

I hereby give notice that an ordinary meeting of the Environment Committee will be held on:

Date: Wednesday, 10 March 2021
Time: 9.30am
Venue: Tararua Room
Horizons Regional Council
11-15 Victoria Avenue, Palmerston North

ENVIRONMENT COMMITTEE

AGENDA

MEMBERSHIP

Chair	Cr NJ Patrick
Deputy Chair	Cr WK Te Awe Awe
Councillors	Cr AL Benbow
	Cr EM Clarke
	Cr DB Cotton
	Cr SD Ferguson
	Cr EB Gordon
	Cr FJT Gordon
	Cr RJ Keedwell
	Cr WM Kirton
	Cr JM Naylor
	Cr GJ Turkington

Michael McCartney
Chief Executive

Contact Telephone: 0508 800 800
Email: help@horizons.govt.nz
Postal Address: Private Bag 11025,
Palmerston North 4442

Full Agendas are available on Horizons Regional Council website
www.horizons.govt.nz

for further information regarding this agenda, please contact:
Julie Kennedy, 06 9522 800

CONTACTS	24 hr Freephone : 0508 800 800	help@horizons.govt.nz	www.horizons.govt.nz	
SERVICE CENTRES	Kairanga Cnr Rongotea & Kairanga-Bunnythorpe Rds, Palmerston North	Marton 19-21 Hammond Street	Taumarunui 34 Maata Street	Woodville Cnr Vogel (SH2) & Tay Sts
REGIONAL HOUSES	Palmerston North 11-15 Victoria Avenue	Whanganui 181 Guyton Street		
DEPOTS	Levin 120-122 Hokio Beach Rd	Taihape 243 Wairanu Rd		
POSTAL ADDRESS	Horizons Regional Council, Private Bag 11025, Manawatu Mail Centre, Palmerston North 4442			
FAX	06 9522 929			

TABLE OF CONTENTS

1	Welcome / Karakia	5
2	Apologies and Leave of Absence	5
3	Public Forums / Deputations / Petitions	5
4	Supplementary Items	5
5	Members' Conflict of Interest	5
6	Confirmation of Minutes	
	Environment Committee meeting, 11 November 2020	7
7	District Advice Update	
	<i>Report No: 21-17</i>	11
8	Regulatory Management Report - November 2020 to January 2021	
	<i>Report No: 21-18</i>	17
	<i>Annex A - Te Ahu A Turanga Manawatu Tararua Highway Compliance Report 2021</i>	30
9	Update of Progress for the new Wastewater Treatment Discharge Consents for Palmerston North	
	<i>Report No: 21-19</i>	83
10	Environment Committee Progress Report	
	<i>Report No: 21-20</i>	85
	<i>Annex A - Biosecurity Animals Progress Report</i>	88
	<i>Annex B - Biosecurity Plants Progress Report</i>	102
	<i>Annex C - Biodiversity Progress Report</i>	120
	<i>Annex D - Water Quality & Quantity Progress Report</i>	145
	<i>Annex E - Environmental Reporting Progress Report</i>	174

AGENDA

1 Welcome/Karakia

2 Apologies and Leave of Absence

At the close of the Agenda no apologies had been received.

3 **Public Forums:** Are designed to enable members of the public to bring matters, not on that meeting's agenda, to the attention of the local authority.

Deputations: Are designed to enable a person, group or organisation to speak to an item on the agenda of a particular meeting.

Requests for Public Forums / Deputations must be made to the meeting secretary by 12 noon on the working day before the meeting. The person applying for a Public Forum or a Deputation must provide a clear explanation for the request which is subsequently approved by the Chairperson.

Petitions: Can be presented to the local authority or any of its committees, so long as the subject matter falls within the terms of reference of the council or committee meeting being presented to.

Written notice to the Chief Executive is required at least 5 working days before the date of the meeting. Petitions must contain at least 20 signatures and consist of fewer than 150 words (not including signatories).

Further information is available by phoning 0508 800 800.

4 Supplementary Items

To consider, and if thought fit, to pass a resolution to permit the Committee/Council to consider any further items relating to items following below which do not appear on the Order Paper of this meeting and/or the meeting to be held with the public excluded.

Such resolution is required to be made pursuant to Section 46A(7) of the Local Government Official Information and Meetings Act 1987 (as amended), and the Chairperson must advise:

- (i) The reason why the item was not on the Order Paper, and
- (ii) The reason why the discussion of this item cannot be delayed until a subsequent meeting.

5 Members' Conflict of Interest

Members are reminded of their obligation to declare any conflicts of interest they might have in respect of the items on this Agenda.

Minutes of the fifth meeting of the eleventh triennium of the Environment Committee held at 9.30am on Wednesday 11 November 2020, in the Tararua Room, Horizons Regional Council, 11-15 Victoria Avenue, Palmerston North.

PRESENT Crs NJ Patrick (Chair), AL Benbow (via zoom to 11.10am), DB Cotton (via zoom), SD Ferguson, EB Gordon, FJT Gordon, WM Kirton, JM Naylor (from 9.38am to 11.49am), WK Te Awe Awe (to 10.30am), and GJ Turkington.

IN ATTENDANCE Chief Executive Mr MJ McCartney
Committee Secretary Mrs KA Tongs

ALSO PRESENT At various times during the meeting:

Dr J Roygard (Group Manager Natural Resources & Partnerships), Dr N Peet (Group Manager Strategy & Regulation), Mr R Strong (Group Manager River Management), Mr G Shirley (Group Manager Regional Services & Information), Mr R Smillie (Biodiversity, Biosecurity & Partnerships Manager), Mr G Bevin (Regulatory Manager), Mr J Bell (Manager Investigations & Design), Ms S Carswell (Coordinator District Advice), Mrs S Williams (Environmental Educator), Mr C Veale (Programme Coordinator), Mr S Hodges (Manager Information Management), Ms A Matthews (Science & Innovation Manager), Mr M Mitchell (Scientist – Water Quality), Ms C Morrison (Media & Communications Manager), Mayor A Watson, Mr P Beggs & Mr A Benadie (Rangitikei District Council), and Mr M Fredericks (via zoom).

The Chair welcomed everyone to the meeting and invited Cr Te Awe Awe to say a Karakia.

APOLOGIES

ENV 20-24 *Moved* **F Gordon/Turkington**

That apologies be received from Crs Keedwell and Clarke, and that an apology be noted from Cr Naylor for lateness.

CARRIED

Cr Te Awe Awe noted he would be departing the meeting early.

PUBLIC FORUMS / DEPUTATIONS / PETITIONS

Public Speaking had been granted to Owhango Alive Group (via Zoom).

Mr Mark Fredericks spoke on behalf of the Owhango Alive Group and gave a brief outline of the origins of the group and also what they had achieved to date. Mr Fredericks expressed the need for funding from Horizons contestable funds which would increase the effect of the Group along the Whakapapa River.

Cr Naylor joined the meeting at 9.38am.

Cr Te Awe Awe departed the meeting at 10.30am.

RANGITIKEI DISTRICT COUNCIL - THREE WATERS

Report No 20-152

Mayor Andy Watson, Mr P Beggs (Chief Executive) and Mr A Benadie (Infrastructure Manager) from Rangitikei District Council gave a Three Waters Update presentation to Elected Members.

A moment's silence was observed at 11.00am for Armistice Day.

ENV 20-28 Moved B Gordon/F Gordon

That the Committee recommends that Council:

- a. *receives the presentation from Mayor Andy Watson, Peter Beggs and Arno Benadie, Rangitikei District Council.*

CARRIED

Cr Benbow departed the meeting at 11.10am.

Meeting adjourned at 11.10am.

Meeting reconvened at 11.20am.

NATURAL RESOURCES & PARTNERSHIPS PROGRESS REPORT

Report No 20-153

This item updated Members of Council's Environment Committee on the progress made in the Natural Resources & Partnership Group's activity over the period 1 July to 30 September 2020. Dr Roygard (Group Manager Natural Resources & Partnerships) provided updates on progress against the annual plan targets and aspects of the Natural Resources & Partnerships Group Operational Plan 2019-20.

ENV 20-29 Moved Naylor/Turkington

That the Committee recommends that Council:

- a. *receives the information contained in Report No. 20-153 and Annexes.*

CARRIED

Report No.	21-17
Information Only - No Decision Required	

DISTRICT ADVICE UPDATE

1. PURPOSE

- 1.1. This report is to inform Members of the District Advice land development information requests carried out year to date (from 1 July 2020 to 23 February 2021) and other activities for the reporting period October 2020 to February 2021.

2. RECOMMENDATION

That the Committee recommends that Council:

- a. receives the information contained in Report No. 21-17.

3. FINANCIAL IMPACT

- 3.1. The coordination of this function is part of the role of the **Coordinator District Advice (CDA)** and is included in the 2018-28 Long Term Plan under the Community Relationships Activity.

4. COMMUNITY ENGAGEMENT

- 4.1. This is a public item, therefore Council may deem this sufficient to inform the public.

5. CLIMATE IMPACT STATEMENT

- 5.1. This report deals with administrative matters only, so there is no direct climate change impact as a result. However, advice provided to the public and **Territorial Authorities (TAs)** on natural hazards helps the community to understand climate change and build resilience in our Region.

6. BACKGROUND

- 6.1. The District Advice service is responsible for responding to requests for information from the general public and territorial authorities for properties in our Region.
- 6.2. It provides information to the public to inform on land valuations, insurance matters, prospective purchases and hazard risk for new developments and activities.
- 6.3. It also provides comments and advice to the Region's TAs to assist with their assessments of building consents, land use consents, and subdivision decisions. Comments and advice include any relevant information that **Horizons Regional Council (Horizons)** may hold on the property, particularly natural hazard information, and information on One Plan policies and rules.
- 6.4. The CDA manages Horizons' obligations to the Building Act in relation to dams.
- 6.5. The CDA contributes to Horizons' responses to draft and proposed plan changes that are notified by TAs within our Region and provides relevant knowledge on urban growth.

7. LAND DEVELOPMENT INFORMATION REQUESTS

- 7.1. This Report provides the summary of statistics for year to date from 1 July 2020 to 23 February 2021. The District Advice Service responded to a total of 708 requests. 506 of these requests were for the general public and 202 for the TAs.

- 7.2. The total requests received for the same time last year (1 July 2019 to 23 February 2020) were 759. This shows that the trend for requests is a 7% decrease compared to the same time period last year. The decrease is likely be an impact of COVID-19.
- 7.3. For the period from 1 to 23 February 2021 there has been a high demand for the service with 95 enquiries received so far this month.

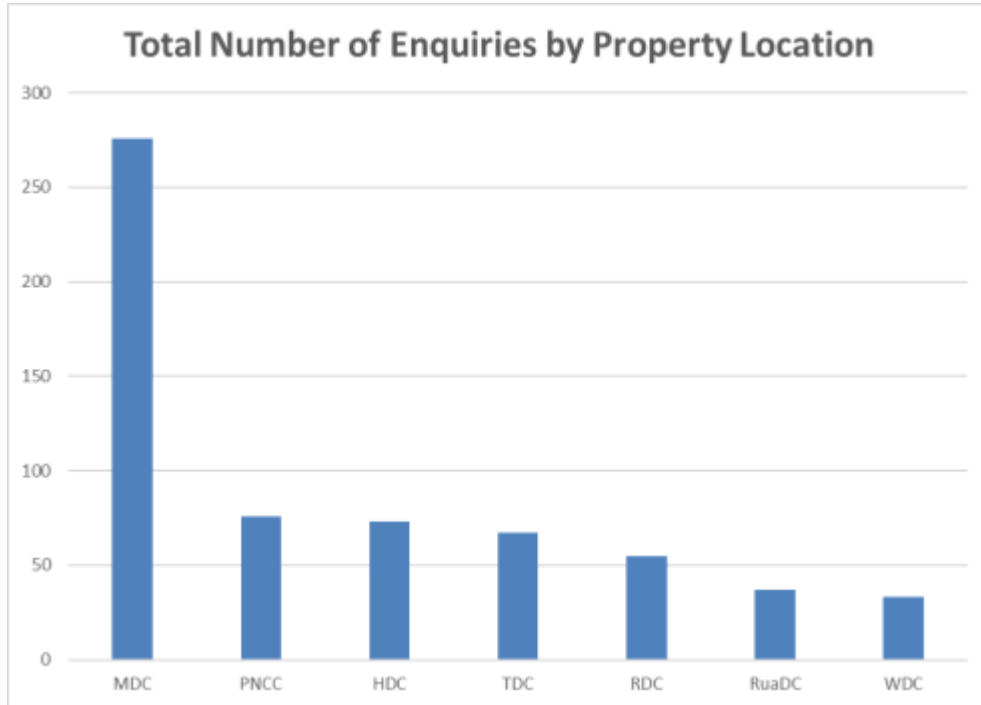


Figure 1

- 7.4. Figure 1 above illustrates the number of enquiries responded to year to date by property location.

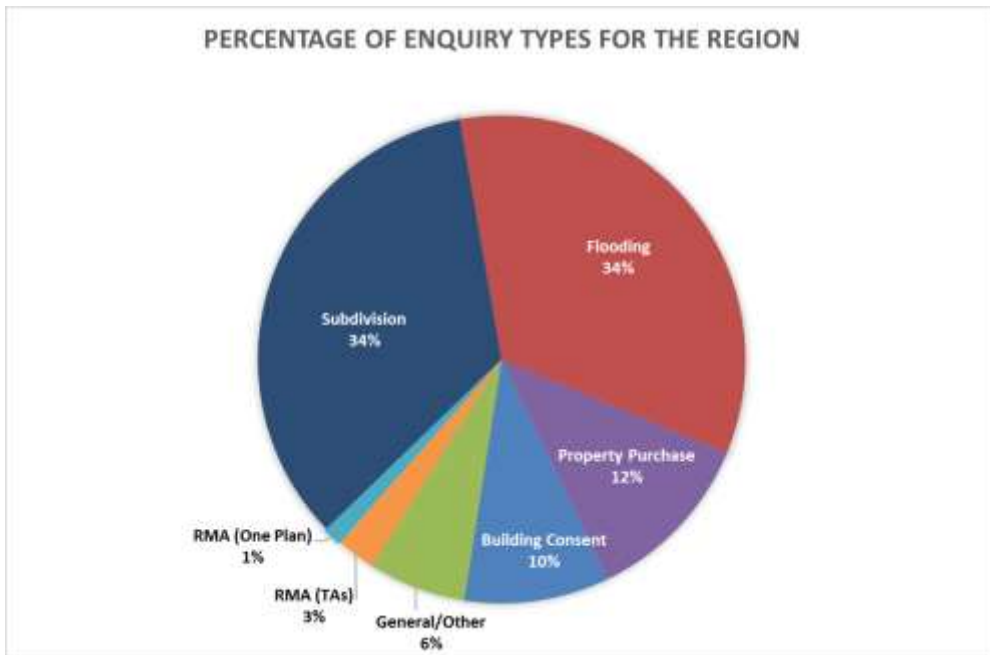


Figure 2

- 7.5. Figure 2 shows the total enquiry type by percentage that has been responded to year to date for the Region.

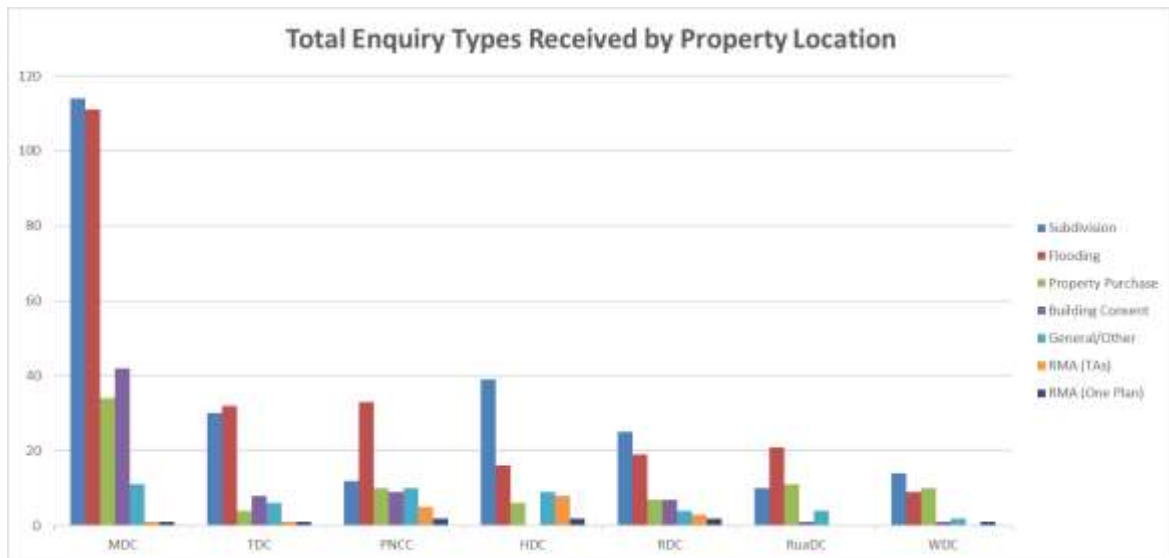


Figure 3

- 7.6. Figure 3 shows the enquiry types that the District Advice Team has responded to year to date by property location.
- 7.7. The main type of enquiry was for subdivisions (244), and this is consistent across the majority of districts. This is closely followed by flooding (241), property purchases (82), building consents (68), and the remaining are general or other RMA related requests (73). For previous reporting periods, flooding has been the main type of enquiry. Subdivision enquiries are generally more time consuming because there is more complexity and information to assess and provide.
- 7.8. Given the uncertainty of COVID-19, we are unsure what the trend will be for the next reporting period. However, based on current demand it appears things are getting back to pre-COVID levels.

8. IMPROVEMENT INITIATIVES

- 8.1. With support from the Information Management and Infrastructure Technology Teams, the District Advice Team have implemented initiatives to improve efficiencies and quality of information provided to customers. The District Advice online property enquiry form has been extended to all TAs in the Region. All key stakeholders and agents have been encouraged to use the online form. Recently Horizons' website has been updated to help encourage the public to use the online form. Horizons' Customer Service Team is also encouraging the public (with internet access) to use the online form. The feedback from TAs and the public is mainly positive.
- 8.2. The CDA chairs the HazMap Working Group, an internal forum that shares hazard and mapping information to improve capability and relationships across teams in Horizons. In October there was a field trip to Tangimoana and Scotts Ferry to learn more about flooding and the Rangitikei River. In March there are two field trips scheduled to Waikawa beach and Pahiatua to learn more about natural hazards.

9. DAMS - BUILDING CONSENTS

- 9.1. Year to date there have been two general dam enquiries. There were no dam proposals received to assess if a building consent is required, and no **Project Information Memorandums (PIMs)** were issued.
- 9.2. In 2019 the **Ministry of Business, Innovation and Employment (MBIE)** published a proposed regulatory framework for dam safety (post-construction regulatory requirements).

There has not been a decision made due to COVID-19 and the timeframes are still unknown at this stage. On 25 February 2021 there is the annual Regional / Unitary Council - Building Act Functions meeting which is held via Microsoft Teams. MBIE has been invited to provide an update.

10. DISTRICT ENGAGEMENT UPDATE

- 10.1. The following is a brief update on the CDA's involvement and contribution to proposed Plan Changes, notice of requirements and other TA engagements during the reporting period from 1 October 2020 to 23 February 2021. This also includes coordinating and providing Horizons' initial feedback and comment on proposed growth areas.

Horowhenua District Council

- 10.2. On behalf of Horizons the CDA provided comment on the Notice of Requirement (NOR) for an alteration to designation and Outline Plan Waiver (OPW) Request – State Highway (SH) 57/Queen Street East, Levin.
- 10.3. District Advice continues to coordinate any information requests for staff and agents/consultants that are working on the **Otaki to North of Levin (O2NL)** Highway Project. The CDA participated in the O2NL Process Roadmap workshop in December.
- 10.4. The CDA arranged for relevant staff to meet with Horowhenua District Council in December to discuss and provide feedback on Horowhenua Growth Planning.
- 10.5. In January the CDA coordinated Horizons' response on initial feedback on Horowhenua growth areas under investigation for Horowhenua District Council's future Plan Change 6. Comment was provided on seven proposed residential sites near Levin, two residential sites near Foxton and one residential site near Shannon. Comment was provided on two proposed industrial sites near Levin, and one commercial site in Foxton Beach. The feedback was from Horizons' technical staff and the District Advice service, including general considerations, regional matters including transport, and District Advice specific feedback for each proposed location.
- 10.6. District Advice provided feedback to Horizons' Senior Policy Analyst for Horizons' submission on Proposed Plan Change 4: Taraika Growth Area. This included maps and information on flooding, waterways, Schedule B Values, soil, drainage, **Land Use Capability (LUC)**, seismic hazards, biodiversity sites and other relevant considerations.
- 10.7. District Advice provided feedback to Horizons' Senior Policy Analyst for Horizons' submission on Proposed Plan Change 5: Waitārere Beach. This included maps and information on flooding, waterways, coastal hazards, climate change, stormwater management, drainage, liquefaction, biodiversity habitats and other relevant considerations.

Manawatū District Council

- 10.8. In November the CDA met with Manawatū District Council Regulatory Manager to discuss building determinations and Tangimoana building consents.

Palmerston North City Council

- 10.9. The CDE coordinated two meetings in December 2020 and February 2021 for Horizons staff to meet with Palmerston North City Council staff for information sharing sessions on flooding for the city. The third session is booked for April this year.
- 10.10. In January the CDA coordinated Horizons' response on proposed growth areas in Ashhurst (future Plan Change F). This was initial feedback from Horizons' technical staff and from District Advice. The four proposed residential sites were North Street, Winchester Street, The Pit, and 'Mulgrave Street' Area.

Tararua District Council

10.11. The CDA and Horizons River Management staff continue to work with Tararua District Council and their agents to provide any relevant information on Woodville and Pahiatua potential growth areas.

Whanganui District Council

10.12. The CDA arranged a meeting in February this year with Horizons and Whanganui District Council Planning, Policy and Infrastructure teams, and presented on the District Advice Service, information sharing, flooding, stormwater management, working better together and discussed the process on engaging with Horizons in regards to investigating potential growth areas.

Remaining Territorial Authorities

10.13. There were no new notifications or engagements during this reporting period from 1 October 2020 to 23 February 2021 for Rangitīkei and Ruapehu District Councils. District Advice has been working with Ruapehu District Council's agent whom is assessing stormwater flooding for Ohakune. The CDA has arranged a meeting in March with Rangitīkei staff at Scotts Ferry to discuss flooding and future development.

SIGNIFICANCE

10.14. This is not a significant decision according to the Council's Policy on Significance and Engagement.

Sarah Carswell
CO-ORDINATOR DISTRICT ADVICE

Ged Shirley
**GROUP MANAGER
REGIONAL SERVICES & INFORMATION**

ANNEXES

There are no attachments to this report.

Report No.	21-18
Information Only - No Decision Required	

REGULATORY MANAGEMENT REPORT - NOVEMBER 2020 TO JANUARY 2021

1. PURPOSE

- 1.1. This report updates Members on regulatory activity, for the period November 2020 to January 2021. It also provides a summary of the compliance monitoring programme associated with the Te Ahu A Turanga and Mercury Windfarm projects and work undertaken in relation to the implementation of the National Environmental Standards for Freshwater Regulations 2020.

2. RECOMMENDATION

That the Committee recommends that Council:

- a. receives the information contained in Report No. 21-18 and Annex.

3. FINANCIAL IMPACT

- 3.1. As with previous years, we are still anticipating there will be significant costs associated with processing large and complex applications, which may in turn be subject to appeal. On-going investigations and prosecutions within the compliance monitoring programme are likely to have an impact on both expenditure and revenue. In addition to the above, we are also anticipating costs to be incurred in relation to the implementation of **National Environmental Standard – Freshwater (NES-FW)** and **Plan Change 2 (PC2)**.

4. COMMUNITY ENGAGEMENT

- 4.1. This is a public item and therefore Council may deem this sufficient to inform the public.

5. SIGNIFICANT BUSINESS RISK IMPACT

- 5.1. There is no significant business risk associated with this item.

6. CLIMATE IMPACT STATEMENT

- 6.1. As this report relates to statutory functions of Council. There is no direct climate change impact.

7. REGULATORY ACTIVITY 2019-2020

Consent Processing

- 7.1. Year to date 200 applications have been lodged, resulting in 139 applications being granted. Eighty nine percent (89%) of applications were processed within the required statutory timeframes and 19 administrative discounts have been applied as required under the **Resource Management (Discount on Administrative Charges) Regulations 2010 (Discount Regulations)**.

RESOURCE CONSENT APPLICATION PROCESSING OVERVIEW (BY YEAR)



Figure 1. Resource consent processing year to date.

7.2. During the reporting period progress continues to be made on a number of significant applications. These are reported to Council on a regular basis and the following provides an update on these:

7.2.1. **Department of Conservation**

- i. The **Department of Conservation (DOC)** is progressing the Whakapapa **Wastewater Treatment Plant (WWTP)** application. DOC has now moved to plan for the relocation of the wastewater treatment plant out of the Tongariro National Park to a less sensitive (both culturally and environmentally) receiving environment. This is a positive move and one Horizons has advocated. A move outside the park will take 2-4 years to go through consenting and construction. In the meantime, Horizons is requiring investment into the existing plant to improve, as far as possible, its environmental performance.

7.2.2. Since the last Committee meeting both DOC and iwi have advised that they require more time to engage in relation to the long-term solution. Horizons agrees this is appropriate particularly given the location of the wastewater plant in a dual world heritage Area and the potential location of a replacement plant.

7.2.3. **Tararua District Council**

- i. The appeals regarding the Pahiatua and Eketahuna WWTP have now been resolved and we are now waiting on decisions from the Environment Court.
- ii. Regarding the Woodville WWTP, we are also awaiting a response from **Tararua District Council (TDC)** in relation to a section 92 request in relation to groundwater monitoring information, which is due on 28 February. In the event a hearing is required this will occur in May.

7.2.4. **Horowhenua District Council**

- i. The application seeking to discharge stormwater into Koputaroa Stream catchment is proceeding to a hearing that is to commence in early April.
- ii. Regarding the application seeking to discharge stormwater from the Levin Township into Lake Horowhenua, further information has been requested and HDC has asked for time to engage with the relevant parties. The COVID-19 pandemic has impacted on when HDC will be providing the further information requested and HDC is to

provide an updated timeframe for provision of this information. Given the values of Lake Horowhenua, this is not expected to be a simple process.

- iii. HDC is preparing a consent application seeking to discharge stormwater from the Foxton Township to the Manawatū River. At the time of writing this report staff were waiting on an update from HDC as to the progress being made to lodge the required application.

7.2.5. Ruapehu District Council

- i. **Ruapehu District Council (RDC)** has lodged a consent application in relation to the National Park WWTP. RDC are currently consulting with the Wai Group in relation to the proposed activity and is considering growth implications on the existing consent. RDC is proposing to re-submit a revised set of conditions for consideration.
- ii. Regarding the Ohakune and Raetihi WWTP applications RDC have advised that a feasibility report for the combined WWTP is due in June 2021. RDC are aware both applications have been on hold for some time and that engagement with Ngāti Rangī and Whanganui iwi and hapū is needed before any options can progress.
- iii. The application associated with the Taumarunui water supply is currently on hold for further information, including assessing water efficiency. RDC have advised they are actively engaging with Ngā Tangata Tiaki to develop a relationship agreement on engagement between the parties and are close to having a signed agreement. Until this agreement is finalised. Ultimately though RDC's engagement will need to ensure that iwi and hapū are appropriately involved and that they give appropriate effect to Te Awa Tupua as well as the RMA.
- iv. Rangataua WWTP application was publically notified and received three submissions, of which one wanted to be heard. Accordingly consultation is occurring with Ngāti Rangī who submitted on the application.

7.2.6. Manawatu District Council

- i. The MDC objection to Horizons' decision on its application seeking to amend the Feilding WWTP consents, to allow for centralisation of discharges from other WWTP into the Feilding WWTP, has now been resolved.

7.2.7. Te Ahu a Turanga

- i. The **Special Projects Team (SPT)** has been established and is now operational. The focus of the SPT over the period has been undertaking compliance inspections and reporting of activities occurring under the granted enabling consents, and certifying a number of management plans. The compliance programme associated with the project is discussed further on this report.

Implementation of NES-FW

- 7.3. The **National Environmental Standard – Freshwater (NES-FW)** and **Resource Management (Stock Exclusion) Regulations 2020 (Regulations)** came into effect on 3 September 2020. This section of the report provides an update on implementation occurring at Council.
- 7.4. During the reporting period the main focus of the implementation team was preparing for and hosting a workshop on the consenting process for **Intensive Winter Grazing (IWG)**.
- 7.5. The workshop was held in December and involved representatives from Dairy NZ, Beef and Lamb, Open Country Dairy, Federated Farmers, consultants and HRC staff. The purpose of the workshop was to “road test” a consenting process for IWG activities of low, medium and high risk. The workshop was beneficial in that it enabled parties to ‘test’ the consenting process for these different risk IWG activities.

- 7.6. The main outcomes of the workshop were that:
- The primary sector needed to approach iwi to start the conversation about how the engagement process with iwi and hapū will proceed; and
 - It was accepted that whilst it was desirable that farmers prepare applications, there will be instances where experts will be required to assist with the preparation of applications, the latter being those IWG that are high risk and fall into the Discretionary Activity pathway under the NES-FW
- 7.7. Since the workshop, staff have continued to meet with representatives from industry and have with other Councils being developing consent application forms and decision templates.
- 7.8. Horizons, along with other councils, is now awaiting consideration by ministers of recommendations from the Southland winter grazing group established by Ministers Parker and O'Connor. The group has recommended a number of changes which would significantly change the consents process.
- 7.9. Work continues at a national level in relation to implementation. The main focus is to ensure the NES-FW is implemented consistently, whilst allowing for regional variations. At present, this work has focused on looking at how councils can develop a consistent approach to consent processing, consent conditions and interpretation of key terms within the NES-FW.
- 7.10. Horizons has also established a designated page on its website where information on the NES-FW and regulations are held. This is being constantly updated and added to as new information comes available. The page can be accessed at:
<https://www.horizons.govt.nz/managing-natural-resources/water/freshwater-policy>
- 7.11. In addition to this, the Ministry for the Environment has also made available a number of fact sheets and guides. This information can be accessed at:
<https://www.mfe.govt.nz/fresh-water/freshwater-guidance/factsheets-policies-and-regulations-essential-freshwater>

8. Compliance Monitoring and Enforcement

The intention of this section is to focus on one key part of the compliance programme and also provide an overall summary of the programme for the reporting period. The focus for this report is to provide a summary of the compliance programme for the Te Ahu A Turanga and Mercury Windfarm projects.

Te Ahu A Turanga

- 8.1.1. The Te Ahu A Turanga project is significant infrastructure project. It includes earthworks amounting to 6 million cubic metres of cut, 5 million cubic metres of fill and 1 million cubic metres of disposed waste across five construction zones. This year the construction season is focused on undertaking establishment works, with major works commencing in the 2021-2022 earthworks season. Year to date has seen 10,000m³ metres of earthworks undertaken.
- 8.1.2. The programme (including enabling and the main works) includes monitoring of the 46 activities that have been authorised, under consents with these activities ranging from earthworks, installation of structures, to diversions and water takes. As a result of these consents there are currently 29 management plans in place. Each required certification from Horizons as either part of the consent process or as part of the resource consent conditions. A summary of these consents and the general management plan structure for the main alignment works are detailed below.

