relating to pest management and an assessment of any 'change' factors.
5. Key findings of the interim review are presented in the attached Report and include:
 - All 15 Plan objectives have largely been met and the 118 methods are being delivered.
 - The Plan continues to be relevant and no legislative or policy change factors were identified that require immediate change to the Plan.
 - In terms of emerging issues, land occupier compliance issues relating to the possum and mustelid sustained control programmes and resourcing issues to manage newly discovered infestations for eradication pest plants are highlighted.
 - To address emerging issues and constraints and enhance pest management outcomes in the region, the Report recommends that Council investigate:
 - declaring feral cats to be pests and included in a revised Plan;
 - changing the delivery of the Self-help Possum Control Programme from DIY to a service delivery model;
 - updating the Plan to better recognise pest management issues of significance to iwi, including protection of taonga species; and
 - increasing resourcing through a biosecurity levy to support the above plus provide additional resourcing to expand exclusion and pathway activities.

6. The aforementioned recommendations represent significant change to the current Plan. Further investigative work is therefore suggested to expand and test the concepts proposed. It is suggested that some of this investigative work could be undertaken as part of an early review of the *Taranaki Regional Council Biosecurity Strategy*.

Recommendations

That Taranaki Regional Council:

- a) receives this memorandum and attached report entitled Regional Pest Management Plan for Taranaki – Interim Review 2023
- b) notes that this report gives effect to a Council commitment in the 2022/2023 Annual Plan to undertake an interim review of the Plan
- c) notes that the Plan continues to be efficient, effective and relevant and that no immediate change is required to the Plan
- d) notes that opportunities to build on the efficiency and effectiveness of the Plan as part of an earlier review of the Taranaki Regional Council Biosecurity Strategy will be investigated.

Background

7. The Plan was prepared under the BSA. The BSA provides regional councils (and others) with the necessary powers to “...*exclude, eradicate and effectively manage pests*” in their region.
8. The current Plan was made operative on 20 February 2018. It is the fourth pest management plan prepared by Council under the BSA.
9. The Plan sits within Council’s wider biosecurity policy framework. On 20 February 2018, Council also adopted the *Taranaki Regional Council Biosecurity Strategy* (Biosecurity Strategy). The Biosecurity Strategy is a higher-level planning document. It contains no rules but sets out the Council’s strategic framework for ‘pest’ management, including its vision, priorities, and actions – both regulatory and non-regulatory.
10. The Plan is the Council’s rulebook for pest management in the region. The Plan identifies and sets out management programmes, including rules, for 20 ‘pest’ animal and plant species. Of the 20 organisms declared to be ‘pests’ in the Plan, four are harmful animal species (these being possums, ferrets, stoats, and weasels), while 16 are harmful plant species.
11. For five pest plant species, Council undertakes direct control to achieve their eradication. There are no rules. However, if necessary, Council may access the Part VI powers of the BSA to undertake works, e.g. entry onto land. For the other 15 pest species (referred to as sustained control pests), the Plan contains rules requiring land occupiers to control the pests on their property.
12. The Plan is a 10-year plan at which time Council is required to undertake a full statutory review of the Plan pursuant to section 100D of the BSA. However, while not statutorily required to undertake an interim review of the Plan, Council has chosen to do so as part of its practice of regularly reviewing all its strategies, plans, and programmes in a timely manner to ensure they are producing the best outcomes possible.
13. The 2022/2023 Annual Plan states that Council will undertake an interim review of its Plan. The commitment reads as follows:
“...Support the implementation of the Pest Management Plan for Taranaki, with an interim review and a ten-year full review to occur in 2022/2023 and in 2027/2028.”

The attached report gives effect to that commitment.

The interim review – purpose, methodology and criteria

14. Five years on, it is timely to do an interim review of Council's experiences with implementing the Plan. To assist in the review, the Council commissioned a consultant, Mr Chris Spurdle, to undertake the review and prepare the attached report. Mr Spurdle has considerable knowledge and experience in biosecurity policy and Council's operations.
15. This is not a full review of the Plan but is an examination or 'half-time check' on the efficiency and effectiveness of the Plan and the emergence of any opportunities and/or constraints to do better.
16. The interim review involved an analysis to answer three key questions:
 - Is the Plan effective and efficient – are we achieving what we hoped (objectives) and are we doing what we said (methods)?
 - Is the Plan still relevant – are there any policy or operational drivers for change?
17. On the basis of the above, the interim review then assessed whether significant and immediate changes to the Plan are necessary and thereby necessitating an immediate full statutory review. It took into account the:
 - timeliness of any change, particularly in view of any proposed changes in legislation, new policies, changing community expectations and new or emerging pest management issues; and
 - costs and obligations to people and the region?
18. The interim review involved an examination of relevant information, including pest management datasets, annual reports, studies, investigations, and literature plus consideration of potential 'change factors'. Change factors refers to actual or potential policy or operational issues to emerge since the adoption of the Plan that might necessitate a change to the Plan. Examples include the promulgation of new laws and regulations, changing community expectations, and/or new information identifying opportunities and constraints for doing things better.

The Report

19. The attached report summarises the desktop assessment on the efficiency and effectiveness of the Plan, including opportunities and constraints to improve pest management outcomes. The Report documents key assumptions, risks, and uncertainties.
20. In brief, this review concludes that the Plan largely continues to be effective and efficient. Twenty pest species are successfully being addressed through rules and/or Part VI powers. However, compliance and resourcing issues with the implementation of some programmes have been highlighted.
21. Key findings set out in sections 3 and 4 of the Report are as follows:
 - To date, all 15 Plan objectives are largely being met.
 - All 118 methods for implementing Plan objectives are largely 'being delivered'.
 - Council resources are being stretched for some programmes and 'risks' involving the ongoing delivery of some Plan methods are highlighted. In particular:
 - the five eradication programmes may require more resourcing to address newly discovered infestations;
 - possum numbers in the Self-help Possum Control Programme are at the high end of what is considered acceptable (> 10% RTC); and
 - further work (including increasing use and enforcement of the rule) is required to ensure farmers are maintaining traps in the Towards Predator-free Taranaki.
22. Section 5 of the Report concludes that the Plan continues to be relevant and that there are no legislative or policy change factors requiring immediate change to the Plan.
23. Section 6 of the Report canvasses emerging issues and constraints to existing Plan programmes plus opportunities for enhancing pest management outcomes in the region.

24. Key recommendations going forward are then presented in Section 7 of the Report. The Report recommends that Council investigate:
- declaring feral cats to be a pest;
 - changing delivery of the Self-help Possum Control Programme from DIY to a service delivery model;
 - changing the 10% RTC target for possums (achieved through rule compliance) to a 5% RTC target (to be achieved through service delivery) to better protect sensitive and rare and threatened species on the ring plain and coastal terraces;
 - updating the Plan to better recognise pest management issues of significance to iwi, including protection of taonga species; and
 - increasing resourcing through a biosecurity levy to support the above plus provide additional resourcing to expand exclusion, pathway and eradication activities, and support possum and ungulate control work in the eastern hill country.
25. Further investigative work is required by Council to expand and test the concepts proposed. There is a need to address long-term planning (e.g. additional resourcing) and broader biosecurity considerations. Accordingly, officers recommend Council undertake some of this investigative work as part of an early review of its Biosecurity Strategy.
26. Finally, the aforementioned proposals represent significant changes to the Plan. Following the review of the Biosecurity Strategy, and assuming Council believes there is merit in proceeding with all or some of the proposals, the proposals will then be tested with the wider community as part of a full Plan review under section 100D of the BSA.

Financial considerations—LTP/Annual Plan

27. This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

28. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991* and the *Local Government Official Information and Meetings Act 1987*.

Iwi considerations

29. This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the *Local Government Act 2002*) as outlined in the adopted Long-Term Plan and/or Annual Plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum. The interim review included a review of all relevant iwi management plans in relation to biosecurity considerations.

Community considerations

30. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this item.

Legal considerations

31. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 3266487: Regional Pest Management Plan for Taranaki – Interim Review 2023.

Document 3273210: PowerPoint – Interim review of the Regional Pest Management Plan for Taranaki.



Regional Pest Management Plan for Taranaki

Interim review 2023



Prepared by Chris Spurdle

For Taranaki Regional Council

Status: Final

October 2024

#3266487 Word

Executive Summary

This report summarises the findings of an internal review on the efficiency and effectiveness of the *Regional Pest Management Plan for Taranaki* (the Plan).

The current Plan was made operative in 2018. Under 100D of the BSA, a full review of the Plan is not statutorily required until 10 years of it becoming operative. However, five years on, the Taranaki Regional Council (Council) has determined to undertake a **non-statutory** interim review of the Plan to ensure it continues to be relevant and effective.

Through this review process, Council is seeking to ensure that the Plan remains relevant, lawful and appropriate and that it is achieving its purpose in an efficient and effective way. Depending on the conclusions drawn from the review, the Council will then need to determine whether changes to the Plan are required now or can wait until the 10-year review of the Plan.

In brief, this review concludes that the Plan largely continues to be effective and efficient. Twenty pest species are successfully being addressed through rules and/or Part VI powers. In particular –

- To date, all 15 Plan objectives have largely been met. Notwithstanding that, emerging trends highlight risks to the future effectiveness of the Plan.
- Two Plan objectives relating to the possum and mustelid sustained control programmes are assessed as ‘Generally achieved’. Across most metrics their respective objectives are still being achieved. However, land occupier compliance issues need to be acknowledged and addressed. In relation to the five eradication programmes, more resourcing is also likely to be necessary to address newly discovered infestations.
- All 118 methods for implementing Plan objectives are largely ‘being delivered’. However, the review notes Council resources are being stretched in some areas and Council may need to review the delivery of some of the Plan methods if it wishes to achieve all Plan objectives, particularly its eradication and possum and mustelid control objectives.
- The Self-help Possum Control Programme is delivering sustained possum control and maintaining low possum numbers over 32% of the region. However, possum numbers are at the high end of what is considered acceptable (>10% RTC).
- The roll out of *Towards Predator-free Taranaki* is notable. It is a new programme, underpinned by new rules and to date has delivered sustained mustelid (plus possum and rat) control over 15.2% of Taranaki.
- Council continues to have a strong Inspectorial and enforcement focus.
- Most people follow the rules. However, monitoring shows that in the last two financial years some land occupiers have failed to undertake effective possum control to the extent that possum numbers across the Self-help Possum Control Programme have exceeded (slightly) the 10% RTC compliance target.
- In terms of the Plan’s relevance, this report has not identified any change factors that require immediate change to the Plan. However, increased demands on councils to do more in relation to the maintenance and protection of indigenous biodiversity is noted.

This report further canvasses emerging issues and constraints to existing Plan programmes plus opportunities for enhancing pest management outcomes in the region. They include Council investigating –

- Declaring feral cats to be a pest.
- Changing the delivery of the Self-help Possum Control Programme from DIY to a service delivery model.
- Changing the 10% RTC target for possums (achieved through rule compliance) to a 5% RTC target (to be achieved

through service delivery) to better protect sensitive and rare and threatened species on the ring plain and coastal terraces.

- Updating the Plan to better recognise pest management issues of significance to iwi, including protection of taonga species.
- Increasing resourcing through a biosecurity levy to support the above plus provide additional resourcing to expand exclusion, pathway and eradication activities, and support possum and ungulate control work in the eastern hill country.

The aforementioned opportunities and constraints represent significant change to the current Plan.

Further investigative work will therefore be required to expand and test the concepts proposed (e.g. additional resourcing for delivery of eradication and possum control initiatives, biosecurity targeted rate). It is recommended that this work include an early review of its Biosecurity Strategy to ensure that broader strategic and financial considerations are settled prior to commencing a full review of the current Plan under section 100D of the BSA. During that time, we can also expect BSA and resource management reform to bed in.

Contents

Table of contents

EXECUTIVE SUMMARY	1	5.3 NEW ZEALAND BIODIVERSITY STRATEGY.....	18
CONTENTS	iii	5.4 PREDATOR FREE 2050.....	19
1 INTRODUCTION.....	1	5.5 IWI MANAGEMENT PLANS.....	19
1.1 PURPOSE.....	1	5.6 SUMMARY OF PLANS RELEVANCE.....	20
1.2 STATUTORY AND PLANNING CONTEXT	1	6 OPPORTUNITIES AND CONSTRAINTS.....	22
1.2.1 <i>The Biosecurity Act</i>	1	6.1 DO WE NEED TO DO MORE FOR BIODIVERSITY OUTCOMES?22	
1.2.2 <i>The Plan</i>	2	6.2 DO WE WANT INCREASED POSSUM CONTROL?.....	22
1.2.3 <i>The Biosecurity Strategy</i>	3	6.2.1 <i>Increased level of control in the Programme</i> 22	
1.3 STRUCTURE.....	3	6.2.2 <i>More possum control in the hill country</i>	23
2 INTERIM REVIEW OF THE PLAN	4	6.3 DO WE WANT FERAL CAT CONTROL?.....	24
2.1 NEED FOR AN INTERIM REVIEW.....	4	6.4 DO WE WANT UNGULATE CONTROL?	25
2.2 ASSESSMENT PROCESS AND METHODOLOGY	4	6.5 ARE WE GOING TO CONTINUE TO RELY ON SELF-HELP POSSUM CONTROL?.....	26
2.4 FINAL REPORT	4	6.6 IF WE WANT TO DO MORE, HOW DO WE PAY FOR IT?	29
3 EFFECTIVENESS OF PLAN OBJECTIVES	6	6.7 SUMMARY OF KEY OPPORTUNITIES	29
3.1 ERADICATION	6	7 CONCLUSION AND RECOMMENDATIONS.....	30
3.2 POSSUM SUSTAINED CONTROL	7	REFERENCES	32
3.3 MUSTELID SUSTAINED CONTROL	8	APPENDIX I: PLAN REVIEW PROVISIONS UNDER THE BSA ..	34
3.4 PEST PLANT SUSTAINED CONTROL	8	APPENDIX II: PEST ORGANISMS DECLARED TO BE PESTS	36
3.5 SUMMARY OF PLAN EFFECTIVENESS	9	APPENDIX III: BIOSECURITY STRATEGY – VISION AND PRIORITIES	37
4 EFFICIENCY OF PLAN METHODS.....	10	APPENDIX IV: ANALYSIS OF IWI MANAGEMENT PLANS.....	38
4.1 BIOSECURITY PLANNING – MAINTAINING AN OPERATIVE PLAN 10		TARANAKI	38
4.2 SERVICE DELIVERY	10	NGATI MUTANGA.....	38
4.2.1 <i>Direct control</i>	10	TE ATIWAHA.....	39
4.2.2 <i>Biological control</i>	11	NGĀRUAHINE.....	39
4.3 ENFORCEMENT OF RULES	11	NGĀTI MANIAPOTO	39
4.4 SELF-HELP POSSUM CONTROL PROGRAMME	12	APPENDIX V: IMPLEMENTATION HIGHLIGHTS 2018 – 2023	40
4.5 TOWARDS PREDATOR-FREE TARANAKI	13	APPENDIX VI: SUMMARY OF POSSUM CONTROL SERVICE DELIVERY OPTIONS.....	42
4.6 ADVOCACY AND EDUCATION	14		
4.7 WORKING WITH OTHERS	14		
4.8 SUMMARY OF PLAN EFFICIENCY.....	14		
5 POTENTIAL CHANGE FACTORS.....	17		
5.1 LAW REFORM.....	17		
5.2 OTHER REGULATION	18		

List of figures

Figure 1: The Taranaki region	2
Figure 2: Areal extent of the sustained control for possums ...	7
Figure 3: Areal extent of the mustelid programme	8
Figure 4: Mean RTC trends	26

List of tables

Table 1: Summary of effectiveness in achieving Plan objectives	9
Table 2: Summary of Plan efficiency and progress in implementing Plan methods	16
Table 3: Summary of change factors and the ongoing relevance of the Plan	21
Table 4: Service delivery opportunities and constraints for the Self-help Possum Control Programme	27
Table 5: Summary of opportunities and constraints and Plan review implications	29
Table 6: Plant organisms classified as pests	36
Table 7: Animal organisms classified as pests	36
Table 8: Summary of possum control service delivery options	42

1 Introduction

1.1 Purpose

The purpose of this report is to document a **non-statutory** interim review by the Taranaki Regional Council (Council) of the *Regional Pest Management Plan for Taranaki* (the Plan).

This report evaluates the Plan in terms of –

- the effectiveness of its objectives and the efficiency with which Council has implemented its methods;
- its ongoing relevance of the Plan having regard to any legislative or policy drivers for change;
- opportunities and constraints to achieving Plan objectives; and
- on the basis of the above, identifies whether changes to the Plan are required as a matter of urgency, including any recommendations for change.

The term ‘pest’ has a narrow statutory definition. For the purposes of this report, and depending upon the context, references to pest management may have a broader meaning and include other harmful organisms.

1.2 Statutory and planning context

1.2.1 The Biosecurity Act

The Plan was prepared under the *Biosecurity Act 1993* (the BSA). The BSA provides regional councils (and others) with the necessary powers to “...*exclude, eradicate and effectively manage pests*” in their region.

The BSA definition of ‘pest’ has a very narrow meaning –

“...*pest means an organism specified as a pest in a pest management plan*”.

Imposing rules and associated costs are not decisions to be taken lightly. There are literally thousands of species in New Zealand causing significant adverse and unintended impacts on people and the environment.

Accordingly, regional pest management plans are only ‘made’ after satisfying certain tests under the BSA such as a determination that a pest species is having impacts of regional significance and that the benefits of intervention would outweigh the costs. The ‘willingness’ of the community to bear Plan costs and obligations is then tested and confirmed through a planning process.

Regional pest management plans are the rulebooks for pest management under the BSA.

Once a regional pest management plan is made, rules can be enforced, and Council may access Part VI powers of the BSA.

Non-compliance with rules is an offence under the Act.

Regional pest management plans are 10-year planning documents. After ten years, they must be reviewed under section 100D of the BSA (refer **Appendix I**). Although plans can be reviewed earlier if needed.

1.2.2 The Plan

The current Plan was made operative on 20 February 2018. It is the fourth pest management plan prepared by Council under the BSA.

The Plan identifies and sets out management programmes, including rules, for 20 'pest' animal and plant species (refer **Appendix II**).

Of the 20 organisms declared to be 'pests' in the Plan, four are harmful animal species (these being possums, ferrets, stoats, and weasels), while 16 are harmful plant species.

For five pest plant species (referred to as eradication pests), Council undertakes direct control to achieve their eradication. There are no rules. However, if necessary, Council may access the Part VI powers of the BSA to undertake works, e.g. entry onto land. These pests are of limited distribution and eradication is considered a technically feasible objective.

For the other 15 pest species (referred to as sustained control pests), the Plan contains rules requiring land occupiers to control the pests on their property. These pests are much more widespread, and the purpose of rules is to ensure any infestations are managed to the extent that externality impacts are minimised. Sustained control pests are possums, mustelids (stoats, ferrets and weasels), giant buttercup, giant gunnera, gorse, nodding, plumeless and variegated thistles, old man's beard, wild broom, wild ginger (Kahili and Yellow), and yellow ragwort.

The Plan contains 19 rules comprising of -

1. **General rules** – ten rules that require the land occupier to control any pest infestations across the entire property.
2. **Good neighbour rules**— nine rules that require the land occupier to control pest infestations in boundary situations only. These rules are designed to address (and minimise) the pest's externality impacts on neighbours.

Under the BSA, good neighbour rules are the only type of rules that may apply to the Crown. Crown land represents over 20% of the Taranaki region (see Figure 1 below).



Figure 1: The Taranaki region



Figure 2: Biosecurity Strategy and Plan – the complete policy package for pest management

1.2.3 The Biosecurity Strategy

The Plan sits within Council’s wider biosecurity policy framework. On 20 February 2018, Council also adopted the *Taranaki Regional Council Biosecurity Strategy* (Biosecurity Strategy).

The Biosecurity Strategy is a higher-level planning document. It contains no rules but sets out the Council’s strategic framework for ‘pest’ management, including its vision, priorities, and actions – both regulatory and non-regulatory.

The Council’s vision for pest management in the region, as set out in the Biosecurity Strategy, is –

Our vision

Taranaki has a high performing, integrated system for managing the risks and impacts of pests and other harmful organisms to the economy, environment and human health.

Agencies, community groups and individuals work cooperatively, taking an integrated, efficient and cost-effective approach that is based on sound science and a social mandate to undertake that work.

Together we are making a significant contribution to protecting our region, people, economy and natural resources by preventing the introduction or establishment of new pests and by reducing the damage caused by pests and other harmful organisms introduced in the past.

To achieve the vision, the Biosecurity Strategy sets out five priorities for Council with key actions (refer **Appendix III**) grouped around the themes of:

1. **Pathways and exclusion:** Council undertakes pathway and exclusion activities to prevent the establishment of new harmful species to Taranaki or the exacerbation of existing problems.¹
2. **Eradication:** Council undertakes direct control activities for harmful species present but not yet established in Taranaki (and where eradication is technically feasible).

¹ Ministry for Primary Industries is responsible for border control to prevent the arrival and establishment of new harmful organisms to New Zealand. Council’s focus is on responding to organisms established in New Zealand but not yet established in the region such as rooks and wallabies.

3. **Sustained control:** Council maintains a regional pest management plan and enforces rules for the control of declared pests.
4. **Working with others:** Council supports the efforts of others contributing to pest management outcomes (includes site-led management).
5. **Regional leadership:** Council leads regional responses on biosecurity planning, biological control, research, and advocacy and liaison.

1.3 Structure

This report has seven sections.

Section 1 introduces the report, including its purpose, the statutory and planning context, and structure.

Section 2 outlines the interim review process, including the need for the review, its methodology, and an overview of this report.

Section 3 evaluates the effectiveness of the Plan in terms of whether its objectives are being achieved.

Section 4 evaluates the efficiency of the Plan in terms of whether its methods are being implemented.

Section 5 examines the ongoing relevance of the Plan having regard to potential ‘change’ factors that have emerged since the adoption of the Plan, e.g. changes in law, Government policies and programmes, and other policy initiatives that might have a bearing on the Plan and its implementation.

Section 6 assesses whether there are any new or emerging ‘operational’ issues occurring that might necessitate changes to the Plan and an early review.

Section 7 presents the report’s conclusions, including recommendations going forward.

Appendices are presented at the back of the report.

2 Interim review of the Plan

Section 2 outlines the interim review process, including the need for the review, its methodology, and an overview of this report.

2.1 Need for an interim review

The Plan was adopted in 2018. It is a 10-year plan at which time Council is required to undertake a full statutory review of the Plan pursuant to section 100D of the BSA.

While Council is not statutorily required to undertake a review of the Plan, it has chosen to do so as part of its practice of regularly reviewing all its strategies, plans, and programmes to ensure they are producing the best outcomes possible.

The *2022/2023 Annual Plan* states that Council will undertake an interim review of its Plan. The commitment reads –

"...Support the implementation of the Pest Management Plan for Taranaki, with an interim review and a ten-year full review to occur in 2022/2023 and in 2027/2028."

Five years on, it is timely to do a review Council's experiences with implementing the Plan.

2.2 Assessment process and methodology

The review involved an analysis to answer three key questions –

1. **Is the Plan effective and efficient** – are we achieving what we hoped (objectives) and are we doing what we said (methods)?
2. **Is the Plan still relevant in 2023** – are there any policy or operational drivers for change?
3. On the basis of the above, **are changes to the Plan significant** thereby necessitating

an immediate full statutory review taking into account the:

- **timeliness** of any change, particularly in view of any proposed changes in legislation, new policies, changing community expectations and new or emerging pest management issues; and
- **costs and obligations** to people and the region?

To answer these questions Council commissioned a consultant to examine relevant information, including its pest management datasets, annual reports, studies, investigations, and literature.

The consultant further examined and assessed potential 'change factors'.

Change factors refers to policy or operational issues to emerge since the adoption of the Plan that might necessitate a change to the Plan. Examples include the promulgation of new laws and regulations, changing community expectations, and/or new information identifying opportunities and constraints for doing things better.

In the event of any deficiencies in the effectiveness, efficiency or relevance of the Plan, the consultant was asked to consider whether those deficiencies were significant or minor using assessment criteria developed for the purposes of this review.

As necessary, key findings and recommendations going forward have been regularly peer reviewed and 'tested' by Environment Services staff.

2.4 Final report

This report was authored by Chris Spurdle (Consultant) with Steve Ellis (Environment Services Manager) and Tim Weston (Programme Lead - Biosecurity) assisting with coordinating the provision of information and peer reviewing draft versions of this report.

This report summarises the desktop assessment of the effectiveness and efficiency of the Plan, including any risks or issues of concern (refer sections 3 and 4 below).

The report then summarises a desktop assessment of the ongoing relevance of the Plan, including opportunities to do better (refer sections 5 and 6 below).

With regards to opportunities and constraints to improve pest management outcomes, the report documents key assumptions, risks, and uncertainties.

Conclusions and recommendations arising from the interim review are presented in Section 7 of this report.

Report recommendations have been assessed as to their significance and whether changes sought would necessitate an immediate full review of the Plan. If changes sought are relatively minor, they may wait until the Council undertakes its scheduled full review in 2028.

Of note, report recommendations are preliminary only. They have not been formally considered by Council. Also, should Council accept any recommendation involving significant change to the current Plan, these changes will be tested further as part of a full public planning process under section 100D of the BSA.



3 Effectiveness of Plan objectives

Section 3 evaluates the effectiveness of the Plan in achieving its objectives to date based on annual plan reporting and supporting datasets.

There are 15 Plan objectives. For the purposes of this report, objectives are grouped according to Plan programme type. These are eradication, and possum, mustelid and pest plant sustained control.

For each programme type, progress towards meeting the Plan objective(s) is evaluated. The success or otherwise of achieving Plan objective(s) is determined based upon the following criterion:

1. **Achieved** – objective sought is being achieved across all measures.
2. **Generally achieved** – objective sought is largely being achieved with generally positive trends/outcomes across most (but not all) measures. Negative results represent significant risk that the Plan objective may not be achieved.
3. **At risk**– significant operational impediments are being experienced that the objective may not ultimately be achieved across all measures.
4. **Not achieved** – objective is not being achieved across all measures.

values impacted] in the Taranaki region.”

The objective has two key elements – first, destroy all infestations known as at 2018 and, second, destroy any new infestations discovered over the life of the Plan.

With regards to eradication pest plant species recorded as present at the time of adopting the Plan, all 185 infestation sites have and continue to be treated where required.

In addition, Council investigates, surveys, and endeavours to treat new infestations. Each year, over the ‘life’ of the Plan, Council staff have been discovering new infestations of eradication pest plant species through regular monitoring and surveillance activities. Council also undertakes publicity programmes using press releases, newspaper articles and social media to encourage public reporting. This has resulted in the identification of hundreds of new sites.

When new infestations of eradication pest plants are discovered, Council maps and plans treatment of them.

The persistent nature of these pest plant species means that even when treated, new growth often occurs, therefore requiring multiple treatments.

Taking into account that some species seeds can remain viable in the soil for 30+ years all sites need to be inspected regularly to prevent further seeding.

As at 30 June 2023, there are a total of 417 pest plant eradication sites. Of these sites, 206 (49.4%) have been treated, with the untreated sites (most of them recently identified) being targeted for treatment this financial year.² However, the ongoing discovery of new infestations, on top of the ongoing necessity to treat existing infestations, is incrementally placing more and more demands on Council resourcing. Officers are concerned that not all infestations can be effectively managed within current budgeted resources.

3.1 Eradication

The Plan has five objectives targeting climbing spindleberry, giant reed, maderia (mignonette) vine, moth plant, and Senegal tea for eradication in the region. Plan eradication objectives read –

“Over the duration of the Plan eradicate [insert pest plant name], by destroying all infestations known at the date the Plan becomes operative and, where practicable, destroy any new infestations that are identified, to prevent adverse effects on [insert

² In 2022/2023, Council surveys and a publicity campaign resulted in 184 more infestations, mainly of moth plant, being confirmed.

Plan objectives for the five eradication pest plant programmes are assessed as being **'At risk'**. Existing known infestations have been treated and newly discovered infestations are being identified and, as resources permit, destroyed. However, a 'backlog' of untreated infestations has emerged with not enough resourcing available to address newly discovered infestations last financial year.

3.2 Possum sustained control

The Plan targets possums through a sustained control programme. The Plan objective for possums reads –

“Over the duration of the Plan, sustainably control possum numbers on land within the Self-help Possum Control Programme, and elsewhere as appropriate, to avoid or minimise adverse effects on pastoral production, animal health, and indigenous biodiversity values in the Taranaki region.”

The objective has two key elements – first, implement the Self-help Possum Control Programme and, second, suppress possum numbers in the Programme to avoid or minimise adverse effects.

The Self-help Possum Control Programme is the world's longest running community possum control programme. Approximately 232,000 hectares (ha) or 32% of the region is in the Programme covering most of the ring plain and coastal terraces (refer Figure 3).

In terms of suppressing possum numbers in the Self-help Possum Control Programme, Council has been largely keeping possum numbers below the target 10% residual trap catch (RTC).³ In 2018/2019, possum infestation levels in the Programme were, on average, 6.9%. However, in the last two financial years, possum infestation levels in the Programme have been (slightly) exceeding the 10% RTC compliance target.

Of concern is the risk that unless possum numbers are returned to below 10% RTC, the Plan may no longer be meeting its objective of avoiding or

minimising adverse effects on indigenous biodiversity values.

Of note, is a project trialling the eradication of possums over 4,467 ha of farmland surrounding the Kaitake Range and preventing re-infestation that is also successfully contributing to the Plan objective. The farmland surrounding the Kaitake Range has now been free from possums for over two years,⁴

The Plan objective for possums is assessed as being **'Generally achieved'**. Low possum numbers are being maintained across much of the Taranaki landscape. However, possum numbers at or above the 10% RTC compliance level are of concern and that part of the objective relating to avoiding or minimising adverse effects on indigenous biodiversity values is at risk of not being met (this is discussed further in section 6.2.1 below).

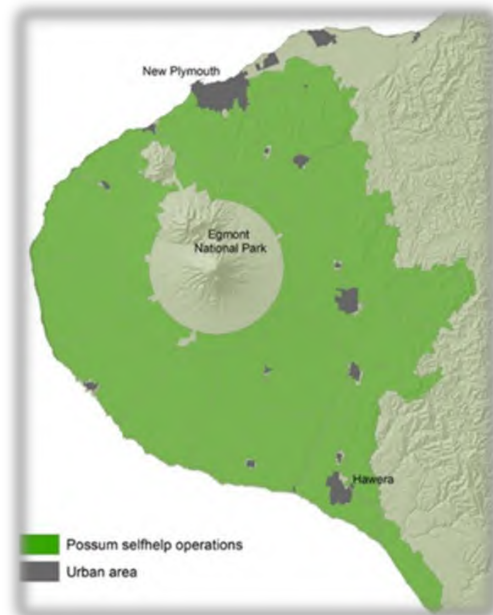


Figure 3: Areal extent of the Self-help Possum Control Programme

³ For further information on the Self-help Possum Control Programme, including programme design and activities, please refer to section 4.4 below.

⁴ The success of the trial has enabled Council to secure additional funding from Predator Free 2050 Limited to increase the area by up to 5,800 ha. Source: Taranaki Regional Council, 2023.

3.3 Mustelid sustained control

The Plan targets mustelids through a sustained control programme. The Plan objective for mustelids reads –

“Over the duration of the Plan, sustainably control mustelid numbers on land within a Predator Control Area, and elsewhere as appropriate, to avoid or minimise adverse effects on indigenous biodiversity values in the Taranaki region.”

The Plan objective has two key elements – first, establish Predator Control Areas and, second, suppress mustelid numbers in those areas to avoid or minimise adverse effects on indigenous biodiversity.

With regards to the establishment of Predator Control Areas, Council received \$11.5 million from Predator free 2050 Limited, the government owned company tasked with funding strategic landscape-scale predator programmes to ‘roll out’ the programme each year.⁵

First commenced in 2018/19, each year, the control is expanded to new areas.⁶ As at 30 June 2023, Predator Control Areas have been established and Council is delivering sustained mustelid control over approximately 110,218 ha on Taranaki’s intensively-farmed ring plain or 15.2% of the region (refer Figure 4).

Taranaki is already starting to see the results of mustelid control. Monitoring found up to a 90% reduction in mustelids in Predator Control Areas. With the reduction in mustelid numbers, indigenous biodiversity values in the area are being significantly enhanced and restored.

Long term monitoring is needed to quantify what the 90% reduction in mustelid numbers equates to in biodiversity gains and if landowner maintenance can sustain this reduction. However, the benefits are anticipated to be significant. For example, the *Taranaki Mounga Project* noted that the threatened species whio (blue duck) is thriving in the national park following predator control. According to *Taranaki Mounga Project*, there has been a 70% increase in whio pairs since 2011. There

have also been sightings of kiwi and toutouwai (North Island robin), which are spreading through the national park and in the surrounding farmland.⁷ Through sustained mustelid control, adverse effects on indigenous biodiversity values are being minimised across large parts of the region.

Plan objective for the mustelid sustained control programme is cautiously assessed as being ‘**Generally achieved**’. While plan objectives appear to be on track with the establishment of Predator Control Areas, officers believe further work (including increasing use and enforcement of the rule) is required to ensure farmers are maintaining traps. Not all farmers are believed to be undertaking the necessary mustelid control.

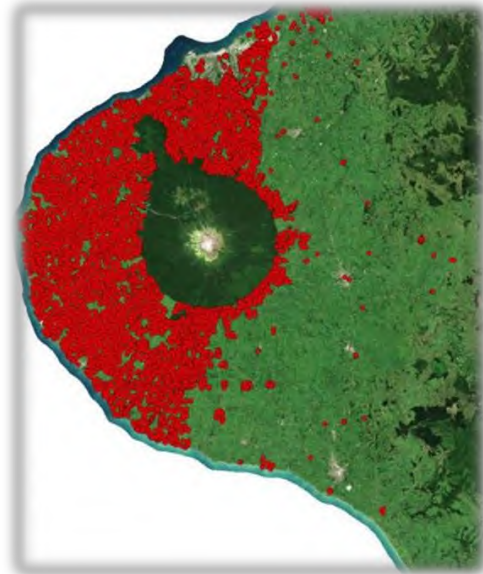


Figure 4: Areal extent of the mustelid programme

3.4 Pest plant sustained control

The Plan has 11 sustained control objectives (i.e. a regulatory approach) targeting giant buttercup, giant gunnera, gorse, old man’s beard, nodding,

⁵ This regulatory programme is an integral component of a much wider programme — the Taranaki Predator-free programme, which aims to restore Taranaki’s biodiversity by removing introduced predators such as possums, rats, and mustelids.

⁶ Refer <https://www.trc.govt.nz/environment/working-together/towards-predator-free-taranaki/rural/>.

⁷ Refer <https://www.trc.govt.nz/environment/working-together/towards-predator-free-taranaki/predator-free-news/ring-of-traps-surround-mt-taranaki/>.

plumeless and variegated thistles, wild broom, yellow and kahihi ginger, and yellow ragwort. Pest plant sustained control objectives for the Plan read–

“Over the duration of the Plan, sustainably control [insert pest plant name] to avoid or minimise adverse effects on [insert values impacted] in the Taranaki region.”

The objectives have one key element – to suppress infestations to minimise externality impacts.

All 11 sustained control pest plants are well established in Taranaki and require ongoing sustained effort to minimise their externality impacts on neighbours and the region generally. Officers regularly find localised problems that if left unmanaged, can quickly become problematic and impose significant costs on others.

For agricultural production pest plant, there is an element of self-interest with farmers motivated to undertake timely control. However, where problems occur, Council intervenes in an enforcement capacity and ensures land occupiers undertake the required pest control.

Over the life of the Plan, Council has increasingly focused on ensuring landowners also prioritise control of environmental pest plants such as old man’s beard, gunnera, and wild ginger.

As discussed further in section 4.2.1, there have been demonstrable gains in rolling back heavy infestations of old man’s beard in the Kaipokonui and Waingongoro catchments.⁸

Plan objectives for pest plant sustained control programme are assessed as ‘achieved’. Adverse effects from these pest plants on agricultural production and indigenous biodiversity values are being successfully avoided and indeed rolled back.

3.5 Summary of Plan effectiveness

This review confirms that the Plan is largely on track in achieving its objectives.

Plan objectives were assessed as ‘achieved’ for the pest plant sustained control programmes.

Plan objectives for the possum and mustelid sustained control programmes are assessed as ‘generally achieved’. Across most metrics their respective objectives are still being achieved. However, land occupier compliance issues need to be acknowledged and addressed (this issue and options going forward are discussed further in section 6 below). In relation to the five eradication programmes, more resourcing is also likely to be necessary to address newly discovered infestations.

Set out in Table 1 below is a summary of the effectiveness of the Plan in achieving its objectives.

Table 1: Summary of effectiveness in achieving Plan objectives

Plan objectives relating to	Are the objectives being achieved?	Comments
1. Pest plant eradication programmes	At risk of not being achieved	100% of known infestation sites treated. However, a ‘backlog’ of untreated infestations is developing as new infestations are being discovered. More resourcing is going to be necessary to eradicate newly discovered infestations for the remaining duration of the Plan
2. Possum sustained control programme	Generally achieved	32% of the region has sustained possum control. However, increasing possum numbers are a concern (>10% RTC).
3. Mustelid sustained control programme	Generally achieved	15.2% of the region has sustained mustelid control focused on the ring plain. However, greater enforcement will be required to ensure land occupiers continue to undertake effective control
4. Pest plant sustained control programmes	Achieved	Business as usual for the 11 species. However, significant gains in rolling back old man’s beard infestations are noted

⁸ Previous plans have exempted land occupiers from rules requiring the control of old man’s beard where infestations have been within 50 meters of the Waingongoro, Kaipokonui and Pātea rivers. This was based on infestations being so heavy that the cost of any control was considered overly onerous and unreasonable to impose on land occupiers. Through this programme, Council is undertaking initial control incrementally along the Waingongoro and Kaipokonui rivers prior to land occupier obligations applying.

4 Efficiency of Plan methods

Section 4 reviews annual reports and other sources to evaluate the efficiency of the Plan in terms of whether principal measures (methods) are being delivered (or not).

The Plan contains 118 methods. For the purposes of this report, methods are grouped as follows –

1. Biosecurity planning
2. Service delivery
3. Inspections and enforcement of rules
4. Self-help Possum Control Programme
5. Towards Predator-free Taranaki
6. Advocacy and education
7. Working with others.

4.1 Biosecurity planning – maintaining an operative Plan

Council is committed to the preparation, adoption and maintenance of a publicly considered pest management plan (i.e. the Plan).

The current Plan was made operative on 20 February 2018. Council subsequently undertook and completed a partial review on 1 June 2021 to include mustelids and is now undertaking this interim review (2023).

Council is spending in the order of \$6 million per annum on Plan and other pest management activities.⁹ Annual planning and reporting is undertaken every year to ensure proper resourcing for the implementation of all Plan methods, including rules (refer sections 4.2 to and 4.7 below).

As at 30 June 2023, the Plan method for maintaining the Plan in accordance with statutory requirements is assessed as **'being delivered'**.

⁹ This includes Council's share of Predator-free funding. Source: Taranaki Regional Council, 2023.

¹⁰ This does not include the direct control of other invasive weeds not yet established in Taranaki including boneseed, chameleon plant, purple loosestrife, royal fern, and alligator weed.

4.2 Service delivery

4.2.1 Direct control

Direct control involves Council undertaking pest control itself. This service is generally provided where the public good outweighs private benefits.

Over the life the Plan, Council has undertaken –

- (a) Direct control on 226 sites to eradicate climbing spindleberry, giant reed, madeira (mignonette) vine, moth plant, and Senegal tea infestations.¹⁰
- (b) Initial control on 80 properties to destroy old man's beard infestations along the Waingongoro river. This equates to approximately 18 kilometres of control. Because of typography, control work has been very technically challenging requiring follow-up treatment.
- (c) Direct possum control in 2019, on 422 properties covering a combined area of 28,000 ha surrounding Te Papakura o Taranaki (Egmont National Park). This work was carried out to support the *Taranaki Mounga Project* and Department of Conservation's (DOC) joint aerial 1080 operation.
- (d) Direct control to eradicate possums on 4,467 ha, including the Kaitake range, surrounding farmland and the township of Oākura. Direct control involved aerial 1080, ground baiting and trapping. Followed up with dogs and thermal cameras to detect and remove any survivors. This operation is a trial and part of zero possum control area funded by Predator Free 2050 Limited (refer Figure 5). This work is part of the *Towards Predator-free Taranaki* programme. Council continues to detect

and remove individual possums using motion sensing cameras followed by intensive trapping or hunting with thermal cameras and possum detection dogs.

- (e) Initial control for mustelids covering 110,218 ha as part of *Towards Predator-free Taranaki*. This involved engagement with land occupiers, the establishment of a trapping network through the targeted areas, and the regular checking and maintenance of those traps.

Direct control activities are contributing to eradication objectives and reducing the pest impacts of old man’s beard, possums and mustelids. Direct control for possums and mustelids is particularly notable for its delivery of pest control at a landscape scale.

As at 30 June 2023, the Plan method for Council to under-take direct control is assessed as largely ‘being delivered’. As previously noted in section 3.1, in relation to direct control for eradication purposes, further work and more resourcing in the future is going to be required for the Council to address new recently identified infestations and to continue to meet its eradication objectives.



Figure 5: Zero possum control area

4.2.2 Biological control

Biological control involves Council sourcing, releasing and distributing natural enemies of pests. Council contributes to the Landcare’s biological control research programme, which is part of a sector-wide approach to the sourcing, release and distribution of biological control agents across New Zealand.

Each year, Council procures and undertakes three to nine biocontrol agent releases, excluding last financial year.

In 2022/2023, Council chose to temporarily halt further biocontrol agent releases to undertake a stocktake of what has been released to date, including where and when, and review the adequacy of tangata whenua engagement on the topic.

The use of bioagents is an alternative to the widespread use of toxins to undertake pest control, which has been identified as an issue of concern in some iwi management plans (refer **Appendix IV**). However, to date there has been no meaningful engagement with Taranaki’s iwi and hapu on Council’s biological control programme. Council is seeking to undertake more structured engagement with tangata whenua, including education and awareness raising, prior to any more bio-agent releases.

Notwithstanding 2022/2023, overall, the Plan method involving the provision of biological control agents is assessed as ‘being delivered’.

4.3 Enforcement of rules

Council’s sustained control programmes for pest plants, possums and mustelids are underpinned by a comprehensive inspectorial and enforcement regime to ensure land occupiers comply with Plan rules. This involves –

- (a) visiting properties and monitoring to determine the presence or absence of pests, and whether rules are being complied with; and
- (b) responding to any non-compliance through enforcement action (i.e. action on default, prosecution).

Council’s compliance monitoring programmes comes in many forms. Ranging from quick visual inspections to the adoption of quite sophisticated monitoring techniques such as the use of wax tags, RTC monitoring lines, or Econode technology (a wireless sensor attached to mustelid traps that send a signal when a trap has gone off).

In relation to checking compliance with pest plant rules, each year, Council monitors farms, urban properties, parks and reserves, road reserves,

quarries, and plant nurseries. Council also responds to and investigates public complaints. Over five years, Council carried out 7,493 property inspections for pest plants. This is an average of 1,498 property inspections per annum.

Generally, public complaints relate to the presence of pest plants on neighbouring land and road and rail reserves.

Sometimes Council will target specific pest plants or areas. For example, in 2023, Council undertook a large urban monitoring exercise targeting New Plymouth suburbs east of the Waiwhakaiho River. The focus was on environmental pest plants (both eradication and sustained control). That survey identified 54 properties where land occupiers were advised that pest plant control will be required (two additional eradication pest plant infestations were also identified). Compliance will be followed up this calendar year.

In relation to possums, each year, Council uses wax tags and trap catch monitoring to ascertain possum infestation levels (and land occupier compliance) across the Self-help Possum Control Programme.

Over the last five years, Council carried out 2,718 property inspections to monitor compliance with Plan rules. This equates to an average of 554 inspections per annum.

In 2022/2023, of the 143 RTC monitoring lines undertaken to monitor land occupier, 40 (28%) were significantly over the required 10% RTC target. These properties were required to undertake additional control to resolve the issue.

In relation to mustelid control, because of the 'young' age of the programme (noting there were no rules for mustelid control prior to 2021), the focus has primarily been on educating land occupiers on their obligations. However, it is expected that the enforcement component will ramp up over time.

For all sustained control programmes, where inspections identify problems, Council issues notices of direction requiring land occupiers to undertake pest control. Over the last 5 years, 628 notices of direction have been issued – 461 for pest plant control and 163 for possum control. This

equates to an average of 125 notices of direction issued per annum.

Compliance with Plan rules and/or in response to notices of direction is generally good overall. Most land occupiers respond quickly to pest problems once identified.

For ongoing non-compliance, further enforcement action can be taken in the form of default work out (where the Council undertook the pest control at the land occupier's expense) or prosecution. Since the adoption of the Plan, only one default action has been undertaken and no prosecution action has been required.

As at 30 June 2023, the Plan method involving inspections and enforcement of Plan rules is assessed as **'being delivered'**. Council's commitment of significant resources and adoption of a broad suite of compliance monitoring techniques is particularly noted as is its adoption of innovative thinking such as remotely wireless monitoring systems.

4.4 Self-help Possum Control Programme

The Self-help Possum Control Programme was a flagship programme when Council prepared its first pest management plan in 1996.

Over the years, Council has incrementally expanded the Self-help Possum Control Programme into new areas until it now covers 32% of the region.¹¹ As new areas were brought into the Programme, Council carried out initial control, reduced possum numbers to very low levels (usually between 3 to 5% RTC), with the land occupier then assuming responsibility through rules to keep possum numbers at <10% RTC.

There are 4,234 properties in the Self-help Possum Control Programme. Though it is a regulatory programme, Council works closely with the land occupiers to support their possum control efforts. This involved regular and ongoing liaison, advice and education to land occupiers including often repeated phone calls reminding them of their obligations. However, the nature of that liaison has changed over time. Council has sought efficiencies to better manage the competing priorities of the

¹¹ This is the first plan that Council has not sought to expand the Programme. Its focus has been on maintaining the gains to date.

pest plant programme and the introduction of predator control maintenance requirements. This has necessitated the replacement of letters and phone calls with emailed bulletins that both remind landowners of their obligations and promote wider pest management messages.

Essentially the Self-help Possum Control Programme has moved to an inspectorial and enforcement regime similar in type to that adopted for pest plant. The new regime has been supported with increased monitoring that ascertains possum infestation levels in the area that, in turn, determines what level of possum control is needed. When monitoring indicates that possum control is required in an area, Council liaises with land occupiers and provides technical advice, assistance, and support to land occupiers regarding pest control techniques and products, including the use of contractors. Should officers determine that a land occupier is not undertaking the necessary control and is continuing to not meet the 10% RTC target, then a Notice of Direction is issued.

As at 30 June 2023, the Plan method involving implementation of the Self-help Possum Control Programme is assessed as **'being delivered'** However, as previously noted in section 3.2, possum numbers at or above the 10% RTC compliance level are of concern and that part of the objective relating to avoiding or minimising adverse effects on indigenous biodiversity values is at risk of not being met. The efficiency of this method, including opportunities and constraints, are discussed further in section 6.2.1 below.

4.5 Towards Predator-Free Taranaki

Taranaki Taku Tūranga -Towards Predator-Free Taranaki aims to support the eradication of mustelids (and rats and possums) across all intensively farmed land in Taranaki by 2050.

Towards Predator-Free Taranaki has, so far, involved \$2.5 million of Council funding supported by more than \$11 million from Predator Free NZ.¹² It involves the trialling of new control methodologies and tools, including remote sensors, wireless nodes and a trapping app. This high-tech

equipment makes trapping more efficient and less time consuming by sending an alert to the user when a trap goes off.

There are three elements to the *Towards Predator-Free Taranaki* project –

- (a) Zero density possums – Council removed possums over 4,467 ha of farmland adjacent to the Kaitake Ranges. This operation has continued to detect and remove individual possums as necessary (refer sections 3.2 and 4.2.1).
- (b) Urban predator control – Council has provided traps to homeowners within urban areas in the project, including New Plymouth, Bell Block and Ōakura and Ōpunakē. Community 'champions' continue to join the project and are providing excellent localised support to backyard trappers.
- (c) Rural landscape predator control – In 2022/2023, Council undertook initial mustelid control over an additional 15,000 ha, bringing the total to 110,218 ha now in Predator Control Areas.¹³ This involved the use of contractors to establish a network of traps placed along a combination of habitat, races and farm tracks.

Since 2018, the rural landscape element of the programme has been incrementally expanded. It closely replicates the approach adopted in the Self-help Possum Control Programme. After successful initial control, land occupiers purchase and maintain the traps on their property. The traps are significantly subsidised.

Since 2021, new rules have applied requiring land occupiers to maintain low mustelid numbers following initial control. Areas where Council has undertaken initial control and where rules now apply are referred to as 'Predator Control Areas'. Each year, Council monitors trap use across Predator Control Areas and Council organises and coordinates mustelid control.

As at 30 June 2023, Predator Control Areas now cover 110,218 ha (or 15.2%) of the region. Plan method involving Council providing property

¹² *Initially 5-years with agreement for a further 3 years funding.*

¹³ *Taranaki Regional Council, August 2023.*

planning extension services to support mustelid control is assessed as **'being delivered'**.

4.6 Advocacy and education

Council provides general purpose education, advice, awareness and publicity activities to land occupiers and the public about pest management.

Every year, over the life of the Plan, Council undertook a media and publicity campaign on pest plants to encourage their reporting (in the case of eradication species) or to encourage their control (for sustained control species), including the use of alternative garden species.

Council further responds to public requests for information and provides ongoing technical advice to people undertaking pest control,

Over the life of the Plan, Council maintained webpages, and prepared and distributed pest management advice and information to increase public awareness and encourage pest control.

Council regularly provides, on request, technical advice and information over the life of the Plan to –

- (a) facilitate or support land occupier efforts, e.g. as part of the Self-help Possum Control Programme and possum and *Towards Predator-Free Taranaki*;
- (b) facilitate or support community and other agencies' efforts to maximise the effectiveness of their control; and
- (c) promote best practice to contractors and others in relation to pest pathways, e.g. in plant nurseries and road reserves.

As at 30 June 2023, the Plan method involving Council undertaking advocacy and education activities to support pest management is assessed as **'being delivered'**.

4.7 Working with others

While the Plan is the rulebook for the region, Council works closely with other key players in a non-regulatory sense to promote proactive and/or more effective pest management.

In relation to pest plant sustained control programmes, Council works closely with crown agencies such as DOC, Waka Kotahi NZ Transport

Agency, Kiwi Rail, and Kāinga Ora (Housing NZ) to minimise and address pest plant problems on Crown land.

Council also works with district councils to promote pest plant management in their parks and reserves. Of note are recent efforts to work with New Plymouth District Council (NPDC) to deliver more positive and timely pest plant management. Council is trialling an approach where Council monitors and plots any pest plant infestations in NPDC's parks and reserves using a GIS application with the information forwarded to Parks and Reserves for them to prioritise control as part of their maintenance. So far, this approach has been very successful, and Council is considering its broader application to include NPDC's road reserves team, and Stratford and South Taranaki district councils.

In relation to its possum and mustelid sustained control programmes, including the *Towards Predator-Free Taranaki*, Council works with and regularly support the *Taranaki Mounga Project* and DOC's predator control work on the mounga.

Council also undertakes activities to support community pest control. This includes assistance to Tiaki Te Mauri o Parininihi Trust, East Taranaki Environment Collective, Lake Rotokare Scenic Reserve Trust and the Rapanui Grey Faced Petrel Trust.

Council is a member of and provides financial and other support for Wild for Taranaki.

As at 30 June 2023, the Plan method involving Council working with others is assessed as **'being delivered'**.

4.8 Summary of Plan efficiency

The Plan has been generally efficient in the implementation of its methods.

Plan methods were assessed as largely **'being delivered'**. However, the review notes Council resources are being stretched in some areas and Council may need to review the delivery of some of the Plan methods if it wishes to achieve all Plan objectives, particularly its eradication and possum and mustelid control objectives. Resourcing and funding opportunities and constraints are discussed further in section 6.6 below.

Set out in Table 2 overleaf is a summary of the efficiency of the Plan and progress in its implementation.

Table 2: Summary of Plan efficiency and progress in implementing Plan methods¹⁴

Principal Plan measures (methods)	What have we been doing?					Conclusion
	2018/19	2019/20	2020/21	2021/22	2022/23	
Biosecurity planning	Operative Plan adopted		Partial review (mustelids)		Interim review	Commitment is being delivered
Eradication control of pest plants (no. of infestations)	168 (100% treated)	106 (100% treated)	121 (100% treated)	233 (100% treated)	417* (46.3% treated).	Commitment is being delivered
Initial control for old man's beard (km)	17	0.7	1	2	0**	Commitment is being delivered
Initial control for mustelids (ha)	14,000	28,000	30,300	22,918	15,000	Commitment is being delivered
Biological control	3 releases for wild broom, woolly nightshade, & <i>tradescantia</i>	4 releases for wild broom, woolly nightshade, & <i>tradescantia</i>	6 releases for yellow ragwort, thistles, <i>tradescantia</i> , & Japanese honeysuckle	9 releases for old Man's Beard, <i>tradescantia</i> & Japanese honeysuckle	No releases	Commitment is being delivered
Enforcement of rules (no. of properties)	<i>Inspections</i> 1,309 (plants) 428 (possums) <i>Notices of direction</i> 176 (plants) 19 (possums)	<i>Inspections</i> 1,256 (plants) 747 (possums) <i>Notices of direction</i> 96 (plants) 39 (possums)	<i>Inspections</i> 1,498 (plants) 786 (possums) <i>Notices of directions</i> 133 (plants) 24 (possums)	<i>Inspections</i> 660 (plants) 479 (possums) <i>Notices of directions</i> 27 (plants) 55 (possums)	<i>Inspections</i> 2,780 (plants) 278 (possums) <i>Notices of directions</i> 29 (plants) 26 (possums)	Commitment is being delivered
Implementation of the Self-help Possum Control Programme***	4,181 properties 240,200 ha	4,211 properties 240,200 ha	4,224 properties 240,200 ha	4,234 properties 240,200 ha	4,234 properties 232,000 ha	Commitment is being delivered
Implementation of Predator-free Taranaki (total hectares)	14,300 ha	28,000 ha	42,000 ha	95,000 ha	110,000 ha	Commitment is being delivered
Advocacy and information****	149 public responses Annual media & publicity	127 public responses Annual media & publicity	173 public responses Annual media & publicity	353 public responses Annual media & publicity	425 public responses Annual media & publicity	Commitment is being delivered
Working with others	Member of & support for Wild for Taranaki	Member of & support for Wild for Taranaki	Member of & support for Wild for Taranaki	Member of & support for Wild for Taranaki	Member of & support for Wild for Taranaki	Commitment is being delivered

* In 2022/2023, in conjunction with an expanded surveillance programme a successful publicity programme was undertaken, a large number of previously unknown infestations of moth plant were identified making it difficult to treat all infestations that financial year.

** In 2022/2023 there was no extension of the programme as Council undertook a complete retreatment of previously treated areas

*** There has been no extension of the Self-help Possum Control Programme and therefore no new initial possum control. Differences in the number of properties and spatial extent is a statistical anomaly partly attributed to changes over time in farm amalgamations and creation of new lifestyle properties etc, and the removal of the Zero possum control area from the Programme.

**** Years 2018/2019, 2019/2020 and 2020/2021 do not include advocacy and education associated with other harmful plant and animal species.

¹⁴ This section is based largely on information contained in Council's annual reports prepared under the Local Government Act 2002. For a fuller reading of pest management activities in the annual reports, please refer to **Appendix V**.

5 Potential change factors

A lot may change in five years.

*Section 5 evaluates the on-going relevance of the Plan in terms of major changes in law and/or other policy drivers that have emerged since the adoption of the Plan and which have the **potential** to impact or impinge on that Plan.*

For each potential change factor, an assessment is made on the significance and timeliness of making changes to the Plan (i.e. commencing an immediate full review of the Plan).

5.1 Law reform

Potential changes in law have been assessed for their implications on Plan's objectives and delivery.

Since 2018, no new legislation has so far been enacted that has a bearing on the Plan although Government proposals to reform the BSA, consider the development of a nationwide cat management framework, and, to a lesser extent, reform the resource management system may have implications in the near future.

In July 2019, the Government announced that they would overhaul the BSA. Amongst other things, the Government is seeking to amend the Act to –

- include a purpose statement;
- include a set of guiding principles;
- address how Te Ao Māori should be reflected in biosecurity regulation;
- ensure there is clear and consistent roles and responsibilities across the biosecurity system; and

- address gaps in the legislation that biosecurity responses and other events have revealed.¹⁵

Progress on this review has been slow. Council has been involved in early sector discussions with Ministry for Primary Industries. However, to date, the consultative process has not formally commenced (it had been expected to commence in late 2023) and with the general election there has been minimal progress on the reforms. However, the sector is optimistic that reform will still occur.

Without pre-empting the outcomes of that process, issues raised to date are technical of nature and no fundamental overhaul of the pest management planning system is anticipated.

In August 2023, the Environment Select Committee reported back to Government with recommendations to develop a nationwide cat management framework.

The Environment Committee has recommended to government that legislation is developed to implement a nationwide cat management framework outlining that cats should be registered, desexed and microchipped with appropriate exemptions. This model would help New Zealand achieve the national goal of being predator free by 2050.

A large number of interest groups support the concept. The introduction of a national approach to cat management supports the principles of responsible cat ownership while also being integral in addressing and reducing the number of unwanted cats in New Zealand as well as protecting New Zealand wildlife.

The Environment Select Committee report acknowledged there had been a marked change in the public's attitude towards responsible dog ownership since the introduction of the *Dog Control Act* in 1996 and believed that a similar approach to cats would be a positive and significant move.

¹⁵ Ministry for Primary Industries, July 2019.

The Government was due to respond to the Environment Select Committee's report recommendation by October 25 2024, but has yet to do so. At this point in time, no change is required to the Plan. However, the Select Committee's recommendations are aligned with Council thinking and has potential implications should the Council seek to change its Plan to include feral cats in the near future (refer section 6.3 for further discussion).

This review concludes that **no significant change** is required to the Plan arising from law reform to date. However, Council will need to keep a 'watching brief' on imminent law reform, particularly when the BSA is overhauled.

5.2 Other regulation

The *National Policy Direction for Pest Management* adopted in 2015 remains the only national policy direction so far prepared by the Government pursuant to section 57(7) of the BSA. No changes have been made to that Direction since its promulgation. The Plan complies with the direction and no changes are required.¹⁶

For the purposes of this review, other recently promulgated national policy instruments were also assessed for their implications on the Plan.

On 7 July 2023, the Government promulgated its *National Policy Statement for Indigenous Biodiversity* (NPS-IB)¹⁷ under the *Resource Management Act 1991* (RMA).¹⁸

The NPS-IB seeks to better protect New Zealand's indigenous biodiversity. While the NPS-IB does not have any explicit provisions relating to pest management (nevertheless some of these provisions are unlikely to be achieved without effective and sustained pest control.

Of potential relevance to this review, the NPS-IB includes requirements for Council to –

- protect both acknowledged and identified taonga (clause 3.19(4) of the NPS-IB);
- restore degraded significant natural areas, threatened and rare ecosystems, important buffering or connectivity areas, wetlands, urban areas or other areas that align with national priorities (clause 3.21 of the NPS-IB); and
- prepare biodiversity strategies that include actions and methods intended to promote the maintenance (clause 3.23 and Appendix 5 of the NPS-IB).

Other national policy statements under the RMA such as the *National Policy Statement for Freshwater Management 2020* were also examined but were concluded not to have provisions that impact or impinge on the Plan.

This review concludes that **no significant change** is required to the Plan arising from the promulgation of new national policy directions or regulations. However, increased expectations from the Government for councils to achieve enhanced indigenous biodiversity outcomes are noted and there maybe merit to address new concepts such as taonga species when Council next reviews its Plan and/or as part of a review of its Biosecurity Strategy.

5.3 New Zealand Biodiversity Strategy

In August 2020, the Government released *Te Mana o te Taiao – The Aotearoa New Zealand Biodiversity Strategy*.¹⁹ This strategy is not legally binding but sets out a strategic framework for 2020 to 2050 on how New Zealand will seek to protect, restore and sustainably use indigenous biodiversity. The Strategy supports New Zealand's international obligations under the *United Nations Convention on Biological Diversity*.

¹⁶ Pursuant to section 74(a)(i) of the BSA, regional pest management plans must not be inconsistent with the national policy direction.

¹⁷ Ministry for the Environment, July 2023.

¹⁸ Regional Councils are responsible for protecting indigenous biodiversity under section 30(1)(ga) of the RMA. These responsibilities will be retained under the proposed reforms.

¹⁹ Department of Conservation, August 2020.

Te Mana o te Taiao contains 54 goals grouped under three pou (pillars) or priority areas: Tūāpapa – getting the system right, Whakahau – empowering action, Tiaki me te Whakahaumanu – protecting and restoring.

On 20 April 2022, the Minister of Conservation, launched the implementation plan for *Te Mana o te Taiao*.²⁰ The implementation plan sets out a pathway for achieving the outcomes of *Te Mana o te Taiao* over the next 30 years, with an immediate focus on establishing systems that will stimulate and sustain nationwide action.

The implementation plan identifies central and local government actions to achieve a number of these goals by 2025 and specifies who is leading those actions.

Not surprisingly, the implementation plan identifies “...addressing the ongoing threat of introduced pest species and weeds, which is being extended by the increasing range of new biosecurity threats driven by a changing climate” as a priority. There is an expectation that councils prepare pest management plans, undertake advice and information, provide funding support for pest management activities. Activities that Council (and others) has been doing for a while.

This review concludes that **no significant change** is required to the Plan. Through preparation, adoption and implementation of the Plan (and Biosecurity Strategy), Council is already giving effect to *Te Mana o te Taiao* and its implementation plan.

5.4 Predator Free 2050

In 2016, the Government set an ambitious goal to eradicate possums, mustelids and rats by 2050. These three introduced predators were identified as causing the greatest harm to New Zealand’s indigenous fauna.²¹

This goal and programme of work is carried out under the banner of *Predator Free 2050*. The government has set up a company (Predator Free 2050 Limited) to fund predator control projects and work with others, including tangata whenua, volunteers, government agencies, businesses,

councils, scientists, non-governmental organisations (NGOs), philanthropists and community groups.²²

Towards Predator-Free Taranaki is the only Predator Free 2050 funded initiative in Taranaki. It supports and complements another project, the *Taranaki Mounga* project. The *Taranaki Mounga* project is a collaboration between DOC, Taranaki iwi Chairs forum and philanthropic investors NEXT Foundation, and Toi Foundation. The project includes 34,000 ha of national park encompassing Taranaki, Pouakai, Kaitake and the protected Ngā Motu/Sugar Loaf Islands. *Taranaki Mounga* aims to restore and revitalise the environment so wildlife will once again flourish in this treasured place. Both initiatives support and complement each other’s efforts.

This review concludes that **no significant change** is required to the Plan. Council is already giving effect to and advancing *Predator Free 2050* objectives. However, as discussed in section 6.3 below there may be opportunities to advance predator control further through a Plan change that declares feral cats to be a pest.

5.5 Iwi management plans

There are eight recognised iwi within the boundaries of the Taranaki region. Six of the eight iwi have developed iwi management plans.

Iwi management plans are resource management plans prepared by an iwi as an expression of rangatiratanga to help exercise their kaitiaki roles and responsibilities in relation to resource management. Under the RMA. Councils must take into account these plans when developing their own plans.

At the time of this review, there are six iwi management plans – four of these were released subsequent to the adoption of the Plan –

- Te Korowai o Ngāruahine Trust – Ngāruahine Kaitiaki Plan, Te Uru Taiao o ngāruahine (2021)
- Ngati Mutunga Iwi Environmental

²⁰ Department of Conservation, August 2020.

²¹ Department of Conservation, 2021.

²² Department of Conservation, August 2020.

Management Plan (2019)

- Te Atiawa – Tai Whenua, Tai Tangata, Tai ao (2019)
- Taranaki Iwi –Taiao, Taiora (2018)
- Ngati Ruanui Environmental Management Plan (2012)
- Ngaa Rauru Kaitahi – Puutaiao Management Plan (post 2008, date not specified in the plan).

Appendix IV sets out pest management provisions set out in iwi management plans.

A review of the aforementioned iwi management plans identifies pest management to be an issue of significant concern to iwi. Iwi management plans highlight the significant harm caused by introduced pests are having in their rohe, particularly in relation to impacts on indigenous biodiversity which, in turns, negatively affects mahinga kai and the mauri and wairua of the environment generally and the continuing traditions and practices of tangata whenua.

Iwi see it as important that pest management and biosecurity measures are in place to protect and enhance biodiversity throughout Taranaki and minimise the threats of pest plants and animals. The need to protect the Taranaki Mouna is a consistent theme across most iwi management plans.

Some iwi management plans voice a lack of engagement with them on biosecurity and pest control matters and seek more involvement in the management and control of invasive species. In addition to the above, some plans are concerned about the chemicals used for pest control on land and the possibility of chemicals entering waterways through run-off. More recently iwi and hapu have voiced some concerns about the use of biocontrol agents being released to control pest plants (which Council is currently addressing).

This review concludes that **no significant change** is required to the Plan arising from the development of iwi management plans. In most respects, the Plan already gives effect to tangata whenua

expectations. Notwithstanding that, going forward, there is merit in Council reviewing its Governance,²³ engagement and operational arrangements to better engage with tangata whenua during planning processes and to incorporate their issues and Te Ao Māori world view in future plans.

5.6 Summary of Plan relevance

After having regard to change factors, this review confirms that the Plan **continues to be relevant**. There have been no changes in legislation or in national and local policy settings that necessitate immediate Plan change.

While it is noted that there are increasing national and local expectations on councils to do more to protect indigenous biodiversity values. Nevertheless, as demonstrated by Council investment in strategies, plans and programmes, it is already well placed to meet these challenges. Indeed, the Plan has stood the test of time well.

Set out in Table 3 overleaf is a summary of the relevance of the Plan having regard to potential change factors.

²³ In some respects, this is not starting from scratch. Council has already made progress with this with the adoption of a Māori ward, iwi representation on the Council's Policy and Planning Committee and Consents and Regulatory Committee, and iwi representation on Wild for Taranaki.

Table 3: Summary of change factors and the ongoing relevance of the Plan

Potential change factors	Is the Plan still relevant	Comments
1. Law reform	Yes	Council will need to keep a 'watching brief' on Government proposals to reform the BSA. However, at this point in time, there is no need to change the Plan.
2. Other regulation	Yes	Increased regulation relating to protecting biodiversity. However, at this point in time, there is no need to change the Plan
3. NZ Biodiversity Strategy	Yes	Non statutory strategy that Council is already giving effect to. At this point in time, there is no need to change the Plan
4. <i>Predator Free 2050</i>	Yes	Council is already giving effect & advancing <i>Predator Free 2050</i> objectives. At this point in time, there is no need to change the Plan
5. Iwi management plans	Yes	Four of the six iwi management plans were developed following adoption of the Plan. The Plan already largely gives effect to iwi expectations & aspirations relating to pest management. At this point in time, there is no need to change the Plan. However, future Plan reviews need to better recognise tangata whenua issues & Te Ao Māori

6 Opportunities and constraints

Section 6 discusses opportunities and constraints to do more and/or address operational issues highlighted in the previous chapters. Seven questions are posed –

1. *Do we need to do more for biodiversity?*
2. *Do we want increased possum control in the Self-help Possum Control Programme?*
3. *Do we want to do more possum control in the eastern hill country?*
4. *Do we want feral cat control?*
5. *Do we want ungulate control?*
6. *Are going to continue to rely on land occupier obligations for possum control?*
7. *If we want to do more, how to we pay for it?*

In relation to questions posed, recommendations are presented. Some of the recommendations (if adopted) would necessitate changes to the Plan.

6.1 Do we need to do more for biodiversity outcomes?

Section 5 of this report highlights increasing Government and community expectations for Council to do more in relation to avoiding, remedying or mitigating the impacts of ‘pests’ on indigenous biodiversity.

The first thing to note, is that Council is well placed to do more. However, not everything requires a regulatory response (or needs to be addressed in the Plan).

The Biosecurity Strategy includes a suite of significant but non-regulatory programmes essential to protecting biodiversity values in the region. They include activities targeting pathways for invasive species not declared pests and undertaking site-led pest control in Key Native Ecosystems for all harmful plant and animal species (and not just declared pests).

The second thing to note is that through its Plan and Biosecurity Strategy (and Biodiversity Strategy) and supporting programmes, Council is already meeting many of these expectations. In particular, the Plan includes ambitious innovative programmes that are, amongst other things, rolling back old man’s beard infestations in the Kaūpokonui and the Waingongoro rivers, and expanding predator control across the ring plain.

The third thing to note, is that should Council wish to do more in relation to a regulatory response (with possible changes to the Plan), it is well placed to leverage off existing programmes to achieve superior indigenous biodiversity outcomes. In particular, there are opportunities for Council to do more –

1. possum control (refer sections 6.2 below);
2. feral cat control (refer section 6.3 below); and
3. ungulate control (refer section 6.4 below).

6.2 Do we want increased possum control?

This section discusses two opportunities for Council to achieve better indigenous biodiversity outcomes through possum control. First, Council could increase the level of control undertaken. Second, Council could expand sustained possum control into new areas.

6.2.1 Increased level of control in the Programme

The level of possum control sought depends on the values being protected. The Plan’s compliance level for possums in the Self-help Possum Control Programme is 10% RTC.

Five years on, it is questionable as to whether 10% RTC is sufficient to protect indigenous biodiversity values properly.

While 10% RTC is suitable for the protection of broadleaf vegetative canopy, it does not address the predator aspects of possums. Nor does it protect more sensitive fauna species. Where

possums are present, there is inevitably a reduction in the vigour, density and diversity of native flora and fauna species in the area.

RTC targets in conservation operations are typically <3% or <5%.²⁴ Residual possum densities required for conservation will vary depending on how sensitive local species/ecosystems are to possum impacts (*Reddiex et al. 2007*). For example, RTC of 3% or less was required to protect mistletoe (*Sweetapple et al. 2002*); common broadleaf species at Matamateaonga could tolerate possum densities up to 25% RTCl (*Nugent et al. 2001*).

To reduce the Plan's 10% RTC target to 3 or 5% would significantly enhance the benefits of possum control for biodiversity benefits.

First, it better addresses the predator aspects of possums and supports *Predator Free 2050* objectives. Aiming for maintaining possum numbers at a 3 to 5% RTC would allow our indigenous natural taonga species like native birds, bats, and invertebrates to recover and thrive in remnant areas (and the wider environs).

Second, many remnant areas contain rare and endangered flora species – species that may be particularly sensitive to possum browsing habitats such as native mistletoe.

The challenge for Council is that a 3 to 5% RTC represents a **significant change** in the obligations and cost of the Plan and would necessitate a full review of the Plan. It would also involve a reconsideration of some of the underlying premises underpinning the current Self-help Possum Control Programme. For example, is it realistic to expect farmers to have the technical expertise or bear the cost of meeting a lower compliance target when they are already struggling with complying with the 10% RTC compliance target? Second is it fair, to impose such obligations and costs on farmers when the public benefits exceed the private benefits? It is suggested that such a level would be more appropriately delivered by Council and funded by the region. This is discussed further in sections 6.5 and 6.6 below.

6.2.2 More possum control in the hill country

In the eastern hill country, outside of the Self-help Programme, possum numbers are much higher at around 30% RTC.

To date, Council efforts in the eastern hill country has been on encouraging voluntary possum control. Council has been providing technical advice and support for community groups such as Lake Rotokare, East Taranaki Environment Collective, and Parininihi. Historically, this has included Council undertaking direct control, particularly where community projects were reliant upon Council's technical expertise (and powers) to undertake aerial 1080 operations.

Many of the community-led projects are significant in scale. East Taranaki Environment Collective involves possum (and other) control over on 13,000 ha in the remote country east of Inglewood. Its pest operations protect kiwi, kokako, New Zealand long-tailed bats and other native species.²⁵ Parininihi consists of 2000 ha of coastal to inland forest, stretching from the dramatic Whitecliffs inland to Mt Messenger where Ngāti Tama has been undertaking pest control, species recovery and translocations to protect the area.²⁶ There are also a significant number of large Key Native Ecosystems in the eastern hill country that provide an important buffering and connectivity role.

The Plan's underlying premise that it is unfair to require (through rules) private land occupiers to undertake possum control in the eastern hill country has not changed. Possum numbers are too high and the presence of large tracts of public conservation estate makes control problematic. It would be unfair to expect land occupiers to bear the cost of control when the benefits are principally public. Accordingly, any increased possum control in the hill country should be publicly funded.

If the Council is interested in undertaking more possum control in the eastern hill country to promote biodiversity outcomes, additional funding support needs to be considered.

²⁴ Glen (2014) notes that the percentage RTC target set for possum control operations depend on the values to be protected, and the sensitivity of species to possum browsing.

²⁵ Refer <https://etec.org.nz/projects/>.

²⁶ Refer <https://parininihi.co.nz/pest-control/>.

Consideration also needs to be given on whether that control needs to be delivered through a regulatory or non-regulatory programme. A non-regulatory programme does not necessitate a change to the Plan. However, if success of the programme depends on accessing Part VI of the BSA to enter onto land and undertake works, this would represent a **significant change**. A full review would therefore be necessary to test the proposition.

6.3 Do we want feral cat control?

The ‘pest’ impacts of feral cats in New Zealand have been well canvassed.²⁷ It has been argued that feral cats or stray cats are a bigger threat to native birds than ferrets or stoats.²⁸ In addition, feral cats pose a risk in spreading toxoplasmosis in marine environments²⁹ and may contribute to the spread of bovine tuberculosis among cattle.

Accordingly, there have been persistent and ongoing calls for Council to declare feral cats to be a pest. Morgan Foundation and Royal Forest and Bird both sought for feral cats to be included in the Plan during its development in 2018.³⁰

In 2021, during the partial review, Forest and Bird again sought that feral cats be declared a pest arguing feral cat control was necessary in the Council’s attempts to make the region predator free by 2050. At the time, Council declined the relief sought but did undertake to further investigate the case for making cats a pest.

In November 2021, a forum was held by Wild for Taranaki to discuss how to progress cat control within the Taranaki region. An outcome of the forum was a request that Council develop a regional cat management strategy (along with district councils, DOC and interested parties). It was suggested that a strategy would provide a definition for feral cats, require microchipping and

de-sexing, and adopt other practical measures to protect native wildlife.

In response, Council agreed to report back on what a regional cat strategy might look like but noted that any strategy would be non-regulatory and, for rules to apply, its Plan would need to be reviewed as part of a statutory process.

Subsequently, Council commissioned the report *Review of Cat Management Options*.³¹ The report, which was based on recommendations by the New Zealand Cat Management Strategy Group (NZCMSG), examined potential options to managing cats at a regional level.³² It discussed cat category types (feral, stray, and domestic) and the feasibility of potential programme goals.

The report presents a ten-step roadmap for developing a regional cat management strategy and presented options on where Council could undertake or lead in relation to cat control. Most of the report’s recommendations for Council are non-regulatory – except for the recommendation that Council consider amending the Plan to include feral and stray cats.

This review concurs that there would be significant advantages to amending the Plan to include feral cats as a pest. Inclusion of cats in the Plan would enable clear objectives and measures to be set to manage cats within the region. Regulatory control (through rules and/or access to the Part VI powers of the BSA) would allow for more strategic and coordinated feral cat control that would not be possible by relying on non-regulatory means alone. It would help support restoration efforts for areas containing sensitive wildlife such as roosting birds and rare and threatened fauna species.

If Council is agreeable to the above, further work is required to confirm programme design. However, as a starting point, programme design should include the following key element –

- declare feral and stray cats to be a ‘pest’

²⁷ *New Zealand Cat Management Strategy Group (2020). [New Zealand National Cat Management Strategy Group Report](#).*

²⁸ *Place Group report 2023 noted that more feral cats than mustelids are being caught in Hawke’s Bay’s predator control programme.*

²⁹ *Toxoplasmosis, which is spread by cat faeces entering waterways, is believed to be the primary cause of deaths of the rare Maui’s and Hector dolphin along the North Island’s west coast.*

³⁰ *Taranaki Regional Council, 2017.*

³¹ *Place Group, 2020.*

³² *NZCMSG includes representation from Local Government NZ, SPCA and the Morgan Foundation. Refer NZCMSG, 2020.*

and declare domestic cats a 'pest agent';³³

- include definitions for feral cats, stray cats and domestic cats based on them being micro chipped and de-sexed;
- develop a site-led programme targeting feral/stray cat control (and restrictions) for the protection of sensitive wildlife areas;
- through the site-led programme, Council to undertake direct control of feral and stray cats to protect sensitive wildlife areas, including access to Part VI powers of the BSA;³⁴
- develop a rule for feral/stray cats prohibiting people from their actions or inactions from exacerbating feral cat impacts on sensitive wildlife areas; and
- consider developing pest agent rules for domestic cat that:
 - prohibits the holding, keeping, or harbouring of domestic cats in or near sensitive wild area unless desexed and microchipped; and
 - prohibits the release of any domestic cat into the wild (as an offence under Section 154N of the BSA).

Declaring feral cats to be a pest would clearly be a contentious action but aligns with the Environment Select Committee's (refer section 5.1 above) recommendation for improved management of cats. Any proposal to include feral cats in the Plan represents a **significant change** and is likely to generate significant public interest and. A full review would therefore be necessary to test the proposition.

6.4 Do we want ungulate control?

Ungulates refers to any animal with hooves and includes feral goats, deer, and pigs.

The impacts of ungulates on indigenous biodiversity and ecosystem health in New Zealand are well documented. Where present in moderate to high densities, ungulates' browsing habits reduce the density and complexity of forest understorey.

Feral goats and deer will eat the foliage of most trees and plants and quickly destroy all vegetation within their reach, eating seedlings, saplings and litter-fall off the forest floor. They do however have strong preferences and will eat out favoured species first such as broadleaf (*Griselinia littoralis*) and mahoe (*Melicactus ramiflorus*) before moving on to less desirable plants. Goats and deer will also strip bark off trees and by eating young seedlings can effectively put a stop to forest regeneration.

Feral pigs can also be very damaging through their foraging and rooting habits. Feral pigs are contributing to the decline in the numbers of native snails (*Powelliphanta spp.*) by destroying snail habitat and eating snails and their eggs. Pigs can also directly threaten ground-nesting birds.³⁵

In Taranaki, feral goats have been successfully eradicated in Te Papakura o Taranaki (Egmont National Park) and the Park has no deer or pigs. On the ring plain, ungulates are not a problem. However, in the eastern hill country, high numbers of ungulates do represent a major problem.

The costs of undertaking ungulate control are such that control should be voluntary. Land occupiers (including DOC and other interested parties) are better placed to make decisions on necessity to undertake control. Notwithstanding that, significant community-led ungulate control is being undertaken in the hill country and there may be opportunities for Council to leverage off and support these projects to achieve more substantial and wider biodiversity gains in the hill country.³⁶

This review suggests Council consider, as part of its

³³ *Pest agent, in relation to any pest, means any organism capable of— (a) helping the pest replicate, spread, or survive; or (b) interfering with the management of the pest (Section 2, BSA).*

³⁴ *Recognises that farmers are busy and may not have time to do the feral cat control work sought.*

³⁵ *Landcare Research, June 2012.*

³⁶ *Regulatory intervention (introduction and enforcement of a land occupier rule to undertake control) is not considered appropriate. In 2013, Council undertook an assessment of candidate pest species including ungulates and concluded that given the lack of realistic options to manage these species over large areas, Council should focus on a site-led approach.*

review of its Biosecurity Strategy, increased intervention to support community initiatives in sustained ungulate control as part of a non-regulatory response (subject to additional funding and resourcing – see section 6.6 below). However, **no change** is necessary to the Plan.

6.5 Are we going to continue to rely on self-help possum control?

Disregarding questions around the adequacy of the 10% RTC to achieve indigenous biodiversity outcomes (refer section 6.2.1 above), land occupiers are already struggling to meet the current 10% RTC compliance level set in the Plan (refer sections 3.2 and 4.2 above).

As highlighted in Figure 6, in 2018/2019, possum infestation levels in the Self-help Possum Control Programme were, on average, 6.9%. In 2022/2023, Council monitoring of the Programme showed possum infestations to be 10.3% RTC. This was the second year in a row where land occupiers have failed to keep possum numbers below 10% RTC (in 2021/2022, the RTC was 11.6%).

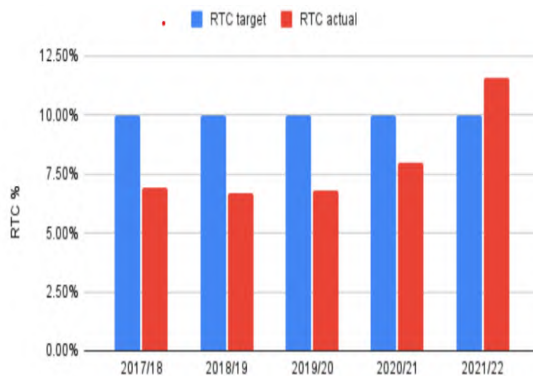


Figure 6: Mean RTC trends

‘DIY,’ where the land occupier undertakes or contracts possum control work on their property has been a cornerstone of the Self-help Possum Control Programme to date. So why are land

occupiers now struggling to undertake the required possum control? Council officers have noted the following –

- Possum control by farmers is time consuming and farmers are having difficulties fitting in control work with business-as-usual tasks. Possum control is less of a priority and even with the best of intentions, it is being done more haphazardly or missed completely.³⁷
- Possum control is becoming more costly to do. Previously, obtaining a lifetime Controlled Substances License cost \$125. Now, it costs \$800.
- Less toxins are readily available to farmers for possum control.³⁸ Other control options such as trapping are considered too time consuming.
- Less contractors are available to do farmers' possum control. Taranaki only has a few small scale (1-2 person) outfits active.

The issue of diminishing returns with the effectiveness of possum control is not confined to Taranaki. In 2023, Council joined with Waikato, Bay of Plenty, Hawke’s Bay, Horizons and Southland regional councils and commissioned Place Group Environment Planning to report on the efficiency and effectiveness of their respective programmes.³⁹

The Place Group report (2023) concluded that the efficiency and effectiveness of regional possum control programmes may have reduced overtime. The report highlighted –

- Increasing contractor costs to deliver control programmes and reduced contractor supplier pool to pick from.
- RTC exceedances, particularly where delivery of control work is undertaken by land occupiers.
- High levels of variation in the quality of possum control depending upon service delivery model adopted, i.e. staff, versus contractors, versus land occupiers.

³⁷ Collins K, 2020.

³⁸ For example, the most common bait used by land occupiers is brodifacoum as it can be used without a certified handler’s certificate. However, Brodifacoum is currently being reviewed by the Environmental Protection Authority.

³⁹ Place Group Environmental Planning, April 2023.

- Increased pressure to expand the geographic extent of programmes to deliver on *Predator Free 2050* goals.

Other issues identified were of broader significance to the sector such as the declining capability and expertise within the biosecurity industry due to a lack of clear training pathways for animal control staff, and/or limited succession planning within councils to address present and growing demand for possum control work.

To address these issues and risks with current delivery models, the Place Group report presented delivery options ranging from the *status quo* (land occupier control), the use of Council funded contractors, to Council undertaking the control itself (and a mix of the aforementioned).

In relation to Taranaki, the Place Group report recommended that Council go to a full staff model whereby the Self-help Possum Control Programme is delivered in-house by Council staff. This would involve the employment of approximately four extra full-time equivalents (and the re-tasking of some existing resources).⁴⁰

With Council undertaking control there would be no need for a general rule and Council would be responsible for undertaking the possum control (with access to Part VI powers under the BSA).

While additional ratepayer funding would be required to support the new programme, a lower RTC target could be set for 3-5% RTC. This would achieve more meaningful biodiversity outcomes that would not be possible (or reasonable) through rules.

The author is aware that further work is being done by staff to investigate this option. Table 4 below presents a brief overview of opportunities and constraints from adopting a service delivery model. If Council was to adopt a service delivery model, it would represent a **significant change** to the Plan.

