



# AGENDA

## Policy & Planning

Tuesday 13 October 2020, 10.30am



# Policy and Planning Committee

13 October 2020 10:30 AM - 12:00 PM

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### **Purpose of Policy and Planning Committee meeting**

This committee attends to all matters of resource management, biosecurity and related environment policy.

### **Responsibilities**

Prepare and review regional policy statements, plans and strategies and convene as a Hearing Committee as and when required for the hearing of submissions.

Monitor plan and policy implementation.

Develop biosecurity policy.

Advocate, as appropriate, for the Taranaki region.

Other policy initiatives.

Endorse submissions prepared in response to the policy initiatives of organisations.

### **Membership of Policy and Planning Committee**

Councillor C L Littlewood (Chairperson)	Councillor N W Walker (Deputy Chairperson)
Councillor M G Davey	Councillor M J McDonald
Councillor D H McIntyre	Councillor C S Williamson
Councillor E D Van Der Leden	Councillor D N MacLeod (ex officio)
Councillor M P Joyce (ex officio)	
<b>Representative Members</b>	
Councillor C Young (STDC)	Councillor S Hitchcock (NPDC)
Councillor G Boyde (SDC)	Mr P Moeahu (Iwi Representative)
Ms B Bigham (Iwi Representative)	Ms L Tester (Iwi Representative)

### **Health and Safety Message**

#### **Emergency Procedure**

In the event of an emergency, please exit through the emergency door in the committee room by the kitchen.

If you require assistance to exit please see a staff member.

Once you reach the bottom of the stairs make your way to the assembly point at the birdcage. Staff will guide you to an alternative route if necessary.

#### **Earthquake**

If there is an earthquake - drop, cover and hold where possible.

Please remain where you are until further instruction is given.



**Date** 13 October 2020

**Subject:** **Confirmation of Minutes - 1 September 2020**

**Approved by:** A D McLay, Director - Resource Management

S J Ruru, Chief Executive

**Document:** 2602692

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### **Resolves**

That the Policy and Planning Committee of the 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 1 September at 10.30am
- b) notes the recommendations therein were adopted by the Taranaki Regional Council on Tuesday 22 September 2020.

### **Matters arising**

### **Appendices/Attachments**

Document 2577480: Minutes Policy and Planning Committee Meeting - 1 September 2020



**Date** 1 September 2020, 10.30am  
**Venue:** Taranaki Regional Council chambers, 47 Cloten Road, Stratford  
**Document:** 2577480

<b>Members</b>	Councillors	C L Littlewood N W Walker M G Davey D H McIntyre E D Van Der Leden C S Williamson D N MacLeod	Committee Chairperson Committee Deputy Chairperson  <i>Via Zoom</i> <i>Via Zoom</i> ex officio
<b>Representative Members</b>	Councillors	C Young S Hitchcock G Boyde	South Taranaki District Council New Plymouth District Council ( <i>via zoom</i> ) Stratford District Council
	Mr	P Moeahu	Iwi Representative
	Ms	L Tester	Iwi Representative
	Ms	B Bigham	Iwi Representative
<b>Attending</b>	Councillor	D L Lean	
	Messrs	M J Nield S Ruru A D McLay G K Bedford C Spurdle S Ellis S Tamarapa P Ledingham	Acting Chief Executive  Director - Resource Management Director - Environment Quality Planning Manager Environment Services Manager ( <i>part meeting</i> ) Iwi Communications Officer Communications Adviser
	Ms	K Holland	Communications Adviser
	Ms	J Mack	Administration Manager
	Miss	L Davidson	Committee Administrator
	Mr	K Holswich	
		One member of the public and one member of the media, Taranaki Daily News.	

**Apologies** Apologies were received from Councillors M P Joyce and M J McDonald.

**Notification of Late Items** There were no late items.

## 1. Confirmation of Minutes – 21 July 2020

### Resolved

That the Policy and Planning Committee of the Taranaki Regional Council:

- a) takes as read and confirms the minutes of the Policy and Planning Committee of the Taranaki Regional Council held in the Taranaki Regional Council chambers, 47 Cloten Road, Stratford on Tuesday 21 July 2020 at 10.40am
- b) notes the recommendations therein were adopted by the Taranaki Regional Council on Tuesday 11 August 2020.

Davey/MacLeod

### Matters arising

There were no matters arising.

## 7. Commencing a review of the Regional Policy Statement

- 7.1 At the request of the Chairman item 7 on the agenda was considered first.
- 7.2 Mr C Spurdle, Planning Manager, spoke to the memorandum seeking members' agreement to commence a review of the *Regional Policy Statement for Taranaki* in accordance with the first schedule requirements of the *Resource Management Act 1991*.
- 7.3 Mr P Moeahu raised concerns around the iwi considerations section of the agenda item.
- 7.4 It was noted that during the review of the *Regional Policy Statement* Iwi will be consulted at the beginning of the review and the project brief amended accordingly.

### Recommended

That the Taranaki Regional Council:

- a) receives this memorandum and attached project brief entitled *Draft Project Concept Brief: Preparation of the Draft Regional Policy Statement for Taranaki*
- b) notes that the Council is required by the RMA to commence a full review of the *Regional Policy Statement for Taranaki* once every 10 years
- c) agrees to commence a full review of the *Regional Policy Statement for Taranaki*.

McIntyre/Boyde

## 2. Update on finalised National Policy Statement on Urban Development 2020

- 2.1 Mr C Spurdle, Planning Manager, spoke to the memorandum introducing the finalised *National Policy Statement on Urban Development 2020* (NPS-UD) and outlining Taranaki Regional Council requirements relating to implementation.
- 2.2 Mr P Moeahu raised concerns around the iwi considerations section of the agenda item.



### **Recommended**

That the Taranaki Regional Council:

- a) receives the memorandum on the gazetted *National Policy Statement on Urban Development 2020*
- b) notes the gazettal of the *National Policy Statement on Urban Development 2020* occurred on 23 July 2020 and came into effect on 20 August 2020
- c) notes that officers will continue to liaise and work with New Plymouth District Council on the delivery of prescribed planning and monitoring requirements.

MacLeod/Walker

### **3. Resource Management Act Review Panel Recommendations**

- 3.1 Mr C Spurdle, Planning Manager, spoke to the memorandum informing members of the Resource Management Act Review Panel's recommendations from its report *New Directions for Resource Management in New Zealand*.
- 3.2 Mr P Moeahu queried how iwi had been engaged on this item. It was noted that tangata whenua will have more input into government considerations under the review report.
- 3.3 Ms B Bigham requested a paper to the Policy and Planning Committee regarding hearings held under the RMA and how many times Māori commissioners were used and whether they were from or had good knowledge of the Taranaki area.
- 3.4 It was clarified that Taranaki Regional Council are phasing out the process of Councillors becoming accredited commissioners and will be utilising independent commissioners once Councillors N W Walker and M P Joyce's certifications have lapsed.

### **Recommended**

That the Taranaki Regional Council:

- a) prepares a paper regarding the use of Māori commissioners for hearings under the RMA.

Bigham/MacLeod

### **Recommended**

That the Taranaki Regional Council:

- b) receives the memorandum *Resource Management At Review Panel Recommendations*
- c) notes that the next government will be considering the Panel's recommendations
- d) notes that should the Panel's recommendations be adopted by Government, substantial investment in new systems and planning processes will be needed at both a national and local level.

Walker/Davey

#### **4. Lake Rotorangi SEM Annual Monitoring Report**

- 4.1 Mr G K Bedford, Director Environment Quality, spoke to the memorandum presenting a report prepared by staff, on the ecological and physico-chemical state of Lake Rotorangi as determined in the 2018-2019 programme monitoring the state of the lake, and trends in its quality since monitoring first began in 1984.
- 4.2 Mr P Moeahu requested clarification on the iwi considerations of this memo. It was clarified that there has been extensive iwi engagement regarding the original consents and ongoing monitoring.
- 4.3 The Chairperson, Ms C L Littlewood, queried if Mr P Moeahu intended on questioning the iwi consideration section of each agenda item. Mr P Moeahu informed the Committee that he will continue to do so for every item on every agenda.
- 4.4 Mr M J Nield, Acting Chief Executive, informed the Committee that the Iwi considerations section of the agenda is a standard section for every report to Council under the *Local Government Act 2002* and will continue to be considered when creating memorandums. Details of iwi engagement or involvement will be summarised in future agenda memorandums.

#### **Recommended**

That the Taranaki Regional Council:

- a) receives this memorandum noting the preparation of a report into the state of the water quality and biological programme of Lake Rotorangi as determined in monitoring during 2018-2019
- b) notes the findings of the SEM programme
- c) adopts the specific recommendation therein
- d) notes that future SEM-based lake monitoring will be reviewed for conformity with the NPS (2020).

Young/McIntyre

#### **5. Annual Freshwater Ecological Monitoring (macroinvertebrate) 2018-2019**

- 5.1 Mr G K Bedford, Director - Environment Quality, spoke to the memorandum presenting the latest annual results of the Council's state of the environment monitoring programme for fresh water ecological health (macroinvertebrate monitoring).
- 5.2 Ms L Tester, requested a paper to the Policy and Planning Committee regarding possible iwi input to freshwater monitoring and the transfer of powers.

#### **Recommended**

That the Taranaki Regional Council:

- a) receives this memorandum noting the preparation of a report into the state of and trends in regional in-stream macroinvertebrate community health data for Taranaki, for 2018-2019 and over the period 1995-2019
- b) notes the findings of the SEM programme
- c) adopts the specific recommendations therein.

Boyde/Walker



## 6. Implementation of the Action for Health Waterways Regulations

- 6.1 Mr A D McLay, Director – Resource Management, spoke to the memorandum briefing members on the implementation of the Government's Action for Healthy Waterways policy and regulation package.
- 6.2 Council communication will be out in early September on the immediate changes.
- 6.3 Councillor D N MacLeod is part of a working party for the implementation of Healthy Waterways Regulations at a national level.
- 6.4 Mr A D McLay, Director – Resource Management, provided an update on the Mana Whakahono a Rohe discussions. It is now back on track and there seems to be agreement on the policy component and some challenges around the consenting component of the agreement. The agreement will come back to this committee once it is finalised.

### Recommended

That the Taranaki Regional Council:

- a) receives the memorandum *Action for Healthy Waterways Regulations*
- b) notes the timeline for key milestones relating to the implementation of the *Action for Healthy Waterways* package
- c) notes that the costs and resources for implementing the *Action for Healthy Waterways* package will be substantial and will commence in 2020/2021 and extend into 2021/2022.

MacLeod/Walker

## 7. Commencing a review of the Regional Policy Statement

Item 7 was considered at the start of the meeting.

## 8. Parliamentary Commissioner for the Environment Report on Managing our Estuaries

- 8.1 Mr A D McLay, Director – Resource Management, spoke to the memorandum introducing a report prepared by the Parliamentary Commissioner for the Environment (PCE) and released on 11 August 2020, entitled *Managing our estuaries*.

### Recommended

That the Taranaki Regional Council:

- a) receives this memorandum '*Parliamentary Commissioner for the Environment report on Managing our estuaries*'
- b) notes that monitoring of estuaries under the Council's *Estuarine State of the Environment Monitoring Programme* is set to recommence in the upcoming 2020-2021 summer but may be required to be expanded if the recommendations of the PCE are adopted by the Government.

Young/Boyde

## 9. Partial Review of Pest Management Plan for Taranaki

- 9.1 Mr S Ellis, Environment Services Manager, spoke to the memorandum seeking Members' approval to commence a partial review of the *Pest Management Plan for Taranaki 2018* (the Pest Plan). Pursuant to Section 100D of the *Biosecurity Act 1993* (BSA), the review is limited to amending the Pest Plan to include mustelids as new pest species. The review does not otherwise amend the Plan, except for minor consequential changes as appropriate.

### Recommended

That the Taranaki Regional Council:

- a) receives the memorandum *Partial Review of the Pest Management Plan for Taranaki*
- b) notes the intention to undertake a partial review of the *Pest Management Plan for Taranaki* to include a new sustained control programme for mustelids
- c) notes the review does not otherwise amend, other than inconsequential changes, the operative *Pest Management Plan for Taranaki*
- d) approves commencing a partial review of the *Pest Management Plan for Taranaki* pursuant to section 100D of the BSA and in accordance with the attached project brief.

MacLeod/McIntyre

## 10. Feedback on the Proposed Bylaws: the Proposed Navigation Safety Bylaws and the Proposed River Control and Flood Protection Bylaws

- 10.1 Mr C Spurdle, Planning Manager, spoke to the memorandum updating Members on the public engagement process for the *Proposed Navigation Safety Bylaws for Port Taranaki and its Approaches* and the *Proposed River Control and Flood Protection Bylaws for Taranaki*.

### Recommended

That the Taranaki Regional Council:

- a) receives this memorandum titled *Feedback on the Proposed Bylaws: the Proposed Navigation Safety Bylaws and the Proposed River Control and Flood Protection Bylaws*
- b) notes that a hearing will be held on 22 September 2020 as part of the Ordinary Council meeting.

Williamson/Davey

## 11. Climate Change Strategy

- 11.1 Mr G K Bedford, Director – Environment Quality, spoke to the memorandum presenting for the Committee's consideration, the '*Climate Change Strategy: a strategy to guide the Taranaki Regional Council's climate change response*'. The Executive Audit and Risk Committee at their meeting on 11 August recommended that this Committee, with its district council and iwi representatives, consider the Strategy and report back.

**Recommended**

That the Taranaki Regional Council:

- a) receives the memorandum '*Climate Change Strategy*' and the report '*Climate Change Strategy: a strategy to guide the Taranaki Regional Council's climate change response*'
- b) considers and provides appropriate feedback on the Strategy as a non-statutory framework to provide regional leadership on climate change and a clear focus and strategic direction to the Council on its climate change intentions and priorities.

Boyde/Walker

The Chairperson, Councillor C L Littlewood, gave clarification to members of her role as the chair of this meeting and reminded Members about the standing orders and the need to follow them.

There being no further business, the Committee Chairperson, Councillor C L Littlewood, declared the meeting of the Policy and Planning Committee closed at 12.08pm.

**Confirmed**

**Policy and Planning  
Chairperson:** \_\_\_\_\_

**C L Littlewood**

**Tuesday 13 October 2020**



**Date** 13 October 2020

**Subject:** **Update on Aotearoa New Zealand Biodiversity Strategy 2020**

**Approved by:** D Harrison, Director - Operations  
S J Ruru, Chief Executive

**Document:** 2561978

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### **Purpose**

1. The purpose of this memorandum is to update for Members' information the approved *Te Mana O Te Taiao – Aotearoa New Zealand Biodiversity Strategy* (ANZBS).
2. Appended to this item is a summary of the ANZBS. The full strategy may be found on the Department of Conservation website.  
<https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020.pdf>.

### **Executive summary**

3. The new ANZBS was publicly released by the Minister of Conservation in August 2020 and aims to provide the overall strategic direction for biodiversity in Aotearoa New Zealand for the next 30 years (2020-2050).
4. ANZBS is a non-regulatory instrument prepared by the Government to set out the strategic direction for the protection, restoration and sustainable use of all biodiversity but particularly indigenous biodiversity, in Aotearoa New Zealand.
5. The Department of Conservation worked with the Ministry of Foreign Affairs and Trade (MFAT) to develop the Strategy, as the Strategy 'also reflects New Zealand's commitment, through ratification of the international Convention on Biological Diversity, to help stem the loss of biodiversity'.
6. The Strategy aims to achieve five outcomes by 2050, which are as follows:
  - ecosystems, from mountain tops to ocean depths, are thriving
  - indigenous species and their habitats across Aotearoa New Zealand and beyond are thriving
  - people's lives are enriched through their connection with nature
  - Treaty partners, whānau, hapū and iwi are exercising their full role as rangatira and kaitiaki

- prosperity is intrinsically linked with a thriving biodiversity.
7. In relation to each outcome, the ANZBS sets out indicators to measure progress in achieving that outcome.
  8. Three pou (pillars) are set out in the ANZBS that give guidance and direction in achieving these outcomes with 13 objectives being identified under each pou.
  9. DOC have stated that they will undertake a collaborative process to develop an implementation plan for 2021-2022 to direct action towards the vision and long-term outcomes of the new ANZBS.
  10. Regional councils will clearly play a pivotal role in the protection of indigenous biodiversity. Of note, the Taranaki Regional Council is already taking large-scale action to give effect to the ANZBS vision, outcomes and objectives. This includes implementation of the *Taranaki Regional Council Biodiversity Strategy* with over 180 significant actions, programmes and activities aiming to maintain and enhance biodiversity across the region.

## Recommendations

That the Taranaki Regional Council:

- a) receives this memorandum entitled *Update on the Aotearoa New Zealand Biodiversity Strategy 2020* and the attached summary sheet on the *Aotearoa New Zealand Biodiversity Strategy*.

## Background

11. As Members are aware, the majority of New Zealand indigenous species are found nowhere else on earth. However, as noted in *Environment Aotearoa 2019* report, across New Zealand, our indigenous (native) biodiversity is in a state of decline. Since the arrival of humans 79 species have been recorded as lost to extinction. Every year, areas of ecosystems or the biodiversity in them are continuing to be lost, fragmented or degraded each year, and more indigenous flora and fauna populations are continuing to decline.
12. New Zealand currently has more than 4,000 species that are threatened or at risk of extinction. They include 91% of marine bird species, 76% of freshwater fish, 85% of reptile, 100% of frog, and 20% of indigenous marine mammal species. Some of the key pressures on biodiversity in New Zealand (and globally), as identified by the ANZBS discussion document, are:
  - **Land use:** Land clearance has reduced indigenous forests to about one-third of their pre-human extent. Similarly, wetlands have been reduced by about 90% and other ecosystems, such as active sand dunes, are also substantially reduced.
  - **Pollution:** Run-off from intensive agricultural and urban activities can degrade freshwater, estuarine and marine habitats, leading to declines in species that depend on these ecosystems.
  - **Biosecurity:** Exotic pests, weeds and diseases may threaten our native flora and fauna through browsing, predation, competition and habitat modification. Pathogens which cause disease are also a key threat.

- **Fishery impacts:** Commercial and recreational fishing can affect biodiversity when targeted populations are reduced below sustainable levels, when by-catch occurs, and through loss of habitats.
  - **Climate change:** Predicted climate change impacts in New Zealand include warmer air and water temperatures, sea-level rise, changes in rainfall patterns, and more extreme weather events including increased frequency and intensity of events like storms and droughts. It is unclear how native species will respond, or the extent of the risks climate change could have.
13. Over the last couple of decades the Government has been trying to address some of these issues, including better coordination of management responses across the system, through non regulatory policy instruments such as the *New Zealand Biodiversity Strategy February 2000* and *Action Plan (2016-2020)*.
  14. In 2018, the Government commenced consultation on the development of the discussion document *Te Koiora o te Koiora*- this document set out proposals to review the aforementioned documents and for inclusion in the new *Te Mana o te Taiao ANZBS*.
  15. The regional sector was generally supportive of the Government's aims and intent set out for a revised New Zealand Biodiversity Strategy. However, it was strongly noted that success will only come through effective implementation and realistic government resourcing, clear roles and responsibilities, agreement of national priorities and targets which all participants can contribute and the use of economic instruments and funding
  16. Drawing strongly on the recommendations of a 'think piece' prepared by the regional sector – *Addressing New Zealand's Biodiversity Challenge (2017)* – the sector's submission (as prepared by Local Government New Zealand) suggested that the first five years of action should focus on:
    - establishing integrated biodiversity governance, leadership and accountability to improve accountability for implementation alongside providing effective and appropriate oversight of the national biodiversity system
    - fostering political will and community buy in through consistent, well-coordinated and sustained action by national, regional and local government
    - clarifying biodiversity functions by resolving uncertainties, overlaps and inconsistencies in relation to statutory roles and responsibilities
    - ensuring tenure/agency neutral coordination and delivery of actions, including consistent inventory, prioritisation, monitoring and reporting frameworks
    - integrating Mātauranga Māori and Te Ao Māori principles and actions to enhance biodiversity management
    - establishing a modern, fit for purpose legislative framework that sets clear legislative direction around roles and responsibilities for biodiversity and resolves key inconsistencies and contradictions currently present in the legislative framework
    - supporting wider and more consistent use of economic instruments to fund biodiversity initiatives. Funding for biodiversity implementation activities must be multi-year, multi-agency to ensure that appropriate capacity and capability can be built and maintained within the system.
  17. After considering all submissions on the revised NZBS, the revised strategy was considered and approved by Cabinet.

18. The new ANZBS was publicly released by the Minister of Conservation in August 2020. Of note, the Department of Conservation (DOC) has stated that they will undertake a collaborative process to develop an implementation plan. The implementation plan (still in development) will sit alongside the ANZBS to direct action towards the vision and long-term outcome.
19. The full strategy may be found on the Department of Conservation website. <https://www.doc.govt.nz/globalassets/documents/conservation/biodiversity/anzbs-2020.pdf>. However, set out below is a brief outline of the key features of the new ANZBS.

### **Key features of the new Strategy**

20. The ANZBS sets out a strategic framework for the next 30 years (2020 to 2050) for the protection, restoration and sustainable use of all biodiversity (includes exotic, indigenous as well as migratory species) across Aotearoa New Zealand.
21. The focus of the ANZBS is on indigenous biodiversity and its scope covers all domains - land, freshwater, estuaries, wetlands, and the marine environment (from the coastline to the outer edges of the Exclusive Economic Zone and the extended continental shelf). The ANZBS also covers all types of tenure, including public lands, private land and Māori-owned land.
22. The vision for New Zealand, as set out on page --- of the ANZBS, reads as follows:  
*" Te Mauri Hikahika o te Taiao – the life force of nature is vibrant and vigorous."*
23. ANZBS has five outcomes to be achieved by 2050. The first two are about restoring healthy environments and three outcomes are focused on thriving people. The five outcomes read as follows:
  - Ecosystems, from mountain tops to ocean depths, are thriving
  - Indigenous species and their habitats across Aotearoa New Zealand and beyond are thriving
  - People's lives are enriched through their connection with nature
  - Treaty partners, whānau, hapū and iwi are exercising their full role as rangatira and kaitiaki
  - Prosperity is intrinsically linked with a thriving biodiversity.
24. The ANZBS sets out three pou (pillars) or priorities that provide direction and focus to guide towards transformational change needed to achieve the outcomes. These being:
  - Tūāpapa Getting the system right – This pou involves ensuring the right systems, processes and enabling conditions are in place to tackle the biodiversity crisis.  
The goals for this strategic priority have been set to be achieved by 2025. Tūāpapa aims to build a foundation that can help systems such as treaty partnerships and the government to protect and restore New Zealand's biodiversity. The Weaving Mātauranga Māori science, data and knowledge to manage biodiversity.
  - Whakahau Empowering action – This pou states that all New Zealanders are needed to help protect and restore New Zealand's biodiversity.  
All of the goals in this strategic priority are to be achieved by 2025. Progress towards this strategic priority would mean that New Zealanders are empowered to restore biodiversity and are inspired to protect nature. New Zealanders have access to the



support knowledge and networks they need to take effective action in restoring and protecting biodiversity.

- Tiaki me te Whakahaumanu Protecting and restoring – This pou addresses the direct pressures causing a decline in biodiversity, ensuring the sustainable use of biodiversity, and to restore biodiversity in areas where it has been lost.

The goals for this strategic priority are set for 2025, 2030 and 2050. The aim of Tiaki me te Whakahaumanu is to work towards biodiversity being increasingly protected and restored.

25. Under each of the three pou are specific objectives. Finally, the ANZBS outlines how the outcomes and objectives will be achieved and measured. There are three component parts:

- Implementation - Implementation will occur at national, regional and local levels and will involve collaboration and partnership.
- Measuring success - Progress reporting will focus on both the delivery of implementation actions (output monitoring) and progress towards the outcomes (outcome monitoring). A progress review will be led by the Department of Conservation every 5 years, and this will be followed by a review and update of the Strategy and the development of the next 5-yearly implementation plan. A full set of indicators to measure progress will be developed as part of the initial phase of implementation.
- How we work together - The ANZBS has a set of underlying values and principles to guide how we work together to make decisions and deliver action. These will form the basis of implementation planning

### **Implementation of the ANZBS**

26. The ANZBS is a high-level policy document with much of the detail sought originally by the regional sector in relation to roles and responsibilities not contained within. Governance and implementation for the ANZBS is not clearly defined. However, outlining roles and responsibilities will be essential for the Strategy to progress successfully.
27. ANZBS acknowledges that for the strategy to be effective, it needs to be implemented at a national, regional and local level. There is an expectation that much of the regional and local implementation will be led by regional strategies and will be implemented by councils, iwi/hapū, landowners and users, communities and local people.
28. Following the release of the ANZBS, a collaborative implementation planning process is set to begin. This initial plan is intended to be completed by early 2021, and the regional sector will again be squarely involved in this process including economic considerations. The initial implementation plan to be developed will cover a period of two years (2021-2022). This initial plan will focus on establishing the systems and processes needed to support the effective delivery of this strategy, as well as making progress on those actions that can begin immediately. Each implementation plan will include, goals, actions to progress towards the goals, responsibility for the delivery of the goals and indicators to measure progress.
29. A brief review of progress will take place prior to development of the next plan, which will cover the subsequent 3 years (2023–2025). The regular cycle of 5-yearly reviews and implementation planning will then begin with the 2025 implementation plan

30. Regional councils will clearly play a pivotal role in the protection of indigenous biodiversity. Of note, regional councils are the second largest contributor to biodiversity management in New Zealand and have heavily invested in biodiversity interventions across the country. The level of regional sectors current investment in biodiversity is largely unacknowledged in the revised NZBS.
31. The Taranaki Regional Council is already taking large-scale action across a range of Council programmes and activity, with a lot of this activity already giving effect to the ANZBS vision, outcomes and objectives. First adopted in 2008 and updated after a review in 2017, the *Taranaki Regional Council Biodiversity Strategy* identifies over 180 actions, under four key priority areas, these being:
- Councils flagship ‘Key Native Ecosystems’ program, which focuses on supporting landowners to succeed in protecting and managing indigenous biodiversity in the region, particularly on private land.
  - Enhancing the biodiversity component in existing Council programmes, including Taranaki Taku Tūrangā/Towards Predator Free Taranaki, the riparian management programme, the sustainable land management programme, the wetland programme, the self-help possum control programme, pest plant programmes, education and education programmes, policy and planning, consents and enforcement.
  - Working with others – includes:
    - working with Iwi
    - recognizing, partnering with and supporting ‘Iconic’ initiatives, including the Wild for Taranaki forum and Taranaki Mouna Project,
    - recognizing, partnering with and supporting ‘Significant’ projects, including the work of Tiaki te Mauri O Parininihi Trust, Lake Rotokare Scenic Reserve Trust, Purangi Kiwi, Rapanui Grey Faced Petrel Trust and Taranaki Kiwi Trust,
    - working with other key conservation agencies and community groups, such as the Department of Conservation, District Councils, QEII, Fish and Game etc;
  - Biodiversity monitoring and information management and sharing, including operational monitoring and information management; state of the environment monitoring on indigenous biodiversity; biodiversity resource investigations, and; biodiversity information management, gathering and sharing.
32. Between 2010 and 2020, the Council awarded \$2,208,982 in Environmental Enhancement Grants to support farmer, landowner and community group activities seeking to protect the environment/biodiversity. The Council has put significant funding into growing and supporting Wild for Taranaki over a number of years, and a range of other funding programs around erosion control and riparian management have also helped to advance and support protection of biodiversity in all domains.

### **Decision-making considerations**

33. Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

### **Financial considerations—LTP/Annual Plan**

34. 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**

35. 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**

36. 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.

### **Legal considerations**

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

### **Appendices/Attachments**

Document 2570483: Aotearoa New Zealand Biodiversity Strategy summary





# TE MANA O TE TAIAO

## AOTEAROA NEW ZEALAND BIODIVERSITY STRATEGY 2020

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### SUMMARY



# Ina raru ana te taiao, kei te raru hoki tātou

## When nature is in trouble, so are we

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*Papatūānuku (Earth mother), Ranginui (Sky father) and their offspring are in serious trouble, and we urgently need to do a better job at looking after them. The state of nature is a legacy that we leave for future generations.*

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Nature benefits our lives and society in a huge number of ways. Clean air and water, the food we farm, catch, or hunt, and our tourism and primary industry-based economy all depend on nature. We are connected to nature through our many different cultures, the places where we live and spend our time, and it is part of our identity.

Essential to thriving nature is thriving biodiversity. Having environments that are rich in biodiversity means that nature can better provide the benefits we rely on. Nature in Aotearoa New Zealand is unique in the world and makes a significant contribution to global biodiversity - we are internationally recognised as a biodiversity 'hotspot'.

We have a duty of care to make sure that the unique animals, plants, fungi and microbes found in our country are healthy and thriving, and that natural resources are used sustainably.

However, nature in Aotearoa New Zealand is in trouble. Biodiversity is declining in the face of pressures such as invasive species, land and sea use, direct exploitation of species, climate change, and pollution. Indirect pressures are causing and contributing to these direct pressures. These include not having the right systems in place in terms of policy, legislation and leadership, people not having enough knowledge or resources to act, and a disconnect between people and nature.

**Biodiversity**, or biological diversity, means the variability among living organisms from all sources, including land, marine and freshwater ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species and of ecosystems.

### When nature is thriving, so are we

#### *What can we do to help nature?*

Here in Aotearoa New Zealand we are already successfully taking action to protect and restore nature. There is an opportunity now to further invest in our successes and firmly place nature at the heart of all we do, which will benefit both nature and our livelihoods. Te Mana o te Taiao - Aotearoa New Zealand Biodiversity Strategy (hereafter Te Mana o te Taiao – ANZBS) sets out how we can expand and build on the strong foundation we have already built to allow our natural world, and the people in it, to thrive.

Aotearoa New Zealand, along with the rest of the world, will be on a pathway to economic and social recovery for many years to come following the Covid-19 crisis. Recognising that nature is at the heart of our economy and the way we do business will be key to our successful recovery.

# Ka whakamāramatia Te Mana o te Taiao – ANZBS

## Te Mana o te Taiao – ANZBS explained

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*Te Mana o te Taiao – ANZBS sets a strategic direction for the protection, restoration and sustainable use of biodiversity, particularly indigenous biodiversity, in Aotearoa New Zealand.*

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As a national strategy, Te Mana o te Taiao – ANZBS provides the overall strategic direction for biodiversity in Aotearoa New Zealand for the next 30 years. It is closely connected to and guides local and regional biodiversity action.