Regime Subjects		
Subject Details	<u>IRIS ID</u>	<u>From</u>
Ashhurst-Woodville New State Highway Construction Water Abstraction (Manawatu River)	ATH-2020203626.00	8/09/2020
Bridge BR02 Access Track & Temporary Western Car Park Cleanfill Discharge	ATH-2020203655.00	19/10/2020
Bridge BR02 Access Track & Temporary Western Car Park Construction	ATH-2020203616.00	19/10/2020
Bridge BR02 Access Track Culvert No.0600 Construction	ATH-2020203656.00	19/10/2020
Cantilevered Boom Water Pump Platform Construction	ATH-2020203627.00	8/09/2020
Cantilevered Boom Water Pump Platform Construction Vegetation Clearance	ATH-2020203693.00	8/09/2020
Cook Road Access Track Construction	ATH-2020203920.00	29/01/2021
Cook Road Access Track Culvert ACU-07A Waterway Diversion (Manawatu River Tributary)	ATH-2020203930.00	29/01/2021
Cook Road Access Track Culvert Construction Sediment Discharge	ATH-2020204033.00	29/01/2021
Cook Road Access Track Culvert Extensions	ATH-2020203921.00	29/01/2021
Early Main Alignment Sediment Retention Ponds Construction (SRP 1-4)	ATH-2020203783.00	17/11/2020
Eastern Access Track Construction	ATH-2020203615.00	22/01/2021
Eastern Access Track Construction Cleanfill Discharge	ATH-2020203925.00	22/01/2021
Eastern Access Track Construction Sediment Discharge	ATH-2020203989.00	4/12/2020
Eastern Access Track Intermittent Tributaries Diversion (Mangamanaia Stream)	ATH-2020203927.00	22/01/2021
Eastern Access Track Multiple Culvert Crossing Construction (Mangamanaia Stream)	ATH-2020203926.00	22/01/2021
Geotechnical Investigation Core Sample Drilling (Bore 2005-2031A)	ATH-2019203034.00	18/03/2020
Geotechnical Investigation Core Sample Drilling (Bore 202)	ATH-2019202482.00	11/04/2019
Geotechnical Investigation Core Sample Drilling Fluid Discharge (Bore 2005-2031A)	ATH-2019203119.00	18/03/2020
Geotechnical Investigation Core Sample Drilling Rig Access Routes Land Disturbance	ATH-2019203121.00	18/03/2020
Meridian High Voltage Cable Relocation (MR01)	ATH-2020203832.00	7/10/2020

Saddle Road Left-Hand Loop Vehicle Access Track Construction	ATH-2020203618.00	18/08/2020
Secondary Treated Domestic Blackwater Subsurface Irrigation Discharge (Site Office Compound)	ATH-2020203568.00	14/08/2020
Site Office Compound Preparation Compaction Layer Cleanfill Discharge	ATH-2020203634.00	14/08/2020
Site Office Compound, Car Park & Access Road Development	ATH-2020203567.00	14/08/2020
Stuart Bolton Western Access Track Construction	ATH-2019202852.00	3/12/2019
Stuart Bolton Western Access Track Culverts Construction (Pohangina River Tributary)	ATH-2019202854.00	3/12/2019
Stuart Bolton Western Access Track Formation Cleanfill Discharge	ATH-2019202855.00	3/12/2019
Stuart Bolton Western Vehicle Access Track Extension (Stage B)	ATH-2020203515.00	18/08/2020
Te Āpiti Wind Farm Temporary Culvert Cloth Line Channel Diversion (Manawatu River Tributary)	ATH-2020203780.00	26/10/2020
Te Āpiti Wind Farm Turbine TAP06-TAP07 Temporary Access Track Construction (Cable MR04)	ATH-2020203464.00	5/10/2020
Te Āpiti Wind Farm Turbine TAP06-TAP07 Temporary Access Track Culverts	ATH-2020203792.00	26/10/2020
Vehicle Access Road Compaction Layer Cleanfill Discharge	ATH-2020203619.00	18/08/2020

Table 1: Enabling works resource consents

Te Ahu A Turanga Highway Connection Roundabouts Construction (RC1)	ATH-2020203332.00	4/12/2020
Te Ahu A Turanga Highway Construction (RC2)	ATH-2020203333.00	4/12/2020
Te Ahu a Turanga Highway Construction Land Development & Fill Discharge (RC9)	ATH-2020203341.00	4/12/2020
Te Ahu a Turanga Highway Construction Sediment Discharge (RC4)	ATH-2020203336.00	4/12/2020
Te Ahu A Turanga Highway Construction Stream Diversion & Drainage (RC7)	ATH-2020203339.00	4/12/2020
Te Ahu A Turanga Highway Cross & Access Culvert Placement (RC13)	ATH-2020203345.00	4/12/2020
Te Ahu A Turanga Highway Eco-Experience & Safe Stopping Rest Areas Development (RC3)	ATH-2020203335.00	4/12/2020
Te Ahu A Turanga Highway Four Lane Manawatu River Bridge BR02 Construction (RC11)	ATH-2020203343.00	4/12/2020
Te Ahu A Turanga Highway Four Lane Mangamanaia Bridge BR07 Construction (RC12)	ATH-2020203344.00	4/12/2020

Te Ahu A Turanga Highway Slope Cut Dewatering Abstraction (RC5)	ATH-2020203337.00	4/12/2020
Te Ahu A Turanga Highway Storm Water Treatment Wetlands Discharge (RC8)	ATH-2020203340.00	4/12/2020
Te Ahu a Turanga Highway Stream Diversion (RC10)	ATH-2020203342.00	4/12/2020
Te Ahu a Turanga Eco Bridge BR03 Construction & Culverts Placement (RC6)	ATH-2020203338.00	4/12/2020

Table 2. Main Alignment Resource Consents



Figure 1. Te Ahu A Turanga Management Plan structure

- 8.1.3. Council's compliance programme to date has been two-fold. Firstly it has focused on certifying all the relevant management plans and secondly undertaking site visits to ensure works are occurring in accordance with the conditions of consent and certified management plans.
- 8.1.4. When undertaking site visits, Council uses a grading system of 1 to 4 to assist in assessing compliance in relation to **Erosion and Sediment Control (ESC)**, which in turn is used to guide decisions on compliance gradings. The ESC grading system and its relationship to compliance ratings is summarised in table 1 below and a compliance report is attached as **Annex 1**.

ESC Grade	Compliance rating
1	Full Compliance
2	Comply At-Risk
3	Low to Moderate Non-Compliance
4	Moderate to Significant Non-Compliance

Table 3. ESC grades and compliance ratings

8.1.5. Since commencement of the monitoring programme, Council has undertaken 25 inspections. This has resulted in 29 management plans being certified as well as 905, 7, 1, 1 inspection results respectively for each of the one, two, three and four ESC grade levels. This has translated to 29 Full Compliance and 1 Moderate Non-Compliance report gradings. Figures 2-5 below show some of the ES controls used on the site.



Figure 2. Temporary diversion as culverts are constructed off-line



Figure 3. Sediment retention ponds in Construction Zone 2



Figure 4. overview of construction Zone 1



Figure 5. Sediment retention Pond in Construction Zone 2.

Mercury Windfarm

- 8.2. Construction of the windfarm commenced in October 2019. The site effectively covers two main work areas run by two different contractors across a northern and southern sector. The windfarm site and associated works are being undertaken by Vestas/Downer whilst the construction of the transmission lines is being undertaken by Electrix.
- 8.3. Horizons is undertaking weekly site inspections to assess compliance with resource consents and numerous management plans. Given the structure of the consents works fall under the jurisdiction of Horizons, Palmerston North City Council and Tararua District Council. Horizons is effectively monitoring conditions for all three councils.
- 8.4. Inspections focus on ensuring the environmental controls in place are appropriate and comply with the required certified **Construction Environmental Management Plans (CEMP)** and **Site Environmental Management Plans (SEMP)**. They involve inspection of the site and various work areas within the site, assessing compliance and where appropriate providing direction to the contractor in relation corrective action.
- 8.5. Inspections take approximately 4-6 hours. The associated reporting and administration takes a further day to complete.
- 8.6. To date 30 management plans have been certified with all plans requiring changes and re-certification by Council. This is not uncommon for projects of this size and complexity. For example the Vestas CEMP for the northern part of the site has had 14 version changes. Figure 1 below shows the general management plan structure that forms part of the project.
- 8.6.1. Since July 2020 there has been a total 29 inspections that has resulted in 4 Low Risk Non-Compliance reports being issued, resulting in 1743, 31, 9 and 0 one, two, three and four ESC ratings respectively. There are approximately 109 active erosion and sediment controls on the site, some of which are shown in figures 6-9 below.

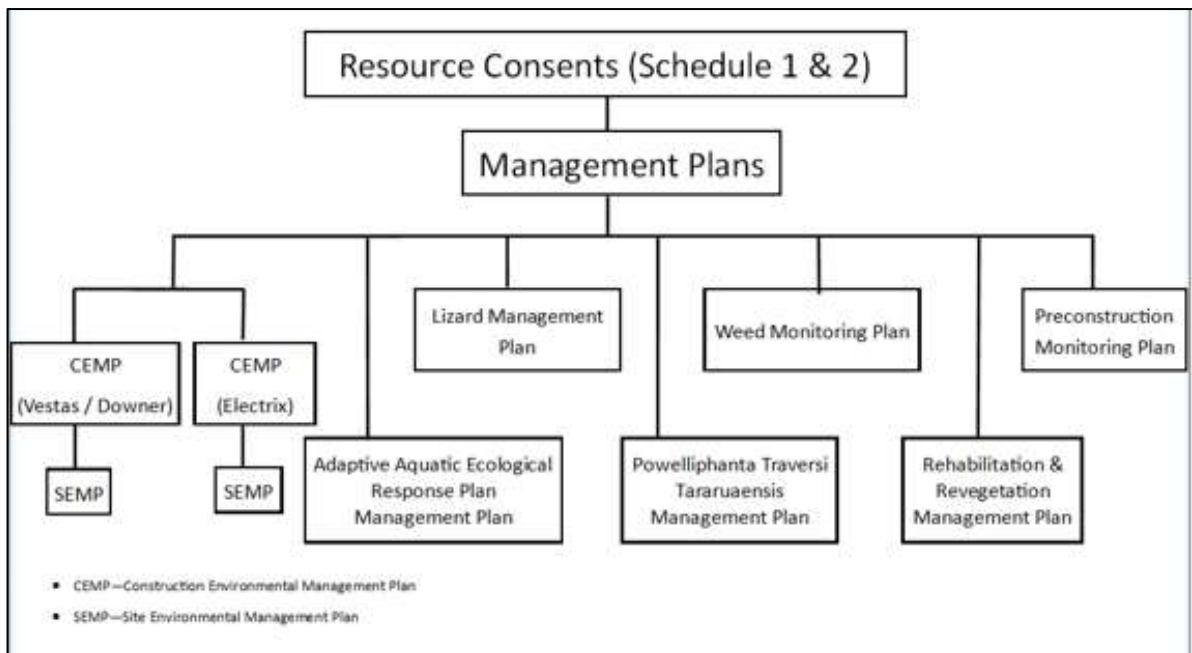


Figure 6. Windfarm Management Plan Structure

--	--



Figure 7. Impact of high winds on a silt fence.



Figure 8. Chemically dosed sediment retention pond



Figure 9. Decanting Earthbund installed in steep terrain



Figure 10. looking along southern access track/road

COMPLIANCE PROGRAMME SUMMARY FOR AUGUST TO OCTOBER 2020

- 8.7. This section of the report provides a summary on the compliance programme for the period.
- 8.8. During the reporting period, there were 101 compliance monitoring assessments. Of the 101 completed assessments, 34 Comply Full, 31 Comply At-Risk, 7 Low Risk Non-Compliance, 10 Moderate Non-Compliance and 19 Significant Non-compliance gradings were issued. Overall, this equates to a 64% compliance rate across the entire programme for the reporting period.

- 8.9. Below is a breakdown of the non-compliances by consent area, for the reporting period:
Industry: One Low risk non-compliance, six moderate non-compliance and 15 significant non-compliances; and
Rural: Six Low risk non-compliance, four moderate non-compliance and three significant non-compliances.
- 8.10. Horizons currently has five prosecutions before the District Court and one appeal before the High Court. There is also one significant investigation underway. Table 1 provides a summary of the prosecutions currently before the Court.

Defendant	Summary
Huka View Dairies and Derek Berendt	Sentenced and fined \$103,000. Appeal to High Court.
John Turkington Limited and Mr Kim Speedy	Charges laid before the Court.
John Turkington Limited, Mr William Findlay and Mr Kim Speedy	Charges laid and before the Court.
John Turkington Limited	Charges laid before the Court.
Mr Leslie Fugle, Mr Kane Davidson and Pacific Farms Development Limited	Charges laid before the Court.
PFDL (5) Limited	Sentenced and fined \$20,000.

Table 4. Summary of Court proceedings

9. INCIDENTS

- 9.1. Over the reporting period, a total of 303 complaints were received. For this reporting period, the majority of these complaints related to discharges to air (201). The remainder of the complaints related to discharges to land (60) and water (71).

All complaints are categorised and responded to accordingly. A response can include an immediate or planned inspection, a phone call, or being referred to another agency such as a territorial authority or Civil Aviation.

10. REGULATORY ACTION

- 10.1. During the reporting period, 10 abatement and 12 infringement notices were issued. Table 2 below provides a summary of the formal regulatory action taken during the reporting period.

Recipient	Enforcement	District	Date Notice Served	Section of Act contravened	Nature of Offence / Action required
Alexander Harris	Abatement Notice	Tararua	6/11/20	15 (2A)	Cease discharge of objectionable smoke and burning of prohibited items
Owen Kelvin Giles	Abatement Notice	Horowhenua	24/11/20	9(1)	Cease unauthorised earthworks in relation to One Plan forestry.
Natural Bark and Compost Limited	Abatement Notice	Horowhenua	16/12/20	15(1)(b)	Cease unauthorised discharge of leachate

Palmerston North City Council	Abatement Notice	Palmerston North	8/12/20	15(1)(b)	Cease discharge of sewerage
New Zealand Forest Asset Management Limited	Abatement Notice	Whanganui	4/12/20	15 (1)(b) and 9(1)	Forestry activity - Cease discharge of sediment.
Green Estate Holdings Limited	Abatement Notice	Palmerston North	15/12/20	9(2), 15(1)(b)	Cease unauthorised earthworks
Greens Estate Holdings Limited	Abatement Notice	Palmerston North	15/12/20	9(2), 15(1)(b), and 13(1)(a)	Undertake Stabilisation
Kakariki Proteins Limited	Abatement Notice	Manawatu	27/01/21	15 (1)(d) and 15 (2A)	Cease excess treated stickwater discharge to land of more than 100m ³ /day
Kakariki Proteins Limited	Abatement Notice	Horowhenua	27/01/21	15 (1)(d) and 15 (2A)	Cease excess nitrogen loading of greater than 150kg per calendar year
New Zealand Forest Asset Management Limited	Abatement Notice	Whanganui	11/12/20	15(1)(b) and 9(1)	Forestry activity - To Do - Stabilise
Natural Bark and Compost Limited	Infringement Notice	Horowhenua	16/12/20	338 (1)(c)	Breach of Abatement Notice
Natural Bark and Compost Limited	Infringement Notice	Horowhenua	16/12/20	15(1) (c)	Offensive odour beyond boundary
Michelle Christine Allan	Infringement Notice	PNCC	24/11/20	15(2A)	Objectionable smoke across property boundary
Natural Bark and Compost Limited	Infringement Notice	Horowhenua	16/12/20	15(1)(b)	Discharge of compost leachate to ground not allowed by resource consent.
JCB Holdings	Infringement Notice	Tararua	26/01/20	15(1)(b)	Discharge of Effluent to land that may enter water
Palmerston North Industrial & Residential Developments Limited	Infringement Notice	Palmerston North	16/12/20	9(2)	Multiple SNC's against consents - commencing Earthworks with an uncertified ESCP
Palmerston North Industrial & Residential Developments Limited	Infringement Notice	Palmerston North	16/12/20	15(1)(b)	Discharge of sediment to land where it may enter water
Palmerston North Industrial & Residential Developments Limited	Infringement Notice	Palmerston North	16/12/20	338(1)(c)	Breach of abatement notice AN1158
Greens Estate Holdings	Infringement Notice	Palmerston North	15/12/20	9(2)	Unauthorised Earthworks

Greens Estate Holdings	Infringement Notice	Palmerston North	15/12/20	15(1)(b)	Discharge of sediment to land that may enter water
O'Leary Holdings LTD	Infringement Notice	Whanganui	22/01/21	15(1)(c)	Objectionable odour beyond the boundary
O'Leary Holdings LTD	Infringement Notice	Whanganui	22/01/21	338(1)(c)	Non compliance with AN1121 for odour beyond the boundary

Table 5. Regulatory action taken during reporting period.

11. SIGNIFICANCE

11.1. This is not a significant decision according to the Council's Policy on Significance and Engagement.

Greg Bevin
REGULATORY MANAGER

Nic Peet
GROUP MANAGER STRATEGY & REGULATION

ANNEXES

A Te Ahu A Turanga Manawatu Tararua Highway Compliance Report 2021

Annex A



TE AHU A TURANGA MANAWATU TARARUA HIGHWAY PROJECT

COMPLIANCE REPORT

17 FEBRUARY 2021

CONTENTS

Report Summary	4
Overview	4
Zone 0 Enabling Works Compliance.....	5
Performance Summary	5
Compliance Monitoring	6
ATH-2020203568 Secondary Treated Domestic Blackwater Subsurface Irrigation Discharge (Site Office Compound)	6
ATH-2020203989 Eastern Access Track Construction Sediment Discharge	9
ATH-2020203616 Bridge BR02 Access Track & Temporary Western Car Park Construction	12
ATH-2020203464 Te Āpiti Wind Farm Turbine TAP06-TAP07 Temporary Access Track Construction (Cable MR04).....	18
ATH-2020203925 Eastern Access Track Construction Cleanfill Discharge.....	23
ATH-2020203926 Eastern Access Track Multiple Culvert Crossing Construction (Mangamanaia Stream).....	26
ATH-2019202855 Stuart Bolton Western Access Track Formation Cleanfill Discharge	28
ATH-2019202852 Stuart Bolton Western Access Track Construction.....	29
ATH-2020203515 Stuart Bolton Western Vehicle Access Track Extension (Stage B) .	34
Zone 1 Compliance.....	37
Performance Summary	37
Compliance Monitoring	38
ATH-2020203333 Te Ahu A Turanga Highway Construction (RC2)	38
Zone 2 Compliance.....	41
Performance Summary	41
Compliance Monitoring	42
ATH-2020203333 Te Ahu A Turanga Highway Construction (RC2)	42

Zone 3 Compliance.....	48
Performance Summary	48
Compliance Monitoring	49
ATH-2020203333 Te Ahu A Turanga Highway Construction (RC2)	49
Glossary	51
Control Gradings.....	51
Compliance Assessment Rankings.....	51

REPORT SUMMARY

This compliance report includes all compliance assessments, inspections and associated monitoring activities, across all zones, completed between the 10th - 16th of February 2021.

OVERVIEW

The overall compliance and gradings across all zones for the reporting period:

EROSION & SEDIMENT CONTROL GRADING SUMMARY

98	Grade 1
0	Grade 2
4	Grade 3
0	Grade 4

COMPLIANCE SUMMARY

73	Full Compliance
1	Compliance Achieved (at Risk)
4	Non-Compliance (Low Risk)
5	Non-Compliance (Moderate Risk)
0	Significant Non-Compliance

RECOMMENDED ACTIONS IDENTIFIED FOR

Zone 0 | Secondary Treated Domestic Blackwater Irrigation Discharge
Zone 0 | Bridge BR02 Access Track & Western Car Park Construction

ZONE 0 ENABLING WORKS COMPLIANCE

This section summarises all compliance assessments, inspections and associated monitoring activities completed in the zone, for the reporting period.

PERFORMANCE SUMMARY

The overall compliance and gradings across the zone for the reporting period:

EROSION & SEDIMENT CONTROL GRADING SUMMARY

89	Grade 1
0	Grade 2
4	Grade 3
0	Grade 4

COMPLIANCE SUMMARY

65	Full Compliance
1	Compliance Achieved (at Risk)
4	Non-Compliance (Low Risk)
5	Non-Compliance (Moderate Risk)
0	Significant Non-Compliance

RECOMMENDED ACTIONS IDENTIFIED FOR

ATH-2020203568 Secondary Treated Domestic Blackwater Subsurface Irrigation Discharge
ATH-2020203616 Bridge BR02 Access Track & Temporary Western Car Park Construction

COMPLIANCE MONITORING

Compliance assessments undertaken in the reporting period include site inspections, office assessments, meetings and monitoring of resource consent conditions.

ATH-2020203568 SECONDARY TREATED DOMESTIC
BLACKWATER SUBSURFACE IRRIGATION DISCHARGE (SITE
OFFICE COMPOUND)

NON-COMPLIANCE (LOW RISK)

RECOMMENDED ACTIONS

- By 3 March | Provide Flow Meter Installation Certificate
- By 3 March | Provide As-Built Certificates
- By 3 March | Provide Treatment System As-Built or Producer Statement
- By 3 March | Provide Evidence that Treatment System Meets the Standard

COMPLIANCE INSPECTION

Undertaken by Georgia Baker, 9 February

Checked document entitled 'F&H Gorge site office' by O'Hagan Contracting dated June 2020 which details loading rate as 2.66 litres/m²/day. However, no 'as built' has been provided to date to confirm this (condition 8).

No evidence to determine if the treatment system has been installed to meet the standard (condition 4).

An annotated photograph was provided for the reserve land, but the expectation is an As-Built or producer statement would be provided to validate the 50% reserve application area meets the condition (condition 6).



AUTHORISATION CONDITION ASSESSMENT

CONDITION 4 | NON-COMPLIANCE (LOW RISK)

The consent holder shall ensure that the wastewater treatment and disposal system is installed to the on-site domestic wastewater management standard AS/NZS 1547:2012, and in general accordance with the concepts and parameters contained in the application documentation.

CONDITION 6 | NON-COMPLIANCE (LOW RISK)

The consent holder shall make available, a 50% reserve land application area, as shown on Site Plan LOC-2020804925 on the property that is fully operational and can be used in the event that the main land application area is unavailable.

CONDITION 8 | COMPLIANCE ACHIEVED (AT RISK)

The areal loading rate (maximum) of the secondary treated wastewater to land shall not exceed 2.7 millimetres per day.

CONDITION 12 | FULL COMPLIANCE

The consent holder shall ensure that the wastewater system is installed by an appropriately experienced and qualified registered drainlayer to industry standards in accordance with design specifications outlined in the application.

FLOW EQUIPMENT INSTALLATION

Assessed by Georgia Baker, 16 February

Installation certificate not received. Please provide no later than 3 March 2021.

AUTHORISATION CONDITION ASSESSMENT

CONDITION 3 | NON-COMPLIANCE (LOW RISK)

Prior to commencement of the discharge, the consent holder shall install and maintain an inline flow meter on the inflow line to the Oasis SAFE 5000 treatment plant.

PLAN OR REPORT

Assessed by Hamish Sutherland, 16 February

As-built plans not yet received.

AUTHORISATION CONDITION ASSESSMENT

CONDITION 18 | NON-COMPLIANCE (LOW RISK)

Within three (3) months of the wastewater system installation, the consent holder must supply the Manawatū-Whanganui Regional Council Consents Monitoring Team with a copy of the 'as-built' plans and an Onsite Wastewater Management Plan, showing the key components of the wastewater system including LAA and provide site photographs of fencing and planting of the LAA as required under Conditions 4 and 6 of this consent. ADVICE NOTE: The as-built plans can be supplied by emailing consents.monitoring@horizons.govt.nz.

ATH-2020203989 EASTERN ACCESS TRACK CONSTRUCTION
SEDIMENT DISCHARGE

FULL COMPLIANCE

NO RECOMMENDED ACTIONS

EROSION & SEDIMENT CONTROL INSPECTION

Undertaken by Hamish Sutherland, 16 February 10:20 am

WEATHER ASSESSMENT

Cool (10-20°C) Air Temperature

Light Rainfall

8 Oktas (Sky Completely Cloudy) Cloud Cover

South Easterly Wind Direction

Fresh Breeze (29-38 kph) Wind Strength

SEDIMENT RETENTION POND SRP CH12800 CATCHMENT

SRP under construction and as built to be provided. De-watering ESCP contingency in effect. CWD bunds and turfing in place.

WATER MANAGEMENT CONTROLS

G1 Clean Water Diversions

G1 Dirty Water Diversion Channels

SURFACE STABILISATION

G1 Turfing

SEDIMENT CONTROL PRACTICES

G1 Silt Fences



EARTHWORKS (CUT N COVER) EASTERN ACCESS ENTRANCE COMPOUND CATCHMENT

WATER MANAGEMENT CONTROLS

G1 Clean Water Diversions

SURFACE STABILISATION

G1 Turfing

G1 Geotextiles & Control Blankets

G1 Aggregate

SEDIMENT CONTROL PRACTICES

G1 Silt Fences



AUTHORISATION CONDITION ASSESSMENT

CONDITION 7 | FULL COMPLIANCE

The consent holder shall undertake the works in accordance with the lodged Erosion and Sediment Control Plan (E&SCP) titled 'Eastern Access Erosion and Sediment Control Plan, dated 7 April 2020, and any subsequent changes certified under Condition 8 of this consent.

ADVICE NOTE: The E&SCP referenced in this condition has been approved through the processing of the consent. Any reference to 'certified E&SCP' in subsequent conditions refers to the above referenced E&SCP and any certified amendments provided for in condition 8.

CONDITION 15 | FULL COMPLIANCE

The consent holder shall ensure that sediment losses to natural water arising from the exercise of these resource consents are minimised during the duration of the works and during the term of this consent. In this regard, erosion and sediment control measures shall be established and maintained in accordance with the document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)", and the certified E&SCP.

CONDITION 21 | FULL COMPLIANCE

The consent holder must ensure that all sediment laden run-off from the site is treated by sediment retention structures, devices or measures. These structures are to be fully operational before bulk earthworks commence and shall be maintained to perform at least at 80% of their operational capacity and in accordance with document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)".

CONDITION 33 | FULL COMPLIANCE

The consent holder must ensure that an all-weather access to the erosion and sediment control measures is maintained at all times.

CONDITION 40 | FULL COMPLIANCE

The consent holder shall progressively stabilise, re-contour and re-vegetate any disturbed areas and identified areas within the certified Erosion and Sediment Control Plan to minimise sediment runoff and erosion until the site has been stabilised in accordance with the measures detailed in the document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)".

CONDITION 42 | FULL COMPLIANCE

The consent holder shall ensure that all erosion and sediment control structures are inspected on a weekly basis and within twenty-four (24) hours of each rainstorm event that is likely to impair the function or performance of the controls.

ATH-2020203616 BRIDGE BR02 ACCESS TRACK & TEMPORARY WESTERN CAR PARK CONSTRUCTION

NON-COMPLIANCE (MODERATE RISK)

RECOMMENDED ACTIONS

By 19 February | Replace BR02 Access Track Silt Fence with Super Silt Fence and provide photos.

By 23 February | Commence progressive stabilisation at top of BR02 Access Track cut by next inspection.

By 23 February | Remove BR02 Access Track cut stockpile to BR02 SRP2 catchment or divert discharge from stockpile to BR02 SRP2 catchment.

EROSION & SEDIMENT CONTROL INSPECTION

Undertaken by Hamish Sutherland, 16 February 10:30 am

WEATHER ASSESSMENT

Cool (10-20°C) Air Temperature

Light Rainfall

8 Oktas (Sky Completely Cloudy) Cloud Cover

South Easterly Wind Direction

Moderate Breeze (20-28 kph) Wind Strength

EARTHWORKS (CUT N COVER) BR02 ACCESS TRACK CATCHMENT

Inspection undertaken following advisement of silt fence failure by Alliance. Inspection noted a silt fence had been installed rather than a super silt fence as required by ESCP, also the ESCP required progressive stabilisation of the BR02 cut as it was advanced and this was not achieved. It was also noted that a large stockpile from the cut had been placed in the compound area and should have removed to the BR02 SRP2 catchment reducing the load against the silt fence.

WATER MANAGEMENT CONTROLS

G3 Contour (Cut-Off) Drains

SURFACE STABILISATION

- G3 Geopolymers or Soil Binders
- G3 Aggregate

SEDIMENT CONTROL PRACTICES

- G3 Super Silt Fences



SEDIMENT RETENTION POND BR02 SRP2 CATCHMENT

Inspection undertaken by G Baker report completed by G Baker and H Sutherland.

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels
- G1 Entrance Stabilisation Controls

SURFACE STABILISATION

- G1 Turfing
- G1 Mulching
- G1 Geotextiles & Control Blankets

SEDIMENT CONTROL PRACTICES

- G1 Sediment Retention Pond
 - G1 Silt Fences
-

G1 Coagulant & Flocculant Treatment



SEDIMENT RETENTION POND BR02 SRP1 CATCHMENT

Inspection undertaken by G Baker report completed by G Baker and H Sutherland.

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
 - G1 Dirty Water Diversion Channels
 - G1 Entrance Stabilisation Controls
-

SURFACE STABILISATION

- G1 Topsoil & Grass Seeding
 - G1 Hydroseeding
 - G1 Turfing
 - G1 Geotextiles & Control Blankets
 - G1 Aggregate
-

SEDIMENT CONTROL PRACTICES

- G1 Sediment Retention Pond
 - G1 Silt Fences
 - G1 Coagulant & Flocculant Treatment
-



AUTHORISATION CONDITION ASSESSMENT

CONDITION 7 | NON-COMPLIANCE (MODERATE RISK)

The consent holder shall undertake the works in accordance with the lodged Erosion and Sediment Control Plan (E&SCP) titled 'Bridge Access and Structure Compound Erosion and Sediment Control Plan', dated 8 July 2020, and any subsequent changes certified under Condition 8 of this consent.

ADVICE NOTE: The E&SCP referenced in this condition has been approved through the processing of the consent. Any reference to 'certified E&SCP' in subsequent conditions refers to the above referenced E&SCP and any certified amendments provided for in condition 8.

CONDITION 9 | FULL COMPLIANCE

The consent holder shall ensure that a copy of the certified E&SCP, including any certified amendments, is kept onsite and this copy is updated within five (5) working days of any amendments being certified.

CONDITION 11 | FULL COMPLIANCE

The sites sediment retention pond and decanting earth bunds shall be chemically treated throughout the duration of earthworks in accordance with the Chemical Treatment Management Plan (CTMP) titled 'Appendix B Chemical Treatment Management Plan – Bridge Access, Temporary Carpark and Site Compound' dated 13 May 2020.

CONDITION 13 | FULL COMPLIANCE

The consent holder must engage a suitably qualified geotechnical engineer to ensure that the cut slopes and fill sites are appropriately assessed for stability during and following the filling operation. The engineer must also ensure there is appropriately installed drainage to ensure long term stability of the works.

CONDITION 15 | NON-COMPLIANCE (MODERATE RISK)

The consent holder shall ensure that sediment losses to natural water arising from the exercise of these resource consents are minimised during the duration of the works and during the term of this consent. In this regard, erosion and sediment control measures shall be established and maintained in accordance with the document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)", and the certified E&SCP.

CONDITION 16 | FULL COMPLIANCE

All earthmoving machinery, pumps, generators and ancillary equipment shall be operated in a manner, which ensures spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any water body, ephemeral water body, or overland flow path, such that any spillage can be contained so that it does not enter surface water.

CONDITION 17 | NON-COMPLIANCE (MODERATE RISK)

The consent holder shall ensure that, as far as practicable, all clean water run-off from stabilised surfaces including catchment areas above the site shall be diverted away from the exposed areas via a stabilised system to prevent erosion. The consent holder shall also ensure the outfall(s) of these systems are protected against erosion.

CONDITION 21 | NON-COMPLIANCE (MODERATE RISK)

The consent holder must ensure that all sediment laden run-off from the site is treated by sediment retention structures, devices or measures. These structures are to be fully operational before bulk earthworks commence and shall be maintained to perform at least at 80% of their operational capacity and in accordance with document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)".

CONDITION 22 | FULL COMPLIANCE

There shall be no discharge of airborne particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

ADVICE NOTE: For the purpose of this consent, a Consents Monitoring Officer may assess the Frequency, Intensity, Duration, Offensiveness/Character and Location of Exposure (FIDOL) of the discharge to determine whether the discharge is Offensive, Objectionable, Noxious and/or Dangerous; definitions of these are provided in Chapter 15 of the One Plan 2018, or any superseding Regional Plan.

CONDITION 30 | FULL COMPLIANCE

The consent holder must ensure that an all-weather access to the erosion and sediment control measures is maintained at all times.

CONDITION 37 | FULL COMPLIANCE

The consent holder must stockpile all topsoil stripped from the site to which this consent relates and shall use this topsoil for rehabilitation purposes.

CONDITION 39 | NON-COMPLIANCE (MODERATE RISK)

The consent holder shall progressively stabilise, re-contour and re-vegetate any disturbed areas and identified areas within the certified Erosion and Sediment Control Plan to minimise sediment runoff and erosion until the site has been stabilised in accordance with the measures detailed in the document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)".

CONDITION 42 | FULL COMPLIANCE

The consent holder shall carry out monitoring and maintenance of erosion and sediment controls in accordance with the conditions of this resource consent and the certified E&SCP and shall maintain records detailing:

- On site rainfall; and
- The date, time and results of the monitoring undertaken; and
- The erosion and sediment controls that required maintenance; and

The date and time when the maintenance was completed.

These records shall be available to be provided to the Manawatū-Whanganui Regional Council at all reasonable times and within seventy-two (72) hours of a written request to do so.

ADVICE NOTE: Until such time as the weather station at this site is set up, rainfall measurements from the closest rain station or a rain gauge onsite will be considered to meet the requirements of this condition.

ATH-2020203464 TE ĀPITI WIND FARM TURBINE TAP06-TAP07
TEMPORARY ACCESS TRACK CONSTRUCTION (CABLE MR04)

FULL COMPLIANCE

NO RECOMMENDED ACTIONS

EROSION & SEDIMENT CONTROL INSPECTION

Undertaken by Hamish Sutherland, 16 February 11:16 am

SEDIMENT RETENTION POND SRP1 MR04 CATCHMENT

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels
- G1 Entrance Stabilisation Controls
- G1 Surface Roughening

SURFACE STABILISATION

- G1 Hydroseeding
- G1 Turfing
- G1 Geotextiles & Control Blankets
- G1 Geopolymers or Soil Binders

SEDIMENT CONTROL PRACTICES

- G1 Sediment Retention Pond
- G1 Silt Fences
- G1 Coagulant & Flocculant Treatment



DECANTING EARTH BUND DEB1 MR04 CATCHMENT

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels
- G1 Pipe Drop Structures & Flumes

SURFACE STABILISATION

- G1 Turfing
- G1 Geotextiles & Control Blankets

SEDIMENT CONTROL PRACTICES

- G1 Decanting Earth Bunds
- G1 Silt Fences
- G1 Silt Socks
- G1 Coagulant & Flocculant Treatment



DECANTING EARTH BUND DEB2 MR04 CATCHMENT

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels

SURFACE STABILISATION

- G1 Turfing
- G1 Geotextiles & Control Blankets

SEDIMENT CONTROL PRACTICES

- G1 Decanting Earth Bunds
- G1 Silt Fences
- G1 Coagulant & Flocculant Treatment



AUTHORISATION CONDITION ASSESSMENT

CONDITION 4 | FULL COMPLIANCE

A copy of these consents shall be kept onsite at all times that physical works authorised by this resource consent are being undertaken and shall be produced without unreasonable delay upon request from a servant or agent of the Manawatū-Whanganui Regional Council.

ADVICE NOTE: An electronic version on a smartphone or electronic device is acceptable.

CONDITION 7 | FULL COMPLIANCE

The consent holder shall undertake the works in accordance with the lodged Erosion and Sediment Control Plan (E&SCP) titled 'MR04 Cable Relocation Erosion and Sediment Control Plan', dated 24 July 2020, and any subsequent changes certified under Condition 9 of this consent.

ADVICE NOTE: The E&SCP referenced in this condition has been approved through the processing of the consent. Any reference to 'certified E&SCP' in subsequent conditions refers to the above referenced E&SCP and any certified amendments provided for in condition 8.

CONDITION 10 | FULL COMPLIANCE

The consent holder shall ensure that a copy of the certified E&SCP, including any certified amendments, is kept onsite and this copy is updated within five (5) working days of any amendments being certified.