Table 4: Service delivery opportunities and constraints for the Self-help Possum Control Programme

Opportunities	Constraints
<ul style="list-style-type: none"> • Consistent & coordinated possum control across the Programme • Technical expertise to achieve & maintain 3% RTC • 3% RTC equals better protection of biodiversity values, including protection of sensitive, rare and threatened species • 3% RTC equals reduced risk of spread of bovine tuberculosis • More equitable programme – that the public benefits of possum control outweigh private benefits • Reduced costs (including time) to farmers. Lets them focus on farming. • Estimated current land occupier costs per annum are ±\$9/hectare (which equates to about \$2.2 million per annum across the Programme) • Increased operational flexibility & field capacity – additional Council staff on the ground equals increased opportunities to undertake eradication control, &/or carry out on-farm surveillance to identify new incursions or confirm compliance with other rules • Less reliance (& therefore costs) by Council on contractors such as mountain surrounds operations (these costs have doubled in 4 	<ul style="list-style-type: none"> • Will require additional “targeted” rates funding • Might have to control whole area in less than 3 years if we target rate to manage risk of “I’m paying I want” • Control options will open us up to negative feedback debate • May be seen as a ‘flip flop’ from the long-standing compliance programme • Contractor work will be significantly reduced • Farmers no longer feel invested in the programme and the outcomes successful possum control achieves • Farmer reluctance to let us on property may increase (will require Part VI BSA powers)

⁴⁰ Set out in **Appendix VI** is a summary of the advantages and disadvantages of each service delivery option. Source: Place Group Environmental Planning Ltd, 2023.

years), pest plant direct control, & biodiversity works, including administration & monitoring costs

- Increased internal opportunities for staff development & advancement
- Opportunity to look at targeted biosecurity rate (most councils have one).

6.6 If we want to do more, how do we pay for it?

The discussion above identifies a number of recommendations for increasing pest management activities in the region that would be contingent upon additional funding.

In relation to the Plan, there are opportunities to increase the level of possum control on the ring plain and coastal terraces from 10% RTC to 3-5% RTC (dependent upon Council adopting a service delivery model for the Self-help Possum Control Programme) and expanding the Predator-free programme to include feral cats.

Current resourcing for the Plan's eradication objectives has also been identified as a constraint.

In addition to the above, this review has also identified opportunities to expand its service delivery operations in the eastern hill country to better support community-led projects with sustained possum and ungulate control. These do not require a Plan change but still require funding.

Council must also begin to consider what it wishes to do with its Predator-free work post the 2024/2025 financial year. Government contributions for *Towards Predator-free Taranaki* will end at that time. Presently, Council's share of

funding is \$650-700,000 per annum. Council needs to decide how quickly it wants to continue to roll out landscape mustelid control over the region. It also needs to determine its ongoing role in "Zero" eradication programme.

As part of any review, Council will need to consider extra funding. One option includes charging an additional levy on rateable land and using the funds to pay contractors to maintain predator levels. Notes that other councils (Hawke's Bay and Northland regional councils) have done similar things.

Adopting a targeted biosecurity rate (and associated programmes) represents a **significant change** to the Plan. A full review would therefore be necessary to test the proposition.

6.7 Summary of key changes

This review confirms that significant opportunities exist to improve on biodiversity outcomes and future proof the current Plan. Recommendations going forward are made. The adoption of one or more of the recommendations would represent a significant change to the Plan that would need to be tested through a public process.

Set out in Table 5 is a summary of the opportunities and constraints discussed, and their significance in terms of Plan review.

Table 5: Summary of opportunities and constraints and Plan review implications

Opportunities & constraints	Comments	Plan review implications
1. More biodiversity focused	Amend Plan (see below) to include pest management objectives & programmes with enhanced biodiversity outcomes	Significant change
2. 3 to 5% RTC possum control	Reduce 10% RTC compliance target to 3 to 5% RTC	Significant change
3. More possum control in eastern hill country	Better support voluntary possum control by community projects in the eastern hill country	No change to Plan but dependent upon additional funding
4. Declare feral cats to be a pest	Declare feral cats to be a pest	Significant change
5. More ungulate in the eastern hill country	Better support voluntary ungulate control by community projects in the eastern hill country	No change to Plan but dependent upon additional funding
6. Service delivery for possum control	To give effect to (2) above, Council moves from a rules' regime to a service delivery model for possum control in the Self-help Possum Control Programme	Significant change
7. Targeted biosecurity rate	Adopt a targeted biosecurity rate to fund (1) to (6)	Significant change

7 Conclusion and recommendations

The current Plan was made operative in 2018. Under 100D of the BSA, a full review of the Plan is not statutorily required until 10 years of it becoming operative. However, five years on, the Council has determined to undertake a non-statutory interim review of the Plan.

The purpose of the interim review is to ensure Plan objectives are being achieved, methods are being implemented, and that nothing has occurred in the intervening years that warrant making significant changes to it.

In brief, this review concludes that the Plan largely continues to be effective and efficient. Twenty pest species are successfully being addressed through rules and/or Part VI powers. In particular –

- To date, all 15 Plan objectives have largely being met. Notwithstanding that, emerging trends highlight risks to the future effectiveness of the Plan.
- Plan objectives were assessed as ‘Achieved’ for the pest plant sustained control programmes.
- Plan objectives for the possum and mustelid sustained control programmes are assessed as ‘Generally achieved’. Across most metrics their respective objectives are still being achieved. However, land occupier compliance issues need to be acknowledged and addressed.
- Plan objectives relating to eradication pest plants are assessed as ‘At risk of not being achieved’ due to resourcing constraints and the creation of a ‘backlog’ of untreated infestations as new infestations are being discovered.
- All 118 methods for implementing Plan objectives are ‘being delivered’.
- The Self-help Possum Control Programme is delivering sustained possum control and maintaining low possum numbers over 32% of the region. However, possum numbers are at the high end of what is considered acceptable (>10% RTC).
- The roll out of *Towards Predator-free Taranaki* is notable. It is a new programme, underpinned by new rules and is delivering sustained mustelid (plus possum and rat) control over 110,218 ha of Taranaki.
- Council continues to have a strong Inspectorial and enforcement focus. Most people follow the rules. However, monitoring shows that in the last two financial years some land occupiers have failed to undertake effective possum control to the extent that possum numbers across the Self-help Possum Control Programme have exceeded (slightly) the 10% RTC compliance target.
- In terms of the Plan’s relevance, this report has not identified any change factors that require immediate change to the Plan. However, increased demands on councils to do more in relation to the maintenance and protection of indigenous biodiversity are noted. However, opportunities to improve and build on in the current Plan have been identified.

Section 6 of this report discusses some opportunities to do more and/or address operational issues highlighted through this review. These ‘opportunities’, if adopted would represent significant change to the current Plan and include –

- Declaring feral cats to be a pest.
- Changing the delivery of the Self-help Possum Control Programme from DIY to a service delivery model.
- Changing the 10% RTC target for possums (achieved through rule compliance) to a 5% RTC target (to be achieved through service delivery) to better protect sensitive and rare and threatened species on the ring plain and coastal terraces.

- Updating the Plan to better recognise pest management issues of significance to iwi, including protection of taonga species.
- Increasing resourcing through a biosecurity levy to support the above plus provide additional resourcing to expand exclusion, pathway and eradication activities, and support possum and ungulate control work in the eastern hill country.

In conclusion, further investigative work is recommended to expand and test the concepts proposed (e.g. additional resourcing for delivery of eradication and possum control initiatives, biosecurity targeted rate). It is recommended that this include an early review of its Biosecurity Strategy to ensure that broader strategic and financial considerations are settled prior to commencing a full review of the current Plan under section 100D of the BSA. During that time, we can also expect BSA and resource management reform to bed in.



Taranaki Regional Council

Working with people, caring for the environment

References

Biosecurity Act 1993.

Collins, K: *Hawke's Bay Biosecurity and Biodiversity Review: An Assessment of Efficiency and Effectiveness.* Collins Consulting. 2020.

Department of Conservation: *Te Mana o Te Taiao - Aotearoa New Zealand Biodiversity Strategy 2020.* August 2020. Retrieved from <https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020.pdf>.

Department of Conservation: *Predator Free 2050 5-year Progress Report.* 2021. Retrieved from <https://www.doc.govt.nz/globalassets/documents/conservation/threats-andimpacts/pf2050/pf2050-5-year-progress-report.pdf>.

Department of Conservation: *Te Mana o Te Taiao – Aotearoa New Zealand Biodiversity Strategy Implementation Plan.* April 2022. Retrieved from <https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-implementation-plan-2022.pdf>.

Enfocus Limited: *Evaluating Regional Policy Statements and Plans – A Guide for Regional Councils and Unitary Authorities.* July 2008.

Environment Committee: *Petition of Erica Rowlands: Mandate the registration and desexing of pet cats and kittens.* Report of the Environment Committee, July 2023. Retrieved from [file:///C:/Users/lsa/Downloads/Final%20report%20\(Petition%20of%20Erica%20Rowlands\).pdf](file:///C:/Users/lsa/Downloads/Final%20report%20(Petition%20of%20Erica%20Rowlands).pdf).

Glen, A: *Animal pests: Residual Trap Catch Index for Possums v1.0.* DOCDM-1414383, 2014.

Landcare Research: *Wild Ungulate Impacts and Management in Lowland Sites in Southland Region.* Report prepared by A. David M. Latham, Nick Cradock-Henry, Graham Nugent, Bruce Warburton, and Andrea Byrom for Environment Southland. Envirolink medium advice grant 1033-ESRC242, June 2012.

Ministry for Primary Industries: *National Policy Direction for Pest Management 2015.* August 2015.

Ministry for Primary Industries: *Overhaul of the Biosecurity Act 1993 - Terms of Reference.* July 2019.

Ministry for the Environment: *Exposure Draft of the Natural and Built Environment Bill.* June 2021.

Ministry for the Environment: *National Policy Statement for Indigenous Biodiversity 2023.* 7 July 2023. Retrieved from <https://environment.govt.nz/assets/publications/biodiversity/National-Policy-Statement-for-Indigenous-Biodiversity.pdf>.

Ministry for the Environment: *RM reform update - July 2023.* Fourteenth edition, 19 July 2023. Retrieved from <https://environment.govt.nz/news/rm-reform-update-july-2023/>.

Ngaa Rauru Kaitiaki: *Puutaiao Management Plan.* December 2021. Retrieved from <https://www.rauru.iwi.nz/resources/resouces-single-page/puutiao-management-plan>.

New Zealand Cat Management Strategy Group: *New Zealand National Cat Management Strategy Group Report.* Document 3086952, August 2020. Retrieved from <https://www.trc.govt.nz/assets/Documents/Meetings/PolicyPlanning/2022/Policy-and-Planning-Committee-Agenda-26-July-2022.PDF>.

Nugent, G.; Fraser, W.; Sweetapple, P: *Top Down or Bottom Up? Comparing the Impacts of Introduced Arboreal Possums and 'Terrestrial' Ruminants on Native Forests in New Zealand.* Biological Conservation 99: 65–79. 2001.

Place Group Environmental Planning: *Review of Cat Management Options – Addressing the Impacts of Feral and Domestic Cats on Biodiversity on a Regional Scale.* Document number 3087246, June 2022. Retrieved from <https://www.trc.govt.nz/assets/Documents/Meetings/PolicyPlanning/2022/Policy-and-Planning-Committee-Agenda-26-July-2022.PDF>.

Place Group Environmental Planning: *Business Case Possum Control Delivery Models Increasing the Effectiveness and Efficiency of Possum Control Operations.* Consultant's report for Waikato, Bay of Plenty, Taranaki and Hawkes Bay regional councils, April 2023.

Reddiex, B.; Fraser, W.; Ferriss, S.; Parkes, J: *Animal Health Board Possum Control Operations on Public Conservation Lands: habitats treated and resulting possum abundance*. Department of Conservation, Wellington, 2007.

Society for the Prevention of Cruelty to Animals: *National Cat Legislation for New Zealand: Background Document*. Retrieved from https://www.sPCA.nz/images/assets/772883/1/national%20cat%20legislation_bd_v2_final.pdf.

Sweetapple, P.J.; Nugent, G.; Whitford, J.; Knightbridge, P: *Mistletoe (Tupeia antarctica) Recovery and Decline Following Possum Control in a New Zealand Forest*. New Zealand. *Journal of Ecology* 26: 61–71. 2002.

Taranaki Iwi: *Taiao, Tairora - An Environmental Management Plan for the Taranaki Iwi Rohe*. July 2018. Retrieved from <https://www.dropbox.com/s/1nwgk1ue5q9gy9/Taiao%20Tairora%20-%20Environmental%20Management%20Plan%20for%20Taranaki%20Iwi%20rohe%20-%20Online-Version.pdf?dl=0>.

Taranaki Regional Council: *Future directions for pest management in Taranaki*. Document 1008305, April 2013.

Taranaki Regional Council: *Summary of Submissions – Proposed Regional Pest Management Plan for Taranaki and Taranaki Regional Council Biosecurity Strategy*. Document number 1897988, October 2017.

Taranaki Regional Council: *Regional Pest Management Plan for Taranaki*. Document number 2732015, February 2018.

Taranaki Regional Council: *Taranaki Regional Council Biosecurity Strategy 2018 - 2038*. Document number 1908587, February 2018A.

Taranaki Regional Council: *Taranaki Regional Council 2017/2018 Annual Report*. Document number 2047154, August 2018.

Taranaki Regional Council: *Taranaki Regional Council 2018/2019 Annual Report*. Document number 2273323, August 2019.

Taranaki Regional Council: *Taranaki Regional Council 2019/2020 Annual Report*. Document number 2470149, August 2020.

Taranaki Regional Council: *Taranaki Regional Council Decisions Report on Proposal to amend the Regional Pest Management Plan*. February 2021.

Taranaki Regional Council: *Riding the Tide of Change. 2021/2031 Long-Term Plan Consultation Document*. Document 2609883, March 2021.

Taranaki Regional Council: *Taranaki Regional Council 2020/2021 Annual Report*. Document number 2793858, August 2021.

Taranaki Regional Council: *Towards Predator-Free Taranaki Project*. Memorandum to Policy and Planning Committee of 7 June 2022. Document 2896463, June 2022. Retrieved from <https://www.trc.govt.nz/assets/Documents/Meetings/PolicyPlanning/2021/pp2311.pdf>.

Taranaki Regional Council: *Towards Predator Free Taranaki – July to September 2021*. Quarterly report to Predator Free 2050 Limited, June 2022. Retrieved from <https://www.trc.govt.nz/assets/Documents/Meetings/PolicyPlanning/2021/pp2311.pdf>.

Taranaki Regional Council: *Taranaki Regional Council 2021/2022 Annual Report*. Document number 3062498, August 2022.

Taranaki Regional Council: *Natural Resources Plan Supporting Document – Analysis of Ngā Iwi o Taranaki Environmental Management Plans*. Unpublished report document number 3097229, August 2022A.

Taranaki Regional Council: *Draft Taranaki Regional Council 2022/2023 Annual Report*. Unpublished, August 2023.

Te Kotahitanga o Te Atiawa: *Tai Whenua, Tai Tangata, Tai Ao*. Environmental Management Plan, February 2020. Retrieved from <https://teatiawa.iwi.nz/tai-whenua-tai-tangata-tai-ao/>.

Te Korowai o Ngāruahine Trust: *Ngāruahine Kaitiaki Plan 2021 – Te Uru Taiao o Ngāruahine*. August 2021. Retrieved from <file:///C:/Users/Isa/Downloads/Te%20Uru%20Taiao%20o%20Ngaruahine.pdf>.

Te Runanga o Ngāti Mutunga: *Ngāti Mutunga Iwi Environmental Management Plan*. 2019 update and revision. Retrieved from <https://ngatimutunga.iwi.nz/environment/>.

Te Rūnanga o Ngāti Ruanui Trust: *Ngāti Ruanui Environmental Management Plan*. 2012. Retrieved from https://issuu.com/sarah-leerangi/docs/final_ngati_ruanui_emp_v3.

Appendix I: Plan review provisions under the BSA

100D **Review of plans**

Reasons for reviews

- (1) *The Minister or council must initiate a review of a plan as a whole if—*
- (a) *the plan is due to terminate in less than 12 months and the Minister or council proposes to extend the plan's duration; or*
 - (b) *the plan is due to terminate in less than 12 months and a person submits a proposal to the Minister or council to extend the plan's duration; or*
 - (c) *the plan was last reviewed as a whole more than 10 years previously.*
- (2) *The Minister or council may review the whole or part of a plan if the Minister or council has reason to believe—*
- (a) *that the plan or part is failing to achieve its objectives; or*
 - (b) *that relevant circumstances have changed since the plan or part commenced.*
- (3) *The Minister or council must review a plan or a relevant part of a plan if—*
- (a) *circumstances occur that are circumstances in which the national policy direction requires a review to be conducted; or*
 - (b) *any other requirement of the national policy direction requires a review to be conducted.*

Proposal for review

- (4) *A review is initiated by a proposal made by the Minister or council or any other person.*
- (5) *The proposal—*
- (a) *must state whether the proposal is to amend, revoke, revoke and replace, or leave unchanged the plan or part of the plan; and*
 - (b) *must give reasons for the proposal; and*
 - (c) *must,—*
 - (i) *if the proposal is to amend the plan or part of the plan, set out any proposed amendments in full; or*
 - (ii) *if the proposal is to revoke and replace the plan or part of the plan, set out the replacement plan or part; and*
 - (d) *must comply with section 61, 70, 81, or 90 to the extent to which the sections are relevant and reading in any necessary modifications; and*
 - (e) *may propose that a pest or pathway, as appropriate, be added to the plan, whether or not the review is of the whole plan.*

Provisions applying to reviews

- (6) *Reviews are conducted under the following sections to the extent to which they are relevant and reading in any*

necessary modifications:

- (a) *sections 59 to 67, for a national pest management plan:*
- (b) *sections 68 to 78, for a regional pest management plan:*
- (c) *sections 79 to 87, for a national pathway management plan:*
- (d) *sections 88 to 98, for a regional pathway management plan.*

Action after review

- (7) *Following the review, the Minister or council may approve—*
 - (a) *the amendment of the plan or part of the plan; or*
 - (b) *the revocation and replacement of the plan or part of the plan; or*
 - (c) *the revocation of the plan or part of the plan; or*
 - (d) *the leaving unchanged of the plan or part of the plan.*
- (8) *A plan that reaches its termination date during a review that has begun continues in force and its future is determined by the action that the Minister or council approves under subsection (7).*

Consequence of not complying with section

- (9) *A plan does not cease to be in force only because it is not reviewed as required by this section.*

100G Minor changes to plans

National pest management plan or national pathway management plan

- (1) *The Minister may recommend to the Governor-General the amendment of a national pest management plan or a national pathway management plan by Order in Council without a review under section 100D, if the Minister is satisfied that the amendment—*
 - (a) *does not have a significant effect on any person's rights and obligations; and*
 - (b) *is not inconsistent with the national policy direction.*
- (2) *The Governor-General may make the order.*
- (3) *An order under this section is secondary legislation (see Part 3 of the Legislation Act 2019 for publication requirements).*

Regional pest management plan or regional pathway management plan

- (4) *A regional pest management plan or a regional pathway management plan may be amended from time to time by a council by resolution without a review under section 100D, if the council is satisfied that the amendment—*
 - (a) *does not have a significant effect on any person's rights and obligations; and*
 - (b) *is not inconsistent with the national policy direction.*

Appendix II: Pest organisms declared to be pests in Taranaki

Table 6: Plant organisms classified as pests

Common name	Scientific name	Programme	GNR
Climbing spindleberry	<i>Celastrus orbiculatus</i>	Eradication	
Giant reed	<i>Arundo donax</i>	Eradication	
Madeira (Mignonette) vine	<i>Anredera cordifolia</i>	Eradication	
Moth plant	<i>Araujia hortorum</i> / <i>A. sericifera</i>	Eradication	
Senegal tea	<i>Gymnocoronis spilanthoides</i>	Eradication	
Giant buttercup	<i>Ranunculus acris</i>	Sustained Control	√
Giant gunnera	<i>Gunnera manicata</i> & <i>G. tinctoria</i>	Sustained Control	√
Gorse	<i>Ulex europaeus</i>	Sustained Control	√
Nodding, Plumeless and Variegated thistles	<i>Carduus nutans</i> , <i>C. acanthoides</i> , <i>Silybum marianum</i>	Sustained Control	√
Old man's beard	<i>Clematis vitalba</i>	Sustained Control	√
Wild broom	<i>Cytisus scoparius</i>	Sustained Control	√
Wild ginger (Kahili and Yellow)	<i>Hedychium gardnerianum</i> , <i>Hedychium flavescens</i>	Sustained Control	√
Yellow ragwort	<i>Jacobaea vulgaris</i>	Sustained Control	√

Table 7: Animal organisms classified as pests

Common name	Scientific name	Programme	GNR
Mustelids – ferret, stoat, weasel	<i>Mustela furo</i> , <i>Mustela ermine</i> , <i>Mustela nivalis</i>	Sustained Control	√
Possum	<i>Trichosurus vulpecula</i>	Sustained Control	√

Appendix III: Biosecurity Strategy – vision and priorities

Our vision

Taranaki has a high performing, integrated system for managing the risks and impacts of pests and other harmful organisms to the economy, environment and human health. Agencies, community groups and individuals work cooperatively, taking an integrated, efficient and cost effective approach that is based on sound science and a social mandate to undertake that work. Together we are making a significant contribution to protecting our region, people, economy and natural resources by preventing the introduction or establishment of new pests and by reducing the damage caused by pests and other harmful organisms introduced in the past.

(refer section 3)

Five priorities

We will achieve the vision by implementing the following strategic priorities for action:

Pathways and exclusion	Eradication	Sustained control	Working with others	Regional leadership
<p>Description</p> <p>Undertake risk assessments, surveillance and exclusion programmes to prevent the establishment of new invasive (and harmful) species to Taranaki or the exacerbation of existing problems</p> <p>Key actions (over life of the Strategy)</p> <ul style="list-style-type: none"> Prepare risk assessments and plans for harmful organisms that are likely to have significant impacts and are not yet present in the region Monitor high risk pathways to ensure the early detection of harmful organisms that are likely to have significant impacts on the region Support national pathway initiatives to reduce the potential spread of harmful organisms and their impacts 	<p>For invasive species not yet established in the region, increase the focus on reducing the infestation level of invasive species to zero levels in Taranaki in the short to medium term to prevent their establishment</p> <p>Key actions (over life of the Strategy)</p> <ul style="list-style-type: none"> Identify any new 'intestations' of 'eradication Programme' pests Undertake direct control of known infestations of 'Eradication Programme' pests 	<p>Implement regulatory response, including application of good neighbour rules, that provide for the ongoing control of 'pests' under the RPMP to reduce their impacts and spread to other properties</p> <p>Key actions (over life of the Strategy)</p> <ul style="list-style-type: none"> Monitor and enforce compliance with RPMP rules for 'Sustained Control Programme' pests As part of the Self-Help Possum Control Programme, maintain possum populations at very low levels Expand Old Man's Beard Programme, to support land occupiers undertaking control adjacent to the Kaupokonui and Waingongoro rivers 	<p>Facilitate and support the efforts of others in the community contributing to pest outcomes through community and site-led programmes that exclude, eradicate, contain, reduce or control invasive species to protect a site's values</p> <p>Key actions (over life of the Strategy)</p> <ul style="list-style-type: none"> Expand Self-Help Possum Control Programme to support community driven initiatives, including landscape predator control As part of an urban pest project, expand support for district councils and urban land occupiers to control predators Work with and support land occupiers and community groups undertaking pest control to protect regionally-significant biodiversity values 	<p>On the region's behalf, coordinate and lead regional responses through biosecurity planning, biological control, research, advocacy and liaison, and other assistance</p> <p>Key actions (over life of the Strategy)</p> <ul style="list-style-type: none"> Undertake biosecurity planning, including development and review of regional pest management plans Contribute to and facilitate biological control and research for harmful organisms established and widespread in the Taranaki region Provide advice and information to avoid, remedy or mitigate the spread of harmful organisms and their impacts Undertake advocacy and liaison to support government or industry-led pest initiatives

(refer sections 4 to 8)

Outcomes

Key outcomes delivered by the Strategy by 2038 that contribute to the vision are:

- To aim to have no new harmful organisms established in the region (noting that achieving this outcome is largely dependent upon the actions of others)
- Climbing spindleberry, Giant reed, Madeira vine and Serialeal tea eradicated from the region
- Wide spread pests and weeds having regionally significant impacts are being managed to an appropriate level that, at the very least, reduces adverse impacts on neighbours
- Across the ring plain (over 32% of the region), possums and predators are being maintained at very low levels to protect remnant indigenous ecosystems and wildlife
- Biosecurity policy in the region is informed by strong science and robust information.

Appendix IV: Analysis of iwi management plans

Taranaki

Papatūānuku

11.2.2.2. *Papatūānuku will be lush, healthy and sustaining for all. Her native forest cover will be thriving and free of pests; p.22.*

Taranaki Mounga

11.8.2.2. *Taranaki Mounga will be given comprehensive protection; risks of damage from invasive weeds and pests will be removed in order for native flora and fauna to flourish in abundance; p.35.*

11.8.2.3. *The korowai of native habitat will proliferate and flow down the sides of the mounga towards the sea; p.35*

11.8.2.4. *All water that flows from the mounga will be given active protection from the detrimental impacts of human activity, wider environmental degradation and invasive species to ensure waterbodies are maintained in a pristine state; p.35*

POLICY 11.2.3.3

Pest control to prioritise invasive pest species having a serious negative impact on the whenua, reducing to levels where endemic ecosystems become resilient and re-established in our rohe;

All existing forest remnants are protected from browsing animals, other pests and built development with active management and plans for enhancement and extension of these remnants where possible;

ISSUE 11.2.1.9 Poorly designed subdivision and development can lead to unsustainable and inefficient land use, destruction of wāhi tapu and other important sites, loss of access to areas, an increase in pests, and more pressure on water resources through abstraction and direct and indirect discharges; p.22

POLICY 11.2.3.11

Ensuring that the development does not result in increased levels of pests and predation in the area, including the consideration for excluding cats and other domestic pets with the potential for harm; p.23

Ensuring that if earth is brought into a site that it is free of weeds and other pests; p.23

POLICY Subdivision 19

Require restrictive covenants or conditions on new titles which prohibit use of pest plant species p. 85

Issue 11.5.1.6 The inadvertent and deliberate introduction of freshwater pests, such as didymo, trout, oxygen weed etc. represent serious harm to waterbodies and the ngāi tipu me ngāi kīrehe within them; p.29

Issue 2. Native plant and animal species are in decline due to the removal of native bush, invasive plant and animal pests, land use changes and modification of landscape and freshwater systems; p.31

Ngati Mutanga

Pest Management

To support pest management for the purposes of restoring indigenous biodiversity, but ensure that pest control operations avoid non-target adverse effects on the environment and our cultural values.

Ensure we are kept updated and informed on current and newly introduced methods of pest control and ensure the most effective and appropriate methods are used under any given circumstance. p.34

1080 (Sodium Flouroacetate)

To ensure that 1080 is only used when it is the most appropriate form of pest control available. p.36

Pests

To support pest management and ensure that pest control operations avoid adverse effects on the environment and our cultural values.

To take a more active role in pest control within the Ngāti Mutunga rohe

Encourage and support private land owners to carry out sustainable and effective pest control over their land

Promote education about the value and importance of pest control. p.78

POLICY Forestry 9

Require forest managers to manage plant and animal pests in the forests. P.91

Riparian zones- Policy 5

Oppose planting of willow or other pest weed species in riparian areas. P.66

Te Atiawa

Weed and pest management

Ob.TTTT4.1

Eradicate introduced weeds and pests that are causing adverse effects to protect and enhance our native biodiversity whilst avoiding adverse effects on the environment and species. p.78

Pest control with toxins

Ob.TTTT 5.1

Support General Objectives which provide for Te Tai o Tāne Tokorangi, Te Tai Awhi–Nuku, Te Tai o Maru and Te Tai o Tangaroa. p.79

POLICY Mahinga Kai 5

Ensure that plant pest and animal/bird control programmes avoid adverse impacts on mahinga kai species or to areas of cultural significance. P.76

Ngāruahine

Tāne issues

The current approach to controlling invasive pest animal and plant species is based on an eradication/retribution ethos. Any use of toxic substances is of great concern to Ngāruahine particularly where terrestrial and fresh water mahinga kai resources may be harmed or contaminated. P.48

POLICY 1.1

Land users and consent authorities are encouraged to engage with TKoNT to understand the impacts on the mauri of Papatūānuku for the following:

- a. Waste management, contaminants and contaminated land;*
- b. Pest Management;*
- c. The use of hazardous substances. P. 32*

Ngāti Maniapoto

Biodiversity issues 19.2.1.1

The decline, degradation and damage of indigenous habitats and species including native fisheries, frogs, freshwater mussels, tuna and the loss of native vegetation due to inappropriate land use activities and the introduction of pest plants and animals are a concern to Maniapoto. For example, the draining of swamps and wetlands, the clearing of forests and indigenous vegetation for pasture, horticulture, pine plantation and urban development has impacted on the quantity and quality of biodiversity within Maniapoto. It is therefore important to Maniapoto to protect and enhance the remaining indigenous biodiversity and ecosystem areas P.89

Appendix V: Implementation highlights 2018 to 2023

Annual Plan Activities 2018/2019 (First financial year for the operative Pest Plan)

Undertook direct control on 168 (199) eradication pest plant infestations.

Continued control of Old Man's Beard in the Waingongoro catchment, treating 17 (12) kilometres of riverbank.

Made three (2) releases of control agents to control Woolly nightshade, Tradescantia and Broom. Contributed to the Landcare biological control research programme

Undertook 428 (579) inspections with results estimating possum populations maintained to acceptable levels: 6.7% (6.9%) residual trap catch rate across the self-help possum control programme.

Undertook 1,309 (2,212) property inspections for pest plants, including a targeted programme focusing on Giant Gunnera in the Oaonui catchment.

Issued 195 (227) Notices of Direction for sustained control pest programmes, 19 (16) for possums and 176 (211) for plants.

Undertook small scale control of unwanted plant organisms on 13 (28) occasions targeting Bone seed.

Responded to 149 (124) requests for advice and, where appropriate, undertaking control action regarding Pest Management Plan for Taranaki species. Received 366 (420) notifications providing advice and information on other pests.

Undertook a publicity and education programme on pest plants.

Annual Plan 2019/2020

Undertook direct control on 106 (168) eradication pest plant infestations.

Continued control of Old Man's Beard in the Waingongoro catchment, treating 700 meters (17 km) of riverbank.

Made 4 (3) releases of control agents to control Woolly nightshade, Tradescantia and Broom. Contributed to the Landcare biological control research programme.

Undertook 747 (428) inspections with results estimating possum populations maintained to acceptable levels: 6.8% (6.7%) residual trap catch rate across the self-help possum control programme.

Undertook 1,246 (1,309) property inspections for pest plants.

Issued 135 (195) Notices of Direction for sustained control pest programmes, 39 (19) for possums and 96 (176) for plants.

Undertook small scale control of unwanted plant organisms on 2 (13) occasions targeting Bone seed.

Responded to 127 (149) requests for advice and, where appropriate, undertaking control action regarding Pest Management Plan for Taranaki species. Received 240 (366) notifications providing advice and information on other pests.

Undertook a publicity and education programme on pest plants.

Annual Plan 2020/2021

Undertook a partial review of the Pest Management Plan to include mustelids.

Undertook direct control on 121 (106) eradication pest plant infestations.

Continued control of Old Man's Beard in the Waingongoro catchment, treating one kilometre (700m) of riverbank.

Made 6 (4) releases of control agents to control Ragwort, tradescantia, thistles and a new species targeting Japanese honeysuckle. Contributed to the Landcare biological control research programme

Undertook 786 (747) inspections with results estimating possum populations maintained to acceptable levels: 8% (6.8%) residual trap catch rate across the self-help possum control programme.

Undertook 1,498 (1,246) property inspections for pest plants.

Issued 157 (135) Notices of Direction for sustained control pest programmes, 24 (39) for possums and 133 (96) for plants.

Undertook small scale control of unwanted plant organisms on 14 (2) occasions targeting Boneseed

Responded to 173 (127) requests for advice and, where appropriate, undertaking control action regarding Pest Management Plan for Taranaki species.

Received 362 (240) notifications providing advice and information on other pests.

Undertook a publicity and education programme on pest plants

Annual Plan 2021/2022

Undertook direct control on 233 (121) eradication pest plant infestations.

Continued control of Old Man's Beard in the Waingongoro catchment, re-treating two kilometres of riverbank.

Made 8 (6) releases of biological control agents to control Old Man's Beard, Tradescantia and a new species targeting Japanese honeysuckle. Contributed to the Landcare Research biological control programme.

Undertook 479 (786) inspections with results estimating possum populations have for the first time climbed above acceptable levels: 11.6% (8%) residual trap catch rate across the self-help possum control programme.

Undertook 660 (1,498) property inspections for pest plants.

Issued 82 (157) Notices of Direction for sustained control pest programmes, 55 (24) for possums and 27 (133) for plants.

Undertook small scale control of unwanted plant organisms on 16 (14) occasions targeting Boneseed and for 1 Houttuynia infestation

Responded to 353 (535) requests for advice and, where appropriate, undertaking control action regarding pest issues.

Increased publicity and education programmes on pests through a new pest bulletin

Annual Plan 2022/2023

Undertook direct control on 417 (233) eradication pest plant infestations.

Continued control of Old Man's Beard in the Waingongoro catchment, re-treating 21.5 km (2) of riverbank.

Undertook 278 (479) inspections with results estimating possum populations have remained above acceptable levels for a second year: 10.3% (11.6%) residual trap catch rate across the self-help possum control programme.

Undertook 3350 (660) property inspections for pest plants.

Issued 55 (82) Notices of Direction for sustained control pest programmes, 26 (55) for possums and 29 (27) for plants.

Undertook small scale control of unwanted plant organisms including 19 (16) Boneseed, 3 (1) Chameleon Plant, 4 (0) Purple Loosestrife, 1 (0) Royal Fern, 1 (0) Alligator Weed infestations. A species new to Taranaki, Alligator weed, was detected following a public awareness campaign. An intensive control operation was undertaken and is showing early success, ongoing monitoring and control will be required for at least 4- 5 year

Responded to 425 (488) requests for advice and, where appropriate, undertaking control action regarding pest issues. These enquiries consisted of 287 (355) Biosecurity, 46 (32) Biodiversity, 92 (101) Predator Free enquiries.

Increased publicity and education programmes on pests through a new pest bulletin.

Appendix VI: Summary of possum control service delivery options

Table 8 sets out a summary of advantages and disadvantages set out in the Place Group Environmental Planning Group report 2023. It excludes mixed service delivery options that were also considered (but which did not score high enough to be a preferred option).

Table 8: Summary of possum control service delivery options

Delivery model	Advantages	Disadvantages
<p>Full contractor model</p> <p>Whole programme delivered by contractors</p>	<ol style="list-style-type: none"> 1. Experienced people who already have the tools & knowledge to do the work & are used to having to meet high standards of government agencies such as OSPRI, Council, MOH etc 2. Contractors have a long history of working in the region, they know the landscape & they hold a lot of relationships. Sometimes this can be the difference between gaining access or not 3. Where there is competition with other pest control businesses, this drives efficiency & quality of work. This enables better outcomes of control 4. Already set up with vehicles, tools, staff, experience & don't require a large injection of \$\$ to start doing large landscape control 5. Likely more innovative depending on programme outcomes 6. Potentially more agile than councils as less process to move through 7. Likely able to scale-up better in terms of staff required to deliver programme (but also dependent on same employee pool as Council) 8. Overheads included in contract price 9. Contractors use to working non-standard working hours to fit work programme & landowner needs (e.g. work best weather patterns regardless of day of week, work nights etc) 10. Contractors only get paid when working, insulating projects from additional labour costs or salaries when work is delayed 11. Contractors only paid once contracted services have been completed & are not paid until outcome is achieved 12. Contractors are engaged for a specific project purpose, so are not perceived to be wearing 'multiple hats' by landowners. 	<ol style="list-style-type: none"> 1. Need to make a profit 2. Good practice, H&S, policy & procedures unlikely to match that of the Council. Some contractors have been known to move through the work as fast as possible to increase profit margins 3. Knowledge of how the possum monitoring protocol works is a risk as some contractors skip areas they know likely won't be monitored due to the nature of the country or size of the bush 4. Don't have same flexibility to respond to emergencies & incursions as Council 5. Council cannot manage risk around cost increases. However this risk can potentially be mitigated by engaging contractors on longer-term contracts. 6. Council can't schedule work - reliant on availability of contractor 7. No Council control over succession planning to bring new skills into the biosecurity industry - does not benefit NZ inc 8. Risks where contractor monitors own work or opposition's work 9. Powers under BSA need to be authorised by Council - contractors don't have functions under BSA, e.g. cannot issue notice of direction, restricted place notices. 10. Council don't hold relationships with iwi & landowners/occupiers 11. Ability of councils with smaller rating bases to fund a contractor model, and balancing this with competing priorities and rates increases are becoming unpopular 12. Rebuilding the contractor pool can require staff input or higher costs with contractors coming in from other regional bases.

Delivery model	Advantages	Disadvantages
<p>PREFERRED OPTION</p> <p>Full staff model</p> <p>Whole programme delivered by Council staff</p>	<ol style="list-style-type: none"> 1. Do not have to make a profit, driven by quality outcomes 2. High standard of training, health and safety, policy, procedures 3. LGOIMA ensures good process is followed at all times to mitigate risk, & is looked at favourably by MOH when applying for approvals for controlled substances 4. Potential efficiencies - staff have complementary skills. Can work across multiple programmes, e.g. biosecurity & biodiversity 5. Can manage risk around costs 6. Reliability of delivery & reliability of data 7. Build in-house capability and career prospects for staff - better for Biosecurity Inc succession planning 8. Council holds relationships with landowners/occupiers making compliance & enforcement easier 9. Easier to maintain relationships with iwi 10. Certainty of supply - if a job is coming up can schedule it in 11. Flexibility to respond to emergencies & incursions 12. Can utilise powers under BSA 13. Branding on council vehicles – visibility. 	<ol style="list-style-type: none"> 1. Council staff are perceived to serve multiple functions, including compliance & enforcement. This may make staff-based work very difficult or impossible on some land where other Council/landowner matters are ongoing. 2. Initial set-up is costly for equipment & vehicles 3. Training expense especially for 'niche' work such as aerial 1080 4. Budgets unlikely to cover FTEs required (dependent on rating capacity) 5. Potentially taking over a bigger portion of contractor work could jeopardise long standing relationships with contractors 6. No competition 7. Potentially higher overheads 8. Council may not be able to attract the 'best' people in the industry into the staff roles, as these people could earn more in the private sector & may prefer the flexibility of not being Council staff 9. Potential lower productivity per FTE if staff work 'normal' council working hours & holidays 10. Employee contract terms may not ideally suit the needs of the type of contract work being done – i.e. salaried roles may not lead to efficient outcomes
<p>STATUS QUO</p> <p>Landowner/occupier model</p> <p>Responsibility on occupier to undertake control or contract out to meet their obligations</p>	<ol style="list-style-type: none"> 1. Council holds relationships with landowners/occupiers. 	<ol style="list-style-type: none"> 1. Many landowners/occupiers delivering control on small areas in uncoordinated manner, means control is piecemeal 2. Greater potential for RTC exceedance 3. Does not build capacity or capability for NZ Inc/support succession planning 4. Some landowners/occupiers 'free ride' off neighbours control work 5. Control work becomes another thing on a farmers list, & often not prioritised or undertaken at the wrong time. 6. Can't capitalise on cross-programme efficiencies or add value 7. No innovation 8. Compliance, enforcement & subsidising bait or initial control potentially makes this option costly.





Interim review of the Regional Pest Management Plan for Taranaki

Steve Ellis -Environment Services Manager

Working with people | caring for Taranaki



- Biosecurity Strategy is a high level “What we want to do”
- RPMP is the rule book per species
 - “Must control Ginger on property”



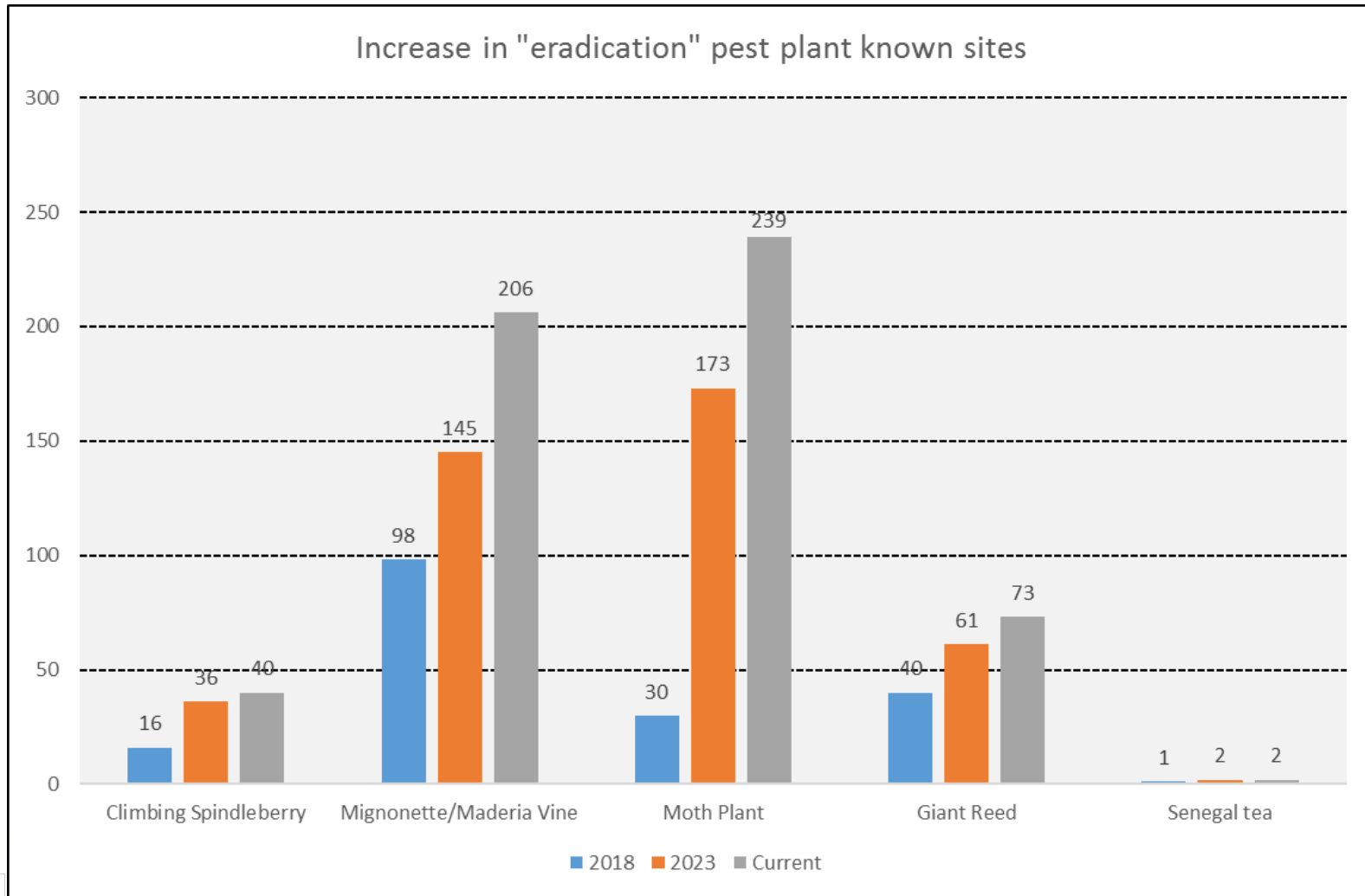
- Biosecurity Strategy is a high level “What we want to do”
- RPMP is the rule book per species
 - “Must control Ginger on property”



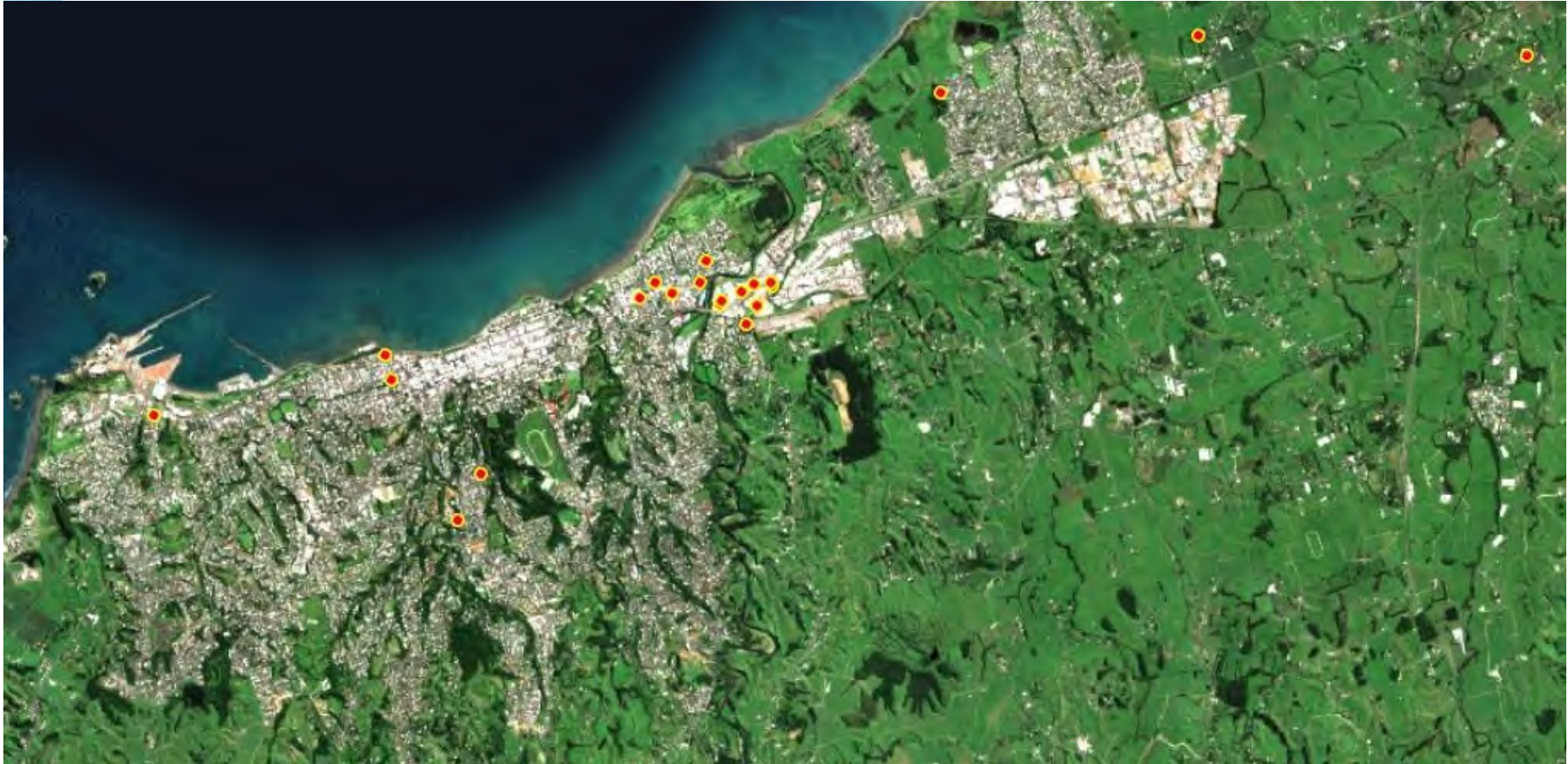
Non Statutory Interim Review - Findings

- Largely programmes working
- Increase in known infestations of “eradication” pest plants putting pressure on resources
- Possum numbers rising
- Farmers not prioritising mustelid trap maintenance
- While there is no immediate need to review Council could decide to

RPMP "eradication" pest plants

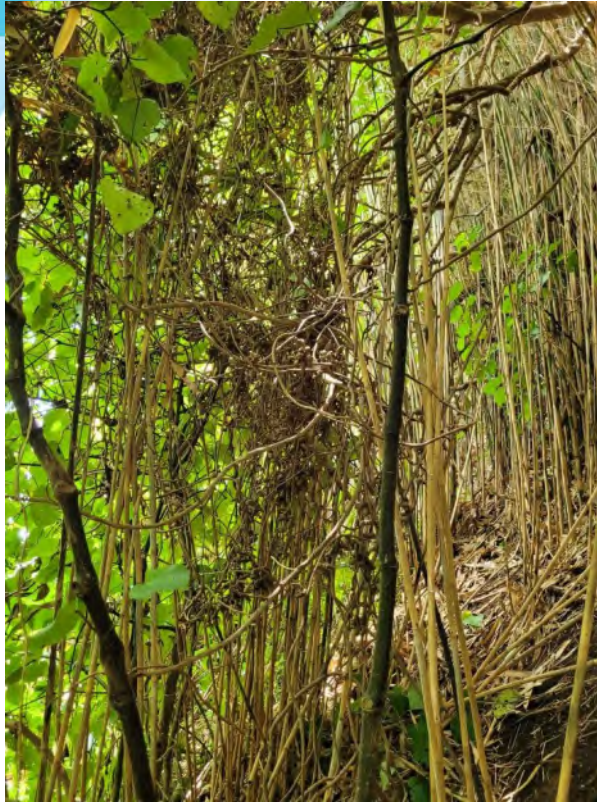


Known Moth plant 2018

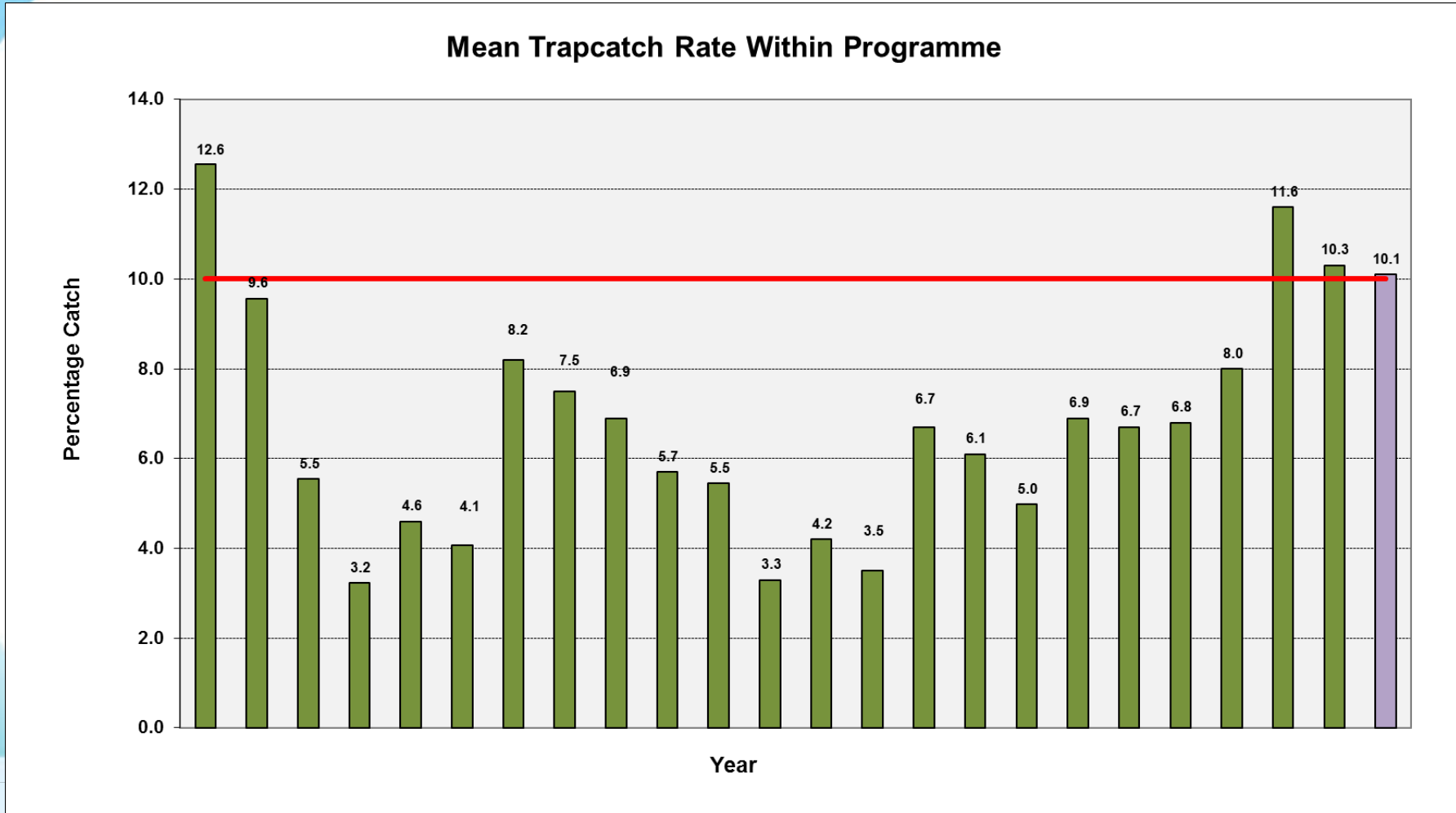


Known Moth plant – current





Possum numbers over time



Note; Current year TBC, a few lines yet to be completed

Increased enforcement needed for predator trap maintenance



Eagle Technology, Land Information New Zealand, © Crown Copyright

Opportunities and constraints

- Do we need to do more for biodiversity?
- Do we want increased possum control in the Self-help Programme?
 - Are we going to continue to rely on land occupier obligations for possum control?
- Do we want to do more possum control in the eastern hill country?
- Do we want feral cat control?
- Do we want ungulate control?
- If we want more, how do we pay for it?

Opportunities and constraints

- **Do we need to do more for biodiversity?**
- **Do we want increased possum control in the Self-help Programme?**
 - **Are we going to continue to rely on land occupier obligations for possum control?**
- Do we want to do more possum control in the eastern hill country?
- **Do we want feral cat control?**
- Do we want ungulate control?
- If we want more, how do we pay for it?

Item - Recommendations

That Taranaki Regional Council:

- receives this memorandum and attached report entitled Regional Pest Management Plan for Taranaki – Interim Review 2023
- notes that this report gives effect to a Council commitment in the 2022/2023 Annual Plan to undertake an interim review of the Plan
- notes that the Plan continues to be efficient, effective and relevant and that no immediate change is required to the Plan
- notes that opportunities to build on the efficiency and effectiveness of the Plan as part of an earlier review of the Taranaki Regional Council Biosecurity Strategy will be investigated

Early Strategy review opportunities

- Get the “what we want to do” thinking done to inform the rule book
- Inclusion of issues significant to iwi
 - six iwi now have management plans
- Increase pest programmes
 - Pathways Feral cats
 - Ungulates Extending into the hill country
- Any number of new pest plants could be added
 - Alligator weed Bone seed
 - Purple loosestrife Sea spurge
- Rules around pet pests could be considered
 - Red eared slider turtles lorikeets
 - Cockatoos

Next steps

- Crack on with LTP projects
- Discuss with the community what they want to do about pests
- Draft Pest Management Strategy
- Design programmes and rules
- Draft RPMP changes





Date: 11 June 2024

Subject: Freshwater Implementation Update June 2024

Author: L Hawkins, Policy Manager

Approved by: A D McLay, Director - Resource Management

Document: 3278064

Purpose

1. The purpose of this memorandum is to provide a Freshwater Implementation project update.

Executive summary

2. Set out in this memorandum is an update on the progress of implementing the freshwater package from central government. The memorandum focusses on the key tasks undertaken since the previous Committee meeting, and identifies risks associated with the project and achievement of the project timeframes.
3. The attached report focusses on the key streams of work associated with the freshwater package. This being policy development, implementation of the Freshwater Farm Plan (FWFP) regulations and the communications and engagement timeline.

Recommendation

That Taranaki Regional Council:

- a) receives the June 2024 update on the Freshwater Implementation Programme.

Background

4. This memorandum updates on progress in implementing the Freshwater Package. An implementation programme was previously presented to, and approved by the Committee. This report provides an overview on the progress of the work programme, specifically focusing on the previous 6 weeks and those ahead. It provides an opportunity for discussions relating to progress and risks identified.

Discussion

5. The attached report (attachment 1) provides a high level overview of the progress made since the last Committee meeting in April 2024, and identifies those tasks to be undertaken in the coming 6 weeks. It also identifies risks associated with the programme, and a copy of the high level engagement strategy.
6. Key discussion points are included in this covering memorandum to draw attention to key areas of work.

Government Announcements

7. On the 23 May the Government introduced the Resource Management (Freshwater and Other Matters) Amendment Bill (the Bill). The Bill proposes changes to the Resource Management Act (RMA) which include targeted changes for freshwater consenting, farming, coal mining and biodiversity. The Bill is the first of three phased amendments to the RMA proposed by the Government.
8. In summary, the Bill covers:
 - a. NPSFM 2020 hierarchy of obligations excluded from consideration in consent applications
 - b. Alignment of the consenting pathway for coal mining and other mineral extraction activities
 - c. Delaying the obligations for councils to identify and map new SNAs
 - d. Stock exclusion and intensive winter grazing relaxations
 - e. Speeding up the process to prepare or amend national direction.
9. At the time of preparing this memorandum, The Bill was being prepared for its first reading, and the process of the Select Committee not yet finalised, including any future consultation period. A detailed overview of the Bill and its implications will be brought to the Committee at a future meeting.

Upcoming consultation

10. Preparing for the upcoming consultation has remained a key focus for staff over the past 6 weeks. With the consultation period commencing on the 10 June, the focus will largely remain on this until the consultation period ends on 2 August. Staff are mindful that some of the consultation period will fall across calving season for our agriculture community and as such the community sessions have been planned with this in mind, and are as early as possible in the consultation period.
11. Set out below are the dates and times for in person community sessions which have been promoted around the region through social media, radio and print media adverts, and notified to relevant consent holders. The dates have also been provided to industry bodies to support any promotion of the events that they are able to do.

Date	Location	Time
17 June	Ōkato Hempton Hall 72 Carthew Street, Ōkato 4335	10am – 1pm
17 June	Ōpunake Sinclair Electrical and Refrigeration Events Centre 156 Tasman Street, Ōpunake 4616	3pm-6.30pm
18 June	Hāwera TSB Hub East Lounge Camberwell Road, Hāwera 4610	10am-1pm
18 June	Kaponga War Memorial Hall 57 Victoria Street, Kaponga	3pm-6.30pm
20 June	Urenui Community Centre 13 Takiroa Street, Urenui	11am-2.30pm
20 June	Uruti Community Hall 1672 Mokau Road, Uruti	4pm-6:30pm
21 June	Patea Hunter Shaw Building 29 Victoria Street, Patea	10am-1pm
21 June	Waitotara Hotel 1 Kaipo Street, Waitotara, New Zealand	3pm-6:30pm
24 June	Waitara North Taranaki Sport and Recreation Centre.	10am-1pm

	17 Princess Street, Waitara	
24 June	Bell Block Fred Tucker Community Centre 130 Parklands Avenue	3pm-6pm
25 June	Inglewood TET Stadium 1 Elliot Street	10am-1pm
25 June	Tarata Community Hall 1757 Tarata Rd, RD7, Inglewood	3pm-6:30pm
27 June	Stratford Centennial Rest Rooms 1A Fenton street, Stratford	10am-1pm
27 June	Te Wera Camp, 3560 Ohura Road, Te Wera	3pm-6:30pm
1 July	New Plymouth Merrilands Domain Hall 259 Mangorei Road, Merrilands, New Plymouth	10am-1pm
1 July	New Plymouth Bryan Bellringer Pavilian Pukekura Park, Liardet St	5pm-8pm

12. As mentioned at the previous meeting, the sessions will be 'drop-in' format where staff will be available for the specified time in each location. Interested persons can drop in at a time that is convenient to them to discuss draft plan provisions with staff. There will be relevant information stations at each community meeting and people will be able to self select their interest at each session. Participants will be able to provide feedback on the day, or take the questionnaire away and fill in ahead of the consultation period closing. Councillors are encouraged to attend the community sessions to listen to and support the community in engaging with the consultation. Invites to a briefing session on 4 June were extended to all Councillors to build the understanding of the format of the community events and the key issues. A full briefing pack has also been made available to Councillors.
13. Councils website hosts all relevant background information for the consultation, including factsheets prepared on the following topics:
 - a. *E. coli*
 - b. Sediment
 - c. Nutrients
 - d. Water Allocation and Takes
 - e. Farm Practice
 - f. Earthworks and Land Disturbance
 - g. Discharges – stormwater and wastewater
 - h. Dairy Effluent
14. Within each of these factsheets are key questions for the community to answer. The community may pick and choose to respond to the topic/s that are of most interest to them. There is a survey questionnaire that covers all questions for people who wish to engage online.

15. Special Interest Group meetings have also been set for the following dates and group focus as below:

Date	Special Interest Group
15 July	Government
16 July	Advocacy Groups
18 July	Industry and Commerce
19 July	Primary Industries

Working with iwi

16. Work continues with the Ngā iwi o Taranaki Pou Taiao on key elements of work, including the drafting of a tangata whenua chapter to be incorporated within the Regional Plan, and scoping the integrated management and overarching objectives and policy framework. Upcoming meetings are scheduled with Pou Taiao across the consultation period to seek feedback on the content of the consultation, as well as continue to progress policy drafting.
17. Through discussions with Pou Taiao, the following iwi have identified the opportunity to hold Marae based conversations with whanau and hāpu – Taranaki, Ngāruahine, Ngā Rauru, Ngati Tama and Ngati Mutanga. Dates and format of the sessions are still being refined, but it is expected these sessions will be held later in July.

Financial considerations—LTP/Annual Plan

18. This memorandum and the associated recommendations are consistent with the Council’s adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

19. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the Local Government Act 2002, the Resource Management Act 1991 and the Local Government Official Information and Meetings Act 1987.

Iwi considerations

20. This memorandum and the associated recommendations are consistent with the Council’s policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the Local Government Act 2002) as outlined in the adopted Long-Term Plan and/or Annual Plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum. As indicated in the body of the report, conversations relating to policy development are ongoing with iwi.

Community considerations

21. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this memorandum.

Legal considerations

22. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 3278108: Freshwater Implementation project Report

Freshwater Implementation Project Report to Policy & Planning Committee

June 2024

	Progress in the last six weeks	Key tasks in the coming six weeks	Risks
National Policy Statement for Freshwater Management	<ul style="list-style-type: none"> • Finalise nutrients target state memo to inform policy development • Preparation of consultation material for target states as well as potential management options to test with communities • Standing up a hui series with iwi pou taiao to continue discussions on: <ul style="list-style-type: none"> ▪ target states for big four attributes (flows, e.coli, sediment and nutrients) ▪ management options being investigated for consultation ▪ options for hapū and whānau level engagement during next consultation phase. • Participate in regional section conversations with regard to resource management system reform. 	<ul style="list-style-type: none"> • Executing consultation period, with a particular focus on in-person consultation events, including marae hosted events. • Participate in regional sector conversations with regard to resource management system reform. Particular focus on: <ul style="list-style-type: none"> ▪ The Resource Management (Freshwater and Other Matters) Amendment Bill ▪ S.70 and S.107 RMA case law implications • Progress further investigations to support policy development, as information is obtained from the community consultation that will refine direction. 	<ul style="list-style-type: none"> • Medium risk – Partnership with iwi. Risk that the timeframes, complexity of issues and the need to be working in an agile manner to develop the policy framework will impact on the partnership approach being fostered. Amendments to the Pou Taiao Agreement including the setting up of a steering committee to mitigate this risk. Opportunity to consider amendment to programme to providing more time and opportunity to work through policy drafting. Continue to present progress to the Wai Steering Committee. • Medium risk – participation in the community engagement is low. Mitigated through continued promotion of process, community meetings switched to being held at various locations, targeted engagement with industry groups to lessen the load on individuals. • High risk –change to direction of the NPSFM with the new government. We can mitigate against this risk by maintaining momentum on policy development, keeping abreast of policy announcements from the government, and taking pause when necessary to confirm approach as policy guidance from the government develops.
Freshwater Farm Plans	<ul style="list-style-type: none"> • Participate in regional sector conversations to respond to government considerations for FWFP updates. • Continue work on developing the framework for regional training. • Review approach and timing for preparation of the CCCV and engagement with iwi, in light of pending government direction. 	<ul style="list-style-type: none"> • Status quo – as we await further direction from the Government on likely changes to the Regulations etc. 	<ul style="list-style-type: none"> • Low risk – potential change to direction of FWFP regulations with the new government. The government has signalled the continuation of the FWFP process and Councils should expect an order in council, as such this is a low risk. The continuation of the programme will mitigate against any pressure to respond to an OIC when released.

Engagement and Communication Strategy (Policy Development)

Set out below is a high level summary of the engagement approach and timing for key components supporting the policy development. Also noted is a high level timeline for key communications and engagement activity. Note this engagement plan does not including Council working with their tangata whenua partners, this process is subject to an alternative approach led with the Pou Taiao and Council's Iwi communications advisor.

Phase	Stage	What	Who	Timing*
Phase 1	Seek to understand Focus: gathering info from audiences about what's important to them	This phase has covered seeking input on a variety of high level freshwater matters including visions for Freshwater in Taranaki, identification of values for freshwater management and feedback on the proposed FMU boundaries. Input has been sought through a variety of mediums including online surveys, social pinpoint, face to face meetings and drop-in sessions (ie Stratford A&P show).	Community and special interest groups.	Apr 2021 to Mar 2023
Phase 2	Test options Focus: building and discussion on options that meet the region's wants and needs	There are two key steps in this process: <ol style="list-style-type: none"> 1. Testing the building blocks of the National Objectives Framework. A discussion document for each FMU is being prepared and will cover visions, values, baselines and environmental outcomes. 2. Testing TASs and proposed management approaches. 3. Testing limits and targets. This phase will also likely include region wide policy framework discussions. 	<ol style="list-style-type: none"> 1. Community – via online consultation opportunity. Special interest groups including industry bodies, catchment groups, government agencies, district councils, environmental NGOs – via workshop discussions. 2. Community and special interest groups. A series of face to face meetings around the region and opportunity for online feedback. 3. Community and special interest groups. A series of face to face meetings around the region and opportunity for online feedback. 	Aug 2023 to November 2024
Phase 3	Present preferred solution Focus: presentation of best options (draft plan)	A draft plan will be compiled and through requirements of the RMA an opportunity for written feedback provided.	Clause 3 – listed in the RMA, and special interest groups.	Early 2025
Phase 4	Notification: Public submissions Focus: formal communication relating to Plan notification	In accordance with the approved adapted programme from Council, the Freshwater Plan and Freshwater components of the RPS will be notified by Mid 2025, pending the consideration of any further direction and detail provided by the Government on their freshwater updates. Once notified all interested parties will have the opportunity formally submit written submissions on the notified plan.	All interested parties.	Notification Mid 2025. Submission period mid – late 2025.



Date: 11 June 2024

Subject: Freshwater Target Attribute State Overview – Nutrients in Rivers

Author: T McElroy, Science and Technology Manager

Approved by: AJ Matthews, Director - Environment Quality

Document: 3278520

Purpose

1. The purpose of this memorandum is to provide the Committee with an overview of the investigations and findings to identify draft Target Attribute States (TAS) for nutrient attributes in Taranaki rivers. The memorandum also introduces preliminary nutrient criteria that are being developed to support the achievement of broader environmental outcomes. This work is being carried out to inform the freshwater plan development process, and importantly the upcoming consultation process.
2. This memorandum builds on an item that was presented to the Committee in April, regarding target setting for *E. coli* and sediment, as well as water allocation and minimum flows.

Executive summary

3. A significant body of work has recently been completed to assist Council in the Freshwater Plan development process. This work has been led by the Science and Technology team, with the delivery of a series of technical memos which set target attribute states (TAS) as part of the National Objective Framework (NOF), set out in the National Policy Statement for Freshwater Management 2020 (NPS-FM).
4. Setting target states is a mandatory part of the NOF and is a critical stage in developing Councils' proposed Land and Freshwater Plan. There are a number of attributes which are included in the NPS-FM which require targets to be set. However, Council has focused initially on setting TAS for the following attributes – suspended fine sediment, nutrients (dissolved reactive phosphorus, nitrate and ammonia), *Escherichia coli* (*E. coli*) and, although not technically a NOF attribute, water allocation.
5. For nutrients, there are additional requirements to identify relevant nutrient criteria necessary to help to achieve broader environmental outcomes. This requirement acknowledges that the national bottom lines for nitrate (toxicity) and ammonia (toxicity) thresholds are not necessarily protective of adverse ecological responses that can occur at much lower concentrations (e.g. algal blooms).
6. The undertaking of this work feeds into the development of the proposed Land and Freshwater Plan, and is also an important part of the upcoming consultation in June with the community.

Recommendations

That Taranaki Regional Council:

- a) receives this memorandum Target Attribute State Overview – Nutrients in Rivers
- b) notes the attached presentation and the detail which will be presented during the Committee meeting.

Background

7. As part of the NOF requirements there are a series of compulsory attributes which are considered to be indicators of water quality health. The NPS-FM requires regional councils to set target states for these attributes to identify the state required to fulfill the objectives, outcomes, values and visions which have been set through the policy framework.
8. The focus of the consultation undertaken in October 2023 was to explore community aspirations for long terms visions for each Freshwater Management Unit (FMU), and to seek input into the environmental outcomes that are desired for each value that had been deemed important for those FMUs. These outcomes, along with available mitigations and management options, and timeframes for realising any improvements in freshwater have guided the TAS setting process.
9. The NOF sets out numeric bands relevant to each individual attribute, which represent a graduated scale of impact on ecosystem health (e.g. applicable to the suspended fine sediment attribute), human contact (e.g. applicable to the *E. coli* attributes), or other identified freshwater values. Typically, "band A" represents a minimal level of impact and is close to reference conditions, whereas "bands D or E" represent a high level of impact, or a highly degraded condition. For many attributes, national bottom lines are set as the minimum standard that all councils must achieve.
10. Council are first required to undertake baseline assessments of each attribute to identify a baseline state. This work was undertaken in October 2023 to inform community discussions. Where this baseline sits below the national bottom line, the TAS must be set at or above the national bottom line. Equally if the baseline is above the national bottom line the TAS must be set at or above the baseline, the only exception to this is where the baseline is already within band A. TAS for attributes associated with the human contact freshwater value must be set above baseline state where the baseline is not already within band A.
11. Timeframes must also be considered when setting TAS, linking through to when it is considered reasonable to achieve the TAS. Should the achievement of TAS be set to a timeframe longer than 10 years, Council must set interim target states at intervals of no longer than 10 years, as stepping stones.
12. Target attribute states provide the framework for Council to identify limits on resource use that will achieve these targets, and for these limits to be included as rules in the regional freshwater plan. Council have not yet undertaken the detail of the limit setting work, this process will be undertaken in future stages following the consultation process in June and July 2024.

Discussion

13. In setting target attribute states, consideration has been given to the identified baseline as well as the current state and trends (noting that this may differ from the baseline if there has been a change in attribute state since the baseline state was identified). Actioned and available mitigations and management options have also been considered, along with likely timeframes for realising different TAS in freshwater receiving environments.
14. Modelling undertaken to inform each of the attributes, has considered the impact of existing management options in achieving the necessary load reductions to meet the TAS. Across all the attributes this has presented a challenging position. In many cases, continuation of existing management approaches will not alone enable minimum standards to be met for each of the

attributes. Additional management approaches will need to be considered, as will the effects of climate change on the efficacy of existing practices. Further detail around current and future management approaches required to achieve target states will be made available as part of the consultation information package.

15. The investigations demonstrate the challenge the region is facing to achieve the improvements being sought by the environmental outcomes; and the time it will likely take to measure these outcomes in rivers, lakes and estuaries. In many cases, lifting the baseline or current state by one band is likely to be as far as can reasonably be practicable to achieve. In many instances the short term achievement is unlikely to see a shift in attribute bands, but rather will focus on a halt in the declining trends, before improvements are to be seen. This has been reflected in the draft TAS's set.
16. There are limitations to the work that has been undertaken. As mentioned above, the modeling has focused on understanding the benefits in completing existing management approaches, and it has not yet been possible to model additional management approaches for all attributes. However, many of these additional management approaches reflect good land use practice and therefore it is reasonable to expect that if implemented, cumulatively these actions will move the dial in the right direction to achieve the relevant TAS overtime. Additional modelling work will need to be undertaken, both prior to and during the life of the proposed Land and Freshwater Plan, to supplement this existing work overtime and to inform future policy discussions.
17. Other limitations include the level of uncertainty and bias associated with information that has been used to inform this process. Water quality is highly variable through time, and in many cases, we base our assessment of water quality state and trends on monthly monitoring data. This is standard practice nationally, and is currently the best information available. However, these data represent a snapshot in time of water quality for any given site, and as such, the value of the data grows as more data are collected across different seasons and environmental conditions.
18. Further to this, measured data is only available where monitoring sites are currently established. There is bias associated with the current monitoring network, with the hill country and coastal terrace catchments generally under represented, and greater representation of mid and lower catchment 'impact' sites, relative to upper catchment 'reference sites'. This has been taken into account through the target setting process, and addressing the representativeness of the monitoring network will be undertaken with new investment through Council's Long-term Plan 2024-2034.
19. Spatial modelling has been employed in this process to estimate water quality in unmonitored locations to address this issue in the short term. Again, this is standard practice nationally, and it represents the best available information. However, there is uncertainty associated with these estimates that must be acknowledged, and this is taken into account when setting TAS.
20. The attached presentation sets out the draft TAS for the three nutrient attributes applicable to rivers: nitrate (toxicity), ammonia (toxicity) and dissolved reactive phosphorous; along with the assumptions, challenges and potential timeframes (including interim targets) for achieving these target states.
21. It is a requirement under the NPS-FM to also establish nutrient criteria which will support the achievement of broader environmental outcomes with regards to ecosystem health. This requirement acknowledges that setting targets for nitrate and ammonia based on toxicity thresholds will not necessarily be protective of freshwater ecosystems, as trophic effects (e.g. algal blooms) can be triggered at much lower concentrations. A preliminary set of nutrient criteria has been developed based on community aspirations for ecosystem health environmental outcomes. Specifically, these preliminary criteria have been designed to reduce the likelihood of excessive periphyton growth from occurring in Taranaki rivers and streams. These preliminary nutrient criteria are discussed in more detail in the presentation attached.
22. These draft TAS's will be presented to the community in June, and feedback on where they have been set and the management approaches identified to achieve these will be sought. This consultation

process will assist staff in refining policy options and limit setting, which will be tested in future consultation periods.

Financial considerations—LTP/Annual Plan

23. This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

24. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the Local Government Act 2002, the Resource Management Act 1991 and the Local Government Official Information and Meetings Act 1987.

Iwi considerations

25. This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the Local Government Act 2002) as outlined in the adopted Long-Term Plan and/or Annual Plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.
26. Additional work is being undertaken with iwi Pou Taiao to present the findings of the TAS ahead of the formal community consultation process. Ongoing discussions with iwi and hapū on the TAS and the corresponding policy approach will be undertaken across the coming months, aligning with broader engagement programme.

Community considerations

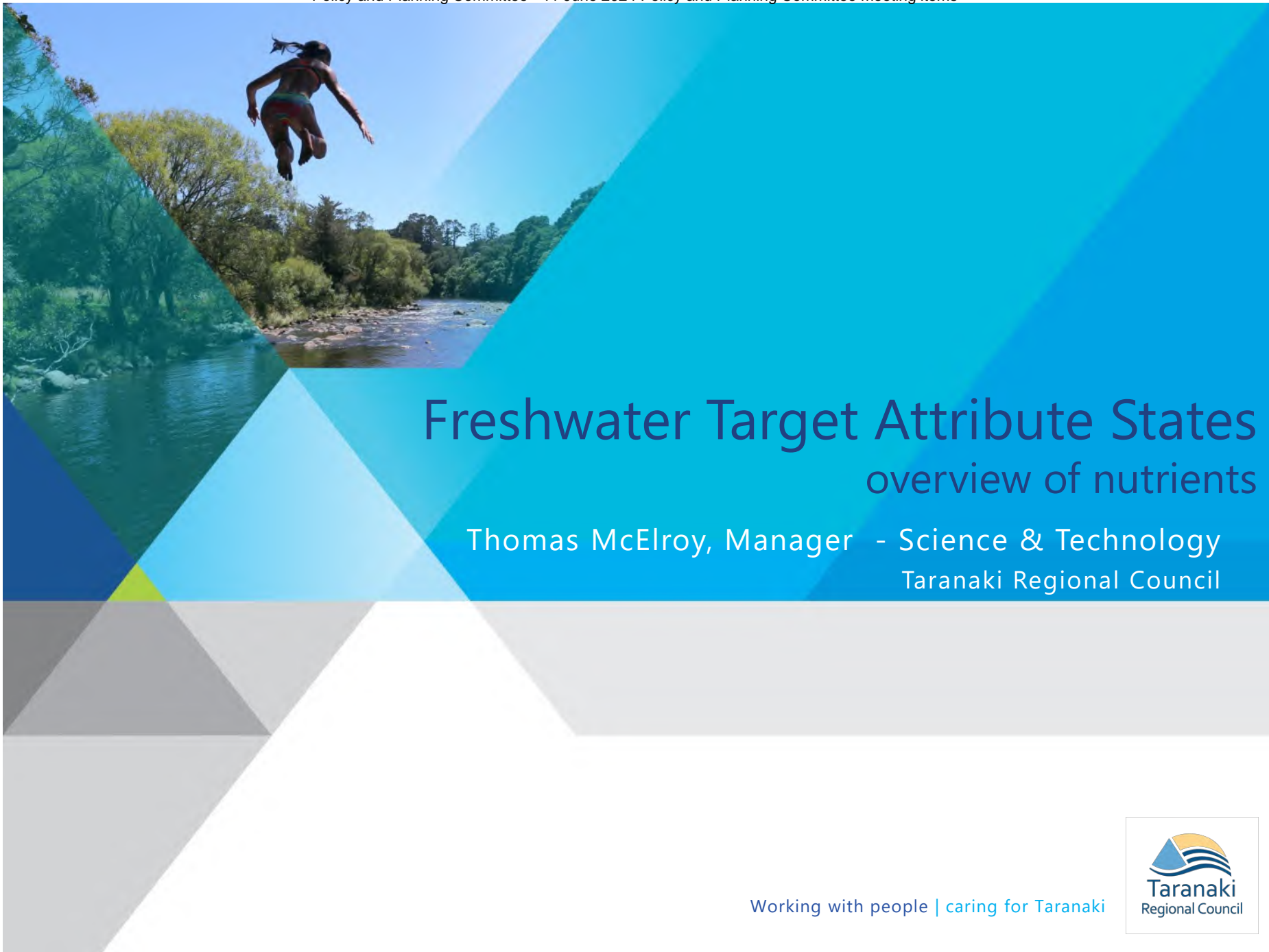
27. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this memorandum. The content presented to the Committee will be used to inform the upcoming community consultation programme.

Legal considerations

28. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 3278201: Freshwater Target Attribute States: Overview of Nutrients



Freshwater Target Attribute States overview of nutrients

Thomas McElroy, Manager - Science & Technology
Taranaki Regional Council

Working with people | caring for Taranaki



Overview

- Key concepts and principles (brief re-cap)
- Nutrient targets and criteria; what's the difference?
- Baseline state (brief re-cap)
- Introduction to nutrient criteria and preliminary framework
- Mitigation scenario modelling; how far can we get?
- Draft nutrient targets
- Summary and next steps

NOF attributes

- 22 prescribed NOF attributes
- We've begun the target setting process by focusing on '*the big four plus flow*':
 - **Nitrogen and phosphorous**
 - Sediment
 - *E. coli*
 - plus water allocation and minimum flows
- Managing these issues goes some of the way towards addressing the remaining attributes

Draft target setting principles

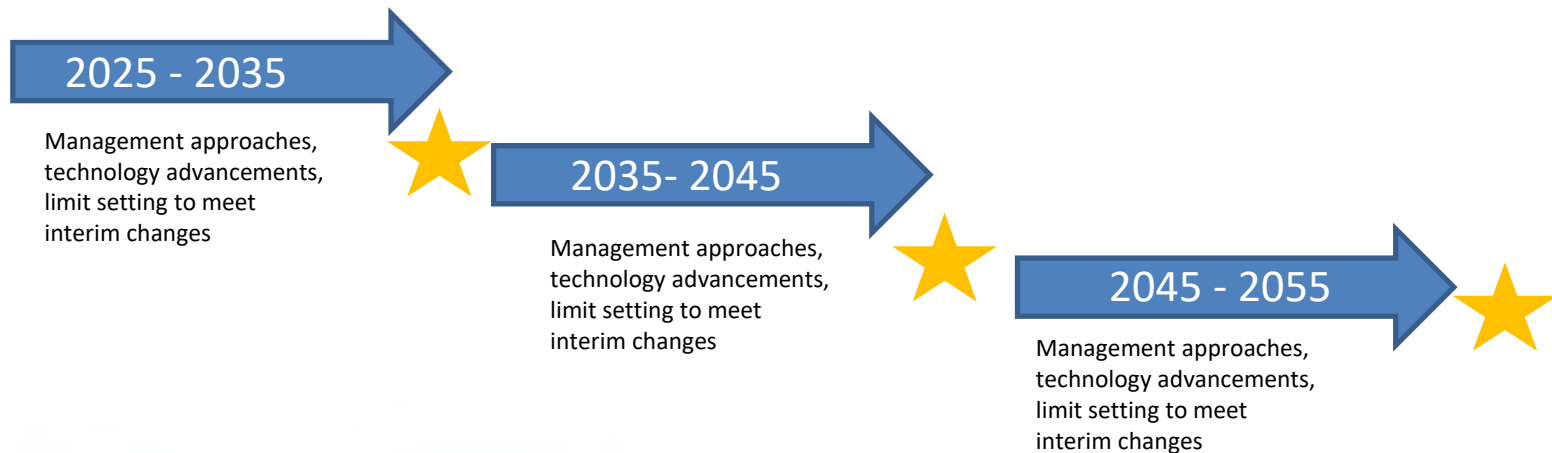
1. Target attribute states must have regard to the foreseeable impacts of **climate change**.
2. All target attribute states must either **maintain or improve** the attribute state from baseline:
 - a. to **meet or exceed national bottom lines** (except in the case of naturally occurring processes); and
 - b. to either:
 - i. **maintain** the baseline state where the baseline is considered to already achieve the relevant environmental outcomes(s)
 - ii. **improve** upon the baseline state where this is not considered to achieve the relevant environmental outcome(s).
3. Must identify the **actions/approaches/mitigations** that would be required to achieve improvements.
4. Using best available information, ensure that an identified target attribute state is **achievable** within the timeframe set in the long-term vision.
5. Where an attribute state is unlikely to meet the vision and environmental outcomes within 10 years, support the target attribute state with **interim targets** (no more than 10 year timeframes).