Te Mana o te Taiao – ANZBS also provides strategic direction for sectors and groups to implement independently. For example, an industry body can align their environmental or biodiversity strategy to Te Mana o te Taiao – ANZBS, and community organisations can use both Te Mana o te Taiao – ANZBS and their regional strategy to guide their activities.

Te Mana o te Taiao – ANZBS is for all of us living in Aotearoa New Zealand to own and implement. There is a place for everyone to be involved, no matter how big or small their contribution. By working together towards common goals, we can achieve much more than we would alone.

It is important to recognise that Te Mana o te Taiao – ANZBS gives us all a shared destination to head for, but there will be different pathways for us to get there. The causes of biodiversity loss vary from place to place, depending on the natural environment and how natural resources are managed and used. Different solutions are needed based on situation, location and context. Even though our collective actions as Aotearoa New Zealand are contributing to the same vision and outcomes, how this is achieved can look different across places and regions – and this will be one of the keys to success.

### **Biodiversity in Aotearoa New Zealand the companion report**

To enable the country's unique biodiversity and taonga (treasures) to be protected and restored, it is important to understand the state they are in, the trends occurring and the many pressures they face, all of which can be informed by the complementary perspectives, histories and worldviews of mātauranga Māori and science. The companion report to Te Mana o te Taiao – ANZBS, Biodiversity in Aotearoa, provides the evidence base for Te Mana o te Taiao – ANZBS by summarising the present state, trends and pressures of Aotearoa New Zealand's plants, animals and ecosystems on land, in fresh water and at sea.

# Te Mana o te Taiao – Aotearoa New Zealand

## The vision

### *Te Mauri Hikahika o te Taiao*

*The mauri of nature is vibrant and vigorous*

## Why this is important

People are part of nature and nature supports life and human activity. All aspects of our wellbeing – physical, cultural, social and economic, are dependent on nature and the services that it provides. Natural wellbeing underpins our lives, lifestyles and livelihoods. Nature is valuable for its own sake (intrinsic value) and is linked to our identity as New Zealanders. Our vision for a future with nature that has thriving, vibrant, vigorous mauri will result in thriving wellbeing for the people of Aotearoa New Zealand.

## What we are aiming to achieve by 2050

### Outcome 1

#### Ecosystems, from mountain tops to ocean depths, are thriving

- › The mauri of ecosystems is thriving
- › A full range of indigenous ecosystems are protected and secured for future generations
- › The health, integrity and connectivity of ecosystems have been maintained and/or restored, including in human-dominated areas

### Outcome 2

#### Indigenous species and their habitats across Aotearoa New Zealand and beyond are thriving

- › The mana of taonga species is restored
- › All indigenous species are protected and secure, and none are at risk of extinction due to human activities
- › Species' populations are healthy, genetically diverse and have increased resilience to future threats including climate change
- › Migratory species and their habitats are secured across international boundaries

### Outcome 3

#### People's lives are enhanced through connection with nature

- › Everyone in Aotearoa New Zealand is connected with nature, and supports nature to contribute to its protection
- › Connection with nature enhances physical, spiritual and mental wellbeing
- › Future generations inherit a thriving nature

Central to our work between now and 2050 are three pou (pillars) of transformational change needed to achieve the strategy outcomes.

## TŪĀPAPA

### Getting the system right

We need the right systems in place to tackle the biodiversity crisis. These cross-cutting objectives set out how we will ensure this.

#### What our 2050 objectives are:

1. Governance, legislation and funding systems are in place and enable delivery of the strategy outcomes
2. Treaty partners, whānau, hapū, iwi and Māori organisations are rangatira and kaitiaki
3. Biodiversity protection is at the heart of economic activity
4. Improved systems for knowledge, science, data and innovation inform our work
5. Mātauranga Māori is an integral part of biodiversity research and management
6. Aotearoa New Zealand is making a meaningful contribution to biodiversity globally

## WHAKAHĀUMANU

### Empowering people

We need all New Zealanders to help to protect and restore nature. These cross-cutting objectives set out how we will ensure this.

#### What our 2050 objectives are:

7. All New Zealanders have the skills, knowledge and resources to contribute to nature protection and restoration
8. Resourcing and support are enabling connection with nature
9. Collaboration, co-design and partnership are enabling nature protection and restoration

## Implementation

Each of the objectives has measurable and time-bound goals. The goals are set at 2025 for Tūāpapa and Whakahaumanu and at 2025, 2030 and 2050 for Tiaki me te whakahaumanu. The cross-cutting goals in these first two priority areas will enable us to achieve the longer-term goals detailed in Tiaki me te whakahaumanu. Implementation planning will set actions for achieving the goals for the shorter term. Progress on actions and goals will be evaluated, and the actions and goals will be reviewed and revised to ensure we are on track to achieving the outcomes.

## Measuring progress

Progress towards the strategy outcomes will focus on both the delivery of implementation actions and progress towards the outcomes (outcome measures). Progress will be measured every 5 years, and this will be followed by a review and development of the next 5-yearly implementation plan. Progress will be developed as part of the implementation plan. Potential indicators for the five outcomes are:



# Aotearoa New Zealand Biodiversity Strategy 2020

## The problem

We are in a biodiversity crisis - Papatūānuku, Ranginui and their offspring are in serious trouble, and we urgently need to do a better job at looking after them. Nature in Aotearoa New Zealand, and across the rest of the world, is declining, and directly under threat from pressures, including changes in land, freshwater and sea use, introduced species, exploitation for food and resources, pollution, and the increasing threat of climate change. Indirect pressures, such as not having the right 'systems' in place, people not having enough knowledge or resources to act, and a disconnect between people and nature, are causing and contributing to these direct pressures. Here in Aotearoa New Zealand, we are already successfully taking action to protect and restore nature, and this strategy sets out how we can expand and build on the strong foundation we have already built to allow our natural world, and the people in it, to thrive.

### Outcome 3

#### Enriched through their connection with nature

Aotearoa New Zealand is connected to nature and actively protecting and restoring it. This is improving people's mental health and quality of life. Whānau mana and whakapapa are restored,

### Outcome 4

#### Treaty partners, whānau, hapū and iwi are exercising their full role as rangatira and kaitiaki

- › Resilient biodiversity enables cultural practices and mahinga kai, contributing to the regeneration of mātauranga Māori
- › Restored nature uplifts mana
- › Treaty partners, whānau, hapū, iwi and Māori organisations are central to the biodiversity system and recognised as leaders

### Outcome 5

#### Prosperity is intrinsically linked with a thriving biodiversity

- › Thriving biodiversity provides the services that underpin our prosperity
- › Biodiversity resources are managed sustainably to provide ongoing economic benefits
- › Economic activity has neutral or beneficial impacts on biodiversity
- › Thriving biodiversity plays a central role in our approach to mitigating climate change

**Objectives** which provide direction and focus to guide us towards the strategy outcomes. Objectives are identified within each pou.

## KAHAU Protecting and restoring

Protect and restore our biodiversity. These cross-cutting actions ensure that everyone is empowered to act.

#### Objectives are:

Empowering people and capability to be effective and active guardians of nature and delivering better outcomes

## TIAKI ME TE WHAKAHAUMANU Protecting and restoring

We need to address the direct pressures causing a decline in biodiversity, ensure the sustainable use of biodiversity, and restore biodiversity in areas where it has been lost. These objectives set out what we will do to ensure biodiversity is resilient and secure.

#### What our 2050 objectives are:

10. Ecosystems and species are protected, restored, resilient and connected from mountain tops to ocean depths
11. Management ensures that Biological threats and pressures are reduced through management
12. Natural resources are managed sustainably
13. Biodiversity provides nature-based solutions to climate change and is resilient to its effects

### Measuring success:

Progress will be regularly assessed. Progress reporting on implementation actions (output monitoring) and monitoring. A progress review will take place in 2025. A review and update of the strategy and the implementation plan. A full set of indicators to measure progress in the initial phase of implementation. A table of indicators and outcomes is provided in Appendix 5.

### How we work together:

We all have roles to play in protecting and restoring the mauri of nature. The strategy has a set of underlying values and principles to guide how we work together to make decisions and deliver action. These will form the basis of implementation planning.

## He Awa Whiria approach

He Awa Whiria refers to braided rivers, which are made up of multiple and interconnecting channels of water. The size and shape of a braided river is continually changing as channels shift and the water finds new paths.

Each river braid can be thought of as a unique worldview, value or perspective. River braids can also represent the roles different people, groups and sectors have in biodiversity protection and restoration.

He Awa Whiria can shine a light on the areas where the river braids meet – for example, joining mātauranga Māori with other scientific knowledge systems and ways of understanding the world to support actions and innovations that result in thriving biodiversity.

We will use this approach to implement and understand Te Mana o te Taiao – ANZBS as a way to be inclusive of all knowledges and peoples in Aotearoa New Zealand, while ensuring that the Treaty partnership is honoured and mātauranga Māori is elevated to equal standing with other forms of knowing.

## How we will work together to achieve Te Mana o te Taiao – ANZBS

Actions to address biodiversity loss need to involve everyone in the biodiversity system – whānau, hapū, iwi and Māori organisations, environmental non-governmental organisations (NGOs), central and local government, businesses, organisations, industry and every individual. This means people working alongside each other to actively manage threats to nature, and taking proactive and positive measures to protect and restore nature.

A range of tools will be needed to achieve the strategy, including systems for coordination, governance and funding, legislation and other regulatory tools, and support and incentives.

Upholding the principles of the Treaty of Waitangi is an essential part of Te Mana o te Taiao – ANZBS. Working together in partnership towards a shared vision for nature ensures that rangatira and kaitiaki obligations, as well as mātauranga Māori, are actively protected.

Biodiversity is just one part of the environment, and the causes of biodiversity loss are multiple and complex. There are many related pieces of work in biosecurity, urban planning, primary production, climate change planning, energy and resources, education and many more. Te Mana o te Taiao – ANZBS will enable connections and collaboration across these.

## How Te Mana o te Taiao - ANZBS will be implemented

The release of Te Mana o te Taiao – ANZBS is just the first step towards achieving ways of better working together to look after nature. A broad range of perspectives and expertise are needed to plan and implement the next steps including iwi, hapū and whanau, central and local government, industry, science, NGOs and communities.

As well as setting aspiration and direction, a strategy also needs to set out a pathway for how we meet the goals and objectives, and who will be working on them. Now that Te Mana o te Taiao – ANZBS is in place, the next phase of strategy development will be to collaboratively design an implementation plan for 2021 - 2022. Together, Te Mana o te Taiao and the implementation plan form the Aotearoa New Zealand Biodiversity Strategy.

The first implementation plan will focus on establishing the systems and processes needed to support effective delivery of Te Mana o te Taiao – ANZBS, as well as making progress on actions that can begin immediately. Implementation planning will run on a 5-yearly cycle from 2025 onwards for the life of the strategy.



Braided rivers are found in only a few places in the world. In Aotearoa New Zealand they provide habitats for many indigenous species. *Photo: Dave Murray*

Progress against the strategy and implementation plan will be regularly assessed and publicly reported on. Regular reviews will ensure that the strategy remains fresh, relevant and influential, and that we are measuring and accountable for our progress.

Te Mana o te Taiao – ANZBS will need to be implemented at national, regional and local levels. Some actions are required to be implemented nationally – these will often be led by agencies or national organisations. Much of the regional and local implementation will be led through regional strategies, and will be implemented by those who know their region best – the councils, iwi/hapū, landowners and users, communities and local people on the ground.

To access the full Te Mana o te Taiao - ANZBS strategy document, visit [www.doc.govt.nz/anzbs-strategy](http://www.doc.govt.nz/anzbs-strategy)

Development of Te Mana o te Taiao – ANZBS was led by the Department of Conservation on behalf of Aotearoa New Zealand. It was built on the advice and ideas of Treaty partners, whānau, hapū, iwi and Māori organisations, communities, individuals, stakeholders, NGOs, industry organisations, and central and local government – those who will be vital to its success.

Te Mana o te Taiao - Aotearoa New Zealand Biodiversity Strategy 2020 Summary

COVER: Giant Kauri tree (Tāne Mahuta), illuminated by person with torch. *Photo: Rob Suisted*

Department of Conservation  
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New Zealand

August 2020

Editing and design:  
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**Date** 13 October 2020

**Subject:** **Towards Predator-Free Taranaki Project**

**Approved by:** D Harrison, Director - Operations  
S J Ruru, Chief Executive

**Document:** 2573218

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### **Purpose**

1. The purpose of this memorandum is to present for Members' information a quarterly update on the progress of the *Taranaki Taku Tūranga Our Place - Towards Predator-Free Taranaki* project.
2. A presentation will be provided by officers.

### **Executive summary**

3. On 30 May 2018, the Minister of Conservation launched the *Taranaki Taku Tūranga Our Place -Towards Predator-Free Taranaki* project.
4. *Taranaki Taku Tūranga Our Place -Towards Predator-Free Taranaki* is the first large-scale project with the long term aim of progressing towards removing introduced predators from a region.
5. Three different phases of work are continuing around the mountain, working from north to south. This item reports on the three different elements to the project: urban trapping, rural control, and zero possums.
6. Monitoring work and site-led work is continuing and Council officers have had input into several technological innovations.
7. The hugely positive response to the project from the Taranaki community is continuing with the total number of traps (including Egmont National Park) now sitting at around 13,000. The majority of which are maintained by private landowners and volunteers.
8. The expansion of the urban trapping project into Waitara has been significantly boosted by the leadership and support from the 'Waitara Taiao' community group.
9. Year two of the rural predator control project is now complete. The completion of year two of this project creates a predator control buffer around the whole boundary of Egmont National Park. An especially enthusiastic group of landowners in the Oeo area have also enabled an additional area to be included in year two.
10. The zero density possum programme has now moved into the mop up phase based primarily on the use of motion sensor cameras and a lean trap network of remote



reporting leg-hold traps throughout the Kaitake range. The 'virtual barrier' at Pukeiti has been changed over to a magnet node system to eliminate the mechanical errors encountered in the original 'lockout node' system.

## Recommendations

That the Taranaki Regional Council:

- a) receives this memorandum *Taranaki Taku Tūranga Our Place - Towards Predator-Free Taranaki project*
- b) notes the progress and milestones achieved in respect of the urban, rural and zero density possum projects of the *Taranaki Taku Tūranga Our Place - Towards Predator-Free Taranaki project*.

## Background

11. On 30 May 2018, the Minister of Conservation launched the *Taranaki Taku Tūranga Our Place -Towards Predator-Free Taranaki project*.
12. The *Taranaki Taku Tūranga Our Place -Towards Predator-Free Taranaki project* is the first large-scale project with the long term aim of progressing towards removing introduced predators from the region. Supported by more than \$11 million from Predator Free 2050 Ltd (the company set up by the Government to help New Zealand achieve its predator-free 2050 goals), the Taranaki Regional Council (the Council) aims to restore the sound and movement of our wildlife, rejuvenate native plants in urban and rural Taranaki, and protect agriculture.
13. The project's ultimate aim is to eradicate stoats, rats, and possums across the region by 2050. This ambitious goal has not been attempted before, and the first phase of the project has trialled control methodologies and new tools to inform future implementation. The latest technologies – including remote sensors, wireless nodes and a trapping app are being used to remove predators and prevent re-infestations. The high-tech equipment makes trapping more efficient, particularly in rural areas, and sends a smartphone alert to the user when the trap goes off.
14. Project work is well underway around the mountain. There are three elements to the project:
  - Rural landscape predator control
  - Urban predator control
  - Zero density possums.
15. There has been a hugely positive response from communities wanting to restore our regional biodiversity by getting behind the *Taranaki Taku Tūranga Our Place -Towards Predator-Free Taranaki Project* as it continues to roll out across the region. Monitoring work and site-led work is well advanced and officers have had input into several technological innovations.
16. Set out below is a summary of key progress and milestones in respect of the main elements of the project and details future work.

### **Urban predator control**

17. The urban project continues to grow with traps distributed at public workshops, markets, schools and retail outlets in New Plymouth.
18. Project expansion into Waitara is progressing well due to partnership with 'Waitara Taiao' community group and local schools.
19. Expansion into Ōkato and Ōpunakē has begun.

### **Rural landscape predator control**

20. Trap network deployment completed for year two area.
21. The year two area creates a 28,000 ha predator control buffer around Egmont National Park and year three is now due to commence.
22. Additional area has been added to year two due to a landowner led initiative in the Oeo area. This additional area is adjacent to the planned year two area and was added due to strong community support for the project.

### **Zero-density possums**

23. The mop up phase of the project is continuing and a wide scale cyanide poisoning operation has been completed across the Kaitake range. A lean trap network based on remote reporting leg-hold traps has also been established across the Kaitake range. Possum detection dogs and remote reporting cameras are being used on private land around the Kaitake range to track down the remaining individuals.
24. The 'virtual barrier' at Pukeiti has been changed over to a magnet node system to eliminate the mechanical errors encountered in the original 'lockout node' system.
25. Collared possums in both farmland and forest are providing interesting insights into possum movement patterns and home range size, which is informing control and detection techniques.

### **Decision-making considerations**

26. Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

### **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. All eight iwi provided letters of support for the funding of this project, Council are in regular contact with both Ngati Tairi and Nga Mahanga regarding the Zero-density possum operation within their rohe and iwi chairs are updated through the Taranaki Mounga Board.

### **Legal considerations**

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

### **Appendices/Attachments**

Document 2536395: July 2020 Quarterly Report to PF2050.

## PREDATOR FREE 2050 Limited LANDSCAPE PROJECTS



### Quarterly reporting

**Project Title:** Towards Predator-Free Taranaki

**Report Author:** Toby Shanley

**Project period reported on:** July 2020

#### Highlights of overall progress

- Year two of rural landscape predator control project completed. Landowner handover completed following lockdown.
- Virtual barrier has been changed over to magnet node operation, in time this should see a reduction in labour required to manage the system.
- Only six possums caught in the barrier since the last quarterly report.
- Lean detection network install is nearing completion. One line is still to be livened in the south west corner of the Kaitake range.
- 190 possums removed by the lean detection network, 156 of this total have been removed since the end of the covid-19 level four lockdown.
- Approximately 90 possums removed by cyanide operation within the Kaitake range.

### Part 1 – Reporting against Project Schedule Milestones and Decision Points

#### 1(a) Open and Completed Milestones

Code	Description	Due date	Status
SLM1a	TRC initial 100 ha area in Pukeiti chosen for rodent control.	28-Feb-20	Completed
Initial 100 ha area within Pukeiti chosen.			

Code	Description	Due date	Status
UPM8a	Post-control rodent tracking tunnel monitoring completed	1-May-20	Completed
Tracking tunnel monitoring was completed after lockdown.			

Code	Description	Due date	Status
<b>UPM9a</b>	Mustelids trapping rates monitored and recorded	1-May-20	Completed
Mustelid trapping rates report submitted 1-May-20.			

Code	Description	Due date	Status
<b>LSM10c</b>	Year 2 trap layout complete as per agreed control plan	1-May-20	Completed
Trap layout is complete as per agreed control plan.			

Code	Description	Due date	Status
<b>LSM10d</b>	Year 2 traps connected to wireless network as per agreed control plan	1-May-20	Completed
Year 2 traps are connected to wireless hubs as per agreed control plan. Some additional hubs have been installed following poor node reception in some areas.			

Code	Description	Due date	Status
<b>LSM8a</b>	Post-control landscape predator camera trap monitoring undertaken as per agreed monitoring plan	30-May-20	Completed
Camera trap monitoring completed following lockdown.			

Code	Description	Due date	Status
<b>OM1a</b>	A minimum 3:1 funding ratio to be maintained annually throughout the project	30-May-20	Completed
Funding ratio maintained.			

Code	Description	Due date	Status
<b>LSM10</b>	Roll out of the rural landscape predator control (as per control and monitoring plan) - year 2 zone complete	1-Jun-20	Completed
Roll out complete as per agreed control plan.			

Code	Description	Due date	Status
<b>UPM10</b>	Traps deployed in private properties throughout Waitara, Okato & Opunake urban areas, as per agreed control plan	30-Jun-20	Completed
Traps deployed as per control plan.			

Code	Description	Due date	Status
<b>ZDM4b</b>	Possums controlled in Block D, as per agreed eradication plan	30-Jun-20	Completed
Buffer control completed as per eradication plan.			

**1(b) Future Milestones****1(c) Decision Points**

Code	Description	Due date	Status
UPDP5a	Recording <10% tracking indices for rodents within reserves/ habitat	1-May-20	Not achieved
Result of 26%, lack of control around key breeding and delays in monitoring due to COVID likely affected result.			

Code	Description	Due date	Status
UPDP6a	Assessment of mustelid trapping progress	1-May-20	Completed
Data shows that traps are checked regularly and baited appropriately.			

Code	Description	Due date	Status
LSDP9	New milestones and decision points for Roll out of the rural landscape predator control (as per control and monitoring plan) - year 2 zone	1-Jun-20	Completed
New milestones and decision points agreed.			

Code	Description	Due date	Status
ZDDP3	Zero possums detected in control blocks A,B,C, as per agreed monitoring plan	31-Jul-20	In progress
Following lockdown work has resumed on the installation of the lean detection network in the Kaitake range. The network is nearing completion and has removed 156 possums since the end of the lockdown. Intensive mop up operations are continuing around the boundary of the national park and the camera network is being moved into the proof of freedom grid formation.			

**Part 2 – Reporting against other operational requirements**

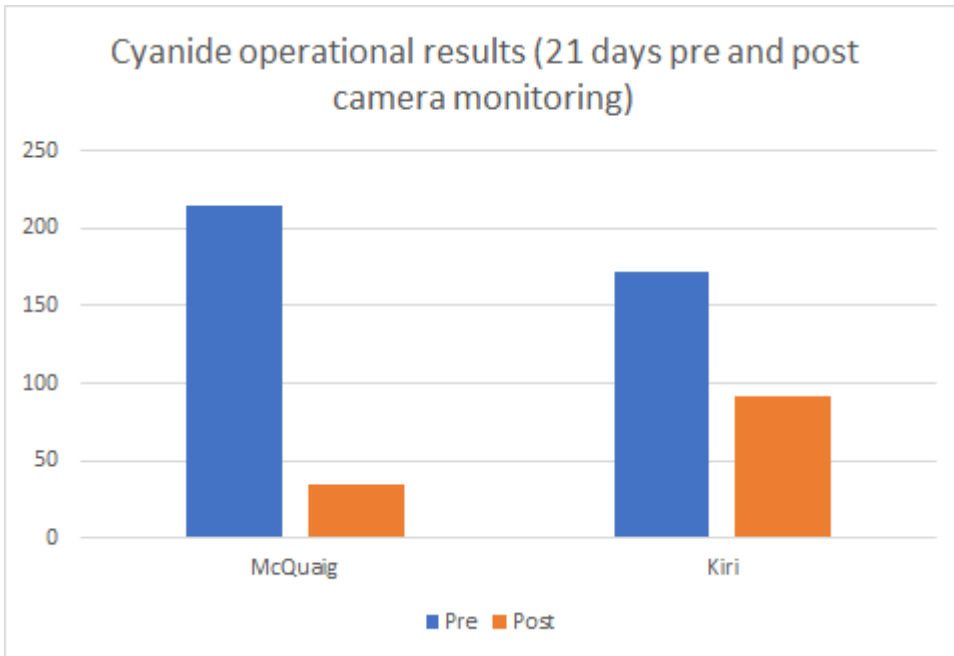
Health and Safety
<b>All contractors involved in the project have been regularly reminded to ensure all incidents and near misses are reported on.</b>
No incidents or near misses to report this quarter.

<b>Financial performance</b>
<i>Please attach spreadsheet showing the details of project income and expenditure for the period in the financial template provided.</i>
<b>Is Project financial performance proceeding as planned? Yes</b> <b>If No, please provide details</b>

<b>Employment created</b>			
<i>Estimate number of FTEs currently paid to deliver the project including contractors.</i>			
<b>FTEs</b>	<b>Total at last quarter</b>	<b>Increase/decrease since last quarter</b>	<b>Total at this quarter</b>
Internal	11	0	11
External	13.5	+2.3	15.8

**Innovation, learnings and research**

Below is a graph that demonstrates the knock down achieved by cyanide along two lines using cameras (number of images with possums present) for 21 days before and 21 days after control. McQuaig line achieved 93% possum reduction while Kiri achieved 48%.



We have also retrieved possum movement data from a possum that was caught and collared on the 21<sup>st</sup> of March. This possum was caught in a kill trap in mid-May and its movements are shown on the map below.



**Eradication progress**

The project is continuing with the survivor mop-up phase. The install of the lean leg hold trap detection network is very close to completion, but the number of nodes needed to complete the network has been significantly higher than originally forecast. This fact has made progress on the install slower than hoped due to the supply of extra equipment and the additional complexity of the system due to higher numbers of nodes. The initial proposal from ZIP estimated that for a network of 120 traps we would need an additional 200 nodes to fill the gaps between them. In reality the total number of nodes is likely to be over 500. Alongside the lean detection network a cyanide poison operation has also been used to remove as many possums as possible. To date approximately 90 possums have been removed by the cyanide operation.

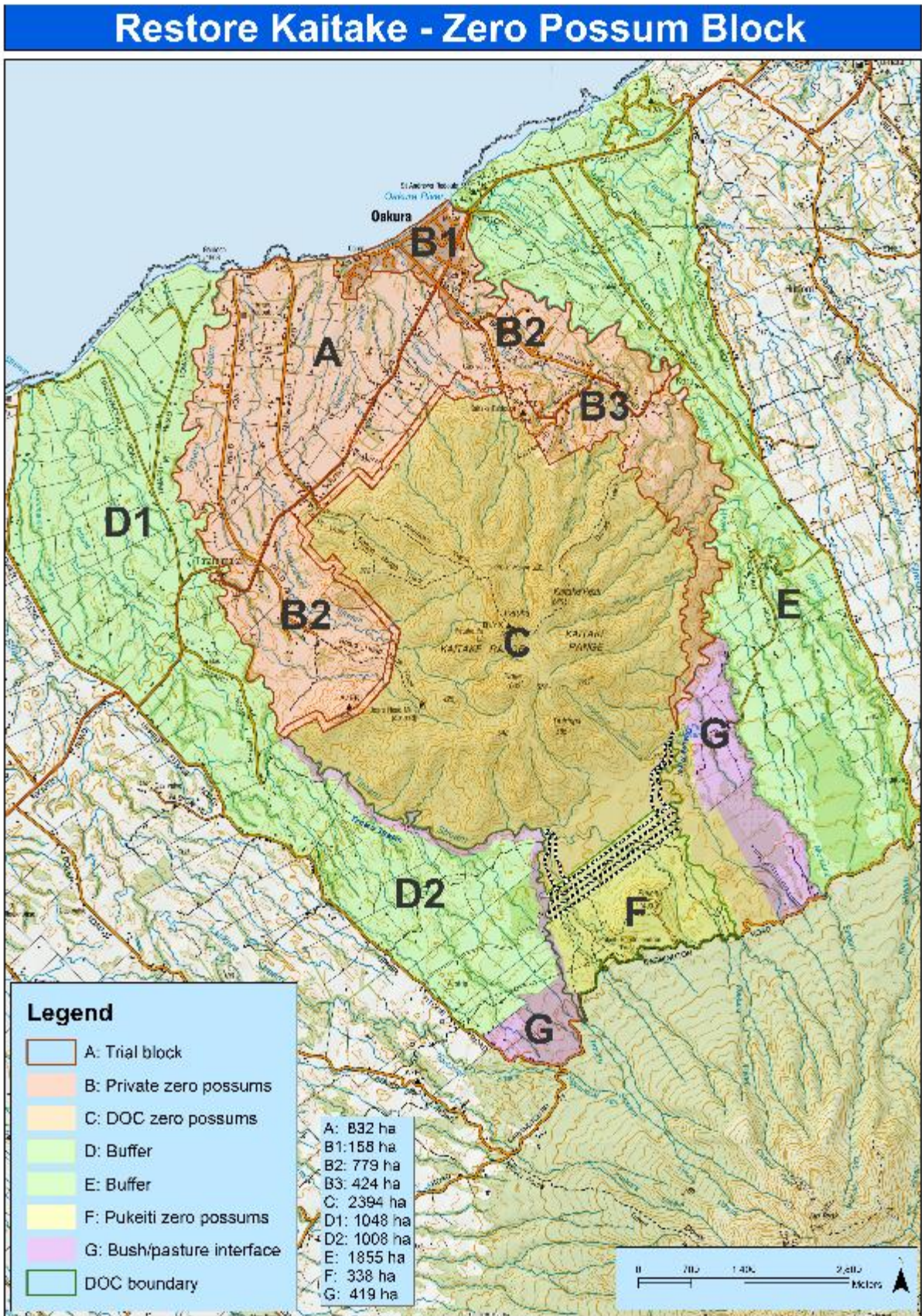
The virtual barrier remained functional through the lockdown and has been completely changed over to magnet node operation following the end of lockdown. This change in time should result in a decrease in the labour requirement to manage the virtual barrier. Possum captures have continued to decrease in the barrier with only six captures this quarter and only one capture since the 22<sup>nd</sup> of May.

Prior to lockdown the mop-up in the farmland part of the zero density area had been progressing well with all of our effort shifting to camera detection and then following up on individuals when detected. The mop up effort in the farmland is now focused on the B2 and B3 blocks (see map below) with a combination of intensive trapping and night hunting using possum dogs and thermal imaging monocular.

The significant challenge of removing a larger than anticipated residual population of possums within the national park remains. The lean detection network appears to be delivering promising results as it quickly catches possums in areas following installation and after a month or so catches drop off steadily. The camera grid is now being put back into the Kaitake range and this will provide the best measure for the effectiveness of the lean detection network.

Target species	Hectares	Remove		Protect	
		Removal progress % estimate	Mop up progress % estimate	Date of last proof of freedom	Number of incursion events to date
Possum	4500	100%	60%	n/a	n/a
Stoat					
Rat					









**Date** 13 October 2020

**Subject:** **Taranaki Mounga Surrounds Possum Control Update**

**Approved by:** D Harrison, Director - Operations  
S J Ruru, Chief Executive

**Document:** 2592357

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### **Purpose**

1. The purpose of this memorandum is to present for Members' information a summary of the Taranaki Regional Council's (the Council) involvement in the Pest Control Programme surrounding Taranaki Mounga.