CONDITION 12 | FULL COMPLIANCE

The sites sediment retention pond and decanting earth bunds shall be chemically treated throughout the duration of earthworks in accordance with the Chemical Treatment Management Plan (CTMP) titled 'Appendix B Chemical Treatment Management Plan – MR04 Temporary Access Track' dated 24 July 2020.

CONDITION 14 | FULL COMPLIANCE

The consent holder must engage a suitably qualified geotechnical engineer to ensure that the cut slopes and fill sites are appropriately assessed for stability during and following the filling operation. The engineer must also ensure there is appropriately installed drainage to ensure long term stability of the works.

CONDITION 17 | FULL COMPLIANCE

The consent holder shall ensure that sediment losses to natural water arising from the exercise of these resource consents are minimised during the duration of the works and during the term of this consent. In this regard, erosion and sediment control measures shall be established and maintained in accordance with the document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)", and the certified E&SCP.

CONDITION 18 | FULL COMPLIANCE

All earthmoving machinery, pumps, generators and ancillary equipment shall be operated in a manner, which ensures spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any water body, ephemeral water body, or overland flow path, such that any spillage can be contained so that it does not enter surface water.

CONDITION 19 | FULL COMPLIANCE

The consent holder shall ensure that, as far as practicable, all clean water run-off from stabilised surfaces including catchment areas above the site shall be diverted away from the exposed areas via a stabilised system to prevent erosion. The consent holder shall also ensure the outfall(s) of these systems are protected against erosion.

CONDITION 20 | FULL COMPLIANCE

The consent holder must ensure that all sediment laden run-off from the site is treated by sediment retention structures, devices or measures. These structures are to be fully operational before bulk earthworks commence and shall be maintained to perform at least at 80% of their operational capacity and in accordance with document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)".

CONDITION 21 | FULL COMPLIANCE

There shall be no discharge of airborne particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

ADVICE NOTE: For the purpose of this consent, a Consents Monitoring Officer may assess the Frequency, Intensity, Duration, Offensiveness/Character and Location of Exposure (FIDOL) of the discharge to determine whether the discharge is Offensive, Objectionable, Noxious and/or Dangerous; definitions of these are provided in Chapter 15 of the One Plan 2018, or any superseding Regional Plan.

CONDITION 26 | FULL COMPLIANCE

Stockpiles of topsoil must be located at least 100m from the base of any Te Āpiti Wind Farm turbine.

ADVICE NOTE: This condition has been included on the basis of the Augier principle (Augier v Secretary of state for the Environment (1978) 38 P & CR 219) and is an agreement between Waka Kotahi NZ Transport Agency and Meridian Energy Limited.

CONDITION 30 | FULL COMPLIANCE

The consent holder must ensure that an all-weather access to the erosion and sediment control measures is maintained at all times.

CONDITION 33 | FULL COMPLIANCE

The consent holder must stockpile all topsoil stripped from the site to which this consent relates and shall use this topsoil for rehabilitation purposes.

ATH-2020203925 EASTERN ACCESS TRACK CONSTRUCTION CLEANFILL DISCHARGE

FULL COMPLIANCE

NO RECOMMENDED ACTIONS

EROSION & SEDIMENT CONTROL INSPECTION

Undertaken by Hamish Sutherland, 16 February 4:40 pm

AUTHORISATION CONDITION ASSESSMENT

CONDITION 3 | FULL COMPLIANCE

The consent holder shall be responsible for all contracted operations related to the exercise of these resource consents, and shall ensure contractors are made aware of the conditions of this resource consent and ensure compliance with those conditions.

CONDITION 7 | FULL COMPLIANCE

The consent holder shall undertake the works in accordance with the lodged Erosion and Sediment Control Plan (E&SCP) titled 'Eastern Access Erosion and Sediment Control Plan, dated 7 April 2020, and any subsequent changes certified under Condition 8 of this consent.

ADVICE NOTE: The E&SCP referenced in this condition has been approved through the processing of the consent. Any reference to 'certified E&SCP' in subsequent conditions refers to the above referenced E&SCP and any certified amendments provided for in condition 8.

CONDITION 13 | FULL COMPLIANCE

The consent holder must engage a suitably qualified geotechnical engineer to ensure that the cut slopes and fill sites are appropriately assessed for stability during and following the filling operation. The engineer must also ensure there is appropriately installed drainage to ensure long term stability of the works.

CONDITION 15 | FULL COMPLIANCE

The consent holder shall ensure that sediment losses to natural water arising from the exercise of these resource consents are minimised during the duration of the works and during the term of this consent. In this regard, erosion and sediment control measures shall be established and maintained in accordance with the document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)", and the certified E&SCP.

CONDITION 16 | FULL COMPLIANCE

All earthmoving machinery, pumps, generators and ancillary equipment shall be operated in a manner, which ensures spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any water body, ephemeral water body, or overland flow path, such that any spillage can be contained so that it does not enter surface water.

CONDITION 17 | FULL COMPLIANCE

The consent holder shall ensure that, as far as practicable, all clean water run-off from stabilised surfaces including catchment areas above the site shall be diverted away from the exposed areas via a stabilised system to prevent erosion. The consent holder shall also ensure the outfall(s) of these systems are protected against erosion.

CONDITION 18 | FULL COMPLIANCE

All material deposited during the exercising of this resource consent shall meet the definition of cleanfill contained in the glossary of terms in the Manawatū-Whanganui Regional Council's One Plan.

DEFINITION: Cleanfill material means material such as clay, soil and rock, and other inert materials such as concrete or brick that are free of:

Combustible, putrescible (except that cleanfill material may contain up to 5% by weight putrescible matter), degradable or leachable components;

Hazardous substances;

Products or materials derived from hazardous waste treatment, hazardous waste stabilisation or hazardous waste disposal practices

Material that may present a risk to human health

Liquid waste.

CONDITION 19 | FULL COMPLIANCE

Cleanfill must not be placed within any area of vegetation that is identified as Rare, Threatened or At-Risk habitat under Schedule F of the One Plan.

CONDITION 20 | FULL COMPLIANCE

Cleanfill must be placed in a position where it will not enter any waterbody or cause a diversion, damming or erosion of any waterway.

CONDITION 22 | FULL COMPLIANCE

There shall be no discharge of airborne particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

ADVICE NOTE: For the purpose of this consent, a Consents Monitoring Officer may assess the Frequency, Intensity, Duration, Offensiveness/Character and Location of Exposure (FIDOL) of the discharge to determine whether the discharge is Offensive, Objectionable, Noxious and/or Dangerous; definitions of these are provided in Chapter 15 of the One Plan 2018, or any superseding Regional Plan.

ATH-2020203926 EASTERN ACCESS TRACK MULTIPLE CULVERT CROSSING CONSTRUCTION (MANGAMANAI A STREAM)

FULL COMPLIANCE
NO RECOMMENDED ACTIONS

EROSION & SEDIMENT CONTROL INSPECTION

Undertaken by Hamish Sutherland, 16 February 10:15 am

EARTHWORKS (CUT N COVER) MANGAMANAI A STREAM DIVERSION. CATCHMENT

SURFACE STABILISATION

- G1 Mulching
- G1 Geotextiles & Control Blankets
- G1 Aggregate



AUTHORISATION CONDITION ASSESSMENT

CONDITION 7 | FULL COMPLIANCE

All materials and equipment required for the construction of the culverts must be sourced prior to works commencing for each individual culvert.

ADVICE NOTE: The sourced material need not be stored on site.

CONDITION 14 | FULL COMPLIANCE

Activities authorised by this consent shall not result in the discharge of contaminants that are toxic to aquatic ecosystems.

ADVICE NOTE: This includes leakage of fuel, oil and other contaminants from machinery used for activities under this consent.

CONDITION 15 | FULL COMPLIANCE

Any discharge of sediment shall not, after reasonable mixing cause any increase in turbidity (NTU) by more than 30%, for more than 24 hours in total across 5 consecutive days.

ADVICE NOTE: Reasonable mixing is defined as seven (7) times the bed width.

CONDITION 18 | FULL COMPLIANCE

The consent holder shall comply with all notices and guidelines issued by Biosecurity New Zealand (refer to www.biosecurity.govt.nz/didymo) in relation to avoiding the spread of the pest organism *Didymosphenia Geminata* (known as 'Didymo').

CONDITION 19 | FULL COMPLIANCE

With the exception of during construction of the culverts, the activity shall be undertaken in a manner that provides for the passage of fish both upstream and downstream, including past any structure.

CONDITION 21 | FULL COMPLIANCE

There shall be no discharge of airborne particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

ADVICE NOTE: For the purpose of this consent, a Consents Monitoring Officer may assess the Frequency, Intensity, Duration, Offensiveness/Character and Location of Exposure (FIDOL) of the discharge to determine whether the discharge is Offensive, Objectionable, Noxious and/or Dangerous; definitions of these are provided in Chapter 15 of the One Plan 2018, or any superseding Regional Plan.

CONDITION 23 | FULL COMPLIANCE

The consent holder must ensure that any works undertaken on the culvert construction must only occur when all watercourse flows are diverted away from the works area.

CONDITION 30 | FULL COMPLIANCE

The consent holder shall ensure that no holes, mounds or stockpiles are left on any work site within the excavation area at the completion of any excavation sequence, and that no excavated material is stored or stockpiled in a position where the flow of water may be impeded.

ATH-2019202855 STUART BOLTON WESTERN ACCESS TRACK
FORMATION CLEANFILL DISCHARGE**FULL COMPLIANCE****NO RECOMMENDED ACTIONS**

COMPLIANCE INSPECTION

Undertaken by Georgia Baker, 16 February 10:54 pm

AUTHORISATION CONDITION ASSESSMENT

CONDITION 25 | FULL COMPLIANCE

Cleanfill must be placed in a position where it will not enter any waterbody or cause a diversion, damming or erosion of any waterway.

CONDITION 32 | FULL COMPLIANCE

Cleanfill must not be transported across the existing ford that provides access to the southern portion of the property except where cleanfill is necessary for the formation of the two new box culverts.

ATH-2019202852 STUART BOLTON WESTERN ACCESS TRACK
CONSTRUCTION

FULL COMPLIANCE

NO RECOMMENDED ACTIONS

EROSION & SEDIMENT CONTROL INSPECTION

Undertaken by Georgia Baker, 16 February 11:24 pm

WEATHER ASSESSMENT

Cool (10-20°C) Air Temperature

Light Rainfall

6 Oktas (Splintered) Cloud Cover

Wind Direction

Strong Gale (75-88 kph) Wind Strength

DECANTING EARTH BUND DEB 6 DEOMISSIONED CATCHMENT

SURFACE STABILISATION

G1 Topsoil & Grass Seeding

G1 Hydroseeding

G1 Mulching

G1 Geopolymers or Soil Binders



DECANTING EARTH BUND DEB 5 CATCHMENT

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels

SEDIMENT CONTROL PRACTICES

- G1 Decanting Earth Bunds
 - G1 Coagulant & Flocculant Treatment
-



DECANTING EARTH BUND DEB 4 CATCHMENT

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels

SURFACE STABILISATION

- G1 Topsoil & Grass Seeding

SEDIMENT CONTROL PRACTICES

- G1 Decanting Earth Bunds
 - G1 Coagulant & Flocculant Treatment
-



DECANTING EARTH BUND DEB 3 CATCHMENT

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels

SURFACE STABILISATION

- G1 Hydroseeding

SEDIMENT CONTROL PRACTICES

- G1 Decanting Earth Bunds
- G1 Coagulant & Flocculant Treatment



DECANTING EARTH BUND DEB 2 CATCHMENT

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels

SEDIMENT CONTROL PRACTICES

- G1 Decanting Earth Bunds
- G1 Coagulant & Flocculant Treatment



AUTHORISATION CONDITION ASSESSMENT

CONDITION 14 | FULL COMPLIANCE

Unless otherwise certified in writing by the Manawatū-Whanganui Regional Council acting in a technical certification capacity, the consent holder shall undertake all earthworks and chemically treat all dirty water within sediment retention devices in with the Chemical Treatment Management Plan dated 11 September 2019.

CONDITION 21 | FULL COMPLIANCE

All earthmoving machinery, pumps, generators and ancillary equipment shall be operated in a manner, which ensures spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any water body, ephemeral water body, or overland flow path, such that any spillage can be contained so that it does not enter surface water.

CONDITION 22 | FULL COMPLIANCE

The consent holder shall ensure that, as far as practicable, all clean water run-off from stabilised surfaces including catchment areas above the site shall be diverted away from the exposed areas via a stabilised system to prevent erosion. The consent holder shall also ensure the outfall(s) of these systems are protected against erosion.

CONDITION 25 | FULL COMPLIANCE

Cleanfill must be placed in a position where it will not enter any waterbody or cause a diversion, damming or erosion of any waterway.

CONDITION 26 | FULL COMPLIANCE

The consent holder shall ensure that all sediment laden run-off from the site is treated by sediment retention structures, devices or measures. These structures are to be fully operational before bulk earthworks commence and shall be maintained in accordance with document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)".

CONDITION 27 | FULL COMPLIANCE

There shall be no discharge of airborne particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

ADVICE NOTE: For the purpose of this consent, a Consents Monitoring Officer may assess the Frequency, Intensity, Duration, Offensiveness/Character and Location of Exposure (FIDOL) of the discharge to determine whether the discharge is Offensive, Objectionable, Noxious and/or Dangerous; definitions of these are provided in Chapter 15 of the One Plan 2018, or any superseding Regional Plan.

CONDITION 32 | FULL COMPLIANCE

Cleanfill must not be transported across the existing ford that provides access to the southern portion of the property except where cleanfill is necessary for the formation of the two new box culverts.

CONDITION 40 | FULL COMPLIANCE

The consent holder must ensure that an all-weather access to the erosion and sediment control measures is maintained at all times.

CONDITION 44 | FULL COMPLIANCE

The consent holder must stockpile all topsoil stripped from the site which this consent relate and shall use this topsoil for rehabilitation purposes.

CONDITION 45 | FULL COMPLIANCE

The consent holder shall progressively stabilise, re-contour and re-vegetate any disturbed areas and identified areas within the certified Erosion and Sediment Control Plan to minimise sediment runoff and erosion until the site has been stabilised in accordance with the measures detailed in the document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)".

ATH-2020203515 STUART BOLTON WESTERN VEHICLE ACCESS TRACK EXTENSION (STAGE B)

FULL COMPLIANCE

NO RECOMMENDED ACTIONS

EROSION & SEDIMENT CONTROL INSPECTION

Undertaken by Georgia Baker, 16 February 11:36 pm

SEDIMENT RETENTION POND SRP EXTN CATCHMENT

No water in forebay. Emergency spillway channel realigned to integrate with new SRP below.

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels

SEDIMENT CONTROL PRACTICES

- G1 Sediment Retention Pond
- G1 Coagulant & Flocculant Treatment



DECANTING EARTH BUND DEB EXTN CATCHMENT

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels

SEDIMENT CONTROL PRACTICES

- G1 Decanting Earth Bunds
- G1 Coagulant & Flocculant Treatment



AUTHORISATION CONDITION ASSESSMENT

CONDITION 12 | FULL COMPLIANCE

The sites sediment retention pond and decanting earth bunds shall be chemically treated throughout the duration of earthworks in accordance with the Chemical Treatment Management Plan (CTMP) titled 'Access Track 1 Erosion and Sediment Control Plan – Appendix B Chemical Treatment Management Plan' dated 11 September 2019.

CONDITION 22 | FULL COMPLIANCE

All earthmoving machinery, pumps, generators and ancillary equipment shall be operated in a manner, which ensures spillages of fuel, oil and similar contaminants are prevented, particularly during refuelling and machinery servicing and maintenance. Refuelling and lubrication activities shall be carried out away from any water body, ephemeral water body, or overland flow path, such that any spillage can be contained so that it does not enter surface water.

CONDITION 23 | FULL COMPLIANCE

The consent holder shall ensure that, as far as practicable, all clean water run-off from stabilised surfaces including catchment areas above the site shall be diverted away from the exposed areas via a stabilised system to prevent erosion. The consent holder shall also ensure the outfall(s) of these systems are protected against erosion.

CONDITION 27 | FULL COMPLIANCE

The consent holder must ensure that all sediment laden run-off from the site is treated by sediment retention structures, devices or measures. These structures are to be fully operational before bulk earthworks commence and shall be maintained to perform at least at 80% of their operational capacity and in accordance with document titled "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region 2016 (GD05)".

CONDITION 28 | FULL COMPLIANCE

There shall be no discharge of airborne particulate matter that is objectionable to the extent that it causes an adverse effect at or beyond the boundary of the subject property.

ADVICE NOTE: For the purpose of this consent, a Consents Monitoring Officer may assess the Frequency, Intensity, Duration, Offensiveness/Character and Location of Exposure (FIDOL) of the discharge to determine whether the discharge is Offensive, Objectionable, Noxious and/or Dangerous; definitions of these are provided in Chapter 15 of the One Plan 2018, or any superseding Regional Plan.

CONDITION 38 | FULL COMPLIANCE

The consent holder must ensure that an all-weather access to the erosion and sediment control measures is maintained at all times.

CONDITION 43 | FULL COMPLIANCE

The consent holder must stockpile all topsoil stripped from the site which this consent relate and shall use this topsoil for rehabilitation purposes.

ZONE 1 COMPLIANCE

This section summarises all compliance assessments, inspections and associated monitoring activities completed in the zone, for the reporting period.

PERFORMANCE SUMMARY

The overall compliance and gradings across the zone for the reporting period:

EROSION & SEDIMENT CONTROL GRADING SUMMARY

4	Grade 1
0	Grade 2
0	Grade 3
0	Grade 4

COMPLIANCE SUMMARY

2	Full Compliance
0	Compliance Achieved (at Risk)
0	Non-Compliance (Low Risk)
0	Non-Compliance (Moderate Risk)
0	Significant Non-Compliance

NO RECOMMENDED ACTIONS

COMPLIANCE MONITORING

Compliance assessments undertaken in the reporting period include site inspections, office assessments, meetings and monitoring of resource consent conditions.

ATH-2020203333 TE AHU A TURANGA HIGHWAY
CONSTRUCTION (RC2)

FULL COMPLIANCE

NO RECOMMENDED ACTIONS

EROSION & SEDIMENT CONTROL INSPECTION

Undertaken by Georgia Baker, 16 February 11:40 am

SEDIMENT RETENTION POND SRP 4750 CATCHMENT

Pond just finished construction with as builts received the morning of inspection for review. Rainfall event had ponded in dirty water catchment area and was being pumped to forebay for treatment until levels are achieved.

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels

SEDIMENT CONTROL PRACTICES

- G1 Sediment Retention Pond
- G1 Coagulant & Flocculant Treatment



AUTHORISATION CONDITION ASSESSMENT

CONDITION LD3 | FULL COMPLIANCE

Air Quality Standards

Dust arising from works authorised by resource consents for the Project must not cause a noxious, dangerous, offensive or objectionable effect at any point beyond the boundary of the site.

Prior to the commencement of any land disturbance activities a meteorological weather station must be installed on-site and must provide the following data:

occurrences of wind conditions greater than 10m/s hourly average or greater;

wind speed and direction at ten (10) metres above the ground;

rainfall at ground level;

air temperature at one and a half (1.5) metres and ten (10) metres above ground; and

relative humidity.

The meteorological weather station required by Clause (b) must be maintained at all times and must:

comply with 'AS/NZS 3580.14:2014 Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications'; and

be recalibrated every two (2) years.

The speed of construction vehicles must be limited to 20km/h on unsealed surfaces during dry weather when within 100 metres of the sensitive receivers shown on the plans in Appendix E.4 to 'Te Ahu a Turanga: Technical Assessment E - Air Quality' attached to and forming part of the conditions of these resource consents.

When construction works are within 100 metres of the dwellings at R4, R5 and R7, shown on the plans in Appendix E.4 to 'Te Ahu a Turanga: Technical Assessment E - Air Quality' attached to and forming part of the conditions of these resource consents, continuous dust monitors must be established and operated in accordance with 'AS/NZS 3580.12.1:2015'. Methods of sampling and analysis of ambient air - Part 12.1: Determination of light scattering integrating nephelometer method', between the dwellings and the construction works.

Where the results of monitoring required by Clause (e) exceeds a concentration (PM10) of 150µm³ hourly average, dust-generating activities must cease until emissions are controlled, including through the implementation of additional dust control measures.

When construction works are downwind (prevailing wind) and within 100 metres of the following locations, shown on the plans in Appendix E.4 to 'Te Ahu a Turanga: Technical Assessment E - Air Quality' attached to and forming part of the conditions of these resource consents, monthly dust deposition monitoring must be undertaken as follows:

Te Apiti wind farm turbines TAP9, TAP10, TAP47 and TAP50, using directional dust deposition gauges in accordance with 'AS/NZS 3580.10.2:2013. Methods for sampling and analysis of ambient air. Determination of particulate matter - Impinged matter- Gravimetric method;

the ecological areas F2, F4, F7, E1, E2, E4 and research area B1, using traditional dust deposition gauges in accordance with 'AS/NZS 3580.10.1:2016. Methods for sampling and

analysis of ambient air. Determination of particulate matter - Deposited matter - Gravimetric method.

Where the results of monitoring required by Clause (g) exceed 4 grams per square metre per 30 days above background levels, the potential causes must be investigated and additional control measures implemented, where necessary.

Where additional dust control measures are required by Clause (f) or Clause (h) the results of monitoring; the outcome of investigations of the cause; and details of the additional measures that are implemented must be provided to Manawatu-Whanganui Regional Council as soon as practicable and within five (5) working days of the exceedance occurring.

ADVICE NOTES:

The standard in Clause (a) will be assessed using the FIDOL (Frequency, Intensity, Duration, Offensiveness and Location) factors described in the Ministry for the Environment publication 'Good Practice Guide for Assessing and Managing Dust' (2016).

Other measures to monitor and manage the effects of dust on the National Grid are set out in conditions NG1(e) and NG2(d)(vi).

CONDITION LD4 | FULL COMPLIANCE

Cut and Fill Stability

Disturbed areas must not exceed a height of ten (10) metres without being stabilised. Natural cut faces that are left bare are considered to be stabilised.

Disturbed areas, and areas identified in a certified SSES CP must be progressively temporarily stabilised, re-contoured and re-vegetated to minimise sediment runoff and erosion until the disturbed area is permanently stabilised in accordance with GD05 and clause (c).

Areas of the site where earthworks have been completed must be stabilised to prevent erosion as soon as practicable and within fourteen (14) days of completion of any works authorised by these resource consents, unless otherwise provided for in a certified SSES CP. Completion is defined as where bulk earthworks are complete or where no further bulk earthwork is programmed to occur for three (3) months.

Stabilisation (where required) must be undertaken by providing adequate measures (vegetative and/or structural) that will reduce sediment runoff and erosion.

The consent holder must engage a suitably qualified and experienced geotechnical engineer to ensure:

that the permanent cut slopes and fill sites are appropriately assessed for stability during and following the cut or filling operation; and

drainage is installed where fill is placed to ensure long term stability of the fill sites.

The outcome of the assessment required by Clause (e) must be provided to Manawatu-Whanganui Regional Council for information within twenty (20) working days of the assessment being completed either for the whole or part of the construction works.

ZONE 2 COMPLIANCE

This section summarises all compliance assessments, inspections and associated monitoring activities completed in the zone, for the reporting period.

PERFORMANCE SUMMARY

The overall compliance and gradings across the zone for the reporting period:

EROSION & SEDIMENT CONTROL GRADING SUMMARY

5	Grade 1
0	Grade 2
0	Grade 3
0	Grade 4

COMPLIANCE SUMMARY

5	Full Compliance
0	Compliance Achieved (at Risk)
0	Non-Compliance (Low Risk)
0	Non-Compliance (Moderate Risk)
0	Significant Non-Compliance

NO RECOMMENDED ACTIONS

COMPLIANCE MONITORING

Compliance assessments undertaken in the reporting period include site inspections, office assessments, meetings and monitoring of resource consent conditions.

ATH-2020203333 TE AHU A TURANGA HIGHWAY
CONSTRUCTION (RC2)

FULL COMPLIANCE

NO RECOMMENDED ACTIONS

EROSION & SEDIMENT CONTROL INSPECTION

Undertaken by Georgia Baker, 16 February 10:55 am

DECANTING EARTH BUND DEB 1 CATCHMENT

Floc box being installed at time of inspection. As built to follow.

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels



DECANTING EARTH BUND DEB 2 CATCHMENT

Device had just been batch dosed. Floc box being installed and inlet point finalised.

WATER MANAGEMENT CONTROLS

- G1 Clean Water Diversions
- G1 Dirty Water Diversion Channels

SURFACE STABILISATION

- G1 Turfing



DECANTING EARTH BUND DEB 3 CATCHMENT

Floc box still to be installed. Device had just been batch dosed. Slumping apparent, awaiting geotechnical advice. Discussed installing nova coil pipe along clean water diversion to take weight out of the batter and reduce moisture in this area.



SEDIMENT RETENTION POND SRP 6800 CATCHMENT

Floc box was to be installed today. Then as built to follow. Coconut matting had been laid below CWD that extends beyond pond. With further in progress.



AUTHORISATION CONDITION ASSESSMENT

CONDITION LD1 | FULL COMPLIANCE

Cleanfill Material

All earthworked material and imported material deposited as part of the works authorised by these consents must be cleanfill material.

CONDITION LD3 | FULL COMPLIANCE

Air Quality Standards

Dust arising from works authorised by resource consents for the Project must not cause a noxious, dangerous, offensive or objectionable effect at any point beyond the boundary of the site.

Prior to the commencement of any land disturbance activities a meteorological weather station must be installed on-site and must provide the following data:

occurrences of wind conditions greater than 10m/s hourly average or greater;

wind speed and direction at ten (10) metres above the ground;

rainfall at ground level;

air temperature at one and a half (1.5) metres and ten (10) metres above ground; and

relative humidity.

The meteorological weather station required by Clause (b) must be maintained at all times and must:

comply with 'ASINZS 3580.14-2014 Methods for sampling and analysis of ambient air Meteorological monitoring for ambient air quality monitoring applications'; and

be recalibrated every two (2) years.

The speed of construction vehicles must be limited to 20km/h on unsealed surfaces during dry weather when within 100 metres of the sensitive receivers shown on the plans in Appendix E.4 to 'Te Ahu a Turanga: Technical Assessment E - Air Quality' attached to and forming part of the conditions of these resource consents.

When construction works are within 100 metres of the dwellings at R4, R5 and R7, shown on the plans in Appendix E.4 to 'Te Ahu a Turanga: Technical Assessment E - Air Quality' attached to and forming part of the conditions of these resource consents, continuous dust monitors

must be established and operated in accordance with 'AS/NZS 3580.12.1:2015'. Methods of sampling and analysis of ambient air - Part 12.1: Determination of light scattering integrating nephelometer method', between the dwellings and the construction works.

Where the results of monitoring required by Clause (e) exceeds a concentration (PM₁₀) of 150µ/m³ hourly average, dust-generating activities must cease until emissions are controlled, including through the implementation of additional dust control measures.

When construction works are downwind (prevailing wind) and within 100 metres of the following locations, shown on the plans in Appendix E.4 to 'Te Ahu a Turanga: Technical Assessment E - Air Quality' attached to and forming part of the conditions of these resource consents, monthly dust deposition monitoring must be undertaken as follows:

Te Apiti wind farm turbines TAP9, TAP10, TAP47 and TAP50, using directional dust deposition gauges in accordance with 'ASINZS 3580.10.2:2013. Methods for sampling and analysis of ambient air. Determination of particulate matter - Impinged matter- Gravimetric method;

the ecological areas F2, F4, F7, E1, E2, E4 and research area B1, using traditional dust deposition gauges in accordance with 'ASINZS 3580.10.1:2016. Methods for sampling and analysis of ambient air. Determination of particulate matter - Deposited matter - Gravimetric method.

Where the results of monitoring required by Clause (g) exceed 4 grams per square metre per 30 days above background levels, the potential causes must be investigated and additional control measures implemented, where necessary.

Where additional dust control measures are required by Clause (f) or Clause (h) the results of monitoring; the outcome of investigations of the cause; and details of the additional measures that are implemented must be provided to Manawatu-Whanganui Regional Council as soon as practicable and within five (5) working days of the exceedance occurring.

ADVICE NOTES:

The standard in Clause (a) will be assessed using the FIDOL (Frequency, Intensity, Duration, Offensiveness and Location) factors described in the Ministry for the Environment publication 'Good Practice Guide for Assessing and Managing Dust' (2016).

Other measures to monitor and manage the effects of dust on the National Grid are set out in conditions NG1(e) and NG2(d)(vi).

CONDITION LD4 | FULL COMPLIANCE

Cut and Fill Stability

Disturbed areas must not exceed a height of ten (10) metres without being stabilised. Natural cut faces that are left bare are considered to be stabilised.

Disturbed areas, and areas identified in a certified SSES CP must be progressively temporarily stabilised, re-contoured and re-vegetated to minimise sediment runoff and erosion until the disturbed area is permanently stabilised in accordance with GD05 and clause (c).

Areas of the site where earthworks have been completed must be stabilised to prevent erosion as soon as practicable and within fourteen (14) days of completion of any works authorised by these resource consents, unless otherwise provided for in a certified SSES CP. Completion is defined as where bulk earthworks are complete or where no further bulk earthwork is programmed to occur for three (3) months.

Stabilisation (where required) must be undertaken by providing adequate measures (vegetative and/or structural) that will reduce sediment runoff and erosion.

The consent holder must engage a suitably qualified and experienced geotechnical engineer to ensure:

that the permanent cut slopes and fill sites are appropriately assessed for stability during and following the cut or filling operation; and

drainage is installed where fill is placed to ensure long term stability of the fill sites.

The outcome of the assessment required by Clause (e) must be provided to Manawatu-Whanganui Regional Council for information within twenty (20) working days of the assessment being completed either for the whole or part of the construction works.

CONDITION ES1 | FULL COMPLIANCE

Supervision

The erosion and sediment control measures to manage the effects of activities authorised by these resource consents must be managed and supervised by an appropriately qualified person experienced in the implementation and monitoring of erosion and sediment control measures. This person must ensure all contracted operations and personnel have clearly defined roles and responsibilities to monitor compliance with the conditions of these resource consents. This person must be available to meet with Manawatu-Whanganui Regional Council on request.

CONDITION ES2 | FULL COMPLIANCE

Erosion and Sediment Control Standards

Sediment losses to natural water arising from activities authorised by these resource consents must be minimised for the duration of the physical works authorised by these resource consents and until the expiry of the resource consents through the establishment and maintenance of erosion and sediment control measures in accordance with GD05 except where a higher standard is referred to in the ESCP or a certified SSES CP, in which case the higher standard applies.

All sediment laden run-off resulting from works authorised by these resource consents must be treated by sediment retention structures, devices or measures established and maintained in accordance with a certified SSES CP.

The consent holder must ensure that, as far as practicable, all clean water run-off from stabilised surfaces including catchment areas above the sites is diverted away from the exposed areas via a stabilised system to prevent erosion, including erosion at any associated outfall/s.

The pH of any discharge from sediment retention devices to any water-course must not be less than 5.5 or greater than 8.5.

Sediment retention devices must be designed and operated to achieve the following performance targets:

greater than 90% treatment efficiency across a rainfall trigger event; and

discharge clarity of greater than 100mm measured by black disc.

Where the performance targets in Clause (e) are not achieved, the response action(s) set out in the Erosion and Sediment Control Monitoring Plan must be implemented so that those performance targets are achieved.

ZONE 3 COMPLIANCE

This section summarises all compliance assessments, inspections and associated monitoring activities completed in the zone, for the reporting period.

PERFORMANCE SUMMARY

The overall compliance and gradings across the zone for the reporting period:

EROSION & SEDIMENT CONTROL GRADING SUMMARY

COMPLIANCE SUMMARY

1	Full Compliance
0	Compliance Achieved (at Risk)
0	Non-Compliance (Low Risk)
0	Non-Compliance (Moderate Risk)
0	Significant Non-Compliance

NO RECOMMENDED ACTIONS

COMPLIANCE MONITORING

Compliance assessments undertaken in the reporting period include site inspections, office assessments, meetings and monitoring of resource consent conditions.

ATH-2020203333 TE AHU A TURANGA HIGHWAY
CONSTRUCTION (RC2)

FULL COMPLIANCE

NO RECOMMENDED ACTIONS

PLAN OR REPORT

Assessment by Georgia Baker, 12 February

Main Alignment Site Specific SS12 Erosion and Sediment Control Plan Amendment Received and Certified.

AUTHORISATION CONDITION ASSESSMENT

CONDITION ES7 | FULL COMPLIANCE

Amending the Certified Site Specific Erosion and Sediment Control Plans

Where compliance with GD05 continues to be achieved, the following may be undertaken prior to a SSES CP being amended subject to a retrospectively amended SSES CP being prepared and provided to Manawatu-Whanganui Regional Council within ten (10) working days:

the addition of silt fences and super silt fences;

changes to the dimensions or configuration of a sediment retention pond or decanting earth bund;

the installation of additional diversion bunds, diversion channels devices, dams and pipe drop structures; and

construction of additional erosion and sediment controls where devices are within the permanent works footprint and do not affect construction of the erosion and sediment controls that are already constructed and certified.

A SSES CP may be amended or updated without the need for certification where:

the amendment is an administrative change, such as a change in contact details; or

the amendment is to the location of an erosion and sediment control where each control is sized for the captured area and shown on as-built plans in new location and compliance with GD05 is maintained; or

the amendment provides additional lay down areas within the area of works subject to the SSES CP and does not impact on existing controls; or

the amendment changes bund or diversion construction (excluding changes to dimension and capacity); or

the revised SSES CP is provided to the Manawatu-Whanganui Regional Council and, within five (5) working days of receiving the revised SSES CP, the Manawatu-Whanganui Regional Council has not advised in writing that the amendment must be certified under clause (c) on the basis that the amendment/s do not meet the requirements of clauses (a)(i) to (a)(iv); and

the amendment does not result in works occurring during the period 1 May to 30 September inclusive.