Long term approach to TAS

- Example:
 - TAS to move from a D band to a C band by 2055



Interim TAS



Best available information and uncertainty

- There is uncertainty associated with both measured and modelled data
 - Sampling frequency
 - Monitoring network bias
 - Climate change trajectories
 - Modelling assumptions
- Same challenge for all regional councils
- Quantify where possible
- Policy decisions must take this into account

Nutrient targets and criteria

We need to set *both* targets and nutrient criteria

- Site-based targets;
 - Nitrate (toxicity)
 - Ammonia (toxicity)
 - Dissolved reactive phosphorous
- Nutrient criteria that are protective of other attributes / sensitive receiving environments

Nitrate (toxicity)

Baseline state

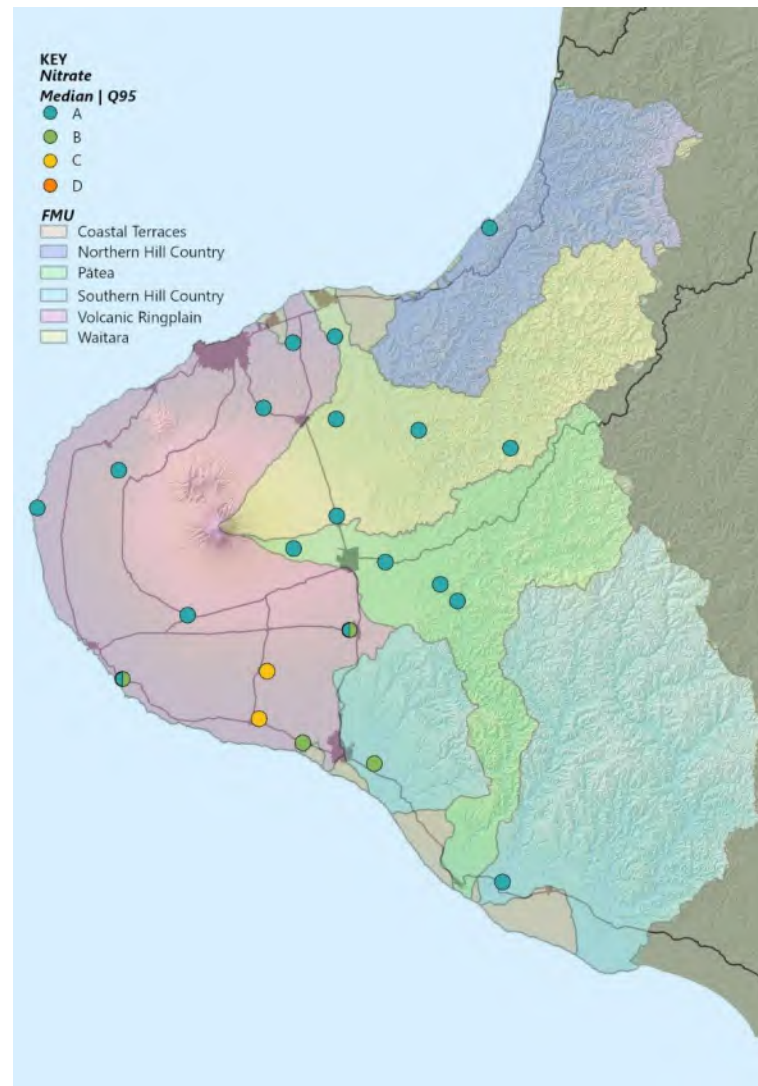
A Band: 16 sites

B Band: 4 sites

C Band: 2 site

D Band: 0 sites

NBL



Ammonia (toxicity)

Baseline state

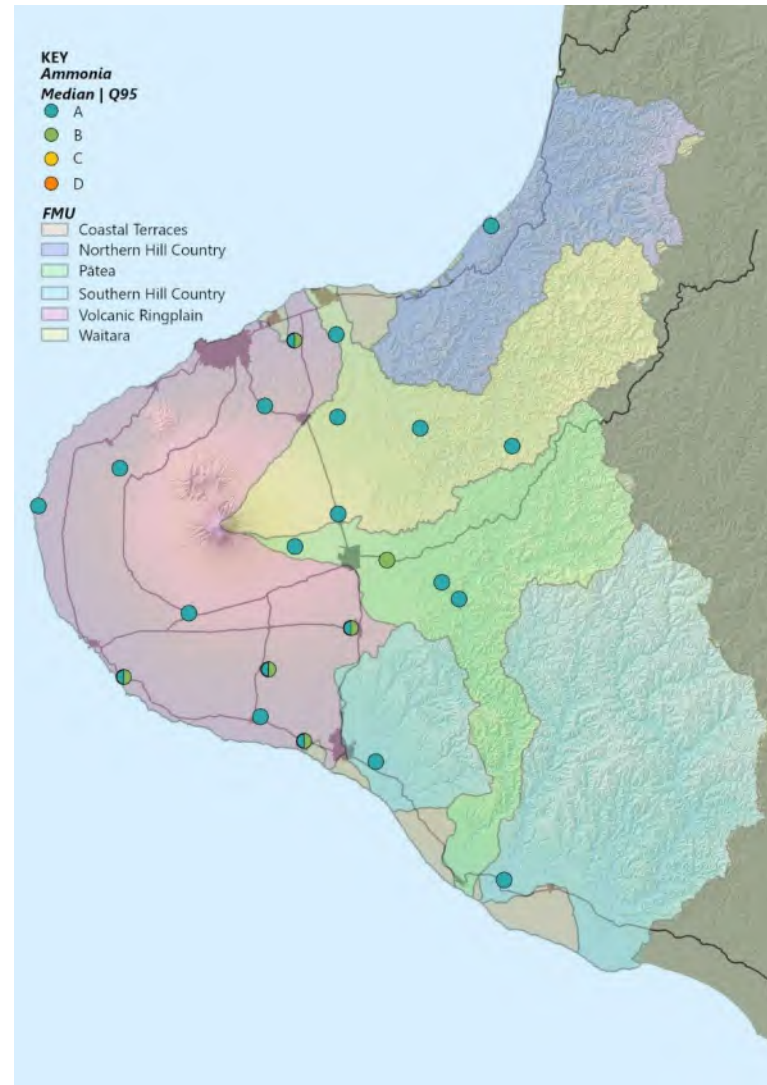
A Band: 16 sites

B Band: 6 sites

C Band: 0 site

D Band: 0 sites

NBL



Dissolved reactive phosphorous

Baseline state

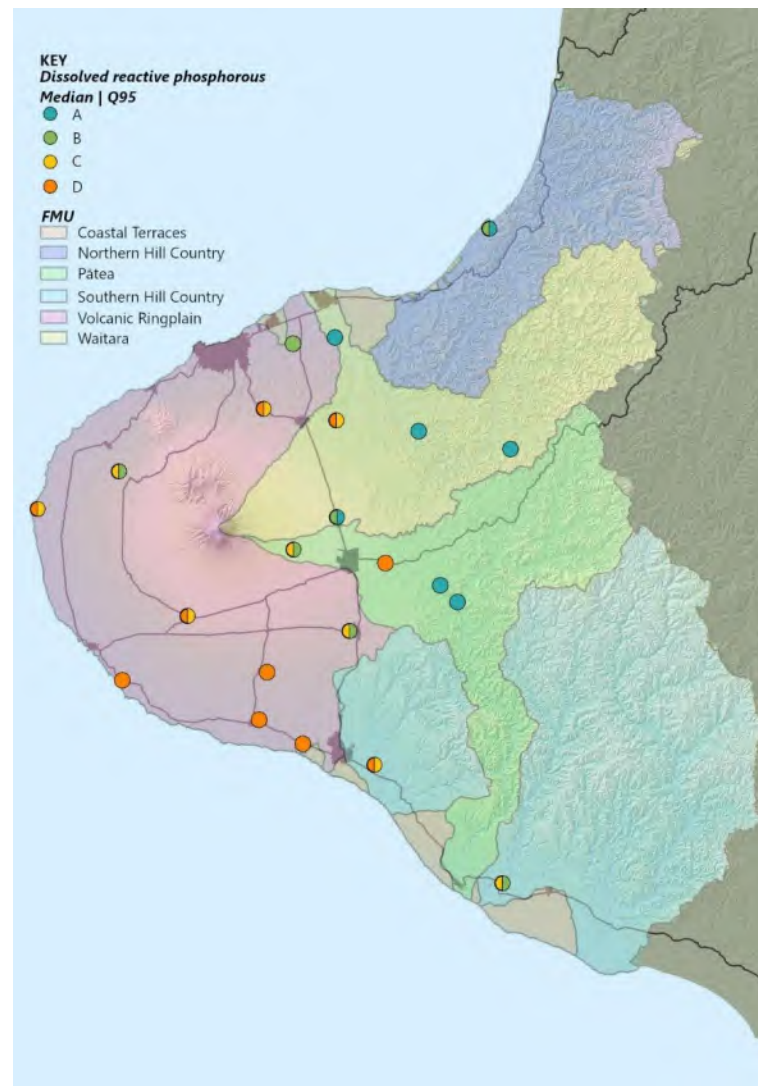
A Band: 5 sites

B Band: 3 sites

C Band: 4 site

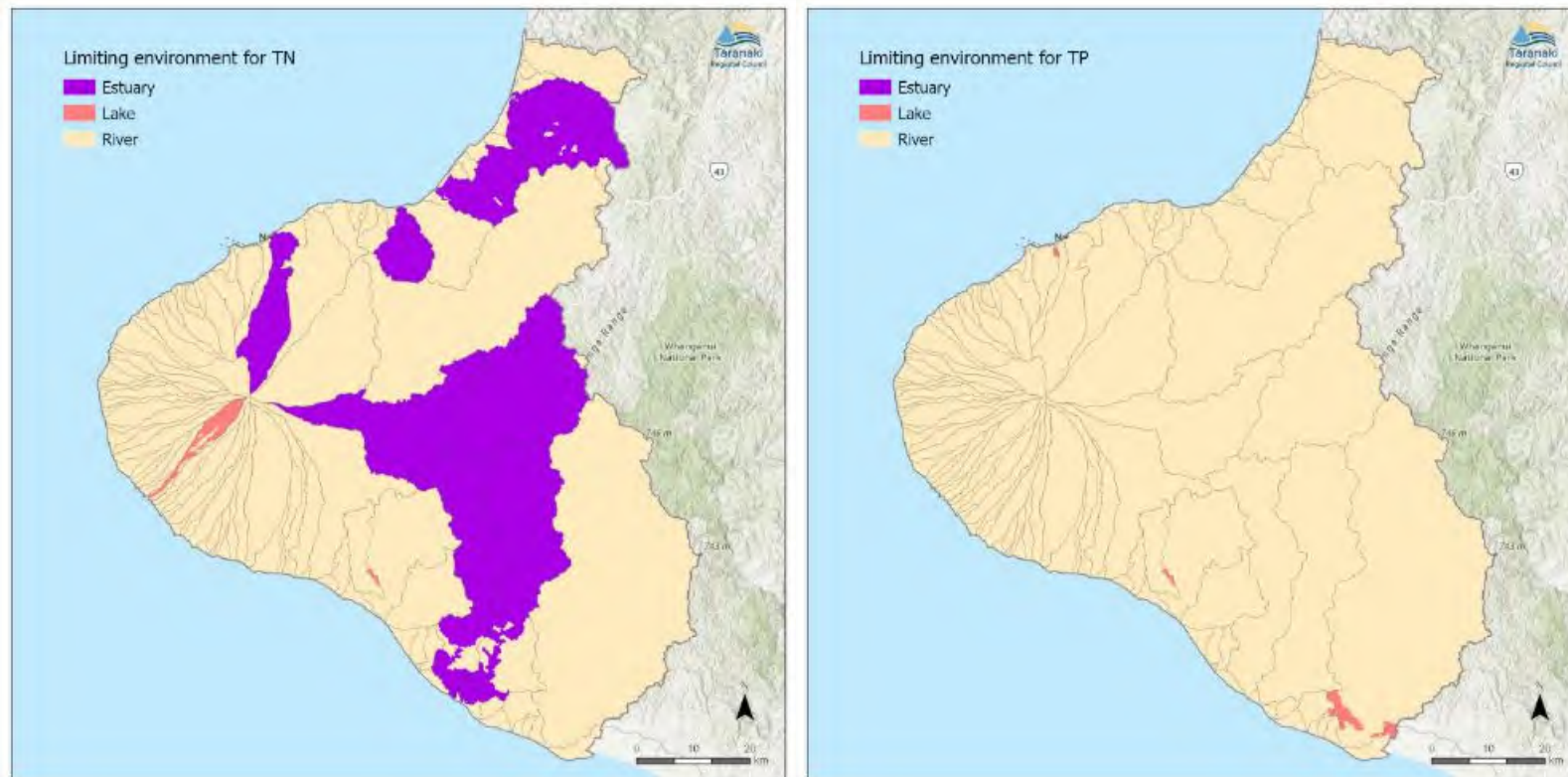
D Band: 10 sites

No NBL



Limiting environments

A recent national study provided an indication of where rivers, lakes or estuaries are likely to be the most susceptible (limiting) environment in each region.



Periphyton (biomass)

Baseline state

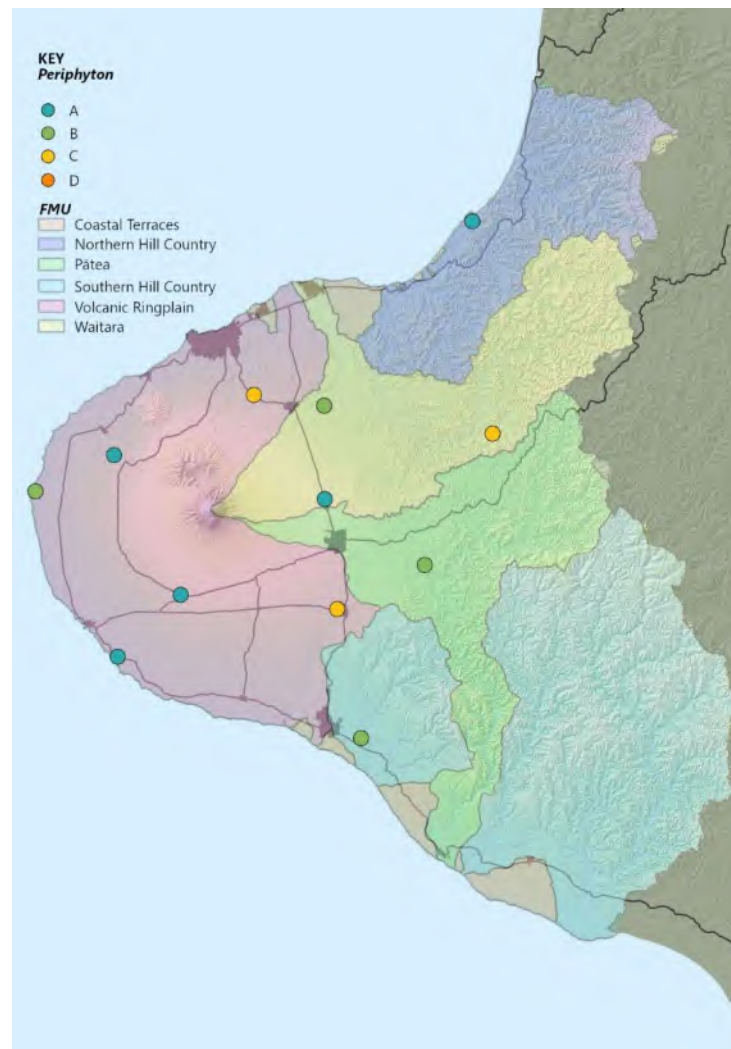
A Band: 5 sites

B Band: 4 sites

C Band: 3 site

D Band: 0 sites

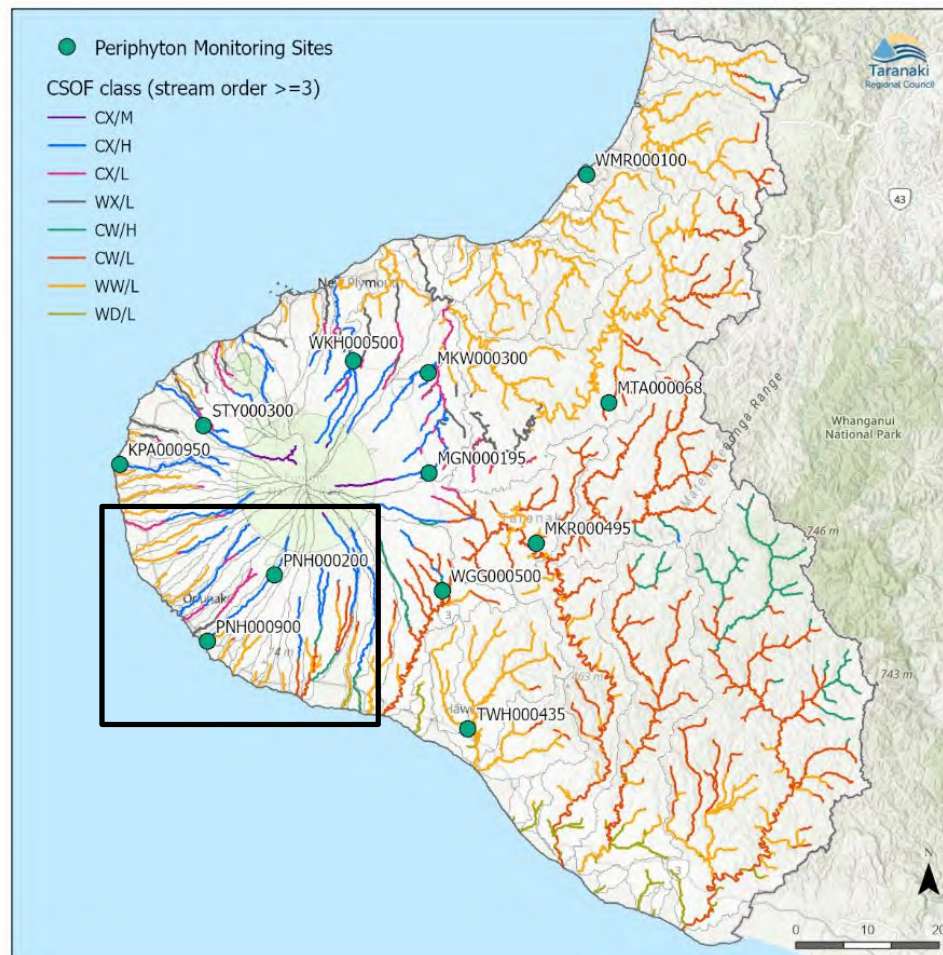
NBL



Nutrient criteria to meet periphyton targets

National nutrient criteria have been developed based on a river's susceptibility to excessive periphyton growth;

- Cold/warm
- Wet/dry
- Mountain/lowland



National nutrient criteria:

Snelder, T and Kilroy, C. (2023) Revised Nutrient Criteria for Periphyton Biomass Objectives. Updating criteria referred to in Ministry for Environment 2022 guidance. LWP Client Report 2023–08.

Nutrient criteria to meet periphyton targets

Different classifications between and within catchments

- Mountain v spring-fed
- Elevation within catchment / proximity to coast



Nutrient criteria to meet periphyton targets

Preliminary approach

1. Identify desired outcome (e.g. band B; periphyton)
2. Characterise each catchment (susceptibility)

=

Catchment specific nutrient criteria
*(maximum concentrations of DIN and DRP at
catchment outlets to achieve band B)*

Nutrient criteria to meet periphyton targets

Scale of reduction required to achieve criteria

Difference between:

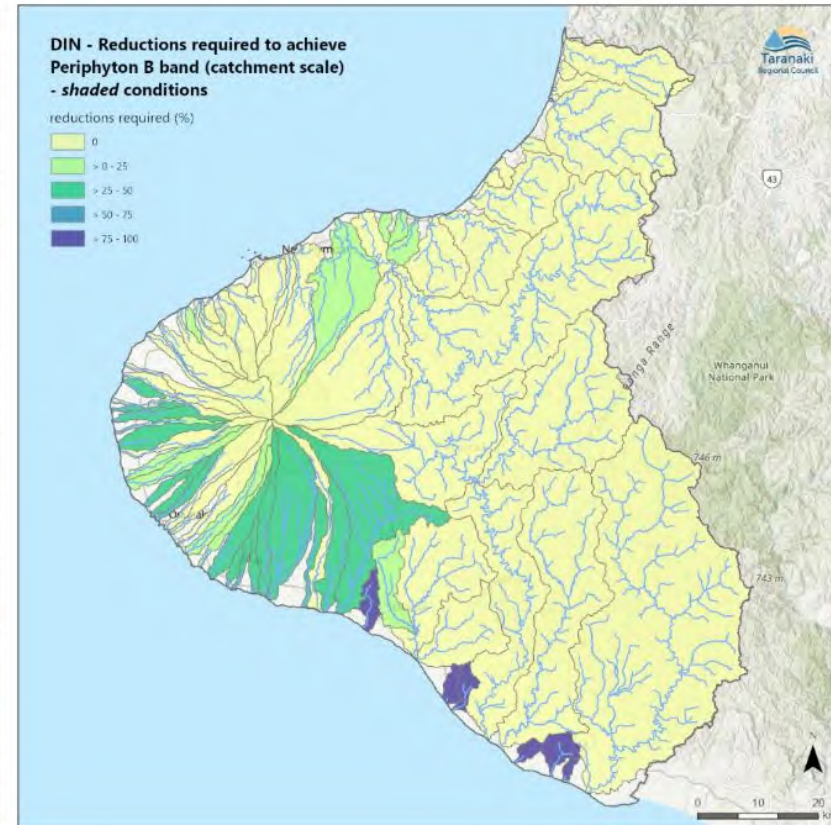
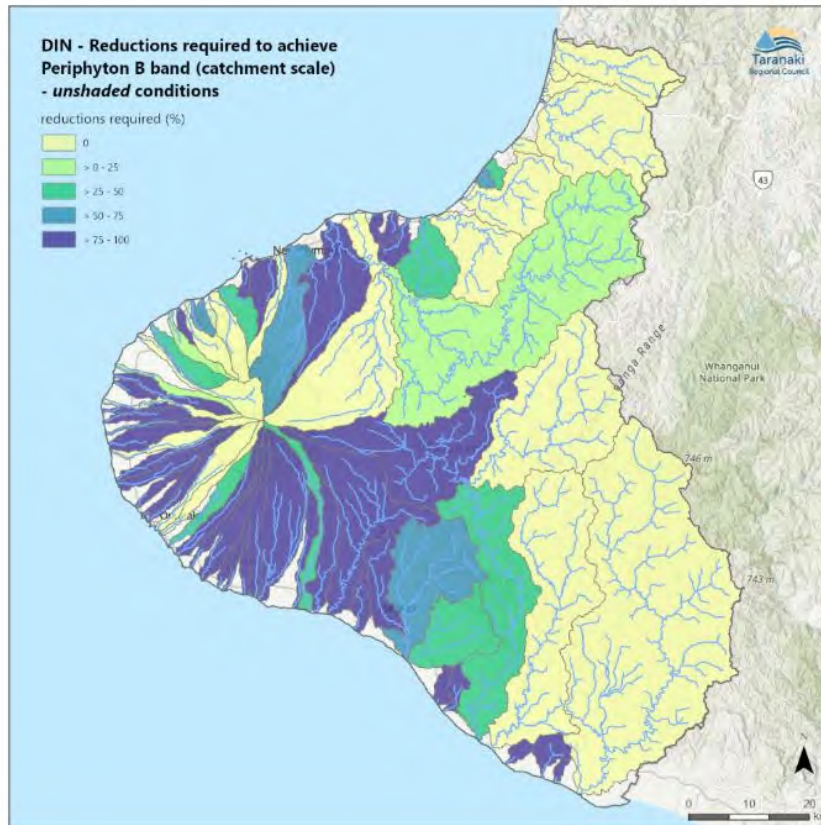
estimated DIN and DRP at catchment outlet

and

Catchment specific nutrient criteria

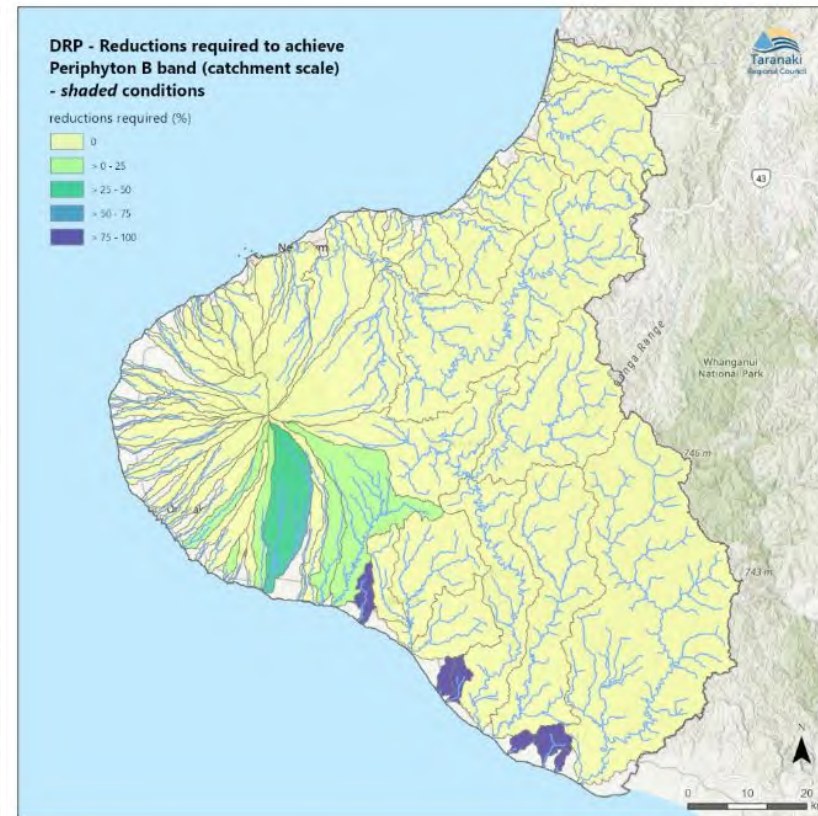
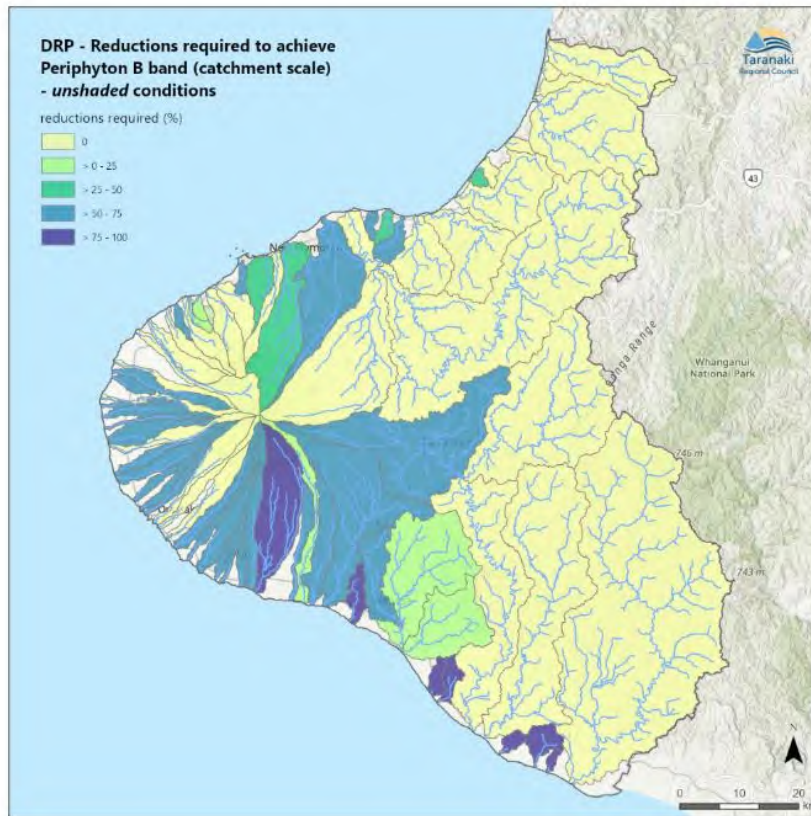
Nutrient criteria to meet periphyton targets

Preliminary assessment (dissolved inorganic nitrogen)



Nutrient criteria to meet periphyton targets

Preliminary assessment (dissolved reactive phosphorous)



Nutrient criteria to meet periphyton targets

Preliminary assessment (n = 73 catchments / major sub-catchments)

Periphyton biomass Band B (25% UPR)	Shading	No reduction required	1 – 25%	26 – 50%	51 – 75%	75 – 100%
DIN	unshaded	20	3	8	5	37
	shaded	40	11	16	0	6
DRP	unshaded	29	5	4	28	7
	shaded	61	5	1	0	6

DIN and DRP model uncertainty (95% confidence intervals)

Periphyton biomass Band B (25% UPR)	Shading	No reduction required (best estimate)	No reduction required (97.5% certainty)	Some reduction required (best estimate)	Some reduction required (97.5% certainty)
DIN	unshaded	20	4	53	34
	shaded	40	15	33	6
DRP	unshaded	29	5	44	6
	shaded	61	17	12	6

Nutrient criteria to meet periphyton targets

- Summary:
 - Band B preliminary target for periphyton set to reflect desired environmental outcomes of community
 - Significant reductions are required in a large number of catchments to achieve band B throughout the region
 - Challenge is generally greater with DIN than DRP
 - Scale of required reduction much less with effective shading
 - Must take into account uncertainty associated with model estimates

Nutrient criteria to meet periphyton targets

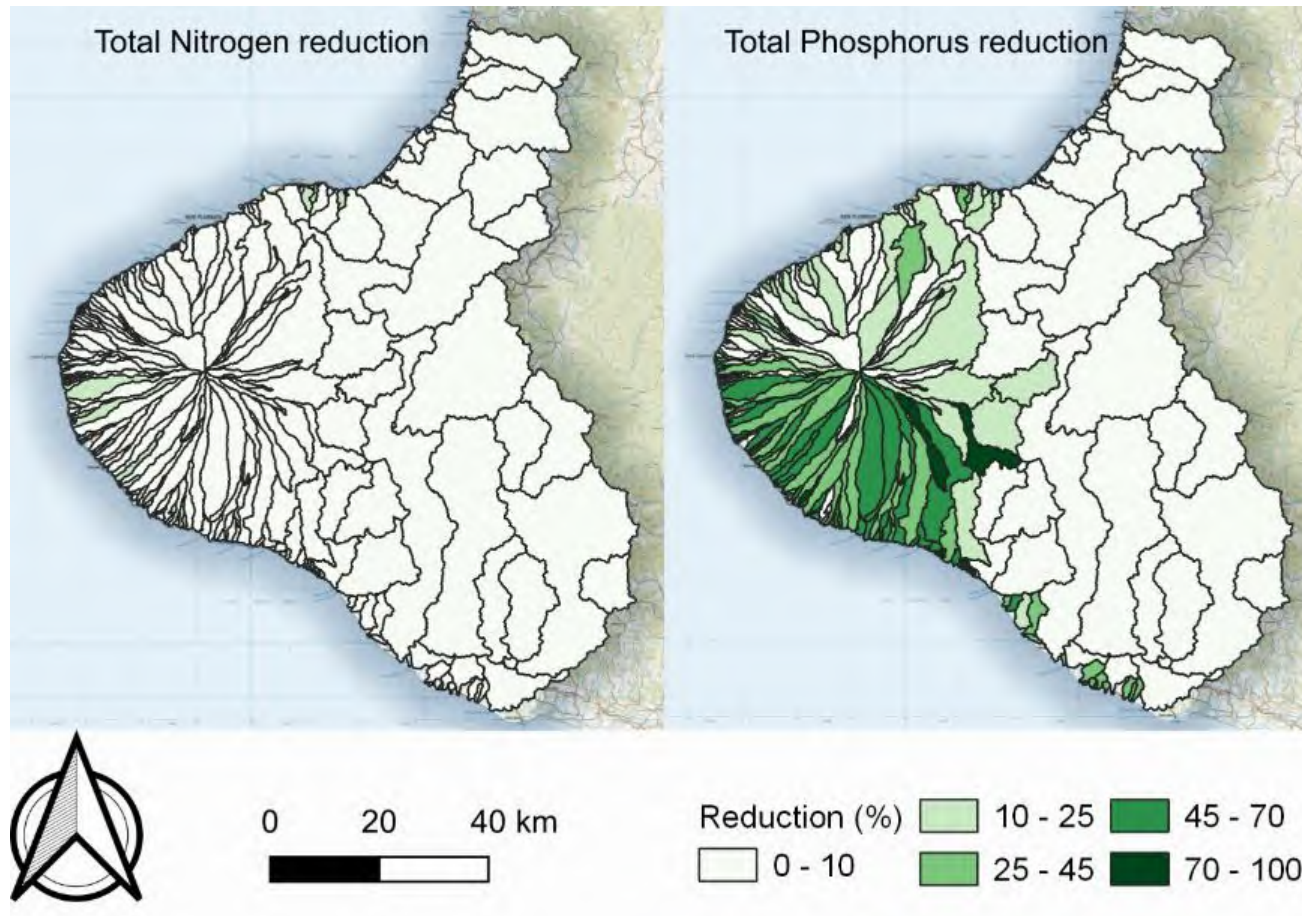
- General framework in place, but further refinement needed to ensure periphyton targets are ambitious *and* reasonable, and to account for:
 - Shading
 - Substrate
 - Other limiting environments (estuaries, lakes)
- Criteria may be refined but this is unlikely to change the required direction of travel

How far can we get? Mitigation scenario modelling

- Current management approaches:
 - Eliminating all direct discharge of dairy shed effluent into waterways
 - Completion of the Riparian Management Programme
- Future management options
 - Established mitigations (broadly accepted as good management practises)
 - Developing mitigations (recently developed mitigation technologies and management practises with limited validation)

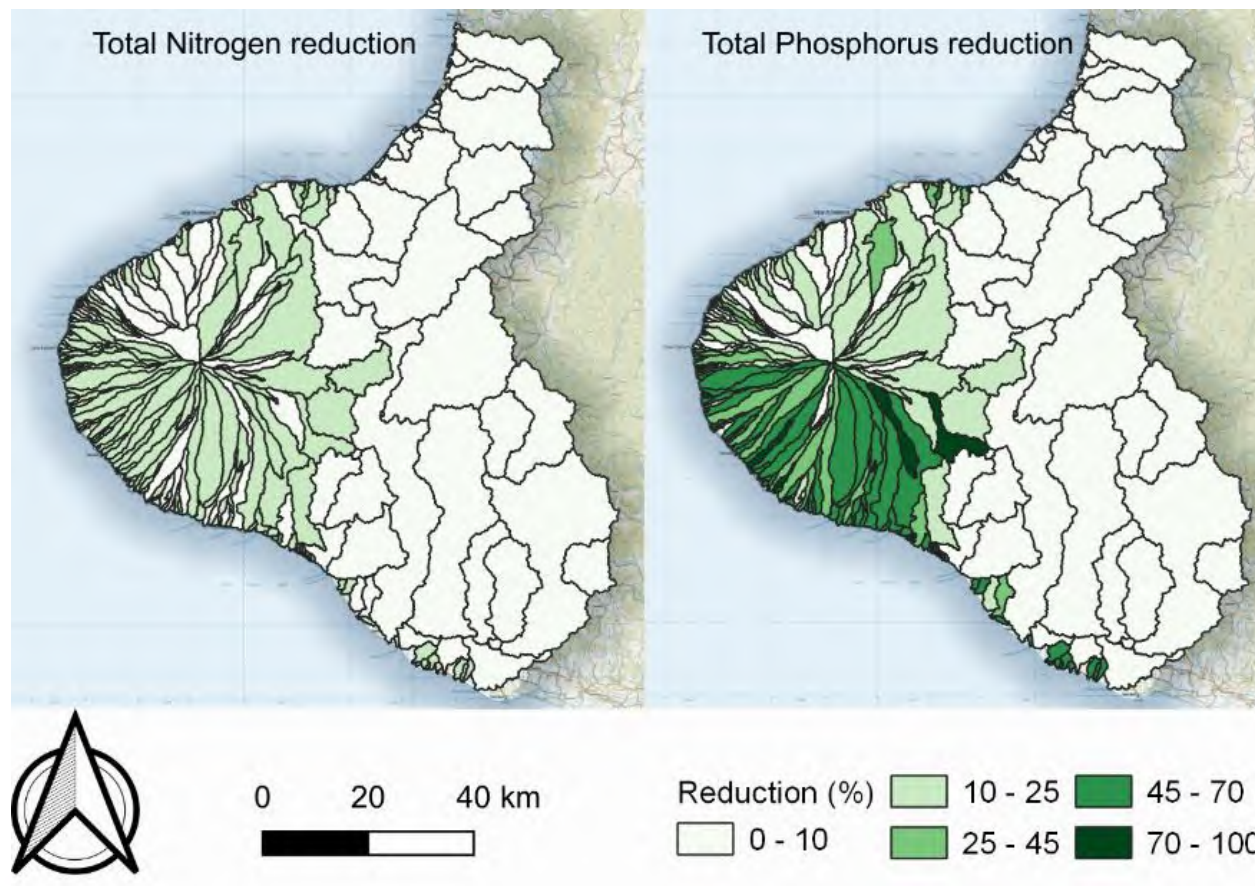
Mitigation scenario modelling; current management approaches

- Eliminating all direct discharge of dairy shed effluent into waterways



Mitigation scenario modelling; current management approaches

- Completion of the Riparian Management Programme, and removal of dairy effluent to water

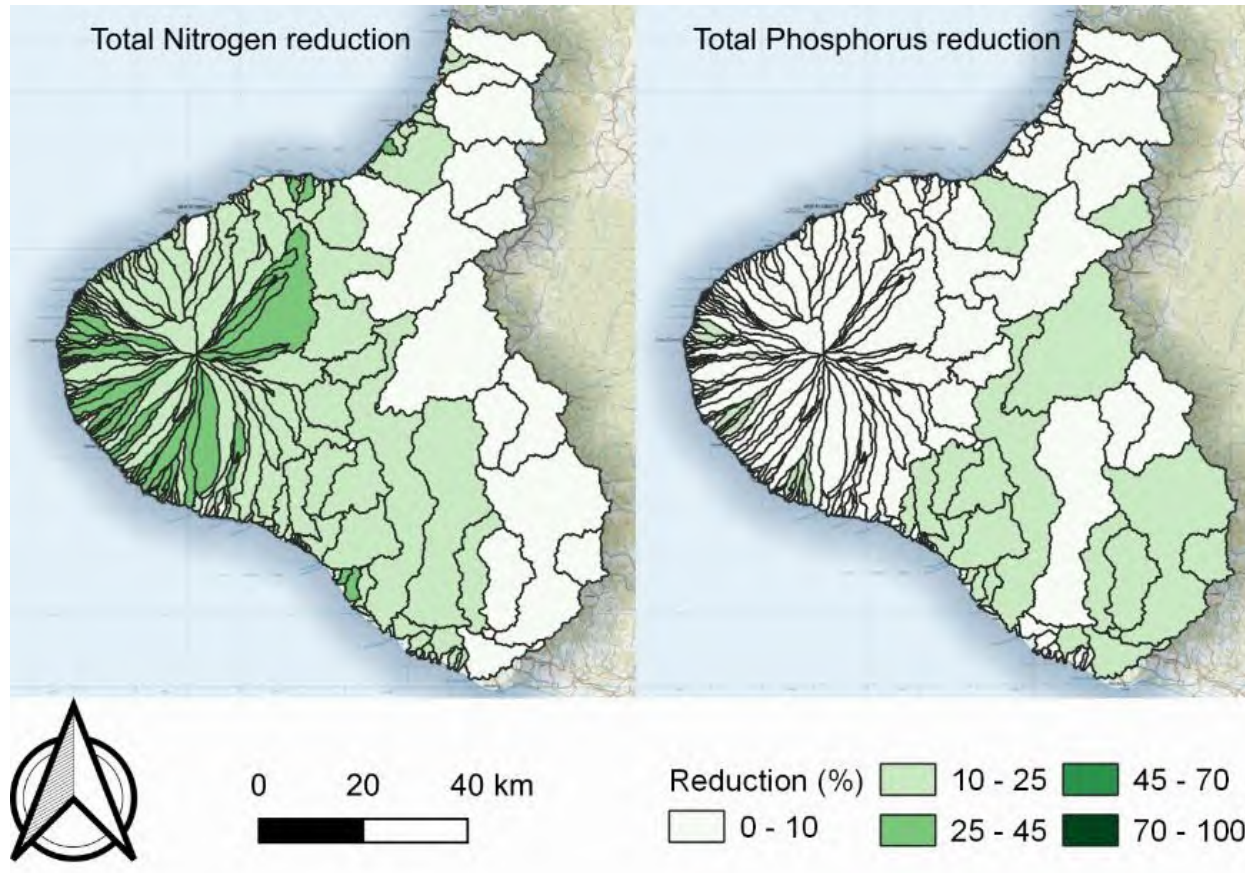


Mitigation scenario modelling; 'established' and 'developing' mitigations

'Established' mitigations (Monaghan et al. 2021)	'Developing' mitigations (McDowell et al. 2021)
<ul style="list-style-type: none"> • Stream fencing for stock exclusion • Reduced surplus soil P fertility • Use of low solubility forms of fertiliser P • Judicious scheduling of N and P fertiliser applications to avoid risk months • Reducing excessive inputs of fertiliser N • Land application of farm dairy effluent (FDE) • Enlarged areas receiving FDE • Targeted fertiliser returns to effluent treated areas • Deferred and/or low rate effluent irrigation • Wintering in a barn or a standoff • Reduced flood irrigation by-wash • Reduced over-watering • Retirement of marginal land 	<ul style="list-style-type: none"> • Retention dams, bunds and sediment traps • Strategic grazing of pasture within critical source areas (CSAs) • Strategic grazing of crops within CSAs • Tile drain amendments • In-stream sorbents • Alum applied to pasture of crops in CSAs • Controlled release fertiliser • Variable rate fertiliser • Variable rate irrigation and fertigation • On-off grazing in autumn/winter • Edge of field attenuation • Controlled drainage

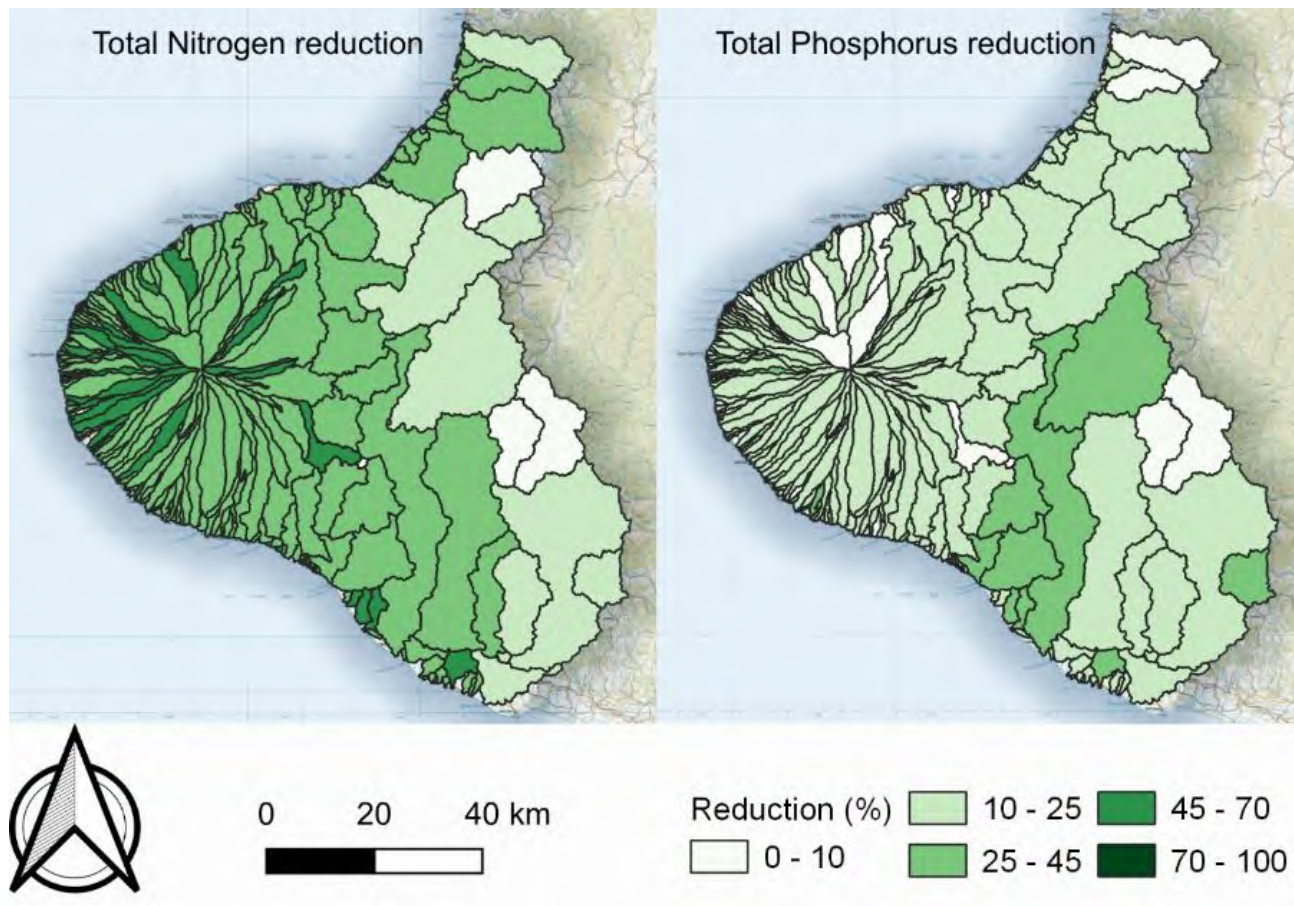
Mitigation scenario modelling; 'established' and 'developing' mitigations

- 'Established' mitigation options



Mitigation scenario modelling; 'established' and 'developing' mitigations

- 'Established' *and* 'developing' mitigation options

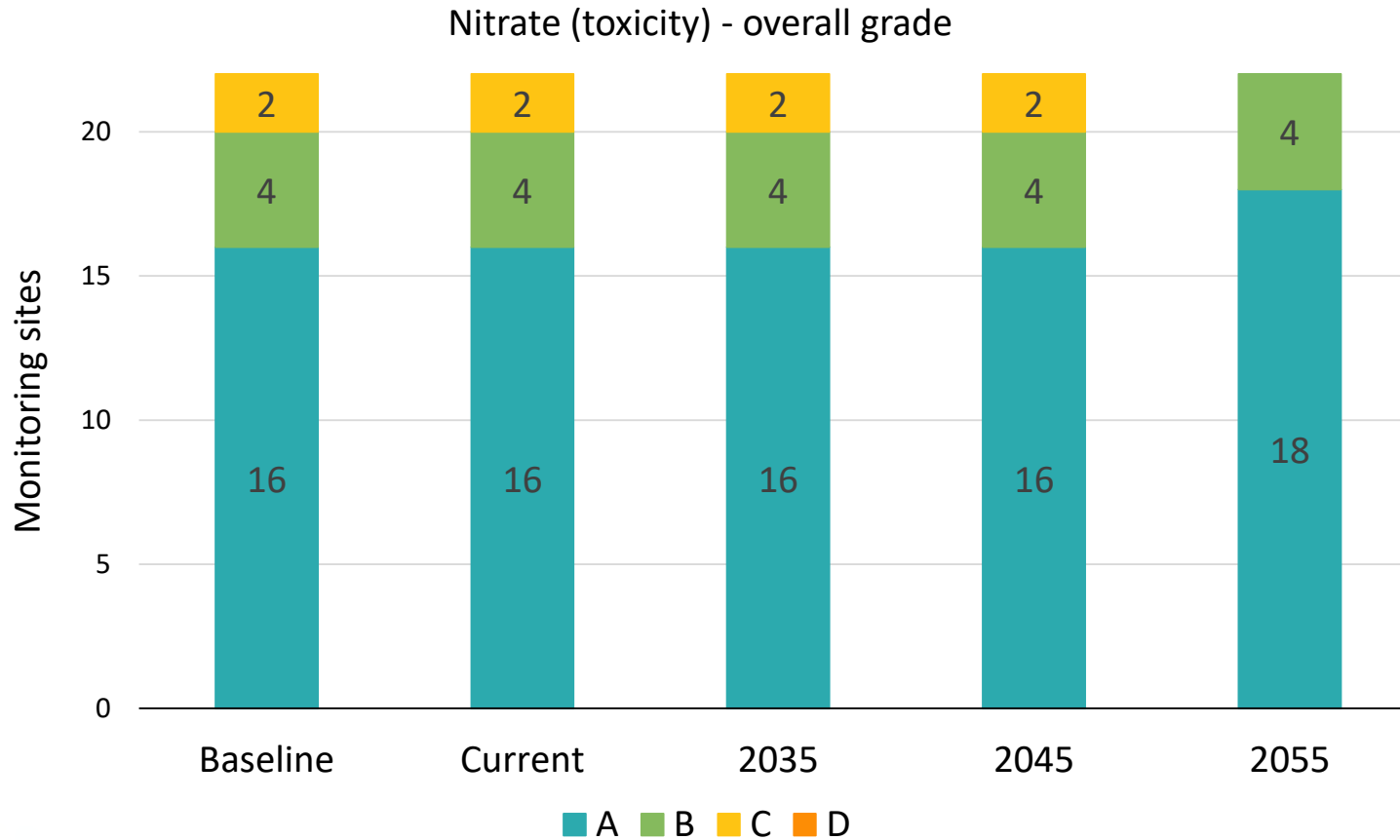


Draft target attribute states

Mitigation scenario modelling used to inform draft targets at 22 monitoring sites for the following three attributes

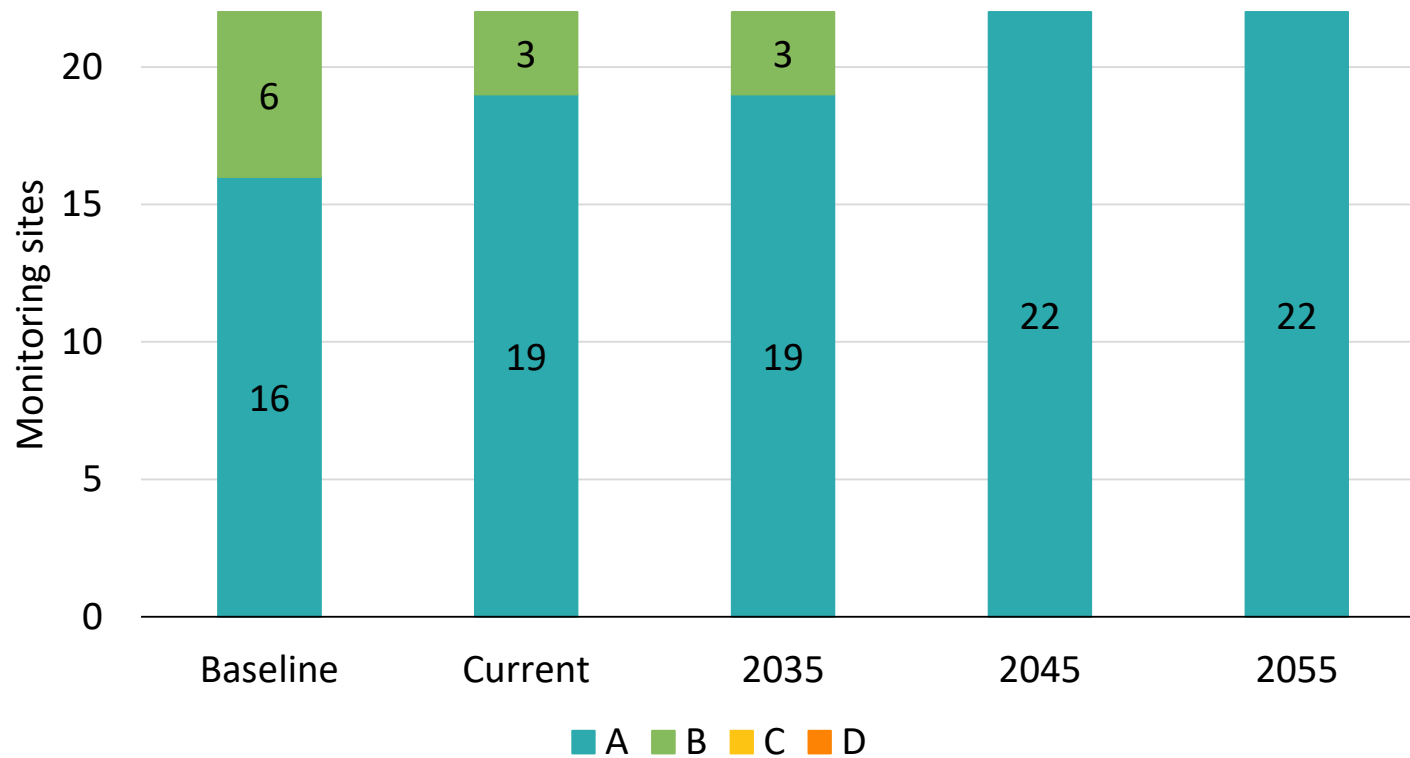
- Nitrate (toxicity)
- Ammonia (toxicity)
- Dissolved reactive phosphorous

Draft target attribute states; nitrate (toxicity)



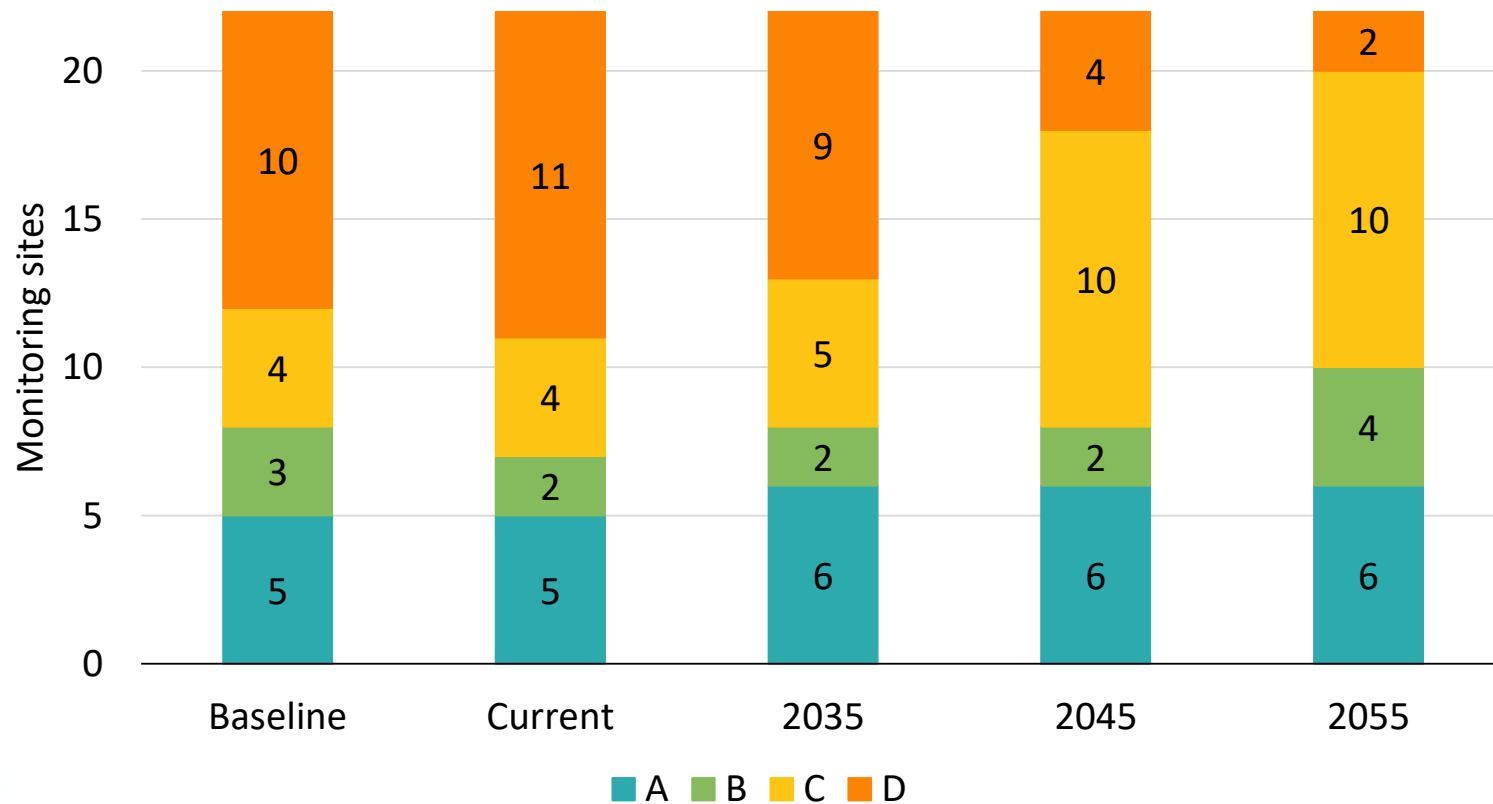
Draft target attribute states; ammonia (toxicity)

Ammonia (toxicity) - overall grade



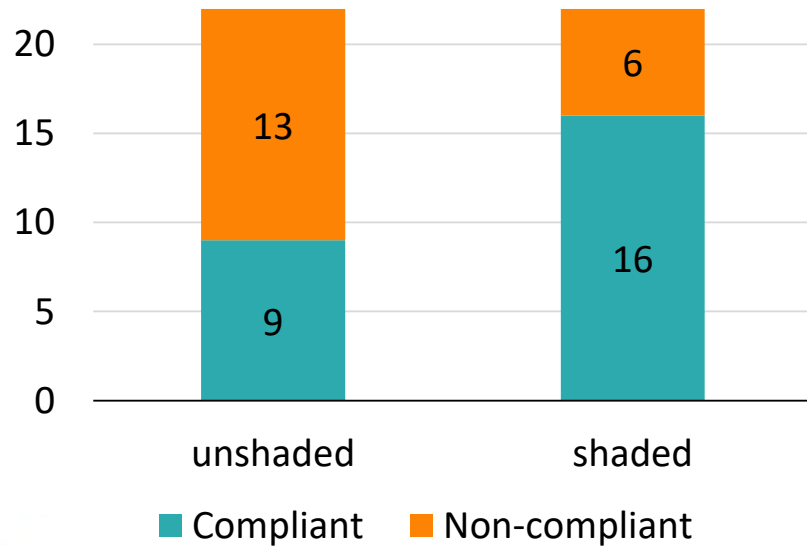
Draft target attribute states; DRP

Dissolved reactive phosphorous - overall grade

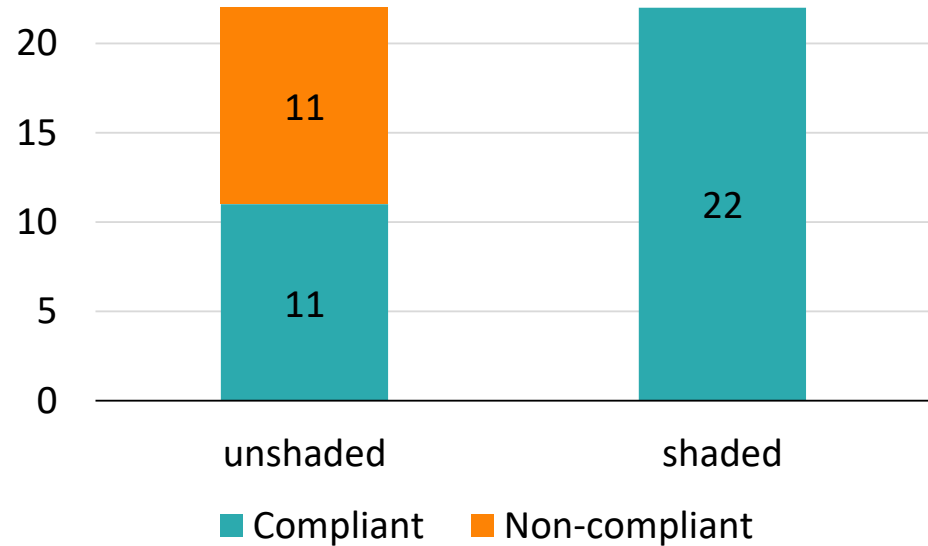


Monitoring site compliance with preliminary nutrient criteria for periphyton

Site compliance with catchment criteria; DIN



Site compliance with catchment criteria; DRP

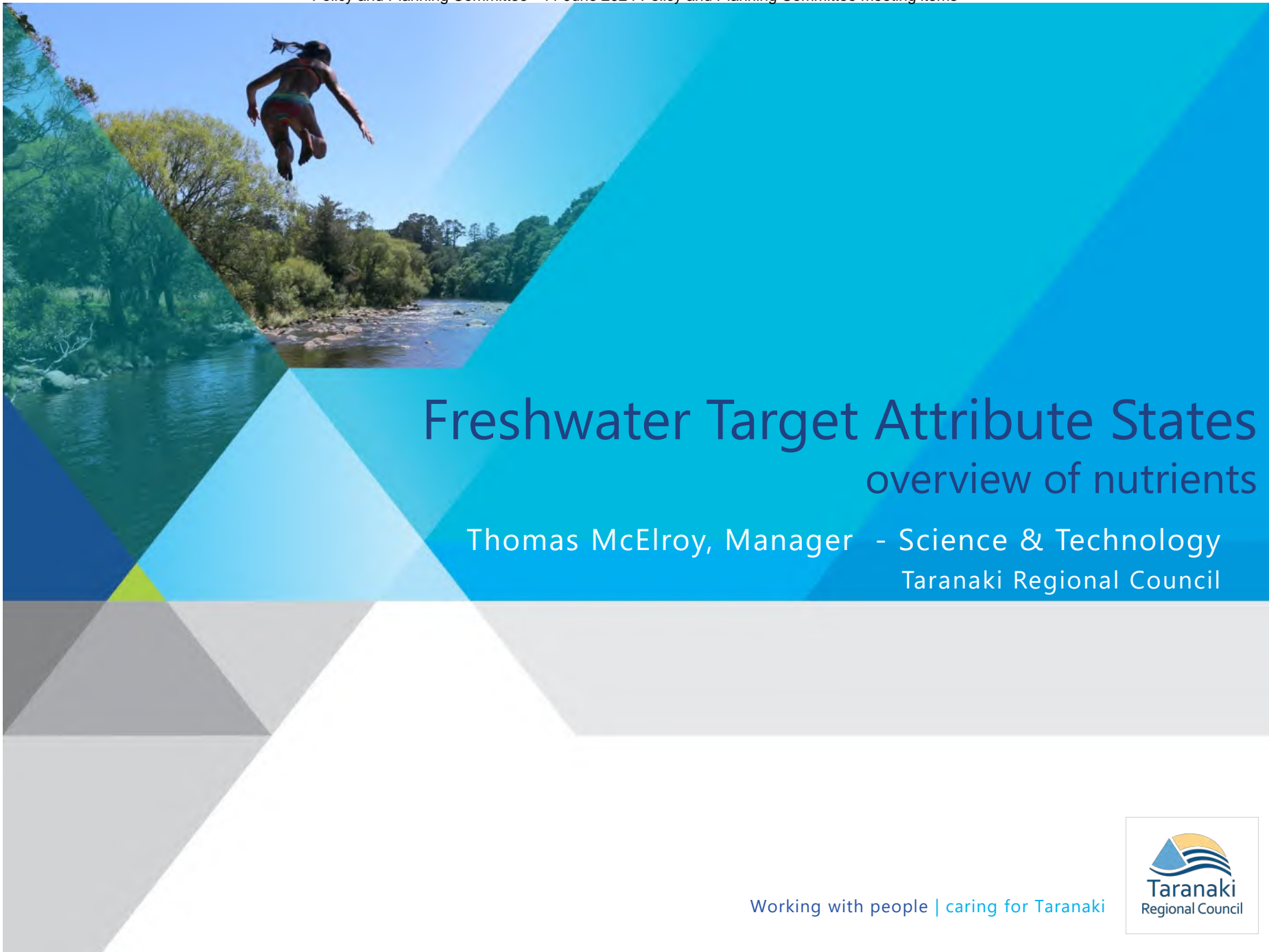


Summary

- Draft targets proposed at 22 monitoring sites
 - Nitrate (toxicity)
 - Ammonia (toxicity)
 - DRP
- Preliminary nutrient criteria established to help achieve periphyton targets; further refinement currently underway
- Reductions in instream nutrient concentrations are possible, but will require wider set of BMP mitigation options than current approach
- Some targets may be unattainable with available mitigation strategies alone
- Scoping potential case study catchments to explore mitigations and actions (what might be possible)

Thank you for your attention!





Freshwater Target Attribute States overview of nutrients

Thomas McElroy, Manager - Science & Technology
Taranaki Regional Council

Working with people | caring for Taranaki



Overview

- Key concepts and principles (brief re-cap)
- Nutrient targets and criteria; what's the difference?
- Baseline state (brief re-cap)
- Introduction to nutrient criteria and preliminary framework
- Mitigation scenario modelling; how far can we get?
- Draft nutrient targets
- Summary and next steps

NOF attributes

- 22 prescribed NOF attributes
- We've begun the target setting process by focusing on '*the big four plus flow*':
 - **Nitrogen and phosphorous**
 - Sediment
 - *E. coli*
 - plus water allocation and minimum flows
- Managing these issues goes some of the way towards addressing the remaining attributes

Draft target setting principles

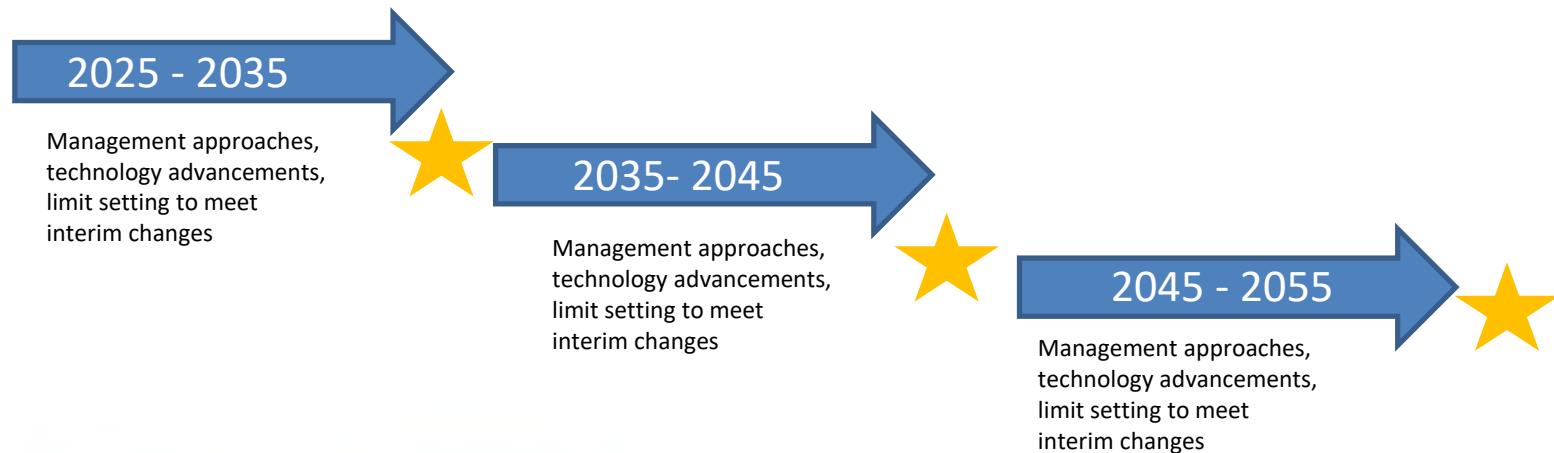
1. Target attribute states must have regard to the foreseeable impacts of **climate change**.
2. All target attribute states must either **maintain or improve** the attribute state from baseline:
 - a. to **meet or exceed national bottom lines** (except in the case of naturally occurring processes); and
 - b. to either:
 - i. **maintain** the baseline state where the baseline is considered to already achieve the relevant environmental outcomes(s)
 - ii. **improve** upon the baseline state where this is not considered to achieve the relevant environmental outcome(s).
3. Must identify the **actions/approaches/mitigations** that would be required to achieve improvements.
4. Using best available information, ensure that an identified target attribute state is **achievable** within the timeframe set in the long-term vision.
5. Where an attribute state is unlikely to meet the vision and environmental outcomes within 10 years, support the target attribute state with **interim targets** (no more than 10 year timeframes).

Long term approach to TAS

- Example:
 - TAS to move from a D band to a C band by 2055



Interim TAS



Best available information and uncertainty

- There is uncertainty associated with both measured and modelled data
 - Sampling frequency
 - Monitoring network bias
 - Climate change trajectories
 - Modelling assumptions
- Same challenge for all regional councils
- Quantify where possible
- Policy decisions must take this into account

Nutrient targets and criteria

We need to set *both* targets and nutrient criteria

- Site-based targets;
 - Nitrate (toxicity)
 - Ammonia (toxicity)
 - Dissolved reactive phosphorous
- Nutrient criteria that are protective of other attributes / sensitive receiving environments

Nitrate (toxicity)

Baseline state

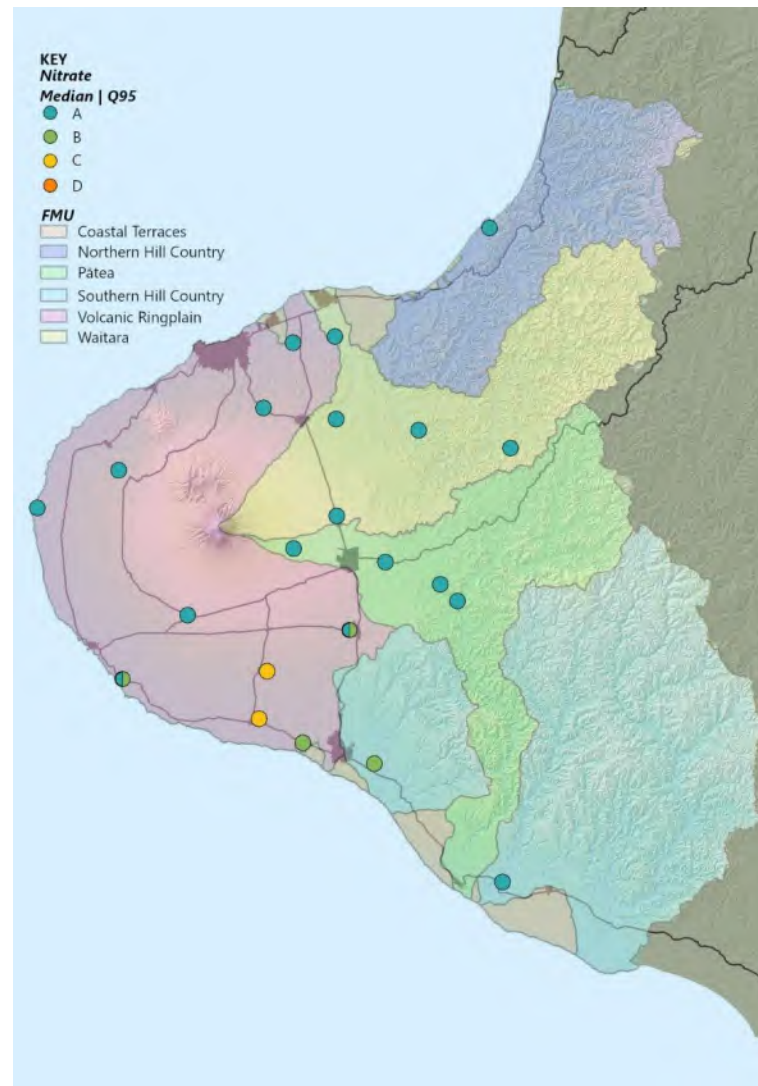
A Band: 16 sites

B Band: 4 sites

C Band: 2 site

D Band: 0 sites

NBL



Ammonia (toxicity)

Baseline state

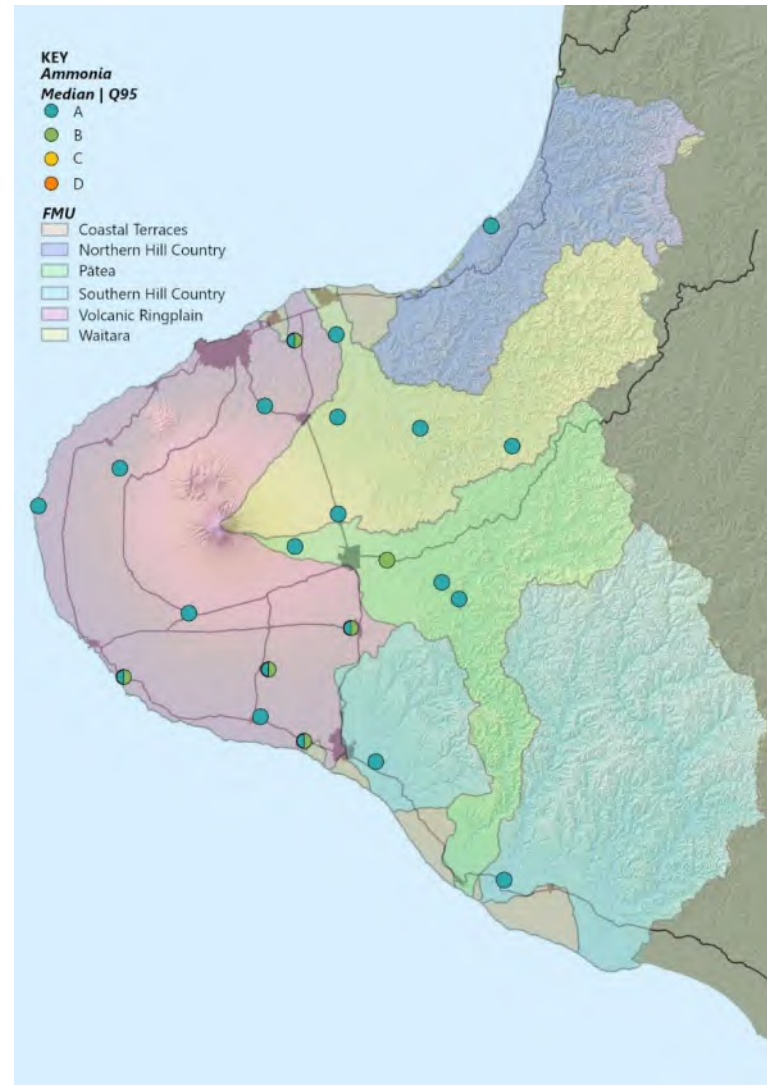
A Band: 16 sites

B Band: 6 sites

C Band: 0 site

D Band: 0 sites

NBL



Dissolved reactive phosphorous

Baseline state

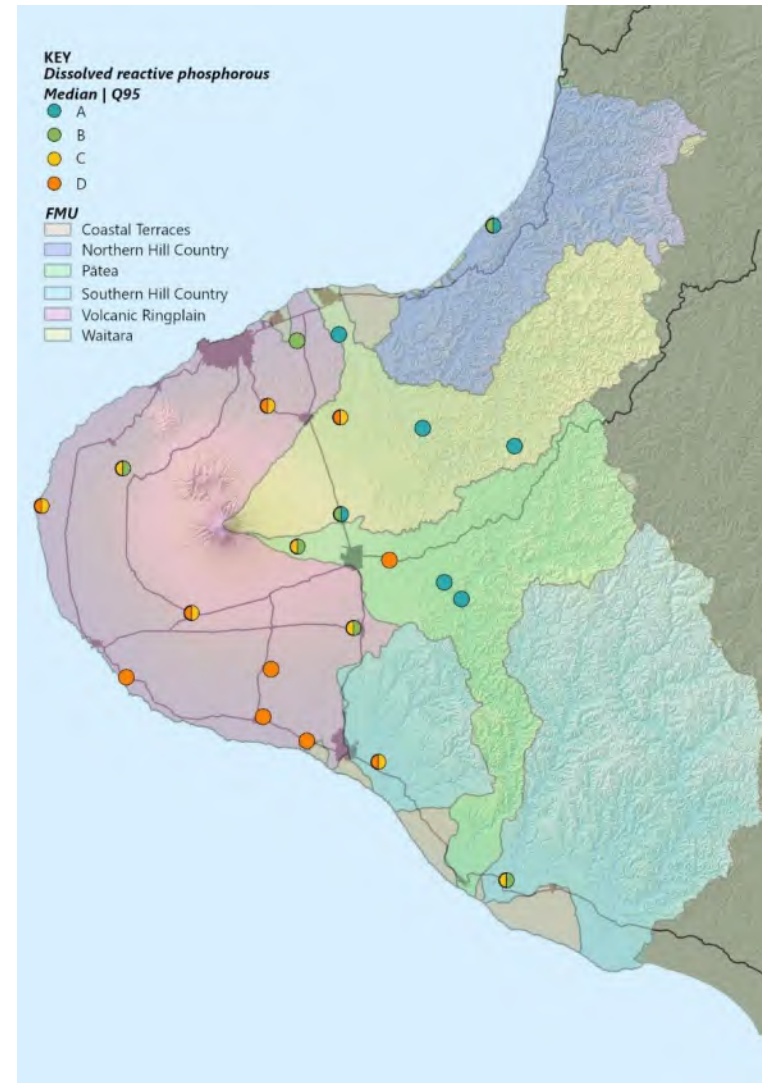
A Band: 5 sites

B Band: 3 sites

C Band: 4 site

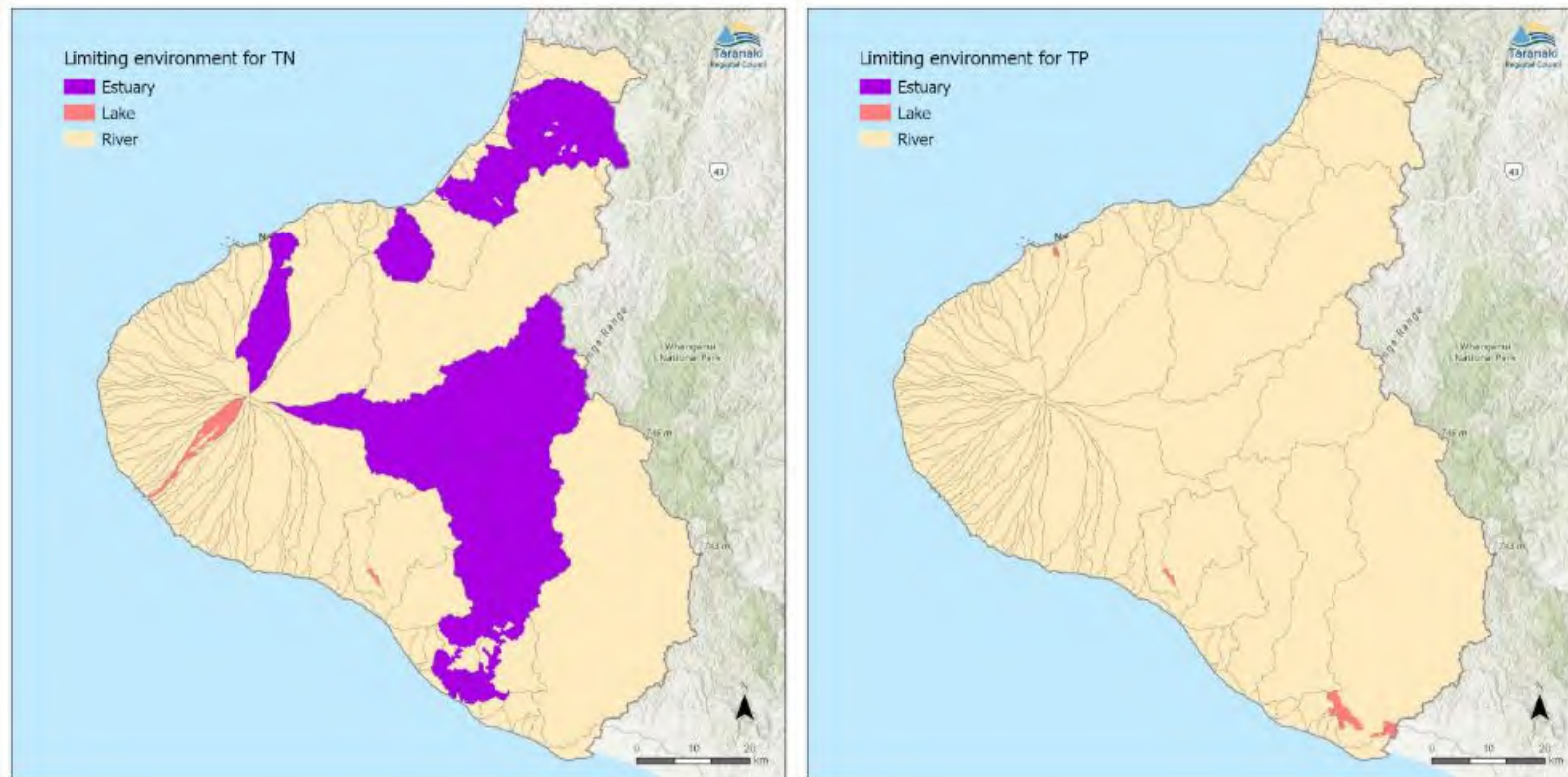
D Band: 10 sites

No NBL



Limiting environments

A recent national study provided an indication of where rivers, lakes or estuaries are likely to be the most susceptible (limiting) environment in each region.



Periphyton (biomass)

Baseline state

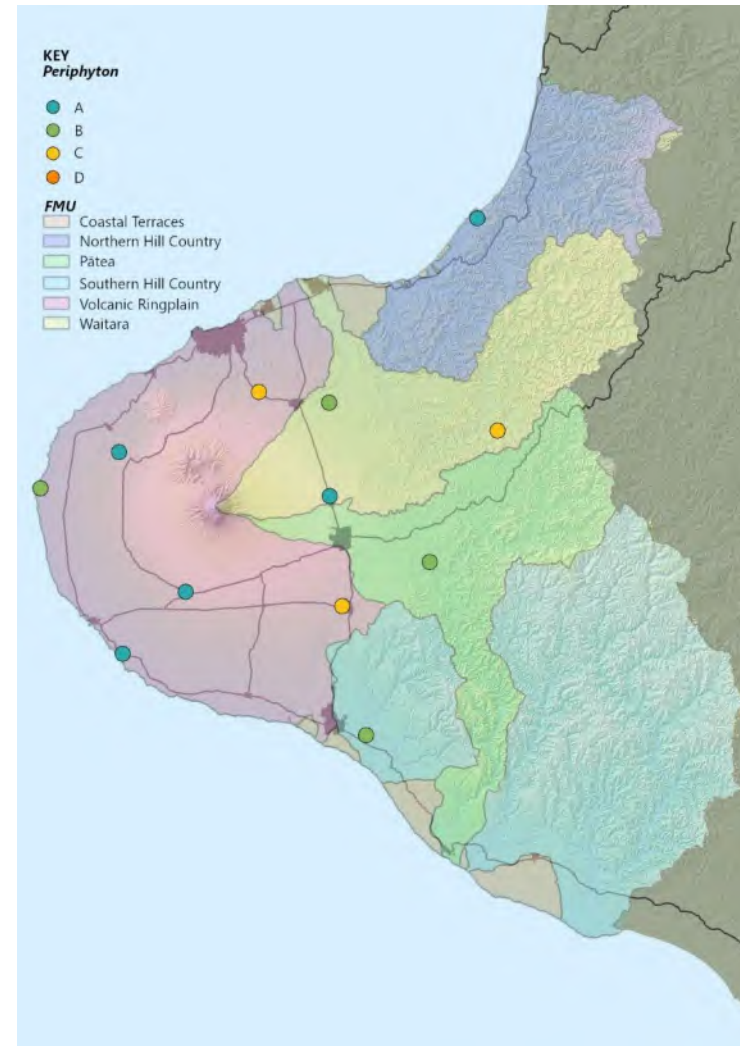
A Band: 5 sites

B Band: 4 sites

C Band: 3 site

D Band: 0 sites

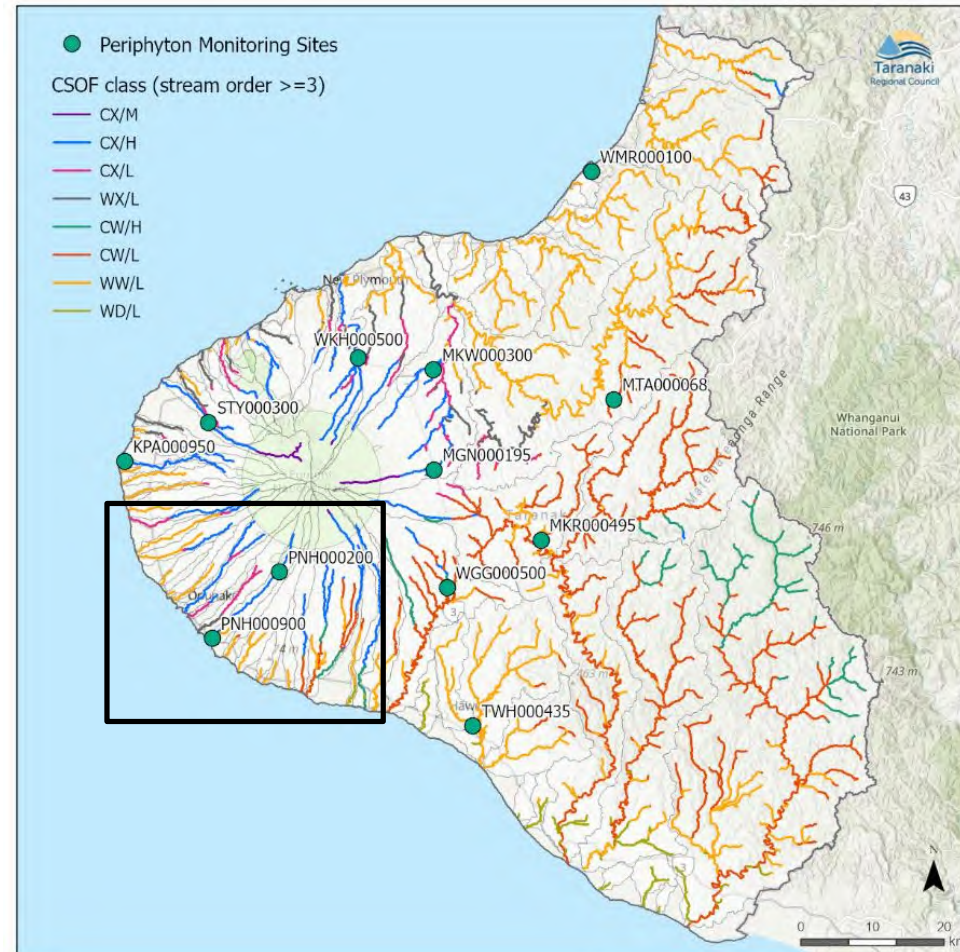
NBL



Nutrient criteria to meet periphyton targets

National nutrient criteria have been developed based on a river's susceptibility to excessive periphyton growth;

- Cold/warm
- Wet/dry
- Mountain/lowland



National nutrient criteria:

Snelder, T and Kilroy, C. (2023) Revised Nutrient Criteria for Periphyton Biomass Objectives. Updating criteria referred to in Ministry for Environment 2022 guidance. LWP Client Report 2023–08.