### **Executive summary**

2. Taranaki Mounga/Te Papakura o Taranaki contains nationally and regionally significant natural, ecological, recreational and cultural values. The Taranaki Mounga Project (the Project) undertakes regular pest control on the mountain to protect these values.
3. The Council has recently undertaken possum control on adjacent private land simultaneously with aerial pest control to protect the integrity of the Self-help Possum Control Programme.
4. The Council's operational area is split into three contractual blocks, this includes approximately 300 properties covering approximately 13,500 hectares, using a combination of control techniques including toxins and trapping.
5. Targets set out in contracts required possum infestation levels reduced to below a 3% residual trap catch index.
6. Despite delays to one of the three contracts due to the Covid-19 lockdown, all three contract areas were successfully completed.

### **Recommendations**

That the Taranaki Regional Council:

- a) receives this memorandum *Taranaki Mounga surrounds possum control update*; and
- b) notes that monitoring of three recent control contracts estimate the residual trap catch index for possums have successfully been reduced to 0.67%, 1.67% and 1.5%, which is below the contract requirement of less than 3%.

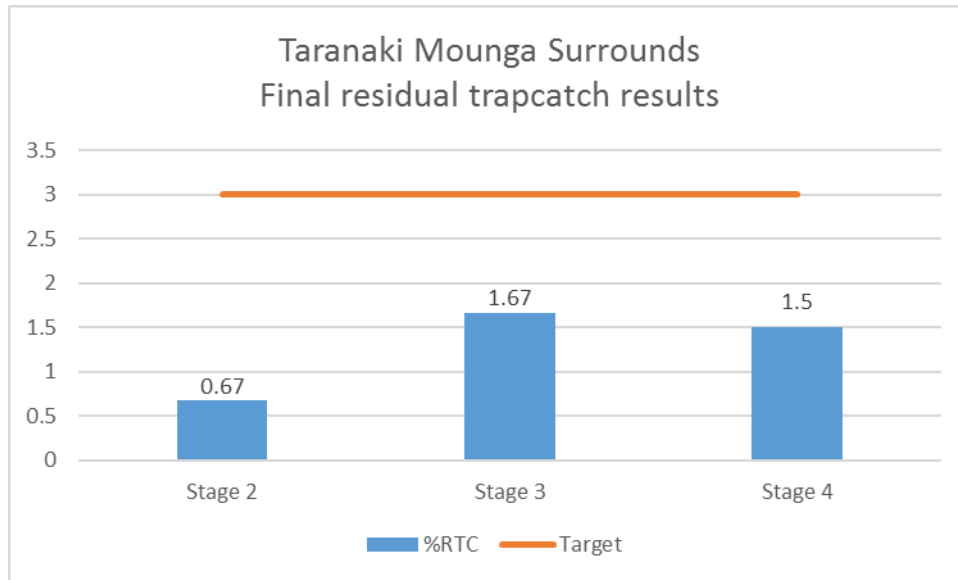
## Background

7. Te Papakura o Taranaki (Taranaki Mounga) is almost 33,000 hectares in land area. It encompasses a diverse range of habitat and vegetation types and is home to a wide range of rare and distinctive indigenous flora and fauna species. Taranaki Mounga has natural, ecological, recreational and cultural values that are widely recognised as being nationally and regionally significant.
8. Possums and rats pose the biggest threat to the ecological values of Taranaki Mounga. Possum numbers are typically highest around the bush/pasture margins.
9. The private land adjacent to Taranaki Mounga is predominantly farmland with significant tracts of remnant bush and natural and planted riparian margins. The private land is actively managed for possums through the Self-help Possum Control Programme, which covers 240,000 hectares. The Council works with land occupiers across the ring plain and coastal terraces to undertake regular and sustained possum control in order to maintain possum numbers at low levels.
10. The Department of Conservation (DoC) has treated Taranaki Mounga on five occasions since 1993/94. In recent times, control intervals was reduced to a three-yearly rotation due to the commencement of the Taranaki Mounga Project. This is joint project between iwi, the government and philanthropic investors. Amongst other things, the Project seeks to reduce pest densities to allow for the reintroduction of native birds on Taranaki Mounga.
11. The Council has previously undertaken possum control on adjacent private land simultaneously with DoC's aerial pest control to protect the integrity of the Self-help Possum Control Programme. The Council recognises mutual benefits which can be achieved through integrated sustained possum control on the Taranaki Mounga and the surrounding privately owned areas.
12. The Council's possum control is funded through a mix of annual operational budgets and a reserve fund allocation from non-control years.
13. It is important to note that part of the Self-help Possum Control Programme overlaps with the Taranaki Taku Tūranga - Towards Predator Free Taranaki (TPFT) zero possum work stream that focuses on the Kaitake ranges.

## Discussion

14. The Council agreed to undertake possum control in conjunction with the Project's aerial 1080 control on the Taranaki Mounga. This helps to protect the integrity of the Self-help Possum Control Programme by assisting adjacent landowners impacted by possum numbers building up in the bush pasture margin.
15. The Council's operational area was broken down into three contractual blocks (refer Appendix I). The three blocks include approximately 300 properties covering around 13,500 hectares.
16. This excludes the Zero Possum area undertaken through TPFT, this area will be reported on separately.
17. Following normal tendering procedures, the Council engaged contractors to undertake possum control with operations designed to utilise a combination of control techniques involving toxins and trapping. All contracts required the reduction of possum levels to be below a 3% residual trap catch.

18. Stages 3 and 4 were completed prior to Covid-19 lockdown. However, the Northern part of the stage 2 contract needed to be deferred due to lockdown delaying control in this area.
19. Stage 2 control was completed in August 2020 with the final monitor being undertaken in early September 2020.
20. Results from this monitoring indicate that possums have successfully been reduced to well below the contract requirements of less than 3% residual trap catch. Refer to the figure below.



### Decision-making considerations

21. Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

### Financial considerations—LTP/Annual Plan

22. 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

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. Similarly, iwi involvement in adopted work programmes has been recognised in the preparation of this memorandum.

### **Legal considerations**

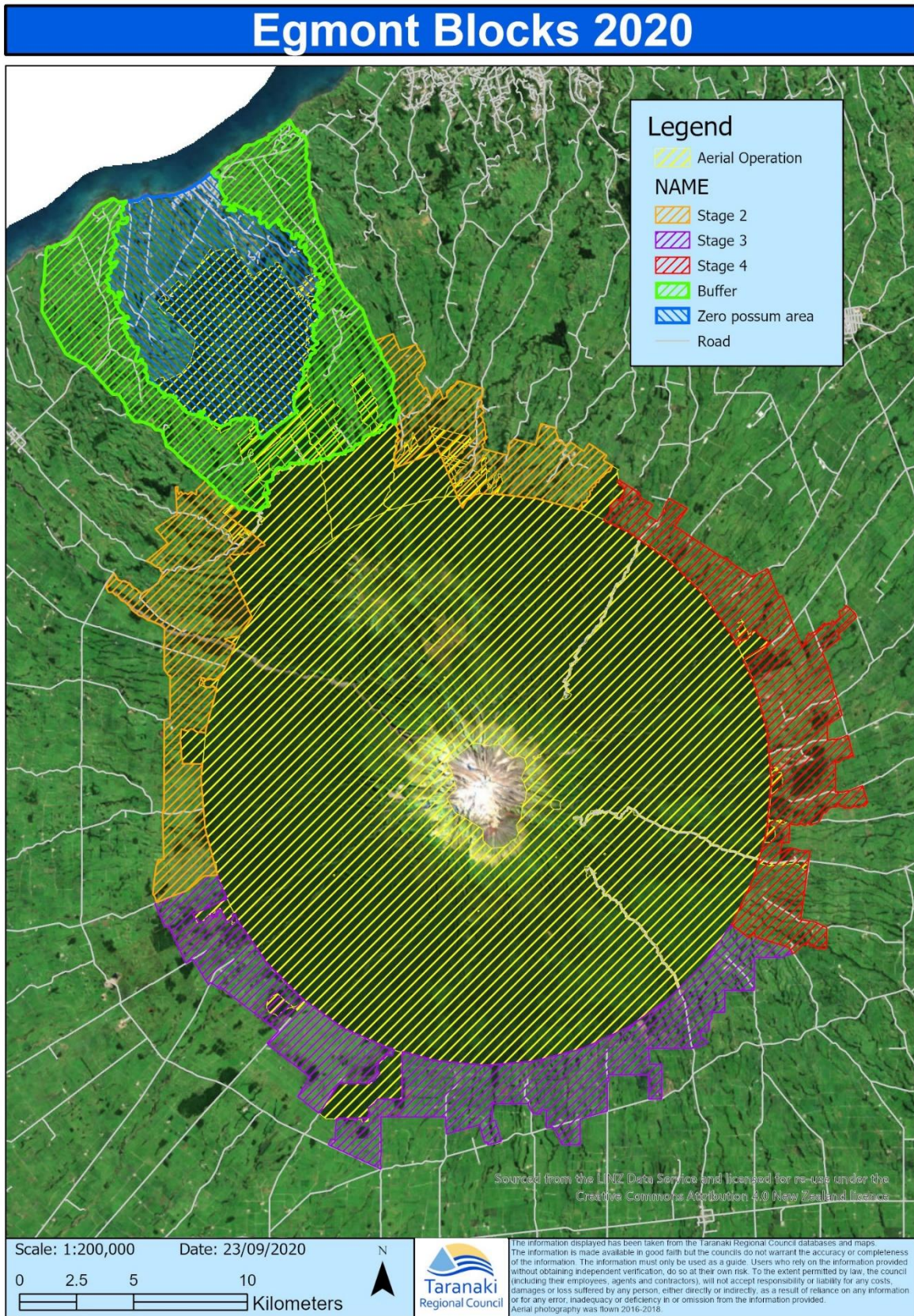
25. This memorandum and the associated recommendations comply with the appropriate statutory requirements imposed upon the Council.

### **Appendices/Attachments**

Appendix I: Egmont possum blocks 2020 (Document 2601253)



Appendix I







**Date** 13 October 2020

**Subject:** **Public notification of a proposal to amend the Pest Management Plan for Taranaki**

**Approved by:** D Harrison, Director - Operations  
S J Ruru, Chief Executive

**Document:** 2493015

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### **Purpose**

1. The purpose of this memorandum is to seek Members' approval to publicly notify a proposal to amend the *Pest Management Plan for Taranaki 2018* (the Pest Plan).
2. Pursuant to Section 100D of the *Biosecurity Act 1993* (BSA), amendment to the Pest Plan are proposed to include mustelids (ferrets, stoats and weasels) as new pest species. The proposal does not otherwise amend the Pest Plan, except for minor consequential changes necessary to update the Plan to recognise that this review has occurred.
3. Appended to this item is a draft proposal that includes new regional rules for mustelid control to support the implementation of *Towards Predator-free Taranaki* plus supporting cost benefit analysis (the Proposal).

### **Executive summary**

4. The current Pest Plan became operative on 20 February 2018 following a comprehensive public process under the BSA. This Plan is the 'rulebook' for pest management in the region.
5. Since 2018, the Taranaki Regional Council (the Council) has been implementing and rolling out the non-regulatory programme *Towards Predator-free Taranaki* that involves the control of other predator species such as rats and mustelids.
6. This programme has received widespread public support. However, concerns have been raised around risks posed to the ongoing effectiveness of the programme due to incomplete or *ad hoc* land occupier participation creating 'hotspots' of higher than acceptable mustelid numbers that threaten the sustainability of and public investment in the programme.
7. An amendment to the current operative Pest Plan through a partial review is necessary to protect the sustainability of and public investment in *Towards Predator-free Taranaki*. Proposed amendments will introduce predator control rules to support maintenance of the *Towards Predator-free Taranaki* programme.

8. Attached is a draft Proposal to amend the Pest Plan. The draft Proposal set out the amendments to the current Pest Plan. The changes are presented for the public's consideration as part of a partial review of the Pest Plan pursuant to Section 100D of the BSA.
9. Proposed amendments to the Pest Plan are limited to those consequential changes necessary to declare mustelids to be pests. The amendments largely consist of the inclusion of a new chapter (section 6.6A of an amended Pest Plan) setting out a new sustained control programme (and new land occupier rule) addressing mustelids.
10. Members will note that, as far as practicable, the proposed sustained control programme for mustelids replicates the Council's approach for possums. Under the amended Pest Plan, it is proposed that the Council would 'roll out' an advisory and extension programme across the Taranaki ring plain and coastal terraces, underpinned by a regional rule.
11. Also forming part of the Proposal, is the cost benefit analysis for the new sustained control programme for mustelids.
12. This item recommends that the Proposal be publicly notified for public consultation on or before 8 November 2020.

## Recommendations

That the Taranaki Regional Council:

- a) receives this memorandum and the attached Proposal;
- b) agrees that the Proposal meets the section 71 content requirements for a proposed regional pest management plan as required by the BSA;
- c) agrees that the Proposal is not inconsistent with the *National Policy Direction for Pest Management 2015*, other pest management plans on the same organisms, any pathway plan, regional policy statements or plans under the *Resource Management Act 1991*, or any regulation;
- d) agrees that mustelids are capable of causing a serious adverse and unintended effect in relation to the region;
- e) agrees that the benefits of the Proposal in relation to mustelids outweigh the costs after taking account of the likely consequences inaction or other courses of action;
- f) agrees that, for mustelids, persons who are required to meet directly any or all of the costs of implementing the Proposal –
  - would accrue, as a group, benefits outweighing the costs; or
  - contribute, as a group, to the creation, continuance, or exacerbation of the problems proposed to be resolved by the plan;
- g) agrees that for mustelids, there is likely to be adequate funding for the implementation of the amended Pest Plan for five years;
- h) agrees that each proposed rule would assist in achieving the amended Pest Plan's objective and would not trespass unduly on the rights of individuals;
- i) agrees that the Proposal is not frivolous or vexatious, that it is clear enough to be readily understood, and that Council has not rejected a similar proposal within the last three years;



- j) notes that the Section 71 cost benefit analysis requirements have been incorporated into the Proposal and will be publicly available; and
- k) agrees to publicly notify the Proposal for public submissions on or before 8 November 2020.

## Background

- 13. Biosecurity is the prevention or management of risks from the thousands of pests and other harmful organisms that affect our economy, environment and wellbeing. Biosecurity and pest management is vital to New Zealand's environmental and economic well-being, with weeds, wasps, rats, possums and feral cats among thousands of harmful species that cost the country billions in control and lost revenue.
- 14. Regional councils' mandate for undertaking pest management on behalf of the region comes largely from the BSA, which provides for "*...the exclusion, eradication and effective management of pests and unwanted organisms*". The Act provides regional councils with a leadership role and powers to manage harmful species classified as pests or unwanted organisms. It also enables councils (and others) to prepare rules or access its regulatory powers via pest plans.
- 15. Under the BSA, the Council is required to have in place a pest management plan for its region if it wishes to undertake pest management. A pest management plan specifies what organisms are declared to be 'pests' and sets out the rules in relation to those 'pests'. Once operative, the pest management plan empowers the Council to exercise the relevant enforcement and funding provisions available under the BSA.
- 16. Because rules impose costs and obligations on people, pest management plans and rules are rigorously tested through processes set out in the BSA. Under the Act, 'pests' mean organisms specified as such in a pest management plan, and their nomination must comply with the Act and clause 7(1) of the *National Policy Direction for Pest Management 2015* (the NPD).
- 17. The current Pest Plan was adopted by Council and became operative on 20 February 2018 following a comprehensive public process under the BSA.

## Description of the problem

- 18. Ferrets, stoats, weasels are part of the mustelid family, which is a group of small to medium sized carnivores. Mustelids are opportunistic predators and, even in small numbers, impact on the presence and abundance of native fauna species. Skinks, flightless birds (such as kiwi) and/or birds that nest in holes (e.g. penguins and parakeet) are particularly vulnerable. Mustelids have been directly responsible for the extinction of some indigenous bird species and have been a major cause of decline for many others.
- 19. Mustelids can also have considerable negative impact on primary production. Mustelids are a threat to poultry farms and carry parasites and toxoplasmosis, which can cause illness in humans and livestock. Ferrets are also a vector (carrier) of bovine tuberculosis.
- 20. The Pest Plan currently only identifies possums as a 'pest' animal species. Since the 1990s, the Council has been achieving effective sustained possum control over large parts of the Taranaki region through the Self-help Possum Control Programme. This success has been underpinned by pest management plans with land occupier rules requiring the ongoing control of possums following Council undertaking successful

possum control across the ring plain and coastal terraces and reducing numbers to very low levels.

21. In 2018, the Council, in conjunction with Predator Free 2050 Limited, launched the *Towards Predator-free Taranaki* programme. This landscape predator control programme is a voluntary initiative that involves Council working with interested land occupiers to undertake regular and sustained predator control. Public conservation land, sanctuaries, urban communities and farmland all have key roles in achieving a predator free nation. Integrating large-scale predator control into Council's possum control programmes, coupled with the targeted control work in high value ecological sites through the Council-led Key Native Ecosystem site protection programme will provide the greatest likelihood of significant long term integrated biodiversity recovery across the Taranaki region.
22. *Towards Predator-free Taranaki* has received widespread public support. However, there are concerns that the voluntary nature of the programme poses a long-term risk to the ongoing effectiveness of the programme. In particular, there is a risk that incomplete or *ad hoc* land occupier participation will create 'hotspots' of higher than acceptable mustelid numbers that threaten the sustainability of and public investment in the programme while also posing added costs on other land occupiers in the programme.
23. To protect the sustainability of and public investment in *Towards Predator-free Taranaki*, at the Policy and Planning Committee meeting of 9 June 2020, Members agreed to commence a partial review to amend the current operative Pest Plan. The purpose of the partial review is to amend the current Pest Plan to introduce mustelid control rules.

### **Plan review process to date**

24. Pursuant to section 72 of the BSA, the Council must be satisfied that, in the making of the proposed changes to the Pest Plan, it has consulted with Government Ministers, local authorities, tangata whenua and other persons affected by the Plan. In the review to date, and as part of the consultation process for the draft Proposal, the Council is giving effect to that requirement.
25. To date, Council officers have undertaken early (pre-notification) engagement on draft proposals with Federated Farmers, as the key affected stakeholder. The key concepts and assumptions set out in the draft Proposal, including the proposed rule, were also developed and circulated to key affected stakeholders for comment. This included Federated Farmers, tangata whenua, district councils and the Department of Conservation. Preliminary feedback was limited but generally supportive.
26. Set out below is an overview of the Proposal document.

### **Proposed amendments to the current Pest Plan**

27. The draft Proposal set out changes to the current Pest Plan as part of a partial review of the Plan pursuant to Section 100D of the BSA. The changes are presented for the public's consideration.
28. Section 2 of the Proposal identifies the amendments proposed for the Pest Plan in track changes in. The changes to the Pest Plan are limited to those consequential changes necessary to declare mustelids to be pests. They largely consist of the inclusion of a new chapter (section 6.6A of an amended Pest Plan) setting out a new sustained control programme (and new land occupier rule) addressing mustelids.

29. Members will note that, as far as practicable, the proposed sustained control programme for mustelids replicates the Council's approach for possums. Under the amended Pest Plan, it is proposed that the Council would 'roll out' an advisory and extension programme across the Taranaki ring plain and coastal terraces, underpinned by a regional rule. The proposed programme has three component parts:
- *Determine community interest in sustained mustelid control:* Community interest is determined where 75% or more of land occupiers in a locality, covering at least 75% of the land area targeted, agree to participate in the programme and undertake long-term predator control maintenance. Such areas are referred to as 'Predator Control Areas'.
  - *Initial control:* Council undertakes initial predator control work in newly identified Predator Control Area (includes mustelids plus possums, rats and feral cats). Initial control includes the establishment of the trapping network on participating properties.
  - *Ongoing maintenance:* Council continues to liaise with and work with land occupiers within the Predator Control Area to maintain mustelid numbers at low levels. This includes monitoring and enforcement of a new rule requiring land occupiers to maintain and check mustelid traps.
30. The Proposal does not otherwise amend the Pest Plan, except for minor consequential changes necessary to update the Plan to recognise this partial review has occurred and that mustelids are now a 'pest'.

### **Section 71 Cost benefit analysis**

31. The Council is required under the BSA and NPD to be cognisant of, and evaluate and document the benefits, costs, funding arrangements and adverse effects associated with the management of pests, prior to the notification of a proposal. Sections 6 and 7 of the NPD sets out additional requirements in relation to and for determining the allocation of costs.
32. In accordance with the aforementioned requirements, section 3 of the draft Proposal therefore documents:
- pest attributes and distribution of mustelids in Taranaki;
  - qualitative and quantitative impact evaluations for mustelids;
  - costs and benefits of two scenarios for mustelid control – no intervention versus the preferred intervention (i.e. sustained control), including assumptions;
  - an assessment of the risks of the preferred intervention not being successful in achieving Plan objectives; and
  - an assessment of beneficiaries of the programme and exacerbators of the problem, including who should pay for the proposed management approach.
33. As far as is practicable, Section 3 of the Proposal has assessed the benefits and costs of regional intervention over a 10-year and 50-year planning horizon. However, it is important to note that there are significant other, non-monetarised benefits arising from the proposed sustained control programme for mustelids. In summary, the Section 71 chapter:
- confirms the proposed sustained control programme has merit as a means of effectively managing mustelids (section 71(c) of the BSA);

- identifies that mustelids are capable of causing regionally significant adverse effects on the region's indigenous biodiversity plus economic well being (section 71 (d));
  - confirms that for mustelids "...the benefits of the plan would outweigh the costs, after taking account of the likely consequences of inaction or other courses of action" (Section 71(e)); and
  - identifies the groups of persons required to meet the costs of implementing the programme either as a beneficiary or exacerbator (Section 71(f)).
34. Pursuant to the NPD, the Council (as the proposer of the Pest Plan) must make its cost benefit report publicly available along with the proposed changes to the Plan. Hence, it has been included as part of the Proposal.

### **Council considerations for preparing and amending a pest management plan**

35. Outlined below are the legislative requirements that Council must be satisfied are met as part of preparing, reviewing and making a revised regional pest management plan.

#### Content requirements (section 70 of the BSA)

36. The first step in the making of a regional pest management plan is the preparation of a proposal (i.e. an amended Pest Plan). Pursuant to section 70(2) of the BSA, Council must be satisfied that the Proposal RPMP sets out the following content matters:
- the name of the person making the proposal (refer section 1.1 of the Proposal);
  - the subjects of the proposal- meaning the organisms specified as pests under the Plan (refer section 2 of the Proposal);
  - the period for which the Plan will be in force (no change to the current Plan);
  - for each subject (or pest):
    - a description of its adverse effects, and the reasons for proposing a plan;
    - the plan's objectives and the principal measures for achieving the objectives;
    - the reasons why the plan is more appropriate than relying on voluntary actions;
    - an analysis of the benefits and costs of the plan;
    - the extent to which any persons, or class of persons, are likely to benefit from the plan or contribute to the creation, continuance, or exacerbation of the problems proposed to be resolved by the plan; and
    - the rationale for the proposed allocation of costs, any proposed levies, and whether any unusual administrative problems or costs are expected in recovering the costs allocated; (section 70(2)(a)-(c) of the BSA) (refer sections 2 and 3 of the Proposal); and
  - other matters that must be included concern the effects of the Plan and the powers and rules it sets out; monitoring, compensation, funding, consultation, and how the Plan has documented compliance with the NPD (section 70(2)(d)-(v)) (no change to the current Plan).
37. The proposed amendments set out in Section 2 of the Proposal give effect to the aforementioned content requirements and are consistent with equivalent provisions already set out in the Pest Plan. A recommendation is presented at the front of this item

that Members agree that they are satisfied that the section 70 content requirements for a proposal have been met.

#### Section 71 requirements

38. Under section 71 of the BSA, the second step in the making of a regional pest management plan is for the Council to be satisfied that:
- the Proposal is not inconsistent with the NPD, other pest management plans on the same organisms, any pathway plan, regional policy statements or plans under the Resource Management Act 1991, or any regulation (refer discussion below);
  - during the development of the Proposal, all process requirements in the NPD were complied with (refer discussion below);
  - the Proposal has merit as a means of eradicating or effectively managing the organisms specified as 'pests' and that each 'pest' is capable of causing adverse effects on the region's economic well-being and/or on natural, social, cultural, recreational, and animal welfare values as identified in section 71 (d) of the BSA (refer section 3.2 of the Proposal);
  - for each pest, "*the benefits of the plan would outweigh the costs, after taking account of the likely consequences of inaction or other courses of action*" (refer section 3.3 of the Proposal);
  - the groups of persons required to meet the costs of implementing the Plan (including the Council) – would either accrue, as a group, benefits outweighing the costs (the 'beneficiaries'), or that they are, as a group, contributing to the creation, continuance, or exacerbation of the problems proposed to be resolved by the Plan (the 'exacerbators') as required by section 71(f) of the BSA (refer section 3.5 of the Proposal);
  - a requirement for adequate funding for the duration of the Plan and that each proposed rule both assists the achievement of the Plan's objectives and does not unduly trespass on individual rights (71(g)-(h)) (refer to Proposal and discussion below); and
  - the Proposal is not frivolous or vexatious, and is clear enough to be readily understood (71(i)-(j)) (refer to Proposal and discussion below).
39. In the development of the Proposal, officers have sought to ensure proposed amendments to the Pest Plan are aligned with the NPD and other pest plans. In particular, the Plan is consistent with NPD directions relating to the setting of objectives, programme descriptions and good neighbour rules. Officers have further reviewed proposed provisions against the current Pest Plan, other pest plans, regional policy statements, and plans and are satisfied that the proposal is not inconsistent with those policy instruments.
40. Members must be further satisfied that the Proposal has merit in terms of pest impacts, the benefits and costs of intervention, and funding allocation.
41. As previously noted, section 3 of the Proposal confirms that the sustained control programme for mustelids identified in the Proposed Plan are net beneficial. It further identifies the beneficiaries and exacerbators and the rationale for the apportionment of costs. In brief, the costs of control largely lie with the land occupier with high mustelid numbers. This reflects the land occupier being the principal exacerbators of the problem. Council costs are associated with the implementation of an advisory, inspectorial, and compliance regime to maximise the effectiveness of individual control across the region.

42. A recommendation is presented at the front of this item that Members agree that they are satisfied that the section 71 requirements have been met.

Satisfaction with consultation or requirement of more consultation (Section 72 of the BSA)

43. Finally, if the Council is satisfied that the requirements of sections 70 and 71 of the BSA have been met, the third step in the making of a plan is for the Council to consider the consultation requirements of Section 72. They include:
- being satisfied as to whether, if their responsibilities or area are affected, that Ministers, local authorities, and tangata whenua have been consulted; or whether consultation with other persons is appropriate and has occurred (section 72(1)); and
  - in considering whether other persons may need to be consulted with, the Council must have regard to the scale of impacts on those persons, the degree and nature of consultation that may have occurred, and the likely level of their support or opposition (section 72(2)).
44. As previously discussed, some consultation has already occurred. However, it is recommended that further consultation be undertaken in the form of publicly notifying the Proposal for public submissions.

**Next steps**

45. Pursuant to Section 100D(5) of the BSA, it is recommended that Council conduct a partial review of the Pest Plan pursuant to sections 68 to 78 of the BSA. Although public notification of the Plan is not strictly necessary under the BSA, it is suggested that the Proposal be released for public comment on or before 8 November 2020 (following the Ordinary meeting of 3 November).
46. The deadline for submissions is proposed to be four weeks at which time officers can begin to analyse submissions and report back to Council. A hearing of submissions, and public notification of Council's decisions will need to occur in the new calendar year.
47. Subject to no appeals to the Environment Court, an amended Pest Plan that includes new mustelid rules could be completed and adopted by the end of the financial year.

**Decision-making considerations**

48. Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

**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* 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. Tangata whenua are a key affected stakeholder for pest management. A review of iwi management plans from Te Atiawa, Taranaki, Ngati Ruanui and Ngaa Rauru highlights iwi concerns at the rate of indigenous biodiversity loss. Proposals for increased mustelid control will contribute to biodiversity outcomes sought in these plans as well as provide for the relationship between Māori as tangata whenua and the wider environment.
53. As part of early (pre-notification) engagement on draft proposals, feedback has already been sought on draft provisions, concepts and assumptions from iwi authorities.

### **Legal considerations**

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

### **Appendices/Attachments**

Document 2437760: Proposal for inclusion of mustelid - Regional Pest Management Plan for Taranaki.

# Proposal for inclusion of Mustelids

Regional Pest Management Plan for Taranaki





# Proposal for inclusion of mustelids

## Regional Pest Management Plan for Taranaki

Taranaki Regional Council

Private Bag 713

Stratford 4352

November 2020

Document number: 2437760





## Foreword

This is a proposal to amend the *Regional Pest Management Plan for Taranaki*. The intent of the proposal is to declare mustelids to be pests in the Taranaki region and to incorporate a new chapter (Section 6.6A) and programme that includes rules for land occupiers to control ferrets, stoats, and weasels.

The proposal does not otherwise amend the *Regional Pest Management Plan for Taranaki*, except for minor consequential changes necessary to update the Plan and reflect the inclusion of the new chapter.

Where applicable, content that may result in an addition or change to the current RPMP will be highlighted in underlined text. How the proposed programme would look inserted into Part 2 of the operative RPMP can also be seen in Appendix 2.

In brief, the following highlights and significant changes are noted:

- The identification of mustelids as a pest
- Application of rules to control mustelids.

On behalf of the Taranaki Regional Council, I am pleased to present this proposal to the people of Taranaki, and now call for your submissions. The Council will consider all submissions received, in detail, before making amendments to the Plan.

This is your opportunity to influence pest management in the Taranaki region. I look forward to receiving your submission on the proposal. Please send any submissions to:

The Chief Executive

Taranaki Regional Council

Private Bag 713

STRATFORD

**By 5pm, 4 December 2020.**

David MacLeod

Chair, Taranaki Regional Council



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# 1. Introduction

*This document is a proposal to amend part of the Regional Pest Management Plan for Taranaki. Other than the amendments identified in full in sections 2.2 to 2.5 of this Proposal, changes, the Regional Pest Management Plan for Taranaki remains unchanged and is not part of this proposal.*

## 1.1 Proposer

The Taranaki Regional Council (Council) has a regional leadership role under the *Biosecurity Act 1993* (the Act). As such, in accordance with section 100D(2)(b) of the Act, Council proposes to undertake a **partial** review of the [Regional Pest Management Plan for Taranaki](#)<sup>1</sup> (RPMP) by way of amending it to incorporate an additional programme. The additional programme relates to the sustained control of mustelids.

## 1.2 Reasons for the Proposal

The purpose of the document is to present, for the public's consideration, a proposal that mustelids be added to the RPMP in order to:

- minimise the actual or potential adverse or unintended effects associated with mustelids; and
- maximise the effectiveness of individual pest management actions for mustelids by way of a regionally coordinated approach.