Except as provided for in clauses (a) and (b), amendments to a SSES CP must be certified in writing by the Manawatu-Whanganui Regional Council acting in a technical certification capacity prior to the commencement of any works to which the amended SSES CP relate.

Certification (or withholding certification) is based on the Manawatu-Whanganui Regional Council's assessment of whether the amended SSES CP meets the requirements of the conditions of these resource consents and, in particular is consistent with the requirements and measures in GD05.

If five (5) working days have passed since the amended SSES CP has been provided to Manawatu-Whanganui Regional Council for certification, and Manawatu-Whanganui Regional Council has not certified the revised SSES CP or provided advice that the SSES CP is not suitable to certify, then works may commence in accordance with the SSES CP as provided.

GLOSSARY

CONTROL GRADINGS

The below outlines the guidelines in determining an erosion and sediment control grading.

G1 | GRADE 1 | FULL COMPLIANCE

Best Practice, no further actions required

G2 | GRADE 2 | COMPLIANCE ACHIEVED (AT RISK)

Identified minor technical issues with the control device, but satisfies the underlying purpose of the guidelines, erosion and sediment control plan or resource consent conditions.

G3 | GRADE 3 | NON-COMPLIANCE (LOW – MODERATE RISK)

Control devices are missing, or poor construction has lead to, or will likely result in a failure as an efficient erosion or sediment control method.

G4 | GRADE 4 | NON-COMPLIANCE (MODERATE RISK) - SIGNIFICANT NON-COMPLIANCE

Control devices are missing, poor construction resulting in an uncontrolled sediment discharge, or failure as an efficient erosion and sediment control method that may breach resource consent conditions.

COMPLIANCE ASSESSMENT RANKINGS

The below outlines the guidelines in determining the compliance ranking for resource consents, permitted or deemed permitted activities and any assessed conditions.

AUTHORISATION COMPLIANCE RANKINGS

SIGNIFICANT NON-COMPLIANCE

One or more assessed conditions are non-compliant, and there are significant environmental consequences or a high risk of adverse environmental effects.

NON-COMPLIANCE (MODERATE RISK)

One or more assessed conditions are non-compliant, and there are some environmental consequences, or there is a moderate risk of adverse environmental effects.

NON-COMPLIANCE (LOW RISK)

One or more assessed conditions are non-compliant, and there is a low risk of adverse environmental effects, or the non-compliance is technical, for example; failure to submit a monitoring report.

COMPLIANCE ACHIEVED (AT RISK)

One or more assessed conditions are at risk of future non-compliance due to management or system deficiencies.

FULL COMPLIANCE

Compliant with all assessed conditions of the consent.

CONDITION COMPLIANCE RANKINGS

NOT VERIFIABLE

Where the condition outlines an unpractical methodology or worded in such a way that compliance cannot be assessed, in these cases, a monitoring approach will be agreed and added to the condition to support a consistent monitoring approach.

SIGNIFICANT NON-COMPLIANCE

A non-compliance with the condition and there are significant environmental consequences, a high risk of adverse effects, unauthorised discharge, or five or more repeated technical non-compliances.

NON-COMPLIANCE (MODERATE RISK)

A non-compliance with the condition and there are some environmental consequences, a moderate risk of adverse environmental effects, or four repeated technical non-compliance within a reporting year.

NON-COMPLIANCE (LOW RISK)

A one-off non-compliance with the condition and there is a low risk of adverse environmental effects, or the non-compliance is technical, for example; failure to submit a monitoring report.

COMPLIANCE ACHIEVED (AT RISK)

Compliant with the condition, but at risk of future non-compliance due to management, or system deficiencies.

FULL COMPLIANCE

Compliant with all aspects of the condition.

Report No.	21-19
Information Only - No Decision Required	

UPDATE OF PROGRESS FOR THE NEW WASTEWATER TREATMENT DISCHARGE CONSENTS FOR PALMERSTON NORTH

1. PRESENTATION

- 1.1 Melaina Voss, from Palmerston North City Council will make a presentation to the Environment Committee on the progress towards new wastewater treatment discharge consents for Palmerston North City.

2. RECOMMENDATION

That the Committee recommends that Council:

- a. receives the presentation from Melaina Voss of Palmerston North City Council.

3. SIGNIFICANCE

- 3.1. This is not a significant decision according to the Council's Policy on Significance and Engagement.

Nic Peet
GROUP MANAGER STRATEGY & REGULATION

ANNEXES

There are no attachments for this report.

Report No.	21-20
Information Only - No Decision Required	

ENVIRONMENT COMMITTEE PROGRESS REPORT

1. PURPOSE

- 1.1. The purpose of this item is update members of Council's Environment Committee on the progress made in the Natural Resources & Partnership Group's activity over the period 1 October to 31 December 2020 with some additional updates up to the time of writing. The item provides updates on progress against the Annual Plan targets.

2. RECOMMENDATION

That the Committee recommends that Council:

- a. receives the information contained in Report No. 21-20 and Annexes.

3. FINANCIAL IMPACT

- 3.1. There is no financial impact associated with recommendations in this paper.

4. COMMUNITY ENGAGEMENT

- 4.1. This is a public item and therefore Council may deem this sufficient to inform the public.

5. SIGNIFICANT BUSINESS RISK IMPACT

- 5.1. It is considered that there is no significant risk impact of this item

6. CLIMATE IMPACT STATEMENT

- 6.1. This item reports on Horizons' activity in relation to Horizons' Annual Plan targets and is not considered to have a climate change impact.

7. SUMMARY AND HIGHLIGHTS

- 7.1. The Natural Resources & Partnerships Group activity includes the non-regulatory and science programmes across the land and water management, biosecurity, biodiversity and environmental reporting activities of the Long-term Plan. The group also delivers regulatory functions for biosecurity and supports Horizons' regulatory programmes.
- 7.2. Over the financial year that commenced in July the Natural Resources and Partnerships group prepared and presented a range of Council Papers including:
- Jobs for Nature Funding;
 - Tōtara Reserve Poplars;
 - Tōtara Reserve Poplar Removal Procurement;
 - National Wilding Conifer Programme;
 - Wilding Conifer Procurement;
 - Lake Rākau Hamama;

- Implementation of Government's Freshwater Reform Package;
 - Biodiversity Partnerships Programme;
 - Biodiversity Priority Sites Update;
 - Pest Plan Update;
 - National Environmental Standards for Stock Exclusion – implications for consenting of water abstractions.
- 7.3. Progress on the Land Management Activity within the Group was reported to the Catchment Operations Committee in December and will be further updated to Council in April. Overall the Land Management activity is on track to deliver additional activity this year.
- 7.4. The Biosecurity Animals programme (Annex A) is on track to achieve all of its targets having added an additional 36,920 ha of new work to the programme this financial year for a target of 6,217 ha. Overall the programme is scheduled to complete maintenance control on over 865,000 ha and in the first six months of the programme has delivered 48 percent of the programmed bait station fills for the year. The rooks programme has been successfully delivered with additional rook nests treated this year. A significant contributor to this was additional reporting by the community of rook nests and the second round of nest control that was completed for the first time this year. The amenity pests programme continues to be busy with 311 enquiries during the reporting period, the greatest number of enquiries related to rabbits, followed by possums and mustelids.
- 7.5. The Biosecurity Plants programme (Annex B) has continued to respond to new pest plant issues during the reporting period, this includes a new find of *Sagittaria platphylla* near Palmerston North. Work on the alligator weed issue near Palmerston North has continued and staff have also worked with the team at Kitchener Park around a *Phragmites karka* infestation. A significant result for our biological control programme was the discovery of tutsan beetle establishment in the region. Further the green thistle beetle population has continued to expand. The national wilding conifers programme has progressed well with nine of the 46 operational areas completed and the majority of others having work underway.
- 7.6. The Biodiversity Programme (Annex C) has continued to implement the changes made by Council as a result of a review of the programme. For the priority habitats programme the site summaries and management plans have been established for the core 68 sites at management level three and above. Work is underway to add the further seven bush remnants and four wetlands. Six new bush remnants and one wetland have been identified for addition to the programme, the team are prioritising getting work underway at these sites and finding the additional sites to meet the Annual Plan target. Work on the biodiversity partnerships programme continues and updates are provided in Annex C. The Tōtara Reserve work programme has focused on the removal of poplars which was completed in December prior to the full opening of the campgrounds. A focus for the team at present is the design and implementation of an upgrade to the water supply. This piece of work is the key next step for the capital upgrades at the site and other upgrades are on hold until the budget requirements for the water supply are established.
- 7.7. Progress on the Water Quantity and Quality activity is updated on in Annex D. The item updates on the monitoring programmes that are underway including the swim spot monitoring and seasonal river flow and ground water conditions. The expanded Freshwater and Partnerships programme has established the three Jobs for Nature projects (Regional Riparian Fencing and Planting, Enhancing Fish Populations through Fish Passage Repair and Lake Horowhenua Water Quality Interventions). The projects are in addition to the Freshwater Improvement Fund programmes underway in the Whangaehu, Manawatū and Lake Waipu. Overall the programme is tracking well with the regional targets for stream fencing and planting looking to be exceeded with use of reserves as approved by Council.

The establishment of the boat ramp at Lake Horowhenua is on track for completion by May 2021 in advance of the weed harvesting trial that is planned for later in the year.

- 7.8. The Environmental Reporting programme (Annex E) is progressing State of Environment reporting for the region and the individual Freshwater Management Units. The annex also overviews the six Envirolink funded projects that are underway for the year.

8. SIGNIFICANCE

- 8.1. This is not a significant decision according to the Council's Policy on Significance and Engagement.

Logan Brown
FRESHWATER & PARTNERSHIPS MANAGER

Rod Smillie
BIODIVERSITY, BIOSECURITY & PARTNERSHIPS MANAGER

Abby Matthews
SCIENCE & INNOVATION MANAGER

Jon Roygard
GROUP MANAGER NATURAL RESOURCES & PARTNERSHIPS

ANNEXES

- A Biosecurity Animals Progress Report
- B Biosecurity Plants Progress Report
- C Biodiversity Progress Report
- D Water Quality & Quantity Progress Report
- E Environmental Reporting Progress Report



BIOSECURITY ANIMALS

1 ACTIVITY OVERVIEW

1.1.1 The Biosecurity Animals Activity delivers work across programmes to protect both production and biodiversity values including:

- The Possum Control Programme;
- The Rook Control Programme; and
- The Amenity Pests Programme.

1.1.2 The Animals Activity links with a range of national and regional policies and strategies including the Biosecurity Act 1993, National Policy Direction 2015 and Regional Pest Management Plan 2017-37.

2 ANNUAL PLAN TARGETS

2.1.1 A summary of the Annual Plan targets and progress to date is provided in Table 1

Table 1 Progress reporting for the Biosecurity Animals Annual Plan targets for 2020-21.

Performance measure/ contract target	Target	Progress
Possum densities are maintained at/below 10% residual trap catch (RTC) in all existing and new possum control operations. This is to enhance production, biodiversity, disease protection, and amenity values.	<10% RTC	20 of the planned 38 monitors for the 2020-21 year have been completed. The average result for these monitors is 3.1% RTC (+/- 1.2%) with two returning results >10% RTC.
Additional hectares included in [the Possum] Control Programme	6,217 ha	36,920 new hectares were completed during the financial year.
All known rookeries are treated annually to reduce crop losses and damage.	100%	Surveillance and baiting preparation underway
Provide an urban/peri-urban animal pest management service to assist ratepayers with specialist advice and equipment. All enquiries responded to within two working days.	100%	311 enquiries were received during the reporting period. All enquiries were followed up within the agreed timeframes.

3 POSSUM CONTROL PROGRAMME

3.1 Programme overview

- 3.1.1 The Manawatū-Whanganui Region Possum Control Programme aims to maintain the possum population below a target of 10% **residual trap catch** (RTC) within the area of the programme, consistent with the Regional Pest Management Plan targets. The possum programme started in 2006, covering 110,000 ha, and has grown to include more land every year. Horizons has initiated control in some areas and in others has taken on new areas where the previous possum control organisation, OSPRI, had initiated work for the control and eradication of Bovine Tb. Horizons has, and continues to absorb the areas into its possum control programme following OSPRI ceasing control of particular areas. The Horizons programme is delivered by a combination of council staff (approximately 65%) and external contractors (approximately 35%).
- 3.1.2 In 2020-21 the voluntary possum control programme spans a total area of 1,574,465 ha (approximately 70% of the Horizons region). The total possum control area continues to grow annually as Horizons takes over where OSPRI achieves freedom from Bovine Tb in areas it has previously controlled, and then ceases further pest control. Within the area of the programme in 2020-21:
- Landowners have opted out of 79,174 ha (5%) of the programme;
 - 6,217 ha not previously controlled by Horizons (ex-OSPRI) is being added to the programme.
 - 865,655 ha (55.2% of the total area) is scheduled for maintenance control, i.e. areas that previously have been under Horizons control and will receive bait station fills this year;
 - 556,701 ha (35.5%) of the programme area is being deferred from control due to low possum numbers indicated by the monitoring programme and the projected numbers derived from a population modelling app (PosSim) that assists programme management decision-making.
- 3.1.3 The 2020-21 possum control programme is made up of a total of 153 **Possum Control Operations** (PCOs). The monitoring programme measures possum abundance in 25% of the PCOs to inform decision-making about areas for control, and over a four-year period each of the PCOs is monitored at least once. The growing area of the programme also increases the monitoring programme requirements to ensure each PCO is monitored at least once every four years.

- 3.1.4 Of a possible 153 PCOs, 87 are being worked this year (2020-21) with 66 deferred due to low possum abundance. Of the 87 PCOs being worked, 57 are being completed by Horizons staff and 30 by external contractors.
- 3.1.5 As outlined in the Operational Plan the team are reviewing each PCO being worked this year, analysing results and installing further bait stations where required. The team are also seeking landowners who have previously opted out of the voluntary programme to persuade them to opt in and provide more complete coverage of the region. Following on from last year, the programme enables the team to identify and action second fills of bait stations where high possum abundance is encountered.
- 3.1.6 Landcare Research has been engaged to provide advice regarding the thresholds of possum abundance linked with the size and type of habitat that could trigger Good Neighbour Rules in Horizons **Regional Pest Management Plan** (RPMP) 2017-37. This will provide guidelines that will assist when assessing landowners with higher possum abundance than their adjoining neighbouring properties, and the level that will trigger a regulatory response. This advice has been received and is being considered by staff, and a summary of the report will be presented to Council at a future date.

3.2 Activity update

- 3.2.1 The Regional Response Team (RRT) has completed 24 of the 57 PCOs planned for the year with another eight operations started. The team carried forward two complete PCOs planned for the previous financial year with a total of 1,412 bait stations. More landowners than usual have opted into the programme this year, including three forestry blocks adding a further 1,200 bait stations.
- 3.2.2 The external contractors continue to make steady progress in the 30 operational areas that are allocated to them this year. One new PCO (Ruatiti Stage Two) was completed during the reporting period and work commenced in another new area (Raetihi Buffer). Operational work has been completed in six maintenance areas – Norsewood, Rangiwaea, North Whangaehu, Raetihi Buffer One, Niho Niho and Tatu Heao. Work also commenced in six maintenance areas – Matahiwi, Kirikau, Taumarunui Rollback South, Waikaka South, Turakina Valley and Parapara.
- 3.2.3 The procurement process to select the contractors for the next three years of PCO work commenced in December. The registration of interest (ROI) document is

currently being prepared and was set to be posted on the Tenderlink tenders website in early February.

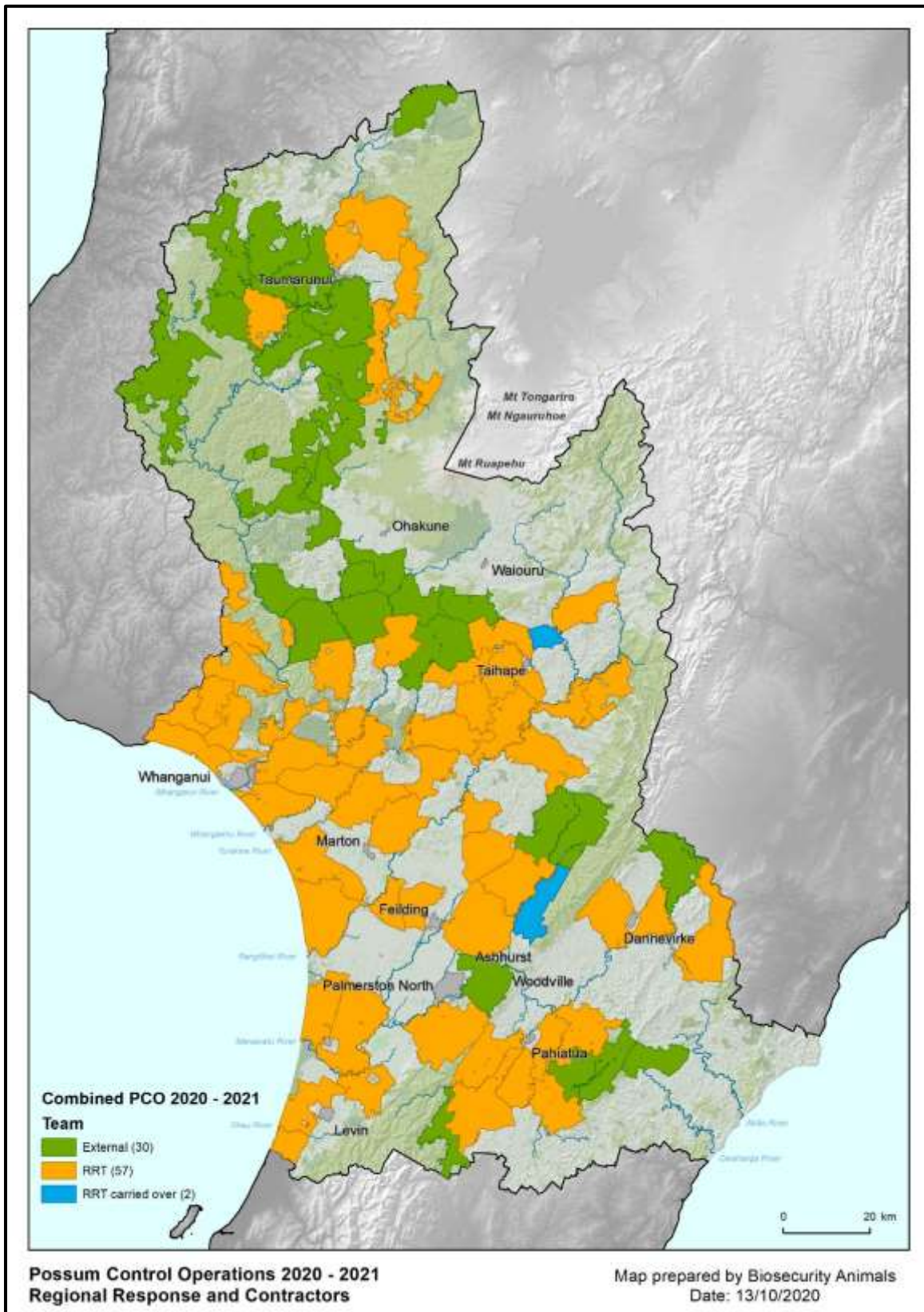
3.2.4 Horizons have met with the Department of Conservation on several occasions and are encouraging further possum control on conservation land via the Kaimahi for Nature programme that has been allocated Covid-19 recovery funding for additional work in the region.

Item 10

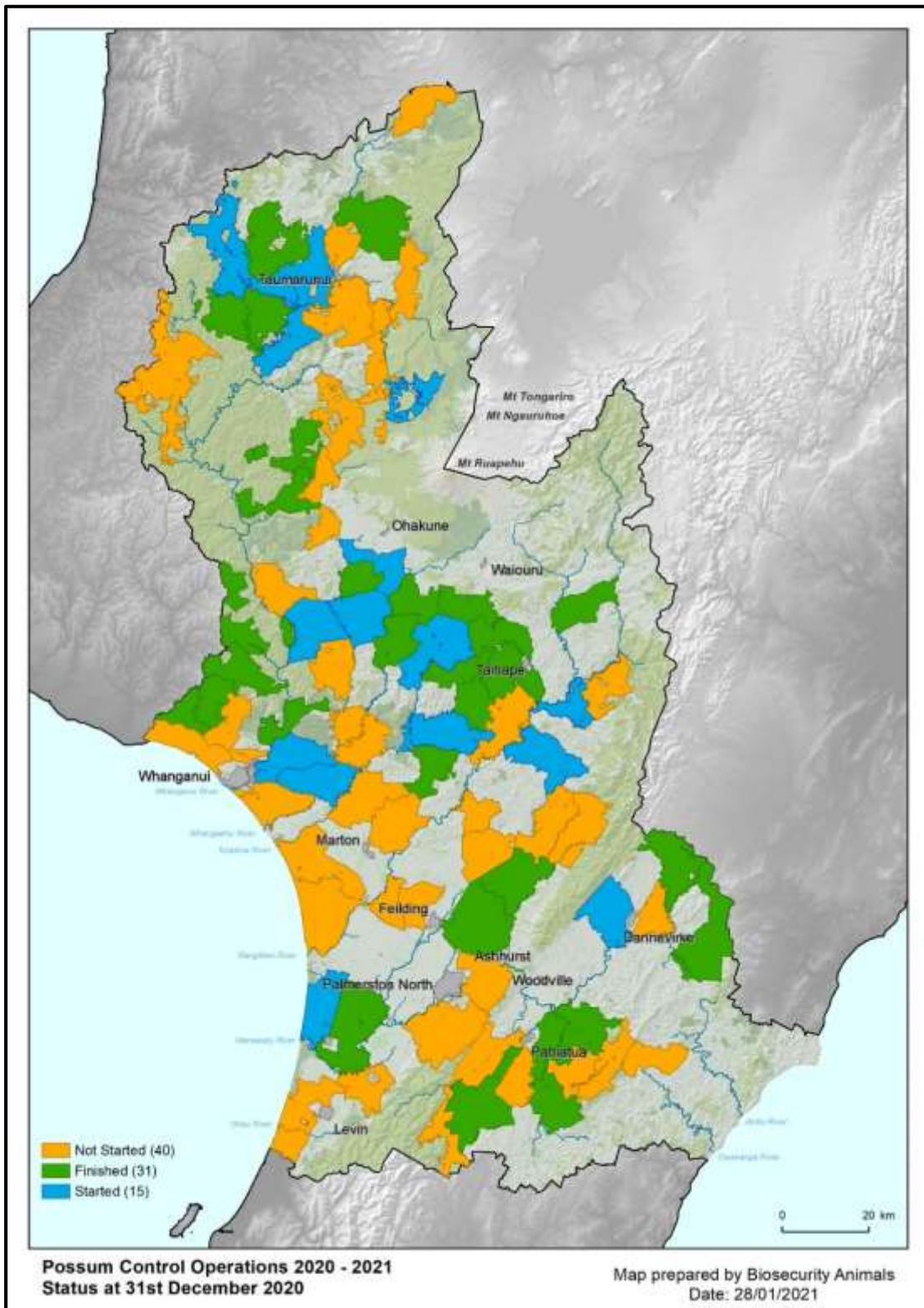
Annex A

Table 2 Progress reporting for the Possum Control Programme against Operational Plan targets to the end of December 2020.

Measure Hectares	Reporting Period				Total	Op Plan Target	% Complete	Comment
	Period 1 July – Sept	Period 2	Period 3	Period 4				
Regional Response Team								
PCOs completed	8	16			24	57	42%	On track
New hectares completed	1,620	11,000			12,620	41,423	30%	On track
Bait stations	14,158	20,093			34,251	62,014	55%	On track
External Contractors								
PCOs completed	1	7			8	30	27%	On track
New hectares completed	12,200	12,100			24,300	40,462	60%	On track
Bait stations	6,967	12,233			19,200	49,362	39%	On track
Total PCO Programme								
PCOs completed	8	23			31	87	36%	On track
New hectares completed	13,820	23,100			36,920	81,885	45%	On track, Annual Plan target of 6,217 ha met
Bait stations	21,125	32,326			53,451	111,376	48%	On track



Map 1 Possum Control Combined Operations 2020 – 2021.



Map 2 Status of Possum Control Operations 2020 – 2021.

4 MONITORING

4.1 Possum Monitoring

4.1.1 The Possum Monitoring Programme aims to monitor all PCOs during a four-year period to provide an index of possum abundance; this is year three of the programme.

4.1.2 The monitoring programme operators put out 25 lines of 10 wax-tags (250 wax-tags) per PCO and the number of bite marks gives an index of the possum abundance as a percentage. The monitoring lines are randomly selected to remove bias and to provide a robust estimate. The results are presented with a 95% confidence interval i.e. the range of values that provides 95% certainty and contains the true mean of the population.

4.1.3 The monitoring is predominately done by an independent contractor who is not involved in any of the control work. Some internal team members monitor the possum control work completed by external contractors.

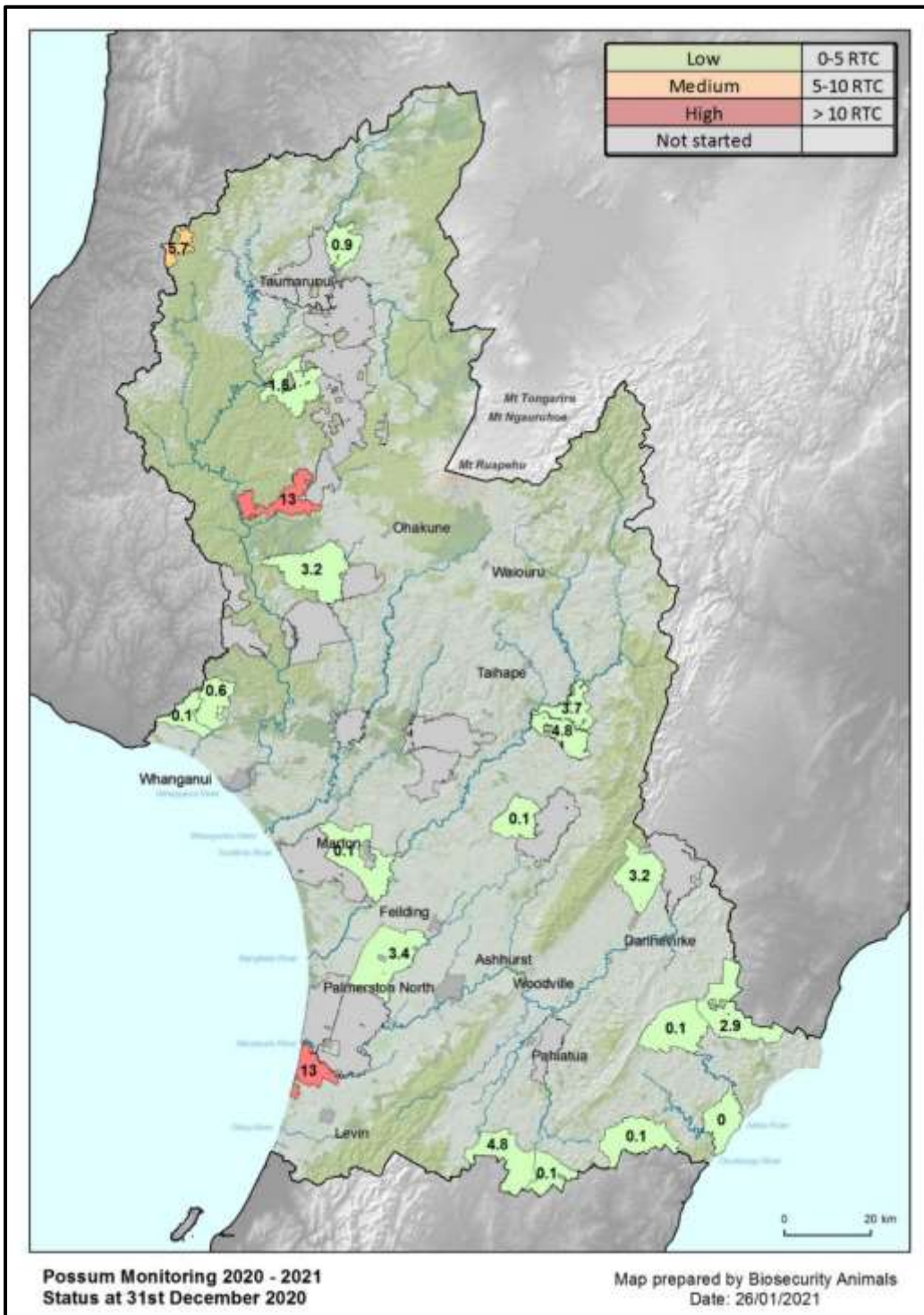
4.2 Activity Update

4.2.1 A further eight of the programmed 38 PCO monitors were completed during the reporting period (Map 3) with the RTC results ranging from 0.1% to 13.0% RTC. The average result over the eight monitors was 3.1% \pm 1.1%. Please refer to Table 4 for the full list of PCOs monitored during the reporting period; it also shows the list of further PCOs to be monitored this financial year.

4.2.2 The Ruatiti Stage Two PCO (a new ex-OSPRI job) returned a 13% RTC result, which was higher than was anticipated. We plan to undertake a second fill of the stations in areas where the monitor line data identified high populations, before the end of this year.

Table 3 Monitors completed to end of December 2020

PCO	RTC %	CI ± %	Completed	Rank
Waitarere	13	3.2	Aug-20	1
Ruatiti Stage One	13	2.3	Oct-20	2
Waitaanga	5.7	1.8	Sep-20	3
Eketahuna South	4.8	3.2	Aug-20	4
Kawhatau	4.8	1.2	Aug-20	5
Toe Toe	3.7	1.5	Dec-20	6
Rongotea	3.4	2.6	Jul-20	7
Matamau West	3.2	1.5	Jul-20	8
Raetihi Buffer Two	3.2	2	Nov-20	9
Weber	2.9	1.8	Nov-20	10
Whakahoro	1.5	1.2	Nov-20	11
Taringamotu	0.9	1.2	Sep-20	12
Kai Iwi	0.6	0.4	Sep-20	13
East Alfredton	0.1	0.1	Jul-20	14
Waihoki	0.1	0.1	Jul-20	15
Oporae East	0.1	0.1	Aug-20	16
Maxwell	0.1	0.1	Oct-20	17
Marton	0.1	0.1	Oct-20	18
Kimbolton	0.1	0.1	Nov-20	19
Branscombe Coast	0	0	Jul-20	20
Average	3.1	1.2		



Map 3 Status of Possum Monitoring

Table 4 Other PCOs scheduled to be monitored in 2020-21

PCO's To be Monitored 2020-21
Ahu Ahu
Apiti
Coastal Foxton
Coastal Turakina
Hikamutu
Huntermville
Kaitieke
Makino North
Mangaporau
Matahiwi
Otairi
Pipipi
Raetihi Buffer 1
Retaruke
Taumarunui Rollback
East Pahiatua
Norsewood
Himatangi

- 4.2.3 The procurement process to select the contractors for the next three years of PCO monitoring commenced in December 2020. As with the possum control procurement process, the registration of interest document for monitoring was set to be posted on Tenderlink in early February. We aim to have the procurement completed by the end of April.

5 ROOK CONTROL PROGRAMME

5.1 Programme overview

- 5.1.1 Rooks are categorised as an eradication species in Horizons' **Regional Pest Management Programme** (RPMP) 2017-37 and the region is surveyed annually for active rookeries. A contractor is engaged to aurally poison nests to control both chicks and adult rooks.

5.2 Activity update

5.2.1 Following surveys, aerial control was undertaken in October with a second round of flights to check active nests carried out in November. All active nests were treated with a contact toxin by an operator slung below helicopter.

5.2.2 A total of 136 sites were visited over the region with 56 active rookeries revisited in the second round of flights.

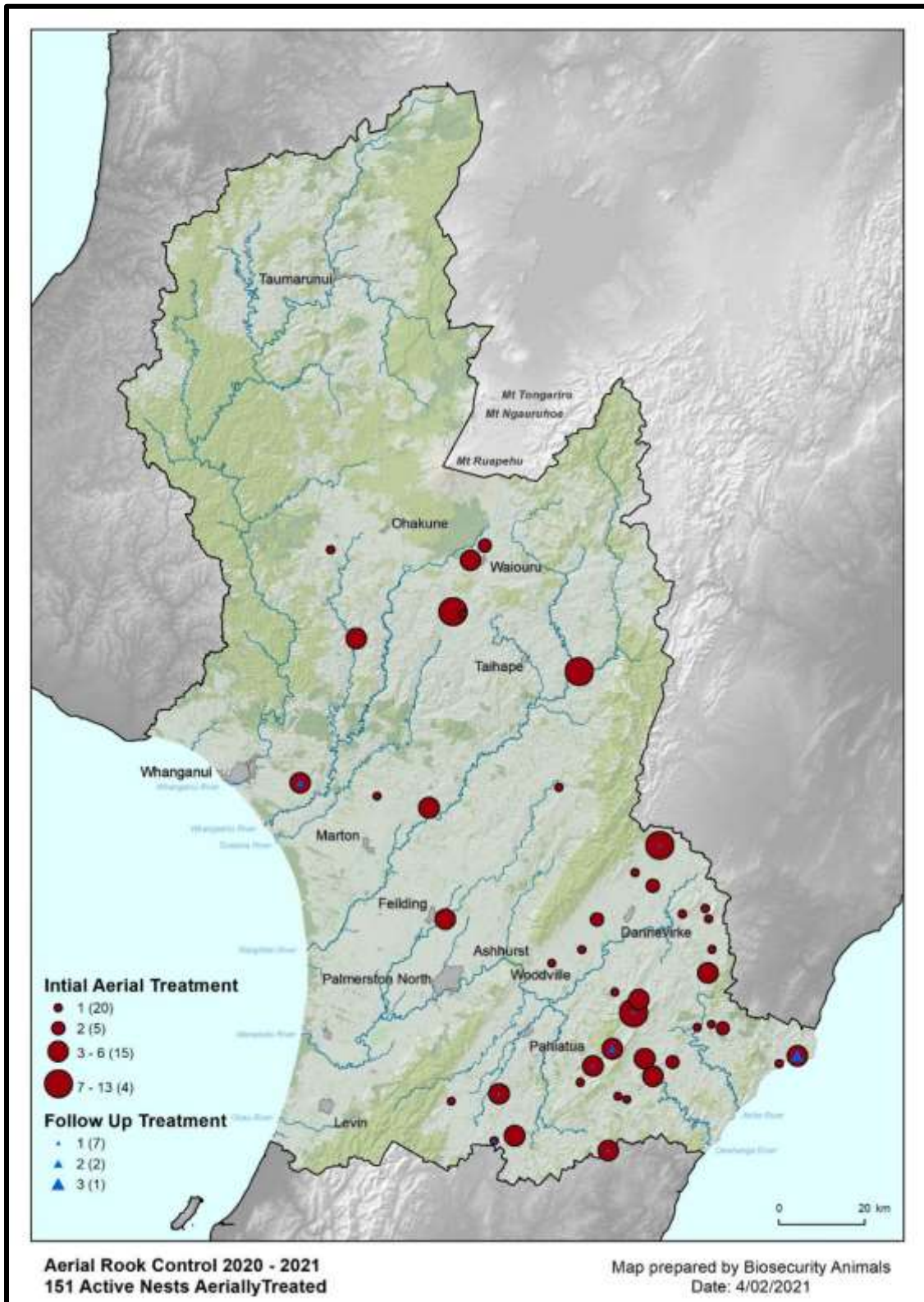
5.2.3 There was an increase in active nests treated this year with 152 active nests spread over 45 active rookeries (Map 4 below) compared to 94 active nests spread over 56 active rookeries in 2019.