Nutrient criteria to meet periphyton targets

Different classifications between and within catchments

- Mountain v spring-fed
- Elevation within catchment / proximity to coast



Nutrient criteria to meet periphyton targets

Preliminary approach

1. Identify desired outcome (e.g. band B; periphyton)
2. Characterise each catchment (susceptibility)

=

Catchment specific nutrient criteria
*(maximum concentrations of DIN and DRP at
catchment outlets to achieve band B)*

Nutrient criteria to meet periphyton targets

Scale of reduction required to achieve criteria

Difference between:

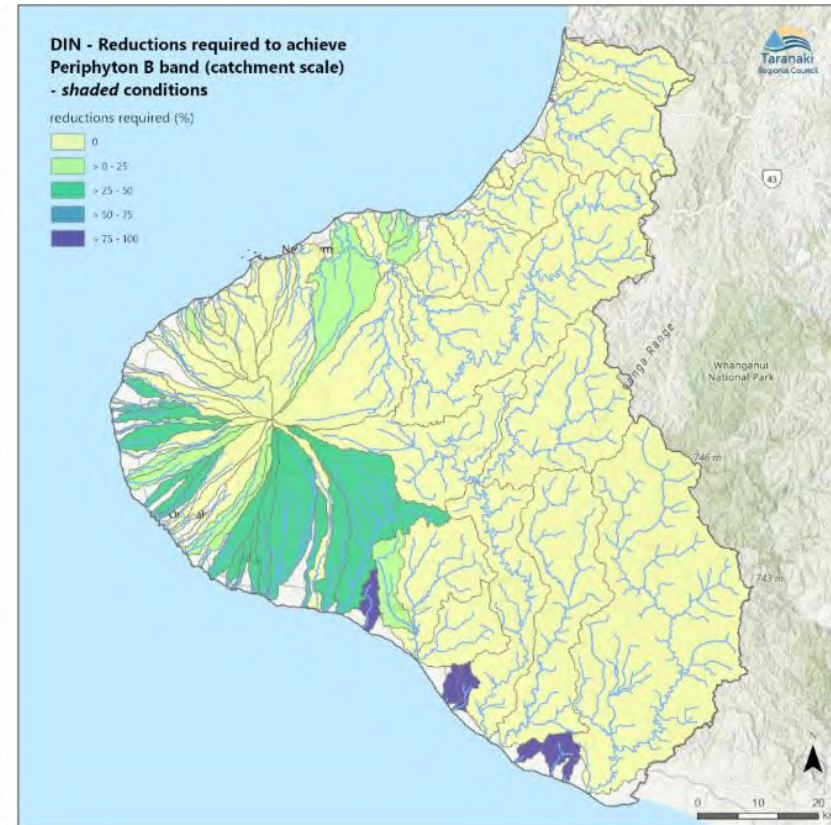
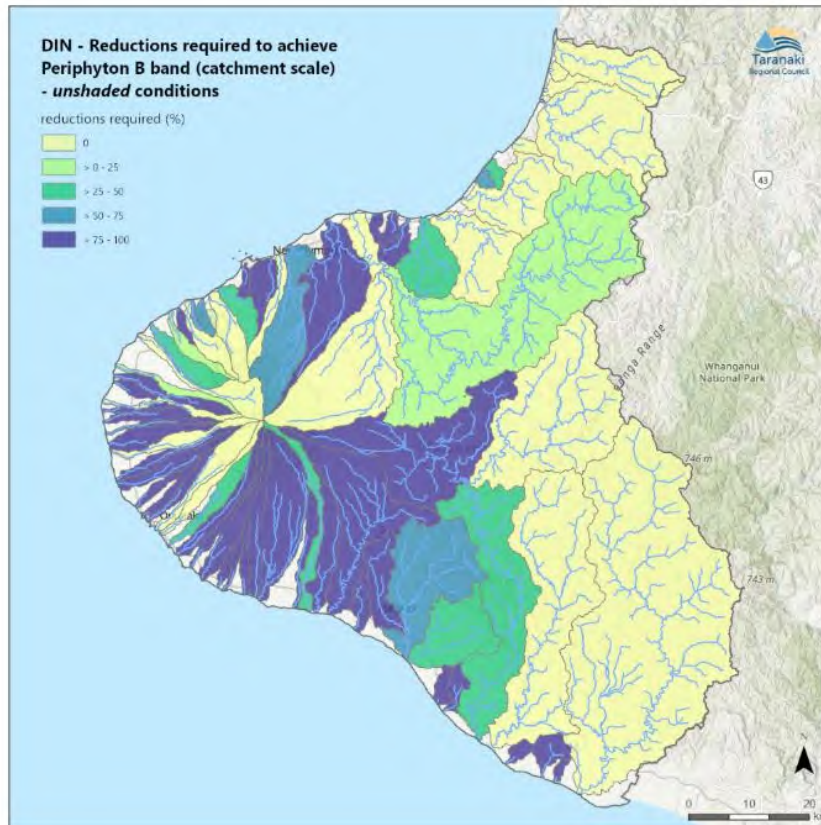
estimated DIN and DRP at catchment outlet

and

Catchment specific nutrient criteria

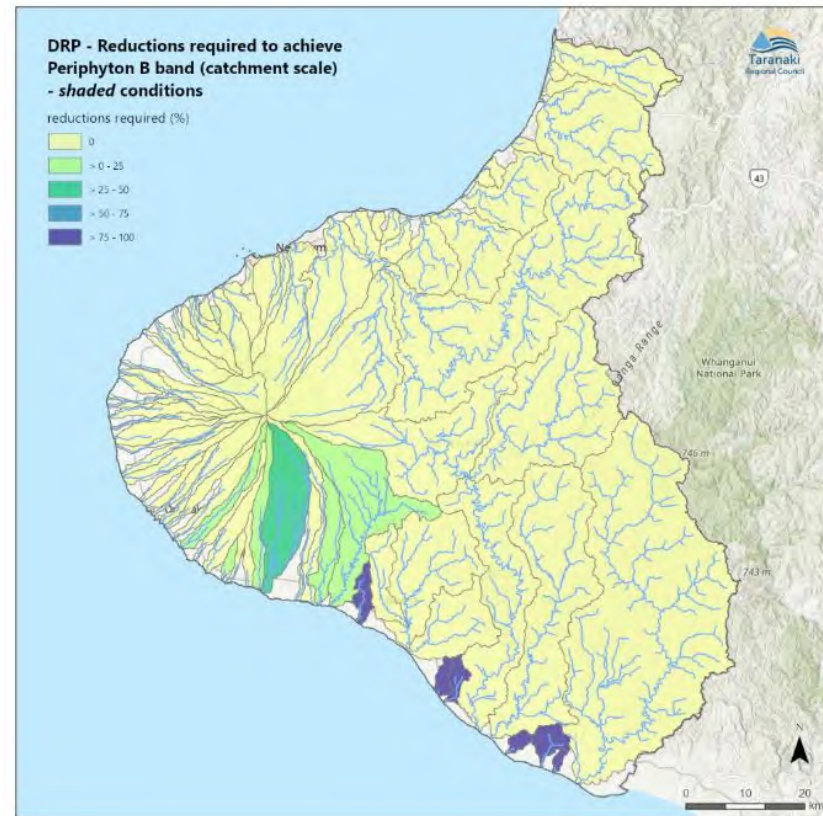
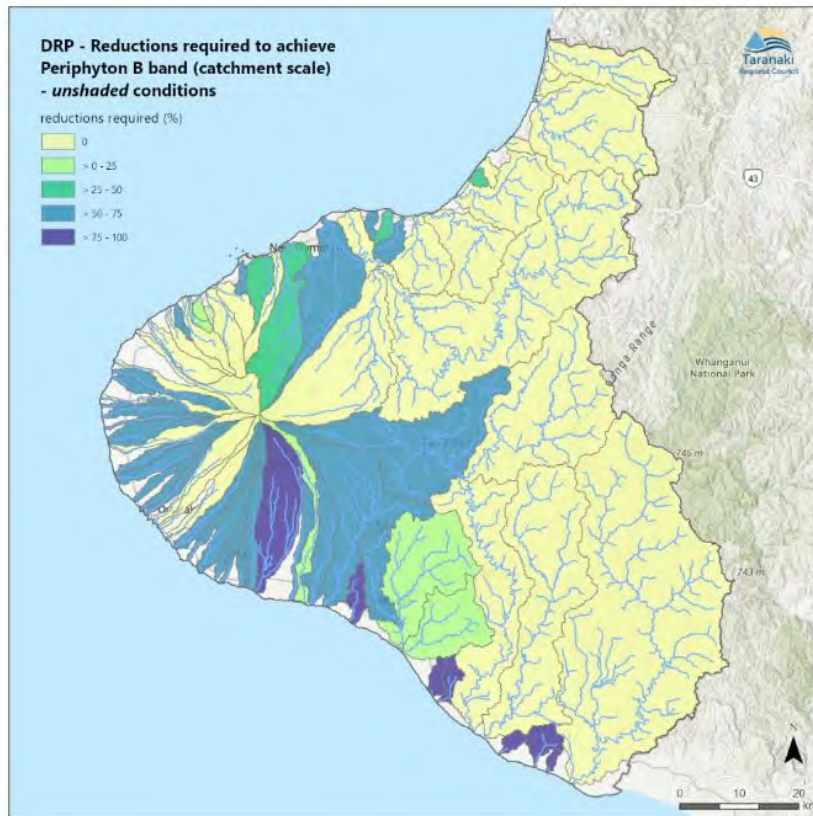
Nutrient criteria to meet periphyton targets

Preliminary assessment (dissolved inorganic nitrogen)



Nutrient criteria to meet periphyton targets

Preliminary assessment (dissolved reactive phosphorous)



Nutrient criteria to meet periphyton targets

Preliminary assessment (n = 73 catchments / major sub-catchments)

Periphyton biomass Band B (25% UPR)	Shading	No reduction required	1 – 25%	26 – 50%	51 – 75%	75 – 100%
DIN	unshaded	20	3	8	5	37
	shaded	40	11	16	0	6
DRP	unshaded	29	5	4	28	7
	shaded	61	5	1	0	6

DIN and DRP model uncertainty (95% confidence intervals)

Periphyton biomass Band B (25% UPR)	Shading	No reduction required (best estimate)	No reduction required (97.5% certainty)	Some reduction required (best estimate)	Some reduction required (97.5% certainty)
DIN	unshaded	20	4	53	34
	shaded	40	15	33	6
DRP	unshaded	29	5	44	6
	shaded	61	17	12	6

Nutrient criteria to meet periphyton targets

- Summary:
 - Band B preliminary target for periphyton set to reflect desired environmental outcomes of community
 - Significant reductions are required in a large number of catchments to achieve band B throughout the region
 - Challenge is generally greater with DIN than DRP
 - Scale of required reduction much less with effective shading
 - Must take into account uncertainty associated with model estimates

Nutrient criteria to meet periphyton targets

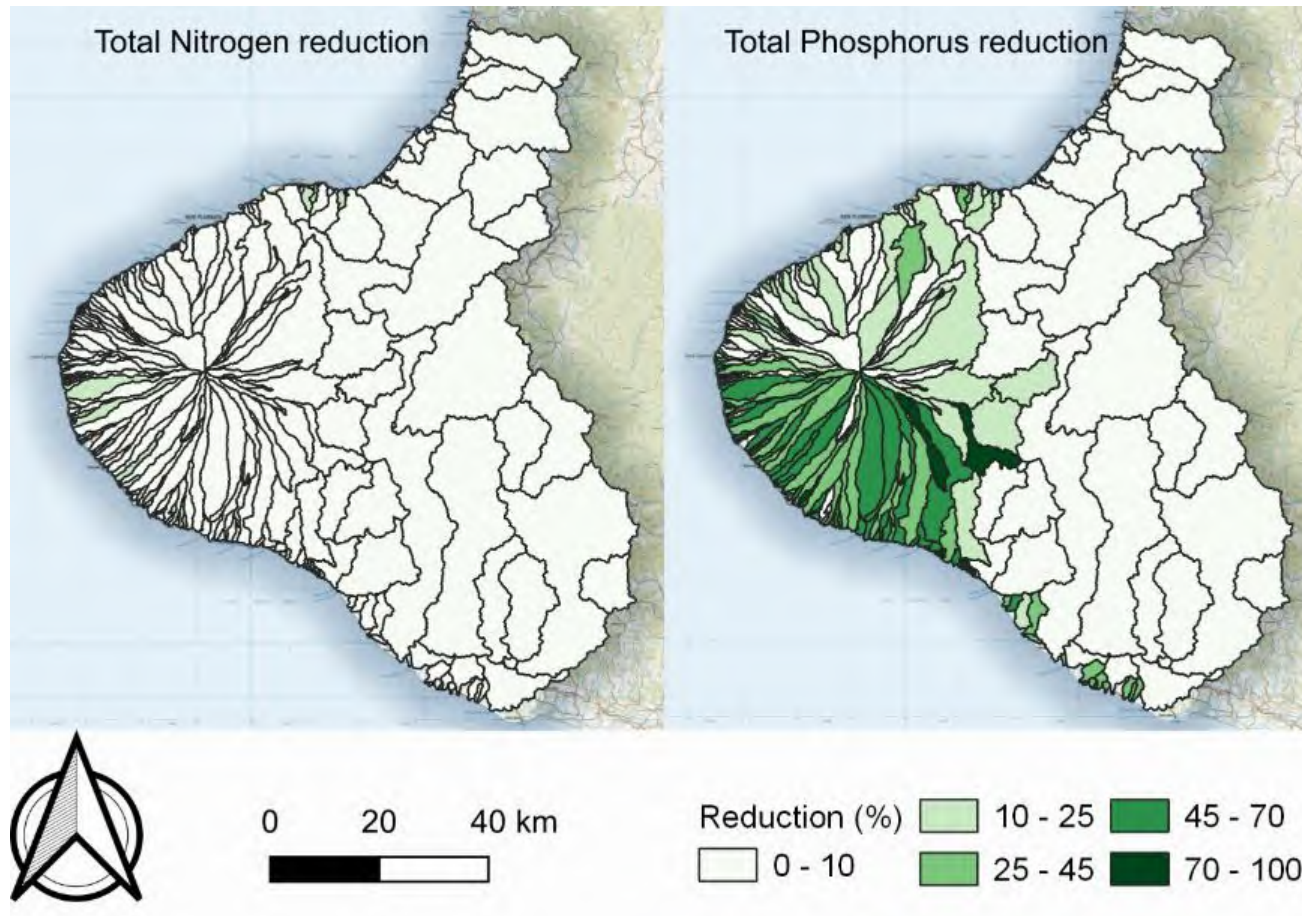
- General framework in place, but further refinement needed to ensure periphyton targets are ambitious *and* reasonable, and to account for:
 - Shading
 - Substrate
 - Other limiting environments (estuaries, lakes)
- Criteria may be refined but this is unlikely to change the required direction of travel

How far can we get? Mitigation scenario modelling

- Current management approaches:
 - Eliminating all direct discharge of dairy shed effluent into waterways
 - Completion of the Riparian Management Programme
- Future management options
 - Established mitigations (broadly accepted as good management practises)
 - Developing mitigations (recently developed mitigation technologies and management practises with limited validation)

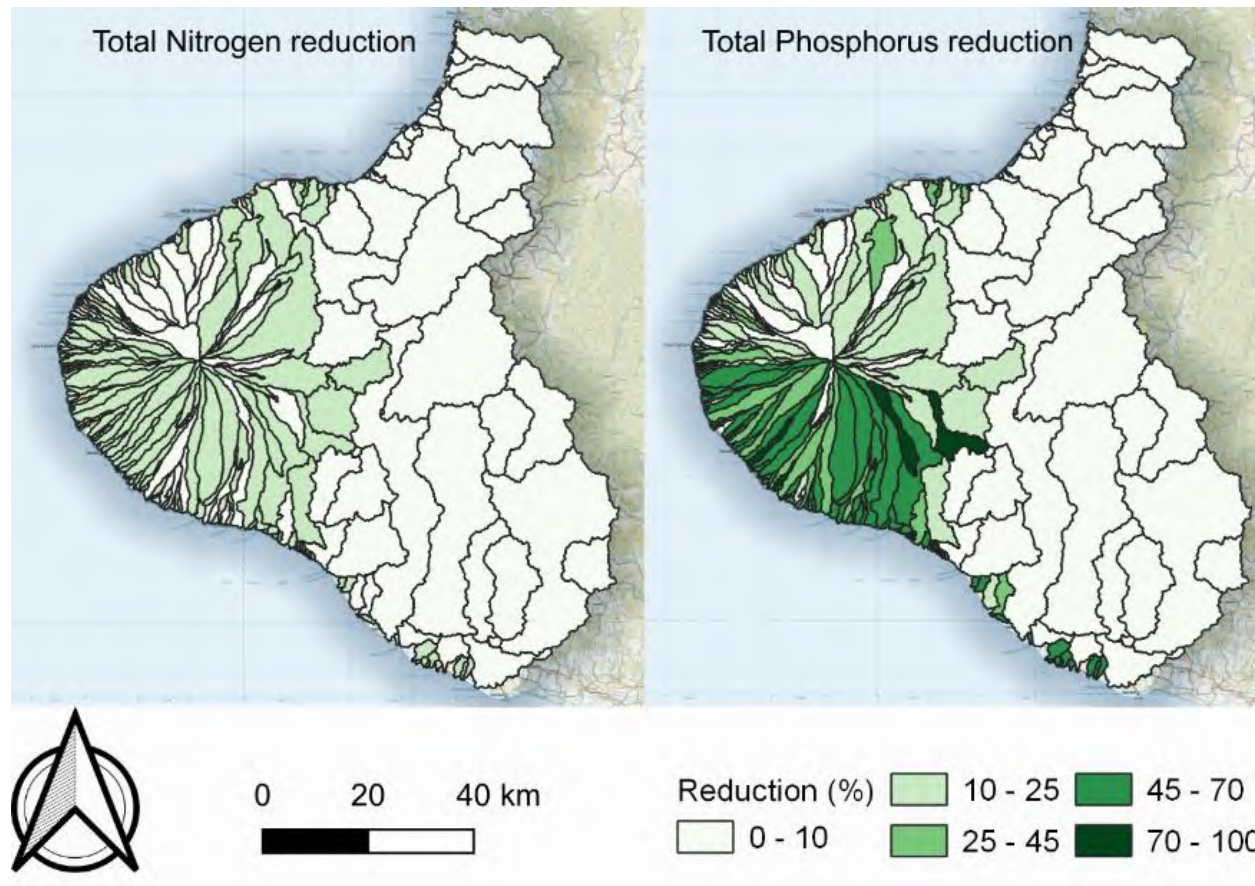
Mitigation scenario modelling; current management approaches

- Eliminating all direct discharge of dairy shed effluent into waterways



Mitigation scenario modelling; current management approaches

- Completion of the Riparian Management Programme, and removal of dairy effluent to water

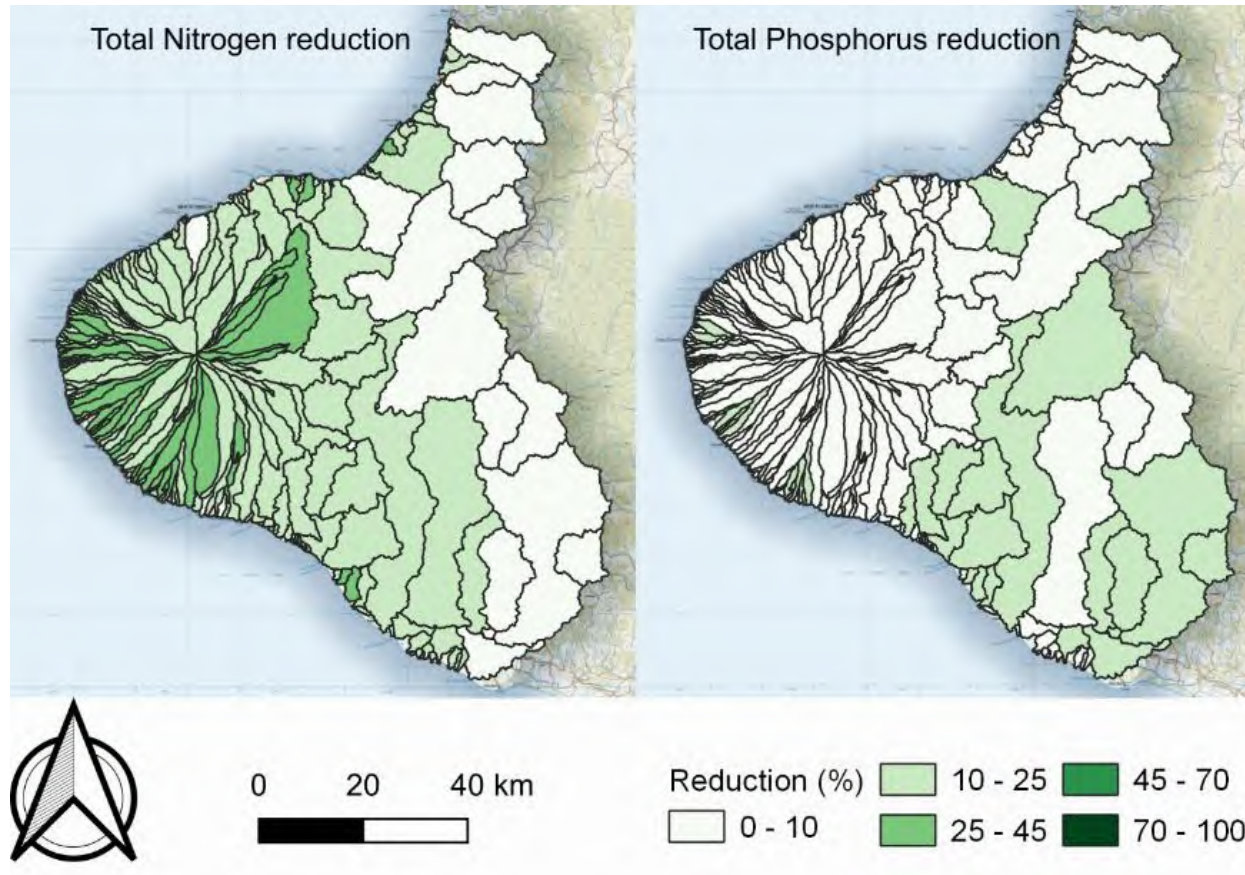


Mitigation scenario modelling; 'established' and 'developing' mitigations

'Established' mitigations (Monaghan et al. 2021)	'Developing' mitigations (McDowell et al. 2021)
<ul style="list-style-type: none"> • Stream fencing for stock exclusion • Reduced surplus soil P fertility • Use of low solubility forms of fertiliser P • Judicious scheduling of N and P fertiliser applications to avoid risk months • Reducing excessive inputs of fertiliser N • Land application of farm dairy effluent (FDE) • Enlarged areas receiving FDE • Targeted fertiliser returns to effluent treated areas • Deferred and/or low rate effluent irrigation • Wintering in a barn or a standoff • Reduced flood irrigation by-wash • Reduced over-watering • Retirement of marginal land 	<ul style="list-style-type: none"> • Retention dams, bunds and sediment traps • Strategic grazing of pasture within critical source areas (CSAs) • Strategic grazing of crops within CSAs • Tile drain amendments • In-stream sorbents • Alum applied to pasture of crops in CSAs • Controlled release fertiliser • Variable rate fertiliser • Variable rate irrigation and fertigation • On-off grazing in autumn/winter • Edge of field attenuation • Controlled drainage

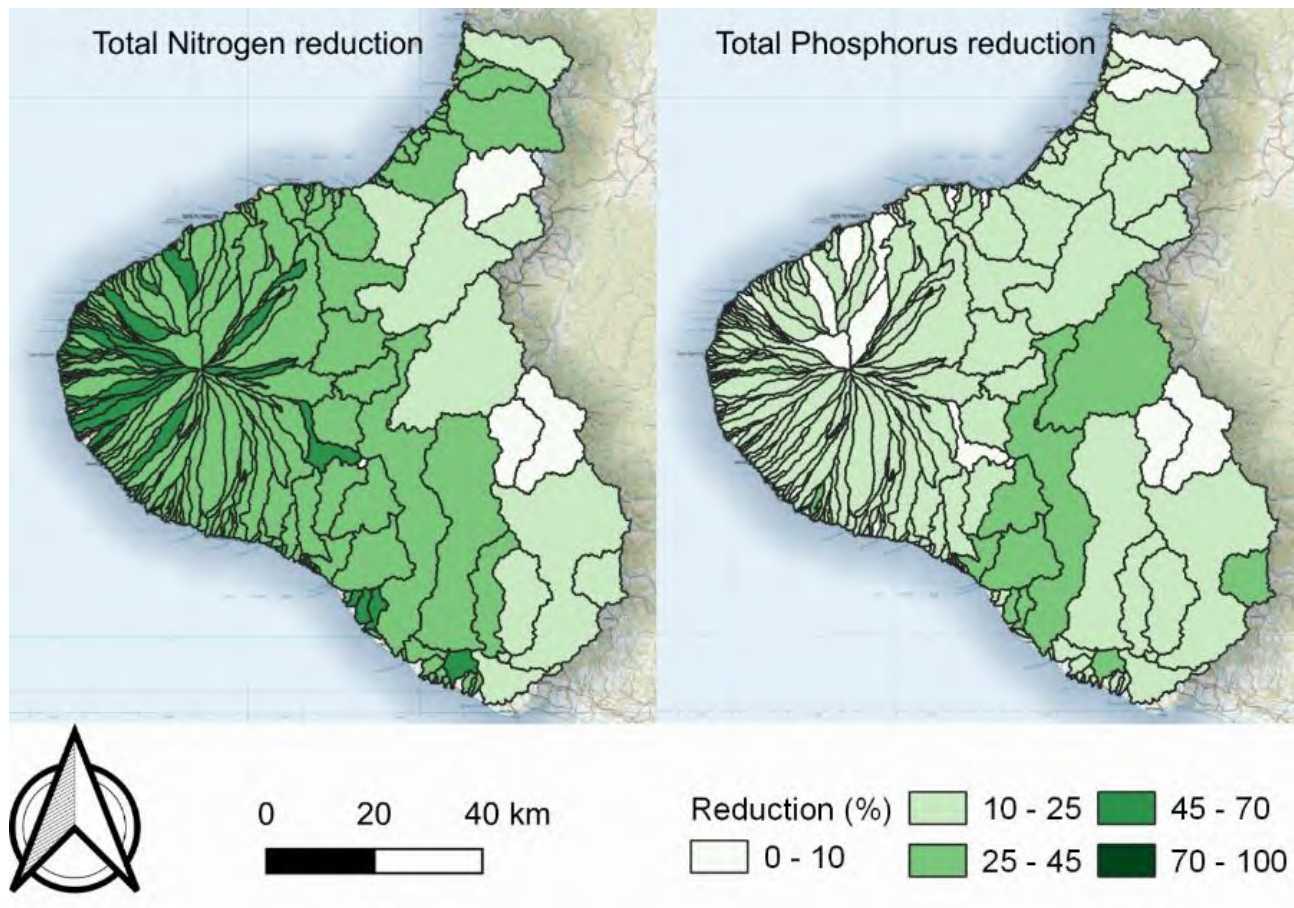
Mitigation scenario modelling; 'established' and 'developing' mitigations

- 'Established' mitigation options



Mitigation scenario modelling; 'established' and 'developing' mitigations

- 'Established' *and* 'developing' mitigation options

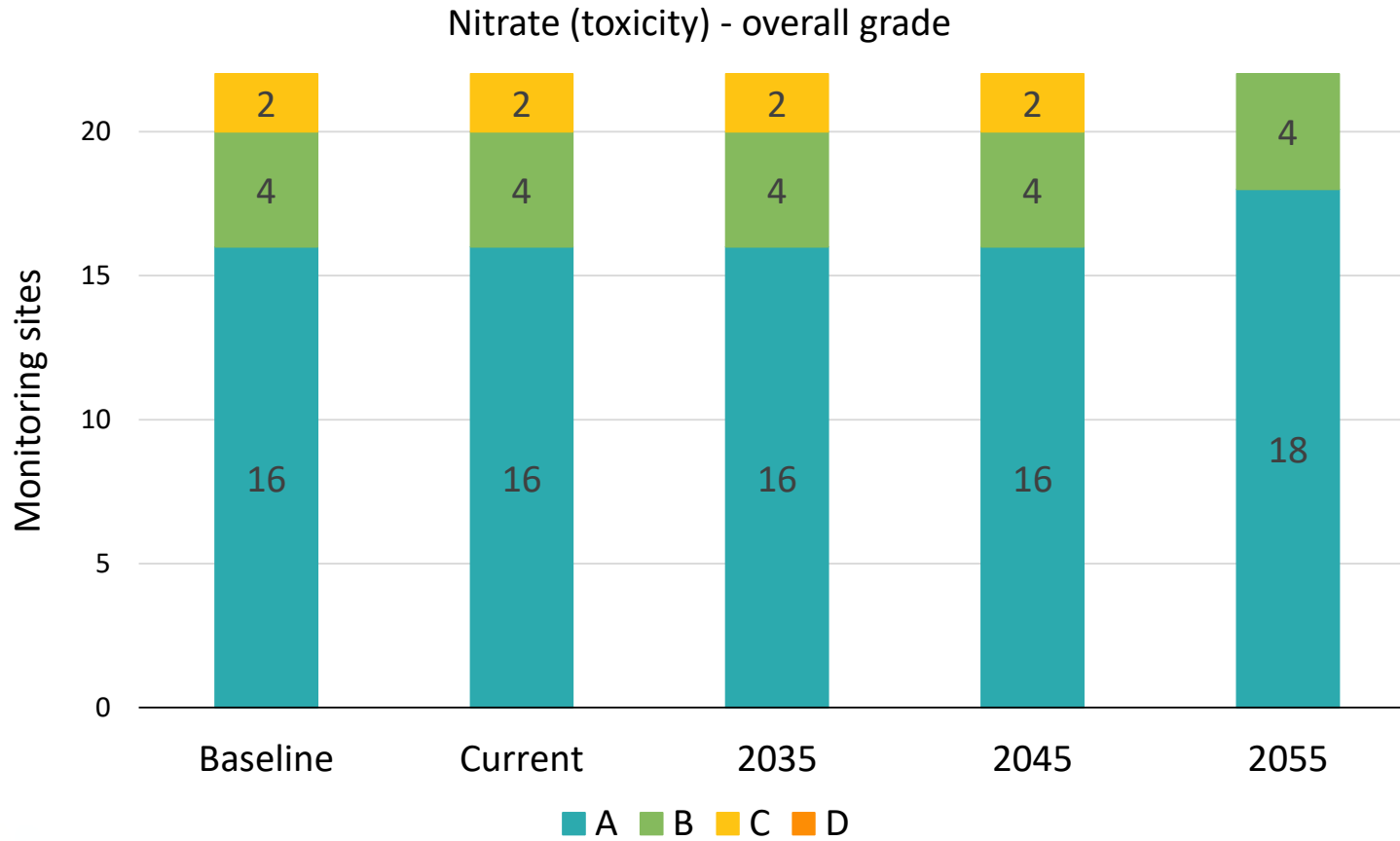


Draft target attribute states

Mitigation scenario modelling used to inform draft targets at 22 monitoring sites for the following three attributes

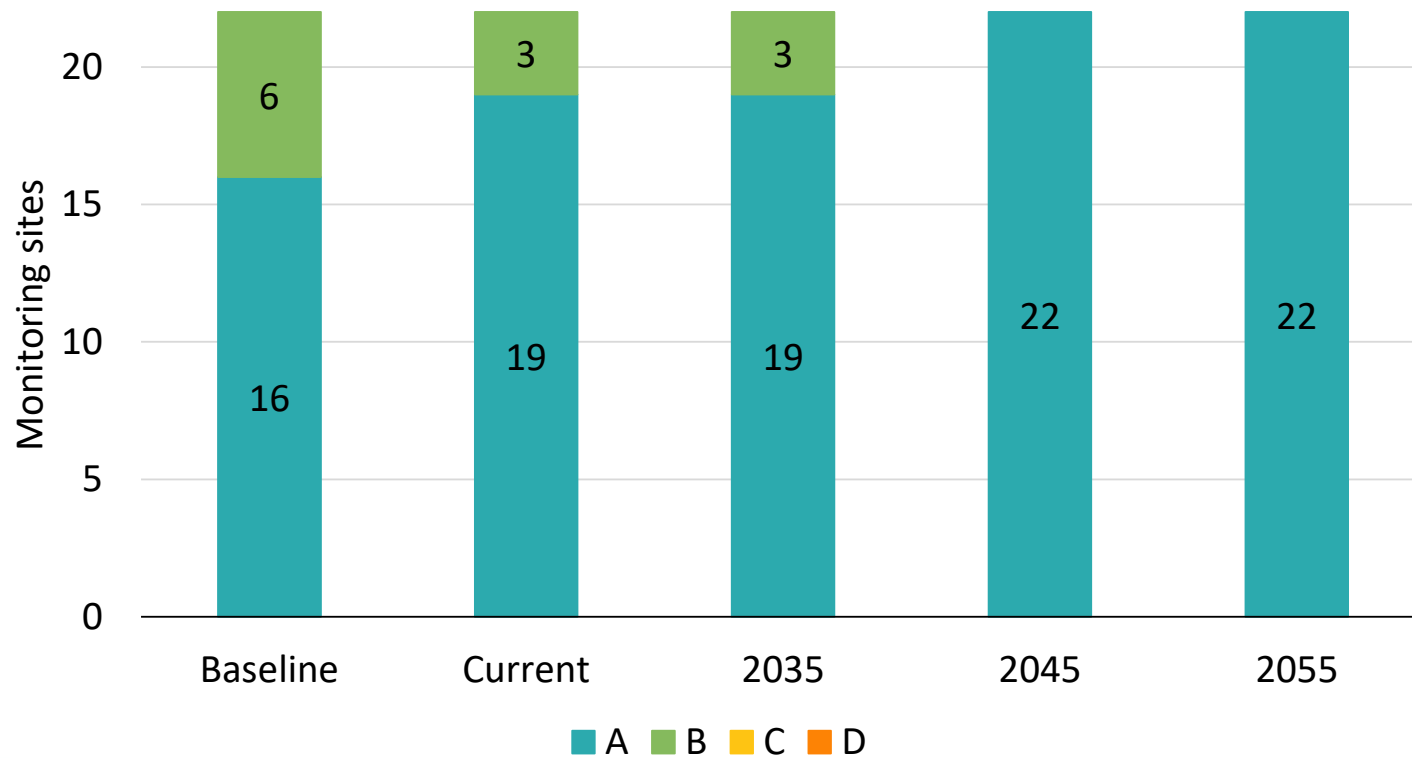
- Nitrate (toxicity)
- Ammonia (toxicity)
- Dissolved reactive phosphorous

Draft target attribute states; nitrate (toxicity)



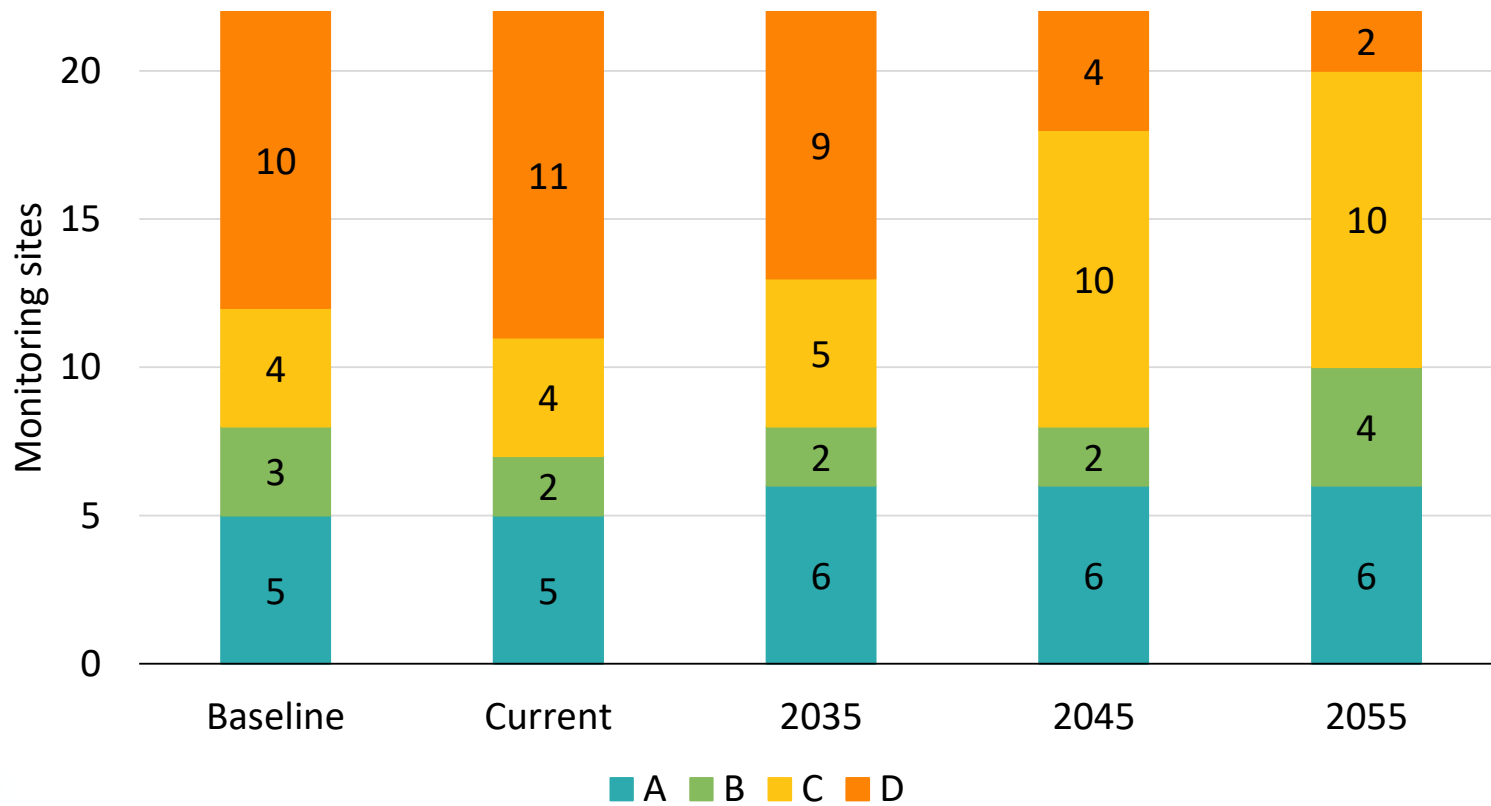
Draft target attribute states; ammonia (toxicity)

Ammonia (toxicity) - overall grade



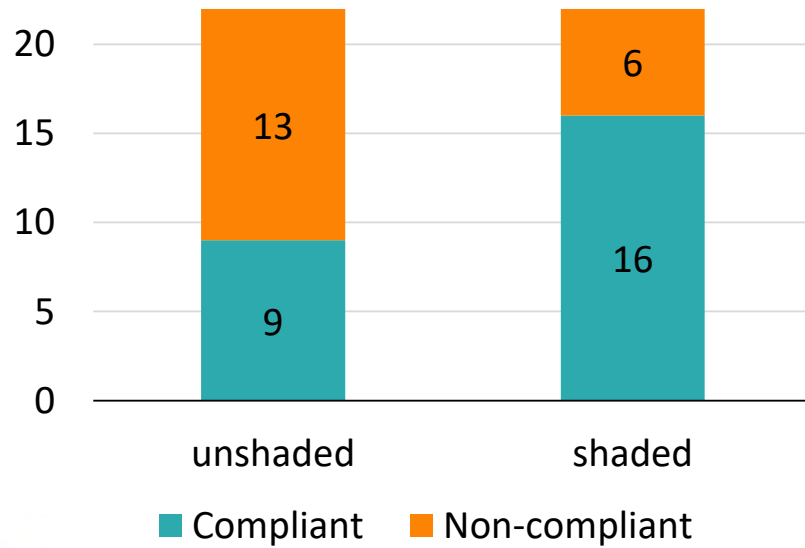
Draft target attribute states; DRP

Dissolved reactive phosphorous - overall grade

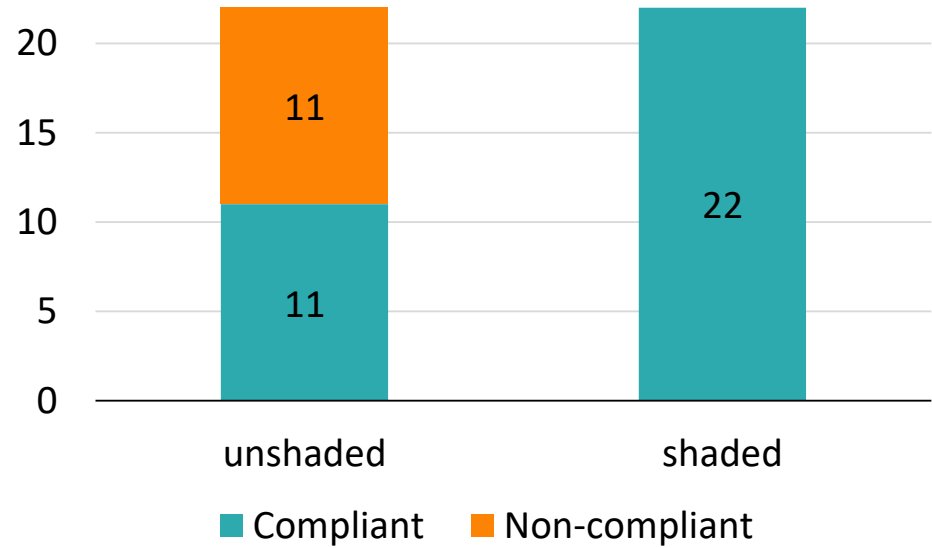


Monitoring site compliance with preliminary nutrient criteria for periphyton

Site compliance with catchment criteria; DIN



Site compliance with catchment criteria; DRP



Summary

- Draft targets proposed at 22 monitoring sites
 - Nitrate (toxicity)
 - Ammonia (toxicity)
 - DRP
- Preliminary nutrient criteria established to help achieve periphyton targets; further refinement currently underway
- Reductions in instream nutrient concentrations are possible, but will require wider set of BMP mitigation options than current approach
- Some targets may be unattainable with available mitigation strategies alone
- Scoping potential case study catchments to explore mitigations and actions (what might be possible)

Thank you for your attention!





Date: 11 June 2024

Subject: Source Water Risk Management Areas for Municipal Drinking Water Supplies

Author: V McKay, Manager – Environmental Assurance

Approved by: A J Matthews, Director - Environment Quality

Document: 3275523

Purpose

1. To present to the Committee source water risk management areas (SWRMA) for municipal drinking water supplies in Taranaki.
2. Taranaki Regional Council has commissioned Pattle Delamore Partners Ltd to undertake this work, in partnership with the district councils.

Executive summary

3. Contaminants, such as microorganisms, pose a risk to human health when they enter drinking water supplies. The provision of safe drinking water requires proactive risk management at every stage of the supply process.
4. Since 2017, following the outbreak of campylobacter in the Havelock North drinking-water supply, the Council has been working in collaboration with our district councils to improve the management of drinking-water in our region. To ensure we are meeting our legislative requirements, the Council recently commissioned Pattle Delamore Partners Ltd (PDP) to delineate source water risk management areas (SWRMA) for municipal drinking water supplies providing water to more than 500 people.
5. Protection of source water is important, not only because improving water quality is consistent with New Zealand's freshwater management framework, but because it is not always possible to remove contaminants through treatment processes. A key finding of the enquiry into the Havelock North contamination incident was the need for a multi-barrier approach to reduce risk at every step of the process – from source to tap. Source water protection is also important for giving effect to Te Mana o te Wai, as it addresses first and foremost, the health of the water bodies from which drinking water is extracted.
6. Defining each SWRMA involves delineating three areas, within which risks to the drinking water supply intake from contaminant sources are identified and can then be appropriately managed. The size and shape of the risk management areas takes into account the characteristics of migration pathways through the subsurface environment, over land and via surface water.
7. Source water risk management areas have been delineated for the 11 main municipal drinking water supplies in Taranaki. The next step is to identify any potential sources of contamination, such as land use activities or discharges that are consented within the SWRMA, particularly within the intake and intermediate protection zones. This will ensure that: (1) consent holders are aware of the potential risk

that their activities pose to any downstream intake; (2) we continue to work with the district councils to manage any identified risks; and (3) the protection of drinking water sources is accommodated within the Council's proposed Land and Freshwater Plan.

Recommendations

That Taranaki Regional Council:

- a) receives this memorandum Source Water Risk Management Areas for Municipal Drinking Water Supplies and the accompanying report Delineation of Source Water Risk Management Areas for selected municipal water supplies in the Taranaki Region
- b) notes the recommendations and next steps.

Background

8. Drinking water security has been a significant focus for New Zealand following an incident in Havelock North in August 2016, where drinking water contaminated with campylobacter resulted in four deaths and between 6,260 and 8,320 people contracting gastroenteritis (Gilpin et al., 2020).
9. Untreated or inadequately treated drinking-water presents a significant risk to human health. In New Zealand, drinking-waterborne gastrointestinal disease has been estimated to affect around 18,000 to 34,000 people per year (MoH, 2019). In the ten years prior to 2019, approximately 3 to 10% of enteric disease outbreaks in New Zealand were recorded as waterborne (MoH, 2019), i.e. via a drinking water source or through direct contact with contaminated recreational waters.
10. The numbers and rates of waterborne illness are known to be underestimated because not all people who become ill are accounted for in national statistics. A New Zealand study estimated that only one out of every 222 community cases of acute gastroenteritis illness is notified (MoH, 2019). There are a number of reasons for this: some people are infected but asymptomatic; some people that are ill do not visit a doctor; a lack (or refusal) of testing; or a lack of reporting if an illness is non-notifiable (e.g. norovirus).
11. The Havelock North incident prompted a Government enquiry that looked into: how the Havelock North water supply system became contaminated; how this was subsequently addressed; how local and central government agencies responded to the public health outbreak that occurred as a result of the contamination; and how the risk of outbreaks of this nature could be prevented from recurring.
12. The findings of the enquiry led to significant changes in requirements for the management of drinking water in New Zealand. This included changes to the roles and responsibilities of various agencies, and the establishment of a dedicated water services regulator, Taumata Arowai. The roles and responsibilities of the various agencies, including regional councils, are outlined in greater detail later in this memorandum.

Drinking water legislation

13. There are a number of legislative documents that apply to the management of drinking water in New Zealand including, but not limited to: the Water Services Act 2021; Water Services (Drinking Water Standards for New Zealand) Regulations 2022; National Standards for Sources of Human Drinking Water (NES-DW). The Resource Management Act 1991 and National Policy Statement for Freshwater Management 2020 (NPS-FM) also set out requirements for the management of freshwater more broadly.

Water Services Act 2021

14. The Water Services Act 2021 sets out a regulatory framework and requirements for drinking water suppliers to provide safe drinking water to consumers. Water suppliers must have a drinking water

safety plan, and consistently comply with legislative requirements (such as drinking water standards). They must also provide a source water risk management framework that, together with the Resource Management Act 1991, regulations made under that Act, and the NPS-FM, enables risks to source water to be properly identified, managed, and monitored.

15. This Act seeks to provide transparency to communities about the performance of drinking water, wastewater, and stormwater networks and network operators. It aims to:
 - build and maintain capability among drinking water suppliers and across the wider water services sector
 - ensure that each supply is able to support the ordinary drinking water and sanitary needs of consumers
 - establish a framework for the continuous and progressive improvement of the quality of water services in New Zealand.

Water Services (Drinking Water Standards for New Zealand) Regulations 2022

16. These standards set limits for the concentration of a range of determinands, such as *Escherichia coli*, heavy metals and chemicals in drinking water. The limits are referred to as maximum acceptable values (MAVs) which must not be exceeded at any time. Under the Water Services Act 2021, all drinking water suppliers must ensure that the drinking water they supply complies with the standards, regardless of the nature of the source water used or the number of people served by the supply.

National Standards for Sources of Human Drinking Water (NES-DW)

17. The National Environmental Standards for Sources of Human Drinking Water (NES-DW) came into effect in 2008 and are currently being reviewed by the Ministry for the Environment. The standards require regional councils to consider the effects of activities on drinking water sources in their decision making.
18. These standards are relevant to regional councils as they require us to:
 - decline discharge or water permits that are likely to result in community drinking water becoming unsafe for human consumption following existing treatment
 - be satisfied that permitted activities in regional plans will not result in community drinking water supplies being unsafe for human consumption following existing treatment
 - place conditions on relevant resource consents requiring notification of drinking water suppliers if significant unintended events occur (e.g. spills) that may adversely affect sources of human drinking water.
19. The NES-DW sets out different requirements depending on the number of people that a registered water supply provides for, and the number of days per year water is supplied. The most stringent requirements relate to registered drinking-water supplies that provides no fewer than 501 people with drinking water for not less than 60 days each calendar year. The NES-DW also sets out requirements for registered drinking-water supplies that provides no fewer than 25 people with drinking water for not less than 60 days each calendar year.
20. The NES-DW requires proactive risk management at every stage of the supply process. This 'multi-barrier' approach ensures protections are in place from the catchment where water is taken through to delivery to individual customers ('source to tap'). The 'first barrier' is ensuring adequate protection of source water – our rivers, lakes and groundwaters – from contamination.
21. It is noted that work was initially undertaken by the Council to define generic drinking water protection zones, following the release of the original NES-DW. The recent development of SWRMAs for groundwater and surface water ensures these zones/areas align with current best-practice.

Other documents and legislative changes

22. In 2018 the Ministry for the Environment (MfE) published the Technical Guidelines for Drinking Water Source Protection Zones (SPZ), based on international best practice for delineating and implementing source protection zones for drinking water sources. Updated guidelines for delineating source water risk management areas (SWRMA) were released in September 2023. Delineation of SWRMA for Taranaki municipal drinking water supplies has been undertaken in line with the most recent guidance.
23. During 2022 the Government consulted on proposed amendments to the NES-DW. The Ministry for the Environment is continuing to progress work on proposed amendments to the NES-DW. These proposals include requiring the mapping of source water risk management areas, as well as providing direction on specific activity controls in these different risk areas, in order to improve the clarity of the NES-DW and enable better implementation of the rules. It is our understanding that further work is continuing during 2024.

Roles and responsibilities

24. There are a number of different organisations with responsibilities for managing and monitoring potable drinking-water in New Zealand, including Taumata Arowai – the water services regulator, regional councils, district councils and other water suppliers, as well as Manatū Hauora / Ministry of Health who remains responsible for drinking-water policy.
25. The need for better collaboration between agencies involved with drinking-water management was a key finding of the Havelock North Inquiry. Since 2017, the Council has been working in collaboration with the relevant agencies to improve drinking-water management in the region.

Regional Councils

26. Regional councils have responsibilities pertaining to water quality under both the Resource Management Act (RMA) and regulations set out in the NES-DW. With respect to water quality under the RMA, regional councils are responsible for the use of land for the purposes of maintaining and enhancing freshwater; and the discharge of contaminants into or onto land, air or water, and discharges of water into water. Drinking-water suppliers require a resource consent from the regional council to take water and as part of the determination of that consent, the regional council must have regard to the relevant provisions of the NES-DW.
27. Under the WSA 2021, regional councils are required to publish and provide Taumata Arowai with information on source water quality and quantity in their region annually, including any changes that may occur. As the regional council, we are also required to assess the effectiveness of regulatory and non-regulatory interventions to manage risks or hazards to source water in the region at least once every three years and make this information available to the public on our website.
28. The Regional Council is also required to consider the impacts of activities on drinking water supplies under the NPS-FM. This includes ensuring freshwater meets the health needs of people (including drinking water) as the second priority in the hierarchy of obligations that provide for Te Mana o te Wai.

District Councils and other water suppliers

29. The planning and policy functions of district councils (in relation to drinking water) are narrower than those of regional councils however, they are responsible for creating and implementing district plans, which must not be inconsistent with regional plans. District councils also have responsibilities as consent holders for water take consents and must comply with the conditions of those consents.
30. As drinking-water suppliers, district councils are required to manage and monitor drinking-water supplies to ensure the supply complies with the Drinking-water Standards for New Zealand (DWSNZ), take reasonable steps to protect both the source of this supply from contamination and the supply system from pollution, and prepare and implement a Water Safety Plan.

31. Under the current legislation, all suppliers, except domestic self-suppliers, not registered with the Ministry of Health by November 2022, must register with Taumata Arowai by November 2025, and produce a Source Water Risk Management Plan by November 2028.

Taumata Arowai

32. Since November 2021, Taumata Arowai has been the water services regulator for Aotearoa New Zealand. Its role is to ensure communities have access to safe and reliable drinking water every day; Taumata Arowai also has an oversight role in relation to the environmental performance public wastewater and stormwater networks.
33. Taumata Arowai provides a range of guidance information packs for water supplies and information for the public on their local drinking water supply. Information can be found at <https://www.taumataarowai.govt.nz/>.

Discussion

34. To ensure both local authorities are able to meet their requirements regarding the protection of drinking water quality, the Council (in partnership with district councils) recently commissioned Pattle Delamore Partners Ltd (PDP) to delineate source water risk management areas (SWRMAs) around community drinking water supplies in Taranaki providing water to 500 or more people.
35. The delineation of risk management areas will enable local authorities and water service providers to identify potential sources of contamination within each SWRMA, and better assess the potential effects of permitted and consented activities on drinking water sources, for example:
 - Land-use activities, potential sources of contamination, and other water users that could affect the quality or quantity of the source of a drinking water supply
 - Water quality monitoring of the source of a drinking water supply conducted by a regional council
 - Known risks or hazards that could affect the source of a drinking water supply.
36. Regional councils have the additional role of assessing the effectiveness of interventions to manage risks and hazards to source water in their regions. This must be done at least once every three years and the resulting information must be made available to the public through regional council websites. We are also required to publish information annually about the quality and quantity of source water in their regions.

Source water risk management areas

37. The WSA 2021 defines a 'source' as the water body from which water is abstracted for use in a drinking water supply. Examples of sources include rivers, streams, lakes, aquifers and rainwater. As part of drinking water safety planning, suppliers must prepare and implement a source water risk management plan. These plans outline the hazards and risks associated with the source water and how these will be managed. The source water risk management plan becomes part of the supplier's drinking water safety plan.
38. Defining a SWRMA involves delineating an area within which risks to a drinking water supply intake from contaminant sources are identified and appropriately managed. The size and shape of the source protection zone takes into account the characteristics of migration pathways that occur over land and through surface water and the subsurface environment.
39. The source-pathway-receptor concept applies to SWRMA delineation. The receptors are the drinking water supply intakes. A range of potential sources of contamination will exist in different catchments, such as (but not limited to) micro-organisms, solvents, dissolved metals and, emerging contaminants. SWRMA delineation involves considering potential pathways over land, through surface water and the subsurface environment that would allow contaminants to reach the water supply intakes.

40. For groundwater sources, risk management areas include the following:
- SWRMA 1:** The immediate area around the bore, the aim is to prevent and manage the risk of contaminants entering the bore directly or via the bore casing.
- SWRMA 2:** The area around, and upgradient of, a groundwater source where the aim is to limit the potential for microbial pathogens to reach the source where they are in an infective state.
- SWRMA 3:** The entire groundwater catchment to a source where the aim is to capture cumulative effects and/or persistent contaminants that may not dilute or attenuate significantly before reaching a point source.
41. For surface water sources, the definition of the SWRMA is based on the MfE (2023) guidelines, summarised below:
- Intake Protection Zones (Surface water SWRMA 1)**
- Rivers – the river and its bed 1,000 m upstream and 100 m downstream of the intake, extending 5 meters into land from the edge of the river. Including all tributaries in that distance
 - Lakes – the lake and its bed within a 500 m radius of the intake, extending 5 m into land from the edge of the bed of the lake. Including all tributaries in the distance.
- Intermediate Protection Zones (Surface water SWRMA 2)**
- Rivers – the river and its bed within 8 hours travel time upstream and 100 m downstream of the intake, extending 100 m into land from the edge of the river. Including all tributaries in that distance
 - Lakes – the entire lake area, extending 100 m landward from the edge of the bed of the lake, and 100 m either side of all tributaries where water travels to the lake within an 8-hour period.
- Entire Catchment Zones (Surface water SWRMA 3)**
- Surface water catchment boundary (from 100m downstream of the intake in rivers).
42. As of 26 May 2024, 46 water supplies in the Taranaki region have been registered with Taumata Arowai. In addition to water supplies operated by the district councils, registered supplies include a number of schools, education centres and water carriers.
43. Of those registered supplies, eleven supplies are registered as serving more than 500 people, all of which are owned and operated by the district councils. Source water risk management areas have now been delineated for all of these supplies, encompassing 13 groundwater bores and 17 surface water takes. These are set out in Table 1 below.

Table 1 Municipal drinking water supplies and distribution zones for council owned/operated supplies in Taranaki serving more than 500 people.

Water Supply	Owner / Operator	Distribution Zone	Population		Source (number of sources)
Pātea	STDC	Pātea	1,310		Groundwater (4)
Waverley	STDC	Waverley	878		Groundwater (3)
		Waverley Beach	36 + campground		Groundwater (1)
Ōakura	NPDC	Ōakura	2008		Groundwater (2) Surface water (1)
Okato	NPDC	Okato	802		Surface water (1)
Hawera	STDC	Hawera	10,108	11,761	Groundwater (2) Surface water (1)
		Normanby	1,126		
		Ohawe Beach	268		

Water Supply	Owner / Operator	Distribution Zone	Population		Source (number of sources)
		Okaiawa	259		
Waimate West	STDC	Waimate West Rural	1,342	2,635	Groundwater (1) Surface water (3)
		Kaponga	321		
		Manaia	972		
Eltham	STDC	Eltham	2,064		Surface water (1)
Inaha	STDC	Inaha	561		Surface water (3)
New Plymouth	NPDC	New Plymouth	49,573	66,562	Surface water (4)
		Bell Block	7,289		
		Urenui/Tikorangi	1,527		
		Waitara	8,173		
Opunake	STDC	Opunake	1,446		Surface water (1)
Stratford	SDC	Stratford	6,773		Surface water (2)

44. A map showing the location of the main municipal water supply takes in Taranaki is provided in Figure 1. Figures 2 and 3 provide examples of groundwater and surface water risk management areas delineated for Oakura and Stratford, respectively.

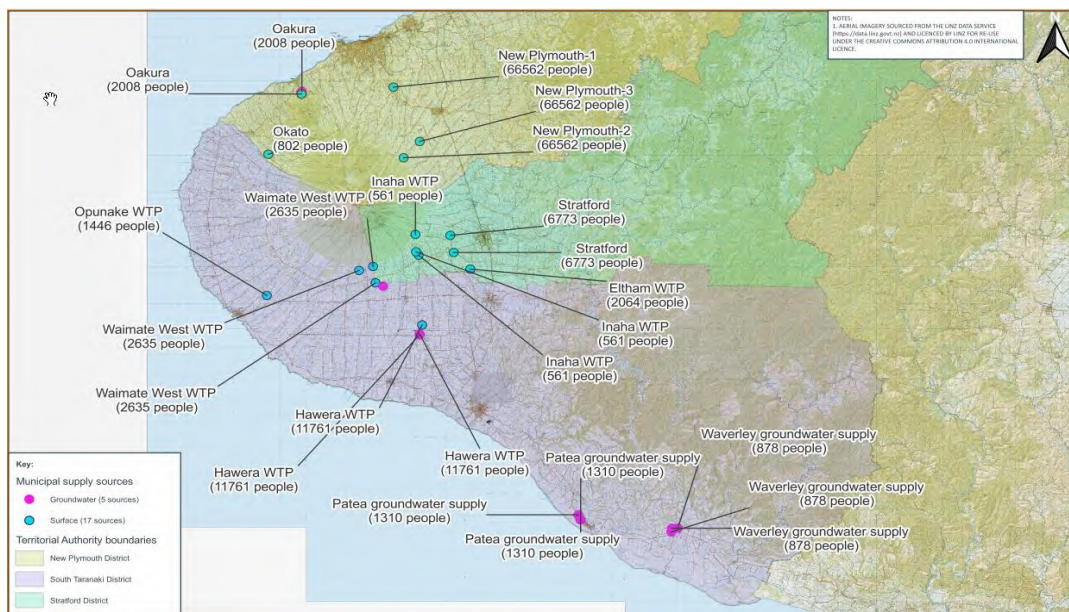


Figure 1: Location of the main surface water and groundwater supplies in the Taranaki region.

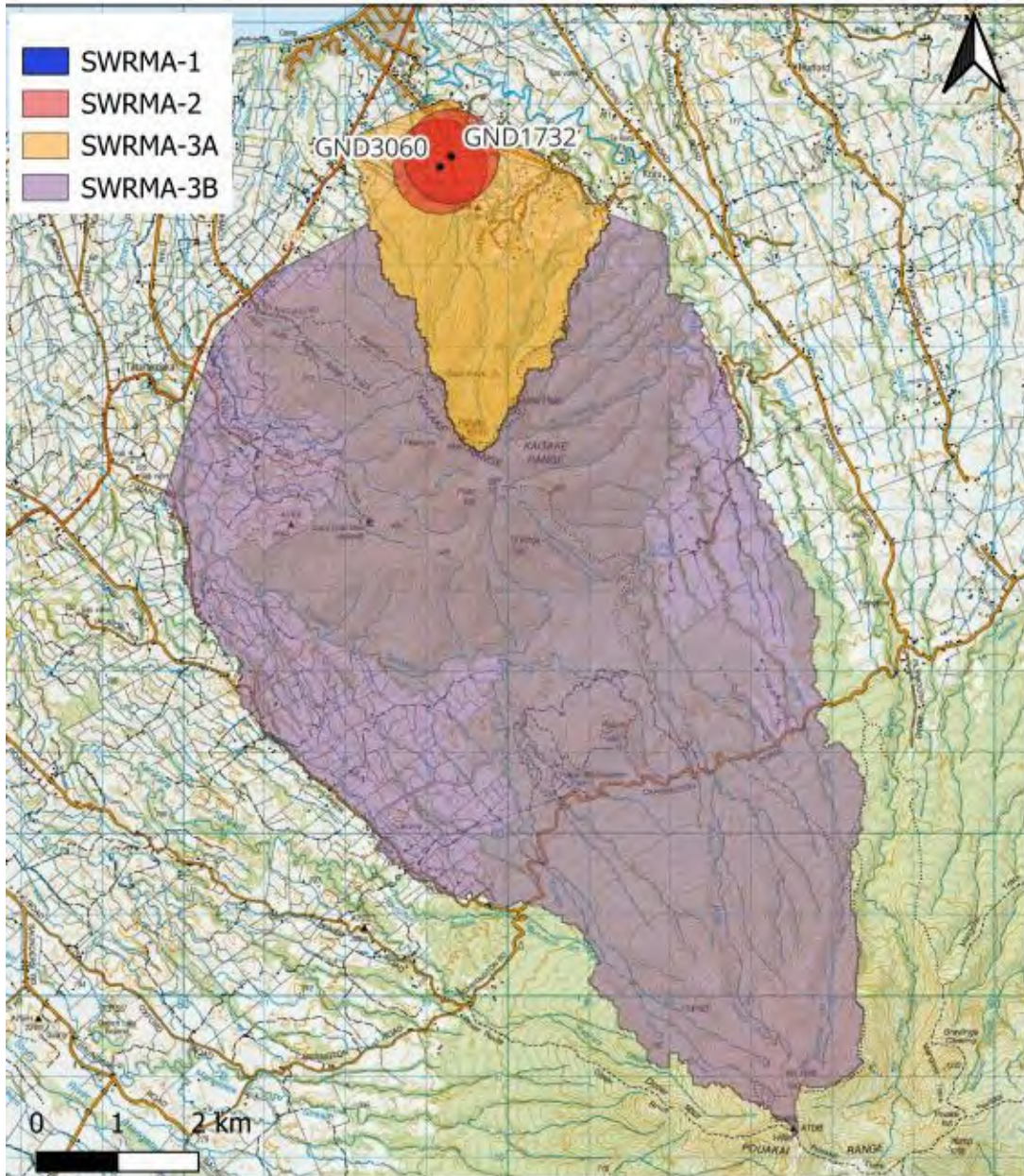


Figure 2: Oakura groundwater supply SWRMA

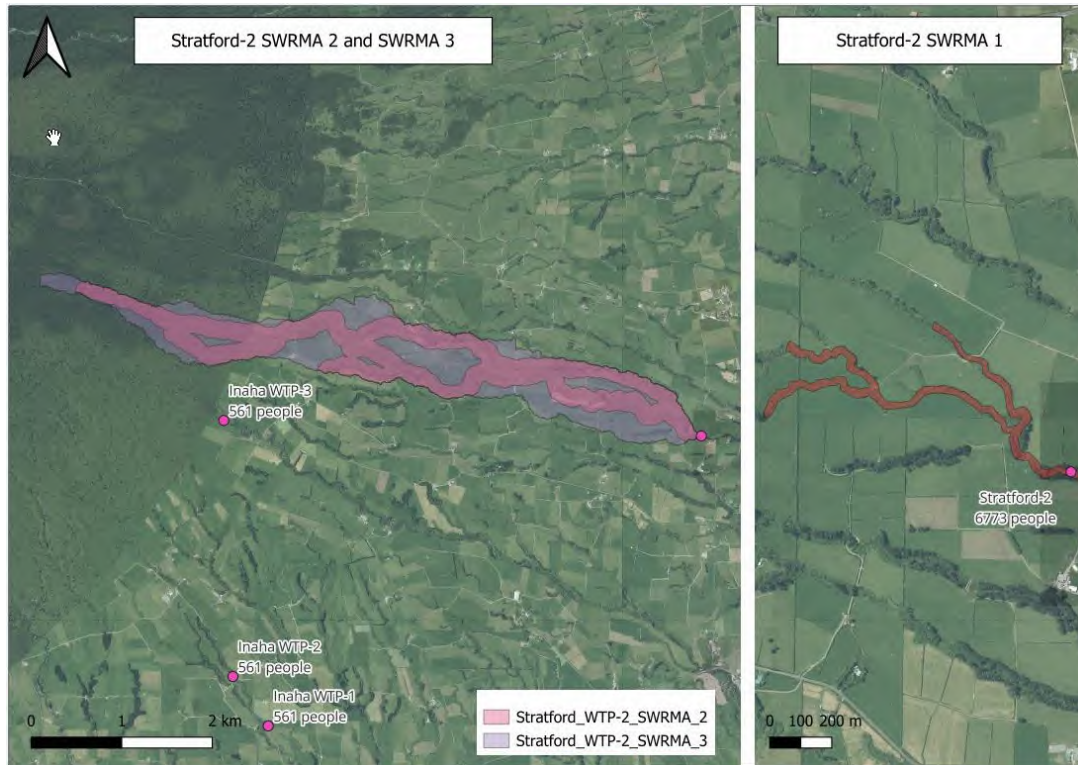


Figure 3: Stratford water supply SWRMP

45. All SWRMAs have been provided as a GIS file, which will be hosted on Local Maps <https://maps.trc.govt.nz/LocalMapsGallery/>. A summary sheet for each source showing the source zone and comments on any obvious issues identified within each zone has also been provided to each water supplier.

Recommendations and next steps

46. Source water risk management areas have been delineated for the 11 main municipal drinking water supplies in Taranaki. As outlined in the report conclusions and recommendations, a further stage of work involves identifying consented activities within each SWRMA, particularly within the intake and intermediate protection zones.
47. This work is now underway and will help inform consent holders of the potential risk that their activities pose to the downstream intakes. This includes consideration of land use activities, discharges, and contaminated sites such as landfills and HAIL (Hazardous Activities and Industries List) sites within each SWRMA. We will continue to work with the district councils to identify / mitigate any risks to drinking water sources. This information will also assist the Council in meeting any reporting requirements in relation to source water quality.
48. Additional scrutiny of existing and proposed consented activities, along with permitted activities, within those areas will also help to ensure that risks are proactively identified and mitigated/managed in an appropriate way through the Council's future policies and plans. Further work will be undertaken with the Council's consents and policy teams to ensure the necessary steps are put in place, and that these new requirements are considered in the development of Council's proposed Land and Freshwater Plan.

Financial considerations—LTP/Annual Plan

49. This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

50. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the Local Government Act 2002, the Resource Management Act 1991, Water Services Act 2021, Water Services Regulator Act 2020, Health Act 1956 and the Local Government Official Information and Meetings Act 1987.

Iwi considerations

51. This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the Local Government Act 2002) as outlined in the adopted Long-Term Plan and/or Annual Plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.
52. It is recognized that iwi/hapū will own/operate a number of their own drinking water supplies throughout the region. The Council will also be able to provide environmental data and information to iwi/hapū as they work toward meeting their requirements for drinking water source protection.

Community considerations

53. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this memorandum.
54. This work was undertaken in partnership with the region's district councils, with in-kind support provided by council officers through data provision and technical review. The Council will also be able to provide environmental data and information to other water suppliers as they work toward meeting their requirements for drinking water source protection.

Legal considerations

55. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

References

- Gilpin B J, Walker T, Paine S, Sherwood J, Mackereth G, Wood T, Hambling T, Hewison C, Brounts A, Wilson M, Scholes P, Robson B, Lin S, Cornelius A, Rivas L, Hayman D T S, French N P, Zhang J, Wilkinson D A, Midwinter A C, Biggs P J, Jagroop A, Eyre R, Baker M G, Jones N. 2022. A large scale waterborne *Campylobacteriosis* outbreak, Havelock North, New Zealand. *Journal of Infection*, Volume 81, Issue 3, September 2020, Pages 390-395. Source from <https://doi.org/10.1016/j.jinf.2020.06.065>.
- Ministry of Health. 2019. *Ministry of Health Drinking Water Quality Guidelines for New Zealand*.

Appendices/Attachments

Document 3275567: Delineation of Source Water Risk Management Areas for selected municipal water supplies in the Taranaki Region.

Delineation of Source Water Risk Management Areas for selected municipal water supplies within the Taranaki Region

✦ Prepared for

Taranaki Regional Council

✦ April 2024



PATTLE DELAMORE PARTNERS LTD
Level 2, 134 Oxford Terrace
Christchurch Central, Christchurch 8011
PO Box 389, Christchurch 8140, New Zealand

Tel +64 3 345 7100
Web www.pdp.co.nz





TARANAKI REGIONAL COUNCIL - DELINEATION OF SOURCE WATER RISK MANAGEMENT AREAS FOR SELECTED MUNICIPAL WATER SUPPLIES WITHIN THE TARANAKI REGION

Quality Control Sheet

TITLE Delineation of Source Water Risk Management Areas for selected municipal water supplies within the Taranaki Region

CLIENT Taranaki Regional Council

ISSUE DATE April 2024

JOB REFERENCE C04628500

Revision History					
REV	Date	Status/Purpose	Prepared By	Reviewed by	Approved
1	27 Feb 2024	Draft	Emma Rhodes / Neil Thomas	Neil Thomas	Neil Thomas
2	30 April 2024	Final	Emma Rhodes/ Neil Thomas	Neil Thomas	Neil Thomas

DOCUMENT CONTRIBUTORS

Prepared by

SIGNATURE  

Emma Rhodes Neil Thomas

Reviewed and Approved by:

SIGNATURE 

Neil Thomas

Limitations:

This report has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Taranaki Regional Council (and others (not directly contracted by PDP for the work). PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the report. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

This report has been prepared by PDP on the specific instructions of Taranaki Regional Council for the limited purposes described in the report. PDP accepts no liability if the report is used for a different purpose or if it is used or relied on by any other person. Any such use or reliance will be solely at their own risk.

© 2023 Pattle Delamore Partners Limited

C04628500R001_SWRMA_Delineation_v2

PATTLE DELAMORE PARTNERS LTD



Table of Contents

SECTION	PAGE
1.0 Introduction	1
2.0 Hydrogeological setting	1
3.0 Delineation of Groundwater SWRMA	2
3.1 Introduction	2
3.2 Pātea	3
3.3 Waverley and Waverley Beach	4
3.4 Ōākura	5
3.5 Hawera	5
3.6 Waimate-West	6
4.0 Delineation of Surface Water SWRMA	6
4.1 Introduction	6
4.2 Intake protection zone	7
4.3 Intermediate protection zone	7
4.4 Whole catchment protection zone	8
5.0 Conclusions and recommendations	9
6.0 Reference List	9

Table of Tables

Table 1: Pātea SWRMA	4
Table 2: Waverley and Waverley Beach	4
Table 3: Ōākura	5
Table 4: Hawera	5
Table 5: Waimate-West	6

Appendices

Appendix A: Groundwater SWRMA plots

Appendix B: Surface water SWRMA plots



1.0 Introduction

Pattle Delamore Partners (PDP) has been engaged by Taranaki Regional Council (TRC) to assist with developing source water risk management areas (SMRMA) for groundwater and surface water supplies in the Taranaki region identified in the report dated 8 December 2023, which serve more than 500 people. A map showing the location of the supplies for which SWRMA were delineated is provided in Figure 1.

Delineation of SWRMA has been undertaken based on the MfE guidelines (2023), which state that the SWRMA should consist of three zones around a potable water source: SWRMA-1, SWRMA-2 and SWRMA-3. Details and methods of delineation are presented in the following sections of this report.

2.0 Hydrogeological setting

The hydrogeological setting in the Taranaki region can be divided into (a) aquifers hosted within the marine sedimentary rocks of the Taranaki basin deposited in the Miocene-Pliocene, and (b) aquifers hosted within Quaternary volcanics of the Taranaki Volcano which unconformably overlie the Miocene-Pliocene sediments. Towards the coast, and particularly in the south, Quaternary sediments predominantly of beach origin overlie the marine sequences.

Groundwater is predominantly recharged by rainfall infiltration, and groundwater flows radially from Mt Taranaki. Towards the east of Mt Taranaki, a divide occurs where the easterly component of flow from Mt Taranaki meets the westerly component of groundwater flow originating from further inland and the Whanganui National Park. At this divide, groundwater is either deflected north or south towards the coast.

The bores at Waimate-West, Hawera and Ōākura are located within Quaternary deposits produced by the Taranaki Volcano (including those of the former Pouakai and Kaitake volcanoes). Lavas and their associated breccias dominate proximal to the eruption centre, and with distance grade to interbedded ash, tuff, pyroclastic flow, debris flow and lahar deposits, which are often reworked by rivers. The deposits are irregular and contain both coarse (blocks and boulders) and fine grained (mud and ash) material, resulting in anisotropic hydrogeologic conditions.

As such, the aquifers within the Taranaki volcanics are complex with systems of unconfined, perched, and semi-confined aquifers. The Waimate-West and Hawera supply bores are screened within distal deposits produced by the younger Taranaki Volcano, whereas the Ōākura supply bores are screened within andesites of the Kaitake Volcano and debris flow deposits from the Pouakai Volcano. Recharge into the aquifers hosted in the Taranaki Volcanics is predominantly via rainfall infiltration.



In contrast, the supply bores for Waverley and Pātea are screened within the early-mid Pliocene marine sediments of the Whenuakura formation, which is the uppermost exposed formation of the Taranaki basin sequences at the sites. The Whenuakura formation consists of interbedded marine mudstones (papa), fine loose sands, sandstone, shellbeds and occasional hard concretionary bands. It has a regional geological dip of 2–4 degrees to the southwest and outcrops approximately 8–30 km inland from the coast. It is the principal aquifer bearing formation along the coast south of Taranaki and hosts several semi-confined aquifers within the more permeable sand layers. Towards the coast it is unconformably overlain by Pleistocene to recent sediments, predominantly of beach and marine origin.

Aquifers in the Whenuakura formation are recharged by direct rainfall infiltration into the Whenuakura formation where it is in outcrop or via overlying sediments, and surface water loss to groundwater from rivers and streams that cross the Whenuakura formation and overlying sediments.

3.0 Delineation of Groundwater SWRMA

3.1 Introduction

For groundwater sources, the SWRMA include the following:

- ✦ **SWRMA 1:** The immediate area around the bore, where the aim is to prevent and manage the risk of contaminants entering the bore directly, or via the bore casing. The default radius of 5 m radius around the bore head was applied here.
- ✦ **SWRMA 2:** The area around, and upgradient of, a groundwater source where the aim is to limit the potential for microbial pathogens to reach the source where they are in an infective state. This area covers the ground surface above where groundwater travels to the intake within a 1-year timeframe and extends to a maximum distance of 2.5 km. There are a number of different methods by which this area can be calculated, involving more or less data and which are applicable to bores in different hydrogeological settings. The public supply bores in the Taranaki area are generally more than 100 m deep and target confined or semi-confined strata. As a result, the risk of direct contamination due to surface influences is limited. In addition, the depth of the bores, together with the generally low permeability of the strata in the area described above means that horizontal groundwater gradients at depth are likely to be relatively flat.

Therefore, the SWRMA zone was calculated using the calculated fixed radius method of Toews and Gusyev (2013) as outlined in the MfE guidelines (2023):



$$r = \sqrt{\frac{Qt}{\pi nb}}$$

Where the radius (r) is calculated from the pumping rate (Q), the aquifer effective porosity (n) and the aquifer thickness (b), over the specified time interval (t) of 1-year. The screened interval was used at the aquifer thickness, and where there were multiple screened sections for a singular bore the smallest screened interval was used as this yields the highest radius. A maximum screened interval of 25 m was applied for the cases where the screened interval was larger than this, to account for layering and heterogeneities within the screened interval. As there was no effective porosity information available for the aquifers, a conservative approach was applied and a low effective porosity of 0.05 was used for the calculations.

SWRMA-2 radii of 350-600 m were generally calculated. The radii were considered appropriate following information provided of a contamination incident in the Pātea wells, attributed to poor bore head security at a neighbouring bore located around 350 m away.

- ∴ **SWRMA 3:** The entire groundwater catchment to a source where the aim is to capture cumulative effects and/or persistent contaminants that may not dilute or attenuate significantly before reaching a source point. Here, the SWRMA 3 was defined by the entire catchment area for rainfall infiltration into the specific aquifer, and the entire catchment area for any river which may lose groundwater into the aquifer system. Where the catchment area is large, SWRMA-3 was divided into a higher risk zone (SWRMA-3A), which typically represents the area of likely recharge to groundwater (via rainfall infiltration or seepage from rivers), and a lower risk zone (SWRMA-3B), which typically represents the broader surface water catchment to streams and rivers that may seep to groundwater.

Summaries of the results of the SWRMA's for groundwater sources are presented in following sections. Maps of the SWRMA's and full details relating to each site are provided in Appendix A.

3.2 Pātea

The Pātea groundwater supply takes water from 4 bores, screened at depths between 61 and 154 m bgl within the early-mid Pliocene Whenuakura formation of interbedded marine mudstones, sandstones and sands. The supply services a population of 1310 people with a maximum combined rate of 24.7 L/s.



TARANAKI REGIONAL COUNCIL - DELINEATION OF SOURCE WATER RISK MANAGEMENT AREAS FOR SELECTED MUNICIPAL WATER SUPPLIES WITHIN THE TARANAKI REGION

Table 1: Pātea SWRMA			
Bore ID	Radius of SWRMA-1	Radius of SWRMA-2	SWRMA-3
GND0073	5 m	575 m	Defined as the entire catchment area for both rainfall infiltration into the Whenuakura formation or the overlying sediments, and the entire catchment area for the Pātea River. SWRMA-3 has been separated into a higher-risk zone (SMRMA-3A) and a lower-risk zone (SMRMA-3B), defined by the western extent of the Whenuakura formation.
GND0075	5 m	516 m	
GND2197	5 m	445 m	
GND2361	5 m	575 m	
<p><i>Notes:</i> Data was provided either directly by TRC or sourced from Pātea Source water risk management plan, October 2023, published by South Taranaki District Council</p>			

3.3 Waverley and Waverley Beach

The Waverley groundwater supply takes water from 3 bores (GND0244, GND0059 and GND2242), screened at depths of ca. 110–170 m bgl within the early-mid Pliocene Whenuakura formation of interbedded marine mudstones, sandstones and sands. The supply services a base population of 878 people with a maximum combined rate of 14.2 L/s. The Waverley Beach groundwater supply takes water from 1 bore (GND1061, depth 91 m), also assumed to be screened within the Whenuakura formation, which services a community of around 50 dwellings and a campground, with a maximum rate of 1.5 L/s.

Table 2: Waverley and Waverley Beach			
Bore ID	Radius of SWRMA-1	Radius of SWRMA-2	SWRMA-3
GND2242	5 m	436 m	Defined as the entire catchment area for both rainfall infiltration into the Whenuakura formation or the overlying sediments, and the entire catchment area for the Whenuakura and Waitotara Rivers. SWRMA-3 has been separated into a higher-risk zone (SMRMA-3A) and a lower-risk zone (SMRMA-3B), defined by the western extent of the Whenuakura formation.
GND0059	5 m	436 m	
GND0244	5 m	597 m	
GND1061	5 m	245 m	
<p><i>Notes:</i> Data was either provided by TRC or sourced from Waverley drinking water source water risk assessment, December 2021, published by South Taranaki District Council, or Wairoa (Waverley) Beach Domain drinking water source water risk assessment, November 2022, published by South Taranaki District Council.</p>			



3.4 Ōākura

The Ōākura groundwater supply takes water from 2 bores (GND3060, GND1732), screened at depths of ca. 125–185 m bgl. A base population of 2008 people are supplied by the bores, which have a maximum combined consented rate of 43 L/s. The bores are screened within Quaternary volcanic deposits of either the volcanic debris avalanche deposits of the Maitahi Formation or within the andesite lava flow sequences of the older Kaitake volcanic complex.

Table 3: Ōākura

Bore ID	Radius of SWRMA-1	Radius of SWRMA-2	SWRMA-3
GND3060	5 m	587 m	Defined as the entire area upgradient of the site up to the peaks of Mt Pouakai. SWRMA-3 has been separated into a higher-risk zone (SWRMA-3A) defined by the northern flanks of the Kaitake Range, and a lower-risk zone (SWRMA-3B) defined as the entire potential catchment.
GND1732	5 m	587 m	

Notes:
Data was either provided by Taranaki Regional Council or sourced from New Plymouth District Council Water Supplies Monitoring Programme Annual Report 2020-2021. Technical Report 2021-18. Taranaki Regional Council.

3.5 Hawera

The Hawera groundwater supply take water from 2 bores (GND2005, GND2021), screened at depths of ca. 140–452 m bgl within Quaternary volcanic deposits and reworked volcanic material from Taranaki Volcano. The supply is abstracted for municipal, rural, industrial, and recreational purposes with a maximum combined consented rate of 50 L/s as a combined total or up to 4,320 m³/day.

Table 4: Hawera

Bore ID	Radius of SWRMA-1	Radius of SWRMA-2	SWRMA-3
GND2021	5 m	879 m	SWRMA-3 is defined as the entire area upgradient of the site up to the peak of Mt Taranaki and the catchment for the Kapui Stream.
GND2005	5 m	879 m	

Notes:
Data was either provided by Taranaki Regional Council or sourced from New Plymouth District Council Water Supplies Monitoring Programme Annual Report 2021-2022. Technical Report 2022-34. Taranaki Regional Council.



3.6 Waimate-West

The Waimate-West groundwater supply takes water from 1 bore (GND2511) screened at depths of 85–131 m bgl within Quaternary volcanic deposits and reworked volcanic material from Taranaki Volcano. The supply is abstracted for the purpose of topping up supply from surface water during periods of peak demand and stream low-flow restrictions. A maximum volume of 432 m³/day is consented for the bore.

Table 5: Waimate-West

Bore ID	Radius of SWRMA-1	Radius of SWRMA-2	SWRMA-3
GND2511	5 m	200 m	Defined as the entire area upgradient of the site up to the peak of Mt Taranaki.
<p><i>Notes:</i> Data was either provided by TRC or sourced from New Plymouth District Council Water Supplies Monitoring Programme Annual Report 2021-2022. Technical Report 2022-34. Taranaki Regional Council.</p>			

4.0 Delineation of Surface Water SWRMA

4.1 Introduction

For surface water sources, the definition of the SWRMA is based on the MfE (2023) guidelines, summarised below:

- ∴ Intake Protection Zone (Surface Water SWRMA 1) will cover the following area:
 - Rivers - the river and its bed 1,000 metres upstream and 100 metres downstream of the intake, extending 5 metres into land from the edge of the bed of the river, including all tributaries within that distance.
 - Lakes - the lake and its bed within a 500 metre radius of the intake, extending 5 metres into land from the edge of the bed of the lake, including all tributaries within that distance.
- ∴ Intermediate Protection Zone (Surface Water SWRMA 2) will cover the following area:
 - Rivers – the river and its bed within 8 hours travel time upstream and 100 m downstream of the intake, and 100 m landward of the edge of the bed of the river, including all tributaries within that distance.
 - Lakes - the entire lake area, extending 100 m landward from the edge of the bed of the lake, and 100 m either side of all tributaries where water travels to the lake within an 8-hour period.



- ∴ Entire Catchment Zone (Surface Water SWRMA 3) will cover the following area:
 - Surface water catchment boundary (from 100 m downstream of the intake in rivers).

Further details on the process used to delineate each of the zones are provided below. Note that catchment boundaries and stream lines were defined based on the 2021 LiDAR dataset available for the Taranaki region.