The notification of this Proposal is the first formal step in seeking amendment to the current operative RPMP. If the Proposal is adopted, the RPMP will be amended to declare mustelids to be 'pests' and empower the Council to exercise the relevant advisory, service delivery, regulatory and funding powers available under the Act to deliver mustelid control in defined parts of Taranaki.

## 1.3 Scope and structure of the proposal

The Act contains prerequisite criteria that must be met to justify regional intervention in the form of rules. Accordingly, this document sets out proposed amendments to the RPMP and supporting information pertaining to adding a sustained control programme for mustelids to the RPMP.

Section 1 introduces the Proposal and background information.

Section 2 sets out a reader's guide and the proposed amendments, in full, to the RPMP to include a new sustained control programme for mustelids.

Section 3 presents the cost benefit analysis to support the adoption of the proposed sustained control programme for mustelids.

A glossary of key terms used in this proposal and references used in its preparation are presented at the back.

In accordance with section 100D(5)(d) of the Act, the scope of this review is confined to proposed amendments set out in section 2 of this Proposal. **No other part of the current RPMP is subject to this review.**

## 1.4 Consultation overview

In the development of this Proposal, early engagement has been undertaken with iwi authorities and key stakeholders (refer Table overleaf). Further consultation on this Proposal will now occur in accordance with the consultation requirements set out in the BSA.

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<sup>1</sup> The Regional Pest Management Plan for Taranaki became operative on 20 February 2018.

**Pre-notification consultation**

Party	Type	Date	Feedback received
Federated Farmers	Summary, including proposed rule provided, meeting with Executive and subsequent email/verbal correspondence	29 July 2020	Verbal feedback, expect written feedback during submission process
Department of Conservation	Summary, including proposed rule provided	22 September 2020	Written feedback
Project Mounga	Summary, including proposed rule provided, meeting with board and subsequent email/verbal correspondence.	27 August 2020	Verbal feedback
Iwi authorities	Summary, including proposed rule provided	8 September 2020	Nil

This Proposal has been publicly notified for public submissions to confirm community expectations and policy directions to be incorporated into the final plan.



## 2. Proposed amendments to the RPMP

### 2.1 Reader's guide to amendments to the RPMP

This section sets out proposed amendments to the current operative RPMP to include a sustained control programme for mustelids.

In brief, the following significant changes to the RPMP are highlighted:

- an amended section 4 [Organisms declared as pests] that declares and identifies mustelids control ferrets, stoats, and weasels as a pest in Table 1 of the RPMP<sup>2</sup>
- a new section 6.6A setting out a mustelid sustained control programme and which includes rules for land occupiers within a Predator Control Area to control mustelids
- an amended section 9.1[Measuring what the objectives are achieving] to incorporate mustelid monitoring programmes in the RPMP
- an amended glossary to introduce a definition for a new term in the RPMP – 'Predator Control Area'.

The proposal does not otherwise amend the RPMP, except for minor consequential changes necessary.

How amended or new provisions inserted into the operative RPMP would look, once adopted, and are shown in grey. Specific wording amendments to the current RPMP are identified by [underlined text in blue](#).

### 2.2 An amended section 4 [Organisms declared as pests]

Amend Table 1 of section 4 [Organisms declared as pests] of the RPMP to read as follows:

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<sup>2</sup> Other inconsequential changes include updating the RPMP recognising the inclusion of mustelids as a pest are also noted in the Plan's foreword.

## 4. Organisms declared as pests

The organisms listed in Tables 1 and 2 below are classified as pests. The tables also indicate what management programme or programmes will apply to the pest and if a rule, including a Good Neighbour Rule (GNR), applies. **Attention is also drawn to:**

- The general administrative powers of inspection and entry, contained in Part 6 of the Act, which would be made available to the Council;
- The statutory obligations of any person under sections 52 and 53 of the Act. These sections ban anyone from selling, propagating or distributing any pest, or part of a pest, should they be specified as such in a Plan. Not complying with sections 52 and 53 is an offence under the Act and may result in the penalties noted in section 157(1) of the Act; and
- Exemptions to any Plan rule may apply under Section 78 of the Act.

Table 1: Animal organisms classified as pests

Common name	Scientific name	Programme	GNR	Page
<a href="#">Mustelids – ferret, stoat, weasel</a>	<a href="#">Mustela furo, Mustela ermine, Mustela nivalis</a>	<a href="#">Sustained Control</a>		<a href="#">XYZ</a>
Possum	<i>Trichosurus vulpecula</i>	Sustained control	√	<a href="#">XYZ</a>

Table 2: Plant organisms classified as pests

Common name	Scientific name	Programme	GNR	Page
Climbing spindleberry	<i>Celastrus orbiculatus</i>	Eradication		<a href="#">XYZ</a>
Giant reed	<i>Arundo donax</i>	Eradication		<a href="#">XYZ</a>
Madeira (Mignonette) vine	<i>Anredera cordifolia</i>	Eradication		<a href="#">XYZ</a>
Senegal tea	<i>Gymnocoronis spilanthoides</i>	Eradication		<a href="#">XYZ</a>
Giant buttercup	<i>Ranunculus acris</i>	Sustained control	√	<a href="#">XYZ</a>
Giant gunnera	<i>Gunnera manicata, Gunnera tinctoria</i>	Sustained control	√	<a href="#">XYZ</a>
Gorse	<i>Ulex europeaus</i>	Sustained control	√	<a href="#">XYZ</a>
Nodding, Plumeless and Variegated thistles	<i>Carduus nutans, C. acanthoides, Silybum marianum</i>	Sustained control	√	<a href="#">XYZ</a>
Old man's beard	<i>Clematis vitalba</i>	Sustained control	√	<a href="#">XYZ</a>
Wild broom	<i>Cytisus scoparius</i>	Sustained control	√	<a href="#">XYZ</a>
Wild ginger (Kahili and Yellow)	<i>Hedychium gardnerianum, Hedychium flavescens</i>	Sustained control	√	<a href="#">XYZ</a>
Yellow ragwort	<i>Jacobaea vulgaris</i>	Sustained control	√	<a href="#">XYZ</a>

## 2.3 The new proposed programme to be inserted into section 6 of the RPMP

Amend section 6 of the RPMP to include a new section 6.6A that sets out a sustained control programme for mustelids. Section 6A reads as follows:

### 6.6A Predators (ferret, stoat and weasel)



Ferret (*Mustela furo*)



Stoat (*Mustela ermine*)



Weasel (*Mustela nivalis*)

#### **Towards Predator Free Taranaki**

As discussed in the possum programme (section 6.5), since the 1990s, the Council has been achieving effective sustained possum control over large parts of the Taranaki region through the Self-help Possum Control Programme.

With the implementation of the *Towards Predator Free Taranaki programme* (TPFT) across Taranaki, the Council aims to achieve the same for mustelid control.

The Council will identify Predator Control Areas where land occupiers in a locality agree to participate in the programme and undertake long term predator control maintenance.

Subject to 75% or more of land occupiers, covering at least 75% of the land area targeted, agreeing to be part of the programme, the Council will undertake initial predator control work within the Predator Control Area targeting mustelids and rats.

After initial predator control work has been undertaken, occupiers within the area will be required (through the rule in this section) to ensure they undertake regular ongoing control to maintain mustelid populations at very low levels.

A Predator Control Area refers to areas identified as such once the 75% land area threshold has been reached and initial control work has been undertaken within the area.

Thereafter occupiers within that mapped area will be required to comply with the rule in this section of the Plan.

## Adverse effects

Ferrets, stoats, weasels are part of the mustelid family, which is a group of small to medium sized carnivores. Mustelids have large home ranges and are active day and night. They are opportunistic predators and have a strong musk odour.

Ferrets are the largest mustelid in New Zealand. Male ferrets grow up to 44cm and females up to 37cm in length. The undercoat is creamy yellow with long black guard hairs that give the ferret a dark appearance. A characteristic black face mask occurs across the eyes and above the nose.

Stoats have long, thin bodies with smooth pointed heads. Ears are short and rounded. They are smaller than ferrets. Males grow up to 30cm and females up to 25cm in length. Their fur is reddish- brown above with a white to yellowish underbelly. Stoats have relatively long tails with a distinctive bushy black tip.

Weasels are the smallest and least common mustelid in New Zealand. Males grow to about 20cm. Their fur is brown with white undercoat, often broken by brown spots. Their tails are short, brown and tapering.

Mustelids were introduced in New Zealand in the 1880's in an attempt to manage growing rabbit populations. This introduction had minimal impact on rabbit densities.

Mustelids now pose a significant threat to our indigenous biodiversity, particularly indigenous fauna species. Skinks, flightless birds (such as kiwi) and birds that nest in holes (e.g. penguins and parakeet) are particularly vulnerable. Mustelids have been implicated in the extinction of some indigenous bird species and as the major cause of decline of many others.

Mustelids can also have considerable negative impact on primary production. Mustelids are a threat to poultry farms and carry parasites and toxoplasmosis, which can cause illness in humans and livestock. Ferrets are also a vector (carrier) of bovine tuberculosis.

Mustelids are distributed throughout the Taranaki region.

## Objective

Over the duration of the Plan, sustainably control mustelids 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.

## Principal measures

To achieve the objective for mustelids, the following principal measures will be applied:

- **Requirement to Act:** Land occupiers will comply with the rules specified in this section of the Plan.
- **Extension programme:** Council will implement the *Towards Predator Free Taranaki* programme and provide sustained predator control on the ring plain and coastal terraces by:
  - undertaking initial direct control on rateable properties that lie in an area where at least 75% of land occupiers, covering at least 75% of the land area targeted, indicate, or have indicated, that they wish to be included in a Predator Control Area and will accept land occupier obligations; installation and contribution to the cost of traps for land occupiers in the programme; and
  - providing ongoing technical advice, information, and support to land occupiers in the programme Predator Control Area.
- **Inspections and enforcement:** Council will inspect and monitor properties in Predator Control Areas for land occupier compliance with the Plan rule and to identify any remedial action that needs to be undertaken.
- **Advocacy and education:** Council will:
  - provide advice and information to land occupiers in Predator Control Areas to coordinate and promote effective mustelid control;
  - provide a broad suite of general purpose education, advice, awareness and publicity activities to other interested parties to promote effective predator control; and

- undertake liaison and advocacy to promote effective integrated predator control.
- **Service delivery:** Council will:
  - undertake additional initial direct control, as necessary, of mustelids on properties in Predator Control Areas;
  - undertake additional initial direct control, as necessary, on properties in urban predator control programmes; and
  - undertake site-led predator control on Key Native Ecosystems as part of an agreed site-led response.

## Plan Rules

### Plan rule 3: General Rule for Predator Control Areas

A land occupier within a Predator Control Area must maintain ferrets, stoats, and weasels numbers present on their land by:

- (a) servicing permanent mustelid traps a minimum of ten times per calendar year and record trap catch information in the TrapNZ database; and
- (b) servicing any activated 'remote sensor mustelid trap' within 30 days of activation.

#### Note:

'Servicing' means the removal of dead animals, inspection of trap to make sure it is functioning properly, grass/obstacles removed from around the trap entrance and trap rebaited with fresh bait.

'Remote sensor mustelid traps' refers to kill traps fitted with remote sensor technology capable of sending trap catch information to the user wirelessly.

### **Explanation of rule**

The establishment of Predator Control Areas, underpinned by the above rules enables areas and communities seeking to achieve enhanced biodiversity outcomes through sustained predator control, to do so.

Where a community decides to form a Predator Control Area (as demonstrated by 75% of land occupiers covering 75% of the land area), it is critical that there is a rule to sustain the benefits of initial control. Such a rule is only triggered after considerable public investment and targets the exacerbators of the problem (i.e. land occupiers not undertaking regular and effective control needed to maintain low mustelid numbers.

All land occupiers within a proposed Predator Control Area will be consulted with to discuss the programme and to ascertain their willingness (or otherwise) to sign up to a management agreement.

Initial predator control work will not commence until the 75% land occupier and area threshold has been met. The initial control involves the Council establishing the predator trap network and infrastructure, including wireless traps where possible, followed up by at least four rounds of control and checking of traps that, over time, contributes to achieving a 95% reduction in mustelid numbers.

Upon completion of initial predator control, land occupiers within a Predator Control Area become responsible for maintaining stoats, ferrets, and weasels in accordance with Plan Rule 3.

Contravention of rules 3 and 4 create an offence under section 154N (19) of the Act.

## 2.4 An amended section 9.1 [Measuring what the objectives are achieving]

Amend section 9.1 of the RPMP to include new provisions addressing the monitoring of the sustained control programme for mustelids. The amended section 9.1 reads as follows:

### 6.6A Measuring what the objectives are achieving

The Taranaki Regional Council shall monitor the extent to which the objectives set out in Part Two of this Plan are being achieved by:

- (a) annually mapping the implementation of the Self-help Possum Control Programme;
- (b) monitoring possum population densities and trends, over time, in areas included in the Self-help Possum Control Programme;
- ~~(ba) annually mapping the implementation of the Towards Predator Free Taranaki programme, including establishment of Predator Control Areas;~~
- ~~(bb) monitoring mustelid population densities and trends, over time, in areas included in the Predator Control Areas;~~
- (c) developing agreed collaborative monitoring, reporting and management programmes addressing possum control within and around Egmont National Park;
- (d) monitor, for each pest, the effectiveness of direct control undertaken by the Taranaki Regional Council;
- (e) recording the number of public complaints pertaining to individual pests and instances of non-compliance with the plan rules;
- (f) recording the number of public enquiries in relation to individual pests, including requests for information; and
- (g) annually surveying at release sites and mapping the distribution of biological control agents.

## 2.5 An amended glossary

Amend the glossary of the RPMP to include a new definition for a key term introduced in the mustelid sustained control programme for mustelids. The new definition reads as follows:

**Predator Control Area** means an area identified as a Predator Control Area in accordance with section 6.6A of this Plan.



### 3. Cost benefit analysis for sustained control programme for mustelids

The proposal to include a sustained control programme for mustelids has no ramifications for the overall anticipated cost of implementing the RPMP. Current costs associated with the implementation of the *Towards Predator Free Taranaki programme* have already been budgeted for through long term planning processes as part of the Council's biosecurity funding.

This section sets out, information in relation to mustelids (ferret, stoat and weasel) for which a Sustained Control Programme - involving the imposition of land occupier rules - is proposed.

Ferret (*Mustela furo*)



Stoat (*Mustela ermine*)



Weasel (*Mustela nivalis*)



#### 3.1 Mustelid attributes and distribution

##### Relevant biology

Attribute	Description
Form	<p>Ferrets are the largest mustelid in New Zealand. Male ferrets grow up to 44cm and females up to 37cm in length. The undercoat is creamy yellow with long black guard hairs that give the ferret a dark appearance. A characteristic black face mask occurs across the eyes and above the nose.</p> <p>Stoats have long, thin bodies with smooth pointed heads. Ears are short and rounded. They are smaller than ferrets. Males grow up to 30cm and females up to 25cm in length. Their fur is reddish- brown above with a white to yellowish underbelly. Stoats have relatively long tails with a distinctive bushy black tip.</p> <p>Weasels are the smallest and least common mustelid in New Zealand. Males grow to about 20cm. Their fur is brown with white undercoat, often broken by brown spots. Their tails are short, brown and tapering.</p> <p>Mustelids have a strong musk odour.</p>
Habitat	<p>Mustelids have large home ranges and are active day and night.</p> <p>Ferrets are uncommon in forest but frequently found in association with rabbits on farmland habitats, where they are more abundant than stoats. Ferrets rarely occur in areas with more than 1500 mm annual rainfall.</p> <p>Stoats are the more common forest species and are distributed across most habitats. Weasels prefer disturbed habitats and thick ground cover. They will favour overgrown patches of any habitat from suburban gardens to agricultural land, in scrub and cutover native or exotic forest, or at the margins between these and open country.</p>
Regional distribution	<p>Established and widespread throughout the region. Weasels are the least common mustelid in New Zealand. They are rarely seen and are very 'patchy' in their distribution.</p> <p>Male mustelids generally have a larger home range than females. The average home ranges for male ferrets is 200ha, for stoats it is 147 ha and for weasels it can be up to 192 ha.</p>

Attribute	Description
Competitive ability	Ferrets, stoats, weasels are small to medium sized carnivores. Mustelids pose a significant threat to indigenous fauna species. They are aggressive opportunistic predators and have been implicated in the extinction of some indigenous bird species and as the major cause of decline of many others. Flightless birds (such as kiwi) and birds that nest in holes (such as penguins) are particularly vulnerable.
Reproductive ability	Females breed from age one. Usual litter size for ferrets is 4-8, for stoats it is 8-10, and for weasels it is 3-6.
Resistance to control	Controlled by poisoning (including secondary poisoning), trapping, shooting, fumigation, dogging, control of predator species, and exclusion fences. Control needs to be continuous and cover large spatial areas to be effective. Of these options, shooting is considered the least efficient.
Benefits	Mustelids were introduced in New Zealand in the 1880's in an attempt to manage growing rabbit populations. Ferrets were also once farmed for their fur.

### Where are mustelids a problem?

Mustelids are established throughout Taranaki.

In Taranaki, ferrets and stoats are more common than weasels (which are quite scarce). They are present in small densities across most land use types (see table below). They are found in a diverse range of habitats, including fertile pasture, rough grassland, tussock, scrubland and the fringes of nearby forest (forest fragments) and on any land where there are high numbers of rabbits. However, even in low numbers, mustelids can have a major impact.

Land use type	Current land use infested*	Potential land use infested*	Pest significant problem on this land type**
Dairy	High	High	True
Sheep and beef (intensive)	High	High	True
Hill country (sheep)	High	High	True
Forestry	High	High	True
Horticulture	Low	Low	False
Native / conservation	High	High	True
Urban / Non productive	Low	Low	False

\* High = Most infested/preferred land use(s), Low = Less infested/preferred land use(s), - = Unsuitable land use. Source: Wildlands 2017

\*\* True = Most 'at risk' or impacted land use(s), False = Less 'at risk' or impacted land use(s) based upon impact assessment overleaf.

## 3.2 Impact evaluation

### How are mustelids a problem?

	Category	Current impact	Potential impact	Comment	Source
Production	Dairy	L	M	Threat to animal health. Mustelids potential vector for bovine tuberculosis (Tb)	1
	Sheep and beef	L	M	May carry bovine Tb, and parasites and toxoplasmosis	1
	Forestry	-	-		
	Horticulture	-	-		
	Other	-	-	Major threat to chickens on lifestyle blocks and in urban backyards. Mustelids will also target pets such as guinea pigs or rabbits	1
	International trade	L	M	Presence of Tb in cattle herds is a risk to dairy and meat exports	2, 3
	Soil resources	-	-		
Environment	Water quality	-	-		
	Species diversity	H	H	Major threat to the health of indigenous fauna populations. Skinks, flightless birds (such as kiwi) and birds that nest in holes (e.g. penguins and parakeet) are particularly vulnerable	1, 2
	Threatened species	H	H	Major predator of nationally threatened species in Taranaki, including kiwi, penguin, pied oystercatcher and dotterel species. Mustelids have been implicated in the extinction of up to 30 bird species across New Zealand	2
Social	Human health	L	L	Could transmit Tb to humans	2
	Recreation	-	-		2
	Maori culture	M	H	May predate on taonga fauna species	2

L – 'low' impact; M – 'moderate' impact; H – 'high' impact.

Source: 1: National Pest Control Agencies (2018), 2: King (2005), 3: TBfree New Zealand (2013),

### What is the regional cost of mustelids?

As noted from the preceding table, the regional impact of mustelids are principally environmental, particularly in relation to predation effects on the abundance and distribution of native fauna species. This in turn may impact on Maori culture whereby mustelids can predate on species considered by Maori to be a taonga species. A review of iwi management plans highlights iwi concerns at the impact of introduced predators, including mustelids, on biodiversity values and taonga species.<sup>3</sup>

For the purposes of this proposal, the cost of mustelids on the region are not monetarised. While Council could potentially monetarised the cost of mustelid impacts on production values – should they become a vector of Tb in the region (noting dairying represents the largest portion of land area in the programme) – the 'real' cost of mustelids is their impact on species diversity and threatened species (and these cannot be monetarised).

The regional cost of mustelids in terms of their impacts on species diversity and threatened species impacts can be best surmised by the biodiversity outcomes that can be realised when they are absent or present only in low numbers. Mustelids predate on fledglings. Research confirms that, in mustelid trapping control areas, the survival rate of native bird fledglings increases by up to 10 times. In the case of the bellbirds, the survival rate of fledglings increased from 8% (without trapping) to 80% (with trapping). Mustelids are also likely to have a similar impact on the survival rates of other native species of interest to this region, including blue duck (whio), tui, North Island robin (toutouwai), bellbird, goldstripe gecko, and New Zealand pigeon (kereru).<sup>4</sup>

Mustelids, in particular stoats, are the major cause of kiwi chick death accounting for approximately 65 percent of wild born kiwi chicks within the first weeks of life.<sup>5</sup>

Through their predation impacts, the survival rate of indigenous fauna significantly drops. This, in turn, impacts on the viability (resilience) and distribution of remnant fauna populations noting that they might already be under stress from other influences in Taranaki such as fragmented habitats and the impacts of other invasive weeds and animals.

<sup>3</sup> Refer to iwi management plans prepared by Te Atiawa, Taranaki, Ngati Ruanui and Ngaa Rauru.

<sup>4</sup> Refer <https://www.bionet.nz/assets/Uploads/A8-Pest-Mustelids-2018-04-LR.pdf>.

<sup>5</sup> Refer <https://cdn.boprc.govt.nz/media/417991/pa11-mustelid-control-web.pdf>.

### 3.3 Cost-benefit analysis

#### CBA assessment of the preferred approach

Mustelids have reached their maximum potential extent in the region. Regional intervention is not about preventing the spread of the species but is about managing mustelid population densities.

##### General rule

The general rules focus on intensively farmed areas on the ring plain and coastal terraces where private land occupier in declared Predator Control Areas will be required to keep mustelids at very low levels (following Council-funded initial control).

The CBA assessment confirms that, in the absence of regional intervention, mustelid numbers will remain at present levels with continued high impacts on indigenous biodiversity values across the ring plain and coastal terraces and have the potential to be a vector for Tb (addressing these impacts represents the benefits of this intervention)..

The Council has calculated a cost-benefit scenario over 10 years and 50 years for mustelid control, within Predator Control Areas. These calculations have been annualized and are based upon a general (whole of property) rule to control mustelids.

The cost of the proposal has two component parts (and assumes a 4% discount rate):

- **Council costs:** This covers the costs incurred by the Council for its initial mustelid control, extension, advisory, monitoring, and enforcement and compliance activities. For years 1 to 10 (the years that cover new areas being included in the programme and initial mustelid control), Council costs are estimated to be an average of \$2,314,754 per annum. For years 10 to 50 (the years where the focus is on the ongoing maintenance of the programme), Council costs will reduce to approximately \$510,000 per annum (based upon estimated staff time and costed at \$6 per ha year).
- **Land occupier compliance cost:** This covers the combine costs incurred by all private land occupiers in the programme resulting from requirements to trap and

control mustelids. For years 1 to 10, total land occupier compliance costs across the programme are estimated to be in the order of \$2,077,920 per annum.<sup>6</sup> In year 1, the combined compliance costs will be \$360,000 but will progressively increase over time (an average of 10% as new properties join the programme). From year 10, the ongoing annual cost is estimated to be \$3,600,000 noting the programme has reached its full spatial extent.

##### Summary of CBA assumptions

Pest assumptions	Values	Programme assumptions	Values
Current area infested: <sup>o</sup>	240,000 ha	Proposed Programme:	<b>Sustained Control</b>
Maximum potential area infested:	240,000 ha	Proposed rule application:	Whole property (private land only)
<b>Council costs:</b> Annual expenditure in first 10-yrs	\$2,314,754	<b>Compliance costs:</b> Annual land occupier costs in first 10 yrs	\$2,077,920
Ongoing annual expenditure by Council (after 10-yr rollout)	\$510,000	Ongoing annual costs by land occupiers (after 10-yr rollout)	\$3,600,00
Current impacts (\$):*	Reduced distribution and abundance of native fauna species	Current benefits (\$):	\$0 / ha
Discount rate:	4%		

<sup>o</sup> Refers to that part of the region projected to be covered by the Predator Control Areas over the life of the Plan.

##### Consideration of alternatives

- **Good neighbour rule:** As part of this review, consideration was given to the development of a good neighbour rule requiring control of mustelids on properties adjacent to Predator Control Areas. The intent of any good neighbour rule is to minimise externality impacts on properties in Predator Control Areas. However, given the dispersal range of mustelids is up to 200 hectares the 'buffer' distance required to address externality impacts was considered disproportionate to the added costs to be imposed, i.e. compliance costs would be imposed on all

<sup>6</sup> This is based on the following assumptions – average 1 trap per 10 ha, programme operational area is 240,000ha. Approx. 15min per trap check (4 trap checks per hour) Land occupier time calculated at \$60/hour, 4 trap checks per hour checked 10 time per year as per rule equals to \$3.6 million per annum (when programme at full capacity). This is an over-estimate, as landowners become familiar with their traps, time spent trap checking would be greatly reduced.

neighbouring properties in a two kilometre radius of Predator Control Areas). Further, a good neighbour rule is arguably unnecessary given programme's intent to incrementally include new (neighbouring) areas in the programme over time.

- **Non regulatory regional intervention:** Another option would be to rely on land occupiers voluntarily coordinated and undertaking mustelid control as part of a non-regulatory *Towards Predator Free Taranaki* programme. However, without regulation, there is considerable risk of hot spots of mustelid infestations occurring over time as a result of irregular/ineffective control. In short, mustelids will continue to have high impacts on biodiversity values in this region.
- **No regional intervention:** Another option is no regional intervention and instead rely on ad hoc voluntary control. However, to date such control has not been sufficient to reduce mustelid numbers and their effects (noting that their large home range means that populations can quickly replenish following any localised control).

### 3.4 CBA statement and risks to success

Mustelids have a continuing and significant impact on environmental and social/cultural values, and, to a lesser extent, production (dairy and intensive sheep and beef). They are widespread across all habitat types in Taranaki.

Sustained mustelid control through the imposition of land occupier obligations in Predator Control Areas is technically achievable in urban areas and on those parts of the region that are intensively farmed. Rules requiring land occupiers to reduce and then maintain mustelid numbers at low levels in Predator Control Areas are necessary to support the programme.

Sustained mustelid control through the imposition of land occupier obligations in Predator Control Areas is also cost beneficial through the avoidance of mustelid impacts and the protection of remnant biodiversity values on the ring plain and coastal terraces plus the 'halo' benefits that accrue to the Egmont National Park. The benefits include the protection (and recovery) in the distribution and abundance of some nationally

threatened or regionally distinctive native species in Taranaki that would otherwise be impacted upon by mustelids.<sup>7</sup>

The net monetarised cost of regional intervention (over the first 10 years is estimated to be in the order of \$4,380,000 per annum. Council costs are estimated to be an average of \$2,314,754 per annum while land occupier compliance cost are estimated to be in the order of \$2,077,920 per annum.

Pursuant to section 70(2)(c)(v) and (vi) of the Act, there are no alternative means of achieving the proposed objective (refer section 2.3 above) which reads as follows:

*"...Over the duration of the Plan, sustainably control mustelids 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."*

#### Risks of the proposed programme being unsuccessful in achieving objectives

Risk	Level of risk	Explanation
Technical risk	Low to Medium	New technologies are constantly being worked on in an effort to develop cost effective tools for controlling mustelids at a landscape-scale.
Operational risk	Low	Programme is modelled on the Self-help Possum Control Programme, which has been demonstrated to be sustainable and cost-effective in addressing the externality impacts of possums on intensively-farmed land. However, effective sustained mustelid control will be dependent upon co-ordinated land occupier action.
Legal risk	Low to medium	Success of mustelid control will rely on regular boundary control measures in the Egmont National Park (as part of the Project Mouna project) to reduce risks of re-infestation.
Socio-political risk	Low	The proposed programme will be tested through the Plan review process but it is based on a similar approach adopted to manage another predator (possums) and for which there has been significant public support to date.
Other risks	Low	Programme is dependent upon funding support from central government and/or philanthropic providers.

<sup>7</sup> Council and Landcare Research studies have identified a 90% reduction in the level of mustelids in Taranaki under sustained control.



### 3.5 Who should pay?

Mustelids are a major threat to indigenous biodiversity values in the Taranaki region and, to a lesser extent, production values.

Land occupiers with infestations are the principal exacerbators of the problem. All land occupiers with infestations will be 'exacerbating' the problem and are therefore best placed to undertake and pay for the costs of any control and ensure that infestations are not impacting on biodiversity and production values and/or spreading to their neighbours. This includes the Crown and in particular, the Department of Conservation, which manages the public conservation estate (which represents 20% of the region), including the *Taranaki Mounga* project.

The regional community is the principal beneficiary given that managing mustelids for the protection of biodiversity values is a 'public good'. The Department of Conservation, given their statutory responsibilities for indigenous biodiversity and managing the public conservation estate is also a major beneficiary of any mustelid control.

Rural land occupiers may also be a beneficiary where production values are affected (e.g. through avoiding animal health impacts and risks). Urban land occupiers will not generally be a major beneficiary of any control (other than where it is a public good).

In terms of managing mustelids on private land for the public good, there is general acceptance that the wider regional community is a beneficiary and that Council support is appropriate to maximise the effectiveness of individual control across the region. The regional community is able to assess the cost and benefits and effectiveness of the programme through the annual planning and reporting processes under the *Local Government Act 2002* and through the review of future pest management plans

#### Beneficiaries and Exacerbators

Group	Beneficiary	Exacerbator	Change behaviour	Assess costs & benefits	Control cost effectively
Private land occupiers		Minor	Yes	Yes	Yes
Crown land occupiers	Major	Minor	Yes	Yes	Yes
Dairy / sheep and beef	Minor	Minor	Yes	Yes	Yes
Regional community	Major		No	Yes	Yes



## Glossary

Various technical and planning terms used in this proposal are defined in this Glossary. Unless the context indicates otherwise, the following definitions apply.

**Act** means the *Biosecurity Act 1993*.

**Adjacent** means, for the purpose of the Plan, a property that is next to, or adjoining, another property.

**Beneficiary** means the receiver of benefits accruing from the implementation of a pest management measure or the Plan.

**Biological diversity (or biodiversity)** means the variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems.

**Bovine tuberculosis** means the state of being infected with *Mycobacterium bovis*. *Mycobacterium bovis* is an infectious, zoonotic, bacterial disease, characterised by the formation of tubercle lesions on affected animals.