5.2.4 Four historically inactive rookeries were found to be active again with three having active nests. A total of 18 nests were treated.

Nineteen new rookeries were reported by the public and followed up on. Fourteen had active nests with a total of 51 active nests treated.

5.2.5 As part of the Annual Plan process, additional budget has been provided for a second check of rookeries. The rechecks were completed approximately 3-4 weeks later with a total of 56 rookeries inspected and 14 treated.

5.2.6 There was a large increase of active nests treated this season, due primarily to the increase in rookeries reported by the public, which contributed 51 active nests to the total. Of the total of 152 active nests, 76 of those treated were in either new rookeries, historic rookeries or were picked up during the second flight. This highlights the importance of public awareness, timely prompts through social media platforms for surveillance information and the checking done in the second flight.



Map 4 Previous year's control work.

6 AMENITY PEST PROGRAMME

6.1 Programme overview

6.1.1 The amenity pest programme provides a pest animal advisory service for ratepayers with pest animal issues. Horizons provides advice and in some cases loans traps and supplies bait to enable landowners to undertake their own control. Enquiries are responded to within two working days of being lodged and usually involve pests such as possums, rabbits, mustelids, rats, and magpies.

6.2 Activity update

6.2.1 The amenity pest programme received 311 enquiries during the reporting period with the greatest number related to rabbits, followed by possums and mustelids (ferrets, stoats and weasels).

6.2.2 All enquiries were responded to within the agreed timeframes.

6.2.3 Horizons staff are assisting a group consisting of farmers, Pukaha Mt Bruce Wildlife Centre and Greater Wellington Regional Council with advice on rabbit control in the area surrounding the Wildlife Centre. The area has had issues with rabbits in the past and the group are investigating how, with a collaborative approach, they can achieve the most effective control. Horizons already provides a predator trapping service on this land.

7 REGIONAL PEST MANAGEMENT PLAN (RPMP)

7.1 Programme overview

RABBITS

7.1.1 Three years of very mild winters have spared rabbits the normal winter mortality populations experience, which can be in the order of 95%. This significantly reduces the base breeding populations going into spring and maintains the overall rabbit populations at a manageable level, but our recent mild winters have significantly increased peak populations.

7.1.2 Horizons has been receiving reports of significant rabbit populations, particularly in drier parts of the region, and indications are we can expect another favourable breeding season this year. The Horizons Regional Pest Management Plan 2017-37 (RPMP) considered adding rabbits into the RPMP, however the analysis at the time

showed that the costs outweighed the benefits for ratepayers. Consequently rabbits were not included in the plan to receive rate-funded control or management, and are considered landowners' responsibility.

- 7.1.3 We currently provide advice to landowners on the management and control of rabbits, along with a tri-annual survey for rabbit calicivirus (also known as Rabbit Haemorrhagic Disease Virus (RHDV)), and a population monitor to track movement in rabbit abundance across the region. The virus survey is about to be undertaken, and the population monitor will be completed in May 2021. The virus survey will give information about the level of immunity to the virus held in the rabbit population, and will provide guidance on the likely mortality rate if it is released into the local rabbit population. When we have the results from this survey we will evaluate options and report back to Council.

Eric Dodd
BIOSECURITY ANIMALS COORDINATOR

Daniel Hurley
REGIONAL RESPONSE COORDINATOR

Rod Smillie
BIODIVERSITY, BIOSECURITY & PARTNERSHIPS MANAGER

Jon Roygard
GROUP MANAGER NATURAL RESOURCES AND PARTNERSHIPS



BIOSECURITY PLANTS

1 ACTIVITY OVERVIEW

1.1.1 The Biosecurity Plants programme seeks to safeguard the regional economy and environment from damage caused by harmful pest plants, and to prevent the transformation of productive land and the region's natural biodiversity by invasive plants. This is achieved by delivering the following four programmes:

- Incursion response – Responding to 'new to the region' incursions and assisting in transitioning to long-term management if appropriate;
- Regional Pest Management Plan implementation – Implementing pest plant management programmes described in Horizons' **Regional Pest Management Plan (2017)** (RPMP);
- Biological Control Programme – Undertaking biological control agent programmes including supporting community-led projects, and distribution and monitoring of agent populations across a wide range of pest plant species; and
- Advice, promotion and awareness – Providing advice and information to the public about best-practice pest plant control and behaviour to prevent the spread of pest plants.

1.1.2 The pest plant management activity links with a range of national and regional policies and strategies as further outlined in the Natural Resources and Partnerships Group's Operational Plan.

2 ANNUAL PLAN TARGETS

2.1.1 A summary of the Annual Plan targets and progress to date is provided in Table 1 below. Progress reporting for the zero-level goal is limited to an annual tandem summation of all managed sites against their previous status (age, risk class) and the physical number and area of plants.

Table 1: Biosecurity Plants Annual Plan targets for 2020-21.

Performance Measures for Levels of Service	2020-21	Progress to Date
Any exclusion category pest plants that are found in the region are promptly managed, with an initial response plan completed within two weeks and then enacted (if not enacted before two weeks).	Number of response plans required. Percentage where a response plan has been produced within two weeks (target 100%) Number of response plans enacted with their specified timeframes (target 100%)	One response in progress after <i>Sagittaria platphylla</i> , an aquatic plant, confirmed in Pioneer Highway Drain and Mangaone River. Response plan initiated, control works begun.
Number of managed sites at zero-levels increases for pest plants identified for eradication in the Regional Pest Management Plan.	Overall percentage of managed sites at zero-levels (ZL) increases by 10% per annum, from the start date of the RPMP; 2020-21 target is 71%.	ZL% at start of the year ¹ 84%; (2019-20 result: 84%)
Number of managed sites at zero-levels increases for pest plants identified as progressive containment – mapped in the Regional Pest Management Plan.	Overall % of managed sites at zero-levels increases by 10% per annum from the start date of the RPMP. 2020-21 target is 70%	ZL% at the start of the year, 73%. (2019-20 result: 73%)
Financially support the national bio-control agent development programme and report annually to Council on this programme.	Financial support provided and annual report to Council	Work in progress.
Monitoring of some released biological agents will be completed to assess establishment and host damage (using the national protocol).	20 assessment plots will be monitored	No sites assessed through this period and no sites assessed to date.
Pest plant enquiries received are responded to within three working days.	95% of enquiries will be responded to within three working days	100% of enquiries responded to within three working days. Achieved.

Item 10

Annex B

3 INCURSION RESPONSE

3.1 Programme overview

3.1.1 The Incursion Response programme aims to provide immediate and effective assistance for all national or regional biosecurity incursions and any transitions to long-term management. This is a function detailed by a Memorandum of Understanding between the **Ministry for Primary Industries** (MPI) and regional councils.

¹ The Annual Report to Environment Committee is available at: <http://www.horizons.govt.nz/HRC/media/Media/Agenda-Reports/Environment-Committee-2019-14-08/19118%20Annex%20C%20Biosecurity%20Activity%20Plants.pdf>

3.2 Activity Update

3.2.1 The sea spurge (*Euphorbia paralias*) incursion at Himatangi is now one of five locations along the west coast of New Zealand. Ministry for Primary Industries has recently issued media releases asking beach-goers look out for this plant.

3.2.2 We visited 12 of 23 infection zones (paddocks) in late January with the detector dog. These are either recently turned over by ploughing or requiring checking. Those not under surveillance are either very low risk or under crop and not able to be checked.

4 REGIONAL PEST PLAN IMPLEMENTATION

4.1 Programme overview

4.1.1 The Biosecurity Plants activity is strongly linked to the delivery of Horizons' Regional Pest Management Plan 2017-37, which can be reached via the following link². The activity reporting is arranged in sections as per the RPMP groupings for pest management programmes as outlined in Table 2. More information on these groupings is on page 25 of the RPMP.

Table 2: Activity Summary for Biosecurity Plants.

Aim	Programme	Key Deliverables	YTD Progress
Preventing establishment	Exclusion Programme	Keep unwanted pest plants that are not present out of the region.	Searching for: No locations/plants this period.
Eradicating	Eradication Programme	Controlling and reducing the prevalence and extent of Eradication species.	Species targeted for control this period are alligator weed, climbing <i>alstromeria</i> and woolly nightshade.
Rolling back	Progressive Containment Programme	To contain and reduce the geographic distribution of the pest plant to an area over time.	Species controlled this period are banana passionfruit, boneseed, Darwin's barberry and pest pines.
Maintaining low densities	Progressive Containment – un-mapped	Ongoing control to reduce species' impact and spread to other properties.	Site inspections for production plants and responding to boundary complaints.

² <http://www.horizons.govt.nz/HRC/media/Media/Pests/2017-2037-Regional-Pest-Management-Plan.pdf>

4.2 Activity Update

Preventing establishment - Exclusion Programme

- 4.2.1 For pest plants that are in New Zealand but not in our region, our goal is to prevent establishment. We aim to detect these plants before they become widely established in the region and facilitate a quick response through appropriate funding that will enable the control or management of these species on ratable land. There are 11 species in this category and Chilean needle grass is an example.
- 4.2.2 During alligator weed surveillance of the Mangaone Stream in November, *Sagittaria platphylla* plants were discovered and identification confirmed. Staff had recently organised a plant identification course with NIWA and were able to put the training to good use. Subsequent investigation in neighbouring ponds, lakes and wetlands revealed what we believe to be the source in the Pioneer Drain. Two other locations were found below the confluence with the Mangaone River, bringing the total locations to four with the largest being 600 m².
- 4.2.3 This plant is a known aggressive spreader and modifier of waterways, severely blocking channels and diverting flow. Staff are working with **Palmerston North City Council (PNCC)** as the plant is located in a drain. PNCC arborists have trimmed adjacent amenity trees and operations staff have located a nearby dump site and will provide traffic management when excavating.
- 4.2.4 Dumping to land and desiccating on top of weed-mat is the preferred method of treatment as in-situ herbicide treatment is not effective. The plant spreads predominantly by seed but also has corms, all of which will need to be contained once the site is disturbed.



Figure 1 Pioneer Drain *Sagittaria platphylla* infestation. (C.Davey)

Eradication Programme

- 4.2.5 High-risk species that should be totally removed from the region are managed via the Eradication programme. There are 18 species in this category and at the start of the year our information reported that 84% of the 1,624 sites were at zero levels.
- 4.2.6 The alligator weed eradication programme in the Mangaone River has continued with monthly surveillance by ground and in-channel canoe and wading. All plants discovered are dug and removed and any roots not able to be collected are treated with herbicide.

4.2.7 Two in-channel sites that are not suitable for hand removal or herbicide application were scheduled for digger removal and dumping directly to Bonnie Glen landfill in early February 2021.

4.2.8



Figure 1 A site near the confluence of the Apollo drain and the Mangaone River, removed by hand. (K.Hoggard)

The Taumarunui infestation adjacent to the effluent ponds is reducing, with a

total of 47 plants over five hectares discovered post-Christmas. The area was searched by an under-development alligator weed detector dog and this was useful for us to assess its potential as a future surveillance tool. The area was set to be blanket-sprayed in late January to remove all vegetation so any late-season growth can be more easily found.

- 4.2.9 The Chilean rhubarb control programme is planned to finish around Christmas. While still discovering small amounts of new sites, historically worked areas are much reduced. One site that had previously required a contracting firm and nearly 1,000 litres of spray mix is now producing only a few seedlings.

Rolling back – Progressive Containment programme

- 4.2.10 Where population levels or difficulty and expense of control prevent achievement of a region-wide zero-density objective, high-threat pest plant species will be managed under a Progressive Containment objective. For each species managed this way, an active management zone is defined within which the pest plant species will be controlled wherever it is found, as in the Eradication designation
- 4.2.11 The Progressive Containment programme is split into the species that are mapped (e.g old man’s beard and banana passionfruit) and the species that are unmapped (e.g gorse and tutsan).

Progressive Containment - Mapped Species

- 4.2.12 Eleven Progressive Containment species fall into the mapped category (e.g. old man’s beard). At the start of the year the data showed 73% of 2,721 sites were at zero levels in the zones actively managed for these species. A more robust method of defining sites has been enabled by the new version of the WEEDS software that the team use to track and report activity. As a result, the number of individual sites was altered to combine search areas with multiple smaller sites within a homogenous operational area and count them as one site; this meant a reduction in site numbers. The measure of the percentage of our sites at zero levels remains a sound interpretation of progress towards our targets, and the newer data measures of “Extent” (Maximum area of known distribution) and “Area” (Area of occupancy by organism) allow the team to better communicate the hectares of land to be searched for pest plants, which should decrease over time.

- 4.2.13 Evergreen buckthorn is controlled through to late spring. A push-back programme at Waitarere Beach to align with the boneseed control programme has begun to control and/or remove evergreen buckthorn from the urban and peri-urban areas. Most plants are cut and treated or have chemical applied to the trunks of standing trees (basal barking). Occasionally, plants which would die standing and create safety issues are removed instead.
- 4.2.14 Evergreen buckthorn is a known dune invader as well as a problematic plant in most hedgerow and bush environments. Targeted control programmes are now the main focus to arrest spread and protect vulnerable habitats.



Figure 3 Too large to remain on site, two loads of evergreen buckthorn were removed from this small section. (K.Hoggard)

- 4.2.15 The Ministry of Primary Industries-Horizons contract has been agreed, and has been signed by Council along with the contracts with our partners, and work is well underway. At the end of the reporting period, nine of 46 operational areas had been completed while the majority of other areas have had work started and are ongoing.
- 4.2.16 The national wilding conifer control and Horizons pest conifer programmes are well underway. Work has been focused on the Waimarino District from the upper Rangitikei River through to Hihitahi. Work has included survey, aerial and ground control. At the blocks previously worked by the programmes, the numbers of coning trees and total numbers of trees are much reduced from when initially controlled.

4.2.17 As the national conifer programme expands into areas wider than those treated as part Horizons previous control efforts, we are discovering small numbers of mature trees, either planted a number of years ago or wilding into wetlands and creek edges from these plantings. The national programme will go a long way to protecting the investment ratepayers have made in reducing the burden of seed from these pest conifers.

Progressive Containment – Unmapped Species

4.2.18 Fifteen Progressive Containment species fall into the unmapped category (e.g. gorse). These species are generally widespread but some parts of the region are clear and it is desirable to keep them clear. This programme does not have a strong information base to report on progress against these weeds. Horizons' involvement is primarily through regulation via the Good Neighbour or Clear Land rules of the **Regional Pest Management Plan 2017-37 (RPMP)** and through non-regulatory advice or in some cases by biological control. For occupiers of large land areas, farmers and other organisations we have the ability to allow responsibility to be acknowledged and actions planned via Approved Management Plans. The intent of these plans is to meet the objectives of rules and contribute to the outcomes of the RPMP by eradicating or reducing the spread of pest plants from the place/s occupied or managed by the plan-maker.

4.2.19 Species we dealt with during the October through December reporting period included blackberry and gorse. A small number of Good Neighbour complaints were received.

Table 3: Summary of Good Neighbour Rule activity for the period July 2020 through June 2021.

Description	Reporting Period				2020-21 totals
	1	2	3	4	
Boundary complaints received and actioned outside of compliance	2	1	0	0	3
Required to Clear notices (RTCs) issued	0	0	0		0
Notices of Direction (NODs) issued	0	0	0	0	0
Notices resolved in this period	0	0	0	0	0

4.2.20

4.2.21 Staff have spoken to territorial authorities (councils) and Crown agencies in Horizons region about their Pest Management Plan obligations and agreement has been reached on pest programmes with five of the seven councils. The agreements are in the form of **Approved Management Plans (AMPs)** which set out how the entity will achieve its RPMP obligations. The Crown entities – **Department of Conservation (DOC)**, KiwiRail, **Land Information NZ (LINZ)** and **NZ Transport Agency (NZTA)** are engaged and are at various stages of reaching an agreement.

Table 4 Summary of Pest Management Plan documents with Territorial Authorities and Crown Entities.

TA/ Crown Agency	Approved Management Plan	Memorandum of understanding	Notes
Ruapehu District Council	27/08/2020		
Rangitikei District Council			Rangitikei District Council using external consultant to develop AMP
Whanganui District Council	27/08/2020		
Manawatu District Council	30/09/2020	Consultation	
Tararua District Council	3/09/2020		
Palmerston North City Council			Waiting to receive AMP
Horowhenua District Council	1/09/2020	Consultation	
NZTA – Southern	27/08/2020		
NZTA - Northern			Consultation staff dependant
KiwiRail			Being worked on
DOC			Consultation - ongoing
LINZ			Consultation - ongoing

4.2.22 Horizons has drawn up a Memorandum of Understanding template for use with district councils. This was deemed necessary to ensure we were giving due recognition to the requirements within the RPMP and utilising a robust document which sets out long-term expectations of operating under the RPMP and pest plant management for all parties. The document is with two councils for consultation, and following feedback the remaining councils will be offered copies through ongoing RPMP engagement.

Progressive Containment – Unmapped aquatic species

4.2.23 Aquatic pest plants are also part of the Progressive Containment – Unmapped grouping of the RPMP and are grouped together on the basis that they are aquatic pests managed the same way for the same objectives. Eel grass, egeria, hornwort, lagarosiphon and reed sweetgrass are aquatic pest plants included in the Progressive

Containment section of the RPMP 2017-37. Their distributions are not yet mapped with any certainty and our aim is to progressively contain or reduce the number of sites affected across the region, to prevent further spread and to reduce adverse effects on the environment.

4.2.24 Horizons organised a well-attended aquatic plant identification course, with financial support via an Envirolink grant. The course was delivered by Paul Champion from the **National Institute of Water and Atmosphere (NIWA)** at the Foxton Beach Marine Club and a subsequent field trip through the Horowhenua and Manawatu. Attendees came from all lower North Island regional councils – Taranaki, Hawkes Bay, and Greater Wellington; Horowhenua District Council, Palmerston North City Council, Department of Conservation as well as representatives from Forest and Bird, Wildlife Foxton and the Manawatu Estuary trustees.

4.2.25 The more knowledgeable eyes looking for our target pest plants the better. Within one month of this course staff noticed the 'new' incursion of *Sagittaria platphylla* (as outlined in an earlier section).



Figure 4 Plant identification course field trip to a private pond with large infestation of *Sagittaria subulate* (not in the image). (C.Davey)

5 BIOLOGICAL CONTROL

5.1 Programme overview

- 5.1.1 Many entrenched pest plants in the region are now the target of our Biological Control programme, which aims to assist the development of insects and diseases to control a wide range of pest plants and to release, distribute and monitor those agents within the region.

5.2 Activity Update

TRADESCANTIA RUST

- 5.2.1 The Whanganui tradescantia rust release site has rust spores on adjacent plants. While damage at this stage is minimal, finding established fungi is encouraging and will add to the insect agents building up numbers in the region.

TUTSAN BEETLE

- 5.2.2 Very encouraging establishment results have recently been found in the Ruapehu and Rangitikei tutsan beetle release sites (Figure 5). This is very good news for this programme which has been pushing for 13 years to have new agents available for biological control of tutsan. However, we continue to monitor for the tutsan moth with no success. Staff have been bolstering numbers with new introductions of beetles at previous release sites and finding localised damage, which implies year-on-year survival. We will now be monitoring locations for signs of numbers building as well as spread to occur.



Figure 5 Tutsan beetle starting to diminish tutsan leaves in Ruapehu District. (D.Aiker)

GREEN THISTLE BEETLES

5.2.3 Green thistle beetles continue to self-spread around the region, with staff even finding thistles on weekends in far-flung places such as the middle of the Tongariro forest. This ability of this agent to disperse has meant we can now wind back our introduction programme. When staff come across healthy populations of green thistle beetles they collect a few to supply to farmers on our waiting list, as a good opportunity to inform them about the beetles and show landowners what to look out for (Figure 6).



Figure 6 The Donaldson and Steel families in Whanganui District receiving a fresh batch of green thistle beetles harvested from marsh thistles. (D.Alker)

6 INVESTIGATION

6.1 Programme overview

6.1.1 A number of plants present in the region may have the potential to become economically and ecologically damaging. This output contains the Pest Plant Investigation programme and the **National Pest Plant Accord** (NPPA).

6.2 Activity Update

- 6.2.1 Kitchener Park is a valued bush and river edge asset to the Manawatū, though unfortunately at risk from one of the species we have investigated. *Phragmites karka* was assessed over a number of years for its threat potential, distribution and control options. Given the many challenges this plant presents due to its location and control difficulty, it did not qualify for inclusion as a pest in the Regional Pest Management Plan.
- 6.2.2 Planted for amenity and erosion control purposes, *Phragmites karka* has been present for many years in the Rangitikei River below Bulls, the Whangaehu River and many other small infestations as well as upstream from Kitchener Park in the Makino

Stream. The local trust is very concerned at its immediate and future transformation of the park's vegetation as it can grow to four metres high, form impenetrable dense thickets at the exclusion of all else. As Horizons has experienced, control options are very limited and those that do exist are labour-intensive and costly.

- 6.2.3 Horizons organised a meeting on-site with a NIWA aquatic plant specialist, trust representatives, Manawatu District Council staff and contractors and a number of Horizons staff from river management, biodiversity and pest plant teams. The river management team are equally concerned about the effect on water carrying capacity within the stream and the modification of river training structures.
- 6.2.4 Control trials have been suggested to attempt to find the most suitable techniques for this specific place, taking advice from previous Horizons trials and Auckland Council's eight-year eradication programme.

7 ADVICE, PROMOTION AND AWARENESS

7.1 Programme overview

- 7.1.1 The aim of the Awareness Programme is to alert the community to the issues, threats and solutions for weed management, to ensure region-wide best-practice pest plant management. This includes responding to enquiries from the community and undertaking collaborative projects.
- 7.1.2 The Check Clean Dry freshwater advocacy programme started on October 1 and has been very busy through the summer months engaging with river and lake users as well as campers staying around the central plateau.
- 7.1.3 Staff visited Kumeroa School to teach pupils about poisonous plants, and spent a day teaching young Rangitane men how to control plants in their reserves and plantings.

7.2 Activity Update

- 7.2.1 The pest plant team received 59 enquires during October through December and all were attended to within three working days.
- 7.2.2 There were many responses to our press articles regarding Chilean needle grass surveillance and alligator weed; as well as enquires driven by visible and flowering plants such as field horsetail and pink ragwort at that time of year.

8 COLLABORATIVE PEST PLANT CONTROL

8.1 Programme overview

- 8.1.1 Collaborative projects undertaken by Horizons staff and external stakeholders provide a team approach to managing weeds in some challenging environments. Working with others and providing advice and leadership has delivered some excellent results that otherwise would not have eventuated. A summary of this activity is provided in Table 4.
- 8.1.2 Desert Road imagery for gorse was flown in late October, orthorectified through December and is with Landcare Research awaiting processing and map production. This will be the second distribution map of gorse and we will use this to track change over time. It is expected to be completed by end of March.
- 8.1.3 Horizons is to pick up oversight of the Rangitikei Horsetail Project as Landcare Trust have lost a staff member and will not be replacing them in time for the completion of this project. The current project is to close this financial year, however there is a need to continue with breeding and mass rearing of weevils to bolster the in-field populations until we can confirm establishment.

Table 5: Collaborative Pest Plant Control Projects.

Project	Key Deliverables	YTD Progress	Horizons Role
Wilding Conifer – Central North Island Regional Coordination Group (RCG) – Fundholder and Chair	<p>Work with partners and other stakeholders re:</p> <ul style="list-style-type: none"> Planning for management unit (MU) activity and reporting Managing the budget Annual meeting scheduled <p>Deliver on annual work programmes as agreed by RCG. In 2020-21 the Tongariro MU (\$434,100) and for the Kaimanawa MU (\$691,250) of National Programme funding with a total work package across all partners of \$2,299,902.</p>	<p>Ministry of Primary Industries - Horizons contract agreed to be signed by council; partners' contracts signed and work well underway.</p> <p>As at time of writing nine of 46 Operational areas have been completed with the majority of others having work started and ongoing.</p>	<p>Contracted to Government as the agency for managing Central Government funding for this activity in the broader area.</p> <p>Horizons' Kaimanawa MU operational areas are completed with a reduction in coning trees and area of occupancy compared to previous visits. The Tongariro is a new management unit in 2020-21 and is partially complete.</p>
Waimarino-Tongariro National Park Darwin's barberry control programme	Coordinated control across public and private land to increase protection of previously cleared areas.	Programme underway.	Organiser of control programmes on private land.
Rangitikei Horsetail Group	Support group activity with population releases and monitoring.	Meeting held and planning for release of more weevils this spring and final field day for Sustainable Farming Fund (SFF) funding planned for summer.	Partner to group and access to weevils and advice.
Desert Road Invasive Legume Control Group	<ul style="list-style-type: none"> Relationship between parties maintained. Memorandum of Understanding maintained and implemented. Coordinated action in priority areas undertaken against target species. 	Meeting held and collaboration agreements progressed with the intention for multiple parties to use a single contractor. Gorse distribution and abundance map endorsed for creating. Flights this October and map produced by end of March.	Coordinate meetings and collaborative activities.
Freshwater Biosecurity Partnership Programme and Check, Clean, Dry (CCD) advocacy programme.	Representing Horizons at a national forum to champion behaviour change and freshwater protection. Attendance at high-risk events and strong advocacy with the main users of waterways in our headwater areas.		Provide and manage the programme in the greater region.

Craig Davey
BIOSECURITY PLANTS COORDINATOR

Rod Smillie
BIODIVERSITY, BIOSECURITY & PARTNERSHIPS MANAGER

Jon Roygard
GROUP MANAGER NATURAL RESOURCES AND PARTNERSHIPS

Item 10

Annex B



BIODIVERSITY

1 ACTIVITY OVERVIEW

- 1.1.1 Manawatū-Whanganui Regional Council (Horizons) has statutory obligations to maintain and sustainably manage the region’s biodiversity under the Resource Management Act (1991). Horizons’ strategy is set out in our One Plan and includes both regulatory and non-regulatory approaches. This item reports on the non-regulatory biodiversity programme.
- 1.1.2 Horizons’ Biodiversity team works closely with other Council teams and external organisations to enhance biodiversity and engage the community in biodiversity enhancement. This work is supported by research, additional labour and monitoring undertaken by the Horizons’ Science & Innovation and Biosecurity teams, along with other agencies, to prioritise and focus implementation efforts. This item reports on the collective biodiversity activity of the implementation and science programmes. Other non-regulatory programmes, particularly the freshwater programme, also contribute to biodiversity outcomes.
- 1.1.3 A key challenge in biodiversity management is allocating resources in a way that provides the greatest ecological benefit. This has been a significant area of focus for the recent review of the biodiversity programme, which aimed to improve processes and subsequent biodiversity outcomes across the region, while working to bring Horizons closer to meeting requirements under the proposed **National Policy Statement for Indigenous Biodiversity (NPSIB)**. The proposed NPSIB requires councils to identify areas where there is significant vegetation and habitats of indigenous fauna, and to manage their protection through plans and consent processes under the **Resource Management Act (RMA)**.

- 1.1.4 National policy direction is changing with Central Government releasing the National Biodiversity Strategy, Te Mana o te Taiao, on 10 August 2020. The regional sector and Horizons staff were involved in the development of the strategy. The NPSIB has been delayed due to Central Government's Covid-19 response and is now signaled for release in April 2021. These documents will influence the way that Horizons manages biodiversity within the region.
- 1.1.5 An outcome of the review is that Council has resolved that work across the non-regulatory biodiversity programme supports the goal for the priority sites to "*maintain or restore the full range of the region's indigenous ecosystems to a healthy and functioning level*". The goal for the biodiversity partnerships programme is "*Empowering communities to engage with biodiversity*".
- 1.1.6 This report presents information for the period July 2020 to December 2020 in the context of delivery of the programme for the financial year (July to June). Biodiversity Activity is presented regionally (where appropriate) and/or for each of the programmes that make up the Non-regulatory Biodiversity Programme, integrating the implementation work of the Biodiversity team and the activities of the Science & Innovation and Biosecurity teams. This report is arranged in the following sections:
- The regional activity update and progress against Annual Plan targets;
 - The priority biodiversity sites programme, a site-led programme working with landowners to maintain and enhance priority sites on private land;
 - The biodiversity partnerships programme, where projects extend beyond the boundary of a single landowner and/or involve community groups or external agencies; and
 - Management of Tōtara Reserve, our regional park.

2 ANNUAL PLAN TARGETS

- 2.1.1 Progress against the Annual Plan targets for the 2020-21 year are shown in Table 1 below.
- 2.1.2 The annual plan targets for the priority sites programme are to add four new wetland sites and seven new bush remnant sites. Six of the seven bush remnant sites have been identified, and one wetland site has been identified. Confirming the further three wetland sites and one bush site is a current focus for the team. The sites confirmed to date for inclusion in the programme this year are shown in the priority sites section.
- 2.1.3 The biodiversity partnerships programme has 18 projects currently allocated for an Annual Plan target of 12 with two – the planting at Betty Tripe Reserve, and the work at Cape Turnagain – completed.
- 2.1.4 The work at Totara Reserve has continued with a strong focus on health and safety. The poplar trees have been removed and the camping season is well underway.

Table 1 Progress reporting for the Biodiversity Activity Annual Plan targets for 2020-21.

Long-term Plan Target	Target	Allocated	Completed or supported	% of target completed
Protect/enhance priority habitat remnants				
Additional top 100 wetlands actively managed	4	1	0	0%
Additional top 200 bush remnants actively managed	7	6	1	14%
Support community involvement in biodiversity protection				
Support existing community-based biodiversity improvement projects	12	18	2	16%
Tōtara Reserve Regional Park				
Annual report on the management of Tōtara Reserve Regional Park for biodiversity and recreational values, including managing the camping facility.	1	-	0	To be presented at the end of the financial year
Science & Innovation - Biodiversity Long-term Plan targets for 2020-21.				
Performance Measures for Levels of Service	Target 2020-21	Target achieved	Progress update	
Annual report on biodiversity monitoring and research activity.	1	0	To be presented at the end of the financial year	

3 PRIORITY SITES PROGRAMME

3.1 Programme overview

3.1.1 The Priority Biodiversity Sites Programme is a habitat-focused programme aiming to maintain or restore the full range of the region's indigenous ecosystems to a healthy and functioning level. Staff identify and assess priority sites for their eligibility for management. Once sites are found to be eligible, staff work alongside the landowner and sometimes the QEII National Trust to manage them by interventions such as animal exclusion and pest plant control.

3.1.2 The non-regulatory biodiversity activity has been through a review involving developing a prioritisation process to identify and select sites for further management. Once sites are selected from site summary information, site management prescriptions are written and costed, and will be added to the prioritisation list for work that is required at management sites. The budget available for this work will then be allocated according to the assessed priorities. A paper was presented to the Council's Strategy and Policy Committee in November 2020 on the new goal to maintain or restore the full range of the region's indigenous ecosystems to a healthy and functioning level and the approach to working toward this goal via this year's work programme.

3.2 Activity Update

IDENTIFYING AND ASSESSING SITES

3.2.1 **Rapid Ecological Assessments (REAs)** involve visiting a site to collect inventory data on the ecosystem types present and the threats that would need to be managed if the site were included in the Priority Sites Programme. As well as increasing our knowledge of remaining biodiversity in the region, REAs identify sites that are eligible for management in the following year.

3.2.2 To create the list of sites outlined for REAs in the coming year, a subset of regionally critically endangered ecosystems has been shortlisted, based on four factors: predicted remaining habitat, extent of habitat decline, area of remaining habitat in the conservation estate, and proportion of remaining habitat outside the conservation estate. Sites identified by prioritisation modelling from these shortlisted ecosystems will be targeted for REAs in the coming year. By being selective about the location of

next year's REAs, we are targeting the most threatened sites for management in the 2021-22 financial year.

- 3.2.3 Table 2 below provides a summary of the management level index status for all sites on the managed list to the end of December 2020.

Table 2 Priority Sites Management Level Index (0.5: site may have received management from Horizons but has not been assessed, 1: REA completed within the last 10 years, 2: site has received Horizons contribution to management, 3: site receives ongoing management input from Horizons, 4: site receives a higher level of management inputs, 5: site receives significant inputs from stakeholders, 6: site receives management inputs for all animal pests.