Individual notes for each surface water supply are not listed here and in general, no specific issues were encountered that were unique to a particular supply. However, the New Plymouth supply from Lake Managamahoe is slightly unusual in that there is both a river intake (from the Waiwhakaiho River) as well as a direct intake from the lake. The two intakes are linked via a tunnel which runs from the river intake into the lake. Although the main intake for the New Plymouth supply is from the lake, this system requires that a Source Water Risk Management Area to be defined for the intake on the Waiwhakaiho River, in addition to the SWRMA for the lake.

Maps of each of the sources and associated SWRMA are provided in Appendix 2.

4.2 Intake protection zone

The SWRMA intake protection zones (Zone 1) were manually defined, based on a combination of both LiDAR elevation data and aerial photography to define the river beds. Where the river beds are obscured by vegetation or tree cover, this required an element of expert judgement as to the width of the stream bed and in general a conservative approach was used utilising the change in slope from LiDAR data.

For the New Plymouth supply from Lake Mangamahoe, SWRMA 1 covers virtually the entire lake because there are three intake points on the lake. Given the recreational area around the lake, it is worth highlighting this point with NPDC.

4.3 Intermediate protection zone

SWRMA intermediate zones were defined via a combination of methods.

- ∴ The velocity of the streams and rivers from which water is taken is generally not defined with certainty. The majority of the surface water takes are located on either flat or moderately sloped areas, although their catchments typically extend towards the summit of Mt Taranaki where the slope of the rivers and streams is steep. Therefore, a default velocity of 2 m/s was used to define the 8 hour travel time. A 2 m/s velocity equates to a 57 km travel distance over 8 hours and in all cases, the intermediate zones extend to the edge of the surface water catchment.



- ∴ Where the river or streambed was visible through aerial imagery, the edge of the stream bed was manually delineated to match that data. However, in other cases, where the stream was obscured by trees, the stream bed was assumed to represent a 1 m wide line and the 100 m buffer around the stream was set based on the line. This approach may mean that the extent of the zone 2 areas is slightly underestimated in some areas. However, this effect is not expected to be significant.
- ∴ The location of streams was generally based on LiDAR data. However, the location of the points where streams begin to flow was based on a combination of LiDAR data as well as the Land Information New Zealand (LINZ) streams data. The LiDAR stream network was defined based on a flow accumulation threshold of 200,000 m² (20 hectares) which generally matched with the LINZ stream data. However, where the LINZ data extended further upslope, the LiDAR based stream network was extended to match the LINZ data (provided the LINZ data correctly reflected topography).
- ∴ The locations of small streams determined through this process were also manually checked and compared to aerial imagery. Where the aerial imagery indicated that a 'stream' simply represented potential flow path, but where no visible stream was present, the stream was removed from the network.
- ∴ The intermediate zones were also clipped to the edge of the catchment boundaries and in some areas, the width of the intermediate zone is therefore less than 100 m.

4.4 Whole catchment protection zone

The surface water SWRMA 3 (whole catchment) were defined based on LiDAR data and represent the catchment to 100 m downstream of each individual source.

In general, there is limited information regarding gaining and losing reaches of river, or surface water – groundwater interaction more generally. As discussed above in Section 2, groundwater flow radially from Mt Taranaki and groundwater flow directions are expected to generally align with surface water flow directions in that area. Therefore, we have not allowed for groundwater flow across a surface water catchment in the SWRMA for surface water sites, because most surface water catchments for the supplies extend towards the summit of Mt Taranaki.

Unlike some other areas of New Zealand, for example areas of the Canterbury Plains or the Heretaunga Plains in Hawkes Bay, extensive surface water and groundwater interaction is not a major feature of the surface water environment in Taranaki. Therefore, only considering surface water flow is not expected to increase the risk for surface water risk management areas.



5.0 Conclusions and recommendations

Source water risk management areas have been defined for community drinking water supplies to more than 500 people within the Taranaki region. Given the widely distributed nature of the source, and the potentially large source areas for some of the groundwater supplies, these areas cover a large area of the region, albeit with a particular focus around Mt Taranaki.

The scope of this work did not include identification of potential risks within the SWRMA, however much of the land use within the catchments is farming, which can pose a general risk to surface water supplies. Nonetheless, it is also notable that large parts of the catchments are within the national park land surrounding Mt Taranaki which provides a degree of protection to the sources by limiting the types of land use that can occur within the SWRMA.

A further stage of work may involve identifying discharges that are consented within the SWRMA, particularly within the intake and intermediate protection zones. Ensuring that these consent holders are aware of the potential risk that their activities pose to the downstream intakes will be important, as will additional scrutiny of consent applications within those areas. In addition, information on the location of contaminated sites including landfills and HAIL sites within each SWRMA should be collected and consideration given to the risks those activities may pose to the supplies.

6.0 Reference List

Allis, RG., Zhan, X., Evans, C., & Kroopnick, P. (1997) Groundwater flow beneath Mt Taranaki, New Zealand, and implications for oil and gas migration. *New Zealand Journal of Geology and Geophysics*, 40:2, 137-149.

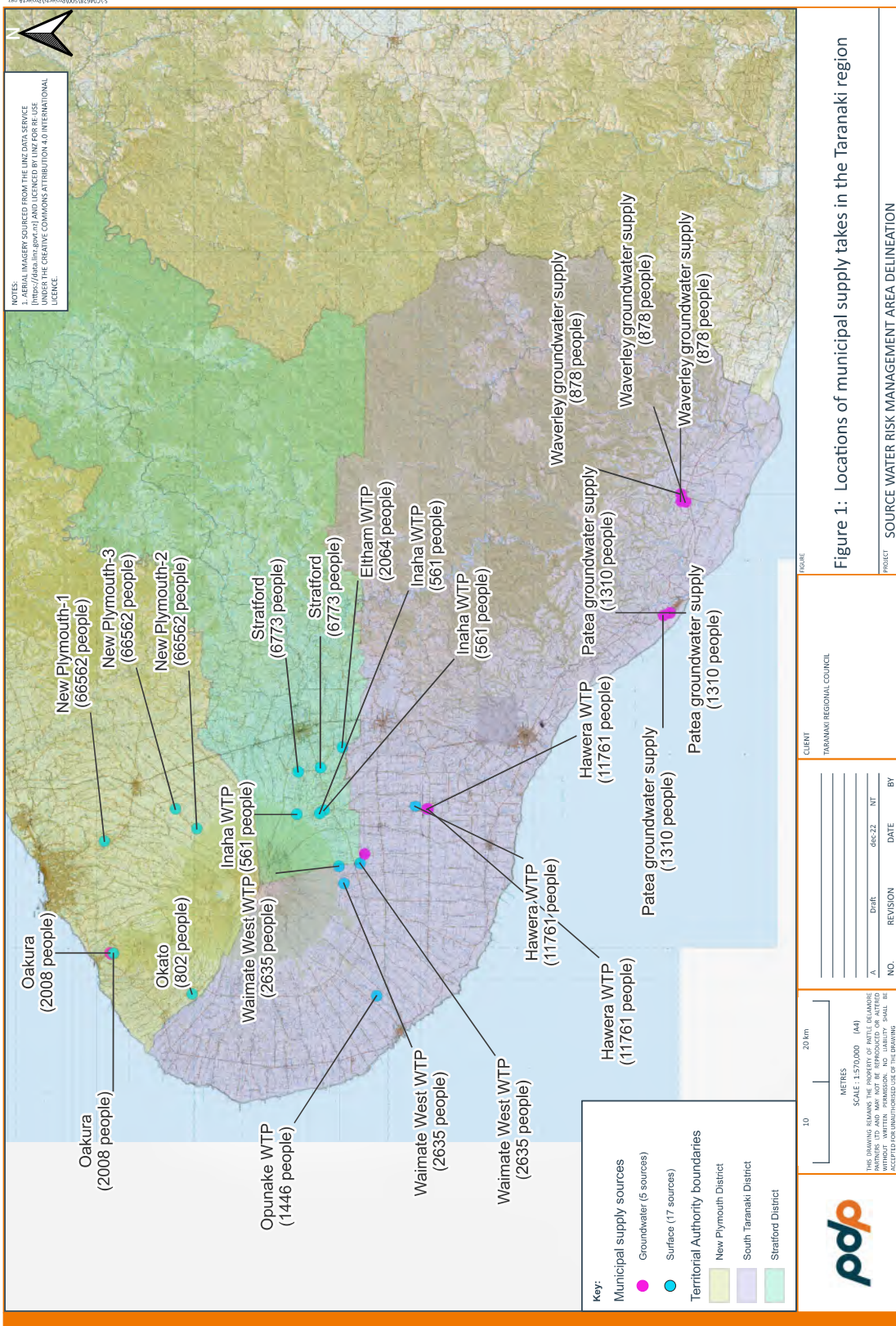
MfE (2023). Delineating source water risk management areas. Wellington: Ministry for the Environment.

Taylor, C.B., and Evans, C.M. (1999). Isotopic indicators for groundwater hydrology in Taranaki, New Zealand. *Journal of Hydrology (NZ)* 38(3). pp 237–270.

TRC (1996). Groundwater Resources of the Taranaki Region. Taranaki Regional Council, August 1996.

Toews, M., Gusyev, M. (2013). GIS tools to delineate groundwater capture zones. GNS Science Report 2012/06. Wellington: GNS Science.

Policy and Planning Committee - Source Water Risk Management Areas for Municipal Drinking Water Supplies



Hawera Community Drinking Water Supply: Source Water Risk Management Areas

The Hawera groundwater supply takes water from 2 bores (GND2005, GND2021), screened at depths of ca. 140–452 m bgl for purposes of municipal, rural, industrial, and recreational supply. The bores have a maximum combined consented rate of 50 L/s, or 4320 m³/day, which can be abstracted from either a single bore, or both bores concurrently.

The bores are screened within Quaternary volcanic deposits and reworked volcanic material from Taranaki Volcano. Specifically, the geology at the site is mapped as volcanic debris avalanche deposits of the Ngaere formation comprising blocks and boulders of andesite bound in a clay-rich matrix. The Ngaere formation is likely underlain by similar debris flow deposits of the Opunake and Stratford formations (Townsend et al., 2008). Groundwater flows radially from Mt Taranaki and the regional hydraulic gradient bends from NW–SE to N–S in the area of the Hawera bores (Allis et al, 1997). Anisotropic hydrogeological conditions create complex systems of unconfined, perched and semi-confined aquifers within the deposits. The Hawera bores are noted as screened within a confined aquifer and as some of the highest yielding bores within the volcanic deposits of Taranaki (TRC 2021-86). Recharge to the aquifer is mainly by local rainfall infiltration upgradient of the site although some loss to groundwater from rivers may also occur.

The Source Water Risk Management Areas (SWRMA) have been defined as per MfE (2023) Delineating source water risk management areas.

Source Water Risk Management Area-1

This is a zone directly surrounding the source water intake, where there is an immediate risk of contamination. There is little time for attenuation, or to respond to any contamination, before it enters the water supply. For groundwater sources, the aim is to manage the risk of contaminants entering the supply in or around the well casing. SMRMA-1 has a default distance of 5 m radius around wellhead.

Source Water Risk Management Area-2

This is a larger area where activities need to be appropriately managed to mitigate the risk of contamination or supply. For groundwater sources, the size is based on the land area above where groundwater travels to the intake (well) within a 1-year period, out to a maximum distance of 2.5 kilometres. Here, it was calculated using the calculated fixed radius method of Toews and Gusyev (2013). For the bores at Hawera, this equates to a radius of 879 m. Results are presented in the table below:

	Screened interval(s)	Abstraction rate	Aquifer thickness [∞]	Effective porosity	Radius of SWRMA-2
Skeet Road: GND2021	417.9–430.9 m bgl 437.4–451.3 m bgl	50 L/s	13 m [∞]	0.05	879 m
Kapuni: GND2005	142–450 m bgl	50 L/s	13 m*	0.05	879 m

Data was either provided by Taranaki Regional Council or sourced from New Plymouth District Council Water Supplies Monitoring Programme Annual Report 2021–2022. Technical Report 2022-34. Taranaki Regional Council.

[∞] The combined volume of water abstracted shall not exceed 4,320 m³/day, at a rate no greater than 50 L/s at an individual bore.

[∞] Smallest screened interval.

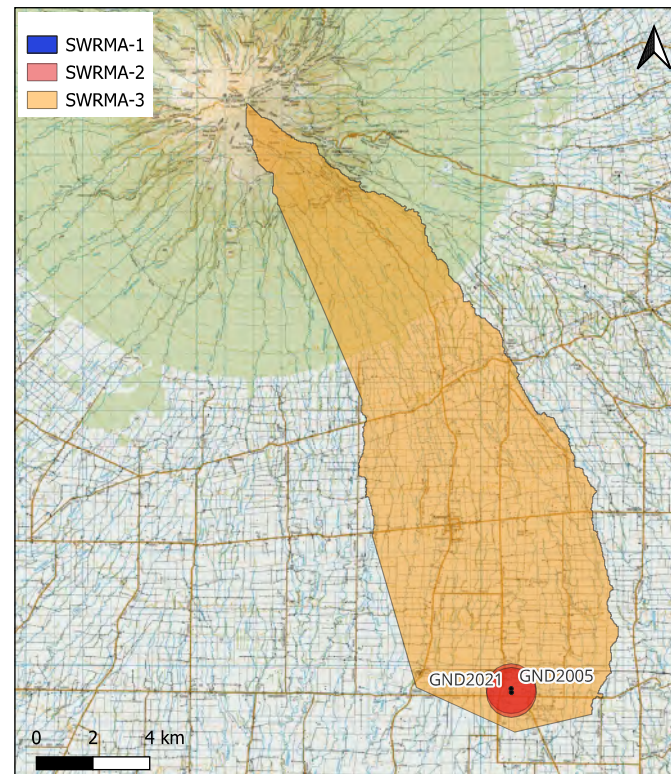
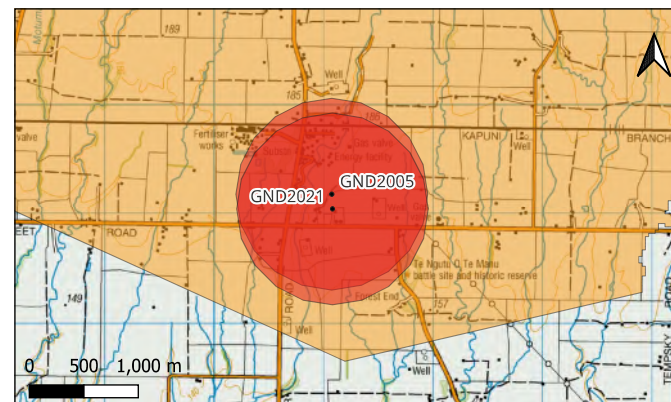
* Used the screened interval of GND2021 as the screened interval for this bore (>300 m) likely intersects several confined aquifers.

Source Water Risk Management Area-3

This is a larger area defined as the entire source water catchment for the wells. For the Hawera wells, SWRMA-3 encompasses the entire area upgradient of the site up to the peak of Mt Taranaki, and was characterised using the vectors published by Allis et al (1997), and the catchment for the Kapui Stream.

Reference List:

Allis, R.G., Zhan, X., Evans, C., & Kroopnick, P. (1997) Groundwater flow beneath Mt Taranaki, New Zealand, and implications for oil and gas migration. *New Zealand Journal of Geology and Geophysics*, 40:2, 137-149.
 Groundwater Quantity State of the Environment Monitoring Triennial Report 2017-2020. Technical Report 2021-86. Taranaki Regional Council.
 New Plymouth District Council Water Supplies Monitoring Programme Annual Report 2021-2022. Technical Report 2022-34. Taranaki Regional Council.
 MfE (2023). Delineating source water risk management areas. Wellington: Ministry for the Environment.
 Toews, M., Gusyev, M. (2013). GIS tools to delineate groundwater capture zones. GNS Science Report 2012/06. Wellington: GNS Science.
 Townsend, D., Vonik, A., Kamp, P.J.J. (2008) Geology of the Taranaki Area. Institute of Geological and Nuclear Sciences 1:250 000 geological map 4. 1 sheet + 77p. Lower Hutt, New Zealand. GNS Science.



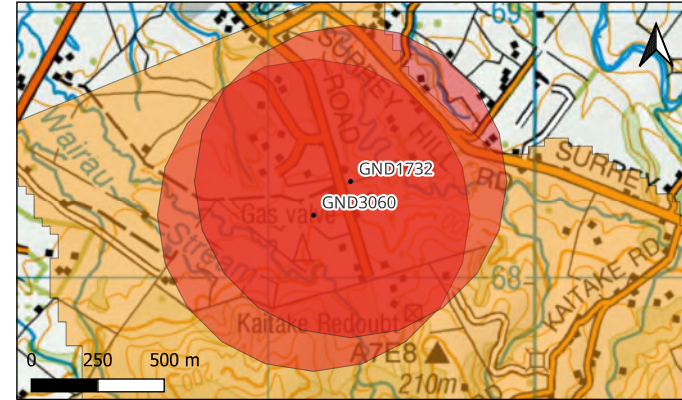
Ōākura Community Drinking Water Supply: Source Water Risk Management Areas

The Ōākura groundwater supply takes water from 2 bores (GND3060, GND1732), screened at depths of ca. 125–185 m bgl. A base population of 2008 people are supplied by the bores, which have a maximum combined consented rate of 43 L/s.

The bores are screened within Quaternary volcanic deposits and reworked volcanic material. It is unclear whether the bores are screened within the debris avalanche deposits of the Maitahi Formation formed from the collapse of Mt Pouakai or within the andesite lava flow sequences of the older Kaitake volcanic complex. Given the depth (125–185 m bgl) and proximity of the bores (300 m) to the former Kaitake volcanic complex, it is most likely that the bores are screened within this formation. Higher yielding confined aquifers have been reported in the volcanic deposits in the Kaitake Ranges than in the surrounding volcanics and debris avalanche deposits (TRC 2021-86).

Groundwater flows radially from the peaks of Mt Taranaki and Mt Pouakai, and the regional hydraulic gradient in the Ōākura area is from southeast to northwest. Due to its higher provenance, the Kaitake Range may receive higher rainfall than the surrounding area, hence forming a groundwater divide from which groundwater will also flow radially. However, isohyets published by Taranaki Regional Council show a general increase in rainfall inland from the coast towards Mt Taranaki with no local increase in rainfall in the Kaitake Range (although there do not appear to be any rainfall gauges located in the Kaitake Range). Therefore, the bores may receive groundwater from as far as the north-west slopes of Mt Pouakai, especially as the bores are deep (>150 m bgl), and confined within the higher-yielding Kaitake Range volcanics.

The Source Water Risk Management Areas (SWRMA) have been defined as per MFE (2023) Delineating source water risk management areas.



Source Water Risk Management Area-1

This is a zone directly surrounding the source water intake, where there is an immediate risk of contamination. There is little time for attenuation, or to respond to any contamination, before it enters the water supply. For groundwater sources, the aim is to manage the risk of contaminants entering the supply in or around the well casing. SWRMA-1 has a default distance of 5 m radius around wellhead.

Source Water Risk Management Area-2

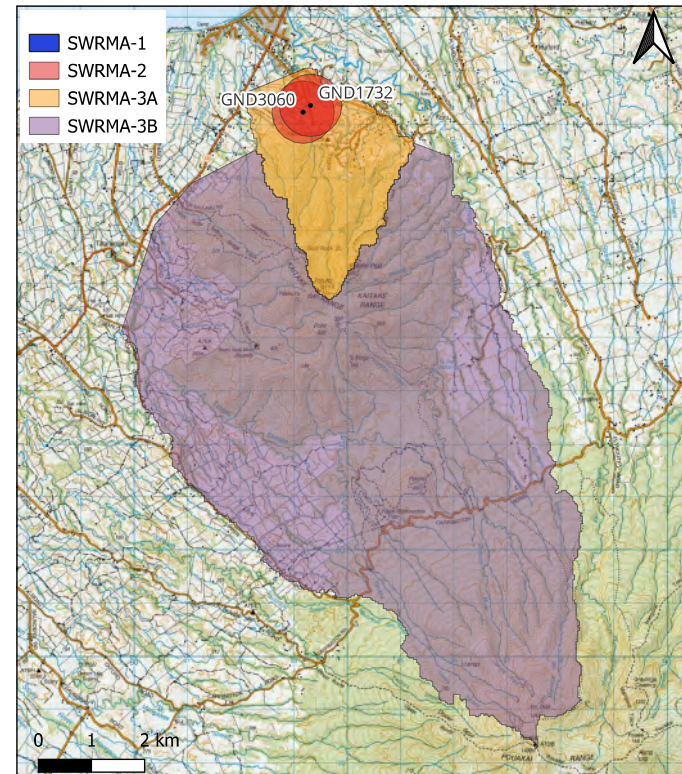
This is a larger area where activities need to be appropriately managed to mitigate the risk of contamination or supply. For groundwater sources, the size is based on the land area above where groundwater travels to the intake (well) within a 1-year period, out to a maximum distance of 2.5 kilometres. Here it was calculated using the calculated fixed radius method of Toews and Gusyev (2013). For the bores at Ōākura, this equates to a radius of 587 m and results are presented in the table below:

	Screened interval	Abstraction rate ^γ	Aquifer thickness [∞]	Effective porosity	Radius of SWRMA-2
Ōākura: GND3060	126–173 m bgl	43 L/s	47 m	0.05	587 m
Ōākura: GND1732	135–185 m bgl	43 L/s	50 m	0.05	587 m

Data was either provided by Taranaki Regional Council or sourced from New Plymouth District Council Water Supplies Monitoring Programme Annual Report 2020-2021. Technical Report 2021-18. Taranaki Regional Council.

^γ The total combined extraction rate was applied given the proximity of the bores.

[∞] A maximum aquifer thickness of 25 m was applied to account for layering and heterogeneities within the screened interval (conservative).



Source Water Risk Management Area-3

SWRMA-3 a larger area defined as the entire source water catchment for the wells. For the Ōākura wells, this encompasses the entire area upgradient of the site up to the peaks of Mt Pouakai. In recognition that there are uncertainties in the extent of the catchment area, SWRMA-3 has been separated into a higher-risk zone (SWRMA-3A) and a lower-risk zone (SWRMA-3B). SWRMA-3A is defined by the northern flanks of the Kaitake Range and SWRMA-3B is defined as the entire potential catchment.

Reference List:

Gaylord, DE., Neall, VE., & Palmer, AS (2014) The Middle Pleistocene Maitahi Formation, Taranaki, New Zealand: a new formal lithostratigraphic unit, New Zealand Journal of Geology and Geophysics, 57:4, 369-377.

Groundwater Quantity State of the Environment Monitoring Triennial Report 2017-2020. Technical Report 2021-86. Taranaki Regional Council.

MFE (2023). Delineating source water risk management areas. Wellington: Ministry for the Environment.

New Plymouth District Council Water Supplies Monitoring Programme Annual Report 2020-2021. Technical Report 2021-18. Taranaki Regional Council.

Toews, M., Gusyev, M. (2013). GIS tools to delineate groundwater capture zones. GNS Science Report 2012/06. Wellington: GNS Science.

<https://www.npdc.govt.nz/home-and-property/water-wastewater-and-stormwater/our-treatment-plants/oakura-water-treatment-plant/>

<https://www.trc.govt.nz/environment/maps-and-data/monthly-rainfall/rainfall-in-previous-years/>

Pātea Community Drinking Water Supply: Source Water Risk Management Areas

The Pātea groundwater supply takes water from 4 bores, screened between 61 and 154 m bgl. The supply is consented for 1310 people with a maximum combined rate of 24.7 L/s. Bores GND0073, GND0075 and GND2361 are located adjacent to one another on Egmont Street, whilst GND2197 is located approximately 750 m to the north on Taranaki Road.

The bores are screened within the early-mid Pliocene marine sediments of the Whenuakura formation, which consist of interbedded marine mudstones (papa), fine loose sands, sandstone, shellbeds and occasional hard concretionary bands. The Whenuakura formation has a regional geological dip of 2 to 4 degrees to the southwest, and outcrops approximately 4–15 km to the NE, and at the site is overlain by 10–20 m of Holocene and Quaternary beach deposits. The regional hydraulic gradient is from northeast to southwest.

Aquifers within the Whenuakura formation are hosted within higher-permeability sand-dominated layers and can broadly be separated into an Upper Aquifer (~10–90 m bgl), and a Lower Aquifer (~100–150 m bgl). Mud-dominated layers which act as leaky aquitards overlie the Upper Aquifer and separate the Upper and Lower Aquifers. GND0073 abstracts from the Upper Aquifer whilst GND0075, GND2197 and GND2361 abstract from the Lower Aquifer. The aquifers are recharged from both direct rainfall infiltration into the Whenuakura formation or overlying sediments, and surface water loss to groundwater from the Pātea River (Taylor and Evans, 1999).

The Source Water Risk Management Areas have been defined as per MfE (2023) Delineating source water risk management areas.

Source Water Risk Management Area-1

This is a zone directly surrounding the source water intake, where there is an immediate risk of contamination. There is little time for attenuation, or to respond to any contamination, before it enters the water supply. For groundwater sources, the aim is to manage the risk of contaminants entering the supply in or around the well casing. SWRMA-1 has a default distance of 5 m radius around wellhead.

Source Water Risk Management Area-2

SWRMA-2 is an area where activities need to be appropriately managed to mitigate the risk of contamination or supply. For groundwater sources, the size is based on the land area above where groundwater travels to the intake (well) within a 1-year period, out to a maximum distance of 2.5 kilometres. For the bores here it was calculated using the calculated fixed radius method of Toews and Gusyev (2013). The results for each individual bore range from 445 to 575 m radius and are presented in the table below. Notably the decommissioned Brannigan bore is located within the SWRMA-2 for bores GND2361, GND0073 and GND0075. Former instances of recorded aquifer and drinking water contamination have been attributed to poor construction of this bore (STDC, pers comm).

	Screened interval(s)	Abstraction rate ^γ	Aquifer thickness [∞]	Effective porosity	Radius of SWRMA-2
Pātea Bore 1: GND0073	61.5–76.5 m bgl	24.7 L/s	15 m	0.05	575 m
Pātea Bore 2: GND0075	121.3–139.9# m bgl	24.7 L/s	18.6 m	0.05	516 m
Pātea Bore 4: GND2197	96.5–141.5 m bgl	24.7 L/s	25 m	0.05	445 m
Pātea Bore 5: GND2361	115.5–130.5 m bgl 136–154 m bgl	24.7 L/s	15 m	0.05	575 m

Unless specified, data was sourced from Pātea Source water risk management plan, October 2023, published by South Taranaki District Council
^γ Total maximum combined extraction rate applied given the proximity of the bores.

[∞] Screen interval used where ≤ 25 m. Where the bore has multiple screened intervals, the smallest screened interval was used. A maximum aquifer thickness of 25 m was applied to account for layering and heterogeneities within the screened interval (conservative).

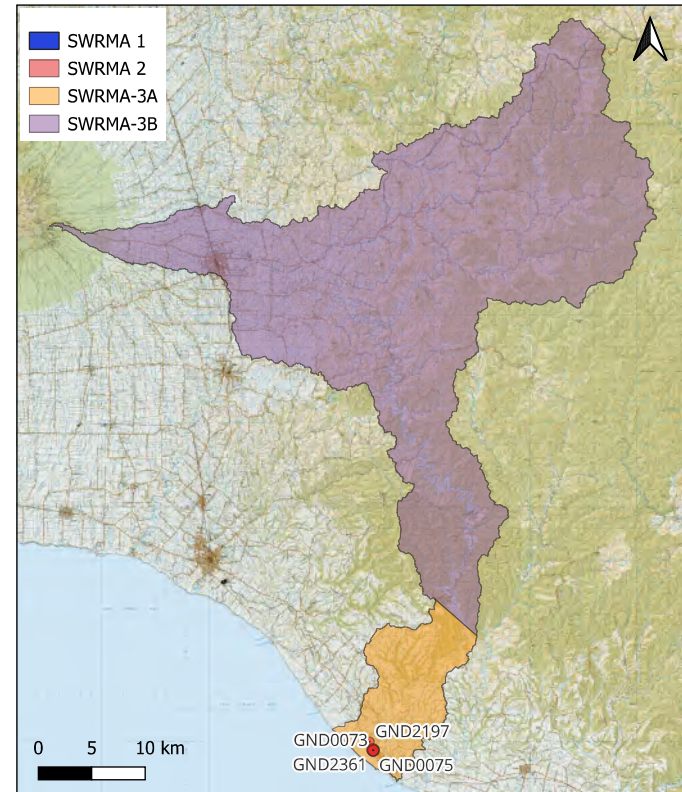
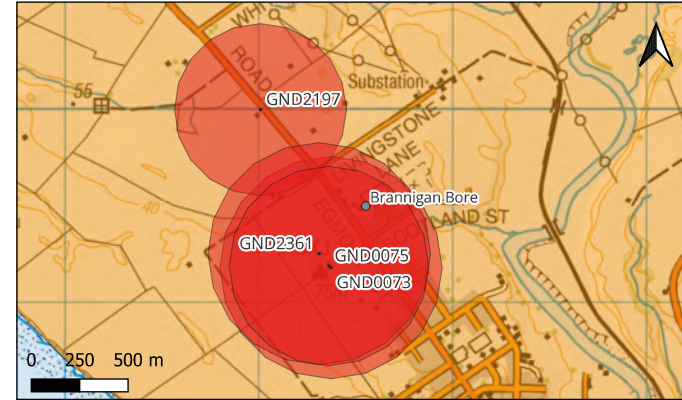
provided by TRC

Source Water Risk Management Area-3

SWRMA-3 is defined as the entire source water catchment for the wells. For the Pātea wells, this encompasses the entire catchment area for both rainfall infiltration into the Whenuakura formation or the overlying sediments, and the entire catchment area for the Pātea River. In recognition that the catchment area for the Pātea River is extensive (>1000 km²), SWRMA-3 has been separated into a higher-risk zone and a lower-risk zone, defined by the western extent of the Whenuakura formation. Groundwater infiltration to the north of this (i.e. into the underlying formations) is unlikely to be a significant source of water for the aquifers within the Whenuakura formation.

Reference List:

MfE (2023). Delineating source water risk management areas. Wellington: Ministry for the Environment.
 Taylor, C.B., and Evans, C.M. (1999). Isotopic indicators for groundwater hydrology in Taranaki, New Zealand. Journal of Hydrology (NZ) 38(3), pp 237–270.
 Toews, M., Gusyev, M. (2013). GIS tools to delineate groundwater capture zones. GNS Science Report 2012/06. Wellington: GNS Science.
 Pātea Source water risk management plan, October 2023, published by South Taranaki District Council.



Waimate-West Community Drinking Water Supply: Source Water Risk Management Areas

The Waimate-West groundwater supply takes water from bore GND2511, screened at depths of 85–131 m bgl for the purpose of topping up supply from surface water during periods of peak demand and stream low flow restrictions. A maximum volume of 432 m³/day is consented for the bore.

The geology at the site is mapped as the Quaternary debris flow deposit of the Warea Formation, formed from a minor collapse of Mt Taranaki (Townsend et al., 2008). This deposit is likely underlain by further volcanic debris avalanche deposits of the Ngaere, Opunake, and Stratford formations, which are interbedded with tephra and lahar deposits (Townsend et al., 2008; Alloway et al., 2005).

Groundwater flows radially from Mt Taranaki and the regional hydraulic gradient bends southwards towards the coast in the area of bore GND2511 (Allis et al, 1997). Anisotropic hydrogeological conditions create complex systems of unconfined, perched and semi-confined aquifers within the deposits. Recharge to the aquifer is mainly by local rainfall infiltration upgradient of the site although some loss to groundwater from rivers may also occur.

The Source Water Risk Management Areas (SWRMA) have been defined as per MfE (2023) Delineating source water risk management areas.

Source Water Risk Management Area-1

This is a zone directly surrounding the source water intake, where there is an immediate risk of contamination. There is little time for attenuation, or to respond to any contamination, before it enters the water supply. For groundwater sources, the aim is to manage the risk of contaminants entering the supply in or around the well casing. SWRMA-1 has a default distance of 5 m radius around wellhead.

Source Water Risk Management Area-2

This is a larger area where activities need to be appropriately managed to mitigate the risk of contamination or supply. For groundwater sources, the size is based on the land area above where groundwater travels to the intake (well) within a 1-year period, out to a maximum distance of 2.5 kilometres. Here, it was calculated using the calculated fixed radius method of Toews and Gusyev (2013). For the bore GND2511 at Waimate-West, using 25 m as the aquifer thickness, an effective porosity of 0.05 and the abstraction rate of 432 m³/day, this equates to a radius of 200 m. 25 m was applied as the aquifer thickness as a conservative approach to account for layering and heterogeneities within the screened interval (46 m).

Source Water Risk Management Area-3

This is a larger area which is defined as the entire source water catchment for the wells. For the Waimate-West well, SWRMA-3 is defined as the entire area upgradient of the site up to the peak of Mt Taranaki and was characterised using the vectors published by Allis et al (1997).

Reference List:

Allis, R.G., Zhan, X., Evans, C., & Kroopnick, P. (1997) Groundwater flow beneath Mt Taranaki, New Zealand, and implications for oil and gas migration. *New Zealand Journal of Geology and Geophysics*, 40:2, 137-149.

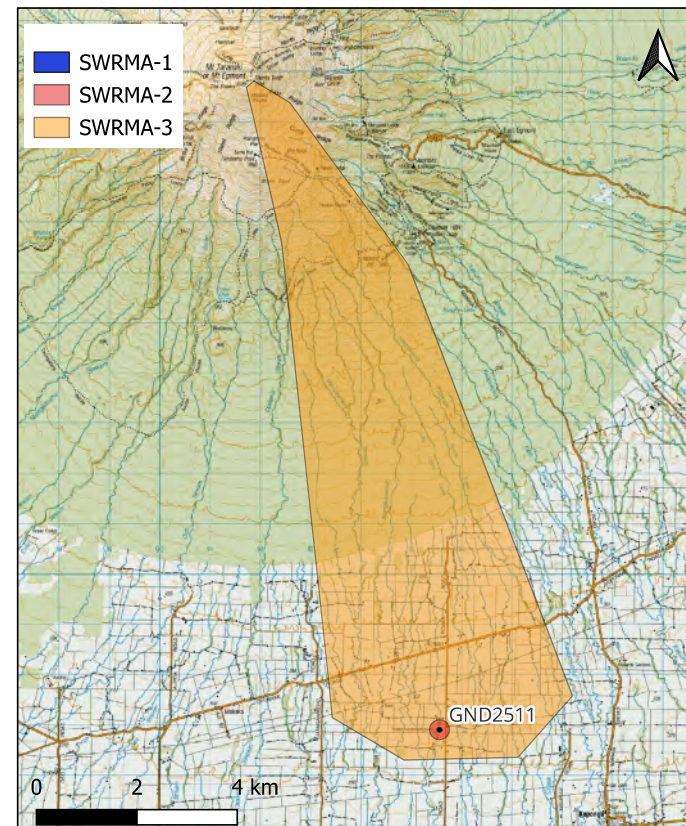
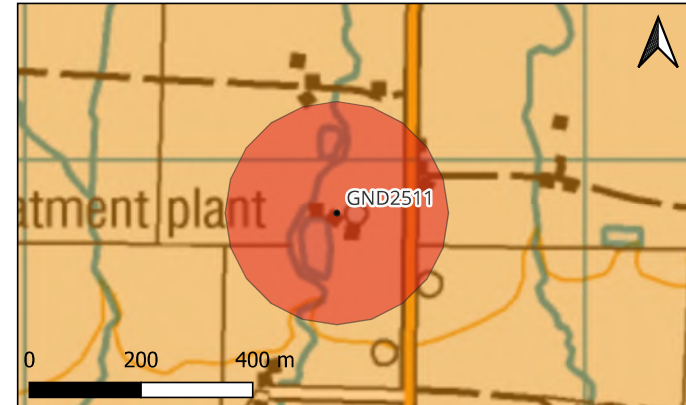
Alloway, B., McComb, P., Neall, V., Vucetich, C., Gibb, J., Sherburn, S., & Stirling, M. (2005) Stratigraphy, age, and correlation of voluminous debris-avalanche events from an ancestral Egmont Volcano: Implications for coastal plain construction and regional hazard assessment, *Journal of the Royal Society of New Zealand*, 35:1-2, 229-267.

New Plymouth District Council Water Supplies Monitoring Programme Annual Report 2021-2022. Technical Report 2022-34. Taranaki Regional Council.

MfE (2023). Delineating source water risk management areas. Wellington: Ministry for the Environment.

Toews, M., Gusyev, M. (2013). GIS tools to delineate groundwater capture zones. GNS Science Report 2012/06. Wellington: GNS Science.

Townsend, D., Vonk, A., Kamp, P.J.J. (2008) Geology of the Taranaki Area. Institute of Geological and Nuclear Sciences 1:250 000 geological map 4. 1 sheet + 77p. Lower Hutt, New Zealand. GNS Science.



**Waverley and Waverley Beach Community Drinking Water Supply:
Source Water Risk Management Areas**

The Waverley groundwater supply takes water from 3 bores (GND0244, GND0059 and GND2242), screened at depths of ca. 110–170 m bgl. The supply services a base population of 878 people with a maximum combined rate of 14.2 L/s. The Waverley Beach groundwater supply takes water from 1 bore (GND1061, depth 91 m), which services a community of around 50 dwellings and a campground, with a maximum rate of 1.5 L/s.

The Waverley bores are screened within the early-mid Pliocene marine sediments of the Whenuakura formation, which consist of interbedded marine mudstones (papa), fine loose sands, sandstone, shellbeds and occasional hard concretionary bands. The Whenuakura formation has a regional geological dip of 2–4 degrees to the southwest and outcrops approximately 8–30 km inland from the coast. At the Waverley township the Whenuakura formation is overlain by approximately 35 m of Holocene and Quaternary beach deposits. The regional hydraulic gradient is from northeast to southwest, parallel to the dip of the Whenuakura formation. Aquifers within the Whenuakura formation are hosted within higher-permeability sand-dominated layers which are semi-confined by interbedded mud-dominated layers. The aquifers are recharged from both direct rainfall infiltration into the Whenuakura formation or overlying sediments, and surface water loss to groundwater from the Whenuakura and Waitotara Rivers. It is assumed that the Waverley Beach Bore is also screened within the Whenuakura formation.

The Source Water Risk Management Areas (SWRMA) have been defined as per MFE (2023) Delineating source water risk management areas.

Source Water Risk Management Area-1

This is a zone directly surrounding the source water intake, where there is an immediate risk of contamination. There is little time for attenuation, or to respond to any contamination, before it enters the water supply. For groundwater sources, the aim is to manage the risk of contaminants entering the supply in or around the well casing. SMRMA-1 has a default distance of 5 m radius around wellhead.

Source Water Risk Management Area-2

This is a larger area where activities need to be appropriately managed to mitigate the risk of contamination or supply. For groundwater sources, the size is based on the land area above where groundwater travels to the intake (well) within a 1-year period, out to a maximum distance of 2.5 kilometres. For the bores here it was calculated using the calculated fixed radius method of Toews and Gusev (2013). The results for each individual bore range from 245 to 597 m radius and are presented in the table below:

	Screened interval	Abstraction rate ^γ	Aquifer thickness [∞]	Effective porosity	Radius of SWRMA-2
Waverley Swinbourne Street: GND2242	129.2–168.2 m bgl	14.2 L/s	25 m	0.05	436 m
Waverley Chester Street: GND0059	111.3–125.9 m bgl	14.2 L/s	15 m	0.05	436 m
Waverley Fookes Street: GND0244	121–127.1 m bgl	14.2 L/s	8 m	0.05	597 m
Waverley Beach: GND1061	None provided. Bore depth 91 m.	14.2 L/s	5 m (conservative estimation)	0.05	245 m

Data was either provided by Taranaki Regional Council or sourced from Waverley drinking water source water risk assessment, December 2021, published by South Taranaki District Council, or Wairoa (Waverley) Beach Domain drinking water source water risk assessment, November 2022, published by South Taranaki District Council.

^γ The total combined extraction rate for the Waverley bores was applied given the proximity of the bores.

[∞] Screened interval.

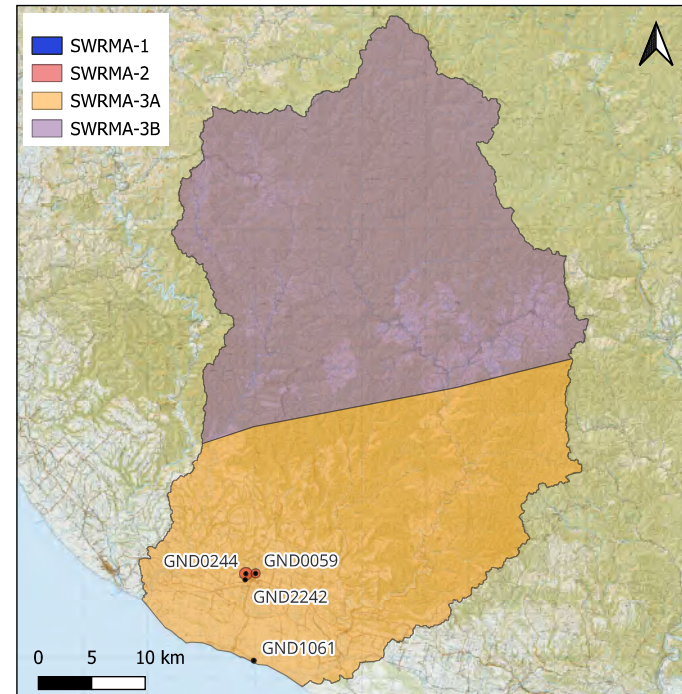
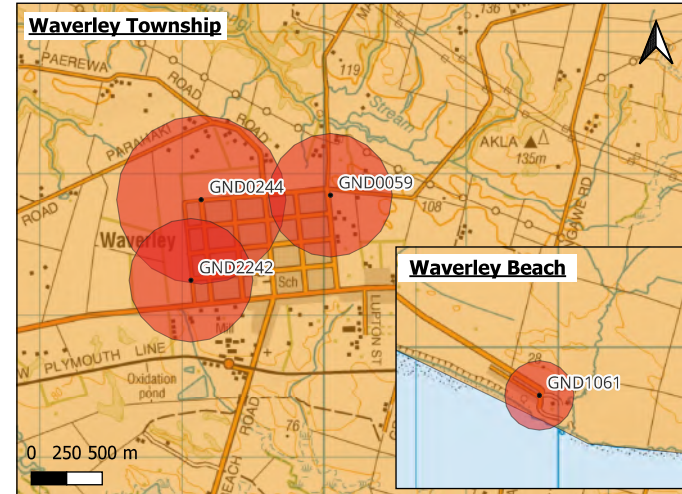
* Screened interval large compared to neighbouring bores. Screened interval for the Chester Street Bore was applied to account for layering and heterogeneities within the aquifer (conservative).

Source Water Risk Management Area-3

SWRMA-3 defined as the entire source water catchment for the wells. For the Waverley and Waverley Beach wells, this encompasses the entire catchment area for both rainfall infiltration into the Whenuakura formation or the overlying sediments, and the entire catchment area for the Whenuakura and Waitotara Rivers. In recognition that the catchment area for the Whenuakura and Waitotara Rivers is extensive (>1000 km²), SWRMA-3 has been separated into a higher-risk zone (SWRMA-3A) and a lower-risk zone (SWRMA-3B), defined by the northern extent of the Whenuakura formation. Groundwater infiltration to the north of this (i.e. into the underlying formations) is unlikely to be a significant source of water for the aquifers within the Whenuakura formation.

Reference List:

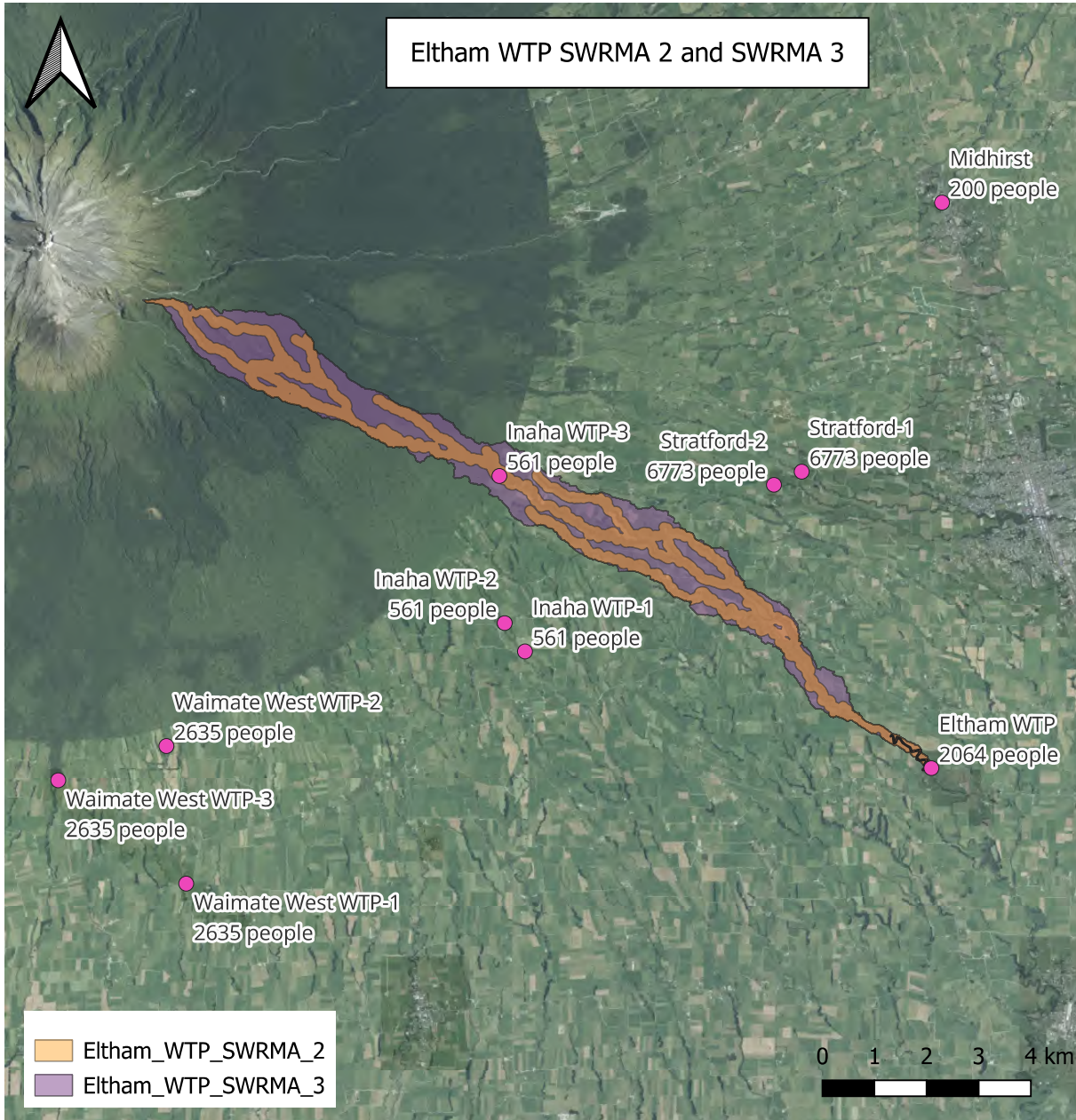
- MFE (2023). Delineating source water risk management areas. Wellington: Ministry for the Environment.
- Toews, M., Gusev, M. (2013). GIS tools to delineate groundwater capture zones. GNS Science Report 2012/06. Wellington: GNS Science.
- Waverley drinking water source water risk assessment, December 2021, published by South Taranaki District Council.
- Wairoa (Waverley) Beach Domain drinking water source water risk assessment, November 2022, published by South Taranaki District Council.

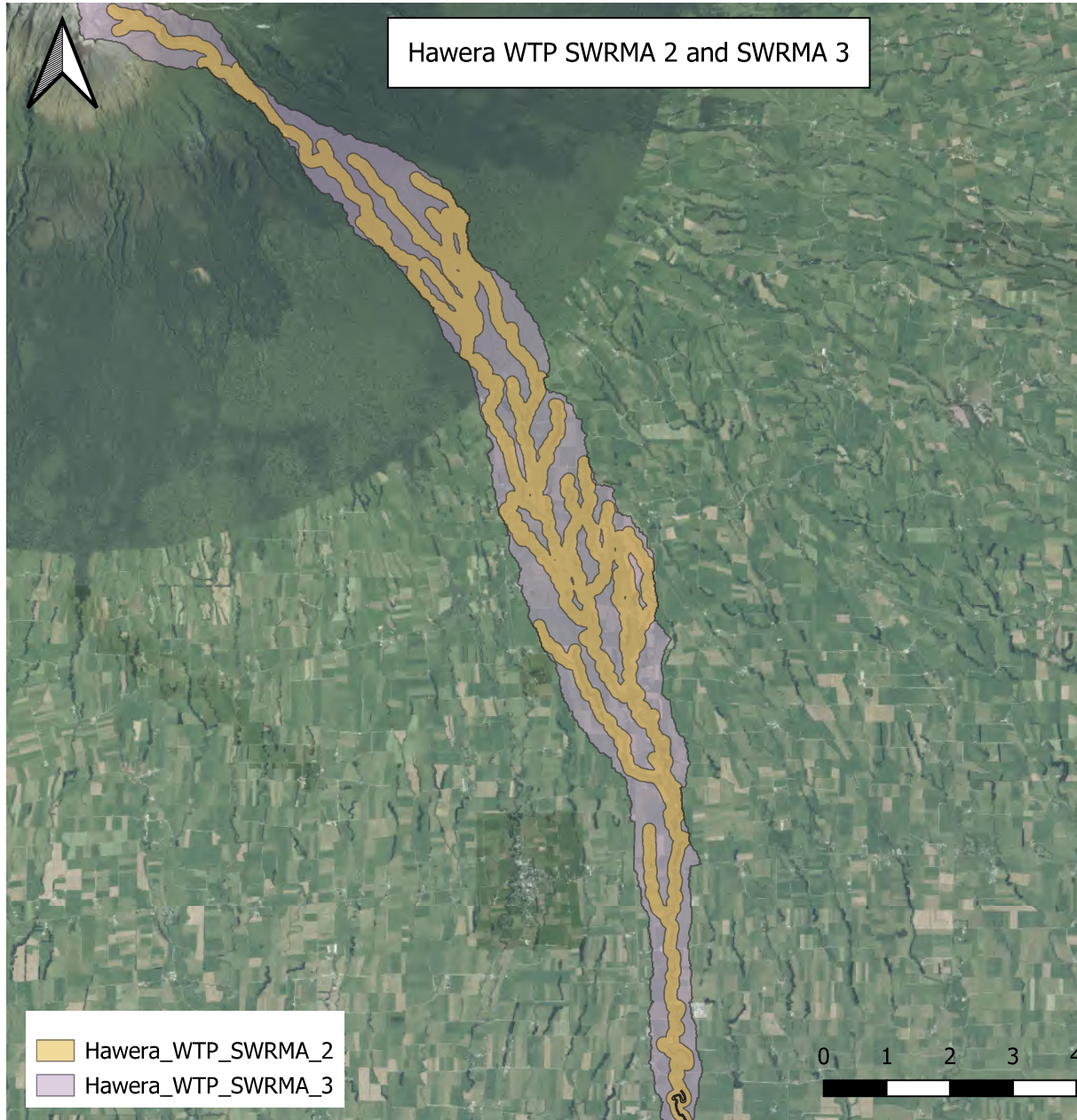


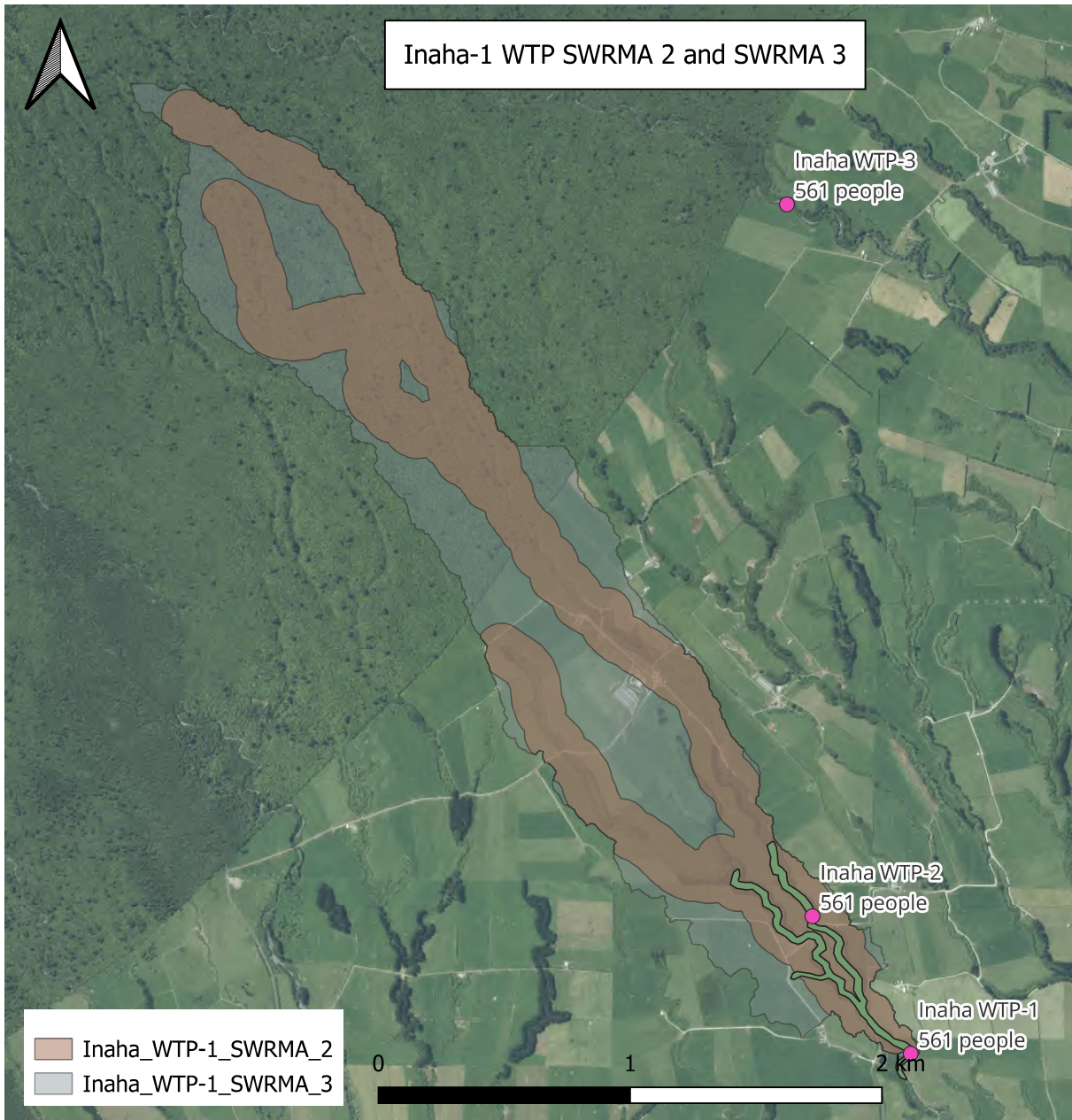


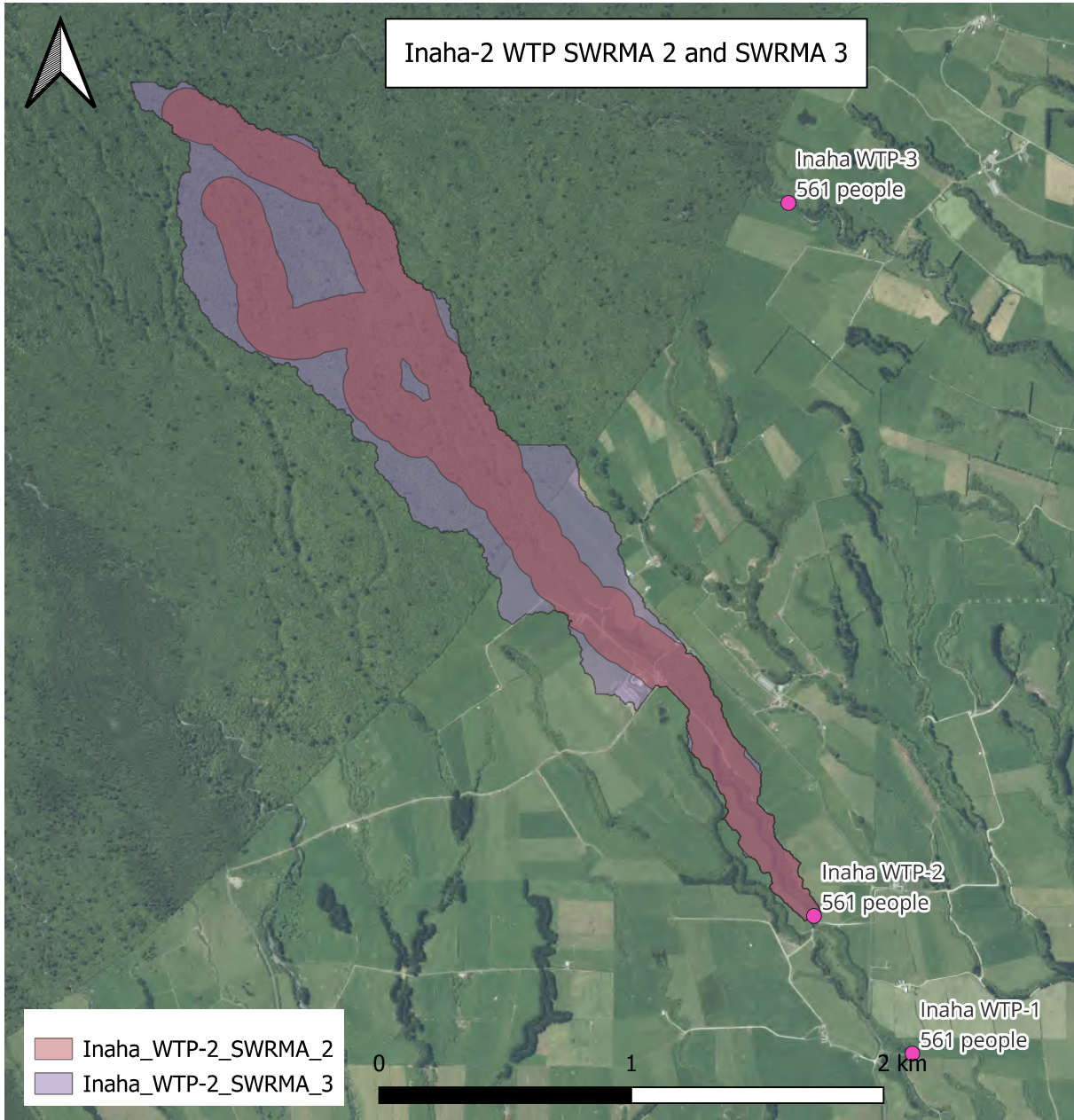
TARANAKI REGIONAL COUNCIL - DELINEATION OF SOURCE WATER RISK MANAGEMENT
AREAS FOR SELECTED MUNICIPAL WATER SUPPLIES WITHIN THE TARANAKI REGION

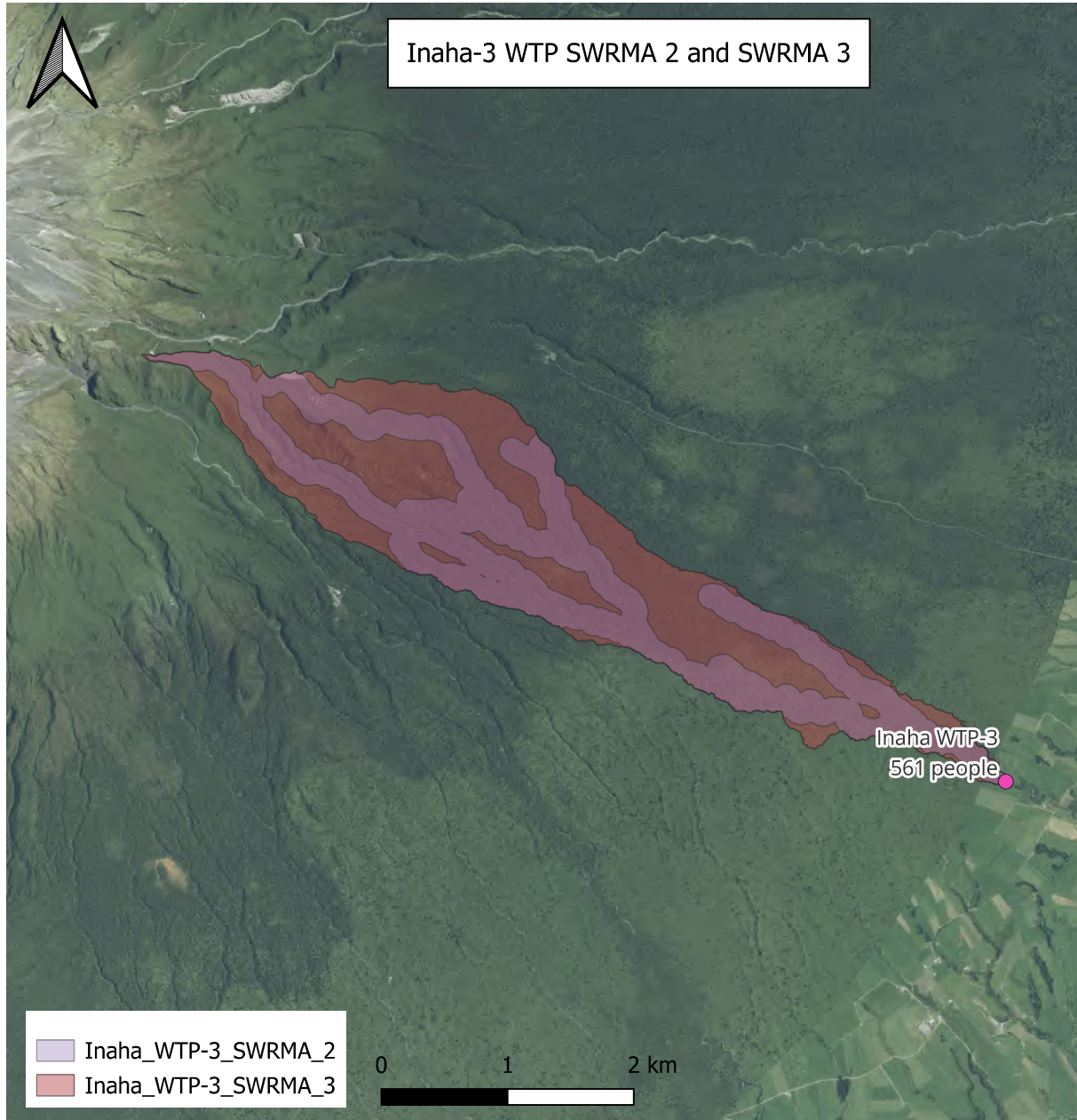
Appendix B: Surface water SWRMA plots

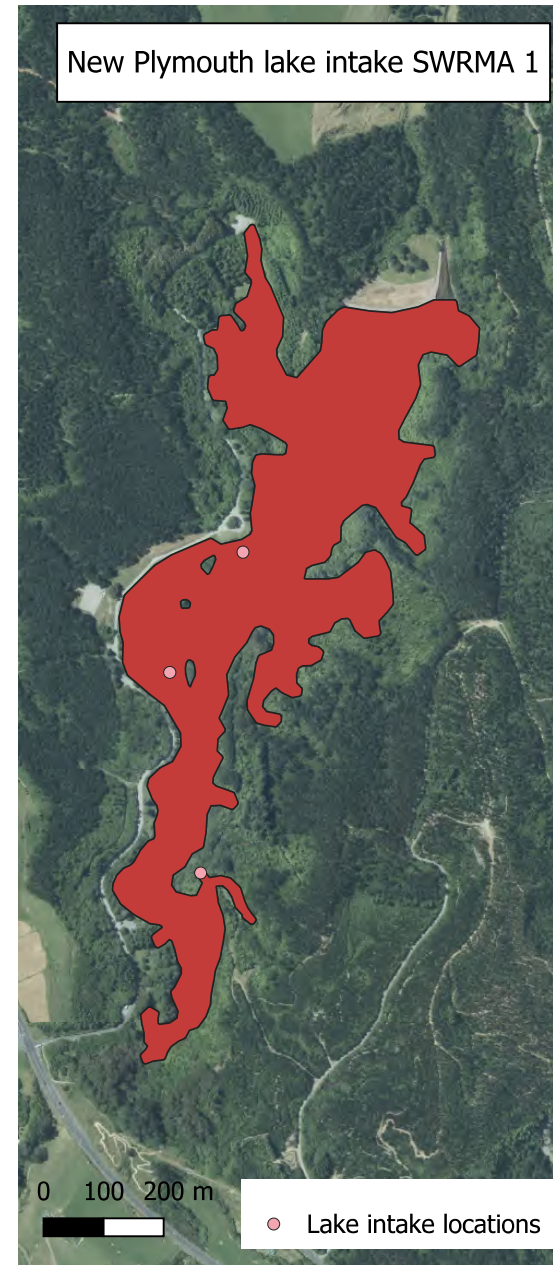
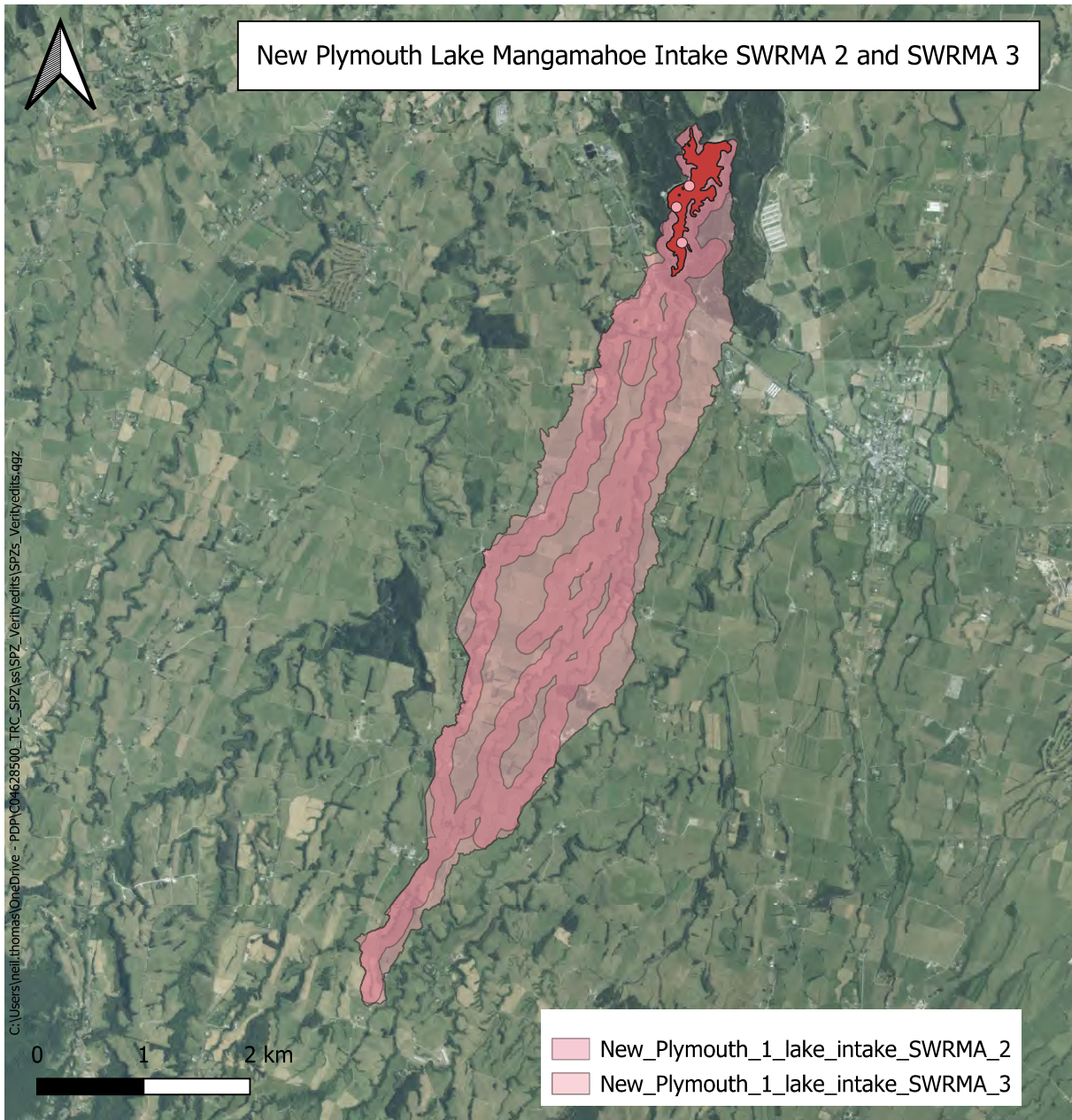


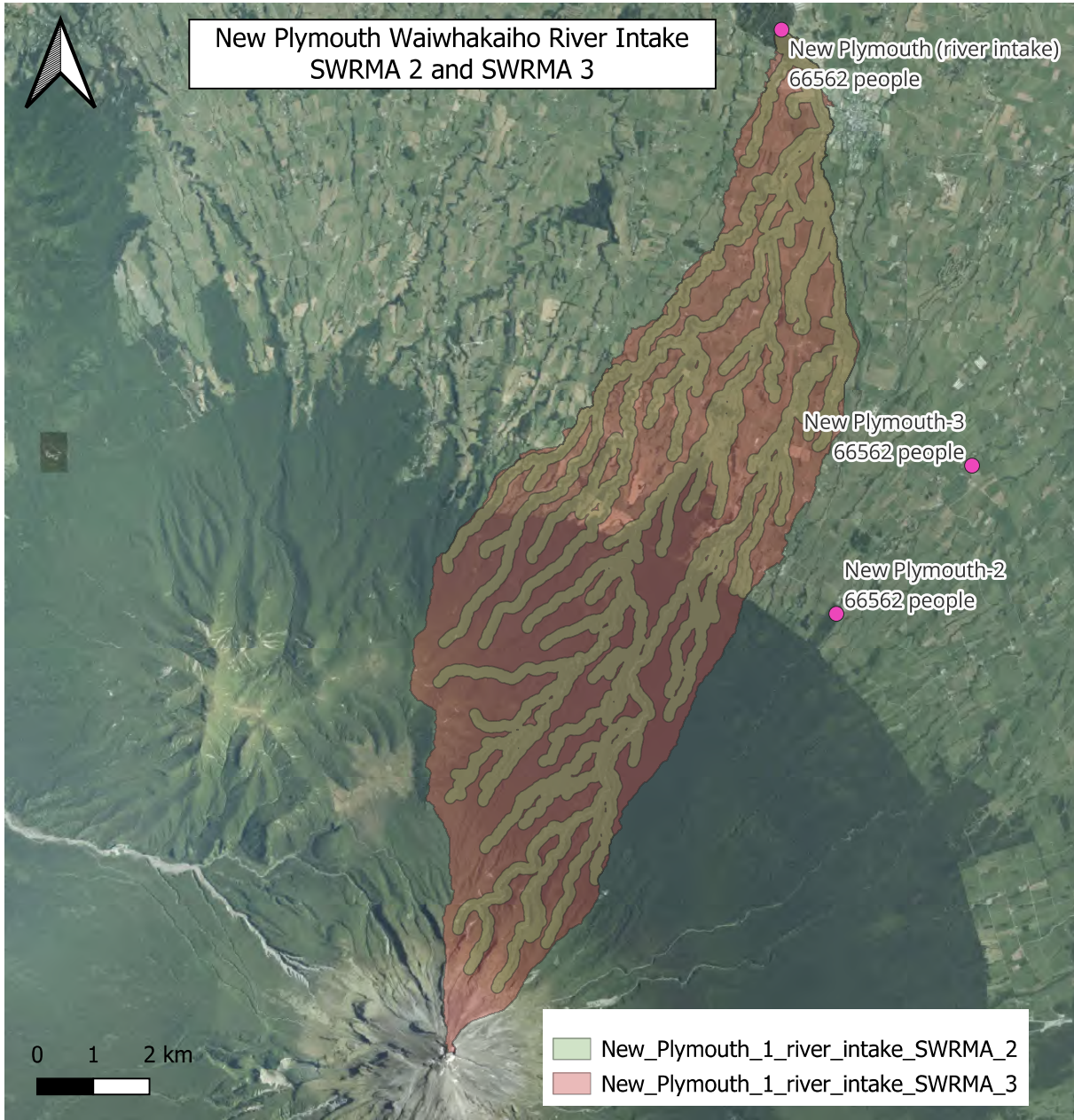


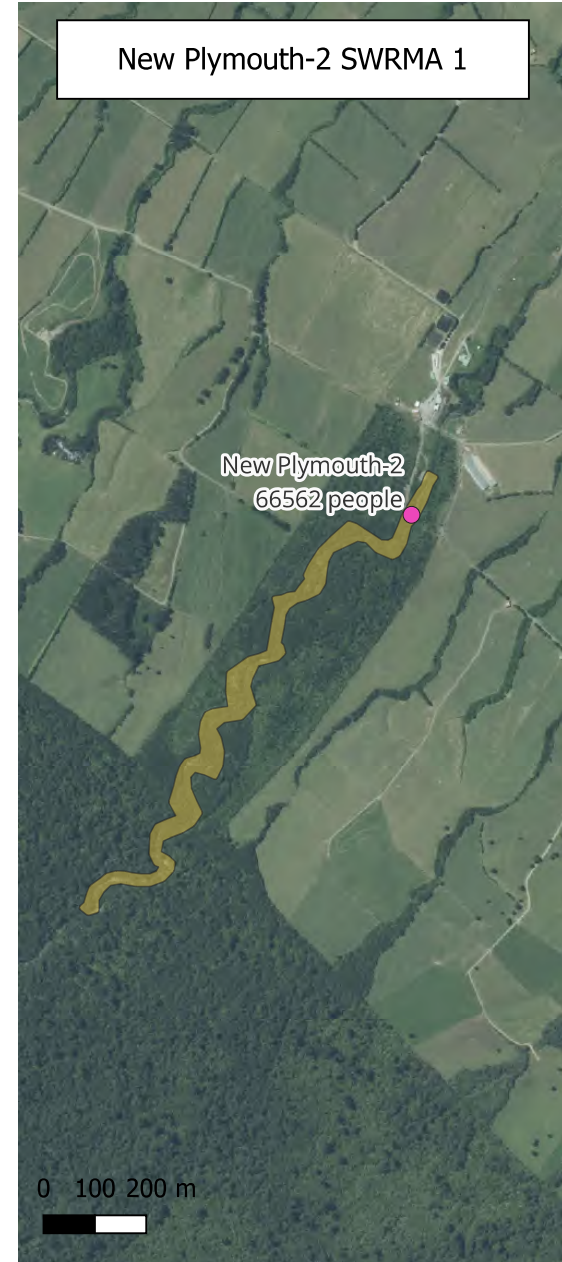
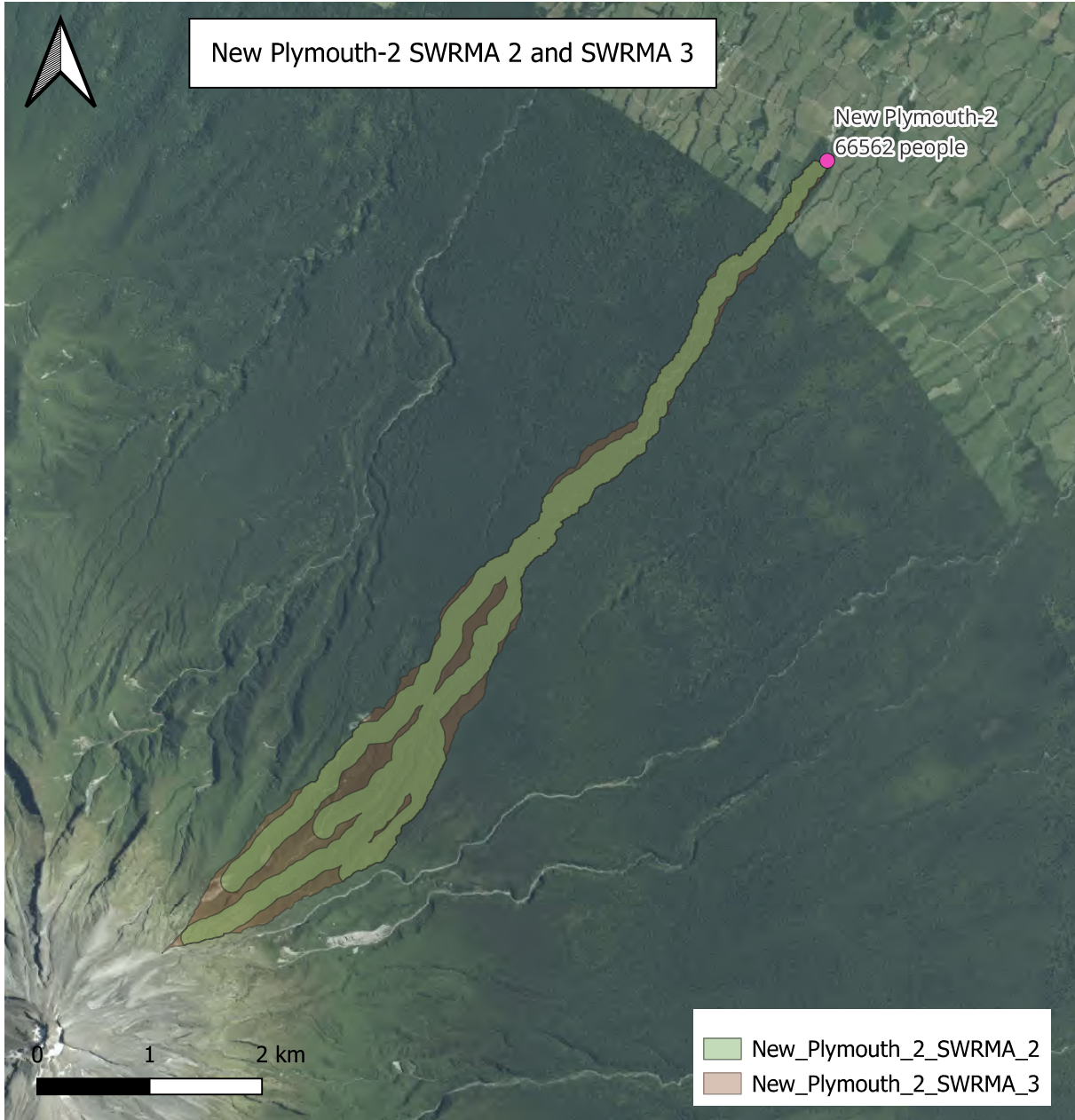


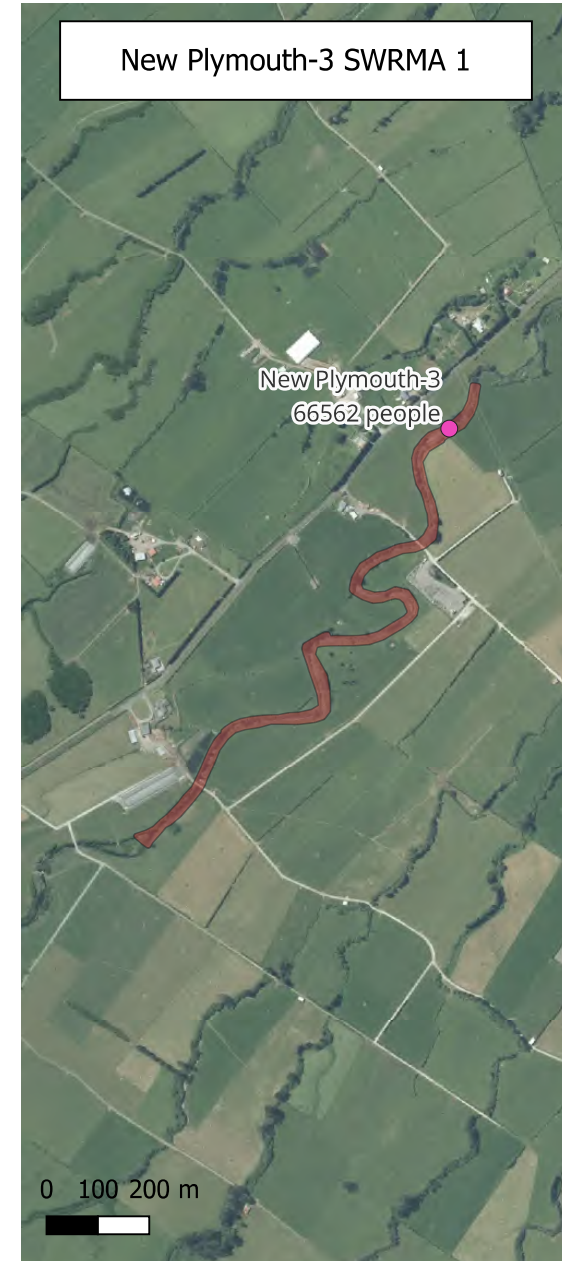
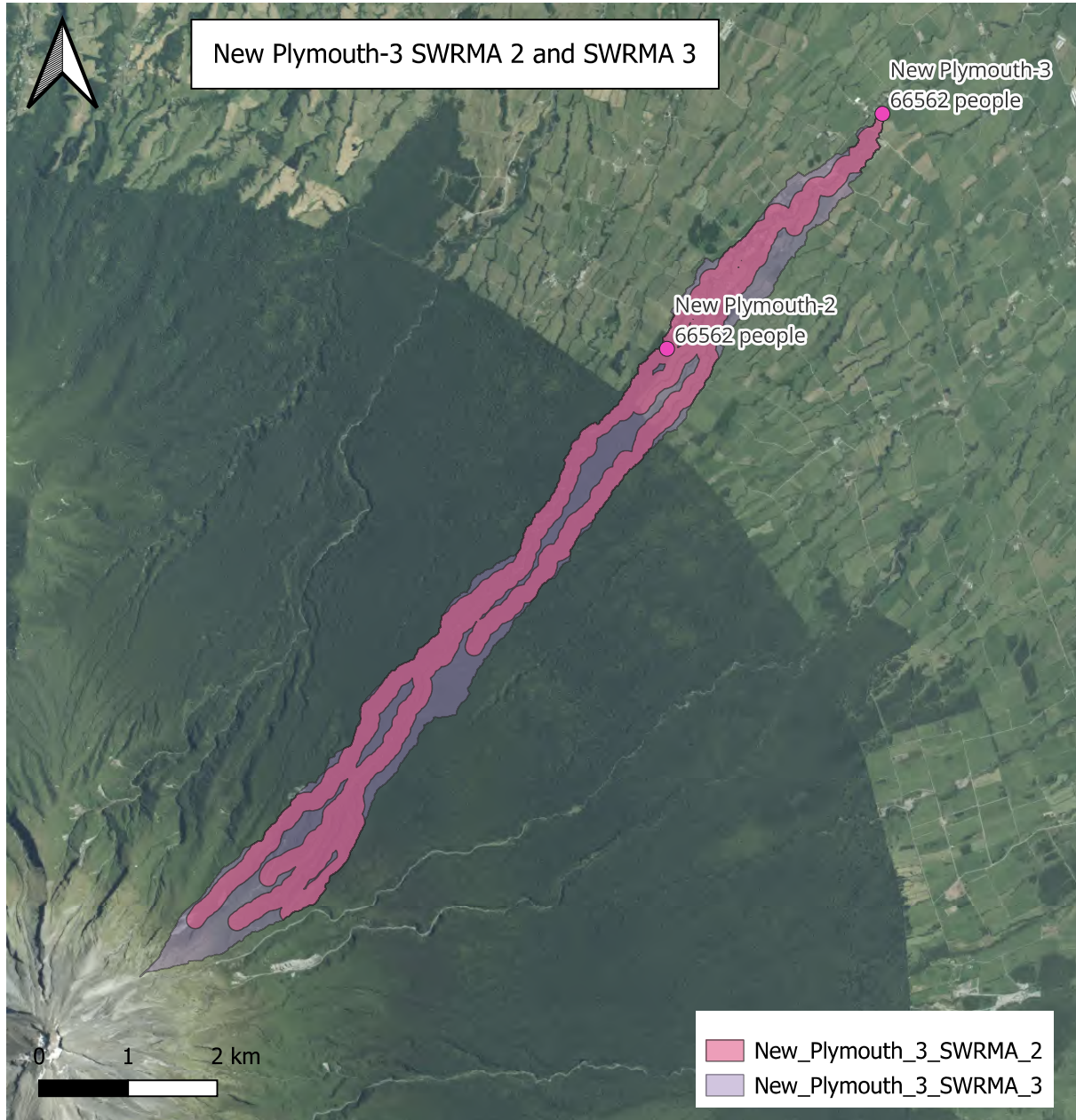