**Council** means Taranaki Regional Council.

**Costs and benefits** includes costs and benefits of any kind, whether monetary or non-monetary.

### **Crown**

(a) means her Majesty the Queen in right of New Zealand; and

(b) includes all Ministers of the Crown and all departments; but

does not include:

(c) an Office of Parliament;

(d) a Crown entity; or

(e) a State enterprise named in the First Schedule to the *State-Owned Enterprises Act 1986*.

**Exacerbator** means a person who, by their activities or inaction, contributes to the creation, continuance or makes worse a particular pest management problem.

**Externality Impacts**, in relation to pest management, are adverse and unintended effects imposed on others.

**Fauna** refers to all the animals of a particular region or period.

**Good neighbour rule** means a rule that seeks to manage the externality impacts arising from pests spilling over from one property to a neighbouring property that is free of, or being cleared, of that pest.

**Indigenous** means native to New Zealand.

**Key Native Ecosystems** refers to terrestrial sites (sites on land) identified by the Taranaki Regional Council to have regionally significant indigenous biodiversity values.

**Means of achievement** means the general management options, tactics, or technical methods by which the Taranaki Regional Council or land occupiers will achieve an objective or objectives.

**Occupier** means

(a) in relation to any place physically occupied by any person, means that person; and

(b) in relation to any other place, means the owner of the place; and

(c) in relation to any place, includes any agent, employee, or other person, acting or apparently acting in the general management or control of the place.

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

**Pest management plan and Plan** means a Plan made under Part V of the Act, for the exclusion, eradication or management of a particular pest or pests.

**Predator Control Area** means an area identified as a Predator Control Area in accordance with section 6.6A of this Plan.

**Private land** means any land which is for the time being held in fee simple by any person other than Her Majesty; and includes any Maori land.

**Region**, in relation to a regional council, means the region of the regional council as determined in accordance with the *Local Government Act 2002*.

**Rule** means a rule included in a pest management plan or a pathway management plan.

**Sustained control pest programme** means a management programme for which the intermediate outcome for the programme is to provide for ongoing control of the subject, or an organism being spread by the subject, to reduce its impacts on values and spread to other properties.

**Taonga** means treasure, property: taonga are prized and protected as sacred possessions of the tribe. The term carries a deep spiritual meaning and taonga may be things that cannot be seen or touched. Included for example are te reo Māori (the Māori language), wāhi tapu, the air, waterways, fishing grounds and mountains.

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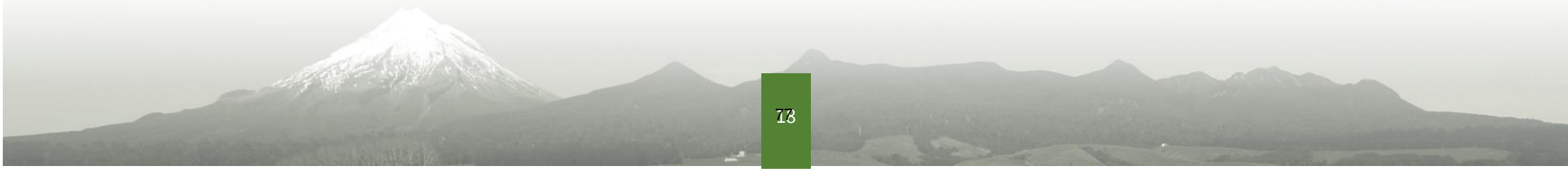
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**Date** 13 October 2020

**Subject:** **Wetland Mapping in the Taranaki Region**

**Approved by:** A D McLay, Director - Resource Management  
S J Ruru, Chief Executive

**Document:** 2595358

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### **Purpose**

1. The purpose of this memorandum is to brief Members' on wetland mapping in the Taranaki region, including requirements pursuant to the *National Policy Statement for Freshwater Management* (NPS-FM) to map wetlands.

### **Executive summary**

2. Wetlands are nationally recognised to be threatened ecosystems and have been in decline throughout New Zealand.
3. Pursuant to the *Resource Management Act 1991* (RMA), regional councils must recognise and provide for the preservation of the natural character of wetlands and protect them from inappropriate subdivision, use and development. The Taranaki Regional Council (the Council) undertakes a wide range of regulatory and non regulatory programmes to ensure that these obligations are met.
4. The Essential Freshwater package was released in September 2020. The package included a new NPS-FM and a new *Environmental Standards for Freshwater* (NES-F).
5. The NPS-FM introduces new requirements for local authorities to identify and map every natural inland wetland in their region. This mapping must be completed within 10 years of the commencement date of the NPS-FM (i.e. 3 September 2030). The new NES-F contains regulations to protect wetlands and prevent their further loss.
6. The Council already holds comprehensive wetland mapping information. Over time, the Council has been building on its datasets. Wetland studies and inventories were commenced in 1996. Landcare Research was commissioned by the Council to identify and spatially (GIS) map wetlands in 2007 and again in 2012. This wetland layer has been regularly updated by the Council. Changes are often made due to better remote sensing (i.e. higher quality satellite imagery) or when there is opportunity for Council officers to ground-truth wetlands.
7. In the 2019/2020 summer period, further work was done by Council focusing on the identification and mapping of wetlands in urban and peri-urban areas. A wetland dataset and identification report was completed in February 2020.

8. In terms, of meeting national requirements to map wetlands by 2030, Taranaki is well placed and will be aiming to give effect to this requirement this financial year. The Council already holds comprehensive wetland information.
9. Officers recommend commissioning Manaaki Whenua Landcare Research to review its various data sets with the view of aggregating it into a single spatial wetland layer. In addition to giving effect to NPS-FM wetland mapping requirements, this exercise will inform the development of the *Proposed Natural Resources Plan* and provide data for the Councils state of the environment monitoring.

## Recommendations

That the Taranaki Regional Council:

- a) receives this memorandum entitled *Wetland mapping in the Taranaki Region*;
- b) notes the recent requirements that the Council must undertake under the new policies and regulations of the NPS-FM and NES-F for wetlands; and.
- c) notes and agrees that the Council commission Manaaki Whenua Landcare Research to review and aggregate existing Council data sets to provide a single wetlands layers that meets the requirements of the NPS-FM and NES-F.

## Background

10. Wetlands such as swamps, marshes and bogs are the meeting ground of land and water. They are among the most diverse ecosystems in the world and support and provide essential habitat for a diverse range of indigenous flora and fauna, including many rare and threatened species. Wetlands also help to filter sediment and nutrients, mitigate floods, improve water quality and maybe of cultural and spiritual importance.
11. However, due to land drainage, use and development, wetlands are now much reduced from their original spatial extent. Today, wetlands are nationally recognised to be a threatened ecosystem. Only 10.1% of wetlands remain nationally. This is compared with 4% in the North Island and 8.1% in Taranaki.
12. Resource use and development activities impacting wetlands are largely governed under the RMA. Pursuant to section 6(a) of the RMA, regional councils are required to recognise and provide for the preservation of the natural character of wetlands and protect them from inappropriate subdivision, use and development. Pursuant to section 30(1) (ga) of the RMA regional councils also have the specific function of establishing, implementing and reviewing objectives, policies and methods for maintaining indigenous biodiversity.
13. The Council gives effect to its resource management responsibilities through the Regional Policy Statement for Taranaki (2010) and the Regional Freshwater Plan for Taranaki. The Regional Policy Statement identifies the management of adverse effects on wetlands as a regionally significant issue. The current Freshwater Plan (currently under review) further contains specific objectives, policies and rules relating to the protection of wetlands and includes a schedule of regionally significant wetlands. This Plan is currently under review and relevant provisions will be amended and incorporated in to a new Natural Resources Plan .
14. The Council further undertakes significant non-regulatory work to protect wetlands. The Wetland and Key Native Ecosystems (KNE) programmes involves council officers working with landowners, including the preparation and implementation of



biodiversity plans, to covenant and undertake works to improve the condition of the remaining wetlands (and other regionally significant habitat types). The Council also engages with landowners to protect and enhance other wetlands through riparian plans, farm plans and other activities.

15. As Members are aware, in August the Government released its Essential Freshwater Package. This package includes a new NPS-FM and new NES-F with specific requirements relating to wetland mapping and protection.

### **New National regulations**

16. The NPS-FM and new NES-F came into force on 3 September 2020.
17. The NPS-FM's objective is to ensure that natural and physical resources are managed in a way 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.
18. Councils must give effect to the NPS-FM through regional policy statements and plans.
19. In giving effect to that objective, the NPS-FM includes new policies to avoid the loss of extent of natural inland wetlands, protect their values and promote their restoration.
20. The NPS-FM contains a new definition for a "natural wetland". "Natural wetland" means a wetland as defined in the RMA (i.e. "...*permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions*") but excluding wetlands constructed by artificial means, geothermal wetlands and any area of improved pasture that is dominated by exotic pasture species and is subject to temporary rain-derived water pooling.
21. Of particular relevance to identifying and mapping wetlands is clause 3.23 [Mapping and monitoring natural inland wetlands] of the NPS-FM. Pursuant to clause 3.23, regional councils must identify, map, and monitor those natural inland wetlands that are:
  - 500 square metres or more; or
  - of a type that is naturally less than 500 square metres in extent (such as ephemeral wetland) and contain threatened species;
  - excluding those located on public conservation lands or waters.
22. Mapping must be completed by 3 September 2030. If there is uncertainty about the existence or extent of a wetland, the wetland delineation protocols provided by Ministry for the Environment must be used.
23. Pursuant to clause 3.23 (5) of the NPS-FM, every regional council must also establish and maintain an inventory for all natural wetlands that includes identifier and location, area and GIS polygon, wetland classification and monitoring information.
24. The new regulations in the NES-F place restrictions on damaging activities in and near natural wetlands.
25. Part 3, Subpart 1 [Natural wetlands] of the NES-F sets out strict requirements to avoid the loss of extent and value of natural wetlands. Of note, the NES-F prohibits activities that cause complete or partial drainage of all or part of a natural wetland. Having high

quality wetland mapping data will support this Council implementing the new regulations.

### **Wetland mapping in Taranaki to date**

26. The Council has undertaken extensive wetland mapping which has been continuously updated and improved over a number of years.
27. In 1996, the Council undertook a project to develop an inventory of 77 'regionally significant' wetlands and a similar exercise was completed in 2005. In 2009, the Council commissioned Manaaki Whenua Landcare Research to identify and map all identifiable Taranaki's wetlands (>0.05 hectares) using remote sensing (i.e aerial photography). This exercise was again repeated in 2014. As the Council's aerial photographs improve the wetland dataset has continued to be fine-tuned and enhanced.
28. The Council's wetland information continues to be updated and improved over time. Where there is the opportunity, Council officers have been verifying and 'ground-truthing' wetlands. In rural areas, the Land Management Team have been ground-truthing wetland data sets on properties that have Council farm plans, particularly on riparian management plans and hill country farm plans. Land Management officers will be auditing all riparian management plans over the next two years and visiting all hill country farms, including properties in the South Taranaki and Regional Erosion Support Scheme (STRESS) programme, over the next three years. Wetland information will be verified as part of that process.
29. Over summer 2017/2018, Council employed a student to complete a desktop exercise using the 2017 aerials to identify wetlands that had been missed by Landcare in 2014 and add 'potential wetlands' to be verified in the field using remotely sensed ecosystem mapping layers, aerial photos and LCDB. Over the 2019/2020 summer period, the Council undertook another wetland survey exercise targeting urban areas and other areas where no farm plan exist. The survey of urban wetlands was conducted by university students Allie Mulholland and Grace Mackenzie and was completed in February 2020. This exercise involved the survey and ground truthing of 275 'suspected' wetlands. As a result of these surveys, 61 additional wetlands that were not previously identified have now been added to our datasets. A report summarising the key findings from that project is appended for your information.
30. Figures from the last analysis completed by Landcare Research in 2014 shows Taranaki has 1,201 wetlands covering 3,249 hectares. However, this number is likely to increase significantly as our datasets are improved and further areas ground-truthed.
31. The issue for the Council is that while it currently holds extensive spatial information of wetlands the information is being maintained across different departments and across a plethora of data sets. For example, Land Management, Environment Services, and Science Services all have wetland GIS data. This is comprised of data collected on the ground and in the field by Land Management staff (captured on mobile GIS tablets), by assessments by Environment Services (including hard copy maps), remotely sensed data identifying previously missed wetlands, and various GIS datasets identifying potential wetlands that need ground verification using 2017 aerials, a 'Lakes' layer created for Science Services (or LINZ?), and urban wetlands.
32. All of the above needs consolidating. Only the last Landcare/Manaaki Whenua assessment from 2012 is displayed on Taradise as our Regional Wetland Layer and this has several errors. On the positive side, because of the work that has been done in the past, it is believed that it might be a relatively simple job to review our existing (but

disparate) datasets to generate a single wetland mapping dataset for the Taranaki region that will give full effect to NPS-FM mapping requirements.

### **Future direction for wetland mapping**

33. The NPS-FM requires the mapping of inland wetlands to be completed by 2030. However, officers recommend that the Council begin and finish this process early by collating the data currently held.
34. Officers recommend that Council commission Manaaki Whenua Landcare Research to review and create a single layer that contains all Council's wetland information and in a form that meets the requirements of the NPS-FM. Landcare Research have extensive experience and expertise in wetland mapping and has been used by this Council before.
35. The cost of this project is likely to be no more than \$20,000. Officers are currently in discussions with Landcare Research and hope to commission the project shortly with it to be completed this financial year. Information in the dataset will continue to be refined by Council officers on the ground updating the dataset when the opportunities arise, e.g. through farm planning processes.
36. Besides giving effect to NPS-FM wetland mapping requirements, consolidation of wetland information will enable sites to be scheduled and mapped in the new *Natural Resources Plan*. The information will also be timely and contribute to the Council's state of the environment monitoring reporting for 2021.

### **Decision-making considerations**

37. Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

### **Financial considerations—LTP/Annual Plan**

38. 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**

39. 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**

40. 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.

### **Legal considerations**

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

### **Appendices/Attachments**

Document 2378220: Urban Wetland Identification Report



# Urban Wetland Identification

Review of Urban Wetlands in the Taranaki Region

November 2019 – February 2020

**Urban Wetland Identification – Review of Urban Wetlands in the Taranaki Region**

Document number: 2378220

14<sup>th</sup> February 2020

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## 1. INTRODUCTION

### 1.1 PURPOSE

The purpose of this report is to document the findings of a Taranaki Regional Council (the Council) survey of wetlands in urban and peri-urban areas.

This survey and report contributes to the development of a proposed *Natural Resources Plan for Taranaki* and giving effect to proposed Government requirements set out in the draft *National Policy Statement for Freshwater Management* that regional councils identify and map all wetlands in their region.

### 1.2. BACKGROUND

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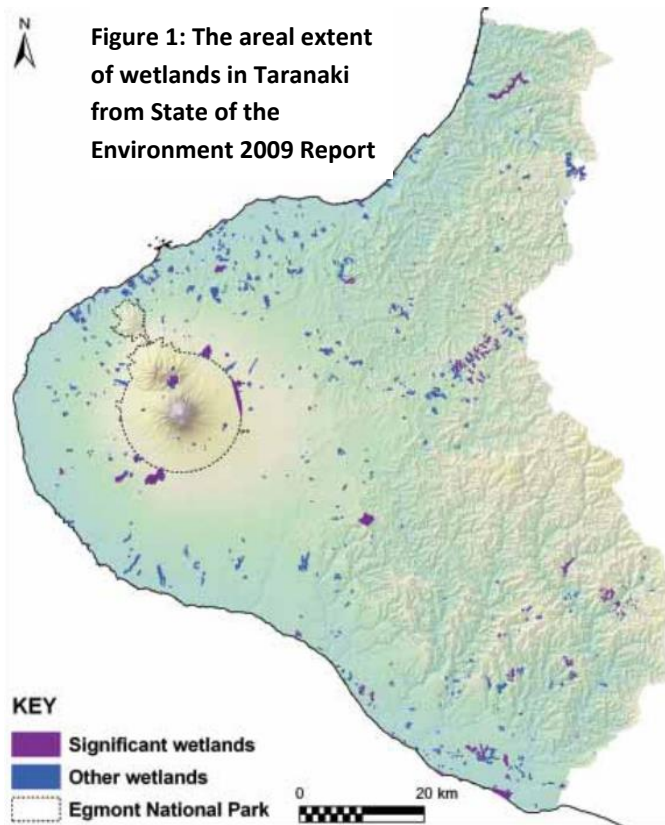
#### 1.2.1 THE IMPORTANCE OF WETLANDS

Wetlands are amongst the most productive ecosystems in the world. This is due to their ability to provide a habitat for an immense variety of flora and fauna, some which are classified as regionally significant.

A wetland can be defined as an area of permanent or intermittent wet land and shallow water, with fluctuating land-water margins. Wetlands such as swamps, marshes and bogs may be fresh, saline or a mixture of both, and are characterised in their natural state by plants or animals adapted to living in wet conditions. Some of the animals and vegetation that live in wetlands within the Taranaki region are rare, threatened and regionally significant.

Wetlands are important for biodiversity, and act as the ‘kidneys of the land’ by allowing land management benefit because they store water during rainfall, helping to reduce flood levels and in dry periods, they release water to help maintain farm supplies; they are essential in improving water quality as they filter out sediment from farm runoff. Wetlands also create a habitat for flora and fauna to thrive which allows for a unique ecosystem.

Wetlands have been protected in Taranaki through formal mechanisms (such as rules and covenants) and proactive protection works such as weed and pest management, fencing and planting. However, small wetlands, in particular, are under pressure from land developments. Historically, agricultural production and urban development has been responsible for most of the wetland loss. Wetlands in Taranaki are now relatively scarce and under-represented. A recent survey estimates that 8.1 percent or 3,291 hectares of Taranaki original wetlands remain. This compares with 10.1% nationally and 5% for the North Island.<sup>1</sup> The extent of wetlands, as well as those identified as regionally significant is shown in Figure 1.



### 1.2.2 THE STATUTORY CONTEXT

The *Resource Management Act 1991* (the RMA) contains a number of provisions that are relevant to the protection and preservation of wetlands.

Under Section 6(a) of the RMA “...all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the preservation of the natural character of the coastal environment (including the coastal marine area), **wetlands**, lakes, rivers and their margins, and the protection of them from inappropriate subdivision, use, and development.” (New Zealand Legislation, 1991).

Under section 30 of the RMA, regional councils are responsible for the use, development and protection of fresh water, including wetlands (sections 30(1)(c), (e), (f) and (g), RMA), and the maintenance of indigenous biodiversity (section 30(1)(ga), RMA). The Council gives effect to its

<sup>1</sup> Taranaki Regional Council. (2015). *Taranaki as One – Taranaki Tangata Tu Tahī, State of the Environment*

resource management responsibilities through regional plans (plus a number of non-regulatory programmes).

Pursuant to the RMA, a suite of national directions may be promulgated that regional councils must also give effect to.

The *National Policy Statement for Freshwater Management 2014* (NPS-FM) contains provisions directing regional councils on the management of fresh water, including wetlands. Proposed changes to the NPS-FM are currently being considered by the Government and include significant changes of relevance to wetland protection. Of particular note are proposed requirements that require the Council to identify and map all existing wetlands over 0.05 hectares or are known to contain threatened species or that are naturally less than 0.05 hectares in size..<sup>2</sup>

Given the likelihood of new national directions being promulgated that will require all wetlands within the region to be mapped and monitored, and to assist in the review of the current *Freshwater Plan for Taranaki*, the Council continues to update its datasets relating to wetlands.

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### 1.2.3 STATE OF CURRENT WETLAND MAPPING IN TARANAKI

In September 2019 the Ministry of the Environment released a draft NPS-FM and draft *National Environmental Standards for Freshwater Management* (NES-FM). The NPS-FM does not state how the wetlands must be identified but does say that where there is uncertainty about the existence or extent of a wetland, a described delineation process must be followed and the outcome of that taken as definitive.

The Council has been actively mapping wetlands and improving its datasets since 1996. In 1996, the Council undertook a project to develop an inventory of wetlands. The project was based upon 1994 aerial photography (rather than digital prints) and a visual inspection of each print using a stereoscope. In 2005 a similar exercise was undertaken.

Methodology limitations of the aforementioned projects was recognized and in 2009 the Council commissioned Manaaki Whenua Landcare Research to identify and map Taranaki's wetlands. Landcare Research staff experienced in field mapping, image analysis and geographic information systems (GIS) developed Council's first comprehensive electronic wetland dataset. The exercise involved an analysis of 2001 and 2007 aerial photographs. In 2014, Landcare Research were

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<sup>2</sup> Refer New Zealand Government, *Action for Healthy Waterways 2019*. Other proposed changes include requirements to monitor wetland health, set policies to protect them and design ways to allow for restoration to occur more effectively. Draining, damming, diversion, water takes, and numerous other destructive activities would be restricted under these policies which are estimated to take effect on June 2020.

commissioned to repeat the exercise using 2012 aerial photographs to fine-tune the initial dataset and assess any changes over time.

The Landcare Research wetland layer has been adopted and updated by Council over time. In particular, where Council has had the opportunity to ground-truth wetlands (through mapping of wetlands as part of the development of farm plans or through the Key Native Ecosystem (KNE) or wetland programmes), it has done so.

In the short term, Council will continue to update its wetland mapping. In rural areas, the Land Management Team are continuing to ground-truth the wetland data set on properties that have Council farm plans. Land Management officers (LMOs) will be auditing all riparian management plans over the next two years and visiting all hill country farms, including properties in the South Taranaki and Regional Erosion Support Scheme (STRESS) programme, over the next three years. Together, ground-truthing and mapping will cover the vast majority of wetlands in the region. However, it will not cover properties with no Council farm plans, including wetlands in urban and peri-urban areas.

In the 2017/2018 summer period the Council employed a student, Alastair MacNicol, to identify wetlands not yet identified by Landcare Research and/or Council datasets. This was done in two ways using remotely sensed data. First, the Potential Ecosystems GIS layer for Taranaki (Singers and Lawrence 2016) was used whereby ecosystem types that may have a wetland component were intersected with the latest version of the Land Cover Database (LCDB4) to highlight potential wetland remnants for ground survey. This was particularly useful for identifying potential swamp forest remnants. Second, MacNicol also performed a visual assessment of the 2017 aerial photographs to look for changes in areal extent since 2012, and identify potential wetland areas that were missed in the first two Landcare Research assessments. A significant number of additional wetlands were identified but required verification in the field.

Hence the need for this project, that largely seeks to identify and map wetlands in urban and peri-urban areas. Of note, however, is that while the focus of the project is on urban and peri-urban areas, majority of rural properties without farm plans but with suspected wetlands were also visited.

### 1.3 STRUCTURE

**This report has four sections.**

Section 1 introduces the report and outlines its purpose, background, and structure.

Section 2 sets out the project's scope and methodology.

Section 3 sets out a discussion of the findings from the wetland identification project, including an overview, distribution, type and size of wetlands.

Section 4 sets a summary and conclusion.



## 2. PROJECT SCOPE AND METHODOLOGY

### 2.1 AIM OF THE PROJECT

This project aims to:

- Identify and map urban, peri-urban and other wetlands to improve the Taranaki wetland dataset and associated GIS mapping
- Provide an improved wetlands data set for State of the Environment monitoring
- Improve the data set of wetlands information to inform the Council's protection and enhancement programmes.

### 2.2 SCOPE

The scope of this report addresses constructed and non-constructed wetland identification in the Taranaki region, particularly in relation to urban and peri-urban areas.

Urban and peri-urban were the main areas where wetlands were identified and surveyed as part of this project. This is because wetland mapping in these areas to date have been largely incomplete (where there are no farm plans Council officers are less likely to visit and monitor the existing wetlands).

Urban areas were identified as per the defined urban areas set out in the *Regional Air Quality Plan for Taranaki*. Peri-urban areas can be described as areas immediately adjacent to urban areas, that are rural in character and which are part of the landscape interface between town and country (rural areas).

The NPS-FM and NES-FM focus is on 'natural' wetlands. Accordingly, this project endeavored to differentiate between 'constructed' (artificial and/or man-made) and non-constructed (natural) wetlands. However, considerable ecological experience and expertise was required to accurately differentiate between the two types. Therefore, the majority of the wetlands identified and surveyed were necessarily classified as natural wetlands (acknowledging further surveying will be required by those with the appropriate ecological expertise in the future). Only wetlands that were obviously constructed were recorded as such.

A constructed wetland supports an ecosystem of plants that are suited to wet conditions; and is constructed for a specific purpose in a place where a natural wetland does not already exist (*Proposed NPS-FM, 2019*). Whereas a non-constructed wetlands are either permanently or seasonally saturated in water due to natural causes, create habitats for aquatic plants and animals, and provide conditions that promote the development of wetland soil.

## 2.2 METHODOLOGY

The Council established a project team involving the policy, environment services and land management sections to oversee and support the project to identify and survey wetlands in urban and peri-urban areas. Two planning students were appointed over the 2019/2020 summer period as survey officers to review, inspect and report on the project.

The project comprised of four parts:

- Preparation of a field guide on common wetland species.
- Wetland and property verification via remote sensing, which is a process of detecting and monitoring the physical characteristics without making physical contact of an area.
- Site verification and 'ground-truthing'.
- GIS mapping / report writing.

The first part of the project, involved the preparation of a field guide by survey officers identifying common wetland plants species to assist them with the field verification of wetlands. The guide was developed using a range of different sources (*New Zealand Plant Conservation Network website and New Zealand Birds online*) and included photographs and descriptions of the native and exotic plant species. Table 1 overleaf lists the selected native and exotic species used to aid wetland identification.

The second part of the project involved using remote sensing to identify properties with possible wetlands. Survey officers examined aerial photographs on Taranaki Council's internal GIS viewer, Taradise (the scale was 1:500), to identify features that might be wetlands. Properties with Council farm plans, or that are part of the KNE program were excluded.

Other information was collated through Taradise and entered into an Excel report. This included the address, assessment number and the name of property owners. This information was recorded in an Excel table (*supporting documents were entered in Frodo as South Taranaki Excel Spreadsheet: 2380896, Stratford District Excel Spreadsheet: 2369090, and New Plymouth District Excel Spreadsheet: 2369093*). Once all property information was collected, the Council's database (IRIS) was used to collect property owners' phone numbers which was also recorded in Excel. Of note, not every person's phone number was available.

The third part of the project involved site verification and ground-truthing. As far as practicable, Council endeavored to contact property owners first to explain the project and to seek permission to survey the 'suspected' wetland. Calling people to ask for permission to view wetlands on their properties was a key part to the project. People were generally willing to co-operate following an explanation. For the residents who were not contactable via telephone, a property visit took place to ask for the permission. If they were not home, a flyer and a business card providing information on

the project was left with a request that they contact the Council to arrange a mutually suitable time for a revisit (Refer to reference list).

If they failed to contact the Council, officers re-endeavored to contact them again by telephone and/or revisiting the property a second time. In instances where the property owner was opposed to the Council visit and survey, survey officers would endeavor to undertake the field verification from public access points. However, if that was not possible or practicable, no mapping occurred. Fortunately, this has been noted down in an excel spreadsheet for a warranted officer to map at a later date.

Ground-truthing involved survey officers looking at the characteristics of the suspected wetland. If, in their view, the suspected wetland was indeed a wetland (having regard to hydrological characteristics and vegetative composition and type of the feature); it was mapped and key information was recorded. If in their view, the suspected wetland was not a wetland no mapping was required.

To assist in recording key information from the field surveys, the Council developed a new app using Survey123. The app allows for the size of the wetlands to be noted by drawing a polygon around the wetland, then assisted by questions that determine what sort of wetland has been identified. In determining what a wetland is, certain vegetation and wildlife are a significant indicator on whether an area is in fact, a wetland.

Questions that needed to be answered at every wetland through Survey 123 include:

- Is the wetland natural or constructed?
- Is the wetland fenced?
- What type of vegetation buffer surrounds the wetland?
- Has the wetland been modified and to what extent?
- What plants could be identified?
- What wildlife life could be identified?

The fourth part of this project is to document the key findings of this project on a new GIS wetland layer for the region. In addition the report has been prepared to summaries and analyse key findings from the project.

Table 1: Native and Exotic species used to identify a wetland.

<b>Common name</b>	<b>Scientific name</b>	<b>Threat Classification</b>
<b><i>Pukatea</i></b>	<i>Laurelia novae-zelandiae</i>	<i>Not Threatened</i>
<b><i>Kahikatea</i></b>	<i>Dacrycarpus dacrydioides</i>	<i>Not Threatened</i>
<b><i>Raupo</i></b>	<i>Typhaceae orientalis</i>	<i>Not Threatened</i>
<b><i>Cutty Grass</i></b>	<i>Carex geminata</i>	<i>Not Threatened</i>
<b><i>Purei</i></b>	<i>Carex secta</i>	<i>Not Threatened</i>
<b><i>Swamp maire</i></b>	<i>Syzygium maire</i>	<i>Threatened, Nationally Critical</i>
<b><i>Saltmarsh ribbon wood</i></b>	<i>Plagianthus divaricatus</i>	<i>Regionally Distinctive</i>
<b><i>Shore stonecrop</i></b>	<i>Crassula peduncularis</i>	<i>Threatened</i>
<b><i>Fern</i></b>	<i>Deparia petersenii</i>	<i>Regionally Distinctive</i>
<b><i>Dwarf Buttercup</i></b>	<i>Ranunculus recens</i>	<i>Threatened</i>
<b><i>Australian bittern</i></b>	<i>Botaurus poiciloptilus</i>	<i>Regionally Distinctive, Threatened</i>
<b><i>Banded Rail</i></b>	<i>Gallirallus philippensis</i> <i>assimilis</i>	<i>Regionally Distinctive</i>
<b><i>Grey Duck</i></b>	<i>Anas supercilliosa</i> <i>supercilliosa</i>	<i>Threatened</i>
<b><i>New Zealand dabchick</i></b>	<i>Poliiocephalus rufopectus</i>	<i>Regionally Distinctive, Threatened</i>
<b><i>North Island fern bird</i></b>	<i>Bowdleria punctata vealeae</i>	<i>Regionally Distinctive, Declining</i>
<b><i>Pied shag</i></b>	<i>Phalacrocorax varius varius</i>	<i>Threatened</i>
<b><i>Royal spoonbill</i></b>	<i>Platalea regia</i>	<i>Regionally Distinctive, At Risk</i>
<b><i>Spotless crane</i></b>	<i>Porzana tabuensis</i>	<i>Regionally Distinctive, At Risk</i>
<b><i>Longfin Eel</i></b>	<i>Anguilla dieffenbachii</i>	<i>Not Threatened</i>
<b><i>Whitebait/freshwater fish</i></b>	<i>Inanga</i>	<i>Threatened</i>



### 3. FINDINGS

#### 3.1. OVERVIEW

The Council has a significant amount of information on wetlands within the region. However, there is a limitation of data on urban and peri-urban wetlands. The *Regional Air Quality plan for Taranaki 2011* was used to assist the project in terms of where the boundaries are for each urban area.