Management level	Bush sites	Wetland sites	All sites
6	1	0	1
5	1	2	3
4	7	3	10
3	40	14	54
2	100	51	151
Sub-total for Level 2+	149	70	219
1	350	69	419
0.5	4	6	10
Total	503	145	648

SITE MANAGEMENT IN 2020-21

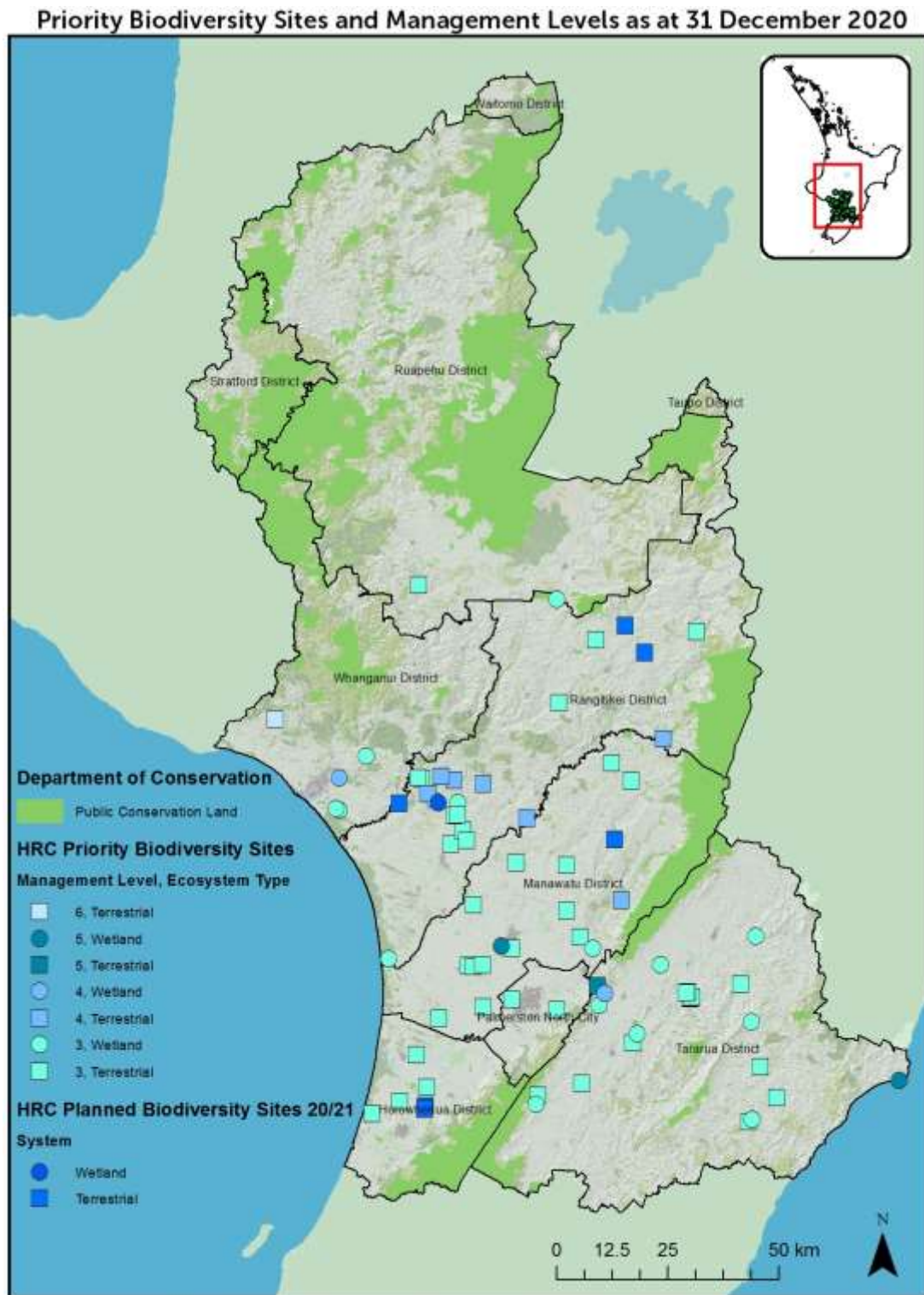
- 3.2.4 Management actions in the 2020-21 year are being prioritised to fit the available budget through a process that is focusing firstly on the 68 sites at Management Level 3 and above. The process includes all of these sites having full site summaries and management prescriptions prepared. These: a) identify ecological integrity targets, b) identify pressures required to be managed to meet targets and c) develop prescriptions and indicative cost information to reduce pressures to required levels over a five-year period. Costings are based on prescriptions designed to restore ecosystem function and viability, not to maximise populations of charismatic species or ensure the persistence of threatened species. Where charismatic or threatened species are present it may be appropriate to provide additional management in collaboration with the Department of Conservation.
- 3.2.5 All of the sites where management is planned for this financial year have had site summaries prepared and management prescriptions approved.

3.2.6 As highlighted above, the Annual Plan target of adding four new wetlands and seven new bush remnants has progressed to having six new bush remnants and one new wetland allocated (Table 3 below).

Table 3 2021 new wetland and bush priority sites under management.

	Type	Name	District	Short Description
1	Bush	Man260 Near Kimbolton	Manawatu	5 ha of tawa, podocarp forest – deer fence erected with Horizons assistance in December 2020. Landowners have retired an additional 1 ha of pasture adjacent and Horizons are providing plants to replant this in June 21.
2	Bush	Rang187a North of Taihape	Rangitikei	40 ha of kahikatea, tōtara and matai forest – landowner had fenced off 20 years ago. Horizons have contractors booked to do ground control of old man’s beard (OMB) in March 2020, and drone OMB control in adjacent Moawhango River corridor.
3	Bush	Rang253, North of Taihape	Rangitikei	13 ha of kahikatea, tōtara and matai forest, currently grazed. Horizons Land and Biodiversity teams are working together to provide funding to get the forest deer-fenced. Fencing materials have been delivered and contractor booked for April 2021.
4	Bush	Horo194, Koputaroa	Horowhenua	0.3 ha kahikatea forest, containing one of the three remaining populations of giant snail <i>Powelliphanta traversi koputaroa</i> . Landowner is retiring additional land adjacent to forest remnant and Horizons will be assisting with replanting this to extend habitat; we will also carry out predator control to protect snails.
5	Bush	Horo109, Koputaroa	Horowhenua	5 ha swamp mosaic (kahikatea forest, raupo and tawa podocarp forest) containing remnant population of giant snails <i>Powelliphanta traversi koputaroa</i> . Landowner is removing old pines that are falling and damaging fence. Horizons will control weeds, replant with species that provide good snail habitat, and control introduced predators to enhance the snail population.
6	Bush	Whan20, Fordell	Whanganui	7 ha kahikatea, pukatea forest. Horizons is assisting with deer fencing planned for this financial year.
1	Wetland	Rang61W, Marton	Rangitikei	2 ha sphagnum mossfield. Horizons to assist with fencing planned for this financial year.

3.2.7 Map 1 shows the locations of the 68 sites currently at Management Level 3 and above, plus the confirmed new sites.

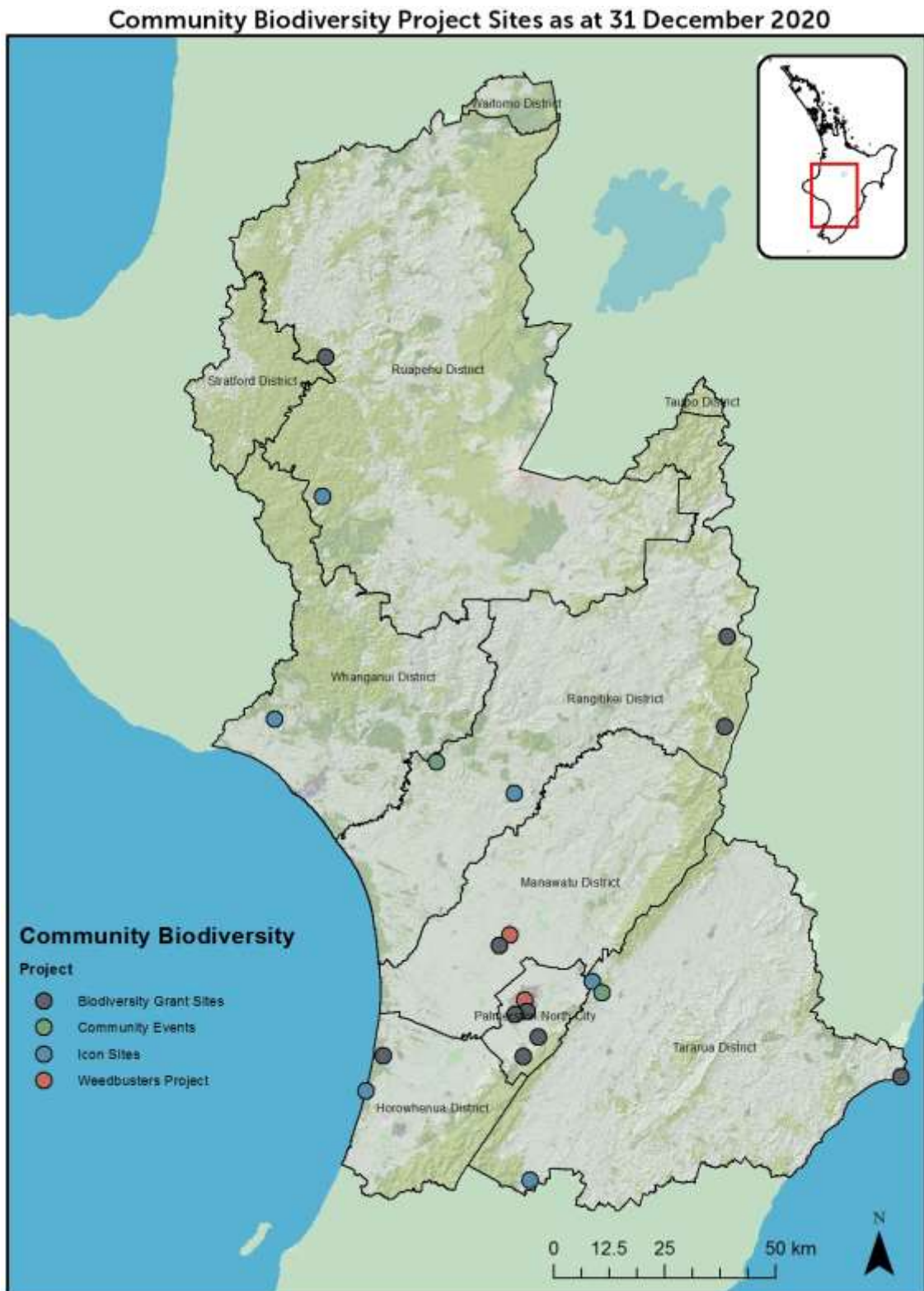


Map 1 Priority Biodiversity Sites and Management Levels as at 31 December 2020.

4 BIODIVERSITY PARTNERSHIPS

4.1 Programme Overview

- 4.1.1 The Biodiversity Partnerships Programme funds biodiversity-related projects that extend beyond the property boundary of a single landowner and/or involve community groups or external agencies. The current suite of projects includes target sites or areas with environmental, social and cultural values.
- 4.1.2 The 18 projects approved in 2020-21 are made up of six Biodiversity Collaborations (four “icon” and two targeted rate projects), nine Biodiversity Fund projects, Weedbusters and, so far, one Community Engagement event.
- 4.1.3 Map 2 shows the locations of community biodiversity sites, events and projects as at 31 December 2020.



Map 2 Community Biodiversity Project Sites as at 31 December 2020.

4.2 Programme Activity

4.2.1 Council approved the revised structure for the Biodiversity Partnerships Programme and adopted “*Empowering communities to reconnect with and improve biodiversity*” as the programme’s goal, after the Strategy and Policy Committee meeting in August 2020.

4.2.2 The biodiversity partnerships project includes icon and targeted rate projects (Table 5), biodiversity grant project (Table 6) and community engagement projects. A further component of work during 2020-21 has been seeking Central Government funding, which is also updated in the sections below.

Table 5 Council has approved the following as Biodiversity Partnerships icon projects and targeted rate funding allocations for the 2020-21 year as follows:

Icon projects	2020-21 FY (excluding GST)	Current Status
Te Āpiti Manawatu Gorge	\$244,856	At risk of non-completion
Kia Whārite	\$150,000	On track
Pūkaha Mt. Bruce	\$37,292	On track
Bushy Park Tarapurui	\$20,000	On track
Targeted rate projects	2020-21 FY (excluding GST)	Current Status
Rangitikei Environment Group (REG)	\$95,000	On track
Waiterere Beach Community Project	\$7,000	On track
Total	\$554,148	

Table 6 Biodiversity Grant projects for the 2020-21 financial year.

Partnership Projects	2020-21 FY (excluding GST)	Current Status
Manawatū Estuary	\$25,000	At risk of delivery
Turitea Reserve	\$20,000	Underway
Tawata Eco-sanctuary	\$15,000	Underway
Te Pōtae o Awarua Predator Control	\$15,000	Ruahine Whio Protectors Grant proposed works and H&S plan approved, grant provided. Aorangi Awarua Trust Awaiting grant, proposed works details and H&S plan.
Cape Turnagain	\$10,000	Completed
Awahuri Forest – Kitchener Park	\$8,000	Awaiting grant, proposed works details and H&S

Partnership Projects	2020-21 FY (excluding GST)	Current Status
		plan.
Kahuterawa Stream	\$8,000	Underway
Ahimate Reserve	\$5,000	Underway
Massey Hill	\$3,500	Underway
Total	\$109,500	

4.3 Project Updates – 2020-21

This section provides updates on the activity of the projects funded in 2020-21.

TE ĀPITI MANAWATŪ GORGE

4.3.1 The Te Āpiti Manawatū Gorge Governance Group met on December 10, 2020. Key topics of discussion included:

- A presentation on the draft Master Plan, which was endorsed for the next stage of consultation with the community.
- An update on operational activity, including budget. Through Waka Kotahi NZ Transport Agency (NZTA) and the Horizons Annual Plan there has been a significant increase in funding. A proposed budget was presented and accepted. A workshop on environmental education will be held prior to the next meeting.
- An overview of the additional pest plant and animal control underway this year was provided. Groundtruth Ltd are updating the 2017 Te Āpiti – Manawatū Gorge Biodiversity Management Plan, which will include improved outcome monitoring of the pest control work.
- An overview of DOC work included the Tawa Loop upgrade planned for 2021, and pest control (trapping and baiting) being carried out on the southern side of Manawatū Gorge Scenic Reserve.
- The Manawatū Mountain Bike Club are on target to complete an upgrade of Te Ara o Mahurangi Mountain Bike Trail.
- The **Central Economic Development Agency (CEDA)** presented an initial feasibility study into tourism opportunities focusing on opening the Old Gorge Road and creating an eco-sanctuary.
- The next Governance Group meeting will be scheduled for June 2021.

4.3.2 Activity in the first half of the financial year has included:

- The weed control contract has been signed and the contractor has made good progress.
- More than 100 school children, teachers and parents joined Rangitāne tangata whenua, members of the Woodville RSA, Horizons Regional Council, Woodville Lions and Woodville Domain Board to mulch around the tōtara planted as a living memorial at Ferry Reserve. Twenty-six soldiers from the Woodville district who died in WWII are commemorated by these 26 trees.



Photo 1 Papatawa School student Emily mulches a memorial tree, December 2020.

KIA WHĀRITE

- 4.3.3 Predator trapping has continued in the Rētāruke, Manganui o te Ao and Whanganui River Catchments for whio (blue duck) protection and in the Waimarino area for North Island brown kiwi protection. Ground and aerial goat control operations were also undertaken in the Waimarino area. Horizons' activity for this year has been contracted and is underway with 12 of the 20 planned checks completed by December 2020 as scheduled.

- 4.3.4 DOC is undertaking a review of the Manganui o te Ao who security site to refine the requirements for ongoing protection and enhancement of this taonga species. The review will include consideration of DOC’s ongoing funding of the project. An update will be provided to Council following the review.

PŪKAHA MOUNT BRUCE

- 4.3.5 Pūkaha Mount Bruce is a community project involving Horizons, Greater Wellington, DOC, iwi, and local landowners. The 942 ha reserve straddles the boundary of the Horizons and Greater Wellington regions just south of Eketahuna. Pūkaha has thriving wild kokako, kiwi and kaka populations, native lizards, longfin eels, and other special inhabitants. The forest itself is a dense lowland podocarp remnant of Seventy Mile Bush. Pūkaha is managed as a “mainland island” without predator-proof fencing, which means pest control in and around the reserve is essential to protect its vulnerable wildlife.
- 4.3.6 Environmental pest plants such as old man’s beard and Darwin’s barberry have the ability to destroy and replace native vegetation and habitats. Both of these are in Pūkaha and the surrounding landscape. To tackle these issues, a Technical Advisory Group including Pūkaha National Wildlife Centre, DOC, Horizons, Greater Wellington, and landowners was formed to assist with providing guidance on best practice control for these plant pests.
- 4.3.7 Currently, Horizons Regional Response Team is servicing perimeter mustelid traps every two weeks and continuing the landscape-scale possum control operations. The budget for trap servicing is \$27,292 this year. Trap catch data is presented below (Table 7).

Table 7 Pukaha trap catch results for the year to date.

	July – Sept Totals	Oct-Dec Totals	Year to date
Stoats	6	1	7
Weasels	1	0	1
Ferrets	4	0	4
Rats	45	30	75
Hedgehogs	20	24	44
Cats	15	0	15

BUSHY PARK TARAPURUHI

- 4.3.8 Horizons contributes \$20,000 per year to Bushy Park Tarapuruhi, near Whanganui, and this year our funds will help with predator monitoring, weed control within the sanctuary, mouse control, work on the predator-proof fence and track maintenance.
- 4.3.9 A potential rabbit incursion into Bushy Park Tarapuruhi was noted in November. This was followed by intensive monitoring, including the use of a specialised rabbit dog, poisoned carrots and repeated checks of the fence-line. No further rabbit sign has been found and the area was given the all clear on 17 December. If it occurs, rabbit burrowing under the fence could allow predators to access the protected area inside the fence.
- 4.3.10 A translocation of pōpokotea (whitehead) into Bushy Park Tarapuruhi is planned. The application for a wildlife permit to carry out this work is currently with the DOC permissions team.
- 4.3.11 A translocation proposal for titipounamu (rifleman) into Bushy Park Tarapuruhi has been costed and funding for this work is being sought by the Trust; it is understood they are seeking approximately \$23,000 for this to occur.
- 4.3.12 The Biodiversity team, alongside DOC, is managing the environmental pest plants within the reserve and the buffer. This contracted work is planned to begin in January 2021 with an aerial weeds survey followed by ground control from late February. Horizons is currently spending \$10,000 each season on pest plant work at this site.

RANGITIKEI ENVIRONMENT GROUP (REG)

- 4.3.13 REG are on track with their planned old man's beard control work in the Rangitikei District as per their operational plan, having completed approximately half of the planned work by the end of December.
- 4.3.14 REG are investigating a partnership with the **Rangitikei River Catchment Care Group (RRCC)**, who have received approximately \$1.5 million funding from MPI to be spent over three years on control of old man's beard in the Rangitikei River catchment. Horizons staff have provided some support for this potential new project.

WAITARERE BEACH COMMUNITY PROJECT

- 4.3.15 The Waitarere Beach community pay a targeted rate to Horizons for the purposes of controlling exotic plants and restoring native plants on the dunes.

4.3.16 Horizons contractors have controlled lupins, acacia and yucca at Waitarere Beach during this reporting period. Horizons staff updated community members on this work at the Waitarere Beach Progressive and Ratepayers Association meeting in November.

MANAWATŪ ESTUARY

4.3.17 Horizons has been exploring opportunities to have operational plan/s prepared for the 558 ha estuary site. The Manawatū Estuary Management Plan requires the production of plans for weeds, pest animals, flora and habitat management. Horizons is engaging with iwi, Horowhenua District Council and DOC about undertaking this work, and look forward to updating Council with progress reports. Success will depend on stakeholder agreement.

4.3.18 The usual Arctic migrants – kuaka (godwits), huahou (knots) and a small number of kuriri (golden plover) – have returned to the Manawatū Estuary for the summer. Tuturiwhatu (banded dotterel) have bred in the dune slacks near the estuary mouth this year, which is the first breeding record here for years.

4.3.19 Monthly checks of the DOC 200 series traps targeting mustelids continues. The six damaged or stolen traps have been replaced, so all 40 traps are operational again. Trap catch data is presented below.

Table 8 Manawatū Estuary trap catch data for the reporting period.

	Jul – Sep Totals	Oct – Dec Totals	Year to date
Stoats	17	8	25
Weasels	0	0	0
Ferrets	0	0	0
Rats	13	7	20
Hedgehogs	0	0	0
Other	1	0	1

TURITEA RESERVE

4.3.20 This project is a partnership between Palmerston North City Council and Horizons. Planned weed control for 2020 has been completed with follow-up work to occur in February.

TAWHATA MAINLAND ISLAND

- 4.3.21 This year (2020-21) Horizons will contribute \$15,000 towards the project for goat control and will also treat the bait stations as it is part of our possum control programme when our contractor treats that particular PCO this year. Goat control has been initiated and should be completed by the end of March.

TE PŌTAE O AWARUA PREDATOR CONTROL

- 4.3.22 Horizons' funding supports the Aorangi Awarua Trust with the costs of servicing remote predator traplines on their land in the Taihape area to protect whio (blue duck) and also with Ruahine Whio Protection Trust volunteers servicing more than 800 traps on public land in the Northern Ruahine. Servicing these remote predator traps supports and enhances whio and North Island Eastern Brown Kiwi populations in the area. Northern Ruahine trap checks have been carried out in October, November and December 2020.

CAPE TURNAGAIN

- 4.3.23 Cape Turnagain is a significant natural landscape on the East Coast north of Herbertville. Covering 121 hectares, it is home to many rare and threatened plants and animals, some of which are found nowhere else. Most of it is protected by a QEII covenant, however this doesn't address the pest issues that threaten the vulnerable flora and fauna.
- 4.3.24 In 2018, QEII National Trust with Horizons were successful in applying for Lotteries Commission funding to embark on a three-year protection project and we are in the third and final year of the project. Horizons has contributed \$10,000 per year and Biodiversity staff time. The total project budget across the three years is \$144,000.
- 4.3.25 Work includes contracted goat, possum, rat, cat, and mustelid control, pest plant control (specifically pampas and marram), population monitoring of the nationally critical "Cape Turnagain" day-flying moth (*Notoreas perornata*), revegetation planting of the sand daphne the moth lives on, and community engagement with Weber School and Herbertville residents.
- 4.3.26 Trapping and baiting is occurring monthly and pest plant work is seasonal, mostly during summer. Horizons has increased the number of possum bait stations around the perimeter. Monitoring protocols were established at the beginning and will be run again at the end to measure what has been achieved.

- 4.3.27 To date actual costs have been lower than estimated and it is likely sufficient funds will remain to extend the project. A request for an extension to funding timeframes is being investigated.
- 4.3.28 Camera traps have been operating in the area and have photographed four cats. Trapping has caught three cats, two of which look the same as the cats observed on camera traps. The control of cats is important at this site due to the presence of ground nesting shorebirds, lizards and threatened invertebrates. Full details of trap catches can be found in (Table 9).

Table 9: Trap catch at Cape Turnagain for the year to date

	August - Sept	October - Nov	Year to date
Ferrets	2	-	2
Stoats	-	-	-
Weasels	-	-	-
Rats	1	2	3
Cats	2	1	3
Hedgehogs	1	5	6
Mice	-	-	-
Birds	1	-	2
Possoms	-	-	-
Rabbits	-	-	-
Total	5	9	16

- 4.3.29 Radio tracking of the Judas goats resulted in the dispatch of 28 feral goats. This process involves capturing a wild goat, fitting it with a radio tracking collar and releasing it to join a herd. The Judas goat is then tracked and the accompanying feral goats dispatched. At this site a thermal drone is also used to search the cliff habitat.



Photo 2: Contractor using radio tracking during goat cull.

4.3.30 In November, Weber School joined contractors, QEII and biodiversity staff to check on 30 small sand daphne (*Pimelea prostrata x carnosa*) planted in September 2020, which appear to be doing well. Cape Turnagain sand daphne is home to the only known population of the nationally critical “Cape Turnagain” day-flying moth (*Notoreas perornata*). Ensuring that there is a viable population of these plants is crucial to the moth’s survival.



Photo 3: Pupils from Weber School search for the nationally critical “Cape Turnagain” day-flying moth (*Notoreas perornata*).

AWAHURI FOREST – KITCHENER PARK

- 4.3.31 Awahuri Forest-Kitchener Park is a valuable wetland forest remnant with strategic importance for the future walkway network and recreational opportunities in and around Feilding. It is also one of Horizons’ managed Priority Sites, a critically endangered kahikatea pukatea forest ecosystem type. Horizons provides advice on ecological matters to the Awahuri Forest-Kitchener Park Trust and \$8,000 of funding for revegetation planting and pest plant control in this 14 ha reserve.
- 4.3.32 Samples of the giant grass that has invaded the Park from its source on the banks of the Makino Stream were confirmed as *Phragmites karka*. It is similar to, but much larger, than *Phragmites australis* (a plant already listed as an unwanted organism) and appears to be thriving in conditions that are drier than those preferred by *P. australis*. The Trust has informed Horizons of the discovery and the River

Management Group is investigating the extent of the infestation – both upstream and downstream of the park – to assess the potential impact on waterways and their management.

- 4.3.33 The Trust has been successful in securing a three-year grant from the Ministry of Primary Industries' Partnership Fund for restoring large areas of the forest. Most of the work involves willow removal and replacement with suitable native species and MPI will provide just over half of the almost \$360,000 total cost. In preparation for the increased planting programme, the Trust has contracted an experienced collector to provide eco-sourced seed to the nurseries involved in supplying the plants.

KAHUTERAWA STREAM BIODIVERSITY RESTORATION

- 4.3.34 The project aims to enhance the biodiversity values of the Kahuterawa Stream site of approximately 65 ha, from the bridge at Linton to the confluence with the Manawatū River. Horizons contributes to revegetating the stream corridor with eco-sourced native plants and removing willows and other weeds. Massey University and New Zealand Defence Force are partners in this project, with each of the three partners contributing \$8,000 this year.
- 4.3.35 During this reporting period, Horizons' contractors have carried out weed control and released some of the 8,000 plants planted earlier this season. Some follow up work will occur during February to March.

AHIMATE MANAWATŪ RIVER URBAN RESTORATION PROJECT

- 4.3.36 The Te Motu o Poutua project, an extension to Ahimate Park, is progressing well with 14 active relationships engaged in the site development. The site is situated at the old Higgins Metal Crushing site below the recycling centre at the end of Maxwells Line.
- 4.3.37 Horizons is one of the stakeholders in this project, alongside iwi, **Palmerston North City Council (PNCC)** and the community.
- 4.3.38 Extensive planning is underway for Te Motu o Poutua. Potential projects include the reconstruction of the original marae, creation of waterbodies in the four excavated sites, provision of picnicking and swimming areas with a biodiversity focus, and protecting nesting habitat of shorebirds including tuturiwhatu (banded dotterel).

MASSEY HILL

- 4.3.39 This restoration project is a partnership between Ferguson Hall, PNCC, Massey University and Horizons. Horizons contributes contractor services to the value of \$3,500.
- 4.3.40 Horizons' contractors have controlled banana passionfruit, woolly nightshade, tutsan and old man's beard at this site during this reporting period, and will return later to monitor effectiveness and follow up with control where required. Horizons staff attended a stakeholders' meeting at Ferguson Hall in December.

WEEDBUSTERS PALMERSTON NORTH

- 4.3.41 This programme involves the public, who are our eyes and ears when it comes to pest plant sites that are hidden away in backyards and other places. It operates during the spring and summer period. The areas covered include all of the PNCC area and the Feilding urban area. The programme includes the follow up of previous pest sites treated to make sure we have eradicated those plants and on-going treatment until we do. All these sites are GPS recorded so they can be revisited the following year. It also includes advice and information on other plants and herbicide treatment options. Weedbusters is a partnership between PNCC, **Manawatu District Council (MDC)**, and the community. A \$29,300 (56%) decrease in the size of the Weedbusters budget this year to \$23,000 will result in a reduction in the level of service that can be provided under this project.

COMMUNITY ENGAGEMENT

- 4.3.42 Community engagement is a priority and through the 2020-21 Annual Plan process, Council resolved to fund an additional position to add capacity and grow the current programme of community participation in biodiversity projects across the region.
- 4.3.43 Horizons is supporting the next Coastal Restoration Trust NZ conference to be held in Whanganui on 10-12 March 2021. The conference brings together experts and community groups from all over the country and is an opportunity for Horizons to highlight some of the work we are doing in the coastal environment.
- 4.3.44 Horizons is working with the Koitiata Community Restoration Project at Turakina Beach, providing advice and resources for predator and weed control. The Coastal Restoration Trust conference will include a field trip to see the work this community group have been doing.

SEEKING GOVERNMENT FUNDING

- 4.3.45 During the 2020 year Horizons has made a range of applications to Central Government for funding from the Jobs for Nature fund. These applications aimed to provide employment opportunities with biodiversity enhancement outcomes, and included Iwi Environmental Management Plans, Regional Biodiversity enhancement, Kia Whārite expansion, and supported two projects proposed by the Unenuku Charitable Trust for the Pōkākā Eco-sanctuary Trust in Ruapehu District. None of these biodiversity or biosecurity based applications were successful.
- 4.3.46 During the reporting period, staff engaged with the Department of Conservation and some iwi regarding the DOC “Kaimahi for Nature” funding which has an allocation of approximately \$11 million for work in the region. Staff have sought clarity about the regional council role and process around funding distribution from DOC, and are working to support further discussion with iwi/hapū and the formation of the alliance structures that will enable projects to be determined and rolled out. The rollout of this programme is being led by DOC and is continuing to evolve, with applications being assessed nationally. Regionally two projects have been recommended by the local alliance and Jobs for Nature team at DOC, and are both awaiting ministerial approval. The projects with the minister are outlined in Table 4. There are further rounds of applications being nationally considered in February and March, however it is Horizons’ understanding that no applications from the region are part of the February round. Horizons staff are working with DOC and iwi/hapū to target applications into the March application round.

Table 4 Proposed Jobs for Nature Projects Recommended by Local Alliance

Project Name	Brief Description	Amount Requested
Lake Rotoaira Forest Biodiversity Management	Pest control in Lake Rotoaira Forest. 12 FTE (4 per year over 3 years)	\$752,000 (+GST) over 3 years
Karioi Rahui Eco Sanctuary	The project's goals involve biodiversity protection including preventing the extinction of North Island brown kiwi, enhancing populations of other threatened species and ensuring the security of short-tailed bat/pekapeka. 27 FTE (9 per year over 3 years)	\$2.3 million (+GST) over 3 years

5 TŌTARA RESERVE REGIONAL PARK MANAGEMENT

5.1 Programme Overview

5.1.1 Tōtara Reserve Regional Park is focused on providing visitors with enjoyable biodiversity and recreational experiences. The work includes plant and animal pest control, flood protection, walking tracks, and campground management and maintenance. Tōtara Reserve is one of the last and best remaining examples of lowland forest ecosystems in the Pohangina Valley and is also valued as an important site under the Biodiversity Priority Sites Programme

5.2 Activity Update

REMOVAL OF POPLARS

5.2.1 Felling of poplars bordering the stopbank at the Kererū Campground was completed two weeks prior to Christmas. This allowed Kererū campground to reopen in time for the Christmas holiday period while Kahikatea campground has remained open for the complete season.

5.2.2 Mulching of the smaller branches is almost complete and will provide an adequate planting environment for the reforestation of the site with native species. This part of the project is an opportunity to involve the wider community with planting and care of the site.

5.2.3 Access to Camp Rangi Woods was maintained during the felling operation by cordoning off the road from the grounds, thus giving safe right of way to camp visitors. We also had strict H&S protocols in place for anyone that had reason to enter the grounds, including the vehicle access to the camp.

PEST ANIMAL CONTROL

5.2.4 Horizons' Annual Plan provided additional funding to substantially upgrade animal pest control programme for the entire reserve. The pest control operations will be targeting possums, rats and mustelids to improve ecological biodiversity and visitor experience in the reserve, which contains two campgrounds. A plan has been developed to be implemented this spring by the Regional Response Team. The pest targets are to reduce possum abundance to <5% **residual trap catch (RTC)**, and rat abundance to <10%, to enhance the reserve's biodiversity and amenity values.

5.2.5 The bait station network has been installed by Horizons Regional Response Team and pre-control pest monitoring has been completed with chew cards and tracking tunnels, providing a pre-control index of 7% (RTC) for possums, and tracking tunnel index of 30% for rats. The baiting has been undertaken with a varied level of uptake of bait. Post control monitoring will be undertaken over the next month.

5.2.6 A new toxin called Double Tap, which is designed to be less persistent in the environment, is being trialed. This trial will help evaluate the performance of the toxin alongside wider trials within the Horizons Possum Control Programme, to evaluate its appropriateness for various applications and cost-effectiveness.

PEST PLANT CONTROL

5.2.7 A contractor is due to start the annual programme of weed control at Totara Reserve and will be revisiting all previous treatment sites, and surveying for other incursions of pest plants.

5.2.8 A stocktake on the progress made by the weed control programme is planned for 2021-22. This work will review progress to date and provide direction to ensure we continue to build on the results achieved so far.

COMMUNICATION

5.2.9 Staff are working on several aspects of improving communication around the work at the site including a regular update to the Advisory Group, on-site signage about activities and further information through social media and Horizons' website.

CAPITAL PROJECTS

5.2.10 Planning has progressed for the approved capex spending in the 2020-21 financial year. The capex projects include a platform with safety rails around the septic system inspection point, and water storage and treatment upgrades to provide drinking water along with reliable source of water. Once these two projects are costed, further allocation of unspent capital for remaining projects will occur. Options for additional capital spending (in no particular order) include an upgrade of the Kahikatea camp ground ablution block, sealing of the entranceways to both campgrounds and the caretaker's house, a website booking and payment system for the camp grounds, and electrical upgrades at the powered camping sites. There is a capex allocation of \$157,930 for the 2020-21 year and work is underway to prioritise projects and undertake procurement and implementation.