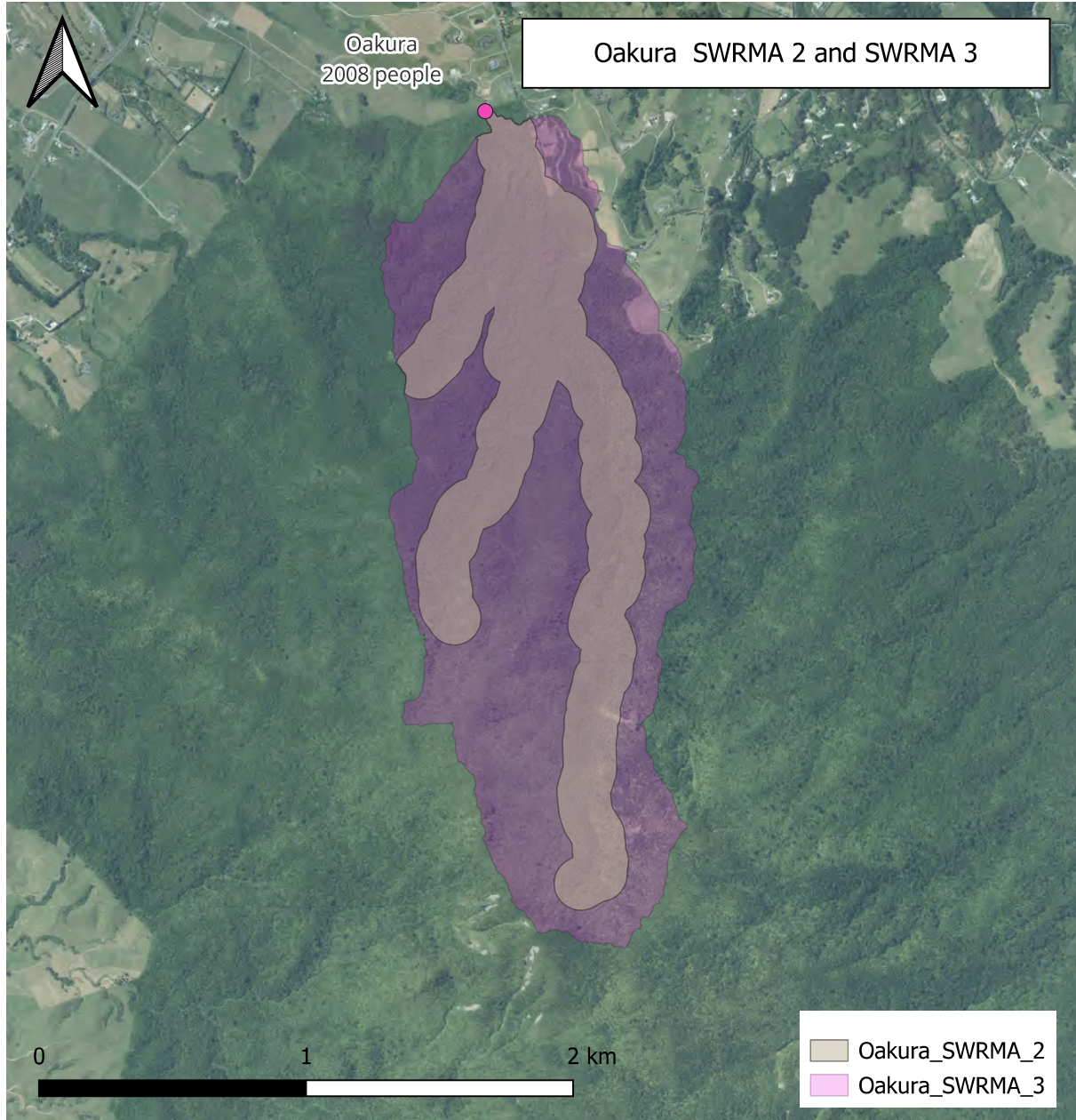


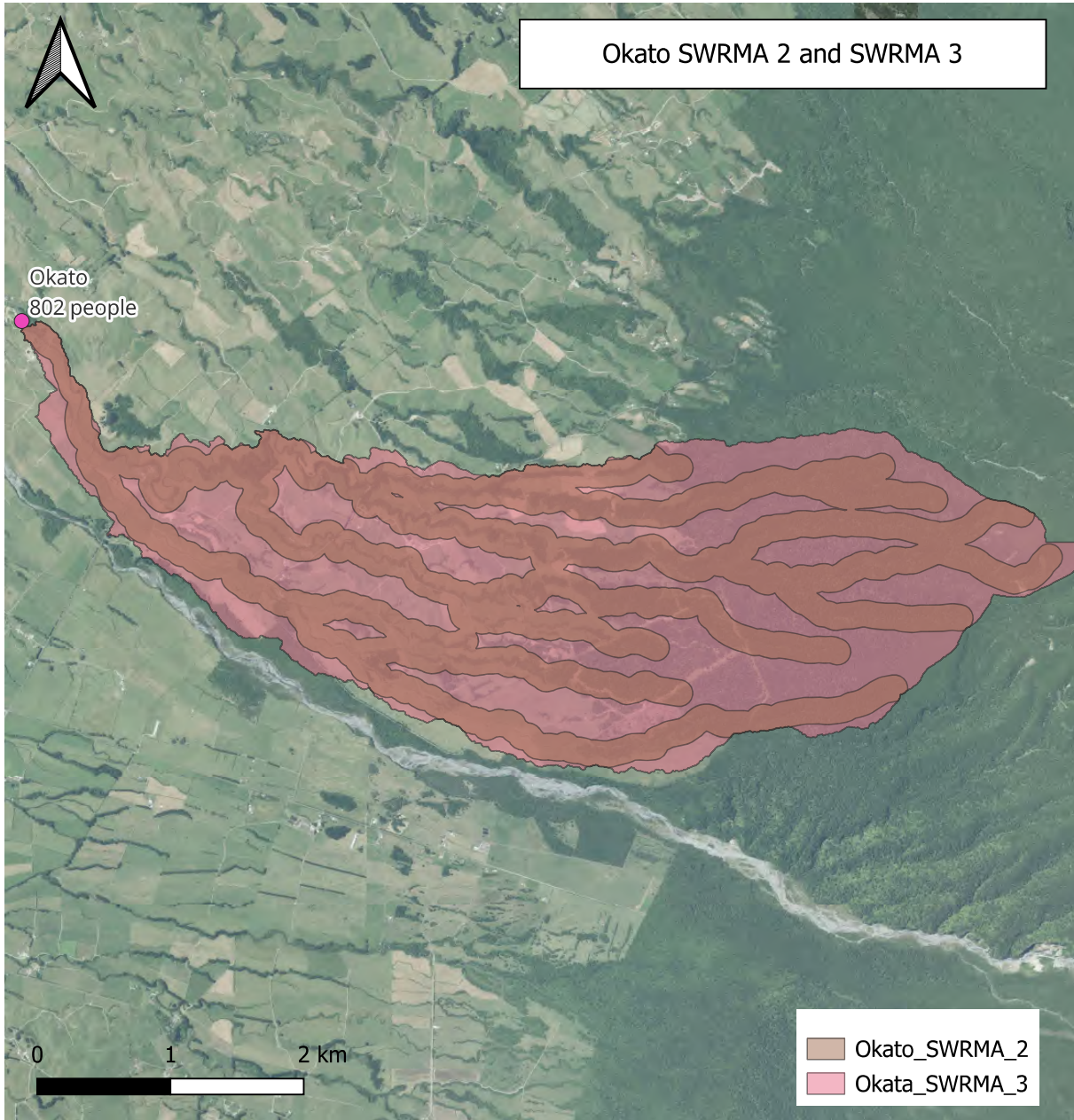


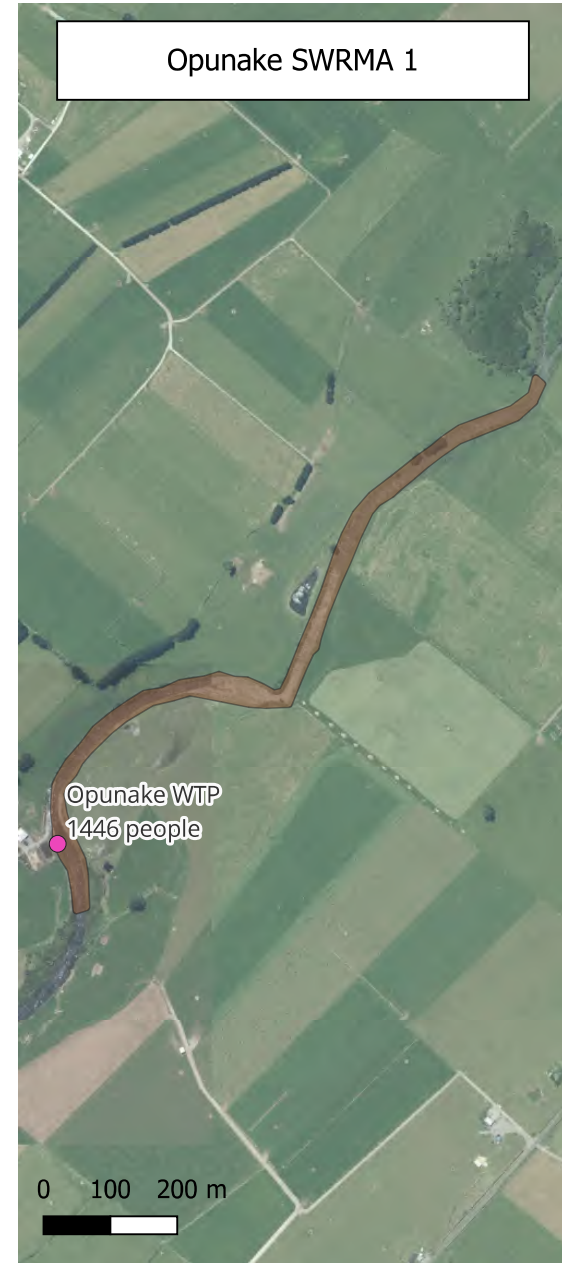
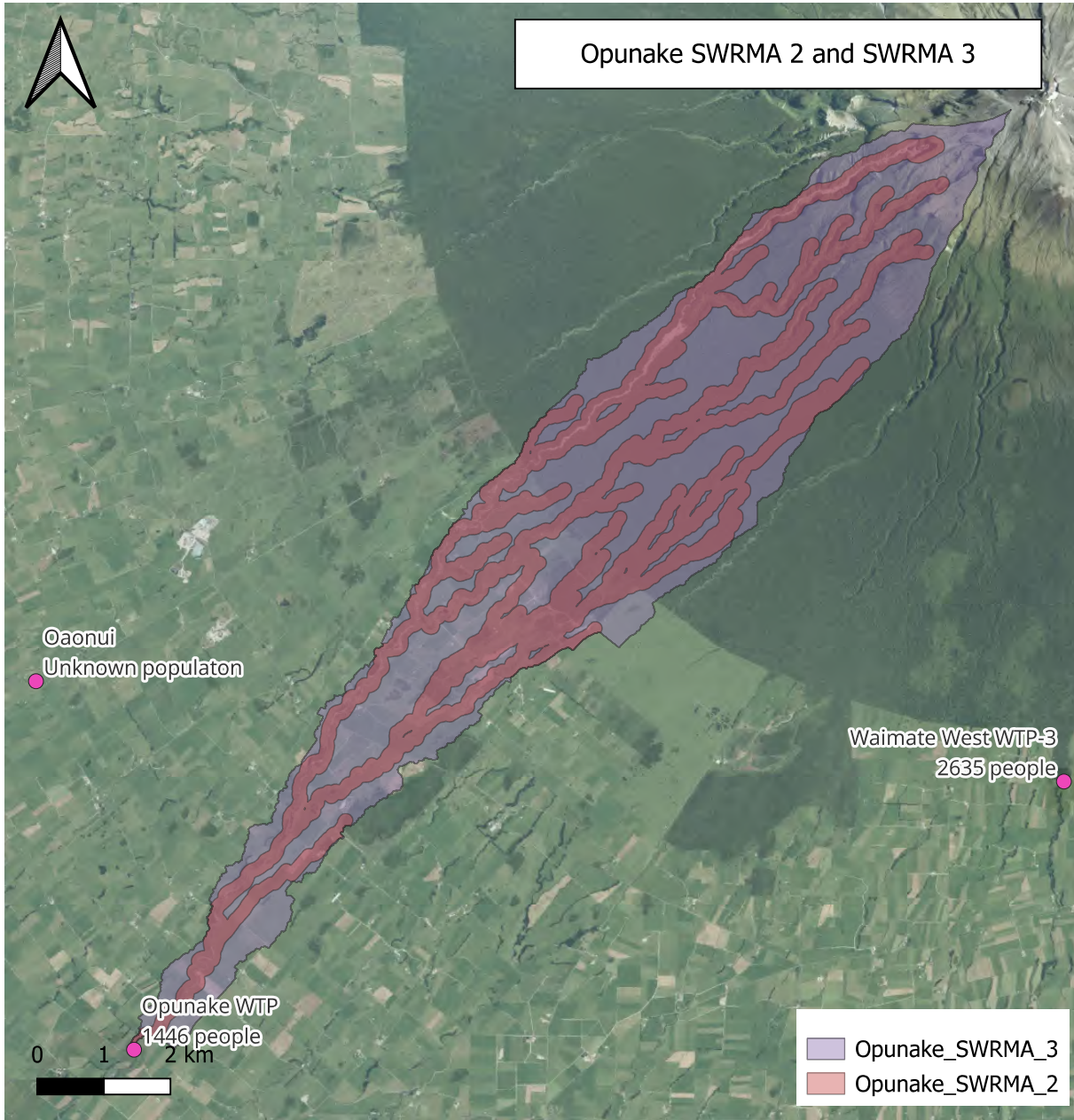


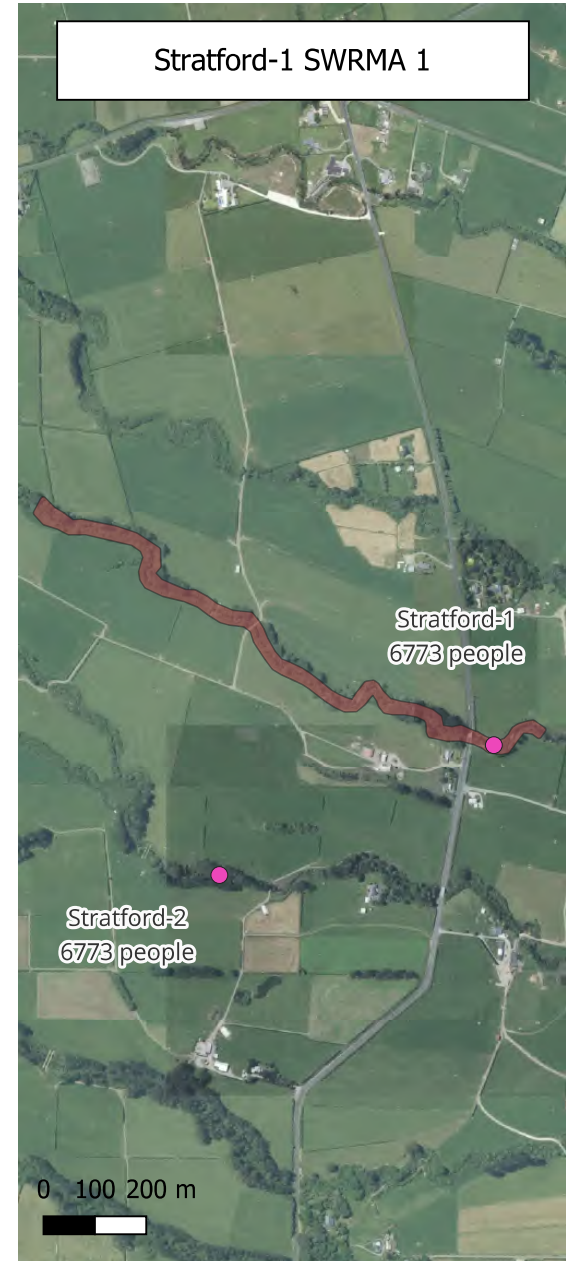
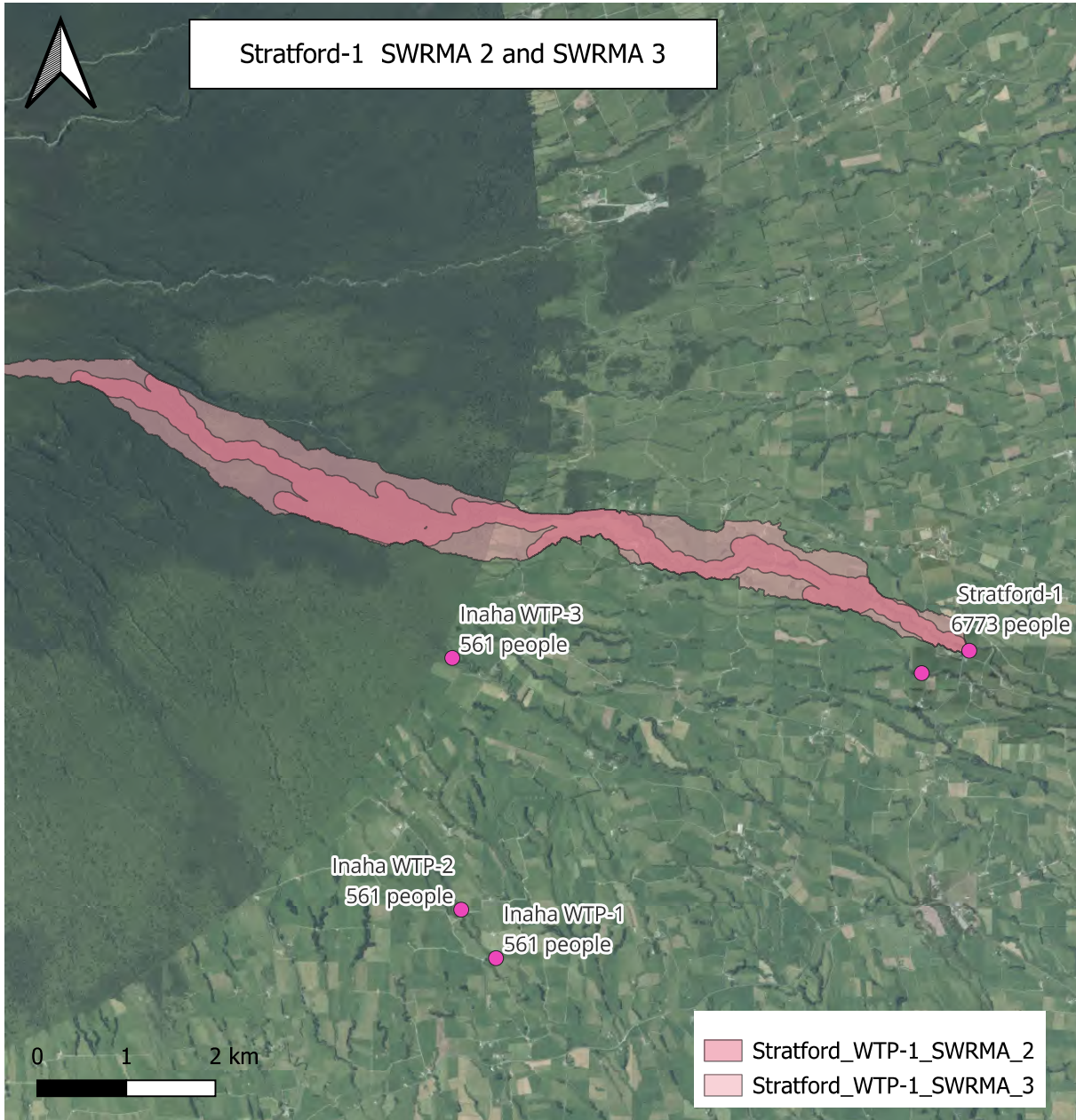


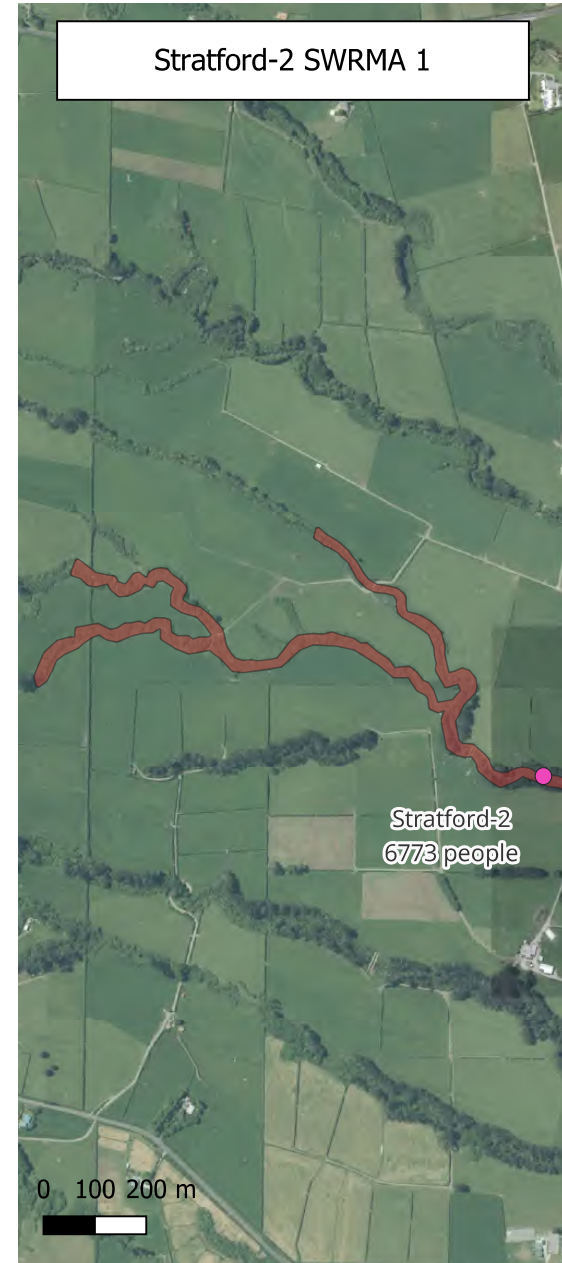
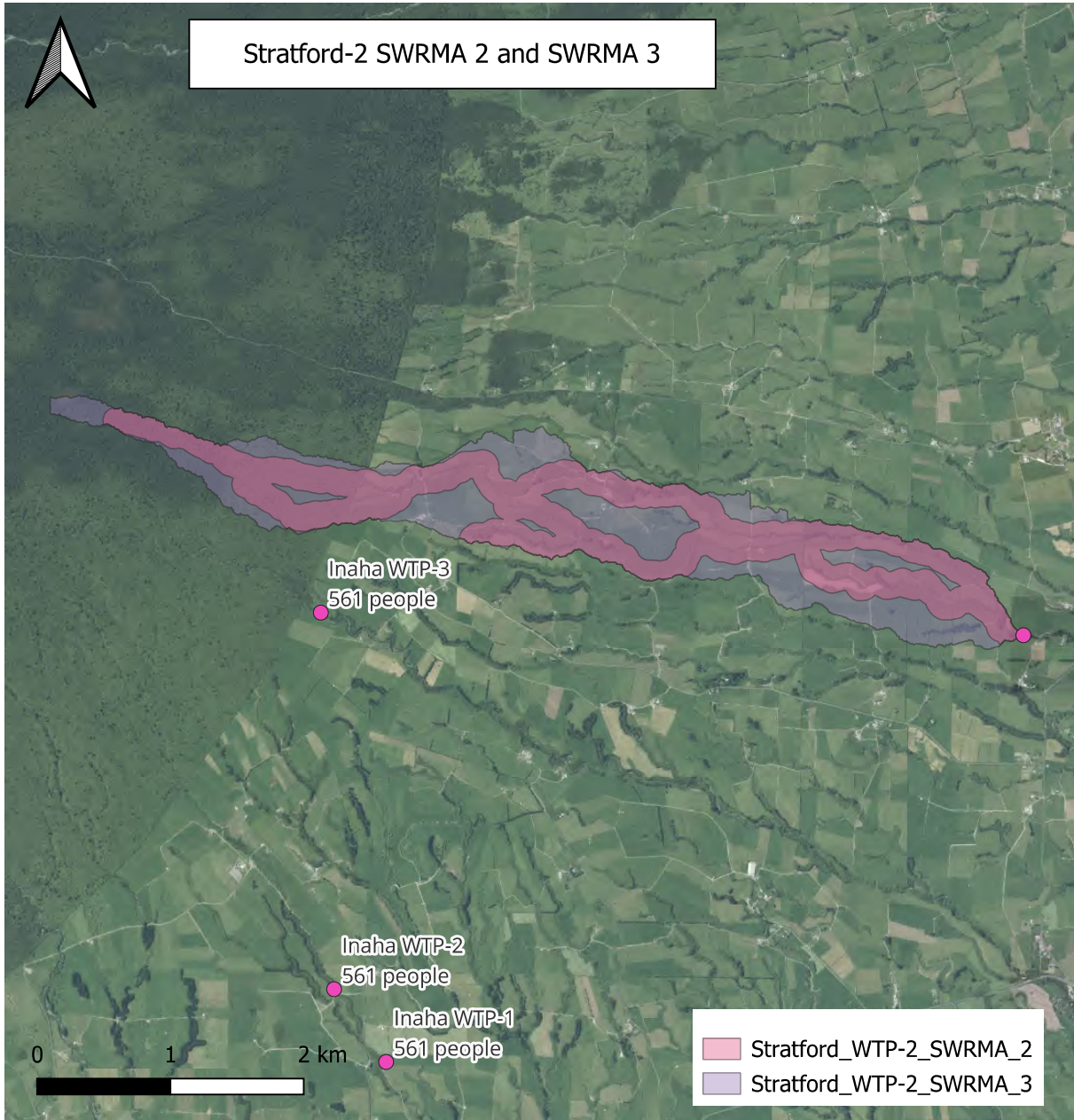


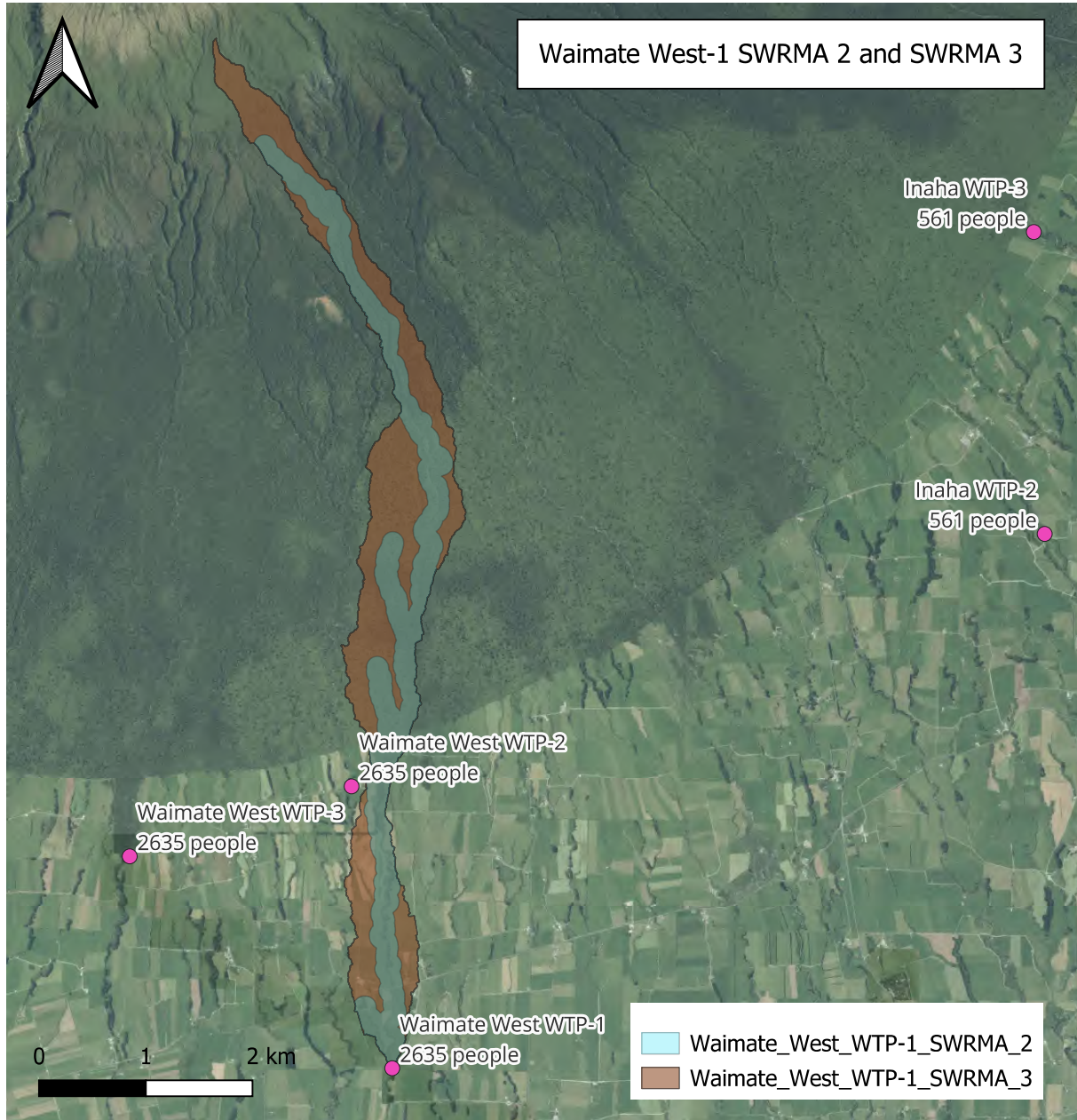


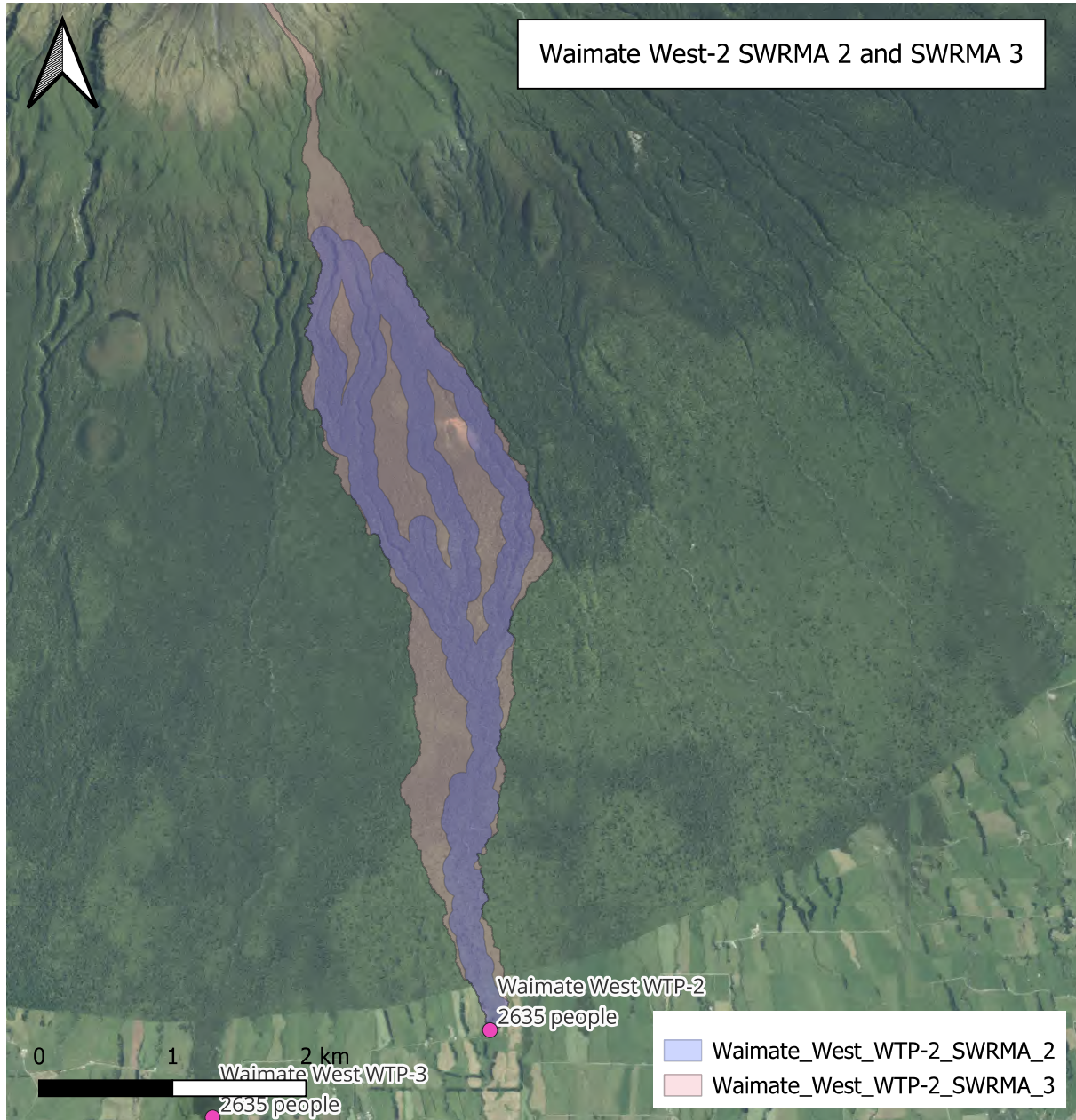


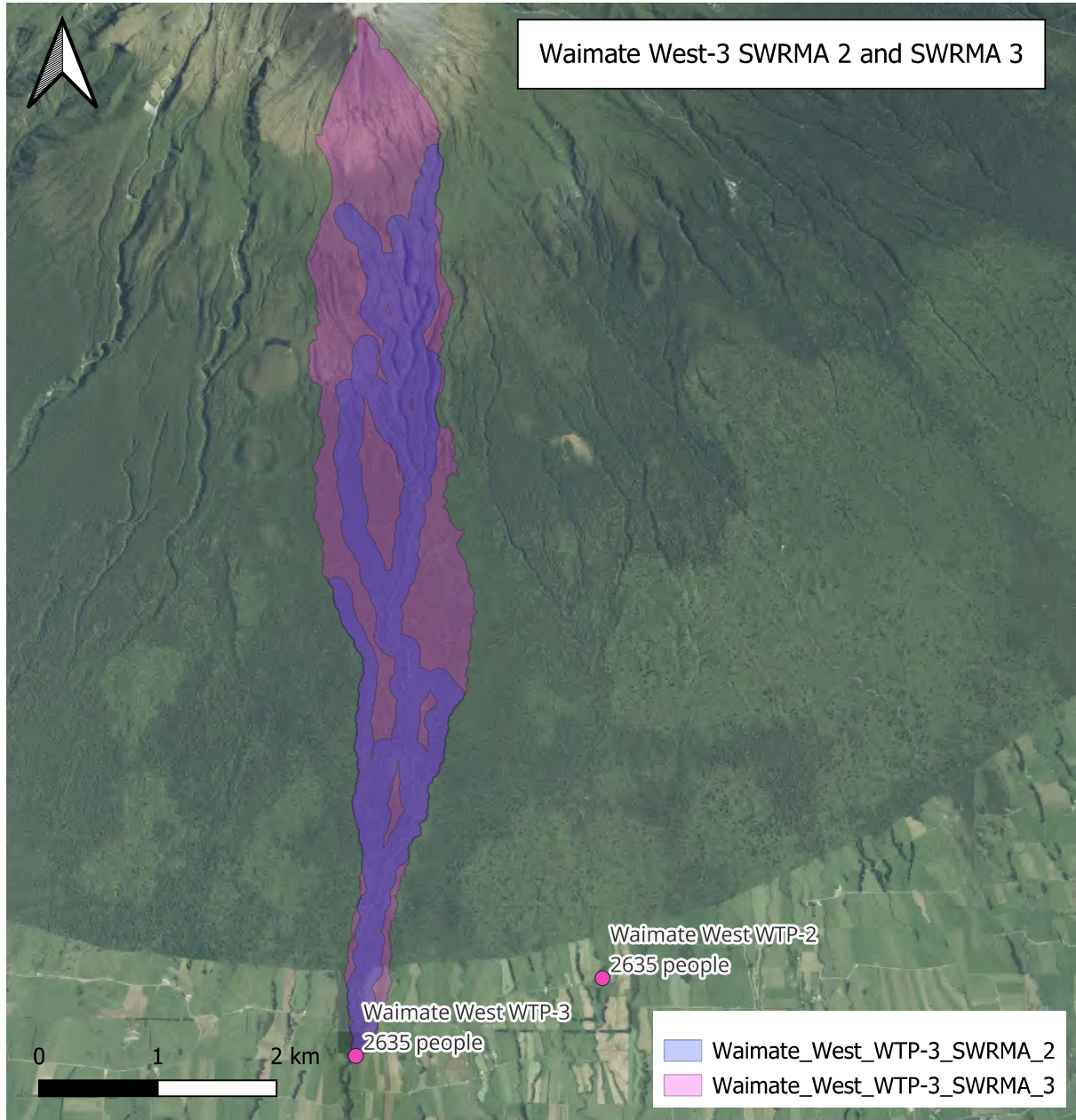














Date: 11 June 2024

Subject: Submission on the Local Government (Water Services Preliminary Arrangements) Bill

Author: F Kiddle, Strategy Lead

Approved by: A D McLay, Director - Resource Management

Document: 3280559

Purpose

1. To seek approval of a submission on the Local Government (Water Services Preliminary Arrangements) Bill as it relates to the proposed amendments to the *Water Services Act 2021* to preclude giving regard to the hierarchy of obligations within Te Mana o te Wai when making wastewater environmental performance standards.

Executive summary

2. The Government's proposal to prevent giving regard to the hierarchy of obligations within Te Mana o te Wai when making wastewater environmental performance standards mirrors the proposal to do the same for resource consents.
3. The proposed change is based on concerns that Te Mana o te Wai does not suitably provide for economic matters, and it could cause significant economic disruption in achieving improved freshwater quality and quantity.
4. This is not the predominate interpretation of Te Mana o te Wai, which instead sees it as one where providing for economic well-being is still a priority, albeit with more weighting towards providing for human and environmental health. The Ministry for the Environment has been unable to find any evidence that the hierarchy of obligations is causing consents to be declined due to a devaluing of economic matters.
5. Further, the proposed changes risk unintended consequences that could in-fact reduce the space to consider economic matters when giving regard to Te Mana o te Wai.

Recommendations

That Taranaki Regional Council:

- a) receives the memorandum Submission on the Local Government (Water Services Preliminary Arrangements) Bill
- b) endorses the submission in Attachment One Submission on the Local Government (Water Services Preliminary Arrangements) Bill

- c) notes that at the time of writing this memorandum, the Council was still waiting feedback from some external stakeholders; any notable feedback that requires amendments to the submission will be presented orally to the Policy & Planning Committee for consideration
- d) determines that this decision be recognised not significant in terms of section 76 of the Local Government Act 2002
- e) determines that it has complied with the decision-making provisions of the Local Government Act 2002 to the extent necessary in relation to this decision; and in accordance with section 79 of the Act, determines that it does not require further information, further assessment of options or further analysis of costs and benefits, or advantages and disadvantages prior to making a decision on this matter.

Background

- 6. As part of the Local Government (Water Services Preliminary Arrangements) Bill, the Government is proposing to amend the Water Services Act 2021 to preclude giving regard to the hierarchy of obligations within Te Mana o te Wai when Taumata Arowai are developing wastewater environmental performance standards. Submissions on the bill close on 13 June 2024. Note that regional councils are required to reflect the standards developed by Taumata Arowai in resource consents.
- 7. The proposed change to the Water Services Act mirrors the Government's proposal regarding precluding the consideration of the hierarchy of obligations in resource consents. This is being advanced, amongst other matters, through the *Resource Management (Freshwater and Other Matters) Amendment Bill*. Submissions on this bill close on 30 June. A draft submission on this bill will be circulated to the Policy & Planning Committee out of session for consideration.

Issues

- 8. The making of this decision addresses the approach for improving freshwater quality and quantity.

Discussion

- 9. As outlined in the submission, there are concerns that the hierarchy of obligations within Te Mana o te Wai does not sufficiently cater to economic matters. This has led to concerns that implementing the National Policy Statement for Freshwater Management (NPS-FM) would lead to significant economic disruption in achieving improved freshwater quality and quantity.
- 10. These concerns also apply to the development of wastewater environmental performance standards, as under the Water Services Act Taumata Arowai is required to give effect Te Mana o te Wai. The risk being that if they are unable to give suitable regard to economic matters, the performance standards could lead to unreasonable costs on water providers. Similar to implementing the NPS-FM, there is a need for a phased approach to lifting environmental performance.
- 11. However, the predominate interpretation of Te Mana o te Wai is one where providing for economic well-being is still a priority, albeit with more weighting towards providing for human and environmental health. The hierarchy of obligations is but one component of the wider concept of Te Mana o te Wai. The wider concept also includes a high-level description and six principles. When reading them all together, the 2024 Freshwater Hearings Panel on the Otago Regional Policy Statement found that Te Mana o te Wai "envisages that waters may be in a degraded state, and if so they should be restored and protected in a state closer to the natural setting. *However, that is not an absolute requirement* [emphasis added]".
- 12. Reinforcing this view is that in its *Supplementary Analysis Report* on the *Resource Management (Freshwater and Other Matters) Bill*, the Ministry for the Environment found no evidence that the hierarchy of obligations is causing consents to be declined due to a devaluing of economic matters.

13. Finally, there is a risk that prohibiting consideration of the hierarchy of obligations has unintended consequences. Te Mana o te Wai is a concept that was developed as a cohesive whole. The three parts of its definition (high-level definition, six principles and the hierarchy of obligations) interact together to balance the overall interpretation. Prohibiting consideration of one aspect of Te Mana o te Wai upsets this balance. At best, the proposed amendment introduces more ambiguity likely to only be settled after costly legal proceedings. At worst, it risks turning a perceived problem (i.e. that Te Mana o te Wai does not provide for economic matters) into a real one.
14. It may do this because, while it is third in the hierarchy of obligations, providing for economic well-being is still an obligation and a priority. The proposed amendment forces Taumata Arowai to only give regard the high-level definition and six principles of Te Mana o te Wai. While these do include a degree of economic focus, it is not as strong as that provided for by the hierarchy of obligations.
15. Finally, it must be noted that there are opportunities for better drafting in the NPS-FM to make it clear how it should be applied. However, this needs to be dealt with in a considered manner through either the second Resource Management Act amendment bill or the review of the NPS-FM. This will ensure there are no unintended consequences.

Options

16. The Council can either decide to submit or not. It is recommend the Council submits. This is because the proposed change mirrors those proposed in the *Resource Management (Freshwater and Other Matters) Bill*. There is insufficient evidence to justify the change and it risks unintended consequences.

Significance

17. This item is assessed as not significant with regards to the Significance and Engagement Policy. Council is considering whether to approve lodgment of a submission. Decision-making as to whether to accept the submission will rest with Parliament.

Financial considerations—LTP/Annual Plan

18. This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

19. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the *Local Government Act 2002*, the *Resource Management Act 1991* and the *Local Government Official Information and Meetings Act 1987*.

Iwi considerations

20. This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the *Local Government Act 2002*) as outlined in the adopted Long-Term Plan and/or Annual Plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.
21. A discussion paper on the application of Te Mana o te Wai providing for a balanced approach has been discussed with the Wai Steering Group.

Community considerations

22. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this memorandum.

Legal considerations

23. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 3280206: Submission on the Local Government (Water Services Preliminary Arrangements) Bill



13 June 2024

Document: 3280206

Finance and Expenditure Committee
Parliament Buildings
Wellington

Via email: fe@parliament.govt.nz

Submission on the Local Government (Water Services Preliminary Arrangements) Bill

Tēnā koutou katoa,

The Taranaki Regional Council (the Council) welcomes the opportunity to make a submission on the *Local Government (Water Services Preliminary Arrangements) Bill* (the Bill).

The scope of our submission is limited to the proposed amendments to the Water Services Act 2021 to preclude giving regard to the hierarchy of obligations within Te Mana o te Wai when making wastewater environmental performance standards.

The Council supports ensuring the application of Te Mana o te Wai is grounded in economic reality. While we have to start acting now, the reality for New Zealand is that our freshwater is in such a state that improvement will take decades. The system needs to reflect this and focus on improvement over time that does not result in undue hardship or disruption for communities.

The hierarchy of obligations within the National Policy Statement for Freshwater Management (NPS-FM) has been a central concern for how the freshwater regime poses potential economic risks¹. It has been interpreted by some as forcing a binary choice between the health of the environment and economic well-being. This is erroneous in the long-term. For example, long-term economic well-being cannot be provided for if people are sick from degraded water. But in the short-term, an absolute interpretation of the hierarchy could lead to the rapid and disruptive transition away from industries that use freshwater.

However, the predominant interpretation of Te Mana o te Wai is one of weighted balance, not absolute requirements. The hierarchy of obligations is but one component of the wider concept of Te Mana o te Wai. The wider concept also includes a high-level description and six principles (refer Appendix One for the full definition). When reading them all together, the leading interpretation, as stated by the 2024 Freshwater Hearings Panel on the Otago Regional Policy Statement, is that Te Mana o te Wai "envisages that waters may be in a degraded state, and if so they should be restored and protected in a state closer to the natural setting. *However, that is not an absolute requirement* [emphasis added]²". Restoring water quality is the main thrust, but this cannot undermine other parts of the hierarchy.

Further, in its *Supplementary Analysis Report on the Resource Management (Freshwater and Other Matters) Bill*, the Ministry for the Environment (the Ministry) found no evidence that the hierarchy of obligations is causing consents to be declined due to a devaluing of economic matters. The Ministry reviewed a sample of

¹ The hierarchy of obligations requires that freshwater be managed in a way that prioritises: first, the health and well-being of water bodies and freshwater ecosystems; second, the health needs of people (such as drinking water; and third, the ability of people and communities to provide for their social, economic and cultural well-being, now and in the future.

² Appendix two paragraph 11.

notified resource consents in which the hierarchy of obligations featured in the decision. They found that most consents were granted. Applicants were able to demonstrate their proposed activity adhered to the hierarchy of obligations. Where there was inconsistency with the hierarchy, this was balanced against wider considerations. The Ministry found two decisions to decline a consent that referenced the hierarchy. However, they note for both examples “these consents would have likely have still been declined irrespective of the hierarchy of obligations.”³

The Council is also concerned that the current proposal in the Bill may in-fact tip the balance towards an absolute interpretation of Te Mana o te Wai. The rationale for this is:

- Section 14 of the Water Services Act 2021 requires Taumata Arowai to give effect to Te Mana o te Wai when carrying out relevant functions. This includes making wastewater environmental performance standards.
- The proposed amendment would preclude consideration of the hierarchy of obligations component of Te Mana o te Wai. This includes the obligation under the third level of the hierarchy to prioritise social, cultural and economic well-being.
- Giving effect is therefore limited to the high-level definition and six principles of Te Mana o te Wai.
- As a decision maker, Taumata Arowai is likely to focus on the governance principle, which is “the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future.”
- Without the hierarchy of obligations to make clear there are other matters that must be prioritised (albeit with different weightings), this could lead to an interpretation that giving effect to Te Mana o te Wai is solely focused on prioritising the health and well-being of freshwater.

Te Mana o te Wai is a concept that was developed as a cohesive whole. The three parts of its definition (high-level definition, six principles and the hierarchy of obligations) interact together to balance the overall interpretation. Prohibiting consideration of one aspect of Te Mana o te Wai upsets this balance. At best, the proposed amendment introduces more ambiguity likely to only be settled after costly legal proceedings. At worst, it risks turning a perceived problem (i.e. that the hierarchy of obligations does not provide for economic matters) into a real one.

As a response to the above risk, the Council does not support precluding Taumata Arowai giving regard to the full concept of Te Mana o te Wai. Wastewater environmental performance standards play an essential role in supporting the improvement of freshwater quality. And the concept of Te Mana o te Wai already provides for these being developed and applied in a phased approach that protects communities from undue hardship or disruption.

The Council does consider there are opportunities for better drafting in the NPS-FM to make it clear the weighted balancing interpretation prevails. However, this needs to be dealt with in a considered manner through either the second Resource Management Act amendment bill or the review of the NPS-FM. This will ensure there are no unintended consequences.

Due to time constraints, this submission has been consulted with councillors out of session. It will be formally endorsed at the next appropriate opportunity. If any changes occur as part of this process, they will be communicated to the Finance and Expenditure Committee.

The Council would welcome the opportunity to speak to this submission.

³ Para. 49.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'SR', followed by a long horizontal flourish.

Steve Ruru
Chief Executive

Appendix One: Te Mana o te Wai definition from the NPS-FM

Concept

(1) Te Mana o te Wai is a concept that refers to the fundamental importance of water and recognises that protecting the health of freshwater protects the health and well-being of the wider environment. It protects the mauri of the wai. Te Mana o te Wai is about restoring and preserving the balance between the water, the wider environment, and the community.

(2) Te Mana o te Wai is relevant to all freshwater management and not just to the specific aspects of freshwater management referred to in this National Policy Statement.

Framework

(3) Te Mana o te Wai encompasses 6 principles relating to the roles of tangata whenua and other New Zealanders in the management of freshwater, and these principles inform this National Policy Statement and its implementation.

(4) The 6 principles are:

(a) Mana whakahaere: the power, authority, and obligations of tangata whenua to make decisions that maintain, protect, and sustain the health and well-being of, and their relationship with, freshwater

(b) Kaitiakitanga: the obligations of tangata whenua to preserve, restore, enhance, and sustainably use freshwater for the benefit of present and future generations

(c) Manaakitanga: the process by which tangata whenua show respect, generosity, and care for freshwater and for others

(d) Governance: the responsibility of those with authority for making decisions about freshwater to do so in a way that prioritises the health and well-being of freshwater now and into the future

(e) Stewardship: the obligations of all New Zealanders to manage freshwater in a way that ensures it sustains present and future generations

(f) Care and respect: the responsibility of all New Zealanders to care for freshwater in providing for the health of the nation.

(5) There is a hierarchy of obligations in Te Mana o te Wai that prioritises:

(a) first, the health and well-being of water bodies and freshwater ecosystems

(b) second, the health needs of people (such as drinking water)

(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.



Date: 23 July 2024

Subject: Freshwater Implementation Update July 2024

Author: L Hawkins, Policy Lead

Approved by: A D McLay, Director - Resource Management

Document: 3289565

Purpose

1. The purpose of this memorandum is to provide a Freshwater Implementation project update.

Executive summary

2. Set out in this memorandum is an update on the progress of implementing the freshwater package from central government. The memorandum focusses on the key tasks undertaken since the previous Committee meeting, and identifies risks associated with the project and achievement of the project timeframes.
3. The attached report focusses on the key streams of work associated with the freshwater package. This being policy development, implementation of the Freshwater Farm Plan (FWFP) regulations and the communications and engagement timeline.

Recommendation

That Taranaki Regional Council:

- a) receives the July 2024 update on the Freshwater Implementation Programme.

Background

4. This memorandum updates on progress in implementing the Freshwater Package. An implementation programme was previously presented to, and approved by the Committee. This report provides an overview on the progress of the work programme, specifically focusing on the previous 6 weeks and those ahead. It provides an opportunity for discussions relating to progress and risks identified.

Discussion

5. The attached report (attachment 1) provides a high level overview of the progress made since the last Committee meeting in June 2024, and identifies those tasks to be undertaken in the coming 6 weeks. It also identifies risks associated with the programme, and a copy of the high level engagement strategy.
6. Key discussion points are included in this covering memorandum to draw attention to key areas of work.

Government Announcements

7. As noted at the last Committee Meeting, the Resource Management (Freshwater and Other Matters) Amendment Bill was introduced. Since the last committee meeting a consultation period was opened for submissions, with a closing date of 30 June. The Council prepared a submission and due to the timing of the turnaround it was taken through Council at the 25 June meeting for endorsement and submission. Senior Council staff also presented orally to the select committee on the 9th July.
8. There have been no other freshwater related announcements by the government in this period.

Consultation update

9. Since the last Committee meeting the consultation period for the Land and Freshwater Plan has begun, and will run until 2 August. The focus of the front end of the consultation has been undertaking in person community meetings, online zoom and Special Interest Group meetings. Overall there has been a positive response in turn out and feedback received. The drop in style of the community meetings has also received positive feedback and enabled people the flexibility to engage with areas of interest to them.
10. The quality and depth of feedback received has been of a high standard, and provides staff with clear direction on refining policy development. There have been topics where consistent feedback has been clear, for example feedback on earthworks has indicated the proposed volume trigger for consents will prove difficult for some rural activities. And other topics the messaging has been more varied (i.e. transitional approach to phasing dairy effluent to land).
11. At the time of preparing the Memorandum, key statistics from the consultation to date are set out below:
 - a. 549 people attended the community sessions. Breakdown by location provided in the table below
 - b. 15 people at the online zoom meeting
 - c. 55 surveys have been filled in
 - d. 9,500 view of the website, 168,000 reach on Face book ads and 9,200 organic facebook reach
 - e. Special Interest Group meetings – Four meetings held during the week of the 15th July with 78 rsvp across the sessions.

Location	Participant numbers
Okato	64
Opunake	64
Hāwera	42
Kaponga	42
Urenui	23
Uruti	22
Pātea	18
Waitotara	18
Bell Block	13
Waitara	33
Inglewood	58
Tarata	22
Stratford	50

Te Wera	17
New Plymouth	39
New Plymouth	24

Working with iwi

12. Staff continue to work with Pou Taiao in seeking feedback on the content of the freshwater consultation and progressing policy drafting. A workshop with Pou Taiao is planned for the 6th August. Marae based discussions with whanau and hāpu have been planned for the following dates:
 - a. Ngaa Rauru – Monday 29th July
 - b. Taranaki iwi – Wednesday 31st July
 - c. Ngāruahine – Thursday 1st August
 - d. Ngati Mutunga and Ngati Tama – Friday 2nd August
 - e. Te Atiawa – TBC
 - f. Ngati Ruanui – TBC.

Financial considerations—LTP/Annual Plan

13. This memorandum and the associated recommendations are consistent with the Council’s adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

14. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the Local Government Act 2002, the Resource Management Act 1991 and the Local Government Official Information and Meetings Act 1987.

Iwi considerations

15. This memorandum and the associated recommendations are consistent with the Council’s policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the Local Government Act 2002) as outlined in the adopted Long-Term Plan and/or Annual Plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.

Community considerations

16. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this memorandum.

Legal considerations

17. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 3290257: [Freshwater Implementation Project Report July 2024.](#)

<p style="text-align: center;">Freshwater Implementation Project Report to Policy & Planning Committee</p> <p style="text-align: center;">July 2024</p>			
	Progress in the last six weeks	Key tasks in the coming six weeks	Risks
National Policy Statement for Freshwater Management	<ul style="list-style-type: none"> • Finalise consultation documentation. • Consultation commencement <ul style="list-style-type: none"> ▪ 16 community sessions ▪ One online zoom ▪ Four SIG meetings. • Participate in regional sector conversations with regard to resource management system reform. Particular focus on: <ul style="list-style-type: none"> ▪ The Resource Management (Freshwater and Other Matters) Amendment Bill ▪ S.70 and S.107 RMA case law implications. • Progress further investigations to support policy development, as information is obtained from the community consultation that will refine direction. 	<ul style="list-style-type: none"> • Concluding consultation <ul style="list-style-type: none"> ▪ Series of Marae based discussions ▪ Hui with Pou Taiao. • Consultation analysis, including preparation of summary report. • Progress next steps of policy and science programme to support programme development. 	<ul style="list-style-type: none"> • Medium risk – Partnership with iwi. Risk that the timeframes, complexity of issues and the need to be working in an agile manner to develop the policy framework will impact on the partnership approach being fostered. Amendments to the Pou Taiao Agreement including the setting up of a steering committee to mitigate this risk. Opportunity to consider amendment to programme to providing more time and opportunity to work through policy drafting. Continue to present progress to the Wai Steering Committee. • Medium risk – participation in the community engagement is low. Mitigated through continued promotion of process, community meetings switched to being held at various locations, targeted engagement with industry groups to lessen the load on individuals. • High risk –change to direction of the NPSFM with the new government. We can mitigate against this risk by maintaining momentum on policy development, keeping abreast of policy announcements from the government, and taking pause when necessary to confirm approach as policy guidance from the government develops.
Freshwater Farm Plans	<ul style="list-style-type: none"> • Status quo – as we await further direction from the Government on likely changes to the Regulations etc. 	<ul style="list-style-type: none"> • Status quo – as we await further direction from the Government on likely changes to the Regulations etc. 	<ul style="list-style-type: none"> • Low risk – potential change to direction of FWFP regulations with the new government. The government has signalled the continuation of the FWFP process and Councils should expect an order in council, as such this is a low risk. The continuation of the programme will mitigate against any pressure to respond to an OIC when released.

Engagement and Communication Strategy (Policy Development)

Set out below is a high level summary of the engagement approach and timing for key components supporting the policy development. Also noted is a high level timeline for key communications and engagement activity. Note this engagement plan does not include Council working with their tangata whenua partners, this process is subject to an alternative approach led with the Pou Taiao and Council's Iwi communications advisor.

Phase	Stage	What	Who	Timing*
Phase 1	Seek to understand Focus: gathering info from audiences about what's important to them	This phase has covered seeking input on a variety of high level freshwater matters including visions for Freshwater in Taranaki, identification of values for freshwater management and feedback on the proposed FMU boundaries. Input has been sought through a variety of mediums including online surveys, social pinpoint, face to face meetings and drop-in sessions (ie Stratford A&P show).	Community and special interest groups.	Apr 2021 to Mar 2023
Phase 2	Test options Focus: building and discussion on options that meet the region's wants and needs	There are two key steps in this process: <ol style="list-style-type: none"> 1. Testing the building blocks of the National Objectives Framework. A discussion document for each FMU is being prepared and will cover visions, values, baselines and environmental outcomes. 2. Testing TASs and proposed management approaches. 3. Testing limits and targets. This phase will also likely include region wide policy framework discussions. 	<ol style="list-style-type: none"> 1. Community – via online consultation opportunity. Special interest groups including industry bodies, catchment groups, government agencies, district councils, environmental NGOs – via workshop discussions. 2. Community and special interest groups. A series of face to face meetings around the region and opportunity for online feedback. 3. Community and special interest groups. A series of face to face meetings around the region and opportunity for online feedback. 	Aug 2023 to November 2024
Phase 3	Present preferred solution Focus: presentation of best options (draft plan)	A draft plan will be compiled and through requirements of the RMA an opportunity for written feedback provided.	Clause 3 – listed in the RMA, and special interest groups.	Early 2025
Phase 4	Notification: Public submissions Focus: formal communication relating to Plan notification	In accordance with the approved adapted programme from Council, the Freshwater Plan and Freshwater components of the RPS will be notified by Mid 2025, pending the consideration of any further direction and detail provided by the Government on their freshwater updates. Once notified all interested parties will have the opportunity formally submit written submissions on the notified plan.	All interested parties.	Notification Mid 2025. Submission period mid – late 2025.



Date: 23 July 2024

Subject: Land and Water Plan – Conflicts of Interest

Author: S Ruru – Chief Executive

Document: 3290388

Purpose

1. The purpose of this memorandum is to brief the Committee on the need for individual members to manage any pecuniary interests in accordance with the provision of the Local Authorities (Members Interests) Act 1968.

Executive summary

2. Under section 6(1) of the Local Authorities (Members Interests) Act 1968 (the Act), both elected councilors and appointed members of committees are not able to participate in a discussion and/or decision-making process in which that member has a pecuniary interest that is not held in common with the public. The question about whether a conflict exists needs to be considered in relation to specific decisions, rather than be seen as something that would apply to all discussions on a particular topic. It is also important to look at the particular circumstances of the member at the time that the decisions will be made to determine whether a conflict will arise.
3. Council is now at the stage, in the Land and Water Plan development process where staff will start drafting and testing with the Committee proposed draft plan provisions towards the end of the current calendar year. This move will represent a shift from the high level and project management issues that have been discussed with the Committee to date and will likely trigger a pecuniary interest for a number of members, particularly where they might benefit or be affected by provisions included in the plan. Hence, it is appropriate that steps be taken now to proactively manage the specific conflict issues that are likely to arise for individual members.
4. Appointed members are, under section 6(1A), exempt from the section 6(1) requirement if they have been appointed to represent a particular interest group and the interests that they have are not different in kind to those that would normally be held by other members of the interests they have been appointed to represent. For any interests that do not meet this test, and for conflicts held by councilors, there is also the option of seeking a declaration from the Auditor-General to allow the individual members to participate despite their conflict.
5. The responsibility for identifying and appropriately managing individual member conflicts rests with the individual members themselves. Council does, however, have a role to support members with ensuring their conflicts are managed in an appropriate way.
6. It is proposed that Council staff work with individual members to identify potential conflicts in relation to the upcoming Land and Water Plan decision-making processes. The information gathered can then

be used, if necessary, to prepare an application to the Office of the Auditor-General for a declaration to allow members to participate in the freshwater planning process despite the conflicts.

Recommendations

That Taranaki Regional Council:

- a) receives this memorandum Land and Water Plan – Conflicts of Interests
- b) notes that the responsibility for managing pecuniary and other conflicts of interest that might arise in relation to a particular decision rests with the individual member concerned
- c) encourages all councillors and Committee members to proactively identify and manage any potential conflicts of interest in an appropriate manner
- d) agrees that Council staff should provide proactive guidance and assistance to individual members to assist them with the identification and management of potential conflicts of interest that might arise through the freshwater planning process
- e) agrees that where appropriate Council should draft an application to the Auditor-General seeking a declaration to enable members with a pecuniary interest that is not in common with the public to participate in the Land and Water Plan process
- f) determines that this decision be recognised not significant in terms of section 76 of the Local Government Act 2002
- g) determines that it has complied with the decision-making provisions of the Local Government Act 2002 to the extent necessary in relation to this decision; and in accordance with section 79 of the Act, determines that it does not require further information, further assessment of options or further analysis of costs and benefits, or advantages and disadvantages prior to making a decision on this matter.

Background

7. Issues relating to the management of matters in which members of a local authority may have a pecuniary interest are dealt with through the Local Authorities (Members Interests) Act 1968 (the Act). Members, for the purposes of the Act, includes both elected councillors and appointed members of committees. As such, the Iwi, community and district council representatives appointed to the Policy and Planning committee are included.
8. Section 6(1) of the Act provides that members are not able to take part in a discussion and/or decision-making process in which that member has a pecuniary interest that is not held in common with the public. What constitutes a pecuniary interest is not explicitly defined in the Act but the practical interpretation of what it covers is wide ranging. In that regard it can include, for example, an opportunity to make a financial gain from being able to undertake a certain activity, avoid a cost or increase the value of an asset.
9. The section 6(1) requirement does not apply if the interest can be seen as being in common with the public. In practical terms this means that the benefit applies to a large number of people in a consistent manner. The payment of a general rate is an example of something that is seen as being in common with the public as all ratepayers within the region are required to pay the rate in a consistent way. On the other hand the payment of resource consent fees is likely to not be in common with the public as only consent holders will incur the fee and the level of the fee is likely to vary between consent holders depending on the different activities that require consent.
10. The application of the section 6(1) pecuniary interest test is also limited under section 6(1A), in relation to appointed committee members where those members have been specifically appointed to represent particular interest groups and the interests held by that member are no different to those which are held by other members of the group that they are appointed to represent. In this regard it is

reasonable to expect that a member appointed to represent the farming sector will have farming interests. If this exemption is to be relied on then it is appropriate that the rationale for its use be appropriately documented.

11. The Office of the Auditor-General (OAG) has written to all regional councils to outline the decisions that they have made in relation to a number of Otago Regional Council (ORC) councillors with farming and other primary sector interests. The findings and decisions that the Auditor-General made in relation to the Otago councillors can be summarized as follows:
 - The test as to whether a pecuniary interest exists needs to be assessed for each decision to be made and based upon the circumstances surrounding each member and their personal circumstances/interests at the time of the decision being made
 - A number of the freshwater planning decisions that are to be made by the Otago Regional Council will lead to a pecuniary interest that is not held in common with the public for a number of ORC councillors that had farming interests
 - The pecuniary interest held is not in common with the public because the financial impact varies depending on the nature of the rules ultimately adopted and the degree of additional compliance work required for individual farming operations. Hence, the impact on individual properties differs depending on a range of variables, including the size of the farm, the characteristics of its land and waterways, the way in which the farm is managed, what work has already been done and the intentions of the owner for future use of the property
 - Despite the pecuniary interests that exist the Auditor-General took the view that he should grant a declaration, under section 6(4) of the Act to allow the Otago councillors to participate in the plan making process. In making this decision the Auditor-General took into account the following:
 - that the new Plan is a significant planning instrument that will affect the whole region, and it is important for each constituency to be effectively represented
 - discussions and votes would be about planning, not individual consent applications
 - each of the councillors has specific and relevant skills and experience to contribute to the development of the new Plan
 - that in one case, the councillor did not seek to participate in aspects of the new Plan that were specific to the freshwater management unit in which their farming or other business interests were located.
 - In addition to their primary farming operations a number of the ORC councillors also held shares in co-operative companies (such as Ravensdown Limited, Silver Fern Farms Co-operative Limited, and Primary Wool Co-operative Limited) and shares in industrial and provident societies (such as Farmlands Co-operative Society Limited). The shareholdings held in these entities were found to be too small to constitute a deemed financial interest (ie less than the 10% rule) under section 6(2) of the Act. However, a shareholding below that threshold can still be a relevant financial interest if the matter to be discussed or voted on could materially affect the value of the entity's shares or the dividends to be paid.
 - In the Otago cases the OAG took the view that, although the new Plan could affect the value of a person's shareholdings in a co-operative company or industrial and provident society, this was far from a certain outcome. Hence, they were satisfied that the Otago councillors' shares in these kinds of entities created a financial interest so remote or insignificant that it could not reasonably be regarded as likely to influence them in voting on or taking part in discussions of the new Plan (refer section 6(3)(f) of the Act).
12. In making a decision to write to all other regional councils about their Otago decisions the OAG were alerting other councils to the need to proactively manage councillor and committee member pecuniary

interests as they proceed through their freshwater planning process. It is appropriate that this Council, its individual councilors and committee members, note the position adopted by the OAG in regard to the Otago Regional Council and encourage its members to also proactively manage any pecuniary interest issues that may arise under the Act.

Issues

13. Individual elected and appointed members have a responsibility for managing the pecuniary interests that they might have in the decisions (and associated discussions) made by Council in accordance with the provisions of the Local Authority (Members Interests) Act 1968. It is important that these issues are proactively managed to reflect the specific circumstances relating to each decision and the particular interests of each member.
14. To assist with this process it is proposed that Council staff should look to proactively work with each councilor and appointed Policy and Planning Committee member, to identify the interests that the member might have which could lead to a pecuniary interest issue arising and then identify a potential approach to managing those conflicts as the freshwater planning process proceeds. These approaches could include seeking a declaration from the OAG for members who have interests in the primary care sector to allow them to continue to participate.

Discussion

15. To date the focus of the Council's freshwater planning work, when it has needed to be reported to the committee and/or Council, has been focused on project management issues, the findings from key pieces of work completed by staff and/or the decisions that have been required have been at a 'high enough level' as to not create a specific pecuniary interest issue for individual members. This position will change, however, as Council moves 'deeper' into the freshwater policy development process, including the identification of specific management options and consideration of how they should be applied in different parts of the region. In this regard guidance¹ from the OAG notes:

As a general rule, early decisions to commission work on options or to consult are unlikely to have a financial effect and so the non-participation rule would not apply. However, that is likely to change as the matter moves towards a fully developed proposal ready for adoption and implementation. A later decision to confirm a particular option might have a clear financial effect on the member and so the non-participation rule would apply.
16. Given that Council is now at the stage, where staff will start drafting and testing with the Committee proposed draft plan provisions towards the end of the current calendar year it is appropriate that steps be taken now to proactively manage the specific conflict issues that are likely to arise for individual members. These steps can either be taken by the individual members themselves or Council can make an application on behalf of those members that do want to adopt a collective approach.
17. As the responsibility for managing the particular pecuniary interests that they might face rests with individual members the Council is not able to direct or 'force' individual members to take specific actions to manage their conflicts. It also cannot require members, particularly elected councilors, to step aside from any particular decision-making process. Despite these limitations the Council does carry a level of risk if individual members do decide to participate in a particular process and/or decline to proactively address their conflicts. Hence, it is in Council's interests to support members to manage their conflicts appropriately.

¹ Paragraph 4.31, Local Authorities (Members Interests) Act 1968: A Guide for members of local authorities on managing financial conflicts of interest, Office of the Controller and Auditor-General, June 2020.

18. In addition to supporting members to seek a declaration from the OAG Council should also consider taking a number of other practical steps to facilitate the management of potential conflicts of interest, particularly should the OAG decide not to grant a declaration for a particular member. The additional steps that Council can take might include:
- Arranging for legal advice to be provided where this would assist individual members to clarify their position
 - Encouraging staff to notify committee members of order paper items coming up on Committee and/or Council agendas that might create a conflict for individual members
 - Ensuring that the appropriate steps are taken within meetings to record any conflicts that might be identified.

Options

19. Council can either proactively assist members to manage any pecuniary interests that might arise under the Act or leave it to individual members to manage these as they consider appropriate.
20. It is recommended that Council look to proactively support individual members to meet the responsibilities they have including making an application to the OAG for a declaration to allow members to continue to be involved in the policy making process where this might be required.

Significance

21. This item is assessed as not significant with regards to the Significance and Engagement Policy. Council is considering how it might best assist individual members to manage any pecuniary interests that might arise for them as it proceeds through the freshwater planning process. As such the matter is considered to be administrative in nature. Include an assessment of the significance of the item with particular reference to the Significance and Engagement Policy. Only required for decision-making agenda items and can be deleted when no decision being made.

Financial considerations—LTP/Annual Plan

22. This memorandum and the associated recommendations are consistent with the Council's adopted Long-Term Plan and estimates. The management of member conflicts is part of the governance activity.

Policy considerations

23. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the Local Government Act 2002, the Resource Management Act 1991 and the Local Government Official Information and Meetings Act 1987.

Iwi considerations

24. This memorandum and the associated recommendations are consistent with the Council's policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the Local Government Act 2002) as outlined in the adopted Long-Term Plan and/or Annual Plan.

Community considerations

25. The community would expect elected and appointed members to proactively manage any personal conflicts of interest that they might have in accordance with the relevant statutory and good practice

provisions. This expectation is reflected in the proposal that Council take a proactive approach to encourage individual members to address any conflicts of interest and actively support individual members with this process.

Legal considerations

26. Section 6(1) of the Local Authorities (Members Interests) Act 1968 provides:

A member of a local authority or of a committee thereof shall not vote on or take part in the discussion of any matter before the governing body of that local authority or before that committee in which he has, directly or indirectly, any pecuniary interest, other than an interest in common with the public.

27. The Act does not define "pecuniary interest". The Office of the Controller and Auditor-General (OAG) uses, however, the following definition²:

... should be held to have a pecuniary interest in a matter before the council if the matter would, if dealt with in a particular way, give rise to an expectation which is not too remote of a gain or loss of money by him

28. The financial interest can be direct (eg be a quantifiable amount involving the exchange of cash) or indirect (eg an increase in the value of an asset or affect the turnover of a business). An indirect financial interest can also occur through a spouse/partner or through a separate entity such as a trust or company.

29. The prohibition on discussing and voting in section 6(1) of the Act does not apply where the pecuniary interest held is in common with the public. There is no guidance given in the Act about when this exception applies. The OAG has indicated³, however, that the factors to be considered include:

- *the nature of your interest (such as the kind of interest, its size or extent, and whether it is direct or indirect)*
- *the size of the group of people who are also affected and whether that group is big enough to constitute "the public"*
- *whether your interest and the group's interests are affected in a similar way.*

30. There is also guidance available from case law and in particular Loveridge and Henry v Eltham County Council (1985) NZAR 257. This case involved the proposed establishment of a rural water supply scheme. The Chairman and Deputy Chairman both owned land within the proposed water supply area. In considering whether they had a pecuniary interest in the matter, the Court stated:

Following on from that, the answer will depend on the circumstances of the case and will always be a question of degree. For example, where a decision was being made which affected four ratepayers only, perhaps in one road, it would be quite contrary to the intention of the Act to conclude that in such a case the public was to be confined to the four persons concerned. At the other extreme, where a decision affects every ratepayer in the county, the public will clearly be the whole body of ratepayers.

The situation contemplated by the [Members' Interests Act] is a particular formularised illustration of the rule that persons charged with an obligation to make decisions should not be affected by a personal motive. In determining, therefore, whether or not a person whose actions are under consideration comes within the situations contemplated by the Act, I think it is appropriate to take into account the considerations already referred to in relation to the general rules of natural justice, that is - would an informed objective bystander form an opinion that there was a likelihood that bias existed? I cannot exclude the possibility in this case by a technical interpretation of the meaning of the word "public" where used in the section concerned. Since it is conceded that the chairman and

² Page 47, Local Authorities (Members Interests) Act 1968: A Guide for members of local authorities on managing financial conflicts of interest, Office of the Controller and Auditor-General, June 2020.

³ Para 4.37 *ibid*

deputy chairman both had properties which would be affected by the scheme, I think there must be some possibility that an informed and objective bystander might consider that they had an interest greater than that of the public at large.

31. The Eltham case suggests the use of the "objective bystander" test. The need to make an 'objective' assessment of the member's interests relative to the public is also acknowledged by the OAG.
32. The application of the pecuniary interest provision to appointed members is limited under section 6(1A). This section provides:

Nothing in subsection (1) shall apply in any case where a member of a local authority or a committee of the local authority has been elected by or appointed to represent any activity, industry, business, organisation, or group of persons and his pecuniary interest is not different in kind from the interests of other persons in the activity, industry, business, organisation, or group by which the member is elected or in respect of which he is appointed.
33. Section 6(3) of that Act also provides a range of other exemptions from the general pecuniary interest rule in section 6(1). These include giving the Auditor-General to grant a waiver where the pecuniary interest is "... so remote or insignificant that it cannot reasonably be regarded as likely to influence..." the decisions made by the elected member.
34. The responsibility for ensuring compliance with the Act rests with individual members. A failure to comply can lead to prosecution of the elected member by the Auditor-General. If convicted the member can be liable for a fine of up to \$100 and removal from office.
35. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 3291571: [PowerPoint - Local Authorities \(Members Interests\) Act 1968](#)



Local Authorities (Members Interests) Act 1968

Policy & Planning Committee

23 July 2024

Working with people | caring for Taranaki



Overview of Act

- Applies to elected and appointed members
- 2 main rules
 - Contracting rule
 - Non-participation rule
- OAG administers
 - Can approve contracts
 - Grant exemptions & declarations
 - Prosecutions – removal from office & \$200 fine

Non Participation rule

- Member & partner/spouse interests
- Pecuniary interest

... if the matter would, if dealt with in a particular way, give rise to an expectation which is not too remote of a gain or loss of money

- Covers direct & indirect interests
 - Resource consent fees
 - Increase in value of property or rental
- *Interest in common with public exemption*
 - Impact would be the same for a 'big enough' group
 - What would an objective bystander think?

Appointed members exemption

*...appointed to represent any activity, industry, business, organisation, or group of persons and his pecuniary interest is **not different in kind** from the interests of other persons in the activity, industry, business, organisation, or group...*

- Subjective test
 - Farmers rep – own or manage a farm
 - Iwi rep – shares in multiply owned Maori land

Exemptions & declarations

- Exemption

...the pecuniary interest of a member is so remote or insignificant that it cannot reasonably be regarded as likely to influence him in voting on or taking part in the discussion of that matter.

- Declaration that section 6(1) shall not apply

*...**if** the Auditor-General is satisfied that the application of that subsection would **impede the transaction of business** by the local authority or committee or that it **would be in the interests of the electors or inhabitants** of the district of the local authority or of the area under its jurisdiction that the subsection should not apply.*

Timing of application

- Nature of decision
 - Procedural – consider project plan
 - Substantive – this is what we will do
- Stages of decision-making process
 - Conceptual
 - Develop & consult
 - Firm proposal
 - Decision
- Personal context
 - Nature of your interests
 - Impact of plan decisions on your property/interest

Summary

- Focus to date has been at a high level
 - Project governance
 - Region-wide issues (eg FMU structure & role of riparian)
- Now moving towards specific proposals
- Appropriate we seek exemption/declaration
- We will need member specific information

ANY
QUESTIONS
?



Date: 23 July 2024

Subject: Parliamentary Commissioner of Environment Report on Land Use Change

Author: F Kiddle, Strategy Lead

Approved by: F McLay, Director – Resource Management

Document: 3289160

Purpose

1. To inform Taranaki Regional Council (the Council) of a report by the Parliamentary Commissioner of the Environment (PCE) on land use change and its implications for Taranaki.

Executive summary

2. There are a wide range of issues regarding land use change in New Zealand. The policy landscape is fragmented and has put up barriers to land use change, there is no one-size-fits-all solution, the system needs to better tailor for solutions beyond the individual property owner, data is insufficient, and there are commercial barriers to overcome.
3. However, there are solutions to these problems, and regional councils have a key role. The Council is already lifting its investment in its monitoring network for freshwater. Through the development of the Land and Freshwater Plan, there is an opportunity to reduce barriers to land use change and allow for a more regionally-tailored approach. Beyond regulatory measures, there are also opportunities to work more with catchment groups, deliver targeted support to land owners and generally discuss with the community and land owners the real world practicalities of land use change. Finally, the development of a regional spatial plan could be used to identify the areas most suitable for alternative land uses.

Recommendations

That Taranaki Regional Council:

- a) receives the memorandum titled Parliamentary Commissioner of Environment Report on Land Use Change
- b) notes the content of the Parliamentary Commissioner of the Environment's report *Going with the grain: Changing land uses to fit a changing landscape*.

Background

4. The Parliamentary Commissioner of the Environment's report *Going with the grain: Changing land uses to fit a changing landscape* (the Report) sets out the multiple environmental challenges rural New Zealand faces, and that difficult trade-offs that need consideration if those challenges are to be

resolved. It attempts to give a sense of the possible direction of travel in responding to the challenges of climate change, biodiversity loss and water quality degradation. The Report is premised on the idea that these responses need to be sensitive to the economic, social and cultural viability of the regions.

5. The Report highlights that, while there are differing views, most New Zealanders want the same outcomes. These are resilient landscapes that can be passed on to future generations, a land that is rich in biodiversity and waterways that are healthy, and improvements to our environmental footprint. However, the big questions come in how we can achieve these outcomes in a way that:
 - a. considers environmental challenges within the wider social, cultural and economic realities that people face
 - b. distributes the costs fairly
 - c. ensures transparency and accountability in decision making.

Answering those questions requires conversations around New Zealand. Nationally, regional and at the catchment level.

Discussion

6. The Report canvases a wide range of issues and potential pathways for addressing them. The key ones are summarized in the below table.

Issue	Way Forward
Mitigating the effects of current land use will not work everywhere. Land use change will be required in some parts of the country, especially when climate change is factored in.	<p>Discussion nationally is needed to decide how we manage land use change and the impacts on people, the environment and economy.</p> <p>It is important to note that land use change is a continuum from changing management practices within the same farm at one end, to wholesale change on the other.</p>
The policy landscape is fragmented, with different discrete solutions to different problems. The amount of regulation, and the pace it changes, causes confusion to both land users and policy implementers.	<p>An integrated and adaptive approach is needed, with the catchment or sub-catchment as the appropriate scale. Taking such an approach is most likely to produce a mosaic of diverse land uses, which can provide better environmental, social and economic benefits.</p> <p>It is also important to acknowledge natural and rural environments are complex systems. Constant adjustments will be needed to ensure the right outcomes are achieved.</p>
A one-size-fits-all approach does not work. National-level regulations currently do not cater to regional differences, let alone catchment level differences.	<p>Decisions should be based on local knowledge supplemented with high-quality environmental data. Local communities must be able to provide feedback on the costs, impacts and trade-offs involved in achieving certain outcomes. This is particularly important (but by no means uniquely so) for Māori whose assertion of kaitiakitanga is rooted in hapū who whakapapa to particular places with particular valued resources.</p> <p>Trialing new things will be required, focusing on the most environmentally challenged catchments first. Regional councils are best placed to support the work of catchment or sub-catchment scale groups and monitor progress.</p>

<p>The current system largely puts the focus on land owners to achieve improvements on their property. However, they have limited control or visibility of impacts beyond their boundary.</p>	<p>Where environmental impacts can be accurately measured and attributed, market-based mechanisms can provide effective control at the property scale.</p> <p>Where this is not possible, catchment groups provide a way for land owners to learn from each other and develop shared understanding. Catchment groups should be incentivised to play a larger and more proactive role in environmental management.</p>
<p>Environmental data is often incomplete, inaccessible and not fit for purpose. Funding for New Zealand’s environmental monitoring systems is also ‘inexcusably low’.</p>	<p>Central government should make high-quality, affordable environmental information accessible and underwrite it as a public good. Land users and regional councils should be able to access the same information free of charge.</p> <p>High-quality information is needed to model the impact of possible actions and to identify hotspots – areas where land use change can yield higher than average benefits. In return, landowners and catchment groups need to be prepared to share the details of their practices and resource use.</p>
<p>Multiple commercial barriers to land use change currently exist. Land use change is a risky proposition for small farming businesses. Land users can also find it difficult to secure loans from a risk-averse banking sector.</p>	<p>Alternative ways to fund land use change are needed. These could include integrated grant and loan schemes, demonstration grants, market-based mechanisms, an intensity-adjusted land tax or a price on biogenic methane emissions.</p> <p>In some cases, land use change will not be economically viable for landowners to undertake. In these cases, landowners should ideally be compensated for the ecosystem services that their land use provides (just as they should pay the true cost of the environmental impacts of their existing uses).</p>
<p>Some regulations set up to protect the environment have become barriers to land use change. For example, water rights are tied to land parcels and are difficult to trade.</p>	<p>Greater regulatory flexibility is needed, with appropriate oversight, to remove regulatory barriers. One key area worthy of investigation is the development of tradable water rights to ensure that water is used more efficiently. Where water is scarce, rights to use it should be transferable.</p> <p>Such a development would require a resolution of Māori interests in water. An agreement between Māori and the Crown could provide both parties with the means to invest in improving water quality by paying for ecosystem services.</p> <p>Planning restrictions such as subdivision controls that make it difficult to free up capital to support land use change should also be investigated.</p>
<p>The New Zealand Emissions Trading Scheme is currently the main commercial driver of land use change. Afforestation is needed in parts of the country and the NZ ETS provides a source of revenue for this. However, the scale of</p>	<p>The NZ ETS should be retained as a tool for reducing gross emissions, but the right to use forestry as an offset should be progressively phased down over time. Afforestation should continue, but in a way that is better suited to the landscape.</p> <p>Progressively removing forestry from the NZ ETS should allow the Government to auction more credits at a higher price. The</p>

<p>this change and the singular focus on carbon has the potential to create negative consequences.</p>	<p>augmented revenue could be applied to incentivize changing land use.</p> <p>An alternative solution could include creating a separate emissions trading scheme to manage biogenic methane, with afforestation used to mitigate the warming from these emissions.</p>
--	---

7. Many of the matters canvassed in the Report are for central government to address. For example, the development of a more integrated regulatory system, adjusting the Emissions Trading Scheme, or looking at tradable water rights. However, the Council can still play an active role in inputting into these matters and advocating for a system that works for Taranaki. This also requires advocating for a pace of change that is manageable for our communities.
8. There are also many matters that are within the Councils control to varying degrees. The Council is already lifting its investment in its monitoring network for freshwater. Through the development of the Land and Freshwater Plan, there is also an opportunity to reduce barriers to land use change and allow for a more regionally-tailored approach. Beyond regulatory measures, there are also opportunities to work more with catchment groups, deliver targeted support to land owners and generally discuss with the community and land owners the real world practicalities of land use change. Finally, the development of a regional spatial plan could be used to identify areas most suitable for alternative land uses.

Financial considerations—LTP/Annual Plan

9. This memorandum and the associated recommendations are consistent with the Council’s adopted Long-Term Plan and estimates. Any financial information included in this memorandum has been prepared in accordance with generally accepted accounting practice.

Policy considerations

10. This memorandum and the associated recommendations are consistent with the policy documents and positions adopted by this Council under various legislative frameworks including, but not restricted to, the Local Government Act 2002, the Resource Management Act 1991 and the Local Government Official Information and Meetings Act 1987.

Iwi considerations

11. This memorandum and the associated recommendations are consistent with the Council’s policy for the development of Māori capacity to contribute to decision-making processes (schedule 10 of the Local Government Act 2002) as outlined in the adopted Long-Term Plan and/or Annual Plan. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.

Community considerations

12. This memorandum and the associated recommendations have considered the views of the community, interested and affected parties and those views have been recognised in the preparation of this memorandum.

Legal considerations

13. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

Appendices/Attachments

Document 3289224: [Going with the grain: Changing land uses to fit a changing landscape.](#)

Going with the grain

Changing land uses to fit a changing landscape

May 2024



Parliamentary Commissioner for the Environment
Te Kaitiaki Taiao a Te Whare Pāremata

This report has been produced pursuant to subsections 16(1)(a) to (c) of the Environment Act 1986. The Parliamentary Commissioner for the Environment is an independent Officer of Parliament, with functions and powers set out in the Environment Act 1986. His role allows an opportunity to provide Members of Parliament with independent advice in their consideration of matters that may have impacts on the environment.