Over a period of 12 weeks from the 11<sup>th</sup> November 2019 – 14<sup>th</sup> February 2020, 275 ‘suspected’ wetlands were identified through aerial photography and then were ground-truthed. However, other sites were visited that were thought to be wetlands but were actually streams, rivers or bush.

Majority of the Lake/Lagoons/Ponds are classified as natural. However, some are clearly constructed and have been created by people. Which means these are not natural wetlands but do assist with habitats for flora and fauna.

#### 3.2. DISTRIBUTION

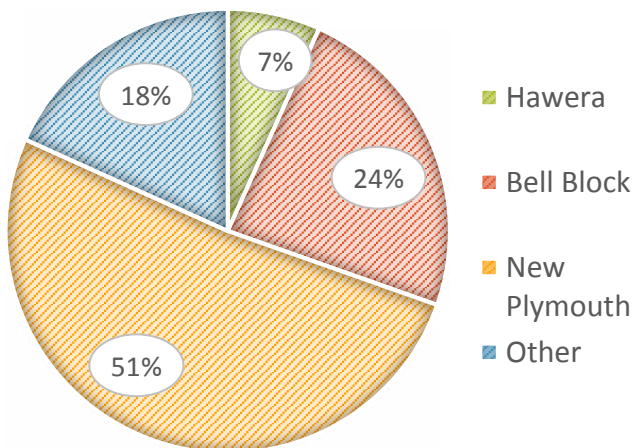
The urban areas that had the most wetlands specific to this project were New Plymouth, Hawera and Bell Block. However, smaller townships such as Waitara, Stratford, Eltham, Inglewood, Oakura, and Okato typically had between 1-9 wetlands whereas towns such as Urenui, Opunake, Manaia, Patea and Waverley had none.

New Plymouth had 76 wetlands that were identified within the urban boundary, while Hawera had 10 wetlands and Bell Block had 35. The total number of wetlands surveyed was 275. Of that number, 61 wetlands were surveyed without the use of Taradise layers. These wetlands were found by driving past or through searching aerial photographs for possible wetland areas without assistance.

Table 2: Number of wetlands in each urban area.

Urban Area	Urban Wetlands
Waverley	0
Patea	0
Hawera	10
Manaia	0
Opunake	0
Stratford	5
Eltham	9
Inglewood	1
New Plymouth	76
Waitara	8
Urenui	0
Oakura	3
Okato	1
Bell Block	35
<b>Total Urban Wetlands</b>	<b>148</b>

DISTRIBUTION OF WETLANDS IN URBAN AREAS



TOTAL WETLANDS

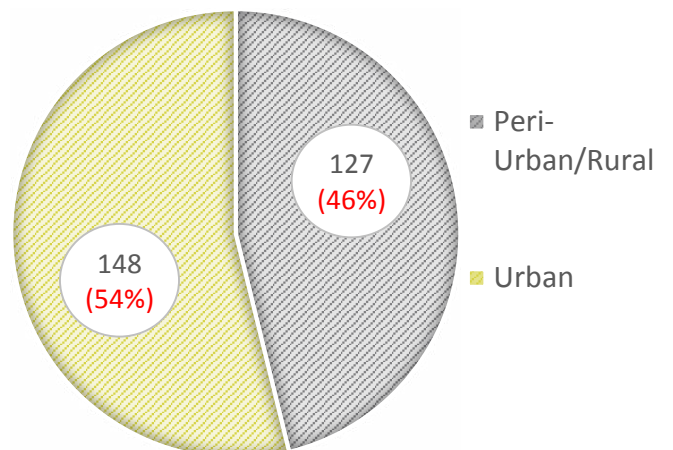




Figure 2: Wetlands surveyed in the Taranaki region for this project

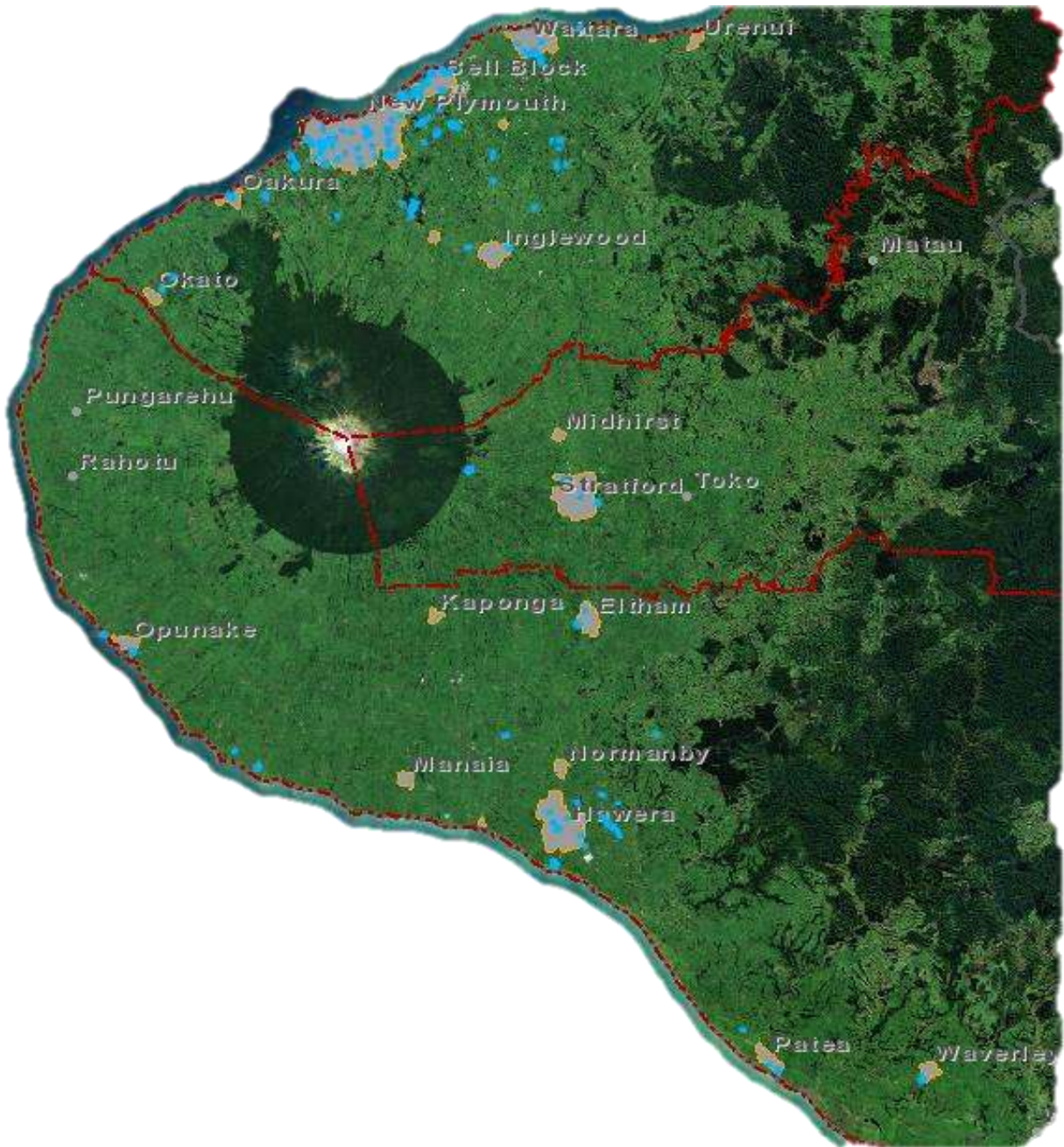


Figure 2 displays the GIS layer showing the distribution of wetlands surveyed and mapped over the 2019/2020 summer period. The blue polygons indicate the wetlands surveyed, the orange line is the urban boundary, and the red line indicates the district boundary. In the South Taranaki District, 58 wetlands were surveyed, in the Stratford District, 11 wetlands were surveyed, and in the New Plymouth District, 206 wetlands were surveyed.

### 3.2. TYPES OF WETLANDS

The four types of wetlands identified through this project were salt marsh, swamp/marsh, swamp forest, and lake/lagoon/ponds. Majority of wetlands were Swamp marsh and Lake/lagoon/ponds. Specific to this project there were 104 swamp marsh wetlands, 156 Lake/Lagoon/Ponds, 4 Salt Marsh, 10 Swamp forest wetlands. No wetlands that were surveyed came under the categories seep/spring, ephemeral, dune slack, or bog/fen. In total, 32 of these wetlands were not fenced, 9 were partially fenced, and 234 were fenced or could not be accessed by stock.

**Figure 3 illustration of Swamp/Marsh**

Swamp/Marsh is a wetland that is frequently or continually filled with shallow water nearby running bodies of water. These wetlands are often dominated by emergent soft-stem vegetation and herbaceous plants such as Raupo as shown in the picture; this wetland is private.



**Figure 4 Illustration of Lake/Lagoon/Pond**

A Lake/Lagoon/Pond is classified as a wetland because it is a distinct ecosystem that is permanently flooded by water with a defined edge as shown in the picture. This Lake is Lake Mangamahoe near New Plymouth.

**Figure 5: Illustration of Salt Marsh**

Salt Marsh wetlands are located near coastal areas because they are flooded and drained by salt water brought in by tides. They are marshy because the soil is usually composed of deep mud and peat. Cordgrass is a common salt marsh plant as shown in the picture. This wetland area in particular is owned by the Department of conservation (DOC) near Brookes Terrace in Waitara.



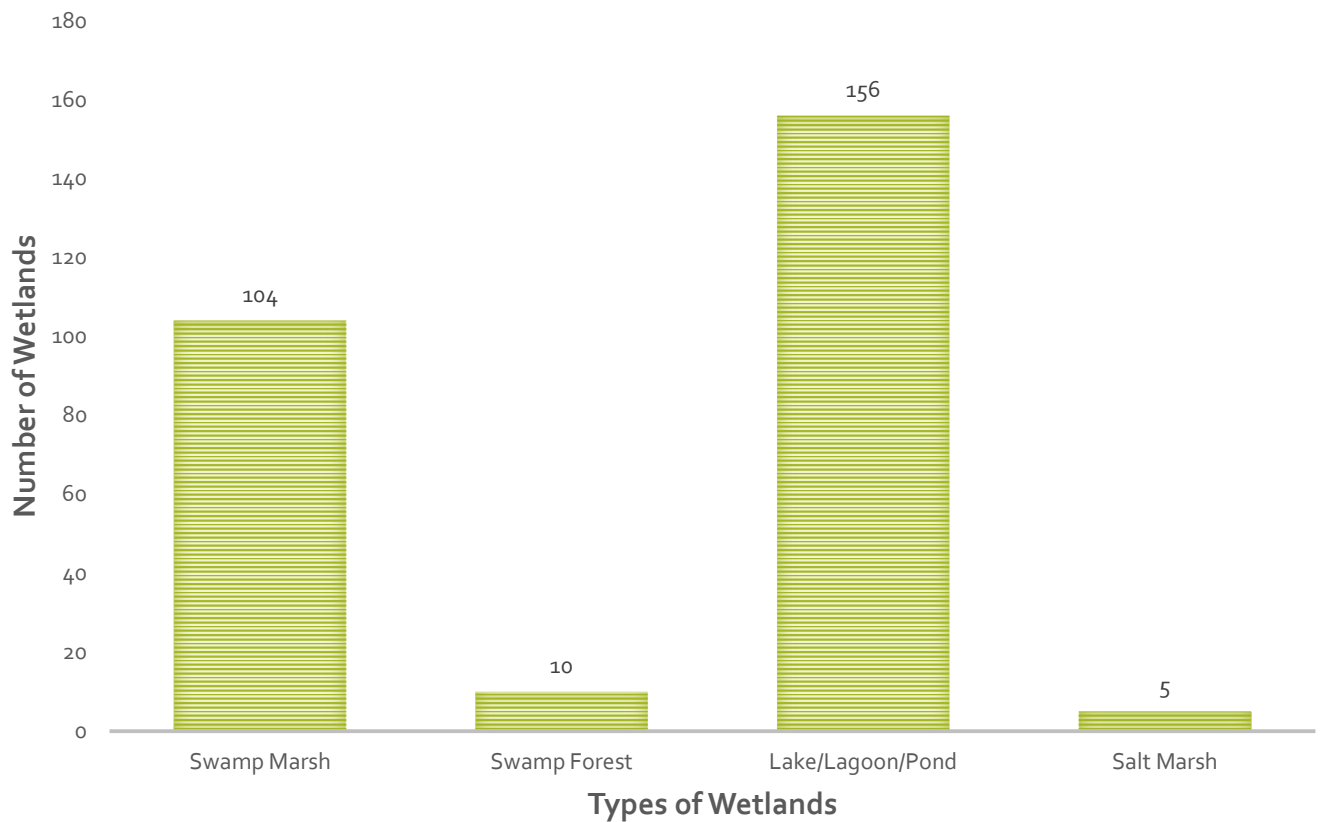




**Figure 6: Illustration of Swamp Forest**

Kahikatea and Pukatea are dominant plant species that indicates a swamp forest. Swamp forests typically occur in areas permanently inundated with shallow fresh water and have a lot of vegetation and trees unlike swamp marsh. This wetland is open to the public, it is located at 199A Carrington road, New Plymouth. It is owned by New Plymouth District Council.

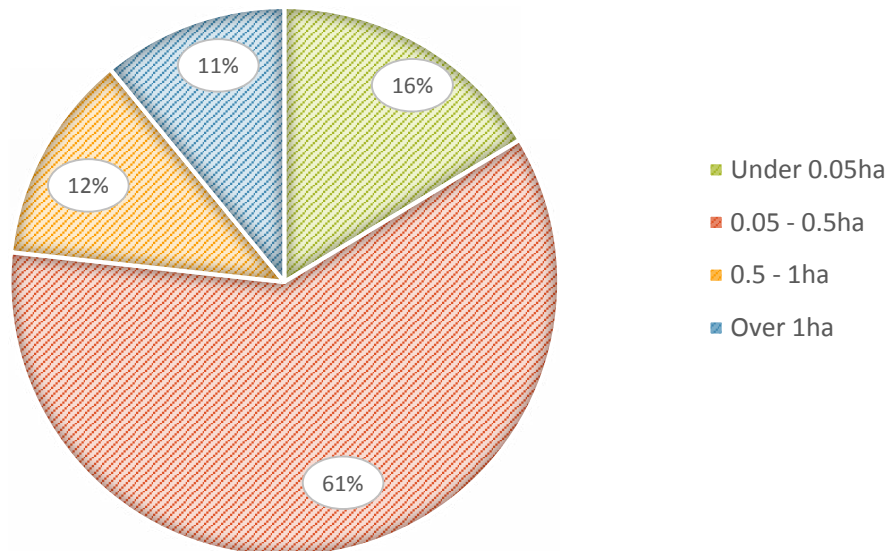
## NUMBER OF WETLAND TYPES



### 3.3. SIZE OF WETLANDS.

As per the project’s scope, the majority of the wetlands surveyed through this project were located in urban and peri urban areas with a small proportion in rural areas. Most of these wetlands are quite small. Wetlands varied in size – 45 (16%) wetlands surveyed were under 0.05ha (12%) in size, 166 (61%) were between 0.05 – 0.5ha, 34 were 0.5 – 1ha, and 30 (11%) wetlands were over 1ha.

## SIZE OF WETLANDS SURVEYED



## 4. SUMMARY

The layers on Taradise that were used to assist with this project have been visited and are either confirmed to be wetlands or confirmed to be a stream/river/bush area. However, a lot of wetlands in urban areas were not identified in a Taradise layer. Therefore, the process of searching for suspected wetlands was undertaken through aerial photographs where 61 wetlands were identified; as previously mentioned.

The surveying of wetlands in urban areas under Taradise layers has been completed. However, there are still wetlands that have not been identified through aerial photographs in urban areas. The next step from here is to go over all urban areas and identify what has been missed by using the information that has been gathered over the past 12 weeks in this report and on the excel sheets.

This will help to better assist the Council’s current dataset on wetlands which focuses mainly on rural areas with hill country plans, riparian plans which are linked to land management officers.

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**Date** 13 October 2020

**Subject:** **Hearings with Iwi Commissioners**

**Approved by:** A D McLay, Director - Resource Management  
S J Ruru, Chief Executive

**Document:** 2583637

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### **Purpose**

1. The purpose of this memorandum is to inform members of the Council's hearings, where iwi/hapū were submitters and where there were commissioners with cultural expertise (particularly whether they were from or had good knowledge of the Taranaki area), and the changes that have occurred through time.

### **Executive summary**

2. The Council, like other councils in New Zealand, has generally used elected members to sit on hearing panels for consents and plans in the past. However, on specific consents there have been commissioners with cultural expertise.
3. Following iwi feedback, since 2011 there have been independent Māori Commissioners on hearings panels for consents and plans where iwi/hapū were submitters.
4. The matter of independent iwi hearing commissioners is not unique to this Council and applies to the three district councils. Hence, this matter should be jointly considered together.
5. Mana Whakahono a Rohe discussions between the four councils and seven iwi authorities is considering a range of resource management matters and has considered supporting the accreditation of local iwi members for use by all the councils, not just this Council.

### **Recommendations**

That the Taranaki Regional Council:

- a) receives the memorandum *Hearings with Iwi Commissioners*
- b) notes the use of independent hearing commissioners with Maori cultural expertise on plans and consents over the last nine years
- c) notes the Councils decision to not renew elected members' hearing commissioner accreditation and move to the use of independent hearing commissioners



- d) notes the Council has successfully raised the issue of jointly supporting accreditation for local independent Māori commissioners with other Taranaki councils as part of the Mana Whakahono a Rohe negotiations.

## Background

6. At the 1 September Policy and Planning Committee meeting, Ms B Bigham requested a report on iwi commissioners used in hearings to assess whether commissioners had appropriate expertise to hear and decide on iwi submissions. The focus was on consent hearings but, for the purposes of this item, all hearings held by the Council have been addressed over the last 30 years.
7. Of note, the Council has few hearings with the success of the pre-hearing process resolving most submissions on limited notified and notified consent applications. In recent years, iwi are increasingly being consulted by applicants and notified of consent applications by the Council.
8. For limited notified applications, iwi authorities are generally affected parties and actively involved in the pre-hearing process.

## Assessment

9. The Council, like other councils in New Zealand, has traditionally used elected members to sit on hearings panels for consents and plans. However, the trend in the last nine years has been for hearings panels to include Māori cultural expertise on hearings panels where iwi/hapū/other iwi groups were submitters.

## Plans

10. Since the *Resource Management Act* came into force in 1991 the following first and second generation regional policy statements and plans have been developed with the community:
  - *Regional Policy Statement for Taranaki* (1994)
  - *Regional Coastal Plan for Taranaki* (1997)
  - *Regional Air Quality Plan for Taranaki* (1997)
  - *Regional Fresh Water Plan for Taranaki* (2001)
  - *Regional Soil Plan for Taranaki* (2001)
  - *Regional Policy Statement for Taranaki* (2010)
  - *Regional Air Quality Plan for Taranaki* (2011)
  - *Proposed Regional Coastal Plan for Taranaki* (2018).
11. In 1993, there were 44 submissions on the *Regional Policy Statement* (RMA) and two of these were from iwi- Ngāti maru and Ngāruahine Iwi Authority. The submitters addressed kaitiakitanga and aspects of the Declaration of Understanding concerning the application of Treaty of Waitangi principles. The Policy and Planning Committee heard the submissions.
12. The *Regional Coastal Plan* process attracted four submissions from iwi in the region (Ngaa Rauru, Ngāti Tama, Ngāruahine, and Ngāti Mutunga). The hearing of submissions was before the Policy and Planning committee.

13. The *Regional Air Plan* process did not attract iwi/hapū submissions.
14. The 1999, hearing for the *Fresh Water Plan* included D Ratahi, a member of Te Putahitanga o Taranaki committee (Iwi Liaison Committee), on the committee, which heard 30 submissions from a variety of submitters. Ngāti Mutanga Iwi Authority and Ohu o Nga Taonga, Ngāti Maru (Mr R Pue) were the iwi submitters. Only Ohu o Nga Taonga, Ngāti Maru participated in the hearing and opposed the Plan.
15. The reviewed *Regional Policy Statement* process included a submission from Otaraua Hapū Trust and a hearing before the Policy and Planning Committee. The submission was opposed by another submitter and was judged invalid because it did not comply with the requirements of the RMA. However, the Hearing allowed the submission but it had no legal rights. An issue raised was Māori representation on the Hearing Panel.
16. The review of the *Regional Air Plan* did not attract iwi/hapū submissions.
17. In response to iwi feedback the next plan process involved hearing members with cultural expertise. The *Proposed Regional Coastal Plan* had Mr R Faulkner on the hearing panel as a commissioner with cultural expertise and experience local iwi from his job at GNS Science. The two council commissioners on the panel spoke positively about Mr Faulkner's contribution and leadership.
18. The *Proposed Coastal Plan* received 14 submissions from iwi, hapū or whanau. Five of those submitters then spoke at a hearing. Currently the Coastal Plan does not have any iwi appellants with Mr G Knuckey and Te Korowai o Ngāruahine recently withdrawing from proceedings, during the mediation process.
19. The Council has formed the Wai Maori Group to provide an opportunity for iwi and hapū to input to the reviews of its freshwater, soil and air plans as part of the development of a *Proposed Natural Resources Plan*. This is a collaborative forum with a facilitator/adviser (Mr S Zieltjes), iwi/hapū representatives and Council policy staff, which is funded by the Council. It follows the successful Kaitiaki Group established by New Plymouth District Council for their district plan review, and this type of approach has general agreement across all Taranaki councils.

## Consents

20. Since 1995, there have been 58 consent hearings with an average of two per year. Iwi/hapū were not submitters to all the hearings. However, in the last nine years there have only been five hearings, given the success of the pre-hearing process, in which iwi/hapū participated. Two of these hearings concerned air emissions from the poultry industry and NPDC wastewater plant and iwi did not submit. Three hearings had iwi submitters and included commissioners with iwi cultural expertise.
21. The three hearings where there was a commissioner with cultural expertise are set out below.
  - In 2011, NPDC applied for consents for the upgrade of the Waitara and New Plymouth waste water systems. There were no appeals.
  - In 2013, the NZTA Tongaporutu Road stabilisation works, adjoining the estuary, attracted a submission from Poutama (Mr R Gibbs) and Mr H White. They appealed and were unsuccessful, with a substantial award of costs against them to this Council and NZTA. Only some of the costs were paid and the Council pursued the rest through the courts.

- In 2018, the NZTA applied for consents for the Mt Messenger roading upgrade. Appeals were received and these focused on matters concerning local iwi rights and interests. An Environment Court hearing was held and an interim decision was released. Poutama and a landowner appealed the decision.
22. The Council has used iwi commissioners from outside the region in the past. There has been feedback from iwi it should use local commissioners as they best understand local cultural conditions.

### **Iwi hearing commissioners**

23. During the appointment of iwi representatives onto Council committees, associated with treaty settlement legislation, the opportunity for iwi to become accredited hearing commissioners was discussed.
24. There are four accredited local iwi representative on the Ministry for the Environment website. Ms C Katene is accredited to 31 December 2022 and lives in Taranaki but whakapapa's to iwi outside the region. Ms B Bigham is accredited to June 2024 and has Ngāruahine and Te Atiawa associations. Mr R Tinitua is accredited to 31 December 2020 and has associations with the Wanganui River iwi, Ngāti Ruanui, and Nga Rauru. Ms Te Aroha Hohaia is accredited to 31 December 2020 and has associations with Ngāruahine.
25. So the number of commissioners could be reduced if current holders do not renew their qualification.
26. Mr R Faulkner is accredited to 31 December 2022 and has been used by this Council as a hearing commissioner on the *Proposed Coastal Plan* and will likely be involved in the Remediation Ltd Uruti consent renewal. He does not whakapapa to Taranaki iwi, has knowledge of the region through his previous GNS role, involvement in the hearing on the Proposed Coastal Plan, and the development of a draft cultural framework document for the Council.
27. The matter of independent iwi hearing commissioners is not unique to this Council and applies to the three district councils. Hence, this matter should be considered together. Mana Whakahono a Rohe discussions between the four councils and seven iwi authorities is considering a range of resource management matters and could also consider the accreditation of local iwi members for use by all the councils, not just this Council.

### **Decision-making considerations**

28. Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

### **Financial considerations—LTP/Annual Plan**

29. 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**

30. 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**

31. 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.

### **Legal considerations**

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



**Date** 13 October 2020

**Subject:** **Opportunities for Iwi Involvement in Freshwater Monitoring**

**Approved by:** A D McLay, Director - Resource Management  
S J Ruru, Chief Executive

**Document:** 2584857

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### **Purpose**

1. The purpose of this memorandum is to present Member's with information regarding freshwater monitoring and the potential for the transfer of powers to iwi authorities. This includes consideration of a recent decision by the Waikato Regional Council to approve the transfer of specified water quality monitoring functions to a local iwi.

### **Executive summary**

2. Section 33 of the *Resource Management Act 1991* (RMA) enables local authorities to transfer any one or more of it's a functions, powers or duties under the RMA to another public authority, including iwi authorities.
3. The new *National Policy Statement for Freshwater Management* (NPS-FM) requires local authorities to investigate the use of mechanisms available under the Act to involve tangata whanua in freshwater management, such as transfers or delegations, joint management agreements, and mana whakahone a rohe (iwi participation arrangements).
4. The NPS-FM further requires regional councils to develop mātauranga Māori monitoring methods.
5. Taranaki Regional Council (the Council) has a long history of undertaking extensive and comprehensive state of the environment and compliance monitoring in the region. The Council also assists and works with iwi and hapū to monitor freshwater quality.
6. Waikato Regional Council has recently made the decision to transfer specified water quality monitoring functions to the Tūwharetoa Māori Trust Board. The Tūwharetoa Māori Trust Board is the first iwi authority in Aotearoa New Zealand to have functions transferred to them by a council.
7. Taranaki's four councils are jointly developing a Mana Whakahono a Rohe agreement with seven Taranaki iwi.

8. Of note, the proposed Mana Whakahono a Rohe agreement will address planning, consenting and other matters, such as monitoring and transfer of powers. These matters are all connected and should be considered in an integrated manner for an efficient outcome. Discussions around a staged approach to implementation is also occurring.
9. Consideration of a transfer of powers to iwi authorities for freshwater monitoring will be considered as part of developing Mana Whakahono a Rohe agreement.
10. The agreement negotiated by senior council officers and iwi representatives will need to be assessed and approved by respective councils and iwi authorities in due course.

## Recommendations

That the Taranaki Regional Council:

- a) receives this memorandum entitled *Opportunities for iwi Involvement in freshwater monitoring*; and
- b) notes that any transfer of powers for freshwater monitoring will be considered as part of the development of a Mana Whakahono a Rohe agreement.

## Background

11. At the Policy and Planning Committee meeting of 1 September 2020, Members enquired as to the use of RMA section 33 responsibilities and, in particular, opportunities for this Council to consider the transfer of some of its powers under the RMA. The matter was also raised separately at a Wai Maori group meeting on 25 August.
12. The provision to transfer functions to an iwi authority has been an option since the RMA was enacted in 1991. Section 33 of the RMA (refer Appendix I) enables a local authority to transfer any one or more of its functions, powers or duties under the act to another public authority, except for the power of transfer itself.
13. This can be achieved under an agreement between the authorities concerned and on such terms and conditions which are agreed to by both parties. For the purposes of section 33, a public authority includes an iwi authority.
14. Of particular relevance to the transferring of power under Section 33(4)(c) of the RMA are the following key criteria:
  - (c) both authorities agree that the transfer is desirable on all of the following grounds:
    - (i) the authority to which the transfer is made represents the appropriate community of interest relating to the exercise or performance of the function, power, or duty:
    - (ii) efficiency:
    - (iii) technical or special capability or expertise.
15. As part of the decision making process for considering section 33 transfer of powers, section 33(4)(a) and (b) also applies. That is, that the Council must use the special consultative procedure set out in section 83 of the *Local Government Act 2002*, and, before using that special consultative procedure, it must serve notice on the Minister for the Environment of its proposal to transfer the function, power, or duty.
16. In recent central government initiatives, there has been increased expectations for local government to include and/or incorporate Maori values and concepts into resource management processes. Of particular note is the promulgation of the *National Policy Statement for Freshwater Management (NPS-FM)*, which sets out a number of requirements for tangata whenua involvement with local authorities. Of particular relevance is:



- Clause 3.4(1) [Tangata Whenua involvement]: This clause requires every local authority to involve tangata whenua (to the extent they wish to be involved) in freshwater management (including decision making processes). This includes developing and implementing mātauranga Māori and other monitoring as part of the National Objectives Framework (clause 3.4(1)(c)).
  - Clause 3.4(3): This clause states that every regional council must work with tangata whenua to investigate the use of mechanisms available under the RMA, to involve tangata whenua in freshwater management such as section 33 transfers or delegations of power under the RMA (clause 3.4(3)(a)).
17. Given the above, it is timely for the Council to investigate the use of mechanisms available under the RMA to better involve tangata whenua in freshwater management. This will be an ongoing process.

### **Council and tangata whenua involvement in monitoring to date**

18. The Council has a long history of undertaking extensive and comprehensive state of the environment and compliance monitoring in the region. This includes extensive water quality monitoring at popular coastal beaches, popular freshwater bathing sites and ecological health assessments at key representative sites. State of the environment monitoring shows water quality is generally 'good to excellent' by most 'western science' monitoring methods.
19. However, as previously noted, this Council is now required to incorporate mātauranga Māori into its freshwater monitoring programmes. As a starting point for the better consideration of mātauranga Māori the draft internal report *Incorporating Mātauranga Māori into the Monitoring of Freshwater* was prepared in 2018. The report canvassed the challenges, responses and successes that have occurred in other regions. The purpose of the report was to provide a better insight into the Māori worldview in order for the Council, as the statutory resource manager, to comprehend the concept of mātauranga Māori.
20. The Council also assists and works with iwi and hapū to monitor freshwater quality. For example, the Council has been working with interested iwi and hapū to monitor freshwater quality on selected waterways. Ngaa Rauru had concerns on the health of their waterways and they approached the Council for guidance on additional monitoring of water quality. The Council was able to provide training to local hapū on the stream health monitoring and assessment kit (SHMAK), and provide technical advice to build Ngaa Rauru knowledge of waterway monitoring. With the Council's assistance, Ngaa Rauru now have the ability to monitor, interpret and express results of waterway health that are meaningful to the iwi.
21. Training has also been provided by the Council on the SHMAK to members of Ngati Mutunga, Te Atiawa, Ngati Manuhiakai and Ngaruahine.
22. Council is currently considering how best to supplement 'western style' monitoring methods with mātauranga Māori monitoring and to incorporate it into the Council's state of the environment monitoring programmes. However, a more fundamental question is whether the Council in due cause should consider empowering and/or devolving some of its resource management responsibilities to interested iwi and hapū. Of interest, is the transfer of powers relating to monitoring that has recently occurred in the Waikato region (see below).