TŌTARA RESERVE ADVISORY GROUP

- 5.2.11 The development of Terms of Reference for the group and a strategy for Tōtara Reserve are tasks to be undertaken once the priority work of poplar removal and remediation of the site, and water supply upgrades and other health and safety actions are completed.

Sue Moore
BIODIVERSITY COORDINATOR

Lizzie Daly
SENIOR SCIENTIST - ECOLOGY

Rod Smillie
BIODIVERSITY, BIOSECURITY & PARTNERSHIPS MANAGER

Jon Roygard
GROUP MANAGER NATURAL RESOURCES AND PARTNERSHIPS



WATER QUALITY AND QUANTITY

1 ACTIVITY OVERVIEW

The Water Quality and Quantity Activity of the Annual Plan includes the work programmes of Horizons' Freshwater & Partnerships Team and the Science and Innovation Team.

Horizons' Freshwater & Partnerships Team works closely with other Horizons teams, and people external to the organisation, to implement water quality and aquatic habitat improvement works. This work draws on monitoring and research undertaken by Horizons' Science and Innovation, and Environmental Data teams, along with that of other agencies, to prioritise and focus implementation efforts.

Both programmes actively seek funding from other sources, to provide external science advice and facilitate the acceleration of works. This includes the **Freshwater Improvement Fund (FIF)** for the Manawatū, Whangaehu and Lake Waipu/Rātana Catchments, **Public Waterways Ecosystem Restoration (PWER)** for the Regional Stream Fencing and Riparian Planting programme, and Enhancing Fish Populations through Fish Barrier Remediation, and the Community Environmental Fund for the Waikawa Catchment. These are all administered through the **Ministry for the Environment (MfE)**. Funding of science advice through the **Ministry of Innovation, Business and Employment's (MBIE)** Envirolink fund totals approximately \$120,000 per annum.

Implementation activities include riparian fencing and planting for water quality improvement and fish habitat enhancement, identification and enhancement of whitebait spawning habitat and fish passage improvement, sewage treatment plant upgrades, work with horticulture growers, and harvesting of lake weed.

Science activities include monitoring and reporting of water quantity for both surface water and groundwater, and the quality of groundwater, rivers, lakes, estuaries, and the coast. More than 80 popular swim spots are monitored weekly throughout the bathing season (November – April). In addition to guiding implementation programmes, science and research also informs consent decision-making, and policy development and implementation.

Communication of science data and information is primarily covered in the Environmental Reporting and Air Quality Monitoring section of this report.

This item presents the Water Quality and Quantity Activity regionally (where appropriate) and/or for each of the **Freshwater Management Units (FMUs)** that make up the Manawatū-Whanganui region, integrating the implementation work of the Freshwater &

Partnerships Team, and the water quality and quantity activities of the Science and Innovation and Environmental Data teams. This includes the:

- Regional Water Quality and Quantity Programme;
- Whanganui & Kai Iwi;
- Whangaehu – including the Whangaehu FIF projects;
- Rangitīkei-Turakina – including the Lake Waipu (Rātana) FIF project;
- Manawatū – including the Manawatū River Accord and FIF project;
- Waiopēhu – including the Lake Horowhenua Accord and FIF project, as well as freshwater improvement work with horticulture growers; and
- Puketoi ki Tai – coastal Tararua area.

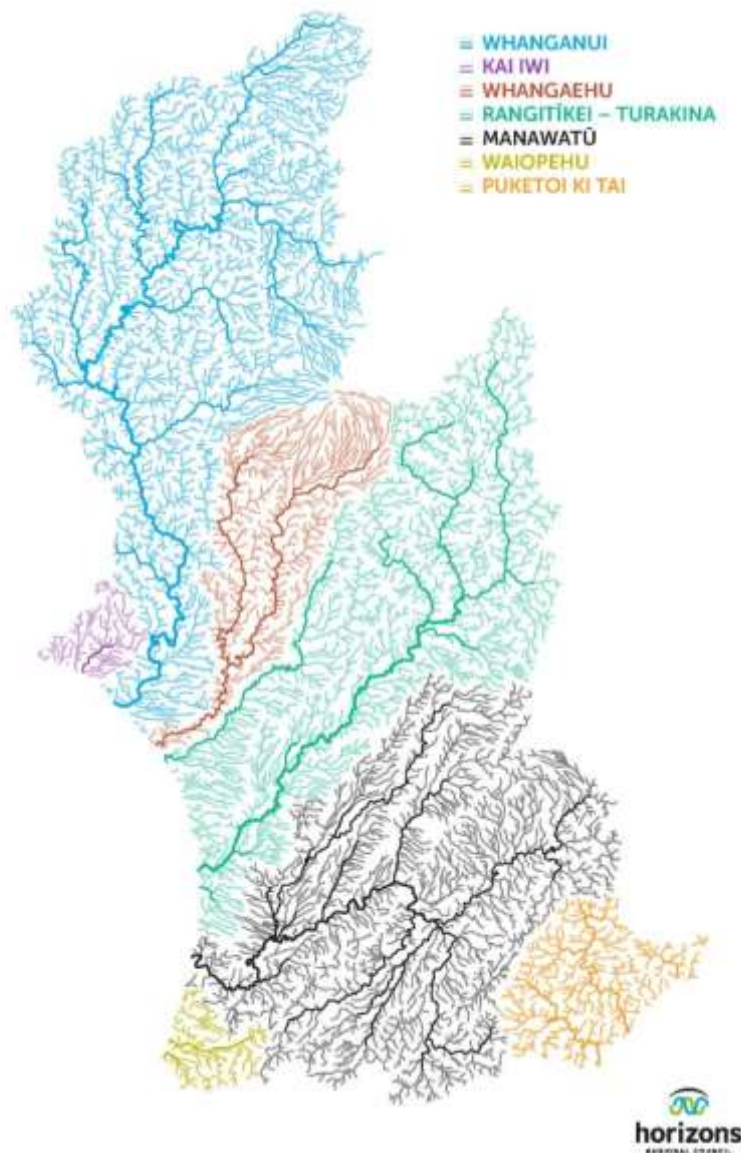


Figure 1: Freshwater Management Units in the Horizons Region

2 REGIONAL WATER QUALITY AND QUANTITY PROGRAMME

2.1 Regional Freshwater & Partnerships Overview

PROGRESS AGAINST ANNUAL PLAN TARGETS

2.1.1 The Freshwater & Partnerships programme links with a range of national and regional policies and strategies. The programme aims to deliver freshwater enhancement work in partnership with others to improve water quality and aquatic health outcomes, and to facilitate community involvement. Some of the work also informs restoration options and seeks to build capacity. The programme delivers work across six key components, each of which includes funding from Central Government:

- Regional freshwater programme, outside the Manawatū and Whangaehu Catchments (includes the Jobs for Nature stream fencing and riparian planting programme);
- Manawatū Accord and Freshwater Improvement Fund project;
- Whangaehu Catchment Freshwater Improvement Fund project;
- Enhancing fish populations through fish barrier remediation Jobs for Nature project;
- Waipu Catchment Freshwater Improvement Fund project to remove the Rātana **waste water treatment plant (WWTP)** discharge from Lake Waipu and irrigate to land while also developing a restoration plan for Lake Waipu; and
- Lake Horowhenua Accord and Lake Horowhenua Jobs for Nature project.

2.1.2 A summary of progress against Annual Plan targets is presented in this section of the report, and project updates on specific works are presented in the relevant FMU summary.

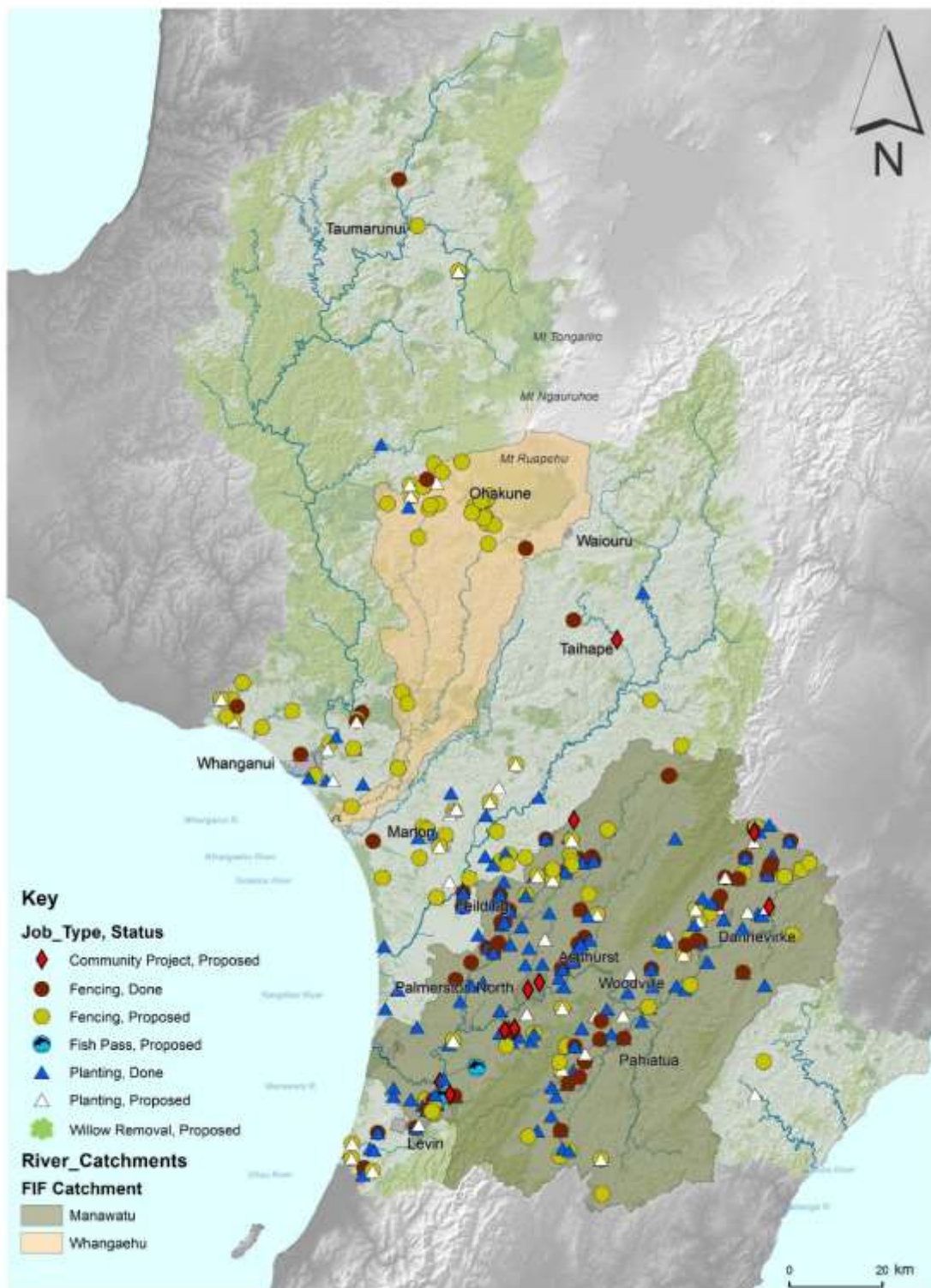
Table 1: Freshwater & Partnerships programme progress on the 2020-21 Annual Plan targets as at 31 December 2020.

	Riparian fencing (km)				Riparian planting			
	Target	Allocated	Complete	% complete	Target	Allocated	Complete	% complete
Regional	12	2.540	2.316	84% ³	20,000	14,905	15,241	149%
Jobs for Nature⁴	35	38.041	7.774	22%	35,000	27,185	14,642	42%
Manawatū	50	97.5	49.6	99.2%	40,000	114,500	90,802	227%
Whangaehu	17	40.35	.1480	1%	3,333	3,987	2,023	61%
Total⁵	102	178.4	59.84		78,333	160,577	122,708	156%
	Fish passes				Community projects			
	Target	Allocated	Complete	% complete	Target	Allocated	Complete	% complete
Regional	1	0	0	0%	1	1	1	100%
Jobs for Nature	5	0	0	0%	n/a	n/a	n/a	n/a
Manawatū	4	3	0	0%	9	12	2	22%
Whangaehu	2	0	0	0%	3	8	0	0%
Total³	7	0	0		13	21	3	23%

³ % is based on works completed in both the Regional and Jobs for Nature programmes.

⁴ Currently not an annual plan target however, both the Regional and Jobs for Nature projects count towards the Annual Plan targets for the Regional Freshwater Programme.

⁵ NB: The totals in these target tables represent an overall total and achieving these totals does not necessarily mean all targets have been met, as it is the individual targets that are in the Annual Plan.



Freshwater Grant Projects

Map prepared by L Ferguson, NRP, 4 February 2021

Figure 2: Freshwater implementation projects for stream fencing, riparian planting, community projects, and fish passes for the 2020-21 financial year (as at 31 December 2020).

JOBS FOR NATURE PROJECTS

- 2.1.3 In July 2020 Council resolved to enter into three Jobs for Nature “Quick-start” projects. These projects are funded through the broad Jobs for Nature Fund, and more specifically are referred to by the Ministry for the Environment as Public Waterway Ecosystem Restoration Fund projects.
- 2.1.4 The Deeds of Funding for the Stream Fencing and Riparian Planting programme, and enhancing fish populations through fish barrier remediation have been signed and the first meetings of the Governance Groups occurred in October 2020.
- 2.1.5 During the reporting period the following positions were added to the team as a result of the additional funding:
- Three Freshwater Advisors (2.5 FTEs) started in October 2020 for the Regional Stream Fencing and Riparian Planting programme. Additional winter staff recruitment is underway for two fixed term positions (6 months), with a proposed start date of April;
 - The Fish Passage Coordinator (Tessa Stevens) joined us in October 2020;
 - Four research assistants on fixed four-year contracts joined us in October and November 2020 with three summer students also starting at the same time. An additional 12-week contract is currently being recruited for the Fish Passage team;
 - Advertising has commenced for the Freshwater Coordinator – Lake Horowhenua position.

ENHANCING FISH POPULATIONS THROUGH FISH BARRIER REMEDIATION

- 2.1.6 This project commenced at the beginning of October and is well underway within the two focus catchments – Ōhau and Waikawa. The Fish Passage team consists of eight members but dropped to five when the summer student 12-week contracts ended at the beginning of February 2021. A fourth 12-week contract was being advertised.
- 2.1.7 This four-year project has just completed quarter 2 of year 1 and overall is on schedule to achieve the deliverables prior to the end of the first project and financial year. Key focus areas for the team have been: stream walking (to assess barriers to fish migration), monitoring of fish and kakahi populations, and remediation of identified barriers. Stream walking in the two focus catchments has been progressing well, but with some difficulty due to the areas containing numerous lifestyle properties. This makes landowners more difficult to contact and without permissions, certain sections of river/ stream have not been assessed. Letter drops and cold calling attempts continue to be made in these focus catchments. In addition to this, the team have progressed

with certain catchments in the Manawatū where landowner permissions are more readily available.

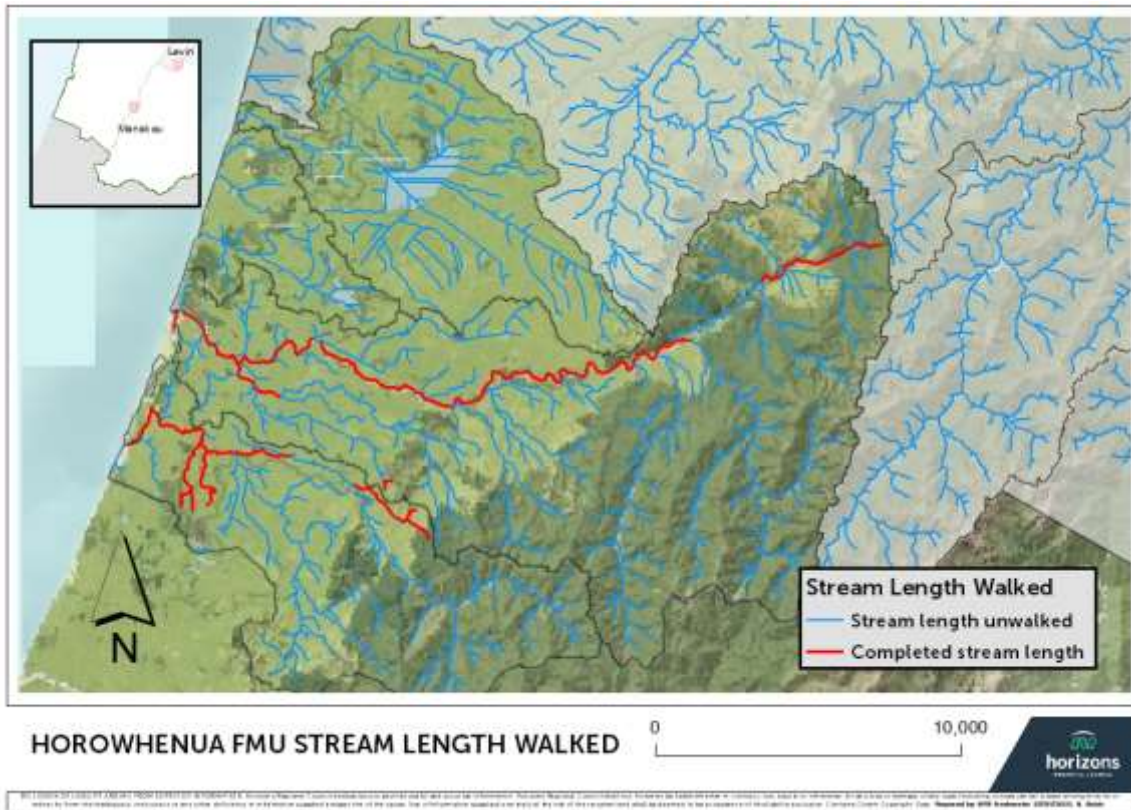


Figure 3: Stream length walked in Ōhau and Waikawa Catchments.

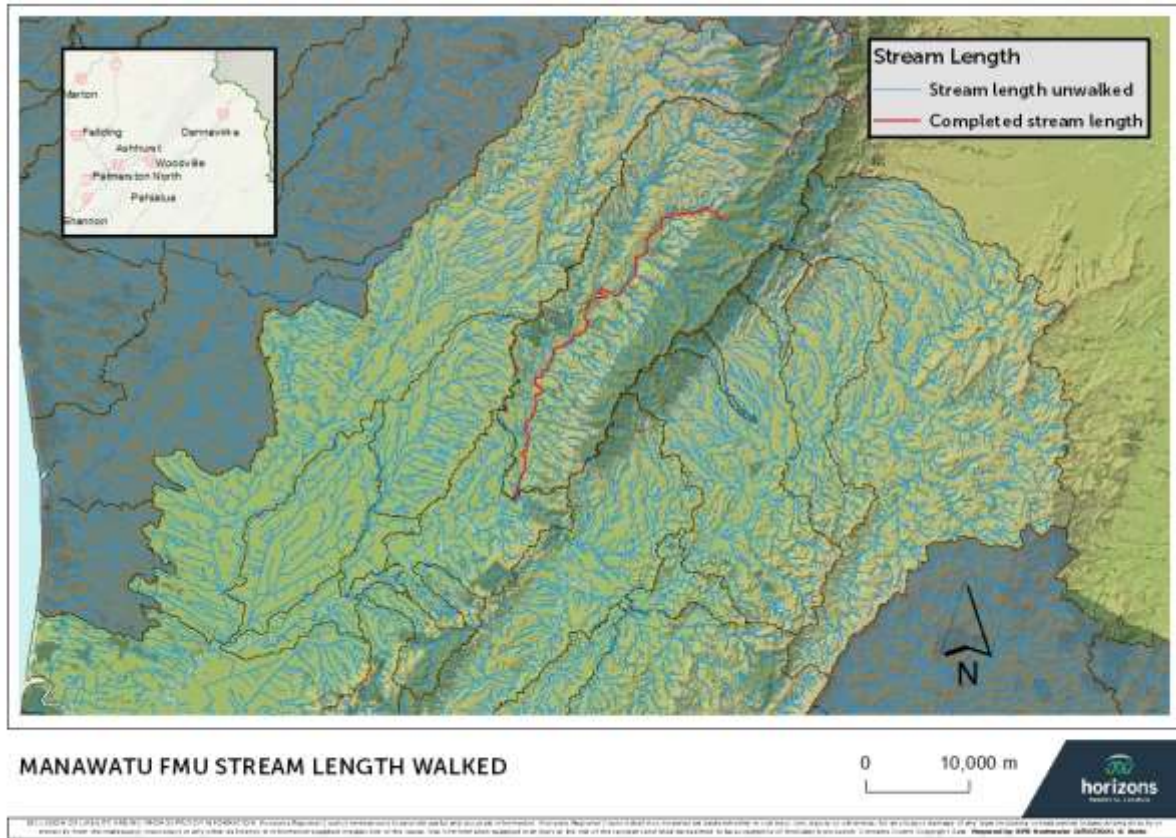


Figure 4: Stream length walked in Manawātū Catchment.

2.1.8

2.1.9 Fish and kākahi (freshwater mussel) monitoring has been progressing well with seven fishing sites and four kakahi sites completed. A report is to be commissioned on the current state of the region’s fish and kakahi populations through Massey University, with scoping of the project underway.





Figure 5: Top left and right: Kakahi surveys in the Tararua area (both sites had kakahi present). Bottom left: Fyke net training survey in the Purua Stream, Whanganui. Bottom right: A giant kokopu found during the survey.

2.1.10 The project has a target of five sites this year for barrier remediation. At the time of reporting, one was complete with the remaining four scheduled for completion during February 2021.



Figure 6: Fish barrier remediated in a tributary of the Waikawa Stream. Photo on the left shows prior to remediation (a drop due to a wooden board covering entrance to culvert) and photo on the right after remediation by removing the board.

2.2 Regional Water Quality & Quantity Science Programme Overview

MONITORING PROGRAMMES

2.2.1 Water quality and quantity monitoring is overseen by Horizons Science & Innovation team, but delivered in partnership with the Environmental Data, Consents Monitoring and Freshwater & Partnerships teams. Much of this activity focusses on improving knowledge and understanding of the region's freshwater and coastal environments by monitoring the state of the environment, tracking changes over time, and identifying areas of emerging pressure. Water quantity, quality monitoring, and biomonitoring programmes encompass:

- River flow at 65 sites, groundwater levels at 192 sites, and measurement of water use at more than 350 sites across the region;
- River water quality at 90 state of environment sites, 32 discharges and 52 sites located upstream and downstream of discharges;
- Water quality at four coastal and seven estuary sites, and ecological condition and/or sedimentation of five estuaries;
- Groundwater quality at 35 sites;
- Water quality in 17 lakes and submerged plants in approximately eight lakes annually;
- 82 popular swim spots throughout the bathing season (November to April);
- Macroinvertebrates at 95 sites and periphyton at 63 sites.

2.2.2 The monitoring network is undergoing a review in response to national policy requirements, and to better inform decision-making and implementation programmes.

State of the regional water resource

2.2.3 Spring was warm and wet for much of New Zealand, and particularly for the Horizons Region. It signalled a turnaround from low winter rainfall, with spring and early summer rainfall at average or above average throughout much of the region, and particularly on the western side of the ranges. Average conditions for each site were benchmarked over the length of record for each site, at least 20 years in most cases.

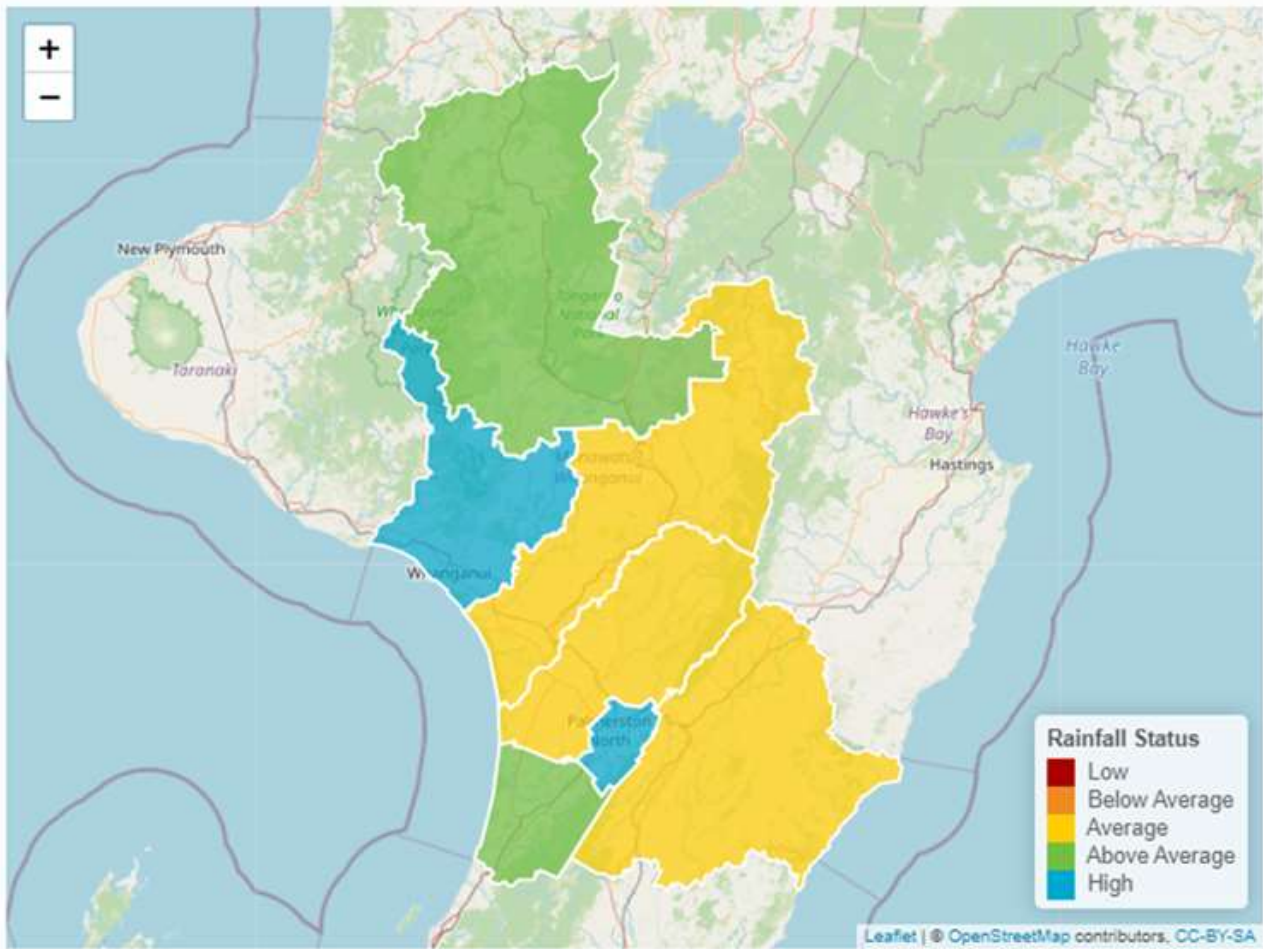


Figure 7 Hydrological status as determined by rainfall quantities over the preceding four months at 10 representative sites, February 2021.

2.2.4 This spring rainfall increased groundwater levels across the region, enabling further support of river levels during summer low flows. Prior to Christmas, approximately 50% of the bores Horizons monitors monthly for water levels were either low or below average. By February 2021 this had dropped to about 20% of monitored bores (Figure 8), with low groundwater levels persisting in the rural Manawatū area.

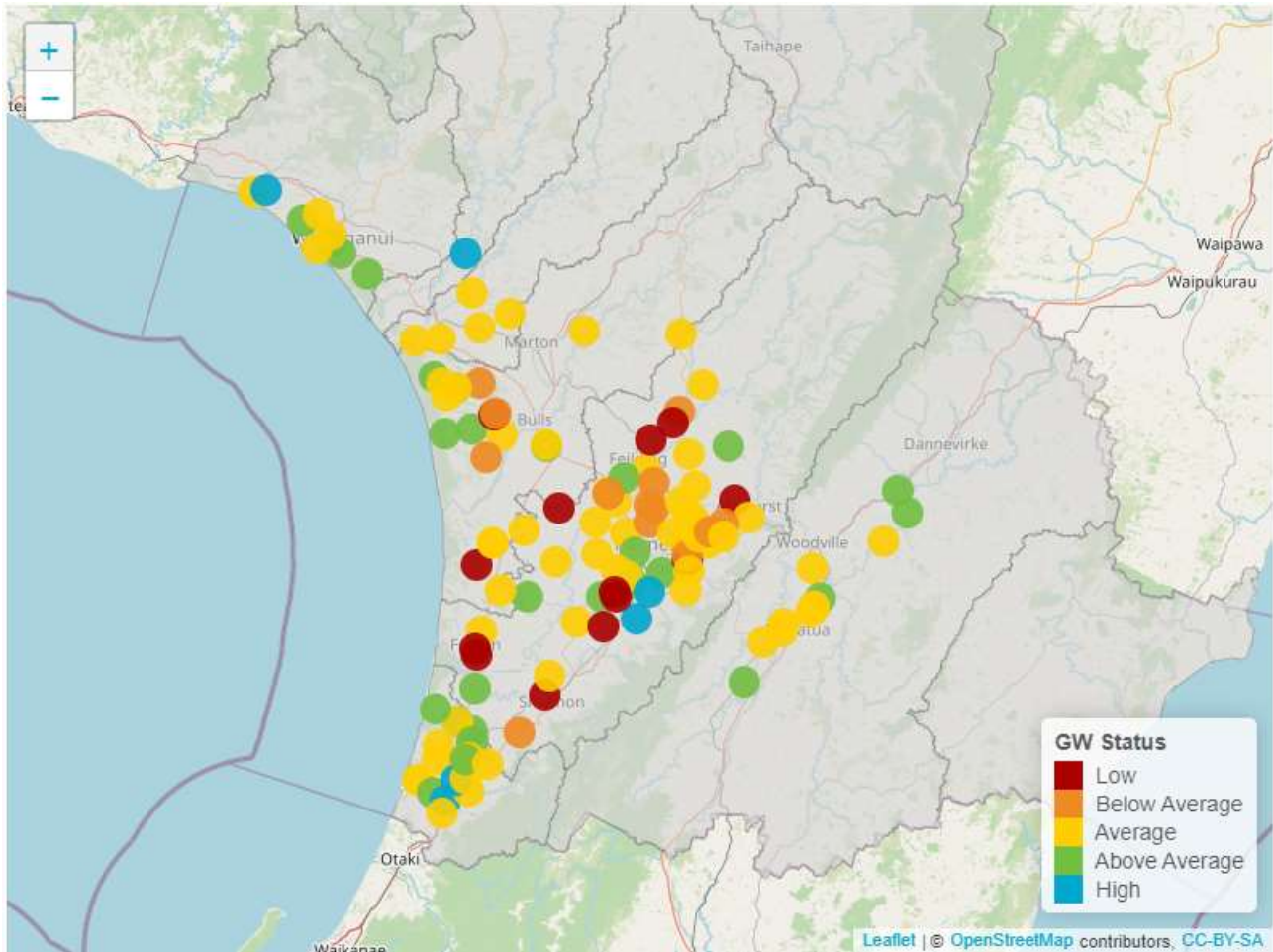


Figure 8: Groundwater level status as determined by monthly monitoring at 130 bores, January 2021.

2.2.5 As outlined above, the warm relatively wet spring had river flows follow a more 'typical' summer pattern, with low flows occurring later in the season. Low flows have started to occur at a few sites, but overall river flow status is currently 'average', based on long-term records for the last 20 years at 11 key flow monitoring sites. Figure 10 shows the river flow status as at 10 February 2021 compared to the same date in 2020.