This document may be copied provided that the source is acknowledged. This report and other publications by the Parliamentary Commissioner for the Environment are available at pce.parliament.nz.

Parliamentary Commissioner for the Environment

Te Kaitiaki Taiao a Te Whare Pāremata

PO Box 10 241
Wellington 6140
Aotearoa New Zealand

Phone +64 4 495 8350
Email pce@pce.parliament.nz
Web pce.parliament.nz

May 2024

ISBN

978-0-947517-44-1 (print)
978-0-947517-45-8 (electronic)

Photography

Cover images: Pole planting, Anna Sullivan, Unsplash; South Wairarapa District, Rob Suisted – naturespic.co.nz; Hanmer Springs, Jan Helebrant, Flickr.

Chapter header images: *Rumohra adiantiformis*, Chris Close, iNaturalist; *Cheilanthes sieberi* ssp. *Sieberi*, Oscar Dove, iNaturalist NZ; *Cranfillia deltoides*, vernselden, iNaturalist NZ; *Schizaea dichotoma*, Christopher Stephens, iNaturalist NZ; *Sticherus tener*, Richard Nichol, iNaturalist NZ; *Polystichum wawranum*, wownz, iNaturalist NZ.

Going with the grain

Changing land uses to fit a changing landscape

May 2024



Parliamentary Commissioner for the Environment

Te Kaitiaki Taiao a Te Whare Pāremata

Acknowledgements

The Parliamentary Commissioner for the Environment, Simon Upton, is indebted to a number of people who assisted him in conducting this review. Special thanks are due to Geoff Simmons who led the project with Dr Nora Lanari and Greg Briner. Leana Barriball, Dr Abigail Bender, Dr Robert Dykes, Dr Anna Hooper, Dr Elizabeth Green, Dr Geoffroy Lamarche, Charlotte Lee-Smith, Megan Martin, Dr James Newman, Matt Paterson and Rebecca Thornley all provided valuable support.

The Commissioner would like to acknowledge the following organisations for their time and assistance during the preparation of this note:

- all the catchment groups we engaged with, in particular, Wai Kōkopu Catchment Group in the Bay of Plenty
- Ministry for Primary Industries – Manatū Ahu Matua
- Ministry for the Environment – Manatū Mō Te Taiao
- Our Land and Water National Science Challenge
- Manaaki Whenua – Landcare Research.

The Commissioner wishes to thank the following individuals for reviewing earlier drafts of the report:

- Professor Richard McDowell, Our Land and Water National Science Challenge
- Emma Moran, EM Consulting Ltd
- Dr Shaun Awatere, Manaaki Whenua – Landcare Research
- Dr David Hall, Toha Network
- Alison Dewes, Tipu Whenua.

While he has benefited hugely from their insights, any errors, omissions or opinions are entirely his own.

Contents

A personal reflection	3
1 How this report came to be written	5
2 Four critical problems confronting policymakers	11
3 What would be needed to do a better job?	31
4 Some barriers that stand in the way of land use change	51
5 A way forward	61
References	71



A personal reflection

This is a report about land use change – what drives it and what stands in its way. It is not a matter of academic interest. My family arrived in the Raglan hill country in the 1850s. Ignorant of the land into which they stumbled, my forebears turned their backs on the Waikato floodplain and went into the hills. They appeared to be more productive – after all, they could support dense forest. And where the soil under the trees they cleared was well-drained ash, amidst limestone outcrops, it was good stock country. But where there was only a fragile veneer of soil over hard clay, it was a struggle.

In the 1940s, my great uncle left the hill country and purchased a smaller block on the western side of the central Waikato plain. It too had seen continuous land use change. Before European settlement, the well-drained sandy loams were good sites for kūmara. The deeply incised gullies cut through the volcanic outwash were wetlands filled with eels. The first European farming was surprisingly varied. There was dairying early on and there was also wheat being grown.

But the farm I grew up on was a sheep farm. My father bought it from his uncle shortly after the Korean wool boom. It was downhill all the way after that. When I was ten it became a beef unit. We didn't convert to dairying as many did. But no matter, it has effectively become a dairy support unit with some beef on the side and a small market garden.

The changes to my farm over the last 80 years have mapped the changing economics of livestock farming. And over the last decade they have started to chart the rising tide of concern about the state of our environment. About ten per cent of the property has been taken out of production to recreate the wetlands that filter down to the Waipā River.

How I came to live on the land that I call my home is a very ordinary tale of no special interest. I recount it to be upfront about the fact that I am not a disinterested party and not indifferent to the pressures that are bearing down on farming. But I am equally aware that landowners cannot disown the environmental harm they cause just as they can't ignore the costs that a changing climate will impose whether we like it or not. Environmental clean-up is not optional.

When markets move, land uses change. That has been the history of the last 170 years. Profitable new activities – or new ways of doing old things – can support land use change. If they entail a lower environmental footprint, we all win. Even then, the social costs may be controversial. Carbon farming is a case in point. Businesses wanting to earn carbon credits offer an exit strategy for a landowner wanting out, but pose a headache for the local school or livestock carrier.

A personal reflection

4

But where the case for environmental clean-up comes without a market-driven solution, regulation is needed to provide the incentive to do better. But that raises an even more intractable problem: where's the money going to come from? At any one time, some land uses will be on the winning side while others are up against the wall. Right now, we have a profitable dairy sector with a large endowment of skills and technologies both on and off-farm, with some very large, corporate-scale operators. For the sheep and beef sector, the boot is on the other foot. Its profitability is marginal so its ability to invest in change is much more fragile.

The political economy of steering land use change in a consistently sustainable direction is not for the faint-hearted. The easy way forward will always be to spend public money. But the scale of the problem far outstrips the public purse. And in any case, if food and fibre are to continue to be internationally competitive industries, they can't rely on subsidies whether they are financial or environmental.

Plans to reduce the environmental impact of farming can't ignore the question of who pays. Neither can they be imposed uniformly from a distance. While some national direction and support is needed, different land uses in different catchments pose different risks. We need to couple the detailed local expertise and knowledge of farmers, mana whenua and communities with fine-grained land information to channel investments to the parts of the landscape that will deliver the biggest environmental gains. In short, we need solutions that run *with* the grain of the land.

Coming from rural New Zealand, I find it easy – perhaps too easy – to sympathise with farmers confronting what seem to be ever mounting environmental challenges. But farmers don't need sympathy. They need really good environmental information, excellent market intelligence and access to finance. And they need regulations that will make environmental indicators trend in the right direction in the least costly way possible. This report offers some ideas on how that might be achieved.



Simon Upton

**Parliamentary Commissioner for the Environment
Te Kaitiaki Taiao a Te Whare Pāremata**



How this report came to be written

We need to change the way we use the land if we are to hold the line on environmental quality, let alone improve it.

But it has to be said that land use is, in any case, in a constant state of change. What future landscapes of Aotearoa will look like, and the state of their environmental health, will depend on at least two things. A changing climate will force changes to what we do where on the land – and how we do it. And then there will be the changes that flow from the decisions that people make. These are driven by everything from local environmental and planning regulations to who we trade with and evolving consumer preferences abroad.¹

Some of these changes will be incremental and take decades. Others will be more abrupt and involve switches to new land uses. All of them will affect our attempts to deal with freshwater, biodiversity and our contribution to mitigating climate change.

Changing land use to achieve environmental objectives involves a spectrum. At one end of the spectrum there is change to management practices within the same farm system, where the effects of existing land uses are mitigated through specific interventions. This could range from planting trees in low-productivity areas and restoring wetlands, to changing the mix of crops or grazing animals, or intensifying the use of other land parcels. At the other end of the spectrum, there is wholesale land use change from one specific use to another.

How much environmental degradation can be mitigated through changes of practice and how much requires wholesale land use change will depend on each farm. One thing is clear: our landscapes today look very different to how they looked a century ago, and by the end of this century they will look very different again.

¹ Since 2004, our trade with China has grown more than eightfold from ca. \$4.7 billion to ca. \$39.5 billion (Stats NZ, 2024a, b). Meanwhile, consumer preferences in other markets may be having more impact on how we use land than attempts to regulate it. Nestlé and Tesco UK both have stringent net zero 2050 targets that include their scope 3 emissions from farming, and they are piloting Science-Based Targets initiatives, which aim to improve biodiversity (Nestlé, 2023; Tesco UK, 2023). Both are big buyers of New Zealand dairy and meat and so this has direct impacts on New Zealand producers and the way they farm (Rennie, 2023; Uys, 2023). It has led Fonterra to announce stricter climate targets as well, although these remain based on 'intensity' rather than absolute reductions (Wannan, 2023). The power of consumers and markets is further compounded not only by the increasing prevalence of climate-related disclosure regimes (now mandatory in New Zealand, see MBIE, 2023) but also by the introduction of the much broader nature-related disclosure regimes (see, for example, TNFD, 2023).

1 How this report came to be written

6

My predecessor Dr Morgan Williams, in his 2004 report *Growing for good: Intensive farming, sustainability and New Zealand's environment*,² started a national conversation about the effects of intensive farming on the environment. He also laid out a possible way forward, which included a call for 'integrated catchment management'. Dr Jan Wright continued this line of inquiry with her 2013 report *Water quality in New Zealand: Land use and nutrient pollution* and its 2015 update.³ This present report continues these conversations.

In the 20 years since Dr Williams' report, we have seen continuing intensification of some land uses, wholesale changes in others, and a raft of attempts (with variable success) to use environmental regulation to manage the consequences. Concerns about the effects of livestock farming, particularly dairying, on water quality has led to five iterations of a National Policy Statement for Freshwater Management.⁴ There have also been stop-start attempts to preserve biodiversity on privately owned land.

Running a farm has become a much more complex business, with significant recent changes in banking, processing, and environmental regulation. A widely repeated view among farmers is that there is too much disjointed regulation of on-farm activities that does not consider their cumulative impacts. In the winter of 2023, Beef + Lamb New Zealand's chief executive Sam McIvor had this to say:

"The Government needs to pause, review, reassess and simplify its approach to policies. Policies are all too often fragmented and impractical. A more holistic view is needed to develop sensible and pragmatic regulations that enable farmers' ongoing stewardship of the land."⁵

Ironically, it is not on-farm regulation that is currently forcing the most substantial changes in the way we use land, but attempts, far from the farm gate, to mitigate our fossil fuel emissions. For as long as New Zealand has been debating doing something about climate change, storing our carbon dioxide emissions in trees on the landscape has been our preferred get-out-of-jail (almost) free card. However, I have had growing concerns about the sustainability of this approach to climate mitigation.⁶

In my *Farms, forests and fossil fuels* report, released in March 2019, I explored what the implications of the Government's climate change targets and policies might be for New Zealand's landscapes.⁷ I commissioned modelling of the scale of land use change that would be expected to occur at the national level if all emissions were priced the same, including those from agriculture,⁸ and all emitters were allowed unlimited access to forestry offsets through the New Zealand Emissions Trading Scheme (NZ ETS). The short answer was that a lot of land would be converted to forestry – up to 5.4 million hectares (or 54%) of current farmland by 2075,⁹ most of it in Canterbury, Otago and Manawatū-Whanganui.

² PCE, 2004.

³ PCE, 2013, 2015.

⁴ NPS-FM 2011; NPS-FM 2014; NPS-FM 2014 as amended in 2017; NPS-FM 2020; and the NPS-FM 2020 as amended in 2024. The new government has also signalled that it will start work to replace the current NPS-FM 2020.

⁵ B+LNZ, 2023.

⁶ PCE, 2023a.

⁷ PCE, 2019a.

⁸ Emissions from the agricultural industries are currently not being priced. The current coalition government has signalled it will introduce agricultural emissions pricing by 2030.

⁹ Based on roughly 10 million hectares of agricultural and horticultural land use (excluding forestry) in 2019 (Stats NZ, 2021a).

The modelling for that report also tested an alternative approach in which a separate target was set for gross carbon dioxide emissions from the transport, energy and industrial sectors, while access to forestry offsets was reserved exclusively for biological emitters. Under this alternative approach, a 'mere' 3.9 million hectares of farmland would be converted to forestry by 2075.

To get a better understanding of the problem, I commissioned some follow-up work to calculate the area of forest that would be required to achieve roughly the same change in temperature as reducing a herd of livestock by one animal. The answer – 0.6 hectares for a single dairy cow – confirmed that while forests could theoretically be used to offset warming from livestock methane emissions, very large tracts of forest would still be needed to make any significant dent in the warming effect of New Zealand's livestock methane emissions.

Farms, forests and fossil fuels also attempted to downscale the national-level modelling to a specific catchment to see what offsetting emissions with trees could mean for a particular community. I chose the Hurunui in Canterbury. But the modelling was relatively crude and suffered from several limitations: the resolution was coarse, land uses were represented using national averages rather than being catchment-specific, and the only environmental indicator assessed was greenhouse gas emissions.

Furthermore, the report's scope was restricted to modelling the impact of emissions pricing on land uses. The impacts of other environmental policies, such as freshwater quality regulations, were not considered. Neither was any input sought from mana whenua or the local community.

I concluded the report by calling for a landscape-based approach to managing climate and other environmental challenges. The idea was to integrate "all that we know about environmental processes at the landscape scale with bottom-up, grass roots knowledge".¹⁰ Rather than wait for the recommendation to be politely shelved, I decided to test the idea by using more fine-grained, catchment-specific modelling tools and engaging with the mana whenua and communities directly concerned.

It just so happened that during my review of the Overseer model in 2018,¹¹ I came across the work of Land and Water Science in Invercargill on physiographics. Physiographics uses high resolution spatial datasets to gain a deeper understanding of the role physical landscape characteristics, such as geology, soils, climate and hydrology, can play (in addition to land use) in driving spatial variation in freshwater quality outcomes. I was intrigued by the potential such tools could play in enabling more targeted policies to be developed for managing freshwater quality and soil greenhouse gas emissions. I therefore commissioned Land and Water Science to develop landscape susceptibility maps for two case study catchments: the Mataura catchment in Southland and the Northern Wairoa catchment in Northland.

¹⁰ PCE, 2019a, p.156.

¹¹ PCE, 2018.

1 How this report came to be written

8

The next step was to consider the effects of different environmental policy settings in these catchments. I commissioned WSP and Nature Braid to model changes in land uses and land management practices in the Maitua and Wairoa catchments under six hypothetical policy scenarios, and to estimate the resulting environmental and economic outcomes. As part of the process, a series of hui and workshops were held in each catchment to discuss the policy scenarios and modelling assumptions, and to better understand the social and cultural considerations that could not be modelled. Additional work was also commissioned to highlight the perspectives of iwi and hapū from each catchment on these issues. The results of this exercise are published alongside this report.

The two case studies were designed to illustrate how a more integrated landscape approach could shed light on what different policy mixes might mean for the direction and scale of land use change. What the modelling delivered was striking.¹²

Based on current and forthcoming environmental and climate policy settings, our modelling projected that the Northern Wairoa catchment would – as a simple function of relative profitability – see a wholesale switch from sheep and beef farming to pine production forestry.¹³ The scale of change was stark and came as a shock both to me and the local people who participated in the exercise. They expressed concern for their community about the loss of jobs and people that might result. They were also concerned about the impact of pine production of that scale on the landscape and environment. That said, they were also concerned about the costs of the status quo, particularly the destructive effect of sediment on water quality and mahinga kai – and ultimately the health of the entire Kaipara Harbour.

In the Maitua catchment, the same policy settings would also drive significant land use change – particularly the transition of hill country sheep and beef farming to pine production forestry. However, in contrast to Northern Wairoa, most dairy and lowland sheep and beef operations in the Maitua remained viable, albeit much less profitable. This highlights that the current national policy trajectory is likely to have significantly different outcomes depending on the context of the catchment and the farm systems located there.

The scenarios based on alternative policy mixes generated outcomes that were less extreme but still very challenging. From an environmental perspective, these alternative approaches showed that by sacrificing some carbon sequestration in the short term – pine is very fast growing – it is possible to generate better environmental outcomes for water quality and biodiversity. It is fair to say that the locals were still struck by the scale of land use change that was presented in these scenarios. However, they provided some assurance that a greater diversity of land uses could provide a more resilient local community, economy and environment. Unsurprisingly, communities reported that they were attracted by a process that gave them a greater say in the pace and direction of change.

¹² See PCE (2024) for detailed modelling methodology and results.

¹³ In this report, 'pine' refers to radiata pine, which is the dominant pine species planted in New Zealand and makes up about 90% of our exotic plantation forests.

The case studies are not a forecast of the future for these regions and certainly not ones that can be extrapolated across the country. But in the process of developing them, it became clear that:

- the future will not look like the past
- the way we use the land is changing inevitably for a wide variety of reasons
- responding to environmental challenges will be one of the most important of those reasons.

Rather than draw conclusions from two case studies undertaken in very different regions, I decided to synthesise some key conclusions from the wider body of work I have undertaken. Modelling exercises can give a feel for the direction and scale of what may happen under different scenarios. But they omit as much as they include and cannot begin to sketch the ways people respond and adapt to change, new information and new technologies.

This document does not follow my usual investigative approach, which is to examine the evidence in detail to enable me to make reasonably granular recommendations. While the so-called 'wicked' problems it aims to tackle are well documented, the way forward remains mired in the political economy of conflicting interests that cannot be resolved from a purely environmental point of view. This report is as much about those conflicting interests as it is about the environment.

While attempting to tackle these problems we also must consider the position of whānau, hapū and iwi as kaitiaki and as landowners. Māori have a more holistic way of thinking about the environment. They assert that there is a lot to be learnt from a philosophy that protects the environment as a family member, not just a resource that can be traded at a price.

Some may be tempted to treat that as an unworldly view. It is not. Māori ag-related businesses we talked to are as pragmatic as any other players in the rural economy. But they start from a multigenerational standpoint. And they expect to be listened to by governments and regulators. Whatever lawyers may have to say about the reach of Te Tiriti in respect of whenua, wai and taonga, Māori represent by far the longest human link with many localities in rural Aotearoa. Māori knowledge must be part of all future landscape decision making.

This report tries to clarify the nature of the environmental challenges that rural New Zealand faces and ensure that those who determine public policy cannot claim they are unaware of the trade-offs they are confronting. Changing the way we use land cannot be avoided if only because current policies (particularly those governing climate mitigation) are actively encouraging it. My hope is that this report will give a sense of the possible direction of travel if New Zealand is serious about responding to the triple challenge of climate change, biodiversity loss and water quality in a way that maintains the economic, social and cultural viability of rural Aotearoa.

1 How this report came to be written

2



Cheilanthes sieberi ssp. Sieberi

Four critical problems confronting policymakers

This document starts from the assumption that we want to maximise the social, cultural and economic benefit of our natural resources while making sure that we look after them for future generations. My investigations suggest that policymakers confront four key problems that make this task a difficult one. They can choose to ignore them, but they will not go away.

Firstly, the way we use the land needs to change. The magnitude of environmental degradation in some parts of the country means that change in land use – not just management practices – is needed. Secondly, this situation is compounded by the reality that climate change itself is already and will increasingly become a driver of land use change as adaptation to a shifting climate becomes unavoidable. The third key problem is a fragmented policy landscape, where multiple streams of policy impact both directly and indirectly on decisions about land and water use. This fragmentation increases complexity and creates more uncertainty for landowners and kaitiaki. The final key problem is rooted in the fact that responsibility for environmental management is currently delegated to the owners of individual property while the consequences of many activities are variable, diffuse and catchment-wide. I will discuss each of these key problem areas below.

The way we use land needs to change

Past and present land use has had and will continue to have large and sustained environmental impacts, particularly in the form of greenhouse gas emissions, impacts on water quality and quantity, and on biodiversity. The impacts of land use activities on the environment of Aotearoa have been well documented in research and I shall only touch on some of the main concerns.

Greenhouse gas emissions from land use activities

New Zealand's contribution to global climate change is small on an absolute basis, but much larger on a per capita basis. The ongoing warming from the carbon dioxide released by historical deforestation is New Zealand's largest contribution to global warming, accounting for roughly three-quarters of New Zealand's current total warming contribution.¹ Today, fossil carbon dioxide emissions from transport, energy and industry are New Zealand's fastest-growing source of warming. But methane from agriculture, though plateauing over the last decade or so, causes more warming overall, accounting for twice as much of New Zealand's total contribution to warming as fossil fuels.² I have explored the warming contribution caused by methane and nitrous oxide emissions from livestock in New Zealand in a previous report – and it is considerable.³ Reducing agricultural methane emissions, therefore, represents the greatest immediate opportunity to reduce New Zealand's contribution to warming.⁴

Degraded water quality

The quality of our rivers can be measured using five main indicators: phosphorus; nitrogen; clarity and turbidity; a macroinvertebrate community index; and *Escherichia coli* (*E. coli*). Data from Stats NZ show that the water in many of our rivers is in a degraded state, although some indicators are starting to show an improving trend.⁵ Most of this degradation is a result of the way we use our land. That said, existing monitoring sites are unevenly distributed across the country and are not representative of all waterways.⁶ Similarly, the quality of our groundwater is mixed. Existing monitoring of a limited number of sites suggests groundwater quality may be improving.⁷ However, there is such a paucity of data on groundwater quality that it is difficult to make any definitive claims. What is clear, is that many of our catchments are not meeting the environmental bottom lines set out in the National Policy Statement for Freshwater Management.⁸

The Our Land and Water National Science Challenge has created maps estimating the catchments where the country's environmental bottom lines (set by successive governments) are being exceeded. They used results from the current monitoring network to model results for the whole country.

¹ Reisinger and Leahy, 2019, p.5. Land use change since human arrival to New Zealand has released around 12 billion tonnes of CO₂. This CO₂ continues to cause warming today (PCE, 2019a, p.66).

² PCE, 2019a, p.80. This excludes the contribution to warming from historical deforestation, which dwarfs everything else.

³ PCE, 2019a, pp.79–80.

⁴ Barth et al., 2023, p.29.

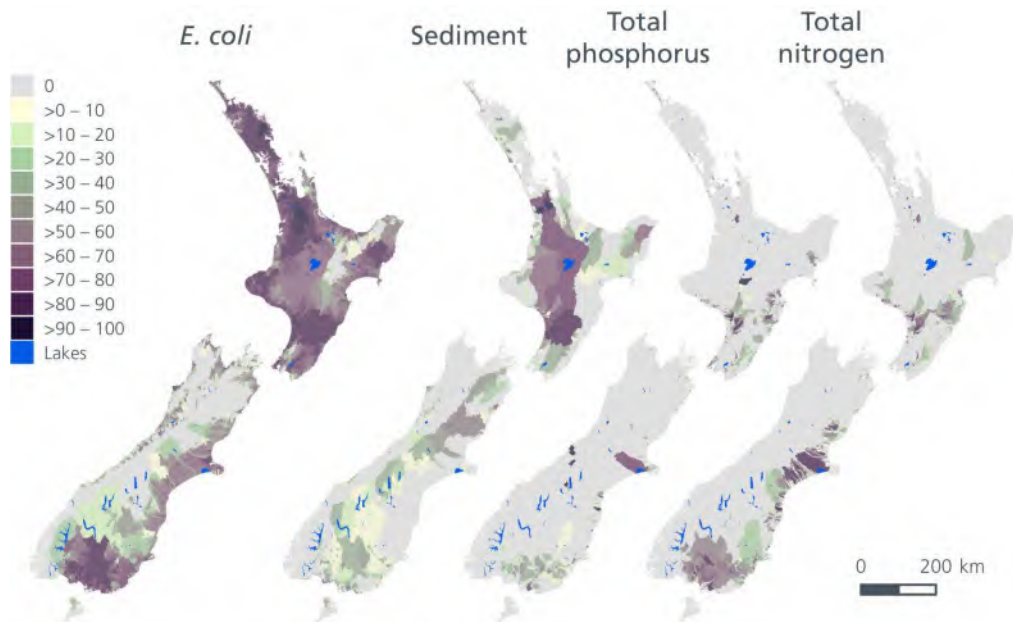
⁵ Stats NZ, 2022a, b, c, d, e.

⁶ For details, see PCE (2019b, pp.33–35).

⁷ Stats NZ, 2020.

⁸ MfE, 2024.

As Figure 2.1 shows, several catchments across the country exceed environmental bottom lines for one if not several contaminants. Some of these contaminants may be able to be reduced to stay within bottom lines by implementing on-farm mitigation measures, while in other places wholesale land use change will be needed.

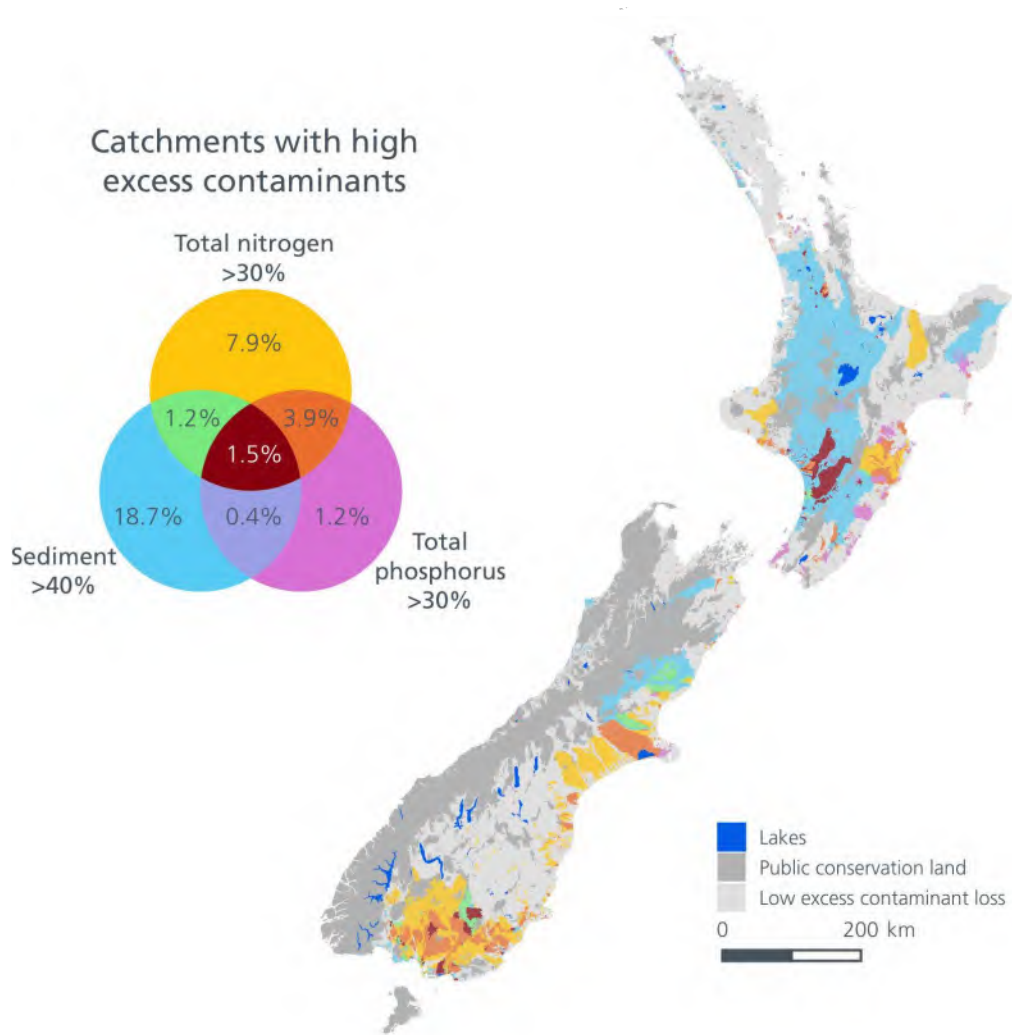


Source: Adapted from McDowell et al. (2021) and Snelder, Smith et al. (2023)

Figure 2.1: Map of catchments across the country showing the level of exceedance of current environmental bottom lines for *E. coli*, sediment, total phosphorus and total nitrogen.

Figure 2.2 presents a consolidated map that shows catchments with high excess contaminants that are beyond the levels that can be mitigated. Based on the available data, these catchments are likely to require land use change to achieve their environmental bottom lines.⁹ This would affect about a third (34.8%) of catchments in New Zealand. In 1.5% of these catchments, all three contaminants mapped are in excess of these percentages. They are in parts of the Manawatū and Whangāehu catchments managed by Horizons Regional Council, parts of Waituna and Otapiri catchments managed by Environment Southland, and Otapiri catchment managed by Otago Regional Council.

⁹ Using all established and developing mitigations available as of 2020, it would be possible to mitigate the impacts of existing land use in catchments where nitrogen and/or phosphorus is up to 30% above environmental bottom lines. In the case of sediment, the estimated figure is slightly higher at 40%. Where required reductions exceed these numbers, land use change is likely to be required. See McDowell et al. (2021) and Snelder, Smith et al. (2023).



Source: Adapted from McDowell et al. (2021) and Snelder, Smith et al. (2023)¹⁰

Figure 2.2: Map of catchments that will likely require land use change to meet environmental goals.

¹⁰ The minimum acceptable states are determined by the national bottom lines for attributes as defined by Appendix 2A of the NPS-FM 2020 (MfE, 2024) that can be modelled in a consistent and comprehensive manner across New Zealand. This includes the nitrate toxicity, periphyton, *E. coli* and suspended sediment attributes for rivers, and the total nitrogen and total phosphorus attributes for lakes (Snelder, Smith et al., 2023). The thresholds for nitrogen, phosphorus and sediment are derived from McDowell et al. (2021).

E. coli was excluded from the consolidated map in Figure 2.2 because of the following issues with its monitoring:

- *E. coli* has a high natural background level in some catchments.¹¹ This can make it difficult to distinguish the impact of agricultural land use from urban land use. Consequently, it is difficult to attribute and determine the reductions required from different uses.
- Accurately understanding the concentrations of *E. coli* is difficult due to a combination of our relatively infrequent (monthly) monitoring and the fact that most *E. coli* is washed down rivers in times of heavy rainfall. Sampling frequency would have to at least double in most sites to detect changes in *E. coli* from any intervention.¹²
- There is limited understanding of the effectiveness of further mitigations to reduce *E. coli* losses.

Enhanced concentrations of *E. coli* are so pervasive across most of New Zealand that, in the absence of much better information on the sources of *E. coli* (e.g. sheep, cattle, deer, avian or human), it may not be a useful measure to use to prioritise areas for action. This is *not* a reason to stop regulating and managing *E. coli*. Instead, it is an argument for investment in more monitoring and research so that management can be effectively prioritised.

Freshwater currently needs to be maintained or improved to give effect to a hierarchy of objectives in Te Mana o te Wai designed to protect the mauri of the water (the new Government has signalled this hierarchy may change).¹³ Giving effect to Te Mana o Te Wai and the required monitoring for this is new. However, monitoring programmes already developed by Māori to measure mauri show a degrading trend of water quality (e.g. Mauri Compass or Waikato River Authority taura).¹⁴

Reduction in water quantity

All human uses of freshwater have *some* environmental effects, including reducing or slowing flow, changing water temperature, reducing transportation of gravel or increasing pollution levels. Where these changes in water quantity impact on water quality they are implicitly picked up in the previous section. For our purposes here it is simply worth noting the interaction.

The main environmental impact of water use is where it results in a flow below the minimum needed for environmental functioning. Prominent examples are catchments in Canterbury where the use of freshwater has reduced the minimum flow to a level below that required for healthy ecosystem functioning, at least seasonally.¹⁵ Data on water use has historically been poor, relying on consented takes, which often bear little resemblance to actual use.¹⁶ Consents of consumptive water use (not including hydroelectricity use) total around 13 billion tonnes. Actual water use is likely to be less than this total. Recent legislative changes require regional councils to improve reporting of actual usage.¹⁷

¹¹ McDowell et al., 2013.

¹² McDowell et al., 2024.

¹³ See MfE and MPI (2020a).

¹⁴ Benson et al., 2020; Waikato River Authority, 2016. For more examples of Māori monitoring tools, see Rainforth and Harmsworth (2019) and Stats NZ (2017).

¹⁵ Note that this problem occurs to varying degrees in other parts of the country – for example, in parts of Central Otago. For more details on how overallocation is conceptualised and calculated, see Booker (2016).

¹⁶ PCE, 2019b.

¹⁷ MfE and MPI, 2020b.

Loss of biodiversity

Owing to its geographic isolation, Aotearoa is home to a high number of endemic species.¹⁸ These species (and others) are threatened by loss of habitat and competition from over 80 exotic animal species and, as of 2020, just under 1,800 plant species that have been introduced and naturalised since human arrival.¹⁹ This has resulted in the extinction of at least 81 animal and plant species, including 62 bird species. More than 75% of indigenous species are threatened with extinction or are at risk of becoming threatened. They include 94% of reptiles, 82% of birds, 80% of bats and 76% of freshwater fish.²⁰

Before human arrival, 80% of the land was covered with native forest.²¹ By 2018, this was down to 27%. This loss continues. Between 2012 and 2018, indigenous land cover area decreased by 12,869 hectares.²²

Wetlands provide enormous ecological, economic and wellbeing benefits. They are seen by some hapū as the lungs of Papatūānuku.²³ In pre-human times, wetlands covered almost 2.5 million hectares of Aotearoa.²⁴ By 2008 this area had been reduced to 250,000 hectares or roughly 10% of their original extent.²⁵ Wetland loss has continued since then, with the area of freshwater wetland decreasing by 1,498 hectares (0.6%) between 2012 and 2018, and saline wetland decreasing by 69 hectares (0.1%) over the same period.²⁶ The previous Government introduced a “no further loss of extent of natural inland wetlands” policy, but it is too soon to see if this was effective in halting the decline.²⁷ It would be helpful if the tax system were aligned with this policy; currently, it is still possible for farmers to write off the earthworks associated with draining wetlands.²⁸ It is not only the losses in extent that matter, but also the health of any remaining wetlands.

¹⁸ Endemic species are those found only in Aotearoa.

¹⁹ Brandt et al., 2021

²⁰ Stats NZ, 2023b.

²¹ Stats NZ, 2015.

²² Stats NZ, 2021b.

²³ Sustainable Kaipara, 2022.

²⁴ Stats NZ, 2018.

²⁵ Stats NZ, 2018.

²⁶ Stats NZ, 2021c.

²⁷ Policy 6 of the NPS-FM 2020 (MfE, 2024).

²⁸ Farmers can claim an amortisation of 5% per annum on a range of farm development expenditures, including the draining of swamps and low-lying land. See Brenton-Rule et al. (2019, p. 23).

Summary

This catalogue of ongoing environmental degradation is a direct result of the way we have used the land in the past and the way we continue to use it. Present day pressures are added to the legacy of past land use choices. We will need to make further changes to the way we use the land if we are to halt any further decline.

This is not only important to achieve our environmental goals. It has a large economic component. Most environmental impacts of land use activities do not currently appear as costs in the production process, yet they should. Conversely, the activities landowners undertake to improve the environment should be rewarded economically, yet generally they are not. In a recent report, the Food and Agriculture Organization of the United Nations used a true cost accounting approach to estimate the cost of the hidden environmental impacts of New Zealand's food production. It put the total at over \$14 billion.²⁹ Eventually we all bear these costs as a degraded environment impacts on our quality of life and the productive capacity of the land.

Large numbers like \$14 billion can be dismissed as an artefact of the methodology that generated them. But measures like these are increasingly informing the decisions of consumers and food processors on whom we rely for a significant chunk of our national income.³⁰ The future will be one in which more questions are asked about the way we produce food and fibre, and more accountability demanded from producers.

The empirical record of how we use the land and what that means for environmental quality will not be able to be as easily sidelined as it once was. Getting land use onto a more sustainable basis will mean embracing a spectrum of land use changes. In some cases, applying mitigation techniques to existing land uses may be enough to achieve our environmental goals. In other cases, wholesale land use change will be necessary.

A changing climate is re-dealing the cards

Climate change itself will increasingly be a driver of land use change as landowners adapt to shifting climatic conditions. We have some idea of how average warming trends will impact on land use.³¹ But the big unknown is the impact of extreme events.

In terms of average trends, Aotearoa is getting warmer.³² As a result of this trend, droughts have become more frequent while frosts are rarer.³³ Changing temperatures are likely to favour incursions by new pests and diseases and the rapid spreading of existing ones.³⁴

²⁹ New Zealand dollars (converted from 2020 purchasing power parity (PPP) dollars). FAO, 2023, p.100, see environmental hidden costs.

³⁰ See SBTN Freshwater Hub (2024).

³¹ See, for example, the Data Supermarket website (<https://landuseopportunities.nz/>).

³² MfE and Stats NZ, 2023, p.23.

³³ Stats NZ, 2023a, c.

³⁴ Phillips et al., 2023.

Notwithstanding these average trends, the forecasts for New Zealand agriculture are *relatively* positive in economic terms. A changing climate is likely to open new opportunities for land use.³⁵ Studies predict improvements in primary productivity of between 1% and 10%. Our international competitors are likely to be impacted more negatively, leading to higher international commodity prices.³⁶ Depending on which sectors are most affected, this is likely to create an incentive for even more intensive land use.³⁷ Without mitigating measures in place, more intensive land uses could have further negative impacts on the environment.

It is more difficult to predict the impact of extreme weather events on the way we use the land. There is a clear upward trend in both the declarations of states of emergency and insurance payouts for weather-related events.³⁸ This trend is likely to continue with droughts, fires and floods all becoming more extreme when they happen and possibly more common. There will be some unpredictability in how and when such extreme events manifest. As a result, landowners will likely have to face new extreme events while still recovering from previous ones. A possible consequence will be commodity price volatility as landowners, and particularly farmers, are confronted with increasingly extreme weather patterns that unpredictably affect production and yield.

Understanding the risk of these extremes is a relatively new area of research and requires modelling of the potential impacts of extreme events at very local levels. Models such as RiskScape are an example of this.³⁹ The next step in research will be to understand the costs and benefits of potential investments in disaster mitigation.

Research is currently being undertaken to examine the implications that climate change holds for land use change.⁴⁰ It explores where in regions climate change will drive land use change, identifies the land use options in those areas, and models the regional and national economic effects of those shifts. The research will use downscaled climate projections for New Zealand, which will include a range of weather patterns. It will not explicitly examine extreme events. This research will be complete in 2025.

A separate recent study has investigated the impact of extreme sea level events and relative sea level rise on the viability of dairy operations and their exposure to coastal inundation. It shows that even with a conservative estimate of 0.5 metres of relative sea level rise over the next century, 4–7% of dairy farms are likely to need to change their land use in some shape or form. In some areas that figure is higher – for the Waikato it is 8–10%, with significant areas of the Hauraki Plains likely to be at risk.⁴¹

³⁵ OLW, 2023.

³⁶ See Jägermeyr et al. (2021).

³⁷ Rutledge et al., 2017.

³⁸ Carbon News, 2023.

³⁹ Jointly funded by NIWA, GNS Science and Toka Tū Ake EQC. See <https://riskscape.org.nz>.

⁴⁰ The research is being undertaken by Manaaki Whenua – Landcare Research, Plant and Food Research, Scion and NZIER.

⁴¹ Craig et al., 2023 (see supplementary data). Note that the modelling does not account for potential flood mitigation.

The previous Government developed a national adaptation plan,⁴² but we have little detail on its implementation. Government responses to the storms in Auckland, Hawke's Bay and Tairāwhiti over the summer of 2023 and Nelson in 2022 have potentially set precedents for how we respond to such events. These precedents include compensation for home and landowners in high-risk flood areas. The Ministerial Inquiry into land use causing woody debris and sediment-related damage in Tairāwhiti and Wairoa during Cyclone Gabrielle also includes the proposal for a new category for land with 'extreme erosion susceptibility' within the Erosion Susceptibility Classification and investigating an appropriate management response (such as permanent canopy cover).⁴³ The Government's response to the Ministerial Inquiry agreed in principle with this recommendation, noting that Gisborne District Council is already intending to address this issue through a plan review.⁴⁴

Also relevant for farming is the recommendation of the Expert Working Group on Managed Retreat that compensation for commercial buildings be means tested and capped at a lower proportion of the value than the compensation for homeowners.⁴⁵ It is worth noting that the Government is developing a National Policy Statement for Natural Hazard Decision-making to respond to the increasing risk of climate-related disasters.⁴⁶

In sum, climate change will force some changes in the way we use the land as temperature and seasonality shift, and in some regions extreme events will make some land uses untenable. Some new land uses may become possible; some will be made inevitable. Land values will be affected, in some cases seriously. At this point, it is unclear who will bear this burden, but in the absence of any public intervention it will be the landowner.

The policy landscape is fragmented

A further challenge is the sheer scale and complexity of environmental regulation either in existence or under development. Regulation of the environmental impacts of land and water use will always be complex to some degree. This is probably unavoidable. However, this complexity is increased by the fragmented nature of the current regulatory approach. There are multiple streams of policy work that directly impact decisions about the use of land and water. From the perspective of farmers, these policies appear to have all landed on their kitchen table at the same time.

This situation is unquestionably a source of uncertainty and becomes, in turn, an additional barrier to land use change. Uncertainty about the scale and timeframes of the required changes and the ways different regulations interact with one another makes it more difficult for landowners to make the large investments required to change land uses. After all, why would a farmer make an investment when it is unclear whether it will help them comply with regulations?

⁴² See MfE (2022).

⁴³ See MILU (2023).

⁴⁴ See Office of the Minister for the Environment and Office of the Minister of Forestry (2023).

⁴⁵ EWGMR, 2023.

⁴⁶ MfE, 2023b.

For landowners, mana whenua and communities on the ground, this fragmentation increases the complexity of responding to regulation. It can be unclear how these policies fit together; and there is a risk that sometimes they will pull in different directions.⁴⁷

Beyond being complex, these policies tend to have lag times – sometimes several years – between development, implementation and response. While these policies need to be customised to local circumstances, different approaches to implementation by regional councils can add another layer of complexity. To that complexity is added the need to ensure that Māori can engage both in terms of developing regulations and implementing them. As a Treaty partner (under Article 2 of Te Tiriti o Waitangi), Māori assert a right to practise kaitiakitanga in the protection of their taonga like freshwater within their rohe. Māori are also landowners who will have the same responsibilities as other landowners to protect taonga as well. While the way this is done varies around the country, there is a need to support this participation across the board.

Regulation of the environmental effects of land and water use has been a dynamic space in recent years. Different issues (such as carbon, fencing rivers or nitrogen leaching) have become the myopic focus of central government at different times. Every time a policy is reviewed or updated, or a potential change of government signals change, uncertainty reverberates through communities of land and water users, affecting their decisions. In a recent Survey of Rural Decision Makers, four in ten respondents said they struggled with constantly shifting goalposts.⁴⁸ The complexity of environmental regulation is described in further detail below.

Policies that influence land use

Central government has developed separate policies for climate change, freshwater quality and biodiversity. All these policies have the potential to significantly influence decisions related to land use and land management practices. From a landowner or kaitiaki perspective, it is difficult to see how these policies fit together cumulatively at a catchment or landscape scale. Table 2.1 provides some examples of the different policies and how they influence land use.

⁴⁷ Research is being undertaken to investigate tensions that arise between water quality and greenhouse gas regulations, in relation to housing livestock within off-paddock herd homes during wetter winter periods. The practice of housing livestock improves water quality but potentially increases greenhouse gas emissions. See Morris and Lowe (2024).

⁴⁸ Stahlmann-Brown, 2023.

Table 2.1: Some examples of climate change, freshwater and biodiversity policies that influence land use

Theme	Policy	How the policy influences land use
Climate change	New Zealand Emissions Trading Scheme (NZ ETS)	Provides financial rewards for planting forests that are based on annual carbon sequestration rates. People have predominantly planted fast-growing, exotic tree species to accumulate more sequestration units quickly, and there are proposals to recognise smaller on-farm plantings.
	Levy on agricultural greenhouse gas emissions (delayed to 2030)	Puts a price on biogenic methane and nitrous oxide emissions from farms. This could encourage farmers to reduce their emissions by decreasing stock numbers, changing management practices, diversifying their farm system, and/or adopting new technologies.
	Support for research, development and commercialisation of tools and technologies to reduce emissions	Accelerates progress on tools and technologies that enable landowners and kaitiaki to reduce their greenhouse gas emissions. This could reduce the amount of land use change required to meet emissions reduction targets.
Freshwater quality	National Policy Statement for Freshwater Management*	Requires freshwater to be managed in a way that gives effect to Te Mana o te Wai and protect its mauri. Establishes national bottom lines for water quality in rivers and lakes and requires regional councils to engage with tangata whenua and communities. It also requires regional councils to set visions, objectives and targets for specific freshwater attributes and contaminants, and to set rules, limits and methods for achieving these visions, objectives and targets.
	National Environmental Standards for Freshwater*	Sets national requirements for carrying out certain activities that pose significant risks to freshwater quality and freshwater ecosystems. These include rules relating to: <ul style="list-style-type: none"> • conversions of pine production forestry to pasture • conversions of farmland to dairying • irrigation of dairy land • intensive winter grazing • application of synthetic nitrogen fertiliser to pastoral land • natural inland wetlands • fish passage.
	Stock exclusion regulations*	Prohibit the access of cattle, pigs and deer to wetlands, lakes and rivers.
	Freshwater farm plans*	Requires most farms to have a freshwater farm plan that identifies risks to freshwater quality and actions that will be taken on farm to mitigate these risks, in the context of the catchment in which each farm sits.

2 Four critical problems confronting policymakers

22

Biodiversity	Te Mana o te Taiao – Aotearoa New Zealand Biodiversity Strategy and its implementation plan	<p>Sets the strategic direction for the protection, restoration and sustainable use of biodiversity over the next 30 years.</p> <p>The implementation plan is a ‘living’ document and allows for five-yearly reviews.</p>
	National Policy Statement for Indigenous Biodiversity*	<p>Recognises the role of landowners and tangata whenua as stewards and kaitiaki of indigenous biodiversity. The Resource Management Act 1991 requires councils to identify significant natural areas and make plans to manage them. The national policy statement provides a consistent method of identifying and protecting significant natural areas across regions. Crucially, these areas can be on private land. Separately, the Government is also exploring a biodiversity credit system.</p>
Cross-cutting	National Policy Statement for Highly Productive Land	<p>Requires that highly productive land is protected for use in land-based primary production, both now and for future generations. It requires regional councils to identify (map) highly productive land in their regions and manage that land in an integrated way that considers the interactions with freshwater management and urban development. Specifically, it requires highly productive land to be protected from inappropriate use and development, and to be prioritised for land-based primary production.</p>
	The National Policy Direction for Pest Management	<p>Sets out the responsibilities and requirements for central and local governments to manage unwanted organisms, including pests and weeds already in the country. It also sets up a framework for preparation of various management plans.</p>
	National Environmental Standards for Commercial Forestry	<p>Sets nationally consistent standards to manage the environmental effects of eight core forestry activities for both pine production and carbon forests (afforestation, pruning and thinning, earthworks, river crossings, forestry quarrying, harvesting, mechanical land preparation and replanting), sets out clear rules for any harvests that happen in carbon forests, and sets a new permitted activity standard for managing forestry slash on the cutover.</p>

* Denotes policies that have recently been identified for further review.

As noted above, climate adaptation will inevitably (over time) form another layer of policy that impacts on land use.

The Government also has responsibilities to all Māori under Te Tiriti o Waitangi as well as those set out in individual Treaty settlements relating to tino rangatiratanga and kaitiakitanga, and how to include tangata whenua in local policy and regulatory processes. Operationalising these responsibilities is always likely to be challenging given the differences in worldview between te ao Māori and a mixed market economy based on the paradigm of individual property rights.

Fragmentation extends to funding land-based activities

In addition to their policy and regulatory settings, successive governments have presided over the emergence of a thicket of funding programmes for landowners and kaitiaki. New Zealand's agribusiness sector likes to think of itself as sturdy and subsidy free. The truth is a little more nuanced. Taxpayers have in fact spent an average of just under \$700 million per year supporting the sector (as set out in Table 2.2). In addition to this figure, on average, around \$170 million is spent every year on generic biosecurity; an investment that benefits agriculture.

Table 2.2: Expenditure for the land-based food and fibre sector over the last four budget cycles.⁴⁹

Category	2020/21 \$(000)	2021/22 \$(000)	2022/23 \$(000)	2023/24 \$(000)
Administration, supervision, regulation, and policy advice	140,345	166,494	229,230	261,390
Research	62,586	60,917	83,341	72,815
Trade promotion and industry development	21,525	22,804	21,630	20,398
Knowledge transfer and farm advice	800	800	9,102	6,857
Grants, loans, subsidies, and co-funding	133,458	135,852	227,270	277,942
Assistance for exceptional events (COVID-19, extreme/ adverse weather events, etc)	12,115	7,798	93,234	16,267
Biosecurity	124,816	92,946	178,298	49,998
Animal welfare	18,560	19,713	17,268	24,177
Support for whenua Māori	7,979	9,309	6,303	7,438
Total	522,184	516,633	865,676	737,282

Note: Individual figures may not sum to stated totals due to rounding.

⁴⁹ The Treasury, 2023; MPI, pers. comm., March 2024; Te Puni Kōkiri, pers. comm., March 2024.

2 Four critical problems confronting policymakers

24

There is nothing in principle wrong with public funding for the land-based sector. There are types of expenditure that are hard for individuals to undertake because they cannot capture the benefits – the goods produced are ‘non-excludable’. Funding for research and development to facilitate the innovation and diffusion of technologies that may not yet have a foothold in the market falls into a similar category. It makes sense to fund these public goods and services provided the benefits are sufficient to justify the outlays. In making the case for continued taxpayer provision of these goods and services, agribusiness needs to ensure that its social licence to operate aligns with ongoing taxpayer support. In blunt terms, agribusiness cannot decide to socialise the environmental cost of its operations but seek support for the provision of public goods that will increase private profits.

Many of these taxpayer-funded schemes are related to reducing emissions, improving freshwater quality and protecting or enhancing biodiversity. A selection of these is illustrated in Figure 2.3. Like the national policies outlined above, these funding programmes are often fragmented in the sense that they target a specific policy outcome even though they have co-benefits across domains.

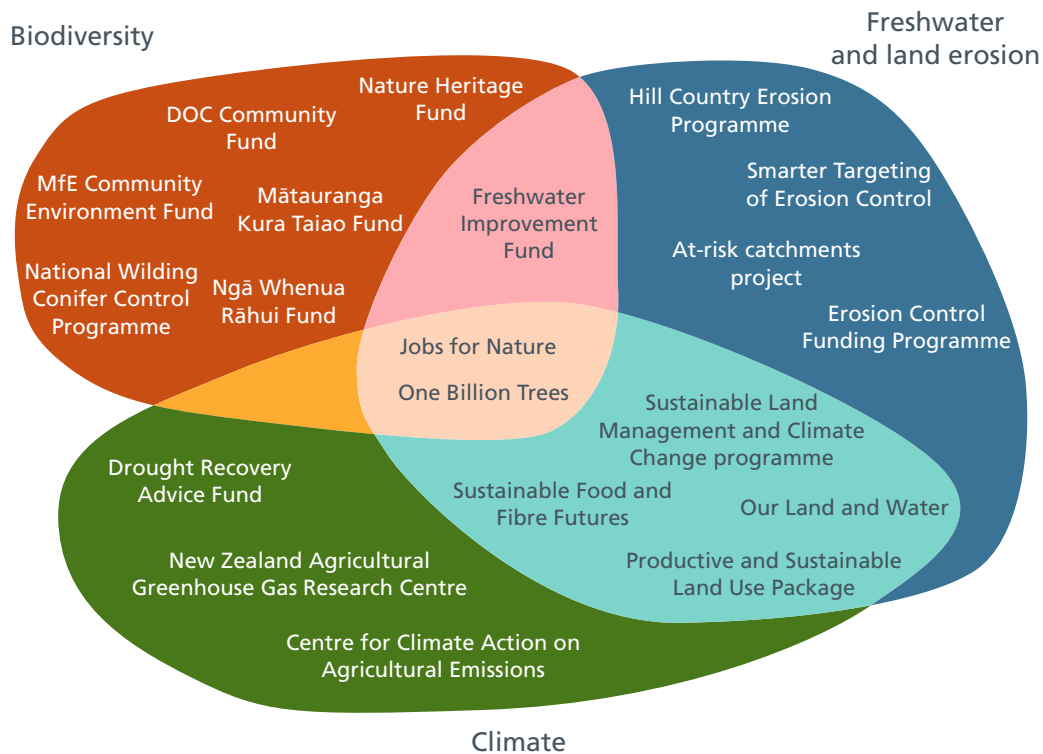


Figure 2.3: Examples of past and present funding programmes related to climate change, freshwater and land erosion as well as biodiversity.

In addition to the climate, freshwater and biodiversity policies and funding outlined above, the Government has separate policies aimed at enabling Māori to unlock the potential of their whenua. For example, the Whenua Māori Service provides access to a network of regional whenua advisors, and the Whenua Māori Fund provides financial support for activities to develop whenua Māori. The focus of these policies is generally on improving the productivity of Māori land.⁵⁰

As the patchwork of policies and funding outlined above expands, it is becoming increasingly difficult for landowners, catchment groups and kaitiaki to navigate them. It is also increasingly challenging for officials from different ministries to coordinate and align the many moving parts. Further, it is difficult for parliamentarians to hold ministers and agencies to account for whether they are making a difference. Finally, there is a risk of imbalances between different policy areas, which can lead to negative unintended consequences for the environment. For example, the current strong focus on offsetting carbon emissions with forests increases the risk of land use decisions being made that are suboptimal for freshwater quality, indigenous biodiversity and climate change adaptation.

The limitations of property-based management

Many of the environmental impacts of land use are difficult to measure, do not respect property boundaries, and make attribution challenging. A focus on farm-level or individual-level responsibility leads to solutions based on property boundaries. Some property boundaries are aligned with geographic features of the landscape such as waterways or ridge lines, but many bear no relation to the grain of the land. As a result, in the absence of cooperation with neighbours and others sharing the same catchment, any individual can only have a limited impact on improving freshwater quality or biodiversity.

Under our current system, decisions about land use are largely in the hands of landowners, within regulatory constraints originating from the Resource Management Act. The domain of landowners is denominated by property boundaries. In theory, positive and negative externalities should be internalised in the costs of business operation via market-based mechanisms (including prices, taxes and subsidies). Or, in more colloquial terms, polluters should pay for the impact of their activity on the environment, and that money should be used to clean up the mess. Pollution is not always easy to measure. But in those cases where impacts can be accurately measured and attributed, market-based mechanisms can be adopted. This will be discussed in the next chapter.

However, in many cases the sheer complexity of environmental impacts can make it difficult to pinpoint the origin of and responsibility for environmental problems at a property level. It also makes it difficult to incentivise land use change when the benefits from such change generally do not map neatly onto property boundaries.

⁵⁰ TPK, 2023a, b.

For example, climate emissions are difficult to apply accurately on an individual farm basis unless the animals are kept inside. In the case of the levy on agricultural emissions, as proposed by the previous Government (the current Government has delayed implementation to 2030), the primary point of obligation lies at the farm level, though levy payers might be permitted to fulfil their reporting and payment obligations as a collective.⁵¹

Biodiversity (both flora and fauna, native and introduced) is also capable of moving around, often crossing property boundaries.

And of course, the impacts on water quality downstream of a certain land use depend very much on the soil type and hydrology of the area. Some activities, such as intensive winter grazing or cropping on vulnerable land classes, pose a high risk to receiving environments yet they have become normalised. Impacts also vary strongly because of climate and weather patterns, making it difficult to discern trends. While the environmental impacts of land use on water quality become more obvious as catchments get closer to the sea, accurately attributing those impacts to individual landowners is very complex.

These challenges are only likely to grow with the impact of climate change introducing increasing uncertainty into environmental flows and management decisions. Extreme weather events are likely to make the interdependencies between the actions of different landowners in a catchment even more stark. This will only heighten the positive and negative externalities of different land uses.

As a result, it is difficult to accurately measure and attribute environmental damage (or benefits) to land use choices made by individual landowners, except in the most extreme circumstances (such as discharging effluent into rivers, or winter cropping on steep slopes). This in turn makes it difficult to either incentivise or compel landowners to reduce their damage in an enforceable way. Instead, models are used to attribute environmental damage to individual farms.

In freshwater management, for example, the focus is on farms and farm-level measurement and management. Each landowner is technically responsible for the flows of contaminants lost from their land, often regardless of the fate and cumulative effects of these pollutants once they cross the property boundary or seep beneath the root zone. The Ōtūwharekai Ashburton Lakes provide a troubling example of what can happen if insufficient attention is paid to these cumulative effects. In this case, nitrogen-loss limits were set based on the past practices of individual farms (i.e. they were grandparented) rather than the ecological requirements of the lakes themselves. This resulted in nitrogen-loss discharges above what the lakes could tolerate, leading to a significant decline in water quality.⁵²

⁵¹ MfE and MPI, 2022.

⁵² MfE, 2023a.

The difficulties of attributing environmental outcomes from land use at the property level have contributed to the creation of freshwater farm plans. In general, regulation is costly to implement and enforce and therefore tends to be focused on the laggards in any industry. When attribution is difficult, regulatory enforcement is even more complex. Farm plans are a risk-based regulatory tool that focus on actions to reduce each farm's potential impact on freshwater, in the context of the catchment in which each farm sits. This could be a promising way forward, provided that (1) there is sufficient capacity for implementation, (2) the plans focus on material issues (rather than resorting to box ticking), and (3) there is a basis of good information to underpin the exercise (which will be discussed in the next chapter).

Māori land presents additional unique issues

Māori have strong connection to the whenua through whakapapa and their collective responsibility to the land. Despite the Treaty of Waitangi, forced land sales and confiscations diminished the ability of Māori to exercise tino rangatiratanga and kaitiakitanga over their land and waters. Settlement agreements and Te Ture Whenua Māori Act 1993 are attempts, with variable success, to redress these losses (but see Box 2.1 for two examples of Māori businesses attempting to do so). These unique circumstances mean Crown policies that – directly or indirectly – influence land use change need to be carefully managed to ensure they do not further disadvantage or alienate Māori and Māori land. Targeted policies and funding mechanisms are needed to ensure Māori can manage their land on an equal footing with other landowners.

Settlement agreements

Through settlement agreements, iwi have been given a small fraction of their land back, either through gifting or purchases from the Crown. Many of these parcels included former Crown forestry licensed land, including pre-1990 exotic forests. Due to these parcels being excluded from gaining carbon credits in the NZ ETS, investments back into the land, including for environmental purposes, have been difficult. Other parcels included land that was already established in agriculture or horticulture. Many iwi are reclaiming their rangatiratanga and kaitiakitanga by changing land use to more environmentally friendly purposes and through the use of te ao Māori business frameworks. Two examples are the Māori-owned businesses Parininihi ki Waitōtara and Miraka (see Box 2.1).

Box 2.1: Attempting to improve Māori land use**Parininihi ki Waitōtara Inc**

Parininihi ki Waitōtara is a Māori incorporation that administers approximately 21,000 hectares of diverse land use, predominantly ahuhenua, in Taranaki. It has circa 11,000 shareholders who whakapapa to the land.

The land is looked after for the collective benefit of its people, and the Committee of Management's business strategy has a multigenerational outlook. Its vision – He Tangata, He Whenua, He Oranga – is measured through its bottom line and its enterprise operations, utilising Te Ara Putanga, its kaupapa evaluation tool. This tool helps them to assess whether they are achieving their core values of manaakitanga, kaitiakitanga, whakapono and whanaungatanga/kotahitanga.

Parininihi ki Waitōtara invests in the restoration and care of the whenua through supporting the development of hapū-led water monitoring programmes, species protection and capability building.⁵³

Miraka

Miraka was established in 2010 by a group of Māori trusts and organisations with significant land assets and farming operations in the Central North Island. It is the first Māori-owned dairy processing company in Aotearoa and is powered by geothermal energy.

Establishing a dairy processing operation on their own land corresponds to a long-term intergenerational view of 100 farms for 100 years, with a prosperous outcome for their communities and shareholders. Miraka is founded on te ao Māori values, and kaitiakitanga is at the core of the business. Values of tikanga (protocols), whanaungatanga (relationships), and kotahitanga (collaboration) are part of the company's business strategy. The intention is to support their suppliers in achieving these values as well. Being a processing plant, Miraka can only encourage its suppliers to uphold these fundamental values. It is ultimately up to the suppliers to balance these values against the sustainability of their business.

To support the implementation of its core values, Miraka has developed its Te Ara Miraka farming excellence programme, which incentivises best practice on farm. The programme incentivises suppliers to achieve certain standards, including environmental stewardship. The Farm Sustainability manager at Miraka helps suppliers to stay ahead of environmental regulations as well as supporting a kaitiakitanga focus covering, for example, support on effluent management, riparian planting and reducing nutrient losses.

Many of Miraka's suppliers have diversified land portfolios outside of their dairy farming businesses (predominantly the Māori trust suppliers) while across their supplier base some of their farmers have explored other farm systems, including regenerative farming. This is not an easy task for landowners who need to find profitable uses for land that may originally have been used for unsustainable purposes such as dairying on high-leaching soils.⁵⁴

⁵³ Parininihi ki Waitōtara, 2016.

⁵⁴ Miraka 2021; Miraka, pers. comm., November 2023.

Much of the settlement land is marginal in terms of economic productivity because of poor soil quality or steep slopes. Furthermore, many pockets of Māori land today are landlocked, or have been identified as important native bush. Where that marginal land is running sheep and beef, policies that add additional costs, such as an emissions levy, may disproportionately affect Māori owners. For Māori landowners, options to make an economic return on that land are mostly limited to forestry. Policies that then limit forestry's potential on that land risk further disadvantaging its Māori owners. Even retiring 'marginal' land can be difficult. For example, converting land to native forest as an exercise of kaitiakitanga would provide cultural and environmental benefits but requires funding to do it.

Māori land

Māori freehold land governed by Te Ture Whenua Māori Act 1993 is collectively owned through whakapapa and succession. The Act sets up collective ownership, where many people 'own' the land. To manage those multiple owners many iwi and hapū have set up management structures like a trust or an incorporated society.⁵⁵ By area, 83% of Māori land blocks are now under whānau management. Many of these trusts or organisations are working towards self-determination of their lands and trying to implement te ao Māori frameworks to manage them, but they face challenges.

While the provisions of the Act protect descendants from further alienation, they reduce the options Māori have to manage the land economically and restrict options for land use change. Decisions to develop, use or change the land with multiple 'owners' require collective agreement, which is often hard to win even with a trust or incorporated society structure. Land cannot be used as an asset to borrow against, thereby restricting Māori from easily developing their land or making the transition to more environmentally sustainable uses. Restrictions in place reduce the ability to transfer ownership outside of the owners' whānau, hapū or descendants.⁵⁶ While Māori land can legally be sold, many Māori object to sale of land they are connected with through whakapapa, even if the land generates poor returns. As a result, these administrative challenges make transitioning to alternative land-use approaches difficult. Public policy initiatives that provide support for administering whenua Māori and targeted initiatives for supporting Māori agribusiness are essential.

⁵⁵ Community Law, 2024.

⁵⁶ Community Law, 2024.

2 Four critical problems confronting policymakers

3



Cranfillia deltooides

What would be needed to do a better job?

How – or even if – we go about tackling the environmental challenges outlined in chapter two is a matter of political judgement, as is the question of who pays. None of this happened yesterday and it will only be addressed over a time frame better measured in decades rather than parliamentary terms.

From the protestations of all politicians, I have to assume that people want to halt the decline in environmental quality and, if possible, improve it. Regardless of who pays for the transition to a more resilient landscape, we need to change the way we are approaching the problem. It is important that we view the environmental impacts of land use not as a series of technical problems (climate mitigation, climate adaptation, freshwater quality and biodiversity) with discrete solutions – as has often happened in the past. In academic jargon this is called an *adaptive challenge*.¹ In practical terms it means facing the fact that natural and rural environments are complex systems (with all sorts of feedback loops) and so are the rural communities who live there. So, any policies should be written in the full knowledge that there will be a need for constant adjustments as we learn more about the way those complex systems are responding – or are not. Simply put, we must *continually adapt our land management and land use choices in ways that are appropriate to the landscape and local communities*.

For some years I have been calling for an **integrated approach** to thinking about the environmental impacts of land use. I have not been alone in this.² By integrated, I mean considering the impact of land uses and changes to those land uses all at once rather than treating ‘integration’ as the sum of a whole series of separate exercises.

¹ “Adaptive problems are often systemic problems with no ready answers” (Heifetz and Laurie, 1997, p.124).

² See MILU (2023).

3 What would be needed to do a better job?

32

Part of the reason I undertook case studies in two catchments was to test this proposition (see Box 3.1). The experience convinces me that the approach is worth pursuing. For instance, I found that by sacrificing some of the short-term benefits of carbon sequestration, it was possible to create a more diverse landscape with environmental benefits that reinforce one another.

Another benefit of this approach is that it creates multiple income streams from a range of land uses, as integrated approaches are more likely to produce diverse land use mosaics.³ Such an approach could help the people who live in our landscapes to be more resilient to external shocks. By contrast, I found that the current approach is likely to result in less diverse landscapes (mainly dairy farms and pine production forests).

Most people I have talked to agree that an integrated approach would be an appropriate way forward. In fact, nobody has seriously challenged this proposition. But ‘integration’ is one of those words that is easily trotted out to give the appearance of holism while practical day-to-day matters remain siloed. The question is, how in practice could that work?

The answers to that question lie, in part, beyond my remit and raise questions about the structure of government and the levels at which initiatives can be taken. However, four issues are worth exploring here:

- the appropriate scale for integration
- the availability of reasonably granular, high-quality information that can make links between the ambition of proposed changes to land management and land use, and environmental outcomes
- the way communities are engaged and the extent to which decision making is devolved
- the financial resourcing needed to fund all of the above.

Each of these is explored in turn below.

³ MILU, 2023.

Box 3.1: Findings from two case studies⁴

The integrated exercise undertaken for the Maitara catchment in Southland and the Wairoa catchment in Northland illustrated how the impacts of environmental policies are likely to vary considerably from place to place. For example, modelling a low levy on agricultural emissions indicated a minimal impact on land use in the Maitara catchment between now and 2060. By contrast, in the Wairoa catchment, it would be likely to trigger a significant amount of land use change, with most hill country sheep and beef farms and even some dairy farms converting to forestry.

The modelling also illustrated how in the absence of changes to the role of forestry in the NZ ETS, the combination of a medium levy on agricultural emissions and a rising NZ ETS price would be likely to result in less diverse landscapes by 2060, with most of the land in these two catchments used for pine production forestry, dairy farming or (in the case of Maitara) lowland sheep and beef farming. Fast-growing pine forests can remove significant quantities of carbon from the atmosphere, and soil losses from forests are generally lower than losses from pasture. However, if clear-felled, the exposed land is left particularly vulnerable to erosion during the period following harvest. Discussions with people living in these catchments also highlighted that converting large areas of land to pine production forests to earn carbon credits could have negative local social and cultural impacts.

The exercise also considered what might happen if a more nuanced, place-based mix of policies were implemented. Alternative policy scenarios were developed in a series of hui and workshops with local people in the catchments. In these alternative scenarios, the revenue from a levy on agricultural emissions was recycled back to the catchment it came from and spent on actions to address multiple environmental pressures.

The modelling highlighted the importance of identifying 'hotspots' – areas in the landscape that are responsible for a disproportionate impact on the environment. These hotspots are a result of the characteristics of that land and the way it is being used. Farmers and advisors will be familiar with the term 'critical source areas' (areas of a field, farm or catchment that account for the majority of contaminant loss to waterways), which are an example of a hotspot. Targeting and taking action on hotspots will have disproportionate benefits for the environment. In the modelling, examples included fencing off waterways and riparian planting, gully planting, scaling up alternative land uses on hotspots, and restoring and constructing wetlands.

The case studies also highlighted the importance of engaging mana whenua early in any process to better understand landscapes and land use from a Māori perspective. Not surprisingly, both mana whenua groups decided to represent their intergenerational connections and the application of their mātauranga in very different ways. It was communicated by both that this relationship cannot be severed or reduced. Any exploration on changing land uses to implement multiple environmental policies needs to ensure Māori ways of knowing and understanding catchments are integrated into the purpose, outcomes, methodology, etc of the approach. This is much more easily achieved at the local level.

⁴ PCE, 2024.

3 What would be needed to do a better job?

34

Appropriate scale for an integrated approach

The manifestation of many environmental stresses is very often place-specific. This means they cannot easily be handled effectively by national-level regulation. Decisions need to be taken much closer to the land uses that are generating them. This makes actions like the implementation of strategies to mitigate contaminant loss from land to water much more cost-effective than relying on cleaning up contaminants downstream.⁵ Any attempt to **integrate** a response to the impacts of land use change on the environment in a holistic way will run up against individual property rights. The bundle of rights that attach to land ownership are likely to remain a cornerstone of our society. Those rights are not immutable, but attempts to regulate that cut across them need to be compatible with them.

Input regulations are a good example; they are blunt and much derided by farmers as telling them what to do on their own land. But if farmers cannot control the impact of activities beyond their property boundaries and monitoring those impacts at a micro level is impractical, input controls will have a place in the policy toolkit. The trick is to implement them in the right place and time so that they are effective.

In my view, the catchment is the appropriate scale for an integrated approach. This has been the bedrock of land and water management in New Zealand for almost a century and is one of the things we have managed better than some other countries. Most environmental issues that relate to how we use the land – climate adaptation, water quality, water quantity, biodiversity, pests and weeds – are best managed at a catchment level. Emissions reductions are an exception; it would be best to manage them at a global scale, but due to the political reality of our geopolitical system, they are, in fact, most effectively managed at a national level.⁶

This point does not negate the need for coordination, prioritisation and oversight at a national level. But if central government issues a ‘paint-by-numbers’ template it will almost certainly lack the information to do this in a way that really makes sense of the environment, and will certainly lack the knowledge of the people who live there. This is particularly important (but by no means uniquely so) for Māori whose assertion of kaitiakitanga is rooted in hapū who whakapapa to particular places with particular valued resources (such as kanakana/lamprey).

Rather than breaking up the environment into different silos, a te ao Māori perspective prefers engagement in an integrated, holistic fashion at a local level. But I suspect most New Zealanders, including individual landowners, feel much the same way. Everyone knows that water, birds, insects and sediment move around.

Taking a catchment-based approach must start by recognising that there is no single ‘right’ land use for each piece of land. These choices are subjective and depend on how individuals weigh environmental, social, economic and cultural values.⁷ The question is, how do we then input the values of local people and engage them in decision making?

⁵ See Macintosh et al. (2018).

⁶ See McDowell and Kaye-Blake (2023).

⁷ Snelder, Lilburne et al., 2023.

The natural starting point for governance at a catchment level would be regional councils and mana whenua. This raises legitimate questions about the past performance of regional councils in undertaking this role. It would be fair to say that regional councils have struggled to effectively implement central government direction, let alone do so in an integrated way. Without attempting a diagnosis as to why this should be the case, the turnout in regional council elections is mediocre at best and the sector has frequently lacked commanding elected leaders. As is the case at any level of elective democracy, poor turnout can enable the capture of the governance process by vested interests.

There is also a challenge of scale for some regional councils when it comes to attracting skills. Problems of this nature can be alleviated by assistance from the centre, and in some cases this has been provided. But central government can also be the source of other problems.

1. As a result of elections, central government direction can change relatively frequently compared to the time spans that apply to environmental issues and impacts.
2. Central government direction itself tends to be fragmented.
3. Central government direction often comes without the resources and tools required to effectively implement and sustain it (while debt limits constrain council borrowing).⁸

Indeed, the power of central government to direct regional councils may be a driver of low voter turnout. If the public senses that regional councils lack the ability to truly make a difference to their lives, they will be less inclined to engage.

Regardless of the cause, the past performance of regional councils must not prevent catchments or sub-catchments being used as the unit of analysis when it comes to operationalising an integrated approach.⁹ In my view, local governance of an integrated approach could be bolstered by investing in the human and financial resources of catchment groups that work in partnership with elected councils. There must be clear lines of responsibility of who does what, something I discuss in more detail in chapter five. Where catchment groups are operating successfully, I would encourage delegating as much decision making to them as possible, but reserve to local authorities the power to intervene to overcome impasses.

Delegation of this nature would require arriving at a practical way of satisfying Māori claims to the management of resources that they value.¹⁰ Māori will of course be landowners and economic players in their own right, but their relationship with the land and the water is wider than that.

⁸ Dickie and Keenan, 2023.

⁹ Under current regulation, regional councils are supposed to define freshwater management units in conjunction with community input. In practice, the level of community engagement has varied.

¹⁰ Dickie and Keenan, 2023.

3 What would be needed to do a better job?

36

Adequate information

Any enduring solution to this adaptive challenge must start by getting the local community on board with a shared understanding of the scale of the challenge. This requires adequate information, pulling together research outputs, mātauranga Māori and local knowledge to help identify the problems and potential solutions that fit the local context and circumstances. Figure 3.1 illustrates the potential local catchment processes required, as well as the investments needed at different stages of that process.

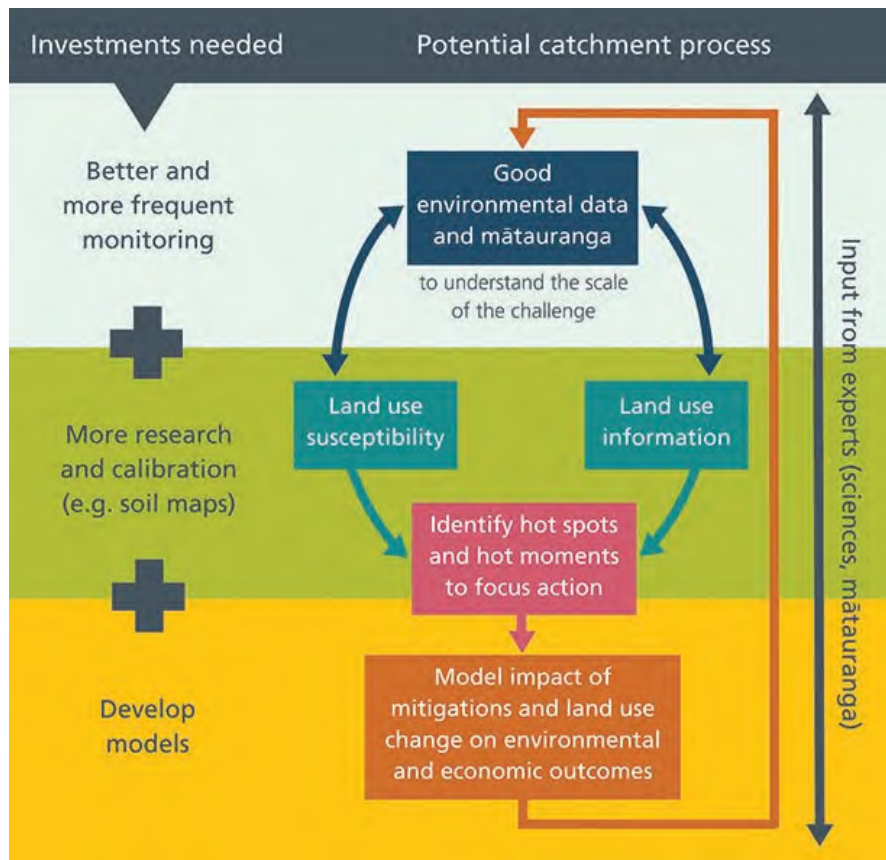


Figure 3.1: Potential catchment processes and investments needed to support them.

Catchment processes need to have clear national guidance with regard to environmental bottom lines and limits as well as other environmental goals. Communities also need guidance on how to prioritise and manage trade-offs across different environmental domains. Even where national guidance is well-established through national policy statements, for example, implementing these can take time. To do so effectively, communities and regional councils need a degree of stability in these expectations, which in turn requires a level of political consensus. I note that the current Government plans to overturn some of the existing policies, particularly with regard to freshwater management, which may in turn cause catchment groups to pause any progress, perhaps for years.

Our ability to assess the scale of the environmental challenge that catchments face relies on the availability of good environmental data, mātauranga Māori and the suitability of models at hand – whether biophysical or conceptual. This information is really needed now for the successful implementation of farm plans. Farmers need this information to truly understand the catchment context and the risks that their farm poses. Good information would make completing farm plans a relatively straightforward exercise for most farmers, and for the rest it would become obvious who needs some targeted support.

I have commented before that the quality of our environmental information is not fit for purpose in New Zealand.¹¹ The environmental data that are monitored within the environmental reporting framework are at best fragmented – lacking geographical coverage or consistent time series – or at worst not accessible. By not accessible, I mean the data and information are either only available behind a prohibitive paywall, presented in a complex format that cannot be used easily, or have simply been lost. Indeed, the funding of New Zealand's environmental monitoring system is inexcusably low and has been static for many years. This has resulted in cuts and the atrophy of many databases.

In 1992, 26 Nationally Significant Collections and Databases were selected and backed by funding. The list has not been revised in over three decades. While the 26 still benefit from *some* funding today, in real terms they command a much smaller budget. Being on the list at least provides some protection from being forgotten. But there is a plethora of other environmental databases and collections that are not on this list and lack even that status when it comes to arguing for the technical and financial means needed to support an acceptable level of usability. These environmental databases can be classified into five domains:¹²

- **Land environment**, including the S-map Online data and Land Cover Database held by Manaaki Whenua – Landcare Research; the NZ Aerial Imagery Set, NZ Property Titles and NZ River Centrelines held by Land Information New Zealand; and several herbarium and plant repositories.
- **Biodiversity and ecosystem functioning**, including the vast Te Papa entomology collection, the internationally acclaimed iNaturalist database, AgResearch's Margot Forde Forage Germplasm Centre, the Lincoln University Entomology Research Collection and the New Zealand Plant Conservation Network.

¹¹ PCE, 2022a.

¹² See PCE (2020) for a more comprehensive list of selected databases and collections that contribute to New Zealand's understanding of the natural environment.

3 What would be needed to do a better job?

38

- **Freshwater and marine environment**, including Land, Air, Water Aotearoa (LAWA), and the New Zealand Freshwater Fish Database, National River Water Quality Network and Freshwater Biodata Information System held by the National Institute of Water and Atmospheric Research (NIWA).
- **Pollution and waste**, including the Chemical Classification and Information Database and the hazardous substance and new organism application register held by the Environmental Protection Authority.
- **Climate change and variability**, including databases of atmospheric observations (aerosols, carbon dioxide, ozone, water vapour) and the New Zealand rainfall intensity statistics held by NIWA.

It is truly remarkable that a land and resource-based economy like New Zealand lacks a comprehensive database of land use updated in real time. The information exists, but it is not public due to privacy concerns. When it comes to water quality monitoring, without good baseline information on land use and management our existing network cannot tell us if mitigations would be effective at the catchment level. Similarly, data on the health of our soils are insufficient to shed light on trends. These are just three examples of subpar data – all of them seemingly crucial for a biological economy. We are living through a revolution in data collection, interpretation and application technologies. It is possible to collect comprehensive environmental data in time and space in ways that have never previously been imaginable – or even if they were, affordable. Investment in data is as much about infrastructure as building motorways or water treatment plants. It is time governments took a long hard look at their woeful record over the last 30 years.

There is a strong case for this investment to be a public one so that the information can be freely and easily accessible to all land users and form a trusted foundation for any modelling undertaken. Models are an essential tool to help landowners and decision makers understand the potential direction of environmental change under different assumptions. Modelling can usefully combine information on land use susceptibility with information on land use itself,¹³ so that environmental hotspots can be identified. There is also a temporal element to this – so-called ‘hot moments’ or particular times when hotspots can be at an even bigger risk.

But models rely on good data, and without them it is a case of ‘garbage in, garbage out’. I have now spent six years making the case for a concerted effort to lift our game on environmental data. Land use change undertaken to improve environmental outcomes or forced on us by natural disasters will be costly. It will be even more costly if we do not have good information to rely on.

¹³ In the case study report (PCE, 2024), I experiment with a relatively novel approach known as physiographics (see <https://landscapedna.org/>). There are other approaches that attempt to do similar things, such as the APSIM model (see <https://www.apsim.info/>), funded by MfE, or Nature Braid (see <https://naturebraid.org/>). These tools are immature and still need further development and calibration, and as yet there is no scientific consensus about the best way forward.

Devolved decision making

One issue for devolving decision making is a lack of institutions to devolve it to. I have already discussed the situation of regional councils above.

Where they work well, **catchment groups** can provide a local institution. Unlike research or infrastructure for which central government has long accepted and played a role, the development of local institutions has been left to communities. Catchment groups have been a prominent, if uneven, response to recent central government demands. Their success often depends not only on the quality and skills of the people in them (particularly their leadership) but also on the support and resourcing available, as well as the incentive to collaborate.

The case studies I undertook underlined that the scale of land use change needed to reduce environmental pressures is as much (if not more of) a social challenge as an environmental or economic one. Catchment groups, if empowered with high-quality information, should be a place where mana whenua, landowners, communities and other local stakeholders can confront, face to face, the trade-offs that changing the way we use land lead to.

Our current approach is to hand down generic, high-level requirements, say little about the cost of implementing them, and then leave it to councils and communities to dig out whatever information they can to find a way forward. If sorting out the environmental consequences of land use is really a national priority, then a serious investment into financial and human resources is needed to facilitate the knowledge and community engagement required to make it a reality.

Catchment groups can facilitate many different roles that span information and decision making.¹⁴ They can:

- improve community understanding of the problem
- build a common understanding of and buy-in to the potential solutions (which will often require collective action)
- share good practice across peer groups
- engage with hapū and support them to act as empowered kaitiaki
- help balance cultural, social, environmental and economic impacts to prioritise the most effective actions in the catchment
- inspire action.

¹⁴ Just Transitions Aotearoa Group, 2023.

3 What would be needed to do a better job?

40

There are several examples of catchment groups and catchment collectives around the country. In Southland, a network of over 30 farmer-led catchment groups has been established to manage freshwater quality. They cover over 90% of the region. This network is being supported and coordinated by the Thriving Southland initiative (a partnership funded by the Ministry for Primary Industries and private sponsorship, set up with support from the NZ Landcare Trust).¹⁵ Where they exist, catchment groups are already helping farmers prepare their farm plans by building an understanding of the catchment context and potential effective on-farm mitigations. In the future, catchment groups could support integrated farm planning and help show farmers the collective impact of the actions in their farm plans on the health of the local environment.

It is crucial that catchment groups receive high-quality, timely information that is adapted to the specific context they work in. They also need access to expertise to understand and interpret that information to make good decisions. I am interested in ways the Government can support and further build the capacity of these existing groups to explore locally appropriate ways to tackle greenhouse gas emissions, soil erosion, freshwater quality and biodiversity loss, while enhancing resilience.

I am not the first to suggest a greater role for collaborative processes as a solution to common pool resource problems. It has been tried in many guises and is heavily researched.¹⁶ Catchment groups are not a panacea. In cases where resources are overallocated it can be difficult to reach collective agreement on who will lose out. However, when they are successful, they can be a valuable tool. The real question is, what makes them successful?

Nobel Prize-winning economist Elinor Ostrom developed eight design principles to manage common pool resources such as freshwater.¹⁷ These principles resonate with the way Māori exercise kaitiakitanga (as shown in Box 3.2).

¹⁵ See <https://www.thrivingsouthland.co.nz/catchment-groups/> for details.

¹⁶ See Just Transitions Aotearoa Group (2023).

¹⁷ Ostrom, 1990.

Box 3.2: Ostrom's design principles on common pool resources and te ao Māori

Elinor Ostrom developed her eight design principles by observing how societies across the globe built up customs – often over generations – to successfully manage common pool resources. The principles include having:

1. clearly defined boundaries of the common pool resources
2. rules that fit local circumstances and conditions
3. participation in the rulemaking of those affected by those rules
4. effective monitoring to create accountability
5. graduated sanctions when community rules are violated
6. low cost and accessible conflict resolution mechanisms
7. higher authorities respect and value the community's rules and self-determination
8. a nested system with multiple tiers to manage large and complex common pool resources.

Given Ostrom's methods, it is no surprise there is resonance in te ao Māori. Kahui and Richards (2014) have provided a detailed account of concepts, definitions and practices applied by Ngāi Tahu, which in many ways echo Ostrom's principles. In te ao Māori, resources are managed by kaitiaki (often chiefs, elders or resource/ritual specialists), who are accountable to and kept in check by their wider hapū and/or iwi to manage resources effectively for the collective benefit. Discussions around resource management are often carried out on the marae.

Resource governance and management is based on kaitiakitanga (the ethic of intergenerational sustainability), which uniquely adapts to local conditions. Spatial and temporal access are regulated by rāhui (a temporary restriction) and owheo (permanent conservation); maintenance of ecosystems is achieved through ohu (communal working bees); and there are rules around the quantity and method of harvesting certain resources. In that sense,

"conservation was always utilitarian and anthropocentric in nature. Resource controls such as *rahui*, *tapu* and *owheo* ... were implemented to ensure the long-term availability of resources. 'It is a pragmatic kind of conservation, though perhaps an ethnocentric one, yet it has worked longer than many modern conservation programs.' (Ehrenfeld, 1989, quoted in Williams, 2004: 230)."¹⁸

It is worth making a few observations on what might work for New Zealand catchment groups. We are at an advantage in that common pool resource management principles are in close alignment with te ao Māori principles. The next step would be to ensure that equal weight and opportunity is given to applying non-Māori and Māori principles.