### **Waikato Regional Council transfer of functions**

23. In March 2020, a Statement of Proposal to transfer specified Lake Taupō monitoring functions from the Waikato Regional Council to an iwi authority was prepared.
24. In July 2020, the Waikato Regional Council voted in favour of transferring summer bathing beach, regional rivers, rainfall and groundwater quality monitoring within the Lake Taupō catchment to Tūwharetoa Māori Trust Board.
25. In making this decision, the Waikato Regional Council imposed a number of conditions, which require the Tūwharetoa Māori Trust Board to take positive action to work with landowners and to establish protocols to address access to private land. The transfer agreement also includes an annual review conducted by the Council for the first two years and biennially thereafter.
26. The transfer of functions from council to the trust board took place in September 2020 – making it the first iwi authority in Aotearoa New Zealand to have functions transferred to them by a council.
27. The agreement will create greater cost efficiencies and a streamlined delivery of water quality monitoring functions that will enhance both Waikato Councils and the iwi's monitoring programmes.
28. The Waikato Regional Council may choose to revoke or change the transfer agreement at any time should the conditions in the agreement not be met.

### **Mana Whakahono a Rohe**

29. Mana Whakahono ā Rohe (Iwi Participation Arrangements) is a regulatory tool designed to assist tangata whenua and local authorities to discuss, agree and record how they will work together under the RMA. The intent is to enhance Māori participation in RMA resource management and decision making processes.
30. In March 2018, the Council commenced the process of engaging with iwi and district councils to discuss forming a Mana Whakahono agreement. The agreement will be made between the Council, the three local district councils, and the seven iwi of Taranaki (excluding Ngati Ruanui). Due to Covid-19 and the unavailability of the facilitator, the process has frustratingly covered an extended period of time, but the Council hopes agreements can be progressed.
31. Mana Whakahono a Rohe agreements are likely to cover two component parts: policy development and resource consenting. However, other matters can also be considered.
32. Through the Mana Whakahono engagement iwi authorities are already considering which areas of resource use are of greatest interest to them and what role they might want to have in resource management processes.
33. Tangata whenua have expressed a strong interest in participating in monitoring as a way of carrying out their role as kaitiaki. The transfer of functions, powers and duties may be considered part of developing the Mana Whakahono a Rohe agreement. There is also opportunity through this process to include methodologies that are more relevant to tangata whenua. This include mātauranga Māori monitoring methods, cultural health indicators and how changes to the environment affect te ao Māori.
34. Ultimately, officers expect that the Taranaki Mana Whakahono agreement will record agreed expectations and agreement between the parties on how they will work together to develop and agree on methods of mātauranga monitoring.

35. The agreement negotiated by senior officers will need to be assessed and approved by respective councils and iwi authorities.

### **Decision-making considerations**

36. Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the Act.

### **Financial considerations—LTP/Annual Plan**

37. 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**

38. 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**

39. 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.

### **Legal considerations**

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

## **Appendices**

### **Resources Management Act 1991**

#### *33 Transfer of powers*

1. *A local authority may transfer any 1 or more of its functions, powers, or duties under this Act, except this power of transfer, to another public authority in accordance with this section.*
2. *For the purposes of this section, public authority includes –*
  - (a) local authority; and*
  - (b) an iwi authority; and*
  - (c)[Repealed]*
  - (d) a government department; and*
  - (e) a statutory authority; and*

*(f) a joint committee set up for the purposes of section 80; and*

*(g) a local board.*

*(3)[Repealed]*

*(4) A local authority shall not transfer any of its functions, powers, or duties under this section unless –*

*(a) it has used the special consultative procedure set out in section 83 of the Local Government Act 2002; and*

*(b) before using that special consultative procedure it serves notice on the Minister of its proposal to transfer the function, power, or duty; and*

*(c) both authorities agree that the transfer is desirable on all of the following grounds:*

*(i) the authority to which the transfer is made represents the appropriate community of interest relating to the exercise or performance of the function, power, or duty:*

*(ii) efficiency:*

*(iii) technical or special capability or expertise.*

*(5)[Repealed]*

*(6) A transfer of functions, powers, or duties under this section shall be made by agreement between the authorities concerned and on such terms and conditions as are agreed.*

*(7) A public authority to which any function, power, or duty is transferred under this section may accept such transfer, unless expressly forbidden to do so by the terms of any Act by or under which it is constituted; and upon any such transfer, its functions, powers, and duties shall be deemed to be extended in such manner as may be necessary to enable it to undertake, exercise, and perform the function, power, or duty.*

*(8) A local authority which has transferred any function, power, or duty under this section may change or revoke the transfer at any time by notice to the transferee.*

*(9) A public authority to which any function, power, or duty has been transferred under this section, may relinquish the transfer in accordance with the transfer agreement.*



**Date** 13 October 2020

**Subject:** **State of the Environment Rocky Shore Monitoring Report 2017-2019**

**Approved by:** G K Bedford, Director - Environment Quality  
S J Ruru, Chief Executive

**Document:** 2586754

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### **Purpose**

1. The purpose of this memorandum is to present an update to the Committee on the latest results of the Council's state of the environment monitoring programme that assesses the ecology of rocky coastal environments. Current and long-term trends are set out for Members' information.
2. The full report (*State of the Environment Rocky Shore Monitoring Report 2017-2019 Technical Report 2019-69*) is available upon request. It provides full details of the Council's monitoring of the ecological condition of the region's rocky and reef foreshore environs, including analysis of trends in this data since 1994. The Executive summary and Recommendations of the report are attached to this memorandum.
3. There will be a presentation on innovative aspects of the programme during today's meeting.

### **Executive summary**

4. In order to ascertain the successful adoption and application or otherwise of the Council's policies and methods of implementation, the Council conducts 'state of the environment' (SEM) monitoring to obtain and report up to date robust information for parameters that characterise the region's environment and resources.
5. The latest results and findings describing the state of and long-term trends in the state of ecological data from the report on the region's rocky shores are summarised and presented herein for Members' information. Results that are statistically and environmentally significant are identified.
6. Of the six sites surveyed over the 25 year period, the intertidal communities at Manihi reef (on the west Taranaki coastline), were the most species rich and diverse. This is due to the low supply of sand and the presence of pools that provided a stable environment with many ecological niches.
7. On the other hand, the intertidal communities at Waihi (south Taranaki) were the least species rich and diverse, and diversity on this reef appears to be in slow decline. The

report proposes that further investigations seeking to confirm this trend and identify the causes should be undertaken. Periodic sand deposition has been shown to have a profound short-lived effect particularly on the reef sites at Orapa, Mangati and Greenwood Road (north Taranaki). These sites are closest to and down current from streams and rivers conveying high eroded sediment loads from Mt Taranaki, and the declines in reef ecology from time to time appear to have been caused by an increased sand supply from the mountain, combined with oceanographic conditions that shift this sand onshore. Trend analysis at the Greenwood reef indicates an ongoing effect upon species richness and diversity at this site.

8. Natural environmental factors, including sand cover, wave exposure and reef geomorphology, appear to be the dominant drivers of species richness and diversity at the six regional SEM reef sites surveyed. Each site is considered to show an ecological state typical of those elsewhere exposed to similar conditions.

## Recommendations

That the Taranaki Regional Council:

- a) receives this memorandum noting the preparation of a report into the state of and trends in regional rocky coastal ecological data for Taranaki, for 2017-2019
- b) receives the report *State of the Environment Rocky Shore Monitoring Report 2017-2019*
- c) notes the findings of the trend analysis and analysis of state data from the SEM coastal ecological programme
- d) adopts the specific report recommendations therein.

## Background

9. Section 35 of the Resource Management Act 1991 requires local authorities to undertake monitoring of the region's environment, including land, air, marine and freshwater. The rocky shore component of the State of the Environment Monitoring (SEM) programme for Taranaki was initiated by the Taranaki Regional Council in the 1994-1995 monitoring year and has subsequently continued each year.
10. The purpose of this monitoring is to determine the state of and track any trends in the ecological condition of Taranaki's rocky and reef coastlines. The Council undertakes separate but companion programmes that monitor estuaries, which are quite different in nature.
11. The Council's *Proposed Coastal Plan* includes objective 8, that '*Indigenous biodiversity in the coastal environment is maintained and enhanced and areas of significant indigenous biodiversity in the coastal environment are protected.*'
12. The Council's rocky shore ecology monitoring programme informs the Council's implementation of policies 15 and 16, to respectively protect or to maintain and enhance indigenous biodiversity.
13. The Council's methods of implementation of the Plan include (Method 6.1.4), '*Maintain a state of the environment monitoring programme to monitor the state, trends and pressures relating to the coastal environment and where possible, make this available in easily accessible electronic forms.*' and (6.1.8) '*Support, as and when appropriate, research and investigation into coastal management.*'



14. The Council commits to monitoring the efficiency and effectiveness of the Plan, incorporating ' *State of the environment monitoring programmes for the coastal marine area, including continuation of marine ecological monitoring at hard and soft substrata sites around the coast*' (section 10).
15. The results and findings of the SEM programme for the region's coastal environs can be interrogated to determine trends and changes in trends in the quality of marine and coastal parameters, alongside the information on the current 'state' of the region's coastal resources that SEM generates. With SEM established in 1994, the database is now extensive enough to allow regular robust trend analysis, conducted according to nationally recognised methodologies, for such reviews.

## Discussion

16. The platform reefs of Taranaki are largely formed from lahar (volcanic derived) materials, and are shaped by selective erosion of the weaker matrix, leaving harder cobbles and boulders. The reefs are typically low in relief but can be considerable in extent e.g. the reefs off the Waitara coastline extend as far as 5 km offshore. Taranaki reefs are exposed to high energy wave and wind conditions. The dominant wave direction is from the west, which results in considerable sand movement as waves strike much of the coast obliquely. Erosion events on Mount Taranaki have led to the transport of significant volumes of sand into the coastal strip and subsequently along the northern coastline, via the Hangatahua (Stony) River.
17. The organisms that live on the Taranaki rocky shore provide an important food source for humans, birds and fish and also form a significant component of marine biodiversity in the region. This ecological community is profoundly influenced by the physical characteristics of the region. The exposed weather and wave conditions, as well as the geomorphology of the shore largely determine the structure and composition of the marine communities found. More wave tolerant species prevail at high energy locations nearer Cape Egmont.
18. The reefs of Taranaki provide a valuable source of kaimoana/mātaaitai for Maori. This kaimoana/mātaaitai is of significant cultural value not only as a source of food, but also because it maintains tribal mana and standing (Waitangi Tribunal Reports, 1983; TRC, 2015). It should be noted that the SEM rocky shore programme surveys inter-tidal species rather than sub-tidal species such as paua, kina and kuku/kutae (mussels). Around the Taranaki coastline, particular reefs are regarded as property of distinct hapu. Iwi and hapu associations with each of the six SEM reef sites are noted within the report.
19. Six representative intertidal reef sites around the coastline of Taranaki are monitored twice a year (spring and summer surveys) using standard ecological monitoring practices. Between 47 and 56 surveys have now been conducted on each reef. For each survey, substrate cover, algal cover, and animal cover/abundance in a large number of individual quadrats selected at random along an established survey line were quantified, as a measure or index of the ecological state at each site. The number of species per quadrat (species richness) and Shannon-Wiener index per quadrat (diversity) are assessed at the six reef sites, and changes in these measures over the 25 years of the SEM programme (spring 1994 to summer 2019) are noted, to identify and determine trends at each site. Both short-term and long-term trends were evaluated.
20. Within the report there is a detailed analysis of the adverse impacts of sand inundation, and a report on a drone-based survey of seagrass, an important biogenic habitat that

provides a number of ecosystem services ranging from primary productivity and nutrient cycling to habitat provision. This is the first time such a seagrass survey has been undertaken as part of the SEM programme.

21. Of the six sites surveyed over the 25 year period the intertidal communities at Manihi Reef (on the west Taranaki coastline), have been consistently the most species rich (abundant) and diverse. This is due to the low supply of sand and the presence of pools that provided a stable environment with many ecological niches, on this reef. The intertidal communities at Waihi Reef (south Taranaki) were the least species rich and diverse, due to the high energy wave environment, lack of stable habitat, and periodic sand inundation. More detailed analysis suggest there may be further, subtle influences at this site also.
22. Sand deposition has been consistently shown to have a profound effect on intertidal communities in Taranaki (see Figure 1 below). However, species richness appears to increase from around 2010 at all sites, with the most pronounced increases observed at Turangi and Manihi. This increase in richness is also seemingly matched by an increase in diversity at some sites. These effects appear to be related to changes in the sand supply from erosion events on the mountain, combined with oceanographic conditions that shift this sand laterally and onshore. Sites that show the greatest variability (Greenwood and Mangati reefs) are closest to and down current from streams and rivers conveying high eroded sediment loads from Mt Taranaki.
23. In 1998, a scarp at the headwaters of the Stony River collapsed, leading to a massive input of sand and gravel down the river and into the coastal system. Erosion has been ongoing since 1998, including another significant event which occurred in 2008. Prior to 1998, the coastline extending from Cape Egmont to Oakura was described as 'sand starved' being mainly comprised of cobble and boulder beaches and reefs. Since 1998, this influx of black sand derived from Mount Taranaki has been transported along the coast in a north easterly direction resulting in beach sediment nourishment. What were previously cobble and boulder beaches have now changed to sandy beaches (Cowie, 2009).
24. Once sand inundation was taken into account, there was no evidence of a trend in ecological condition at Orapa, Mangati, Manihi, or Turangi reefs. A long-term deterioration in diversity at Greenwood Reef appears associated with a long-term trend of sand inundation. The Waihi reef appears to be experiencing a long-term decline, apart from any patterns in sand inundation.
25. Species richness appears to increase from around 2010 at all sites, with the most pronounced increases observed at Turangi and Manihi. While this increase in richness is seemingly matched by an increase in diversity at some sites, at others, such as Waihi, there has been no apparent increase in diversity in recent years.
26. Natural environmental factors, including sand cover, wave exposure (which varies according to prevailing weather and climatic patterns) and reef geomorphology, appear to be the dominant drivers of species richness and diversity at the six regional SEM reef sites surveyed. While sand cover at Turangi, Orapa, Mangati and Greenwood reefs has not yet reached a level at which it negatively effects species richness, the long-term trend of increasing sand cover may be such that it becomes ecologically significant in the near future. Adverse impacts of wastewater discharges in the vicinity on intertidal species richness and diversity on the Mangati and Orapa reefs have not been detected within the Council's Rocky Shore SEM programme.

27. Each site shows variation survey by survey. These overall findings continue the patterns observed and reported in previous years.

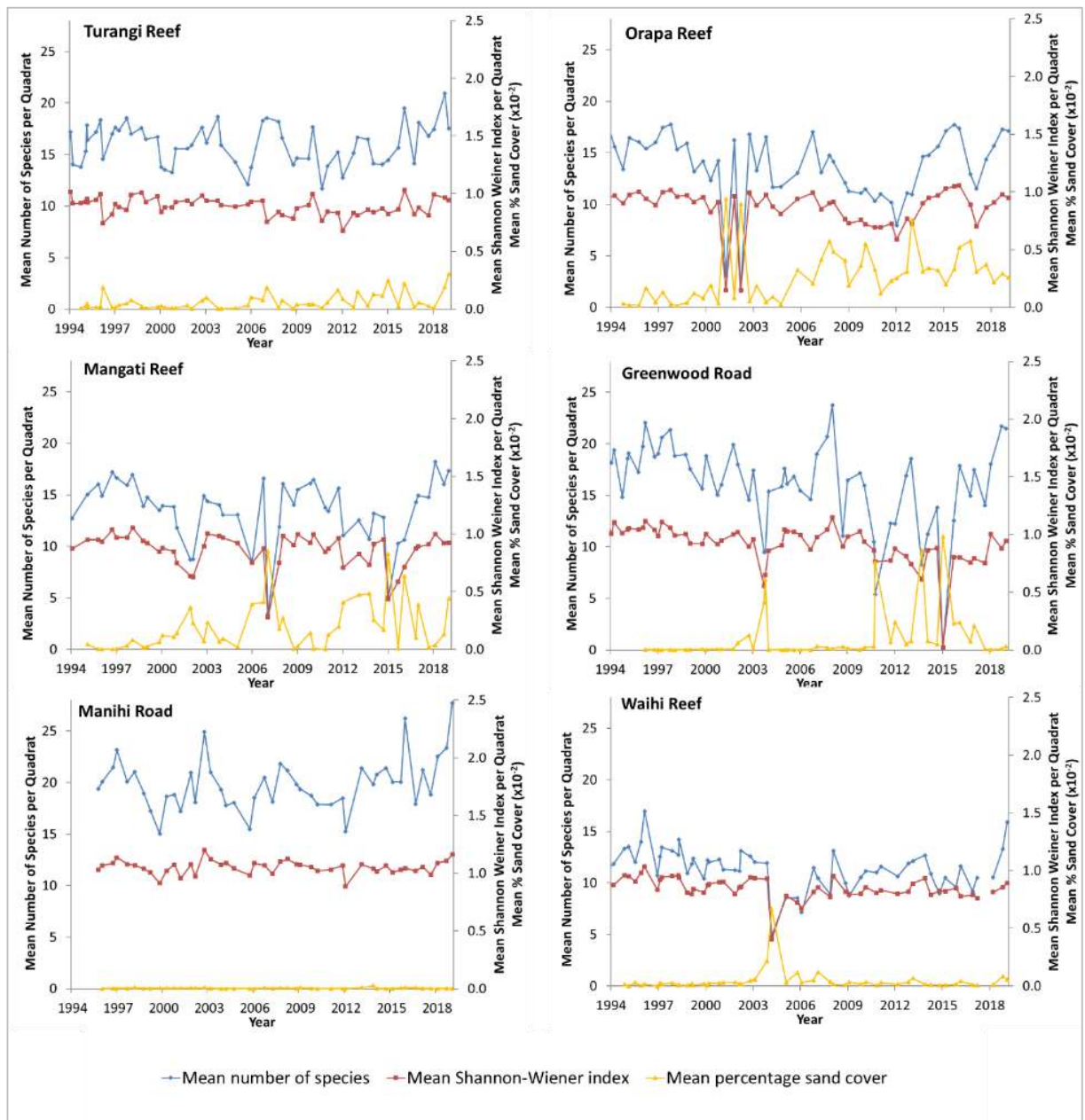


Figure 1 (Figure 12 in report): Number of species, Shannon-Wiener index of diversity, and percentage sand cover (sand inundation), spring 1994-summer 2019.

**Additional notes on the Council's rocky shore ecological monitoring programme**

28. The Council has prepared and engaged in public consultation on the proposed Coastal Plan for Taranaki (currently under mediation as part of an Environment Court appeal process). During the preparation of the Plan, a number of submission were received from iwi groups and other concerning the adoption of appropriate monitoring procedures. Matters raised in respect of regional environmental monitoring (as distinct from compliance monitoring of consents) included requests to bring a cultural understanding to natural resources monitoring, and the explicit recognition, use and expression of mātauranga and Māori values.

29. In acknowledgement of these submissions, the Council amended Section 10.1 of the Plan, to make provision to investigate, develop, and implement, where appropriate and relevant, monitoring methods for the incorporation of mātauranga Māori state of the environment monitoring within the Council's state of the environment monitoring programme for the coastal environment. It is noted that the Council is currently exploring operational details within future Mana Whakahono a Rohe agreements.
30. Policy 19 (as currently worded following amendment during the submission process) of the Plan provides that the Council will '*Recognise and provide for the relationship of tangata whenua culture, values and traditions with the coastal environment, including the role of tangata whenua as kaitiaki, and take into account the principles of the Treaty of Waitangi*', including by '*recognising the importance of mātauranga Māori, customary, traditional and intergenerational knowledge*'.

### **Decision-making considerations**

31. Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

### **Financial considerations—LTP/Annual Plan**

32. 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**

33. 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**

34. 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.

### **Legal considerations**

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

### **Appendices**

*Technical Report 19-69 State of the Environment Rocky Shore Monitoring Report 2017-2019*  
(Executive Summary and Recommendations)

## Executive summary

Section 35 of the Resource Management Act 1991 requires local authorities to undertake monitoring of the region's environment, including land, air, marine and freshwater domains. The rocky shore component of the State of the Environment Monitoring (SEM) programme for Taranaki was initiated by the Taranaki Regional Council in the 1994-1995 monitoring year and has subsequently continued each year. This report covers the state and trends observed in intertidal hard-shore communities in Taranaki.

As part of the SEM programme, six representative reef sites are monitored twice a year (spring and summer surveys) using a fixed transect, random quadrat survey design. For each survey, a 50 m transect is laid parallel to the shore and substrate cover, algal cover and animal cover/abundance in 25 x 0.25 m<sup>2</sup> random quadrats are quantified. Changes in the number of species per quadrat (species richness) and Shannon-Wiener index per quadrat (diversity) have been assessed at the six reef sites throughout the 25 years of the SEM programme (spring 1994 to summer 2019). In this report, the results of aerial imagery based seagrass mapping carried out at one of the SEM sites, Orapa (near Waitara), are also presented.

Of the six sites surveyed, over the 25 years of monitoring, the intertidal communities at Manihi (West Taranaki) have been shown to be the most species rich and diverse. This is due to a low supply of sand, and the presence of pools that provided a stable environment with many ecological niches. The intertidal communities at Waihi (South Taranaki) are the least species rich and diverse, due to a high energy wave environment and resulting unstable habitat.

Sand deposition has been shown to have a profound effect on intertidal communities in Taranaki, with the sites at Orapa, Mangati and Greenwood Road (North Taranaki) being particularly prone to periodic sand inundation. Trend analysis shows that sand cover has increased at the four northern-most SEM sites. This is likely due to an increased sand supply from the mountain, combined with oceanographic conditions that shift this sand onshore. Although typically short lived, sand inundation events can result in significant reductions in species richness and diversity. Trend analyses suggest that inundation events at Greenwood Road have led to a declining trend in species richness and diversity over time.

The analysis also shows a declining trend in species richness and diversity at Waihi Reef that is unrelated to sand cover. It is possible that this declining trend is related to a change in wave exposure over time, however further investigation is required before this can be attributed as a causal factor.

In summary, natural environmental factors, in particular sand cover, wave exposure and habitat complexity appear to remain the dominant drivers of species richness and diversity at the six SEM reef sites.

## Recommendations

1. THAT monitoring of the six SEM reef sites is extended from that carried out in 2017-2019 to also include habitat mapping techniques in order to gather broad scale information on reef topography, sand coverage, seagrass and other key habitat forming species.
2. THAT further work is undertaken to investigate the declining trends in species richness and diversity that were found for the Waihi Reef SEM site, with particular emphasis on possible changes in wave climate and exposure around the region.



**Date** 13 October 2020

**Subject:** **SEM Freshwater Physico-chemical Monitoring Programme 2018-2019 report**

**Approved by:** G K Bedford, Director - Environment Quality  
S J Ruru, Chief Executive

**Document:** 2600846

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### **Purpose**

1. The purpose of this memorandum is to present an update to the Committee on the latest results of the Council's annual state of the environment monitoring programme for fresh water quality (physicochemical measures). Current and long-term trends are also set out for Members' information, as are comparisons with various standards and guidelines.
2. The full physicochemical report (*Freshwater Physicochemical Programme State of the Environment Monitoring Annual Report 2018-2019, Technical Report 2019-98*) is available upon request. It provides details of the Council's monitoring of the SEM freshwater physicochemical sites in the 2018-2019 year, including analysis of trends in this data since 1995. The Executive summary and recommendations of the report are attached to this memorandum.

### **Executive summary**

3. In order to ascertain the successful adoption and application or otherwise of the Council's policies and methods of implementation, the Council conducts 'state of the environment' (SEM) monitoring to obtain and report up to date robust information for parameters that characterise the region's environment and resources. The results and findings of each annual SEM programme for the region's freshwater systems can be interrogated to determine trends and changes in trends in the quality of freshwater's physicochemical parameters, alongside the information on the current 'state' of the region's freshwater resources that SEM generates. With SEM established in 1995, the database is extensive enough to allow regular robust trend analysis, conducted according to nationally recognised methodologies, for such reviews.
4. Further, with the establishment of national standards for water quality by the Government through the National Policy Statement for Freshwater- National Objectives Framework alongside other recognised standards and guidelines, and the requirement that representative monitoring be established for each of the region's Freshwater Management Units, the Council and regional community can determine how good Taranaki's surface water is according to nationally recognised criteria.



5. The latest results and findings describing the state of and long-term trends in the state of physicochemical data from the report are summarised and presented herein for Members' information. This report also includes a separate section on trend analysis for the most recent 7-year period (2012-2019), which has been provided so the Committee and public can review both the long-term and the most recent trends. Recent trend data reflects the effects of the Council's methods of water management through the provisions of the current Regional Fresh Water Plan and its implementation. Results that are statistically and environmentally significant are identified.
6. Further, this memorandum also assesses the state of the region's waterways in the light of the attribute values (standards) established within the National Objectives Framework (NOF) that is part of the National Policy Statement for Freshwater Management 2014 (NPS-FW). This gives the Council and community guidance as to whether the surface waters in Taranaki are 'good' or 'bad', according to nationally promulgated criteria. It should be noted that subsequent to the year under review, the Government has amended the NPS to include requirements for new water quality attributes and revised criteria.<sup>1</sup>
7. **Flows:** by contrast with the previous four out of five years in which annual median flows were much higher than usual in all rivers and streams sampled by the programme (with attendant impacts upon median water quality), in the year under review flows were overall much lower than typical at the times of surveys, and in addition lay within a narrower range of flow conditions.
8. **Aesthetic, physical and chemical measures:** Not surprisingly given the lower flow regimes, in general water quality was comparatively better in clarity in suspended solids, and in nutrient levels (especially total nitrogen and total phosphorus), than was typical in the past. Bacterial concentrations remained typical. Narrower temperature ranges, mainly due to higher minimum temperatures, and similar median water temperatures, were measured in the 2018-2019 period compared with ranges and medians measured during the first 23 years of the SEM programme. While median dissolved reactive phosphorus and nitrates were above long-term median concentrations at slightly more sites than those at which they were lower, (possibly due to less dilution in receiving waters), total phosphorus and total nitrogen were below long-term median concentrations at almost every site. These generally better water quality results during the year will in due course influence short-term and long-term trends in quality.
9. **Sites:** Flows were lower and several measures in the Stony River showed improvement, following a period of deterioration caused by a natural erosion event in February 2017. The Maketawa Stream and upper Waingongoro River site showed a number of deteriorations in median results across a number of nutrient attributes, in 2018-2019, but most sites located lower in intensively farmed catchments showed improved water quality, among them the lower Punehu, Mangaoraka, lower Waiongana, lower Patea, Mangaehu, and lower Waitara sites.
10. **The state of our waterways:** Comparing the 2015-2018 results against the nutrient criteria set out in the 2014 compulsory National Objectives Framework (NOF), there are 60 results which can be categorised, across 4 parameters. 73 % of all results lie in their respective 'A' band, and 27% in the 'B' band- **a total of 100 % of all results for water**

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<sup>1</sup> *National Policy Statement for Freshwater Management 2020*

**quality in Taranaki being either ('A' Excellent) or 'B' (Good) .** No results fall in or below the national bottom lines ('C' Fair), an improvement over the 2017-2018 result.

11. In terms of the NOF criteria for swimmability, there are 75 possible gradings (4 parameters plus the overall assigned grade, for each site). Two sites (13%) and 21% of all results met at least the 'C' grading. Sites higher in catchments had better gradings than those lower down.
12. It is important to note that most of the SEM sites in the programme are not considered contact recreational sites; the streams are too shallow, cold and/or small for recreational bathing activities. Nevertheless, the Government requires that for a regional perspective, swimmability is measured and reported on a year-round basis at these sites.
13. Over the long term (24-year), 82% of all physico-chemical trends have shown either no change or a clear improvement. No attribute is deteriorating at a majority of sites. With regard to the nutrient species, there has been a significant long term improvement in total nitrogen at three of the eleven sites monitored, against one site showing deterioration, and ammonia is generally stable. On the other hand, dissolved reactive phosphorus is the worst-performed of all attributes, showing deterioration at 5 out of the 13 sites, and improvement at only 1. There is no clear relationship for this result with site position within a catchment. The lower Waingongoro River shows significant reductions (improvement) in both forms of phosphorus. Long term trends for faecal coliforms and enterococci bacteria showed no clear regional pattern, but there are deteriorations in both groups in the Mangaoraka Stream and Waiwhakaiho River. Significant deteriorations in black disc clarity were recorded at two sites, one of which reflected historical erosion events in the headwaters (Stony River).
14. The greatest improvement in long term water quality has been illustrated in the Waingongoro River at SH 45, with significantly improving trends in DRP and total phosphorus, coincident with land-irrigation of a major industrial (meatworks) discharge and the diversion of Eltham's WWTP discharge out of the river in recent years. The upper Patea and Punehu Streams also show improving long-term trends. Most long term deterioration in aspects of water quality, with five parameters showing significant deterioration, has been found in the lower reaches of the Mangaoraka Stream (both phosphorus species, both bacteriological species and black disc), the mid-reaches of the Waiwhakaiho River, (dissolved phosphorus, nitrate, ammonia, and both bacteriological species), and the mid-reaches of the Maketawa Stream (three nutrient species and BOD5).
15. However, more recent data for these same sites indicate deterioration has been eliminated in the Waiwhakaiho River and in the Mangaoraka Stream, and virtually eliminated in the Maketawa Stream Stream. Analysis of other recent trends also indicates a much broader positive direction of trends in water quality. The rolling seven-year trends are more positive than the long-term trends, with fewer sites and measures showing significant deterioration, particularly in nutrient concentrations; and further, the percentage of measures showing either maintenance or improvement in the long term has continued to climb steadily. Other measures (bacteria, organics, aesthetics) show no regional pattern of change in either direction.
16. Of note, 7-year trends in the last couple of reports presented to Council had not been showing the same wide-spread improvements that had been evident in this analysis in recent years. This was correlated strongly with prevailing weather patterns, with 4 of the last 5 and 5 of the last 7 years being markedly wetter than typical in terms of flows during sampling runs. Over the last 6 years, the annually updated record of the number

of parameters showing either maintenance or improvement in the most recent 7-year period, fell from 99% to 80% of all measures annually reported.