An important observation is that collaboration is not easy, and sometimes people need an incentive to take part. There are two important ways to incentivise collaboration: financial resources and devolution of power.

¹⁸ Kahui and Richards, 2014, p.6.

3 What would be needed to do a better job?

42

The first way is simple: catchment groups need to be resourced. Currently, funding streams to support catchment groups are patchy and time limited.¹⁹ For catchment groups to be successful, however, they need to be resourced consistently over the medium to long term, particularly the roles of group coordinator and mana whenua.²⁰ Enquiries suggest that it is possible for one full-time coordinator to manage a few groups at once. The Government could reprioritise money from its many funds (see chapter two) and give priority to groups in environmentally constrained catchments.

A more controversial way to incentivise collaboration is through the devolution of power. A serious devolution of power means not only handing over funding but also decision making. This could include allowing catchment groups to depart from national and regional regulations where the catchment group has developed a credible plan to meet local environmental objectives.

The risk of devolution is that catchment groups sometimes prioritise their own issues rather than the ones identified by regulators.²¹ The terms of any devolution would need to be very clear. Beyond that, devolved decision making can be more easily captured by vested interests and biased in favour of the status quo. The charge has been made that regional councils themselves have not been immune to this. How do you stop progress being watered down to reflect the interests of a subset of the community? This is where the first design principle becomes important: the need for clearly defined boundaries, or in other words, defining an appropriate scale at which catchment groups should operate. Crucially, there needs to be a regulatory backstop for those that don't participate to prevent them 'free-riding' on the rest of the community's hard work.

Many people have been experimenting with catchment groups around the country. Where they are working, we should experiment by giving them greater powers and resources with clear links to environmental outcomes. The corollary of that is there would not be complete coverage across the country. This could prove to be an advantage. Localism allows for more experimentation and a greater diversity of approaches and land uses across the country.²² Some will, quite reasonably, resist a retreat from the idea of a uniform national approach. But on balance, given that there is no one-size-fits-all solution to managing very different places, a diversity of approaches seems to me desirable *provided that* catchment groups are transparently accountable for the outcomes they deliver.

¹⁹ Recent government investments in this area by MfE and MPI are encouraging, including the development of resources to help catchment groups understand their role, such as the Catchment Toolkit (<https://www.catchmenttoolkit.co.nz/resources/>).

²⁰ Sinner et al., 2023.

²¹ Sinner et al., 2023.

²² Craven et al., 2019.

Mobilising financial resources to effect change

Access to financial resources is a key barrier for landowners, regional councils and catchment groups trying to effect land use change. Mobilising adequate financial resources to change how we use our land is therefore critical. Below, I discuss some options, from the tried and tested approach of grants and loans funded by taxpayers, through to more innovative market mechanisms.

Publicly funded grants and loans

Historically, central and local government have used grants and loans (funded by taxpayers and ratepayers) to encourage changes to how we use the land. Grants are particularly important for entities without income sources, such as some Māori landowners and catchment groups. The advantage of grants and loans is that specific criteria can be attached to ensure public money is spent appropriately. The downsides include increased administration for all involved (especially given the proliferation of schemes) and uncertainty around future funding.

Central and regional government could design an integrated grant and loan scheme with broad criteria customisable to local circumstances. The need for local customisation suggests that regional councils, mana whenua and catchment groups could ideally lead the grant-making process. New funding may not be needed; many existing schemes could be integrated into this approach.

An integrated grant and loan system should target the most environmentally constrained catchments, particularly the hotspots within them. They could fund catchment groups and help meet the costs of implementing nature-based solutions that deliver the greatest improvement in local ecosystem services. Nature-based solutions might include restoring wetlands or afforestation to improve biodiversity, sequester carbon, reduce erosion and regulate water flows.

Reducing erosion and regulating water flow will be especially important in areas that are increasingly susceptible to extreme weather events. Retiring peat lands is also a possibility, although the high value of this land suggests that it might be ideal to start in areas most at risk from climate change (sea level rise and extreme events). How the cost of implementation is shared depends on what we want from our catchments, and how much of that we expect landowners and communities to do themselves. Targeting hotspots means that some landowners will need to do disproportionately more than others, and grants are a way to make that action more equitable.

Where new land uses are trialled and likely to be economic, demonstration grants (for first movers) and underwritten loans can be valuable tools to encourage land use change. Loans can also be helpful where investments in infrastructure are needed to support new land uses (e.g. processing capacity to support new land uses). Loans were used heavily in the transition following the removal of agricultural subsidies in the 1980s. Where land uses are not economic or land is under Te Ture Whenua Act, grants may be necessary. For uneconomic land, land buybacks might also need to be considered.

3 What would be needed to do a better job?

44

One potentially controversial form of infrastructure to facilitate land use change is water storage. In the past, water storage has been touted as having benefits for the environment that have not always materialised in practice as land use has intensified (usually to dairying) to pay for the water storage.²³ I am not opposed to water storage infrastructure in principle, but there need to be strong environmental limits in place within a catchment before investment in water infrastructure occurs. Ideally, water storage should be used to provide security of supply to high-value uses, rather than to increase water use *per se*. As discussed above, we lack the tools to enforce such limits effectively at the farm scale, and therefore great caution is needed when considering the use of public money for water storage schemes.

Uncertainty around future funding is more challenging to resolve. Changing how we use the land is a challenge with long time frames, and catchment groups tend to struggle finding commensurately long-term funding. Grants and loans can be accompanied by contracts promising future funding if certain conditions are met. However, any solution that is dependent on taxpayer or ratepayer funding will always be vulnerable to reprioritisation. Market-based mechanisms could – if successfully introduced – provide more stable funding streams.

Market-based mechanisms

Where outcomes can be accurately measured and attributed, market-based mechanisms can be used to place a price on resource uses that impose environmental costs. These mechanisms effectively include the cost of environmental damage and/or the value of environmental improvement in a farmer's bottom line. Another benefit of these tools is that prices do not mandate specific actions. Instead, they provide incentives to change behaviour. People can choose *how* they change their land management or use – or can even decide not to change behaviour and pay the price instead.

In some cases, market mechanisms are being put in place by private companies to encourage environmental best practice. These tend to reward good performers with a premium and/or exclude poor performers. However, the robustness of the incentive ultimately depends on consumer demand. In my view, this makes private sector schemes vulnerable to trends, and as such they are no substitute for government-mandated schemes.

Compared with other developed countries, the use of environmental market-based mechanisms in New Zealand is relatively low.²⁴ While not their intended purpose, government-led market mechanisms can also raise revenue that can be used to either offset other taxes or meet other spending priorities.

The chief concern with market-based mechanisms is that if incorrectly specified, their outcomes can lead to gaming or unintended consequences. The best current example of this is the NZ ETS. My two catchment case studies indicated that under current policy settings the NZ ETS is the main driver of land use change, mostly from sheep and beef to pine production forestry. This is confirmed by the most recent Survey of Rural Decision Makers, which found that the main driver of land use change currently is carbon.²⁵ That was not the intended purpose of the NZ ETS. It is, rather, its foreseeable but unintended consequence. The role of the NZ ETS as a barrier to effective land use change is discussed in the next chapter.

²³ See Thomas et al. (2020).

²⁴ See OECD (2024).

²⁵ See Manaaki Whenua – Landcare Research (2023).

Very recently there has been discussion about biodiversity credits as a potential market-based mechanism.²⁶ However, biodiversity is so localised that it would make trading across different species and jurisdictions difficult. It is also not yet clear what the scale of private sector demand for these credits would be. If biodiversity credits are an attempt to bid for public funding, then we should take an integrated approach that targets the most environmentally constrained catchments and hotspots within them, as discussed previously.

Pricing water

A price could be placed on the commercial use of water – either for consumptive (e.g. irrigation), non-consumptive (e.g. most hydroelectricity) or absorptive capacity (e.g. nitrogen leaching) purposes. To implement any of these, rights to use freshwater need to be clarified and actual use measured.

Any durable set of rights around the use of freshwater will require resolving Māori rights and interests (discussed below). Water use is measurable now that metering is required as part of resource consents. Conversely, nitrogen leaching has proved very difficult to measure accurately at a property level, with landowners instead relying on results modelled using Overseer, which with all its limitations creates a risk of gaming. As a result, nitrogen leaching is much more difficult to price accurately.

A price on water would act as a resource rental, recognising both the damage to the environment of taking water and its value as an input into a commercial undertaking (residential use could be exempt). This would provide an incentive to ensure that water is allocated to its highest value use. A charge could also provide revenue to safeguard the future of that resource.²⁷ In terms of Te Mana o te Wai, this is making sure that we look after the river first. Combined, these arguments for a resource rental would help achieve the goal of this paper – ensuring that as a nation, we maximise the social, cultural and economic benefit of our natural resources while making sure we look after them for future generations.

A resource rental would likely be a small charge per unit of water used, ideally adjusted for the scarcity of water in the particular catchment. This would have the greatest relative impact on the largest users of freshwater in New Zealand, particularly those using water for irrigation and hydroelectricity generation. A 2014 study by the New Zealand Institute of Economic Research (NZIER) and AgFirst estimated that irrigation increased the productive capacity of landowners (particularly in Canterbury) to the value of \$2.17 billion per year.²⁸ Currently these businesses can use this valuable natural resource for free, so this value is capitalised in land prices.

Although most hydroelectricity generators are returning the water to the river immediately after it is used, dams prevent the migration of some species, significantly alter flow and temperature and contribute to water loss through increased evaporation. This impact on the mauri of our awa needs to be acknowledged appropriately. While non-consumptive water users could pay a lower per unit price than consumptive users, they should in fairness pay something.²⁹

²⁶ PCE, 2023b.

²⁷ Tax Working Group, 2019.

²⁸ Corong et al., 2014.

²⁹ In Scandinavia innovative policies have been enacted to manage hydropower. In Norway, resource rent taxes have been applied to ensure a share of the return on hydropower accrues to society (Ministry of Finance, 2022). In Sweden, a new national relicensing plan means many small hydropower plants are opting to be decommissioned, with the funding for this, and other environmental measures, coming from the largest hydropower companies (Borg, 2020).

3 What would be needed to do a better job?

46

The revenue from any such a rental could be channelled into investing in activities that reverse the decline in freshwater quality that we have seen in recent decades. The revenue could be retained within the catchment or region where it is collected. This would, however, disproportionately benefit Canterbury. Alternatively, it could be used to buy back water use rights in overallocated catchments and the remainder channelled into other restorative activities through grants and loans as per above.

Pricing biogenic methane

Currently there appears to be political consensus between the two largest parties in Parliament that a price should be levied on biogenic methane emissions. The main area of disagreement is the timing of implementation.

Again, the revenue from a price on biogenic methane could be retained within the catchment or region where it is collected. In this case there is likely to be a better match between revenue and the catchments facing the greatest environmental challenges.



Source: Angela Mulligan, Unsplash

Figure 3.2: Revenue from a price on biogenic methane could be retained within the catchment or region where it is collected to help fund environmental mitigation measures and land use change.

For biogenic methane, a cap-and-trade scheme would in my view be preferable to a tax or levy. While a tax or levy would provide greater price certainty and simplicity, there are two main advantages to a cap-and-trade scheme:

- Firstly, a cap-and-trade scheme is more appropriate for methane than long-lived gases such as carbon dioxide because emissions do not need to be reduced to zero. To reduce carbon dioxide emissions to zero under the NZ ETS will (in the absence of complementary measures) eventually require an exponentially high carbon price. For short-lived gases like methane, the goal is to reduce emissions to an acceptable flow rather than eliminate them altogether. Hence the importance of ensuring that the price incentivises the most efficient producers.
- Secondly, using rotational pine production forestry (or potentially other species) to offset some of the warming from biogenic methane is a more justifiable strategy than using it to offset fossil carbon dioxide since it does not involve the permanent loss of the land's option value. I have elaborated my reasoning for this conclusion in *How much forestry would be needed to offset warming from agricultural methane?*³⁰

A new cap-and-trade scheme for biogenic methane should be investigated that allows for some forestry offsets.³¹ For this to work, however, production forestry would need to be removed from the NZ ETS (see chapter four).

There seems to be little doubt that putting a price on biogenic methane would – all things being equal – reduce emissions. The question is, how would this happen and what would be the likely impact on other environmental outcomes?

A price on methane as proposed would enable farmers to choose between a menu of options, including on-farm mitigation, using afforestation as an offset, simply paying the price or destocking. Exactly how landowners would react depends on the costs and benefits of different options. Where techniques and technologies to reduce on-farm emissions exist, a price on agricultural emissions would incentivise their uptake. Even if no new technological options to reduce emissions emerge, a well-designed price would favour more efficient producers of meat and milk, allowing them to expand at the expense of less efficient producers. Improving efficiency has been shown to improve profitability and environmental outcomes at the same time and should be encouraged.³²

More profitable landowners (e.g. dairy operating on more productive land) are likely to choose from the first three options where they exist. If they do not have sufficient unproductive land to afforest to offset their emissions, they may choose to purchase offsetting from other landowners. Marginally profitable farmers faced with a price may choose to exit livestock farming entirely, and productive farmers paying for land to be afforested could provide them with an exit strategy. As a result, a cap-and-trade scheme for methane would likely continue the conversion of sheep and beef farms to forestry.³³ This would certainly offset the warming effect of methane emissions, but it is the impact on other environmental and social outcomes that would continue to be the subject of considerable debate.

³⁰ PCE, 2022b.

³¹ See Bognar et al. (2023).

³² BERG, 2018.

³³ See also PCE (2024).

3 What would be needed to do a better job?

48

A combined intensity-adjusted land tax and natural capital enhancement subsidy

If the aim is to reverse the loss of biodiversity and degradation of water quality, and we accept that ongoing payments are needed in some form to achieve that, a logical funding source would be an intensity-adjusted land tax. That is, a tax based on a percentage of the value of the land, but adjusted for the degree of environmental impact that is being imposed. Land covered with roads, concrete or buildings, for example, would be subject to the full tax. Farmed land or buildings with green roofs, which still support biodiversity in some form, would be partially taxed. Land in a natural or restored state would receive a subsidy (in effect a recognition of the ecological services being provided).

A tax and subsidy system could be designed to be revenue neutral overall. Effectively, an intensity-adjusted land tax absorbs the concept of biodiversity credits and takes funding it to its logical conclusion. Such a tax and subsidy system would sensibly be administered by government. It could also be used to offset some environmentally based local government charges.

Due to the revenue-neutral nature of this tax, it would not be a direct source of revenue for catchment groups, unless they are landowners. However, farmers, mana whenua, and potentially also local authorities would receive payments for land they own that is maintained in or returned to its natural state.

This idea was initially pitched by the Tax Working Group in 2019 as a 'natural capital enhancement tax':

"The tax aims to recognise that natural capital produces valuable ecosystem services. It provides incentives for the conservation, restoration and regeneration of high-value natural capital, going beyond more narrowly targeted negative externality taxes. Remote sensing technologies, combined with mapping and modelling tools, could potentially be used to assess both the level and change in the ecological value of a specific area of land or coastal zone."³⁴

As always, a key challenge with such a system is having sufficiently granular, high-quality data to implement such a tax and subsidy system. Such data are increasingly feasible to collect with remote sensing technologies and artificial intelligence.

³⁴ Tax Working Group, 2019, p.54.

Another implementation challenge would be working through the relative tax rates between different land uses based on the best science available and ensuring that Māori-owned land is not disadvantaged. However, for land use, there have been numerous indicators that combine agricultural intensity into a single measure and relate this to environmental performance like water quality.³⁵ The relative contribution of different land uses would no doubt attract controversy and need to be grounded in good science.

This idea is speculative and may be dismissed by some as unrealistic. However, it is difficult to think of another tool that could provide the resourcing needed to achieve our environmental goals, and do so in a fair and transparent way. A tax and subsidy system would start low and could be progressively dialled up until the country's environmental goals are reached.

This idea does raise an important point. Landowners will look to be compensated by the taxpayer for environmental improvements. This, however, undermines the 'polluter pays' principle, especially in cases where landowners have contributed to – and benefitted from – environmental damage without paying for it. How much should they contribute to solve the problem? Or, looking at it another way, how much of their effort should they contribute for free? To be good stewards of the land, what baseline level of environmental management should simply be expected? These are all important questions to ask when considering an integrated approach to land use.

³⁵ Giri and Qiu, 2016.

3 What would be needed to do a better job?

4



Schizaea dichotoma

Some barriers that stand in the way of land use change

Doing a better job of caring for land and water is not just about adopting new practices or changing land uses. It may also be about removing barriers. Some of these barriers are highly local, others are structural.¹ While there may be quite strong incentives to change, landowners can face a complex array of barriers to consider when making their land use decisions. This creates uncertainty when making both the small and large investment decisions needed to change direction.

In 2017, the Ministry for Primary Industries (MPI) commissioned a useful literature review that summarised the drivers and barriers in play when land use change is under consideration.² It covered biophysical, economic, technological, societal, regulatory and individual factors. The review acknowledged that many of these factors interact in complex ways that will vary according to the specific case. The following discussion highlights some barriers that were apparent in conversations with both landowners and researchers undertaken in the course of the two case studies. It also draws on MPI's work and other research.

¹ For example, see Biden (2023).

² Journeaux et al., 2017.

Commercial imperatives

Farmers wryly note that ‘you cannot be green if you’re in the red’. Profitability is essential if landowners are going to invest in land use change. The capacity to borrow depends on profits or at least the promise of future profits.³ In what is essentially a sector dominated by small businesses, there is often a strong culture of family ownership, and injections of equity funding are relatively rare.

Land use change often involves large capital outlays, and it can take years before the changes start to generate returns. The capital outlay is not restricted to on-farm changes. Before any land use change can happen, landowners need to invest in research and advice to understand their land and potential alternative uses. It can be challenging for landowners to receive land use agnostic advice. This is because not many farm advisors are trained to provide advice across different land uses while industry bodies must focus on their respective commodities under the Commodity Levies Act 1990. Advice on land use change is also complex. While land use change *per se* is relatively simple, the knock-on effects of bringing new products to the market require the development of new customers, new processing infrastructure and new distribution channels.

These challenges are daunting for any small business with limited resources operating in a global market. Farmers are no exception. New Zealand has a small domestic market and is a long way from international markets. In its work on frontier firms, the Productivity Commission catalogued the challenges facing small businesses trying to export in such circumstances.⁴ These uncertainties are much smaller in the more established industries such as dairy, meat, apples, kiwifruit and pine production forestry because producers have been able to organise themselves collectively (in varying degrees) to research, process and market their commodities.

The reduced uncertainty that collective action provides naturally biases landowners towards established industries. This is not always positive for the environment. The Dairy Industry Restructuring Act 2001, which created Fonterra, was justified on the basis of creating a “national champion” that could diversify into high-value consumer products.⁵ This strategy has failed to meet expectations and Fonterra has returned to a more traditional strategy of driving improved commodity returns for the benefit of suppliers. Unsurprisingly, this approach incentivised conversions to dairying and with them an intensification of land use up until around 2016.⁶ As we know, intensive dairy farming has contributed to poorer environmental outcomes in some parts of the country.

Given these different factors to consider, and the complex and fragmented policy landscape, it is understandable that landowners are risk averse and biased towards the status quo in their decision making. This has huge implications for the speed of land use change for two reasons.

³ See Environment Southland (2022).

⁴ NZPC, 2021.

⁵ NZPC, 2020.

⁶ NZPC, 2020.

Firstly, if investments have been made in the recent past, landowners will want to recoup the returns on their investment before making further changes. Secondly, as with any small business owner, a significant change to the business will often literally mean betting the house. For most farmers, the main source of capital for investment will be bank loans. Banks in New Zealand are risk-averse lenders that find home lending an easier and more profitable activity than farm lending. Landowners are naturally (and quite rightly) cautious about exposing themselves to commercial risk. Based on this analysis we might expect some of our larger corporate, iwi or publicly owned farming operations (such as Pāmu/Landcorp) to lead the charge on land use change in environmentally constrained catchments as they will be better placed to spread the risk of experimentation across their operations.

Unsurprisingly, the relative profitability of dairying makes a transition to lower-intensity practices more commercially achievable than is possible for sheep and beef, which has seen its average profitability decline to the point of being marginal. Where land is suitable for conversion to a more profitable use (for example, from sheep and beef farming to dairying or forestry), the sale and transfer of the land can draw a neat line under yesterday's unsustainable uses, as the purchaser starts with full knowledge of the need to meet higher standards. But where this convenient exit route is not available, the resources available for sustained environmental clean-up are meagre.

This highlights the point that as a country we have few tools for improving the environment where environmental goals impose a cost that landowners are unable to bear. The implementation of environmental policies is often pushed onto regional councils, which are left to confront landowners, who in some cases – but not all – lack the resources to deliver what is expected of them. In cases where landowners do lack resources, their precarious position might be further compromised by increased pressures from global food companies and banks that will increasingly require them to measure and reduce emissions as well as make biodiversity improvements. Regional councils have raised this issue with the Ministry for the Environment. For the current set of freshwater plans (for which the current Government has pushed back the implementation deadline) regional councils are focusing on what they can achieve within current tools. In the absence of profitable alternative land uses, the only large-scale example we have of a successful transition to less environmentally damaging land uses is Lake Taupō – and that was a mixture of de-intensifying land uses and preventing further intensification. Iwi buy-in and \$80 million compensation from central and local government was crucial to the success of this initiative.

The New Zealand Emissions Trading Scheme

The NZ ETS is currently the main commercial driver of land use change. While afforestation is certainly needed in parts of Aotearoa and the NZ ETS provides a source of revenue for this, the scale of this change has the potential to create negative externalities and foreseeable unintended consequences (while reducing other pressures). In my view, using such a blunt tool as the main driver of land use change is becoming a barrier to the outcomes we are seeking.

4 Some barriers that stand in the way of land use change

54

My concerns with the use of forestry as an offset for fossil fuel emissions began with the work on *Farms, forests and fossil fuels*.⁷ Carbon emissions stay in the atmosphere indefinitely. How can we ensure that the carbon sequestered in a forest stays locked up for similar time frames in the face of risks of fire, diseases and policy change? These risks are likely to grow as the climate itself changes and are higher for permanent forests, which will need management long after the income flow from carbon sequestration has ceased.

The environmental impacts of new forests will vary depending on local conditions, the type of forest and the management regime. The key point is that the NZ ETS drives land use decisions based on tree species that absorb carbon quickly (usually pine). This will not necessarily lead to forest management decisions that are optimal across all environmental outcomes (let alone social and economic ones).

More recently, questions have arisen about the durability of the NZ ETS given its current settings – particularly the use of forestry as a source of unlimited offsets. These issues are well covered by He Pou a Rangi Climate Change Commission's latest advice.⁸

Additionally, there have been concerns about the loss of productive land from widespread afforestation. Theoretically, this is unlikely to become a problem soon as Te Uru Rākau has estimated that there are close to 2.7 million hectares of low-productivity, privately owned pastureland suitable for afforestation.⁹ However, it is difficult to know if current and projected afforestation is restricted to low-productivity pastureland. The Ministry for the Environment has estimated that at current carbon prices it is economic to convert more productive land in addition to that included in the estimates done by Te Uru Rākau. The type of forest can also make a difference – permanent carbon forestry can be on difficult-to-access marginal land, but production forestry needs to be accessible for cost-effective harvesting and transportation to market.

The feasibility and impacts of establishing different types of forests in different locations is a complex question I am addressing in a forthcoming review. The costs, revenues, risks and benefits associated with any newly established forests will depend on a number of things, including the type of forest, where it is located, and how it is managed.

The current unrestricted use of forestry as an offset is removing different land use options from future generations. Long-term predictions are purely speculative, but it is easy to foresee scenarios where this might become a problem. In the second half of this century there is a risk of running out of low-productivity pastureland for afforestation. If we do not reduce gross emissions, we will need to keep planting trees on more grassland in perpetuity. This risk is more likely to eventuate if we continue to allow unlimited forestry offsets in the NZ ETS as it depresses the carbon price and reduces action on gross emissions. The country also needs to consider the potential need to go carbon negative to restrict warming.

⁷ PCE, 2019a.

⁸ He Pou a Rangi Climate Change Commission, 2023.

⁹ Te Uru Rākau New Zealand Forest Service, Ministry for Primary Industries, pers. comm., November 2023. Note that this model was run in 2020, so there may have been changes since then.

A more immediately pressing issue than the loss of productive land is the social and economic impact of converting sheep and beef land to pine production or permanent carbon forestry. This is a hotly debated issue and both industries have published research to support their arguments.¹⁰ The answer ultimately lies in the eye of the beholder; on a judgement of 'who matters', both on spatial and socio-economic (landowners versus workers) scales. What is clear, is that permanent carbon forestry reduces employment overall.

It is worth noting that in deciding the rating differentials for ratepayers, Wairoa District Council on the East Coast has determined that forestry activities are of minimal benefit to the Wairoa community and that forestry has a negative impact on employment in the district. The High Court did not dispute the council's reliance on the 'disbenefits' of forestry to community wellbeing when considering its rating decision.¹¹ Similar concerns were noted by local communities in the course of our case studies.

Pine production and permanent forestry are legitimate land uses and, as long as they are properly regulated, they should be free to compete with other land uses. But afforestation should not be incentivised by treating it as a cheap way to offset fossil fuel emissions. In my view, the NZ ETS should be retained as a tool for reducing gross emissions, but the right to use forestry as an offset should be progressively phased down over time.¹²

Removing forestry from the NZ ETS should allow the Government to auction more credits at a higher price. The augmented revenue could be applied to incentivise changing how we use the land (as per the 'Publicly funded grants and loans' section above). This should include paying for nature-based solutions that sequester carbon and generate other ecosystem services such as afforestation or restoring wetlands on private land and whenua Māori.

Using revenue from the NZ ETS to fund nature-based solutions on our land may seem oblique, but in many ways, it is more compelling. Firstly, New Zealand's greatest contribution to warming has been land use change through deforestation. This would be an opportunity to recapture some of the enormous carbon stock that was emitted to the atmosphere during the 'breaking in' of much of Aotearoa, together with the collateral environmental damage inflicted on biodiversity. It makes sense for modern day fossil fuel users to pay to repair the widespread damage that occurred during the formative stages of this contemporary capitalist economy. Secondly, these actions would (if well targeted) also prove to be valuable investments as the climate changes. Essentially, such a fund could be billed as funding nature-based solutions for climate adaptation.

¹⁰ See, for example, Harnett (2019) and Harrison and Bruce (2019).

¹¹ *New Zealand Forest Owners Association Incorporated v Wairoa District Council* [2023] NZCA 398.

¹² I am not alone on this point; see, for example, Cullenward (2023) for a similar argument.

4 Some barriers that stand in the way of land use change

56



Source: Geoff McKay, Flickr

Figure 4.1: Native trees and pine production forestry are visible from Fern Walk in Tōtara Reserve Regional Park, Pohangina Valley.

Individual factors

It is often difficult for others to understand why people make the decisions they make. However, factors relating to the individual could be among the most important barriers to land use change, at least in the short to medium term. In the longer term – for example, when a property comes up for sale – it is more likely that a new owner will be willing to take a fresh look at land use to get the most value from their investment.

Research indicates that ‘lifestyle’ factors are a major barrier to land use change. Several studies show that many farmers accept below-average returns on their investment even when capital gains are included.¹³ While there may be a number of reasons for this, including the farm being both the business and the home, the lifestyle benefits of farming are likely to be one of them.¹⁴ A survey of rural decision makers found that farmers who had not changed land use, intensified it or increased the size of their farm gave reasons like ‘lifestyle’ (53.6%) and ‘the imminent anticipation of retirement’ (12.6%). Several other responses clearly also related to lifestyle, including ‘age’, ‘already retired’ and ‘happy as I am’.¹⁵

¹³ DairyNZ, 2022; Greig et al., 2018.

¹⁴ Greig et al., 2018.

¹⁵ Journeaux et al., 2017, p.15.

Cultural factors will also influence decisions on land use. A case study in the Waiapu catchment in Gisborne focused on the economic and cultural implications of changing land use under different climate change scenarios for Māori landowners.¹⁶ The land in question had relatively large areas of land in Māori ownership and is prone to extreme erosion. The scenarios (all focused on afforestation) were also assessed using a kaupapa Māori tool.

Kaitiakitanga (Māori sustainable resource management), manaakitanga (the reciprocity of actions to the environment and people), and whakatipu rawa (the need to retain the resource and asset base for future generations) were the principles used in the tool alongside the economic modelling. The study found that these values, incorporating a long-term intergenerational view, were more important than economic ones when it comes to making decisions on changing land use.

This underlines the point that the scale of land use change needed to achieve our environmental goals is as much a social and cultural challenge as an economic one. Economic incentives will no doubt make a difference over the medium to long run, but in the short term, social considerations are also likely to impact on decision making. Understanding these social and psychological considerations is the motivation behind the *Moving the Middle* research programme being led by Manaaki Whenua – Landcare Research.¹⁷ It is investigating the pressures landowners face and the types of interventions that can reduce these pressures to empower them to make land use and land management changes to achieve environmental goals.

Regulatory rigidity

Many of the sources of regulatory rigidity are an attempt to manage specific environmental problems. They tend to put up barriers to land use change on the assumption that it might negatively impact on the environment, but in practice these barriers might also prevent positive changes.

As noted above, our tendency as a nation is to use property rights as the unit of regulation, despite that not always being appropriate. Ensuring that land use is well matched to the capability of the land beneath it will always be difficult when taking this approach. Allocating new rights tied to property is an extension of this approach. Ultimately, there is no fair way to allocate resource rights, but ideally they should be tradable so that available resources are used for their highest possible value consistent with maintaining environmental quality.¹⁸ If resources are not tradable, that can cut off the possibility of land use changes that might be better from both a holistic environmental perspective and an economic perspective.

We have already noted above that obligations under the NZ ETS reduce options for land use change. However, at least the carbon obligation is tradable.

¹⁶ Awatere et al., 2018.

¹⁷ Greenhalgh and Morgan, 2021.

¹⁸ See McDowell et al. (2018).

Resource management

There has been no specific research into the extent to which the resource management legislative framework impedes changes to land uses with lower environmental impacts. However, there is research into regulatory barriers that prevent the uptake of techniques to reduce the environmental impacts of existing land uses.¹⁹ An example of such a barrier is where mitigation requires earthworks or the alteration of a water body, which often requires resource consent.

While many regional councils have categorised mitigation techniques as permitted activities, this varies across regions and they are often accompanied by a long list of conditions that are difficult to meet. Many regional councils overcome this barrier by offering grant funding to support these activities. Research into best practice for the implementation of mitigation techniques that take a multidisciplinary perspective might help councils refine conditions to improve both the uptake of mitigations and the consistency in their quality.²⁰

The same regulatory barriers may apply to land use changes with lower environmental impacts (particularly those involving subdivision of land). Embarking on novel land uses may be considered too difficult if the burden falls on the landowners to demonstrate that the environmental impacts are lower, and the threshold for proving this is set too high or is too costly. One particularly controversial example of a land use change that *could* have lower overall environmental impacts, but faces large regulatory barriers, is conversion to lifestyle blocks.

Territorial authority restrictions often prevent people from being able to subdivide and sell land for lifestyle blocks or other so-called non-productive uses. The rules were originally driven by farmers concerned about lifestyle blocks eating up agricultural land but have in recent times been adopted by urbanists and planners opposing low-density development (Waikato Regional Council's Future Proof Strategy is a good example). Yet subdivision can free up capital to enable landowners to upgrade environmental practices or change land uses.

The previously cited MPI document summarising barriers to land use change has this to say:

“Broadly, Territorial Authorities have a relatively permissive attitude to land use (in the sense that land use is permitted relative to various standards; it does not infer a ‘do as you like’ approach), apart from rural subdivision. This is often tightly controlled, in an endeavour to maintain land parcels as ‘economic units’ and/or prevent the loss of high quality soils. Often, though, subdivision is a prerequisite for land use change, particularly for horticultural development, and there are strong economic drivers for this. Similarly, subdivision of rural land for urban development is driven by extremely high economic (and often political) factors.”²¹

Some district councils allow farmers to subdivide and sell lifestyle blocks for them to free up capital to invest in environmental improvements (such as restoring native bush, wetlands or riparian areas).²² In practice there are often many technicalities that make this process complex. One drawback of this approach is that subdivision often happens on the best quality land because it is the flattest. The concern is that fragmentation of farmland into lifestyle blocks can leave the remaining pockets of land unviable for farming, leading to more lifestyle blocks. In some areas the development right can be sold and transferred.

¹⁹ Milne and Luttrell, 2020.

²⁰ Milne and Luttrell, 2020.

²¹ Journeaux et al., 2017, p.6.

²² See, for example, KDC (no date).

It is worth noting that lifestyle blocks are used as a conservation tool by Trust for Nature in Australia.²³ They have a revolving fund that allows them to purchase properties, alter land use to ensure it is more sustainable, apply covenants where appropriate and resell the property. Often close to urban areas, they will convert the land to lifestyle blocks and sell them with the assurance that the new owners will act as caretakers of these important environmental areas.

Water rights tied to land parcels

Access to the right to use freshwater is essential to finding profitable land use options with a lower impact on the environment. Unfortunately, the rights to use water are usually tied to land parcels and difficult to trade.

Recent national policy statements deal with the thorny concept of freshwater allocation. Te Mana o te Wai imposes a hierarchy of obligations where the first priority emphasises the health and wellbeing of water bodies and freshwater ecosystems (e.g. ensuring minimum flows), followed by human health needs (such as drinking water), and finally water for social, cultural and commercial needs.²⁴ The discussion in this section only applies to the allocation of freshwater for commercial purposes.

Unfortunately, these principles of water allocation have only recently applied. As a result, there are three major environmental problems stemming from historical water allocation that took place in the absence of national direction:

- Firstly, consents to use freshwater (either from ground or surface water) have been dealt with on a first-come, first-served basis. This means that the water has not necessarily been allocated to the highest value use.
- Secondly, the consent to use water is linked to the land title. As a result, the right to use water is linked to land ownership and is therefore capitalised in the land value,²⁵ although a recent court decision restricts the ability to use consented water for different purposes.²⁶ While the Resource Management Act 1991 allows for a transfer of water rights between two landowners in a catchment, the process is painstaking and rarely used.
- Finally, some catchments have been overallocated. This means that when there is a dry spell the flow of water can fall below the level needed to sustain the environment. Clearly, this is not aligned with the goals of the national policy statement as set out above. However, it makes any attempt to transition from the status quo challenging. In these catchments the first two challenges are compounded.

It is unclear how these challenges around water allocation will be resolved. Following the repeal of the Natural and Built Environment Act 2023 and the Spatial Planning Act 2023, the Resource Management Act reform signalled by the new Government will need to comprehensively address the environmental challenges of water allocation. This is a major issue for reform, further complicated by commitments to 'rebalance' Te Mana o te Wai by replacing the National Policy Statement for Freshwater Management and the National Environmental Standards for Freshwater.²⁷

²³ Trust for Nature, 2017. It is worth noting once again that this would be more complex for some Māori land.

²⁴ MfE and MPI, 2020a.

²⁵ Garner, 2020; Grimes and Aitken, 2008.

²⁶ *Cloud Ocean Water Limited v Aotearoa Water Action Incorporated* [2023] NZSC 153.

²⁷ New Zealand National Party and ACT New Zealand, 2023; New Zealand National Party and New Zealand First, 2023.

4 Some barriers that stand in the way of land use change

60

Similar issues occur where councils have allocated rights to pollute freshwater. As noted in chapter three, this is very difficult to do accurately. To reduce nitrogen leaching, Environment Canterbury has allocated the right to leach nitrogen based on (modelled) historical levels.^{28,29} These rights have been allocated to properties and are not tradable, thereby further impeding progress and allocating a valuable right to pollute to users who may not be the most efficient resource users.

There is never an ideal way to allocate the right to use or pollute water. Given that it can have a large impact on land values, it is first and foremost an issue of fairness. This is a matter of subjective judgement that lies in the realm of politics. The most important objective factor to consider is ensuring that the process of allocation does not create any perverse incentives (for example, inadvertently encouraging pollution by rewarding those who pollute more in a given period, i.e. grandparenting) or encourage hoarding.

From an economic perspective, the more important factor is to make sure that however rights are allocated, they are in some way tradable. The theory is much the same as for other forms of rights to access or use resources: that by making them tradable they are able to find their highest value use. This becomes even more important in a situation where we are trying to minimise the economic impact of applying environmental constraints.

Setting out a rational way to manage freshwater is relatively straightforward. The question is how to undertake a reform that can provide certainty to existing and future water users so they have the confidence to invest and at the same time resolve Māori rights and interests over freshwater. The Land and Water Forum's third report was optimistic that the issue could be resolved to mutual advantage:³⁰

“For a system which articulates general rights and interests to be stable and durable, however, iwi rights and interests also need to be resolved. We can see significant win-wins in this process, including the development of under-utilised land and resources, and the ability of iwi to partner with others [in] the growing of the water economy – including through the development of infrastructure.”

²⁸ MfE, 2023a.

²⁹ The region-wide nitrogen allocation framework essentially grandparents historical nitrogen losses, adjusted to reflect Good Management Practices. In catchments where limit-setting processes have been completed, there are further requirements to reduce nitrogen losses. These are usually expressed as a percentage reduction below historical (i.e. grandparented) rates. (Environment Canterbury, pers. comm., March 2024).

³⁰ LAWF, 2012, p.8.

5



A way forward

The way we use the land has changed over time and will continue to do so. The environmental impacts of land use are just one driver of change, albeit a prominent one in recent years. Looking forward, difficult trade-offs will need to be made in some parts of the country between environmental, cultural, economic and social objectives. The key message of this report is that central and local government need to be upfront and transparent about these trade-offs and work with communities and mana whenua to agree and manage those trade-offs. Some tough conversations lie ahead, and the process will not be easy. But the quicker we press on with the job, the better.

Contaminants to water, biogenic greenhouse gases, and biodiversity loss (probably in that order) are the biggest pressures land-based industries currently place on the environment. They also pose risks to continued market access and consumer acceptance as international awareness of the true cost of food production grows. Even if we want to avoid addressing the environmental pressures that current uses place on the land, an increasingly disrupted climate will leave some landowners stranded.

The modelling we undertook for the Wairoa and Maitara case studies suggested that current policies could encourage the expansion of two dominant monocultures: dairying and pine production forestry.¹ It showed how economically precarious some current land uses are, suggesting that the status quo is neither environmentally nor economically viable beyond the short term.

My conclusions are based on the twin premises that governments do recognise (1) the importance of improving the environmental footprint of our land-based industries and (2) that climatic disruption poses significant risks to those industries. If either of those premises is not shared by those in power, then all bets are off, although some overseas consumers may have other ideas. But assuming them to be reasonable – and within the remit of governments to influence – what might we do, starting from where we are?

¹ See the accompanying report (PCE, 2024) for details.

Taking an integrated approach

This report argues for taking an **integrated approach** to policies that impact land use. The idea of *integrating* policies is as old as the hills and risks being a piece of tired policy boilerplate.² So, what it means in this context needs to be expressed crisply and simply. This report does not hand down a masterplan to achieve better water quality, lower climate impacts and better habitat protection. What I have to say is more about the *process* by which people on the land and those who whakapapa to it can go about implementing changes for the better. It is also about how central and regional governments should both support them and provide a backstop if and when they fail.

Implementing an integrated approach will require growing the capacity of all involved. The environmental impacts of land use need to be treated as an adaptive problem, not a series of technical ones with discrete solutions. This means that the social, economic and cultural dimensions are as important as the environmental one and that multiple actions implemented iteratively will be required.

Dealing successfully with these environmental pressures is only likely to be achieved over a generation or longer. The long-term nature of the challenge has tended to favour aspirational outcomes – something New Zealand is rather good at: net zero emissions by 2050, 90% of rivers swimmable by 2040, a country free of pest predators by 2050. Where we are less successful is in constructing means of implementation that are practical, affordable, fair and capable of consistent monitoring so that we can know whether we are making progress – or not.

In many places, mitigations to existing land use will be sufficient to make progress. For some catchments, improved management as well as land use change targeted at specific hotspots (parcels of land) may be enough to move the environmental dial. Research has shown that implementing up to three mitigations for freshwater contaminants, such as phosphorus, could be achieved at a cost of less than 10% of farm profitability.³

But in a few places, wholesale land use change will be needed. We urgently need to develop a shared understanding of those catchments or sub-catchments that are environmentally constrained, and the likely scale of change needed. The communities in question need to buy in to this process.

Based on our case studies and research from *Our Land and Water*,⁴ the majority of land use change should be possible without harming profits or exports. However, successful changes will still likely require public investment in research, monitoring, advice and potentially grants and loans for proof-of-concept projects and the infrastructure required to kickstart land use change (including, for example, processing or water storage).⁵ A more diverse landscape could not only improve our environment but also improve the resilience of our communities and economy.

In some cases, land use change will not be economically viable for landowners to undertake. In these cases, landowners should ideally be paid for the ecosystem services that their land use provides (just as they should pay the true cost of the environmental impacts of their existing uses). There has been some talk of payments for biodiversity, but the scale of demand for these is not yet clear. Other unfunded ecosystem services will also become more important, including water regulation and erosion control in flood-prone catchments.

² For other discussions on integrated approaches, see, for example, Hall (2018).

³ McDowell, 2014.

⁴ McDowell et al., 2024.

⁵ Noting the earlier caveats about water storage often leading to intensification and worse environmental outcomes overall.

This brings us to this central point, which is often avoided: **someone has to pay**. And we need a coherent and equitable basis for deciding who that is. If no one will, the environment will continue to pay. What costs should lie with landowners? When should public subsidy be available to facilitate land use change, and how should that public subsidy be funded? We have raised several options in this paper, but ultimately these are political questions.⁶

Socialising the costs of land use change is always the easiest route politically, but it can be eye-wateringly expensive. If it required \$80 million of public money to reduce the flow of nutrients into Lake Taupō, the sum required to purchase changes in land use intensity across the country on a similar basis would be huge. That is why the first port of call must *always* be finding profitable alternative uses. But it will not always be possible: from our case study work, the cost of restoring one pocket of the Hikurangi repo (wetland) in Northland could be as much as \$120 million depending on how you went about it. But just to buy back the land would require nearly \$20 million.

Taupō's iconic recreational status provided an urban constituency for such largesse. It is unlikely to be repeated in anonymous reaches of rural Aotearoa devoid of tourist attractions. Before anyone starts planning to spend large sums of public money, the Government should satisfy itself that barriers, some of its own creation, are not standing in the way of a smoother and more affordable transition.

Refocusing climate policy

First among these is to **resolve the tensions that open-ended access to forestry carbon offsets has created for land use**. I do not consider that dedicating land to carbon storage in perpetuity is a sensible course. Because carbon dioxide's residence time in the atmosphere is so long lived, forest offsets have to be maintained forever – a multi-generation guarantee we have no way of making because of the risks of fire, storm damage, disease and human negligence. My reasoning is spelt out at length in *Farms, forests and fossil fuels* and my submission on the recent NZ ETS review.⁷

But removing forestry from the NZ ETS would pose its own problems for land use. In the first place, Māori can rightly claim that it would be yet another kick in the teeth to remove the highest value use of the marginal land they have been left with. Other landowners have invested in good faith. Some form of compensation or transition would be reasonable.

Secondly, marginal land that does not get covered in forestry – productive or otherwise – will likely continue to be farmed, with ongoing costs in the form of erosion, water contamination and habitat loss. Few people are prepared to say so openly, but there are plenty of environmentalists who would count conversion to forestry as the lesser of two evils if it meant improved water quality and lower agricultural emissions. For some of the steepest, most easily erodible catchments this is hard to argue with. So, how else could this land use change be facilitated? There are two avenues, both related once again to climate policy.

⁶ For further discussion of this topic, please see Hall and Lindsay (2021), Hall (2022) and Kedward et al. (2023).

⁷ PCE, 2019a, 2023c.

In the first place, **afforestation could be used to mitigate some of the warming effects of agricultural methane emissions**. This could be fully commercial pine production forestry. The detailed reasoning in support of this proposition is set out at length in previous Parliamentary Commissioner for the Environment reports.⁸ Here, I will simply remind readers that, unlike carbon dioxide mitigation, a one-off forest planting is all that is needed to offset an ongoing flow of methane emissions. And that if, down the track, the decision is taken to exit livestock farming (and therefore reduce emissions), the trees can in due course be removed. The land's option value is not permanently locked up.

Rather than impose a levy on methane, a methane price could be more effectively imposed if the Government were to **create a separate NZ ETS to manage biogenic methane**. Unlike carbon dioxide, methane does not need to be eliminated – it needs to be dialled back. How much is a political decision to be taken in the context of our national contribution to climate mitigation, but whatever cap is imposed, access to it should be in the hands of the most efficient and productive emitters. Methane offsetting could in this way contribute to land use change – how much would depend on the national cap and the extent to which offsetting was permitted.

Another way to incentivise land use change and habitat protection would be to **commit some of the proceeds from fossil NZ ETS auctions to plant erosion-prone land in native forest**. If offsetting were phased out for fossil emissions, the carbon price would rise and with it the auction revenue raised by the Government. How these proceeds are spent is a political matter. But a case can be made that the rehabilitation and re-creation of habitat would be a worthy destination for some of these funds. After all, the deforestation of Aotearoa is the biggest single contribution humans on these islands have made to increasing the stock of carbon in the atmosphere.

The Government could direct funding to the catchments that are most threatened, and to Māori whose land use choices are most constrained. This would also help shore up highly erodible land as climate change increases the risk of extreme weather events. Having current-day emitters pay to restore some forest seems intuitively reasonable. Planting native trees is a much slower and more expensive way of sequestering carbon, but it is much better for ecological functioning if done well. I'll have more to say on natives and alternative species in a forthcoming report.

Rebalancing decision making

With climate policy refocused – and to some extent the incentives for habitat restoration improved – we are left with the other pressures; most importantly, those degrading water quality.

The difficulty of attributing environmental outcomes from land use at the property level has led to the proposal for all substantive farms to create farm freshwater plans. Depending on implementation, farm plans could be a promising way to encourage the take up of best practice. In particular, farm plans need to be based on good information. However, they are unlikely to encourage land use change. Where plans are ignored, councils can seek to enforce compliance. This is costly, and also means the focus of attention tends to be on the laggards rather than the leaders. The regulatory 'stick' approach alone will not achieve our environmental goals.

⁸ *Farms, forests and fossil fuels: The next great landscape transformation?* (PCE, 2019a); *How much forestry would be needed to offset warming from agricultural methane?* (PCE 2022b).

So there need to be some carrots to speed the process along. Economic incentives can be powerful, but property-level market-based mechanisms are limited to outcomes that are objectively measurable and require a revenue source to fund them. Catchments (or sub-catchments) are the level where the environmental impacts of land use are best understood, so it would make sense to offer incentives to those willing to work collectively at this level (especially in the most constrained catchments). This is only possible if we have institutions operating at the catchment level.

Social incentives such as peer pressure can be as powerful as financial ones, particularly if they grow out of grass-roots-based relationships and initiatives that are rooted in the community. Catchment groups are starting to play this role in many parts of New Zealand. The Mātaura case study revealed a large network in Southland that has been supported regionally. Catchment groups provide a vehicle for developing a shared understanding of the catchment context, and for willing farmers to learn from each other. The question is how catchment groups can be incentivised to play a larger and more proactive role. This in turn raises the role of regional councils. An example of how this is already working in communities (with some local nuances) is further explained in Box 5.1.

Box 5.1: Iwi leadership in catchment management

Rongomaiwahine Iwi Trust has taken on the responsibility to create catchment groups for the catchments in Māhia, Hawke's Bay, and developed a taiao plan for the whole peninsula. Terence Maru, mana whenua and CEO of the Trust, explains in the quote below that for these plans to be effective you have to mobilise and inspire the whole community, Māori and non-Māori alike:

“To do this we have to build real relationships and find common aspirations. We won't be popular with all farmers but if we can discuss what really matters on their farms, we will try and assist them and at the same time, also achieve good environmental outcomes.”⁹

The Trust plays a significant role in being the conduit between the community and councils, government departments, research institutes and funders. They have put in considerable effort to become a central repository for all environmental data available for Māhia. This information can be used to find solutions to some of their environmental issues, like erosion on steep land and alternative land-use options. Being a conduit works both ways, and this information is only used to inform landowners, not to enforce regulation. Most farms in Māhia are intergenerational, meaning farmers have an intimate knowledge of their land. Experimentation is common and many of the farmers will already know what might work for them on their land.

As Rongomaiwahine whakapapa to Māhia, they are committed to improving the environment and overall health and wellbeing of the community for today and for many generations to come. Taking the leadership in building relationships with external agencies that can provide support to the community is a natural fit.

⁹ Terence Maru, CEO of Rongomaiwahine Iwi Trust, pers. comm., February 2024.

Regional councils need to be the conduit between what happens on the ground, and how the centre understands overall progress. Unlike greenhouse gas emissions, water quality, climate adaptation and biodiversity protection are complex, catchment or sub-catchment specific problems. Since every catchment is different, implementation has to be joined up at a catchment level, and that cannot easily be done from the centre. Regional councils, with *mana whenua*, are best placed to coordinate the work needed, including identifying when implementation is not working and acting as a regulatory backstop.

With a bird's eye view of their catchments, regional councils should work with catchment groups to set the direction of travel in accordance with central government guidance (the *what*). Catchment groups are best placed to determine the on-the-ground actions needed to implement that direction of travel (the *how*). The regional councils' focus should be on supporting catchment groups to understand the problems and how best to solve them. Catchment groups should include *mana whenua* and any key elements of the local community who can help make things happen.

Farm plans could be made to dovetail with the work of catchment groups, provided the scope of plans is broadened from freshwater to encompass the Government's aspirations across climate change and biodiversity. Catchment groups should be able to focus farmers' attention on the key issues in that catchment, upskill them on ideal mitigation strategies and help them access funding for implementation. As a result, membership of a catchment group should make completing a farm plan easier for farmers. There may even be scope for reducing compliance costs for farmers through collective certification and auditing of farm plans at a catchment level.

Where catchment groups are established, **regional councils need to work with catchment groups and consider, where appropriate, devolving powers (and funding) to those groups.** A key element of any decision to hand some powers to catchment groups is how those groups would be held accountable. What decisions can be left to the catchment group? What regulatory powers stay with the regional council? And what happens if the catchment group fails to deliver?

Taking a relational approach could be useful in this context. A relational approach builds on strong relationships between the parties involved and would recognise the mutual reliance of regional councils and catchment groups in achieving environmental goals. Under this approach the degree of decision making that is devolved depends on the strength of the relationship and the capacity of the catchment group to deliver. A relational approach is a way of dealing with internal and external uncertainty and a way of making the most of shared goals and a desire to collaborate closely. Relational approaches share much in common with Ostrom's design principles (see Box 3.2), and inspired by that, I can see three elements that could make a rebalancing of decision making work in New Zealand:

- (1) **Shared goal and outcome setting.** Agreeing to the *what* (i.e. the desired environmental goals and outcomes) must be made clear from the outset. Central government needs to provide a framework for catchment groups and regional councils to collaborate and to ensure local self-interest does not take over. This framework may include information and process requirements and standards for environmental limits, and outcomes to be achieved. Within this framework, landowners, communities and *mana whenua* must ensure that the outcomes are realistic and achievable for their circumstances and specific contexts.

- (2) **Action and implementation.** The *how* is led and driven by landowners, local communities and mana whenua. Local people hold important relationships, knowledge and skills and have skin in the game. If they can be persuaded to buy into a problem, they will often be able to solve it with more agility, innovation and durability than when solutions are handed down from above. Regional councils and central government can provide support in the form of information, research, and access to experts, tools and resources (ideally with central government providing financial, scientific and technical support). It is useful if actions and implementations are based on a set of shared principles or values, which can reduce the scope for conflict among stakeholders.
- (3) **Monitoring, compliance and sanctions.** These three interrelated tasks pertain primarily to central government and regional councils to ensure that the shared goals and outcomes are being worked towards as agreed. Regulatory attention should primarily be focused on those that are unwilling to take part in collaborative catchment processes. Any problems with the collaborative process itself need to be flagged early, and it is therefore crucial to have processes in place for communication, negotiation and resolution of conflicts. Ideally, issues will be sorted out within the catchment groups themselves with regional and central government intervention as a last resort.

Central government has additional vital roles to play.

Everyone – regulators and regulated alike – need cheap, easy access to high-quality environmental information. This is a public good that isn't easily provided by individuals acting alone. Catchment groups (and individual farmers) need to be able to model the impact of different actions and be easily able to identify areas where land use change will yield higher than average benefits. The quid pro quo is that in return, landowners and catchment groups need to be prepared to share the details of their practices and resource use.¹⁰ Monitoring and auditing has to generate information that can tell us, collectively, if we are making a difference at the level of the catchment, rather than just become an inventory of farm-level box ticking.

Central government should make all this information accessible and underwrite it as a public good. Farmers and regional councils should be able to access the same information free of charge. Rolling out farm plans nationwide is an ambitious undertaking that will founder if they rely on expensive access to inadequate data. We seem to be dazzled by physical infrastructures and their multi-billion-dollar price tags. Information is a piece of weightless infrastructure that is orders of magnitude cheaper and likely to yield both economic and environmental benefits that cannot be captured by individual parties.

¹⁰ Provided it is anonymised and they have some control over who accesses it and how it is used.

Removing barriers to land use change, especially water

Central government needs to finance and remove the barriers to land use change. One key barrier to land use change is access to water. Where water is scarce, rights to use it should be transferable. Scarcity creates value, and that value is currently capitalised in the value of land to which use rights attach. This confers first-in-time privileges and locks in existing uses.

The development of tradable water rights should be investigated. That would simultaneously require a resolution of Māori interests in water. That is not something the country should fear. A wise agreement between Māori and the Crown could provide both parties with the means to invest in improving water quality (with flow-on benefits ranging from spiritual values to opportunities for mahinga kai) by paying for ecosystem services. Resource rentals are a sound means of ensuring that scarce resources are used wisely. If that proved impossible, something along the lines of the land use intensity tax described in chapter four could be considered. But one way or another, water needs to be used more efficiently and the financial resources to effect changes in the way we use land need to be mobilised. It will not happen for free.

Planning restrictions that unnecessarily hinder land use change should also be investigated.

Prioritising and experimenting

Effort and money need to be focused on the catchments or sub-catchments where the pressures are greatest and where the biggest changes are required. This is unlikely to be achieved by decree. From both a national and a regional perspective, we need to make progress where we are most at risk rather than advance incrementally everywhere at the pace of the slowest traveller.

The Government should take an experimental approach. Committing to provide high-quality, freely available land and water information to all land users should be universal. But without discarding the progress that has been made through successive iterations of the National Policy Statement for Freshwater Management, the focus beyond that should be on a small number of particularly difficult catchments. These have been identified (see chapter two) and are unlikely to be brought in line through incremental regulatory tweaks. An investment in information, catchments groups and some of the allocation mechanisms discussed above should be trialled. They will almost certainly not work perfectly – there has to be learning by doing. But taking that approach ensures that we are focused squarely on implementation rather than aspiration.

A final word

Whatever the resourcing required to effect change, it can only be attempted by working very closely with land users, who are already contributing and will have to contribute more. This is where effective catchment groups that can take real decisions become important. Their detailed local knowledge can make the best use of fine-grained land information to channel investments to the parts of the landscape that will make the most difference.

No government will have ready answers to the many questions posed here. That is not to be expected. But equally, no government should avoid asking the hard questions. If the answers prove too hard to implement, then so be it. But at least we would have been honest about why environmental decline continues.

I am optimistic that know-how on the ground, research into new techniques and new land uses, and a massive improvement in our ability to manipulate land-based information could improve environmental performance. I am less optimistic about the capacity of our institutions to deliver the sort of socially and economically informed understandings we need to address our problems. But I am very happy to be proved wrong.

5 A way forward

70



References

Awatere, S., Warmenhoven, T., Pohatu, P., Daigneault, A., Monge, J., Dowling, L., Harrison, D. and Marden, M., 2018. Climate resilient Māori land. Hamilton: Manaaki Whenua – Landcare Research.

Barth, M., Zionts, J., Cain, M. and Allen, M., 2023. Agriculture emissions and warming in Aotearoa New Zealand to 2050: Insights from the science. Beef + Lamb NZ, Dairy NZ, Federated Farmers.

Beef + Lamb New Zealand (B+LNZ), 2023. New report shows cumulative impact of Government policies detrimental to NZ sheep and beef farmers and the environment. <https://beeflambnz.com/news/new-report-shows-cumulative-impact-government-policies-detrimental-nz-sheep-and-beef-farmers> [accessed 23 January 2024].

Benson, M., McKay, A.-M., Ruru, M., Ruru, R. and Ruru, I., 2020. Te Rūnanga o Ngāti Mutunga: Mauri Compass Assessment of the Urenui River and the Mimitangiātua River. Prepared for Te Wai Māori Trust by Te Rūnanga o Ngāti Mutunga. Urenui, New Zealand.

Biden, J., 2023. Economic Report of the President. Washington, DC: United States Government Publishing Office.

Biological Emissions Reference Group (BERG), 2018. Report of the Biological Emissions Reference Group (BERG). Wellington: BERG.

Bognar, J., Springer, K., Nesbit, M., Nadeu, E., Hiller, N., van Dijk, R., Lam, L., Forestier, O., Finesso, A., Bolscher, H., Jakob, M., Tarpey, J., McDonald, H., Zakkor, P., Heller, C., Görlach, B., Scheid, A. and Tremblay, L., 2023. Pricing agricultural emissions and rewarding climate action in the agri-food value chain. Rotterdam: Trinomics.

Booker, D., 2016. Definition and calculation of freshwater quantity over-allocation. Prepared for Ministry for the Environment. Ruakākā: National Institute of Water & Atmospheric Research Ltd.

Borg, C., 2020. We can expect more dam removals in Sweden in the next decade. Dam Removal Europe. <https://damremoval.eu/we-can-expect-more-dam-removals-in-sweden-in-the-next-decade/> [accessed 6 March 2024].

Brandt, A.J., Bellingham, P.J., Duncan, R.P., Etherington, T.R., Fridley, J.D., Howell, C.J., Hulme, P.E., Jo, I., McGlone, M.S., Richardson, S.J., Sullivan, J.J., Williams, P.A. and Peltzer, D.A., 2021. Naturalised plants transform the composition and function of the New Zealand flora. *Biological Invasions* 23(2): 351–366.

Brenton-Rule, C., Marshall, T., Rau, C., Saheed, R. and Treadaway, L., 2019. Tax Guide to Farming, Forestry and Fishing. 3rd ed. Takapuna: Wolters Kluwer.

References

72

- Carbon News, 2023. NZ climate-related disasters hit record high in 2023. 19 October 2023. <https://www.carbonnews.co.nz/story.asp?storyID=29052&src=newsletter>
- Community Law, 2024. Taonga Māori. <https://communitylaw.org.nz/community-law-manual/test/overview-and-key-terms/> [accessed 17 January 2024].
- Corong, E., Hensen, M. and Journeaux, P., 2014. Value of irrigation in New Zealand: An economy-wide assessment. Wellington: NZIER.
- Craig, H., Wild, A. and Paulik, R., 2023. Dairy farming exposure and impacts from coastal flooding and sea level rise in Aotearoa-New Zealand. *International Journal of Disaster Risk Reduction* 98: 104079.
- Craven, B., Goldingham-Newsom, J. and Hartwich, O., 2019. #localismNZ: Bringing power to the people. Wellington: The New Zealand Initiative.
- Cullenward, D., 2023. Mortgaging the atmosphere: Why temporary carbon storage is risky and cannot replace emission reductions. Carbon Market Watch. <https://carbonmarketwatch.org/publications/mortgaging-the-atmosphere-why-temporary-carbon-storage-is-risky-and-cannot-replace-emission-reductions/> [accessed 6 March 2024].
- DairyNZ, 2022. Economic Survey 2020–21. Hamilton: DairyNZ. <https://connect.dairynz.co.nz/content/22334e05-52ea-4763-abba-80898ee3017e/> [accessed 17 December 2023].
- Dickie, B. and Keenan, B., 2023. Replacing the RMA – Implications for local government from any future review of the RMA. *Resource Management Journal* (November): 4–9.
- Environment Southland, 2022. Farm Debt, Farm Viability and Freshwater Management in Pastoral Southland: A Report from the Farm Debt Working Group. Invercargill: Environment Southland.
- Expert Working Group on Managed Retreat (EWGMR), 2023. Report of the Expert Working Group on Managed Retreat: A Proposed System for Te Hekenga Rauora/Planned Relocation. Wellington: EWGMR.
- Food and Agriculture Organization of the United Nations (FAO), 2023. The State of Food and Agriculture 2023: Revealing the true cost of food to transform agrifood systems. Rome: FAO.
- Garner, G.O., 2020. The value of fresh water rights in New Zealand: Considerations for property valuers and other related professions. Review prepared for the Valuer's Education & Integrity Foundation. Canterbury: Valuer's Education & Integrity Foundation.
- Giri, S. and Qiu, Z., 2016. Understanding the relationship of land uses and water quality in Twenty First Century: A review. *Journal of Environmental Management* 173: 41–48.
- Greenhalgh, S. and Morgan, F., 2021. Moving the middle. Manaaki Whenua – Landcare Research. <https://www.landcareresearch.co.nz/discover-our-research/environment/sustainable-society-and-policy/moving-the-middle/> [accessed 18 January 2024].
- Greig, B., Nuthall, P. and Old, K., 2018. The reality of net capital gains and annual profit on NZ primary producing businesses: data from a recent survey of all farm types. *Kōtuitui: New Zealand Journal of Social Sciences Online* 13(2): 261–270.
- Grimes, A. and Aitken, A., 2008. Water, Water Somewhere: The Value of Water in a Drought-Prone Farming Region. Motu Working Paper 08-10. Wellington: Motu Economic and Public Policy Research.
- Hall, D., 2018. The Interwoven World – Te Ao i Whiria: Toward an Integrated Landscape Approach in Aotearoa New Zealand. Auckland: The Policy Observatory, Auckland University of Technology.

- Hall, D., 2022. Adaptation Finance: Risks and Opportunities for Aotearoa New Zealand. Concept paper prepared for the Ministry for the Environment. Auckland: Mōhio Research and AUT.
- Hall, D. and Lindsay, S., 2021. Scaling Climate Finance: Biodiversity Instruments. Auckland: Mōhio Research.
- Harnett, M., 2019. Myth conceptions: Are planted forests really the Devil? *New Zealand Tree Grower* (May 2019): 17–21. https://www.scionresearch.com/__data/assets/pdf_file/0004/66136/TreeGrowerScionArticleMay2019.pdf
- Harrison, E. and Bruce, H., 2019. Case Study: Socio-economic impacts of large-scale afforestation on rural communities in the Wairoa District. Report for Beef and Lamb NZ. Masterton: BakerAg.
- He Pou a Rangi Climate Change Commission (CCC), 2023. 2023 Advice on the direction of policy for the Government's second emissions reduction plan. Wellington: He Pou a Rangi Climate Change Commission.
- Heifetz, R.A. and Laurie, D.L., 1997. The work of leadership. *Harvard Business Review* 75(1): 124–137.
- Jägermeyr, J., Müller, C., Ruane, A.C., Elliott, J., Balkovic, J., Castillo, O., Faye, B., Foster, I., Folberth, C., Franke, J.A., Fuchs, K., Guarin, J.R., Heinke, J., Hoogenboom, G., Iizumi, T., Jain, A.K., Kelly, D., Khabarov, N., Lange, S., Lin, T.-S., Liu, W., Mialyk, O., Minoli, S., Moyer, E.J., Okada, M., Phillips, M., Porter, C., Rabin, S.S., Scheer, C., Schneider, J.M., Schyns, J.F., Skalsky, R., Smerald, A., Stella, T., Stephens, H., Webber, H., Zabel, F. and Rosenzweig, C., 2021. Climate impacts on global agriculture emerge earlier in new generation of climate and crop models. *Nature Food* 2: 873–885.
- Journeaux, P., van Reenen, E., Manjala, T., Pike, S., Hanmore, I. and Millar, S., 2017. Analysis of drivers and barriers to land use change. A report prepared for the Ministry for Primary Industries. Hamilton: AgFirst.
- Just Transitions Aotearoa Group, 2023. A guide to just transitions for communities in Aotearoa New Zealand: He puka arataki whakawhitinga tika mō ngā hāpori i Aotearoa. Wellington: Just Transitions Aotearoa Group.
- Kahui, V. and Richards, A.C., 2014. Lessons from resource management by indigenous Maori in New Zealand: Governing the ecosystems as a commons. *Ecological Economics*, 102: 1–7.
- Kaipara District Council (KDC), no date. Kaipara District Plan: A guide to subdivision in the rural zone. <https://www.kaipara.govt.nz/uploads/documents/r/Fact%20Sheet%20%20-%20Subdivision%20Rural.pdf> [accessed 6 March 2024].
- Kedward, K., zu Ermgassen, S., Ryan-Collins, J. and Wunder, S., 2023. Heavy reliance on private finance alone will not deliver conservation goals. *Nature Ecology & Evolution* 7: 1339–1342.
- Land and Water Forum (LAWF), 2012. Third Report of the Land and Water Forum: Managing Water Quality and Allocating Water. Wellington: LAWF.
- Macintosh, K.A., Mayer, B.K., McDowell, R.W., Powers, S.M., Baker, L.A., Boyer, T.H. and Rittmann, B.E., 2018. Managing Diffuse Phosphorus at the Source versus at the Sink. *Environmental Science & Technology* 52(21): 11995–12009.
- Manaaki Whenua – Landcare Research, 2023. Survey of Rural Decision Makers 2023. <https://www.landcareresearch.co.nz/discover-our-research/environment/sustainable-society-and-policy/survey-of-rural-decision-makers/srdm-2023/> [accessed 21 February 2024].

References

74

- McDowell, R.W., 2014. Estimating the mitigation of anthropogenic loss of phosphorus in New Zealand grassland catchments. *Science of the Total Environment* 468–469: 1178–1186.
- McDowell, R.W., Herzig, A., van der Weerden, T.J., Cleghorn, C. and Kaye-Blake, W., 2024. Growing for good: producing a healthy, low greenhouse gas and water quality footprint diet in Aotearoa, New Zealand. *Journal of the Royal Society of New Zealand*: 1–25.
- McDowell, R.W. and Kaye-Blake, W., 2023. Viewpoint: Act local, effect global: Integrating farm plans to solve water quality and climate change problems. *Land Use Policy* 129(106670).
- McDowell, R.W., Monaghan, R.M., Smith, C., Manderson, A., Basher, L., Burger, D.F., Laurenson, S., Pletnyakov, P., Spiekermann, R. and Depree, C., 2021. Quantifying contaminant losses to water from pastoral land uses in New Zealand III. What could be achieved by 2035? *New Zealand Journal of Agricultural Research* 64(3): 390–410.
- McDowell, R.W., Noble, A., Kittridge, M., Ausseil, O., Doscher, C. and Hamilton, D.P., 2024. Monitoring to detect changes in water quality to meet policy objectives. *Scientific Reports* 14(1): 1914.
- McDowell, R.W., Snelder, T., Cox, N., Booker, D.J. and Wilcock, R., 2013. Establishment of reference or baseline conditions of chemical indicators in New Zealand streams and rivers relative to present conditions. *Marine and Freshwater Research* 64: 387–400.
- McDowell, R.W., Snelder, T., Harris, S., Lilburne, L., Larned, S.T., Scarsbrook, M., Curtis, A., Holgate, B., Phillips, J. and Taylor, K., 2018. The land use suitability concept: Introduction and an application of the concept to inform sustainable productivity within environmental constraints. *Ecological Indicators* 91: 212–219.
- Milne, J. and Luttrell, J., 2020. Regulatory barriers to uptake of farm-scale diffuse pollution mitigation measures: An assessment of Regional Plan requirements and regional council incentives. NIWA Client Report 201913HN prepared for DairyNZ and MBIE. Wellington: National Institute of Water & Atmospheric Research Ltd.
- Ministerial Inquiry into Land Use (MILU), 2023. Outrage to optimism. Report of the Ministerial Inquiry into land uses associated with the mobilisation of woody debris (including forestry slash) and sediment in Tairāwhiti/Gisborne District and Wairoa District. Ministerial Inquiry into Land Uses in Tairāwhiti and Wairoa.
- Ministry for the Environment (MfE), 2022. *Urutau, ka taurikura: Kia tū pakari a Aotearoa i ngā huringa āhuarangi. Adapt and thrive: Building a climate-resilient New Zealand. Aotearoa New Zealand's first national adaptation plan.* Wellington: MfE.
- Ministry for the Environment (MfE), 2023a. *He rīpoata akoranga mō ngā roto o Ōtūwharekai-Ashburton. Ōtūwharekai-Ashburton Lakes lessons-learned report.* Wellington: MfE.
- Ministry for the Environment (MfE), 2023b. *Proposed National Policy Statement for Natural Hazard Decision-making.* Wellington: MfE.
- Ministry for the Environment (MfE), 2024. *National Policy Statement for Freshwater Management 2020 [amended January 2024].* Wellington: MfE.
- Ministry for the Environment (MfE) and Ministry for Primary Industries (MPI), 2020a. *Te Mana o te Wai factsheet.* Wellington: MfE and MPI.
- Ministry for the Environment (MfE) and Ministry for Primary Industries (MPI), 2020b. *Measuring and reporting of water takes factsheet.* Wellington: MfE.

Ministry for the Environment (MfE) and Ministry for Primary Industries (MPI), 2022. Te tātai utu o ngā tukunga ahuhenua. Pricing agricultural emissions: Report under section 215 of the Climate Change Response Act 2002. Wellington: MfE.

Ministry for the Environment (MfE) and Stats NZ, 2023. New Zealand's Environmental Reporting Series: Our atmosphere and climate 2023. Wellington: MfE and Stats NZ.

Ministry of Business, Innovation and Employment (MBIE), 2023. Mandatory climate-related disclosures. <https://www.mbie.govt.nz/business-and-employment/business/regulating-entities/mandatory-climate-related-disclosures/> [accessed 17 January 2024].

Ministry of Finance, 2022. Increased resource rent tax on hydropower. <https://www.regjeringen.no/en/aktuelt/increased-resource-rent-tax-on-hydropower/id2929115/> [accessed 21 February 2024].

Miraka, 2021. Kaitiakitanga. <https://www.miraka.co.nz/kaitiakitanga> [accessed 6 March 2024].

Morris, S. and Lowe, H., 2024. Healthy waterways vs the avoidance of climate change – both, neither or somewhere in the middle? The conundrum [Paper presentation]. 36th Annual FLRC Workshop – Opportunities for Improved Farm and Catchment Outcomes, 13–15 February, Palmerston North.

Nestlé, 2023. Accelerate, Transform, Regenerate: Nestlé's Net Zero Roadmap. Vevey: Nestlé.

New Zealand National Party and ACT New Zealand, 2023. Coalition agreement: New Zealand National Party & ACT New Zealand. Wellington: New Zealand Parliament.

New Zealand National Party and New Zealand First, 2023. Coalition Agreement New Zealand National Party & New Zealand First. Wellington: New Zealand Parliament.

New Zealand Productivity Commission (NZPC), 2020. The Dairy Sector in New Zealand: Extending the Boundaries. Wellington: NZPC.

New Zealand Productivity Commission (NZPC), 2021. New Zealand firms: Reaching for the frontier. Wellington: NZPC.

Office of the Minister for the Environment and Office of the Minister of Forestry (2023). Cabinet Paper: Government response to the Ministerial Inquiry into Land Use in Tairāwhiti/Gisborne and Wairoa. Wellington: Office of the Minister for the Environment and Office of the Minister of Forestry. <https://environment.govt.nz/assets/publications/Government-response-to-the-MILU-in-Tairawhiti-Gisborne-and-Wai-Redacted.pdf> [accessed 5 April 2024].

Organisation for Economic Co-operation and Development (OECD), 2024. Environmentally related tax revenue. <https://stats.oecd.org/Index.aspx?DataSetCode=ERTR> [accessed 22 February 2024].

Ostrom, E., 1990. Governing the Commons: The Evolution of Institutions for Collective Action. Cambridge: Cambridge University Press.

Our Land and Water (OLW), 2023. Land Use Opportunities: Whitiwhiti Ora. <https://ourlandandwater.nz/project/land-use-opportunities/> [accessed 2 June 2023].

Parininihi ki Waitōtara, 2016. He Tangata He Whenua He Oranga – Sustaining and Growing Our People Through Prosperity. <https://pkw.co.nz/> [accessed 6 March 2024].

Parliamentary Commissioner for the Environment (PCE), 2004. Growing for Good: Intensive farming, sustainability and New Zealand's environment. Wellington: PCE.

Parliamentary Commissioner for the Environment (PCE), 2013. Water quality in New Zealand: Land use and nutrient pollution. Wellington: PCE.

References

76

- Parliamentary Commissioner for the Environment (PCE), 2015. Update Report. Water quality in New Zealand: Land use and nutrient pollution. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE), 2018. Overseer and regulatory oversight: Models, uncertainty and cleaning up our waterways. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE), 2019a. Farms, forests and fossil fuels: The next great landscape transformation? Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE), 2019b. Focusing Aotearoa New Zealand's environmental reporting system. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE), 2020. A review of the funding and prioritisation of environmental research in New Zealand. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE), 2022a. Environmental reporting, research and investment: Do we know if we're making a difference? Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE), 2022b. How much forestry would be needed to offset warming from agricultural methane? Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE), 2023a. Some observations from the Parliamentary Commissioner for the Environment [PowerPoint presentation]. New Zealand Agricultural Climate Change Conference, 1 March, Wellington. <https://pce.parliament.nz/our-work/news/address-at-the-new-zealand-agricultural-climate-change-conference-2023/> [accessed 7 March 2024].
- Parliamentary Commissioner for the Environment (PCE), 2023b. Submission on: Helping nature and people thrive: Exploring a biodiversity credit system for Aotearoa New Zealand. To: The Ministry for the Environment and Department of Conservation. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE), 2023c. Submission on: Review of the New Zealand Emissions Trading Scheme Consultation and Redesign of New Zealand Emissions Trading Scheme Permanent Forest Category Consultation. To: Ministry for the Environment and Ministry for Primary Industries. Wellington: PCE.
- Parliamentary Commissioner for the Environment (PCE), 2024. Exploring land use change under different policy settings in two case study catchments. Wellington: PCE.
- Phillips, C.B., Johnson, P.L., Tomasetto, F., McRae, K. and van der Weerden, T.J., 2023. Predicting facial eczema risks in a changing New Zealand climate. *Journal of New Zealand Grasslands* 85: 61–71.
- Rainforth, H. and Harmsworth, G., 2019. Kaupapa Māori Freshwater Assessments: A summary of iwi and hapū-based tools, frameworks and methods for assessing freshwater environments. Taupō: Perception Planning Ltd.
- Reisinger, A., and Leahy, S., 2019. Scientific aspects of New Zealand's 2050 emission targets: A note on scientific and technical issues related to the Zero Carbon Bill. Palmerston North: New Zealand Agricultural Greenhouse Gas Research Centre.
- Rennie, R., 2023. NZ retailers heed consumers' greener expectations. *Farmers Weekly*, 28 July 2023. <https://www.farmersweekly.co.nz/markets/nz-retailers-heed-consumers-greener-expectations/> [accessed 7 March 2024].
- Rutledge, D.T., Ausseil, A.-G.E., Baisden, W.T., Bodeker, G., Booker, D., Cameron, M.P., Collins, D.B.G., Daignaeult, A., Fernandez, M., Frame, B., Keller, E., Kremser, S., Kirschbaum, M.U.F., Lewis, J., Mullan, B., Reisinger, A., Sood, A., Stuart, S., Tait, A., Teixeira, E., Timar, L. and Zammit, C.,

2017. Identifying Feedbacks, Understanding Cumulative Impacts and Recognising Limits: A National Integrated Assessment. Synthesis Report RA3. Climate Changes, Impacts and Implications for New Zealand to 2100. Wellington: MBIE contract C01X122.

Science Based Targets Network (SBTN) Freshwater Hub, 2024. Corporate water stewardship and science-based targets for freshwater. <https://sciencebasedtargetsnetwork.org/wp-content/uploads/Corporate-water-stewardship-and-science-based-targets.pdf> [accessed 5 March 2024].

Sinner, J., Robb, C., Kilvington, M., Tane, P., Tadaki, M. and Challies, E., 2023. Where next for catchment groups? Lifting ambition and gearing up for the long game. Prepared for Our Land and Water National Science Challenge. Cawthron Report No. 3881.

Snelder, T., Lilburne, L., Booker, D., Whitehead, A., Harris, S., Larned, S., Semadeni-Davies, A., Plew, D. and McDowell, R., 2023. Land-use Suitability is Not an Intrinsic Property of a Land Parcel. *Environmental Management* 71(5): 981–997.

Snelder, T., Smith, H., Plew, D. and Fraser, C., 2023. Nitrogen, phosphorus, sediment and *Escherichia coli* in New Zealand's aquatic receiving environments: Comparison of current state to national bottom lines. Lyttleton: LWP Ltd.

Stahlmann-Brown, P., 2023. Survey of Rural Decision Makers 2023: Key Results Sheet One – Rural Regulation. Manaaki Whenua – Landcare Research.

Stats NZ, 2015. Predicted pre-human vegetation. <https://www.stats.govt.nz/indicators/predicted-pre-human-vegetation> [accessed 17 January 2024].

Stats NZ, 2017. Cultural health index for freshwater bodies. <https://www.stats.govt.nz/indicators/cultural-health-index-for-freshwater-bodies/> [accessed 17 January 2024].

Stats NZ, 2018. Wetland extent – published April 2018. <https://www.stats.govt.nz/indicators/wetland-extent/> [accessed 17 January 2024].

Stats NZ, 2020. Groundwater quality. <https://www.stats.govt.nz/indicators/groundwater-quality> [accessed 17 January 2024].

Stats NZ, 2021a. Agricultural and horticultural land use. <https://www.stats.govt.nz/indicators/agricultural-and-horticultural-land-use> [accessed 17 January 2024].

Stats NZ, 2021b. Indigenous land cover. <https://www.stats.govt.nz/indicators/indigenous-land-cover> [accessed 17 January 2024].

Stats NZ, 2021c. Wetland area. <https://www.stats.govt.nz/indicators/wetland-area> [accessed 17 January 2024].

Stats NZ, 2022a. River water quality: clarity and turbidity. <https://www.stats.govt.nz/indicators/river-water-quality-clarity-and-turbidity> [accessed 17 January 2024].

Stats NZ, 2022b. River water quality: *Escherichia coli*. <https://www.stats.govt.nz/indicators/river-water-quality-escherichia-coli> [accessed 17 January 2024].

Stats NZ, 2022c. River water quality: macroinvertebrate community index. <https://www.stats.govt.nz/indicators/river-water-quality-macroinvertebrate-community-index> [accessed 17 January 2024].

Stats NZ, 2022d. River water quality: nitrogen. <https://www.stats.govt.nz/indicators/river-water-quality-nitrogen> [accessed 17 January 2024].

References

78

Stats NZ, 2022e. River water quality: phosphorus. <https://www.stats.govt.nz/indicators/river-water-quality-phosphorus> [accessed 17 January 2023].

Stats NZ, 2023a. Drought. <https://www.stats.govt.nz/indicators/drought> [accessed 17 January 2024].

Stats NZ, 2023b. Extinction threat to indigenous species. <https://www.stats.govt.nz/indicators/extinction-threat-to-indigenous-species/> [accessed 17 January 2024].

Stats NZ, 2023c. Frost and growing degree days. <https://www.stats.govt.nz/indicators/frost-and-growing-degree-days/> [accessed 17 January 2024].

Stats NZ, 2024a. Imports and Exports: Exports Summary Data – EXP: Value of Exports & re-exp – by country – fob – Groups by Present Day Membership (Annual-Jun). China, People’s Republic of – 2004-2023. <https://infoshare.stats.govt.nz/> [accessed 31 January 2024].

Stats NZ, 2024b. Imports and Exports: Imports Summary Data – IMP: Value of imports – by country of origin & Groups by Present Day Membership (Annual-Jun). China, People’s Republic of – CIF – 2004-2023. <https://infoshare.stats.govt.nz/> [accessed 31 January 2024].

Sustainable Kaipara, 2022. Mānawatia a Matariki! <https://sustainablekaipara.org/manawatia-a-matariki/> [accessed 17 January 2023].

Taskforce on Nature-related Financial Disclosures (TNFD), 2023. [TNFD website home page]. <https://tnfd.global/> [accessed 17 January 2024].

Tax Working Group, 2019. Future of Tax: Final Report Volume 1 – Recommendations. Wellington: Tax Working Group.

Te Puni Kōkiri (TPK), 2023a. Whenua Māori Fund. <https://www.tpk.govt.nz/en/nga-putea-me-ngararonga/whenua-maori/whenua-maori-fund> [accessed 23 June 2023].

Te Puni Kōkiri (TPK), 2023b. Whenua Māori Service: Whānau development through whenua. Wellington: TPK.

Tesco UK, 2023. Climate Change. <https://www.tescopl.com/sustainability/planet/climate-change/> [accessed 17 January 2024].

Thomas, A., Bond, S., Diprose, G. and McGregor, A., 2020. More water: The rise of a singular vision for rural development. *New Zealand Geographer* 76(2): 106–116.

The Treasury, 2023. Budget 2023 Data from the Estimates of Appropriations 2023/24. <https://2023.budget.govt.nz/budget/2023/estimates/data.htm> [accessed 6 March 2024].

Trust for Nature, 2017. Trust for Nature: Revolving Fund. <https://trustfornature.org.au/what-we-do/revolving-fund> [accessed 17 January 2024].

Uys, G., 2023. Tesco’s warning to New Zealand farmers. 19 December 2023. <https://www.stuff.co.nz/business/farming/130784599/tescos-warning-to-new-zealand-farmers> [accessed 8 March 2024].

Waikato River Authority, 2016. Report Card: The Waikato and Waipā River. <https://waikatoriver.org.nz/wra-report-card/> [accessed 18 January 2024].

Wannan, O., 2023. Fonterra pledges to make milk production 30% greener by 2030. 9 November 2023. <https://www.stuff.co.nz/environment/climate-news/133258547/fonterra-pledges-to-make-milk-production-30-greener-by-2030> [accessed 8 March 2024].

This report has been produced pursuant to subsections 16(1)(a) to (c) of the Environment Act 1986. The Parliamentary Commissioner for the Environment is an independent Officer of Parliament, with functions and powers set out in the Environment Act 1986. His role allows an opportunity to provide Members of Parliament with independent advice in their consideration of matters that may have impacts on the environment.

This document may be copied provided that the source is acknowledged. This report and other publications by the Parliamentary Commissioner for the Environment are available at pce.parliament.nz.

**Parliamentary Commissioner for the Environment
Te Kaitiaki Taiao a Te Whare Pāremata**

PO Box 10 241
Wellington 6140
Aotearoa New Zealand

Phone +64 4 495 8350
Email pce@pce.parliament.nz
Web pce.parliament.nz

May 2024

ISBN

978-0-947517-44-1 (print)
978-0-947517-45-8 (electronic)





Whakataka te hau

Karakia to open and close meetings

Whakataka te hau ki te uru	Cease the winds from the west
Whakataka te hau ki te tonga	Cease the winds from the south
Kia mākinakina ki uta	Let the breeze blow over the land
Kia mātaratara ki tai	Let the breeze blow over the ocean
Kia hī ake ana te atakura	Let the red-tipped dawn come with a sharpened air
He tio, he huka, he hauhu	A touch of frost, a promise of glorious day
Tūturu o whiti whakamaui kia tina.	Let there be certainty
Tina!	Secure it!
Hui ē! Tāiki ē!	Draw together! Affirm!

Nau mai e ngā hua

Karakia for kai

Nau mai e ngā hua	Welcome the gifts of food
o te wao	from the sacred forests
o te ngakina	from the cultivated gardens
o te wai tai	from the sea
o te wai Māori	from the fresh waters
Nā Tāne	The food of Tāne
Nā Rongo	of Rongo
Nā Tangaroa	of Tangaroa
Nā Maru	of Maru
Ko Ranginui e tū iho nei	I acknowledge Ranginui above and Papatūānuku
Ko Papatūānuku e takoto ake nei	below
Tūturu o whiti whakamaui kia	Let there be certainty
tina	Secure it!
Tina! Hui e! Taiki e!	Draw together! Affirm!

AGENDA AUTHORISATION

Agenda for the Policy and Planning Committee meeting held on Tuesday 23 July 2024

Confirmed:



15 Jul, 2024 9:05:19 AM GMT+12

A D McLay

Director Resource Management

Approved:



15 Jul, 2024 7:56:02 PM GMT+12

S J Ruru

Chief Executive