17. However, with the inclusion of the latest set of annual results, this figure has now increased back up, to 86% (this may be compared with 82% of all measures showing either maintenance or improvement, when trends are determined over the last 24 years). Thus, there continues to be a clear pattern of trends in water quality parameters becoming more positive as time passes, notwithstanding that on a year-by-year basis there will be natural fluctuations (as well as the improvement progressively brought about by management interventions such as dairy effluent diversion and riparian management).
18. The report makes recommendations to continue the freshwater physicochemical component of the SEM programme in a similar format (with minor changes to sampling) and to update the trend analysis reports following analysis at the end of the 2019-2020 year. It can be noted that the Government's 2020 NPS imposes obligations for more comprehensive monitoring of water quality than has been the case to date. Staff are working to assess and incorporate these obligations.
19. The value of this monitoring and analytical work lies in the advantage of up-to-date feedback to the Council and regional community on the consequences of land use and water quality management initiatives adopted in the region. The monitoring programme shows that the Council and community are giving effect to the Regional Fresh Water Plan for Taranaki, and informs the considerations and decision-making processes for the Council and community as the next Natural Resources Plan is drafted. In addition, the report helps give a regional perspective to national-level reviews of water quality and water quality management that are released from time to time.
20. In 2015-2016 the Council also ran an extended monitoring programme that incorporated a number of additional sites. The purpose in doing so was to examine the representativeness of the existing network, utilising actual monitoring results. In summary, the study found that for all physicochemical parameters, the range of values across the regular SEM sites encompassed the range found across the additional "comparative" sites. That is, the pre-existing SEM sites were found to already represent the full range of baseline water quality in the Taranaki region. No site in either the existing network (11 catchments) or the 5 additional catchments gave anomalous results.
21. The ecological health of the region's streams is shown by the macroinvertebrate communities and periphyton assemblages. The 2018-19 state of the environment reports for these parameters, and recreational water quality over the last bathing season, have already been presented to the Council.

## Recommendations

That the Taranaki Regional Council:

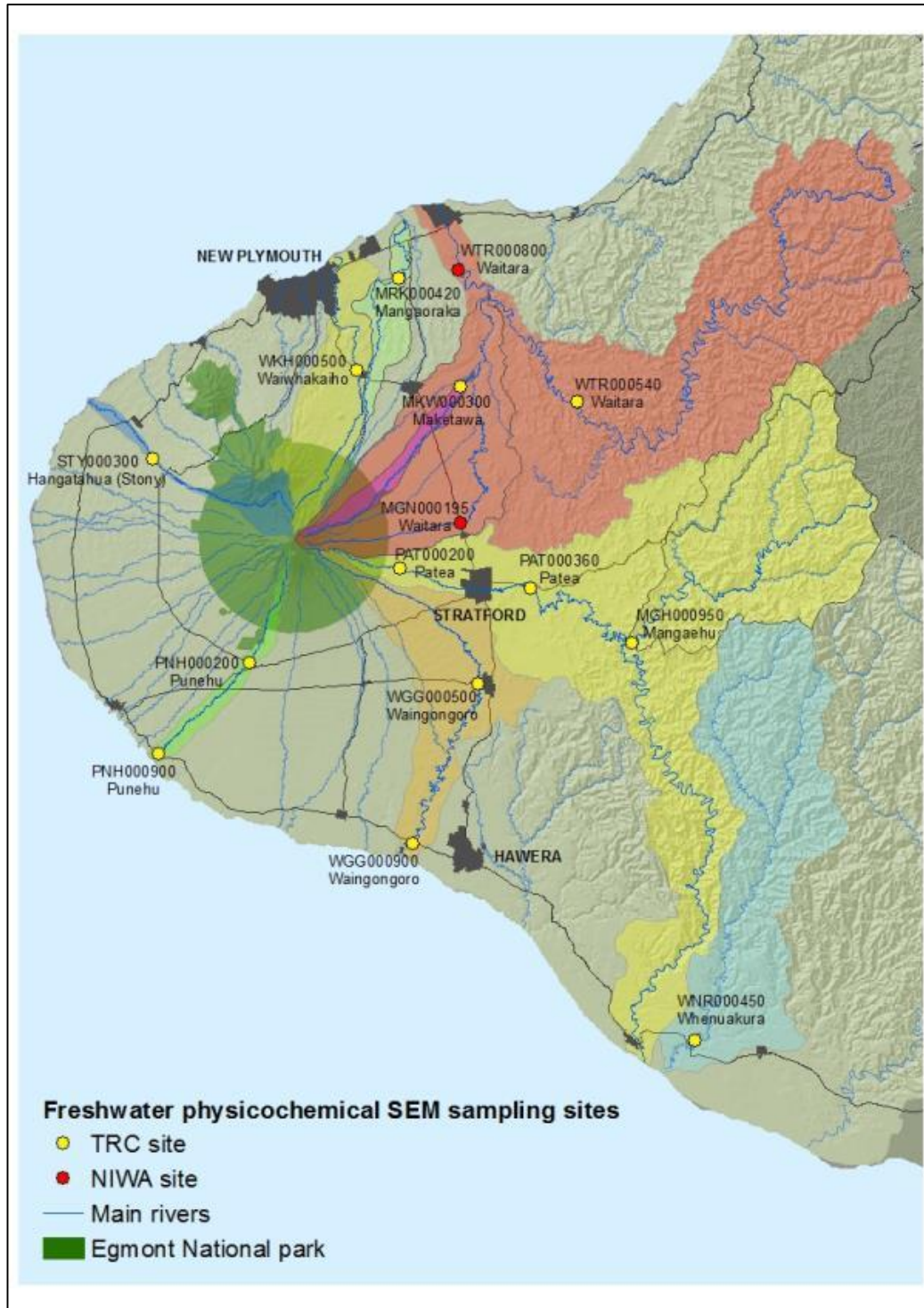
- a) receives this memorandum noting the preparation of a report on the state of and trends in regional physicochemical water quality data for Taranaki, for 2018-2019 and over the periods 1995-2019 and 2012-2019 respectively, together with information on compliance with the NOF and regional guidelines
- b) receives the report *Freshwater Physicochemical Programme State of the Environment Monitoring Annual Report 2018-2019 Technical Report 2019-98*
- c) notes the findings of the trend analyses of data from the SEM physicochemical programme
- d) notes the findings of the analysis of water quality state data from the SEM physicochemical programme
- e) adopts the specific recommendations therein.

## Background

22. This Committee has been regularly informed of the findings that emerge from the Council's various fresh water 'state of the environment' monitoring programmes. These programmes are important as indicators of the effectiveness of the Council's and community's interventions and resource management initiatives addressing fresh water quality in the region. Members will be aware that there is a high level of interest nationally in the state and management of the country's fresh water resources.
23. *The Regional Fresh Water Plan for Taranaki* (now under review) contains objectives to manage the state of the region's surface freshwater. Objective 6.2.1 requires the Council and region 'to maintain and enhance the quality of the surface water resources of Taranaki by avoiding, remedying or mitigating the adverse effects of contaminants discharged to land and water from point sources', while Objective 6.3.1 is an equivalent objective for diffuse sources of contaminants.
24. In Section 10.3 of the Plan, the Council commits to continued monitoring, research and investigations related to fresh water quality, to provide information on the state of fresh water in the region and the effectiveness of the Plan.
25. Section 4 of the RFWP recognises that iwi seek the recognition of the values of water and protection of the mana, mauri, and wairua of waterways against contamination; maintenance of the quality of water for its ability to provide mahinga kai; and respect for wāhi tapu and other areas or resources that have special significance.
26. The Council's 2018-2028 LTP has, under the 'Levels of service' specified for resource management, a commitment to 'maintain and enhance overall water quality in our rivers and lakes, groundwater and coastal waters'. The measure for this activity is: 'parameters that characterise the physical, bacteriological, biological and chemical quality of surface water', and the target is 'improvements in nutrient levels... appearance... organic contamination... bacterial levels... temperature and algal cover, against a baseline of 1995 water quality, as applicable, at 10 representative sites.'
27. Staff have, and have been trained in, the software and methodology used by NIWA for trend analysis of freshwater systems, to ensure that data and analysis provided to the Council and the public of Taranaki is robust, defensible, and consistent with analyses delivered at a national level. In this way timely and reliable feedback on the quality and

health of the region's streams and the effectiveness of water quality management in the region can be generated and utilised.

28. Companion reports on the latest results of the Council's SEM programmes monitoring the state of the ecological health of the region's streams as shown by macroinvertebrate communities and periphyton assemblages, and recreational water quality over the last bathing season, are in preparation.



## Discussion

### State of the region's waterways

29. The Council monitors 13 sites on its own account, and also makes use of data from two further sites monitored by NIWA (for a smaller range of parameters). In years gone by, one Council site was also monitored independently by NIWA (lower Waingongoro River site). This duplicated sampling regime provided a quality control and independent audit function for both agencies. However, NIWA have now reduced its national water quality monitoring programme and have abandoned this site. This memorandum includes data from the two remaining water quality sites being maintained by NIWA as part of its 30-year old National Rivers Water Quality Monitoring Network. NIWA analyse for a much narrower range of parameters than does this Council.
30. The programme network was expanded by the Council for the 2015-2016 year in response to the obligation signalled by the government through the 2014 National Policy Statement for Freshwater Management, that all surface waters in every region must be incorporated into Freshwater Management Units and every FMU must have representative monitoring established. A mid-Waitara River site (Tarata) and lower Whenuakura River site were accordingly added to the suite of sites monitored within this programme.
31. Each sampling run by the Council measures up to 22 physical and chemical water quality parameters at thirteen sites that represent six selected ring plain catchments, two catchments with sub-catchments covering both the ring plain and eastern hill country, and one eastern hill-country catchment.
32. The data includes parameters for organic contamination (BOD), bacteriological quality (enterococci and faecal coliforms), appearance (suspended solids and clarity), and the nutrient species phosphorus (total and dissolved reactive) and nitrogen (ammonia, nitrate, and total nitrogen), as well as general measures of water quality (conductivity, pH and temperature). In the year under review, surveys were performed regularly in the second week of every month from July 2018 to June 2019, as is standard for this programme.
33. As is typical, variability in site water quality occurred in response to flow conditions and with season. Generally there was some spatial deterioration in most aspects of water quality in a downstream direction. This was illustrated by poorer water clarity (increased turbidity), increased bacteriological counts and nutrient levels, and wider water temperature and pH ranges at downstream sites. The eastern hill country sites typically have elevated suspended solids and turbidity.

### 2018-2019 results

34. Hydrology and meteorology have a significant effect on water quality on a year by year basis. Unlike the 2016-2018 period, which was wetter than has been the median over the duration of records across almost all sites, the 2018-2019 year was characterised by much lower median flows sampled by the programme in all rivers and streams. This consequently affected both state and trends, generally benefitting measures of water quality.
35. **Flows:** eleven of the thirteen sites recorded the lowest median sampled flow, and five recorded the lowest sampled flow. Flows were last below medians across a year during the 2015-2016 period.



36. **Aesthetic and physical measures:** the 2018-2019 median results for suspended solids and clarity were generally better than the medians for the previous long term period. Eastern hill-country catchment rivers were typically slightly cloudy due to fine colloidal solids and yellow-brown in appearance under most flow conditions. Suspended solids concentrations in the Whenuakura remain higher than at other sites; this catchment was severely impacted by a major flood and associated erosion events in July 2015. The Stony River shows considerable variability due to ongoing natural erosion events.
37. Median temperatures were similar at all sites, although remaining in a narrower range than usual due especially to higher minimum temperatures.
38. **Nutrients:** median nutrient levels were variable in the 2018-2019 period. However, it was notable that total phosphorus and total nitrogen concentrations were typically lower than medians across most sites (9 of 13 sites). Nitrate nitrogen and dissolved reactive phosphorus levels showed somewhat more increases than reductions. As always, nutrient levels generally increased in a downstream direction, consistent with point and diffuse sources. Highest concentrations were found in the lower Punehu Stream site, mid Pātea River (Skinner Road) site, mid and lower Waingongoro River sites, and to a slightly lesser degree at the site in the Mangaoraka Stream.
39. **Bacteria:** Overall, there were typical levels of bacteriological water quality, with the highest concentrations being found in the lower reaches of agricultural catchments. The sites in the mid reaches of the Waiwhakaiho, Waingongoro, Pātea and Waitara Rivers have had comparatively good bacteriological water quality on occasions.
40. **Other measures:** The 2018-2019 median levels of dissolved oxygen saturation and pH, were similar to long term medians. However, biochemical oxygen demand (a measure of putrescible organic material) was generally higher than typical (although generally remaining below 1 g/m<sup>3</sup>, indicating little or no organic enrichment).
41. **Sites:** On a site specific basis comparing the 2018-2019 period with the previous 23-year historical record, there was a mixture of results, but with instances of improved quality out-numbering instances of lower quality by about 3 to 1. Differences in comparative water quality were related to the greater proportion of lower flows sampled, with improvements in visual clarity, suspended solids, bacterial species, ammoniacal nitrogen and phosphorus species. Results for nitrate and turbidity were more mixed. The Stony River and Pātea River generally exhibited slightly worse water quality than usual, while the Mangaoraka Stream, Waiwhakaiho River, mid Punehu Stream, Mangaehu River, upper Waitara River, Whenuakura River, and lower Waingongoro River all had better to much better water quality than typical.

#### **Water quality and national criteria**

42. The above discussion reviews whether the state of the quality at each site is changing on a year by year and a longer-term basis. This is a separate question from whether the water is suitable for use and whether it meets the Government's expectations. The Government's National Policy Statement for Freshwater Management 2014 includes compulsory attributes (parameters) with accompanying criteria for water quality. For each attribute there are four bands or grades, with the bottom band ('D') being deemed to represent unacceptable water quality ('Below the National Bottom Line'). In 2017 the Government changed the criteria for 'swimmability', such that there are now 4 separate criteria just for this consideration, with 5 gradings for each criterion, and with the overall categorisation being based on the worst of the four criteria. There is no assigned 'bottom line' for the swimmability criteria, but a general assumption that at least a 'C' is required to meet public expectations.

43. Gradings for all parameters are generally to be made on the basis of the last three years' worth of data. Therefore data from 15 sites can be utilised for this evaluation.
44. Comparing the 2016-2019 results against the nutrient criteria set out in the compulsory National Objectives Framework, there are 60 results which can be categorised, across 4 parameters. It is found that 73% of all results lie in their respective 'A' band, and 27% in the 'B' band- a total of 100% of all results for water quality in Taranaki being either 'A' or 'B'. (In the 2017-2018 year one there had been a single 'C' grade result). That is, there is no nutrient result in Taranaki that lies below a national 'bottom line'. Six of the 15 sites have straight 'A' grades for nutrients.
45. Sites with 100% of 'A' grade parameters for nutrients include the Waitara River (both mid and lower sites), Stony River, upper Pātea River, and the Manganui and Mangaehu rivers. The parameter that most often causes a site to receive a 'B' rather than 'A' is that of occasional peak ammonia concentrations (strictly, the 95th%ile value) failing to lie below the threshold for a 'A' grading. The only sites with more than 1 'B' grading for nutrients are the lower Pūnehu, both sites in the Waingongoro, and the mid Pātea River site.
46. In terms of swimmability, there are 75 possible gradings (4 parameters plus the overall assigned grade, for each site). Two sites (13%) and 19% of all results met at least the 'C' grading. Sites higher in catchments had better gradings than those lower down. Across all sites, the most common cause of failure was non-compliance with the 95th%ile limit- a criterion limiting the maximum value allowed during rare peak events.
47. It is important to note that most of the SEM sites in the programme are not considered contact recreational sites; the streams are too shallow, cold and/or small for recreational bathing activities. Nevertheless, the Government requires that on a regional basis, swimmability is measured at these sites.
48. The report also reviews water quality at each site against a wide suite of other national and international standards and guidelines (section 4.2.3). This analysis shows that with very few exceptions, at least the median results if not all results comfortably meet recognised criteria for aesthetic quality, contact recreation, prevention of undesirable aquatic growths, stock water consumption, protection of aquatic ecosystems and stream health, abstraction for irrigation, or drinking water source catchments.

#### **Long-term trends (24 years)**

49. Section 7(f) of the Resource Management Act 1991 requires the Council to have particular regard to the *'maintenance and enhancement of the quality of the environment'*.
50. Long term (24-year) physicochemical trends have shown some significant deterioration in some aspects of water quality (particularly phosphorus) in many of the middle and lower catchments (e.g. the Mangaoraka Stream at Corbett Road, Waingongoro River at Eltham Road, and Maketawa Stream at Tarata Road). On the other hand, there has been a significant long term improvement in total nitrogen at three of the eleven sites monitored, with only one site that is showing deterioration in this measure. Long term trends for faecal coliforms and enterococci bacteria showed statistically significant changes over the 24-year period for one or other species at four sites, out of eleven, with improvement at one site (Pūnehu Stream at Wiremu Road) and deterioration at three sites in mid and lower catchments. Significant deteriorations in black disc clarity were recorded at two sites, one of which reflected historical erosion events in the headwaters.
51. The most improvement in long term water quality has been illustrated in the Waingongoro River at SH 45, with significantly improving trends in DRP and total

phosphorus, and with reduction in nitrate and total nitrogen by slightly less than the rate defined as significant. This improvement has been coincident with land-irrigation of a major industrial (meatworks) discharge since 2001 and the diversion of Eltham's WWTP discharge out of the river since 2010. Most long term deterioration in aspects of water quality, where five parameters have significantly deteriorated, has been found in the mid-reaches of the Waiwhakaiho River (dissolved phosphorus, nitrate and ammonia nitrogen, and both bacteriological species), and in lower reaches of the Mangaoraka Stream (both phosphorus species and both bacteriological species and black disc), with no parameters showing significant long term improvement. However, more recent data indicate the deterioration has been arrested at both of these sites for all parameters monitored.

52. Because recent trends are more positive than long-term trends (see next section), there has been a progressive lift in the number of water quality parameters that over the long term have shown improvement eg for the full record to the end of the 2012 year, 75% of all parameters were showing either maintenance or improvement in quality; whereas for the full record to 2019, 82% of all parameters are showing either maintenance or improvement.
53. This measure indicates the degree to which the Council and regional community are giving effect to the obligation within the Resource Management Act and the *Regional Fresh Water Plan for Taranaki* to maintain and enhance the quality of the environment.

#### **Recent trends**

54. There is an overall shift towards improving rather than the continuation of deteriorating trends in the region as time passes. However, in the last few reports, the percentage of parameters showing maintenance or improvement in recent trends was lower than the percentages reported to the Council prior to this period, reflecting the preponderance of wetter than usual sampling conditions in the last few years, which in turn had meant reductions in water quality. Four of the last 5 and 5 of the last 7 years to 2018 had been markedly wetter than typical in terms of flows during sampling runs. Over the same period, the annually updated record of the number of parameters showing either maintenance or improvement in the most recent 7 year period, had fallen from 99% to 80% of all measures annually reported.
55. The rolling seven-year trends had still remained more positive than the long-term trends, with fewer sites and measures showing significant deterioration, particularly in nutrient concentrations; and further, the percentage of measures showing either maintenance or improvement in the long term continued to climb steadily as each new year passes even though short-term changes were not as numerous as they had been in the past.
56. However, this pattern was arrested in the period under review, with drier conditions (lower flows) at times of sampling. When data from the most recent period was incorporated into rolling 7-year trends, it was found that 86% of all measures are now showing improvements or else no evidence of any trend.
57. Every one of the 11 sites is showing either an improvement or no trend, in both total and dissolved reactive phosphorus over the last 7-year period.
58. There is no regional pattern in changes in ammonia (improving trends balance deteriorations), although it is noted that nitrate concentrations are increasing at a few, primarily upland sites. Other measures (bacteria, organics, aesthetics) show no regional pattern of change in either direction.

59. In further comparing the long-term and the seven-year trends, there is a noticeable change in trend patterns for the better for the Waingongoro River (both sites) and lower Pūnehu River. Also, it is particularly noticeable that previous patterns of deteriorating water quality in the Waiwhakaiho River, mid-Waingongoro River, Mangaoraka Stream, and Maketawa Stream have been arrested.

### **Conclusions**

60. A drier year in 2018-2019 than recently experienced meant some noticeable changes in overall water quality during the year when compared with the long-term record, with some physical parameters elevated above usual levels and nutrients lower.
61. Water quality in the region is 'fit for purpose' by almost all measures at most sites most of the time, and more so when the compulsory national criteria are considered. The exception is 'swimmability' when measured by NPS criteria.
62. There continues to be a clear pattern of trends in water quality parameters becoming more positive as time passes, notwithstanding that on a year by year basis there will be natural fluctuations.
63. An extended network of sites was monitoring during 2015-2016, and the assessment of results has been reported to the Council previously. This survey showed that the existing SEM sites meaningfully represent the full range of baseline water quality in the Taranaki region.
64. These results, together with other past results presented to the Council (eg in-stream ecological health monitoring and research findings) validate the investment by the Council and the regional community in the continuing policy and plan measures to improve the region's surface water quality.

### **Decision-making considerations**

65. Part 6 (Planning, decision-making and accountability) of the *Local Government Act 2002* has been considered and documented in the preparation of this agenda item. The recommendations made in this item comply with the decision-making obligations of the *Act*.

### **Financial considerations—LTP/Annual Plan**

66. 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**

67. 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**

68. 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.

### **Legal considerations**

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

### **Appendices**

*19-98 Freshwater Physicochemical Programme State of the Environment Monitoring Annual Report 2018-2019 (Executive summary and Recommendations)*

## Executive summary

Section 35 of the Resource Management Act (RMA) requires local authorities to undertake monitoring of the region's environment, including land, air, and fresh and marine water quality. As set out in the Regional Policy Statement for Taranaki (2010), the quality of the region's fresh water resources is of primary importance for the region's communities, including iwi, economic sectors, and social and cultural sectors. To inform the community of the state of, pressures upon, and trends in water quality in the region, a number of monitoring programmes have been put in place. The freshwater physicochemical component of the State of Environment Monitoring (SEM) programme for Taranaki was initiated by the Taranaki Regional Council in the 1995-1996 monitoring year and subsequently has been continued in each year. Data from this programme were used as the basis for the first five-year SEM report published in 2003, for trending purposes over the ten year period 1995 to 2005, and the thirteen year period 1995 to 2008 as presented in the third SEM report published in 2009, and the nineteen year period 1995-2014 as presented in the fourth SEM report (TRC, 2015a).

In the year under review, surveys continued to be performed regularly in the second week of every month from July 2018 to June 2019, under a narrower range of flow conditions than typical, ranging through moderate freshes to very low late summer flows. This year was characterised by much lower median flows sampled by the programme in all rivers and streams. Each sampling run measured up to 22 physical and chemical water quality parameters at thirteen sites representing eight selected ring plain catchments and three eastern hill-country catchments. Two of the sites were established three years before, to increase representation of the eastern hill-country, in anticipation of the government's requirement that the Council must establish Freshwater Management Units and have representative monitoring across the entire region.

The twelve months of water quality data are presented for each of the Council's thirteen sites, together with a statistical summary for both the year and accumulated data to date. Results are discussed on a site-by-site basis and, more briefly, on a comparative parameters' basis. Data from the two Taranaki sites included in the NIWA national network monitoring programme are also presented and discussed.

Variability in site water quality occurred in response to flow conditions and with season. Generally there was some spatial deterioration in most aspects of water quality in a downstream direction. This was illustrated by poorer water clarity (increased turbidity), increased bacteriological counts and nutrient levels, and wider water temperature and pH ranges at downstream sites. This was usually coincident with increases in substrate algal cover during summer-autumn low flow conditions, a feature of Taranaki ring plain streams (and surface waters elsewhere in New Zealand); a response to elevated nutrient runoff, and warmer more open conditions in lower reaches of developed and farmland catchments. Higher turbidity and suspended solids levels (and therefore poorer visual clarity) characterised the eastern hill country Mangaehu, Whenuakura and Waitara Rivers sites in these rivers' lower reaches.

Over the 2018-2019 monitoring year, flows at times of sampling were much lower than usual, with few freshes and several low flows sampled. Eleven of the thirteen sites recorded the lowest median sampled flow, and five recorded the lowest sampled flow. In general terms, for the eleven sites monitored for more than 10 years, water quality was comparatively better in clarity, suspended solids concentrations and nutrient levels, poorer in organics, and similar in bacteria numbers, to past quality. Narrower temperature ranges, mainly due to higher minimum temperatures, and similar median water temperatures, were measured in the 2018-2019 period compared with ranges and medians measured during the first 23 years



of the SEM programme. The 2018-2019 median dissolved reactive and/or total phosphorus levels were higher at three sites and lower at four sites. Median nitrate and/or total nitrogen species' levels were higher at three sites and lower at two sites, while median ammoniacal nitrogen levels were lower at five and higher at one site.

The report also provides an assessment of each site's statistical water quality in terms of appropriate guidelines and standards for various usages based upon a summary of the record for the complete 1995-2019 period.

For the fifth time, results are also compared with the compulsory national water quality criteria set out in the National Objectives Framework (NOF) that is part of the National Policy Statement for Freshwater Management 2014 (NPS-FW). The NOF assigns grades ('attribute states') for indicators ('attributes'), from A (best) to D (worst), with a National Bottom Line of acceptability being a C state. During the 2017-2018 year, the Ministry for the Environment amended the NOF grading system so that the 4 grades, with the bottom grade being unacceptable, were removed from the NOF in respect of E coli. Instead, there is now a matrix of categorisation, with 4 separate criteria to each be considered and the overall grading being the worst of the four. There are now five grades, and no bottom line, for E coli. The Government has stated that as a whole, 80% of the country's waterways should be within the top 3 categories by 2030, and 90% by 2040. It should be noted that these percentages do not necessarily apply at the regional level. For the purpose of comparisons, this report uses the five-step categories, with rivers in either of the bottom two categories being deemed unacceptable for recreational purposes.

The RMA requires that particular regard be given to the 'maintenance and enhancement of the quality of the environment'. Therefore a key determinant for the Council is to identify where trends in water quality show no change ('maintenance') and/or improvement ('enhancement'), in either case aligning with the objective of the RMA, or alternatively show decline. With the availability of a suitable period (minimum of ten years) of robust data and access to appropriate statistical software, temporal trend analyses were performed for state of the environment reporting purposes and reported elsewhere during 2006. Regular updates of these temporal trends subsequently have been prepared at appropriate intervals and reported separately, and data for the period 1995 to 2019 are summarised and presented for all thirteen Council sites briefly in the current Annual Report. In addition, this report presents trend analysis for the two NIWA sites in Taranaki.

Also, for the fifth time, trends over the most recent period (the last seven years) have been incorporated into this report. Previously, they were calculated and presented separately; for the sake of convenience and completeness of reference they have now been included herein. These data help identify and evaluate the current state of flux in water quality, rather than those trends that are more historical in nature.

Long term (24-year) physicochemical trends have shown some significant deterioration in some aspects of water quality (particularly phosphorus) in many of the middle and lower catchments (e.g. the Mangaoraka Stream at Corbett Road, Waingongoro River at Eltham Road, and Maketawa Stream at Tarata Road). On the other hand, there has been a significant long term improvement in total nitrogen at three of the eleven sites monitored, with only one site that is showing deterioration in this measure. Long term trends for faecal coliforms and enterococci bacteria showed statistically significant changes over the 24-year period for one or other species at four sites, out of eleven, with improvement at one site (Punehu Stream at Wiremu Road) and deterioration at three sites in mid and lower catchments. Significant deteriorations in black disc clarity were recorded at two sites, one of which reflected historical erosion events in the headwaters.

The most improvement in long term water quality has been illustrated in the Waingongoro River at SH 45, with significantly improving trends in DRP and total phosphorus, and with reduction in nitrate and total nitrogen by slightly less than the rate defined as significant. This improvement has been coincident with land-irrigation of a major industrial (meatworks) discharge since 2001 and the diversion of Eltham's WWTP discharge out of the river since 2010. Most long term deterioration in aspects of water quality, where five parameters have significantly deteriorated, has been found in the mid-reaches of the Waiwhakaiho River (dissolved phosphorus, nitrate and ammonia nitrogen, and both bacteriological species), and in lower reaches of the Mangaoraka Stream (both phosphorus species and both bacteriological species and black disc), with no parameters showing significant long term improvement. More recent data indicate the deterioration has been arrested at both of these sites for all parameters monitored.

Analysis of recent trends indicates a better direction in water quality, although the latest seven-year trends do not show the same wide-spread improvements that had been evident in recent years. The latest rolling seven-year trend is more positive than the long-term trend, with fewer sites and measures showing significant deterioration, particularly in nutrient concentrations. Every one of the 11 sites is showing either an improvement or no trend, in both total and dissolved reactive phosphorus over the last 7 year period. There is no regional pattern in changes in ammonia (improving trends balance deteriorations), although it is noted that nitrate concentrations are increasing at a few, primarily upland sites. Other measures (bacteria, organics, aesthetics) show no regional pattern of change in either direction.

This report on the results of the 2018-2019 monitoring period also includes recommendations for the 2019-2020 period and the results of internal and external laboratory quality control exercises, which, with relatively few exceptions, resulted in good inter and intra-laboratory precision.

Recommendations provide for the continuation of this programme.

## **Recommendations**

1. THAT the existing freshwater physicochemical component of the SEM programme continue in a similar format for the 2019-2020 monitoring year.
2. THAT additional (split) samples be collected on at least one occasion during the monitoring year, in conjunction with the intra-laboratory quality control programme, for analysis by an external, accredited laboratory.
3. THAT the appropriate trend analysis reported on the datasets for all Taranaki sites over the 1995-2019 period (provided in the current report), be updated for the 1995-2020 period at the conclusion of the 2019-2020 year.

### **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 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 whakamaua 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
Ko Papatūānuku e takoto ake nei	Papatūānuku below
Tūturu o whiti whakamaua kia	Let there be certainty
tina	Secure it!
Tina! Hui e! Taiki e!	Draw together! Affirm!