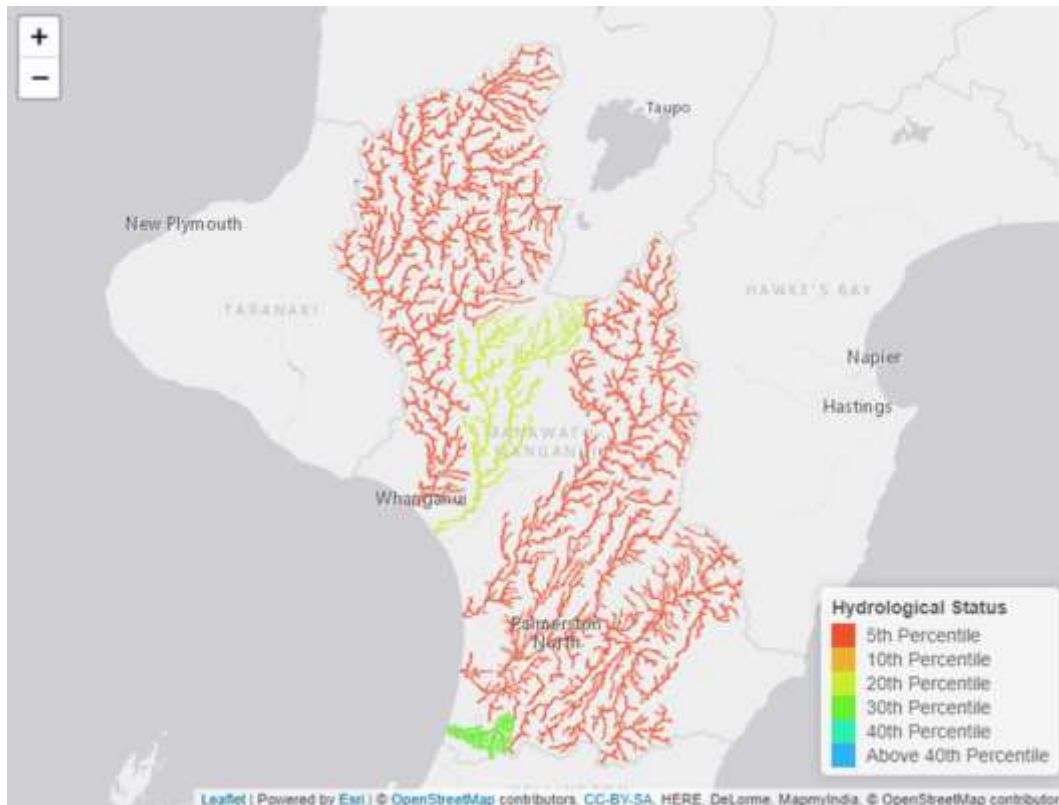
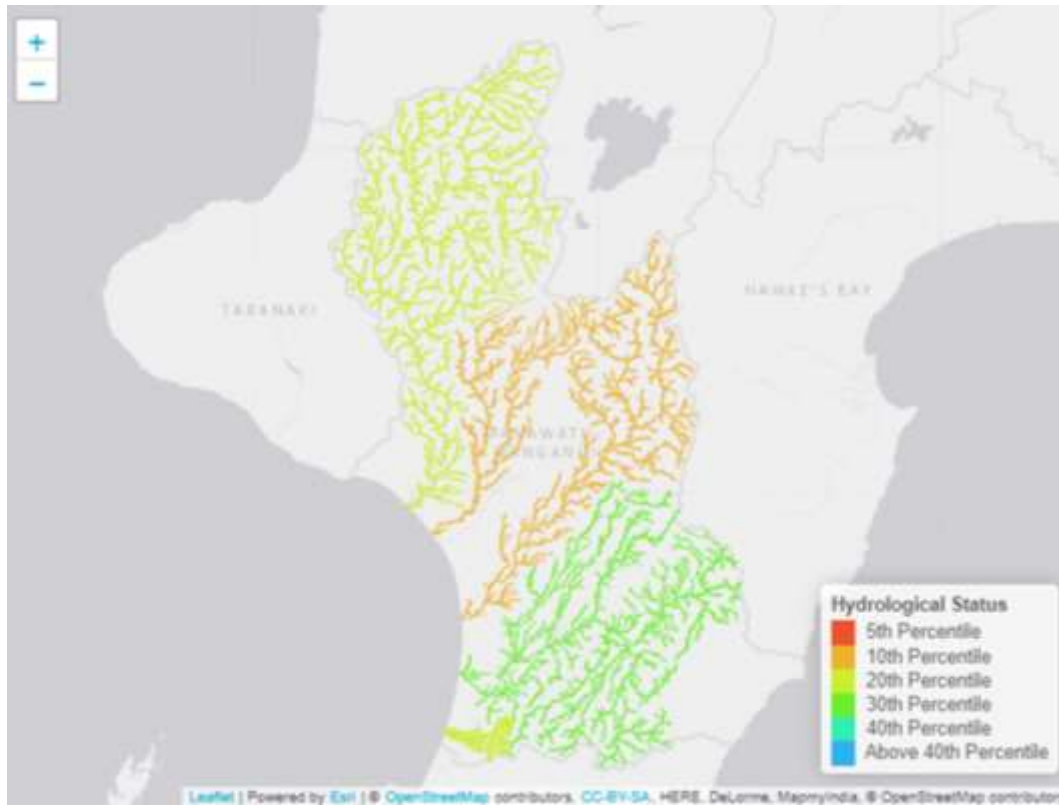


Figure 9: Hydrological status as determined by river flow over the preceding four months at 11 representative sites, February 2021 (top image), compared to the same date in 2020 (bottom image).

- 2.2.6 There were few low flow restrictions across the region for most of the summer to date. Some municipal water supplies have recently been required to limit or step-down abstractions as river flows began to decrease. As at 15 February, there are 39 consent holders experiencing some level of low flow restriction, across 14 flow monitoring sites. A number of sites were nearing low flow restriction levels. This pattern is expected for this time of the year.
- 2.2.7 The telemetered water use programme continues, with the programme of annual inspections is progressing well. A key challenge for this programme is access to communications in certain areas of the region and the team has made good progress in resolving a number of these issues. Cell-phone reception issues have been able to be resolved in some areas with the adoption of new technology to overcome the shortfall in signal in difficult terrain.

LAKES MONITORING

- 2.2.8 **State of Environment (SOE)** monitoring of lakes in the region has recently expanded to include monthly sampling of Hokowhitu Lagoon, commencing in November 2020, and Lake Papaitonga, commencing in December 2020. Hokowhitu Lagoon is a shallow riverine (oxbow) lake adjacent to the Manawatū River in Palmerston North which is popular for public recreation including picnicking, walking, fishing, kayaking and canoe polo. Lake Papaitonga (Waiwiri) is a shallow coastal dune lake situated just south of Lake Horowhenua. A scenic reserve with a walking path borders the lake and is managed by the Department of Conservation. These lakes were added to the SoE monitoring programme because of their public access and representative lake type in their respective catchments. This is a further step in meeting the requirement under the 2020 **National Policy Statement for Freshwater Management (NPS-FM)** for regional councils to monitor a set of lake sites that adequately represent each of the regions' **Freshwater Management Units (FMUs)**. Further recommendations to work toward this requirement have been proposed in the Long-term Plan.
- 2.2.9 Annual assessments for **Lake Submerged Plant Indicators** (LakeSPI) of ecological condition were carried out by NIWA for eight lakes in December 2020, six of which had been previously assessed, namely: Lake Dudding (2001, 2015), Pukepuke Lagoon (2001 and 2015), Lake Wiritoa (2001 and 2015), Lake Pauri (2015), Lake Alice (2015) and Lake Namunamu (2016). Two – Hokowhitu Lagoon in Palmerston North and Lake Virginia in Whanganui – were assessed for the first time. The results and report will be completed later in the year. This monitoring will inform assessment

of lake state against new water quality attributes required under the 2020 **National Policy Statement for Freshwater Management (NPS-FM)**.

- 2.2.10 Microplastics are among contaminants of emerging concern for aquatic systems. The **Global Lake Ecological Observatory Network (GLEON)** has begun a study named **Global Lake Microplastics (GALACTIC)**, and Horizons has participated by sampling Lake Wiritoa and Lake Pauri in November 2020. The objective is to sample lakes worldwide to identify the occurrence of microplastics in surface water of different freshwater systems based on watershed and lake features (land-use, population, catchment area, etc.). Samples were sent to the University of Milano-Bicocca in Italy for processing free of charge. This will lead to a collective research paper, helping to advance global research around microplastics in freshwater systems.

ESTUARY ECOLOGICAL CONDITION MONITORING

- 2.2.11 Ecological condition and/or sedimentation monitoring of five estuaries was conducted by Salt Ecology in December 2020. Preliminary results showed that both the Waikawa and Ōhau systems had been well flushed by recent flooding at the time of sampling. The Waikawa in particular had less bottom waters with depleted dissolved oxygen than 12 months previously, but there are still obvious nutrient enrichment problems. The Ōhau estuary looked to be in good condition. There were also a few notable changes in the other estuaries monitored. Manawatū Estuary showed around 20 mm of sediment erosion at the monitoring sites. In contrast, Whanganui Estuary showed a build-up of sediment (accretion). The Whangaehu Estuary sediment results were quite variable. All the sites appear to be telling a story vividly showing how dynamic the estuaries are.
- 2.2.12 Full results and reports will be completed in June 2021 and this will include considerations for future monitoring.

CONTACT RECREATION WATER QUALITY MONITORING

- 2.2.13 Monitoring of more than 80 popular swim spots around the region began on 1 November 2020. The programme is delivered in collaboration with MidCentral Public Health Service, local councils and Ngā Waihua o Paerangi Trust. Monitoring results are reported weekly, as they become available, via both Horizons (<http://www.horizons.govt.nz>) and the LAWA (<http://www.LAWA.org.nz>) websites.
- 2.2.14 Results to date have been variable. In general, beaches sampled across the region have been mostly swimmable with a few exceedances at times. Further re-samples on these occasions (in line with recreational guidelines) have not warranted any beach

closures and have to date returned results within the guideline values for swimmability. River sites have, on occasion, exceeded recreational guidelines for both *E. coli* and potentially toxic algae thresholds across the region. The Mangatainoka River, in particular, has been graded unsuitable for swimming at times due to potentially toxic algae levels.

2.2.15 The Kaikokopu Stream has had cautionary signage erected by public health due to a high reading of *E.coli* (14,100 MPN/100mL, and a follow-up result of 798 MPN/100mL (NB levels higher than 540 MPN/100mL is deemed unsuitable for swimming) directly prior to the Himitangi Big Dig weekend. It was anticipated the signage would be removed in the short term, depending on results.

2.2.16 Faecal source tracking is planned for four streams in late February 2021 (delayed from the 2019-20 season by COVID-19) as part of the programme. These include Kaikokopu Stream at Himitangi Beach, as well as Wairarawa Stream at Waitarere Beach, Wainui Stream at Herbertville and the Ōngarue at Cherry Grove monitoring site.

2.2.17 Whanganui lakes Wiritoa and Pauri have been suitable for swimming for much of the season to date. Potentially toxic algae monitoring was added to Hokowhitu Lagoon this season, and aside from a brief exceedance over the New Year period the levels were either amber or green (caution advised and suitable for swimming, respectively).

2.2.18 Lake Dudding was deemed unsuitable for swimming and warning signs erected between 16 November 2020 and 21 January 2021 due to high bio-volumes of potentially toxic algae. The closure at Lake Dudding this season has been longer than the closure in the 2019-20 season. The poor ecological health of the lake is highlighted in a recent report titled Duddings Lake by Gibbs *et al.* (2020) which outlines restoration options for the lake recommended by an expert panel following a workshop held in May 2019.

2.2.19 Figure 9 below shows the most recent contact recreation results displayed on LAWA and the Horizons website for Lake Dudding. It shows the site to be at amber alert due to elevated bio volumes of cyanobacteria. Lake Dudding has a long-term grade of poor based on five years of sampling.



Figure 9 Screenshot of results for Lake Dudding on the LAWA site for the week of 9 February 2021

ENVIRONMENTAL DNA FISH MONITORING PROJECT

- 2.2.20 The Science and Innovation team is supporting sector-wide and regionally specific development of **Environmental DNA (eDNA)** tools for fish monitoring; eDNA is DNA that is isolated from an environmental sample, such as water or soil, rather than from the individual specimen itself. Living organisms constantly lose a stream of genetic material, through the loss of skin cells, scales, hair, excretion of slime, faecal material, reproductive material or other forms of living matter. By collecting DNA from the environment, in many cases we can work out what species are living within that environment, with some caveats.
- 2.2.21 The use of these tools for fish monitoring, and likely a range of other monitoring programmes, is expected to result in significant efficiency gain in staff time, cost and potentially increased power to detect species and characterise communities. Compared to the cost of traditional fish monitoring, eDNA is relative quick, simple and low cost. It is, however, a relatively new technique in New Zealand and given the many benefits of eDNA sampling, it is currently being investigated by most regional councils or unitary authorities, as well as Central Government organisations such as the Department of Conservation, and was the subject of a recent Envirolink tools project titled Molecular tools for characterising freshwater fish communities in New Zealand (Banks J, Kelly L, and Clapcott J, 2020). Prepared for Ministry of Business,

Innovation and the Environment, Envirolink CAWX1802. Cawthron Report No. 3573. 66 pp. plus appendices.).

- 2.2.22 This technique, given its low cost and ease of use, is well suited for councils, research agencies, iwi/hapū, community groups, school groups and others looking to understand fish populations within local waterways.
- 2.2.23 During 2020-21, the Science and Innovation team is undertaking sampling to help address four distinct streams of work. The first is supporting a high replication project being run across New Zealand by local government. This project is exploring statistical measures of certainty based around number of sample replicates (replicates are individual samples that are collected multiple times under the same conditions to assess the variability in the results). This study will inform how many sample replicates are necessary for a given statistical certainty of measurement. This will help the sector gain robust confidence around how thoroughly to sample.
- 2.2.24 The second project is investigating the application of recorded fish DNA sequences to identify the presence of fish species in waterways. Presently, many recorded DNA sequences relate to only a single individual fish, which may be from another part of New Zealand. This can lead to false negative results when a species is present but not detected, as the DNA from the environment is too different from the corresponding DNA stored on the central database. For example, if the record was from an individual banded kokopu in the South Island, it may not necessarily relate to an individual banded kokopu caught in the north of the Horizons region. This is particularly problematic for non-migratory species because they are isolated to specific locations, so there is likely to be less genetic flow between populations. Through this project, eDNA sampling will be undertaken alongside traditional fish monitoring protocols. The known fish species from the traditional monitoring, identified by experienced staff, can then be used to ground truth the eDNA results. This gives any user in the Horizons region confidence that the technique is picking up species that are in the waterway or alternatively, identifies species that may need to be better characterised within the region.
- 2.2.25 The third project is exploring the effectiveness of remediated fish barriers. By sampling sections of waterway both upstream and downstream of a barrier, we can compare both presence/absence of fish species, as well as changes in relative biomass, to get an idea of whether a barrier is partially or fully impeding fish passage. If we repeat this process after having remediated a barrier, the expectation would be that the fish populations upstream and downstream of the barrier become much closer in composition following the fix. This stream of work will test this approach on

barriers that are known to exist and are already identified for remediation by the freshwater team in this financial year.

2.2.26 The final project is a pilot study investigating a technique to characterise fish populations within a lake. A minimum amount of information is required to start investigating the viability of eDNA in lakes and this pilot is expected to help direct future conversation. As this is a pilot study, further work will be required to fully inform this monitoring technique within lakes.

2.2.27 A short internal report outlining the findings of this project is intended to be completed in the 2021–22 financial year.

SUMMER BIOMONITORING PROGRAMMES

2.2.28 Summer water quality monitoring this year includes a range of projects centring on biological monitoring in the Horizons region, such as fish and macroinvertebrate monitoring. Much of this monitoring is flow dependant, so low flows and stable weather conditions throughout summer have allowed significant progress to be made.

2.2.29 As at early February, staff were more than halfway through macroinvertebrate monitoring, and on track to be completed by end of March. Fish monitoring programmes are also underway and we anticipate that this work will be completed by end of April.

2.3 Whanganui and Kai Iwi FMU

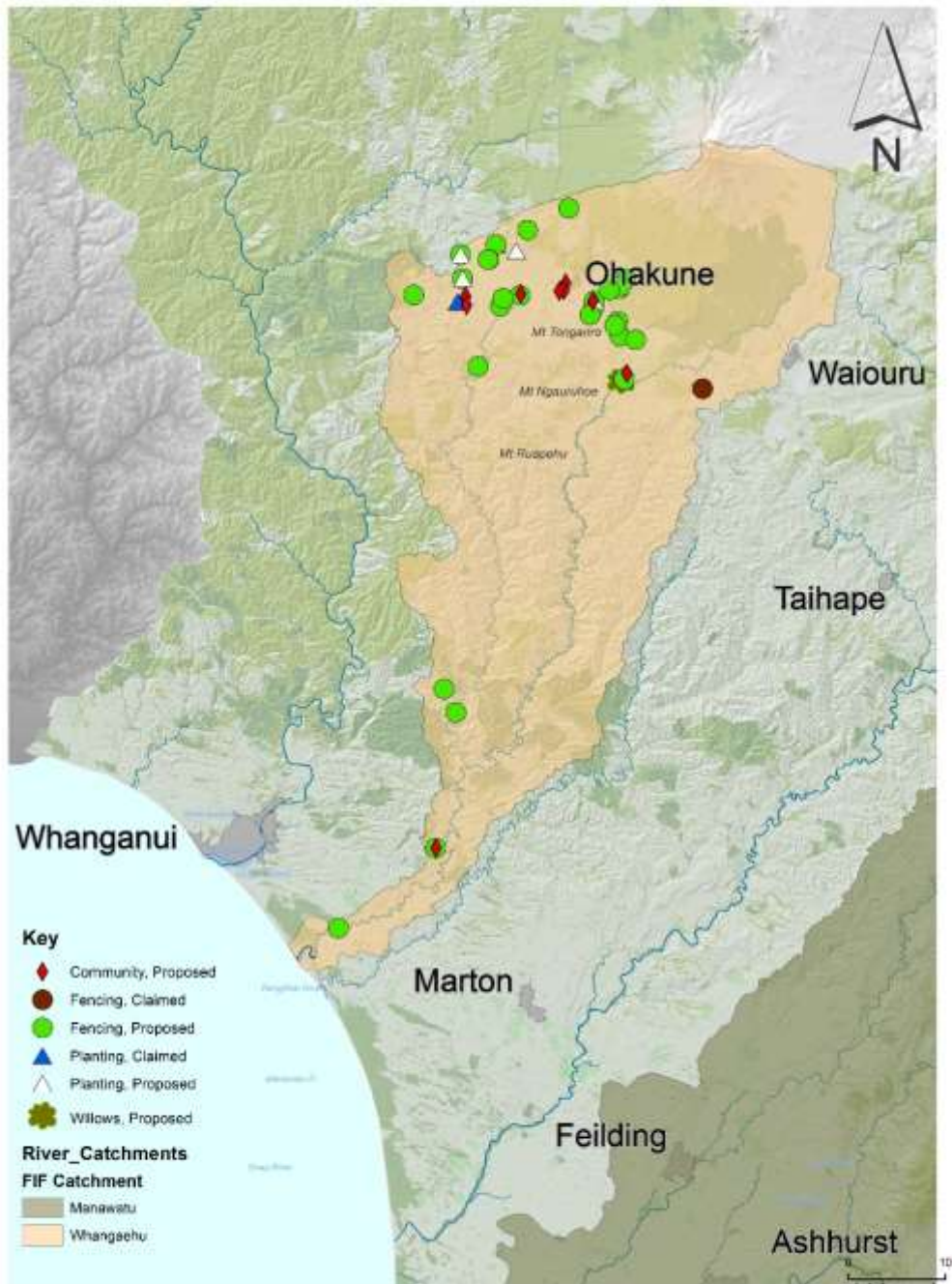
2.3.1 This financial year, 9,432 km of stream fencing and 3,050 riparian plants have been allocated and 5,315 km of stream fencing has been completed and 1,693 riparian plants planted within the Whanganui Catchment. Some 9,235 km of stream fencing and 3,480 riparian plants have been allocated and 1,925 km of stream fencing completed along the Kai Iwi and Ototoke Streams within the Kai Iwi Catchment.

2.4 Whangaehu FMU

WHANGAEHU FRESHWATER IMPROVEMENT FUND (FIF) PROJECT

2.4.1 This programme focuses on the delivery of the Ngā Wai Ora o Te Whangaehu FIF project, which focuses on the protection and enhancement of waterways within the Whangaehu Catchment. The main components of the programme are supporting stock exclusion from waterways, riparian enhancement and planting where desirable, aquatic habitat enhancement, supporting industry and community-led initiatives, and a joint project with Ngati Rangī.

2.4.2 With the Whangaehu FIF project set to end in June, stream fencing and riparian planting allocations are now fully allocated. Any new landowners and enquiries in this catchment are being signed up under the Jobs for Nature (previously the Regional Freshwater Programme) to enable works to be completed.



Whangaehu FIF projects January 2021

Map prepared by L Ferguson, NRP Group, 12 January 2021.

Figure 10: Stream fencing, riparian planting, and community projects that are proposed to be undertaken or have been completed in the Whangaehu Catchment.

2.5 Rangitīkei-Turakina FMU

PFAS MONITORING FOR OHAKEA

- 2.5.1 Horizons has been working with the **New Zealand Defence Force (NZDF)** on the ongoing monitoring of **per- and ploy-fluoroalkyl substances (PFAS)** and related compounds around Air Force Base Ohakea. PFAS are a large group of manufactured compounds that have industrial and consumer applications and have been in firefighting foam used at the base. A monitoring programme was specially designed by Pattle Delamore Partners Ltd this year to monitor the movement of the PFAS plume over time⁶.
- 2.5.2 The first round of sampling was undertaken in September 2020 with preliminary results showing PFAS concentrations either similar to, or slightly below, the ranges previously recorded for existing monitoring locations. These results are in general agreement with the predictions from the groundwater modelling. Staff met with the Ohakea Water Contamination Committee at Manawatū District Council in December 2021 to discuss the preliminary results. The monitoring report is being finalised, and another round of sampling was to begin in late February 2021. A copy of the report will be made available on Horizons' website.

FLUVIAL PROGRAMME

- 2.5.3 During 2020-21, fluvial surveying is focussing on the Kawhatau River, a key gravel source for the Rangitīkei River. This survey will extend beyond (i.e. up-stream of) previous surveys in the Kawhatau that focussed on the gravel beaches only, to further our understanding of the fluvial processes occurring throughout the wider catchment.

STREAM FENCING AND RIPARIAN PLANTING

- 2.5.4 This financial year 19,531 km of stream fencing and 28,810 riparian plants have been allocated within the Rangitīkei- Turakina FMU. To date, 6,294 km of stream fencing has been completed and 23,479 riparian plants planted.

LAKE WAIPU/RĀTANA FRESHWATER IMPROVEMENT FUND (FIF) PROJECT

- 2.5.5 As part of the FIF project Horizons commissioned NIWA to complete a native and pest fish survey of Lake Waipu on 7 and 8 December 2020. This work is to understand the availability of host species for kakahi (freshwater mussel) recruitment within the lake

⁶ PDP (2020) RNZAF Base Ohakea PFAS Investigation: Long Term Monitoring Plan

and the ongoing sustainability of the kakahi population. The native species shortfin and longfin eels, and common bully were found in the lake, with the only introduced species encountered being goldfish. A final report is due prior to the end of June 2021.



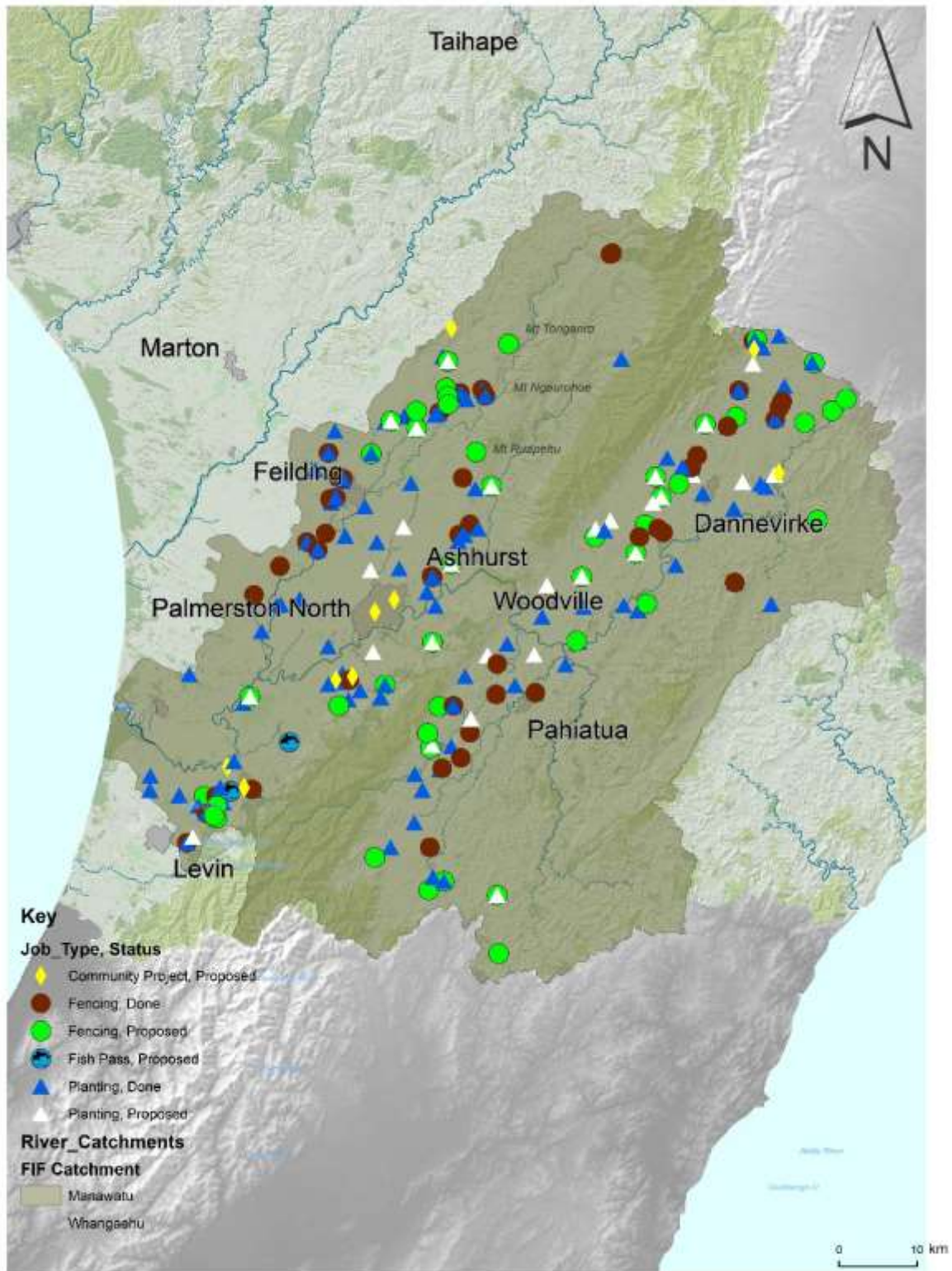
Figure 11: Left: Fish that were caught during the native and pest fish survey being processed. Right: Conditions were grim as processing of the fish samples continued.

2.5.6 Horizons staff have been working with Rangitikei District Council (RDC) and MfE to update the project plan for the wastewater management component of this project, which is seeking to cease the discharge to water (to Lake Waipu) and to fully apply the wastewater to land. A meeting was held with RDC, MfE, Horizons and landowners during December 2020 to progress this project further. The work programme and annual work plan are to be updated to reflect the proposed changes while the end date of the project (June 2023) remains the same.

2.6 Manawatū FMU

MANAWATU FRESHWATER IMPROVEMENT FUND (FIF) PROJECT

2.6.1 The first quarter of year three has been a busy one with the riparian planting season coming to an end, the third round of community-led projects have been received and enquiries for stream fencing and riparian planting continue to arrive, with an increase noted around the time of the new stock exclusion regulations being introduced. With current allocation for stream fencing and riparian planting, new applications are no longer being sought for this financial year and are being allocated to next financial year.



Manawatu awa FIF projects January 2021

Map prepared by L. Ferguson, NRP Group, January 2021

Figure 12: Stream fencing, riparian planting and community projects proposed to be undertaken or completed in the Manawātū Catchment.

2.6.2 The Manawatū Accord Community Grants received 15 applications seeking \$212,665 in funding. The decision-making panel agreed to fund eight new projects and one additional project (Plastic Pollution) is in year two of its programmed milestones. This gives a total of \$88,136.00 of projects being funded this financial year. These are;

- Construction of a Bioreactor – Te Maunga Farms Ltd;
- Manawatu River Road enhancement and access – Te Kauru hapū collective and B & P Drysdale;
- Save our native fish (riparian fencing and planting) – Buckley Golf Club, Shannon;
- Seeing, understanding & believing – a farmer-led project into waterway improvement (workshops to share knowledge of wider catchment project) – KapAg on behalf of Linton Streams Catchment Group;
- Source of Kiwitea (continuation of planting a large gully system) – M & L Wills;
- Waoku Stream Restoration Project (riparian fencing & planting) – D Okano;
- Nguturoa Stream Restoration (riparian fencing, weed & pest control, preserve & connect bush remnants) – C Finnigan on behalf of Linton Stream Catchment Group; and
- Whakaora Tapuata (weed control, riparian planting, cultural & awa monitoring) – Te Kauru hapū collective.

2.6.3 The second quarterly report for the year, covering the period October through December, was completed and submitted to MfE.

2.6.4 A Manawatū Accord Leaders Forum meeting was held on 2 December 2020, where the Chair (Richard Thompson) announced he would be retiring from the position in coming months. A replacement chair will be found in due course. At the Accord meeting it was confirmed that Horowhenua District Council would host the Manawatū River Improvement Festival on 27 February 2021 at the Manawatū River Loop Reserve (Foxton).

2.7 Waiopēhu FMU

2.7.1 The Waiopēhu FMU (formerly Horowhenua) encompasses the Lake Horowhenua and Lake Waiwiri, and the Ōhau and Waikawa River Catchments. Lake Horowhenua is a taonga for local iwi/hapū and has a degraded state below many national bottom lines for water quality. Toxic cyanobacteria causes the lake to be regularly closed for recreation. This is related to large amounts of sediment and nutrients entering the lake and the legacy contaminants already present.

2.7.2 The Ōhau and Waikawa estuaries also show signs of nutrient enrichment, with **estuary trophic index (ETI)** scores within the moderate and poor categories. These

catchments are at risk of further eutrophication as a result of land use. Further investigation is needed to establish the state of health in Hokio, Waiwiri and Wairarawa estuaries.

- 2.7.3 The Ōhau River itself is generally in good health, with a number of water quality and ecosystem health attributes achieving **National Objectives Framework (NOF)** Band A or Band B. The Waikawa Stream and its tributary the Manakau Stream, show mixed results.

WORK TO DATE

- 2.7.4 Work to improve the state of freshwater in Waiopēhu has been underway since 2013, with Horizons working in partnership with the Lake Horowhenua Trust, Lake Horowhenua Domain Board, Horowhenua District Council, Horizons Regional Council, and the Department of Conservation as co-signatories to the Lake Horowhenua Accord. Past and ongoing initiatives include:

- The installation of a fish pass over the Lake Horowhenua Weir to enable fish migration between the sea and the lake (Freshwater Clean-up Fund).
- Construction of a sediment trap at the bottom of the Arawhata Stream, predicted to reduce sediment phosphorus loads into the lake via streams by more than 25% (Freshwater Clean-up Fund).
- Lake weed harvesting to reduce cyanobacteria blooms and the toxicity effects of the lake weed on fish in the spring (Freshwater Clean-up Fund).
- Sediment and erosion control plans for vegetable growers covering 80 per cent of the horticultural land in the Arawhata Sub-catchment of the Lake Horowhenua Catchment (Freshwater Clean-up Fund).
- Riparian fencing of 16 km has been erected and 24,000 plants put in along stream banks by local communities and landowners with support from Horizons and the Freshwater Clean-Up Fund.
- The Future Proofing Vegetable Production project led by LandWISE, which focusses on working with growers in the Horowhenua to develop use of precise nutrient prescription, precise nutrient application, maximise retention of nutrients and recapture nitrates that move beyond the root zone (Sustainable Farming Fund).

FUTURE FOCUS

- 2.7.5 The focus for the next few years in the Waiopēhu FMU will be to launch the weed harvester on Lake Horowhenua, complete the Jobs for Nature Lake Horowhenua wetlands project and upgrade our water quality monitoring programme to inform water quality interventions through Jobs for Nature and complete freshwater

accounting for the FMU to inform the implementation of the new **National Policy Statement for Freshwater Management (NPS-FM)**.

WEED HARVESTER

- 2.7.6 Lake weed harvesting was recommended as a key restoration option for Lake Horowhenua, incorporated into the Lake Horowhenua Accord and the Lake Accord Action Plan. Lake weed alters the chemistry of the lake by increasing the pH of the water, lowering the nitrogen concentration and providing a favourable environment for phosphorus release and promoting cyanobacteria blooms. Harvesting weed interrupts this cycle and provides an environment more favourable to fish and other aquatic life, including native lake weeds.
- 2.7.7 Construction of the Arawhata boat ramp (Figure 13) that will enable launch of the weed harvester onto Lake Horowhenua began in November 2020 and is due for completion by May 2021.



Figure 13. Progress at the Arawhata boat ramp. Photo taken 17 February 2021.

JOBS FOR NATURE

- 2.7.8 In 2020, a four-year \$12.5 million project was announced for a Lake Horowhenua wetlands programme to remediate nutrients and sediment in the Lake Horowhenua Catchment. This project is funded through the Covid-19 recovery programme “Jobs for Nature” (\$11.2 million) by the Ministry for Environment (MfE) and partly funded by Horizons (\$1.3 million). The purpose of the project is to establish a wetlands

complex within the Arawhata Sub-catchment and an associated works programme of other interventions around the lake to improve water quality and aquatic health in the catchment.

2.7.9 Key elements of the proposed work programme are:

- Establish a Governance Group (by June 2021).
- Produce reports and modelling of the groundwater and nutrient/sediment pathways and sources within the FMU to refine the placement of interventions for water quality improvement (by June 2024).
- Implement at least one intervention that will result in water quality improvement in the FMU, including designing and building a wetland complex (by 2024).
- Communicate information on the lake and FMU to iwi/hapū and the community.
- Employ one Freshwater Coordinator – Lake Horowhenua and three monitoring/science staff.

2.7.10 The four-year funding term for this project commenced on July 1 2020, however negotiations to finalise the contract with MfE are still in progress. With the end of the first year of the project nearing, staff have been preparing the programme of work for Year 1, however implementation depends on the project being contracted. To date the following preparation has been underway:

- A workshop with technical experts held in August 2020 to refine information and data gaps.
- Development of an upgraded monitoring programme to support wetland design and wider catchment interventions is being finalised.
- Jacobs were contracted to conduct a wetland feasibility study in the Arawhata Sub-catchment, including conceptual designs. This work is in the draft report stage.
- The draft Sedimentation and Drainage Management Plan for the Arawhata sub-catchment has been completed by Tonkin + Taylor and a workshop will be held in late February to discuss the findings and recommendations.

Planned activity in the coming months includes:

- Employment of the Freshwater Coordinator – Lake Horowhenua and three monitoring staff.
- Commence the development of a nutrient and sediment budget and process for freshwater accounting.
- Develop a groundwater conceptual model to inform the nutrient budget
- Further work to design and implement the constructed wetland project.

2.7.11 Some of our existing programmes dovetail into the Jobs for Nature work, including the Integrated Sedimentation and Drainage Management Plan for the Arawhata Sub-

catchment which was scoped in 2019 and is near completion. The upgraded monitoring programme will also inform the NPS-FM freshwater accounting process which has been included as a key outcome in the design of the programme.

MONITORING AND SCIENCE

2.7.12 Lake Horowhenua and its tributaries have been monitored monthly for nutrients, sediment and *E. coli* and flow since 2013. Water quality state and trends are available on [LAWA](#). Continuous flow and turbidity monitoring at the base of the Arawhata Sub-catchment has been in place since 2018 and continuous flow monitoring was installed on the Pātiki and Mangaroa streams in 2019. There are currently 17 groundwater level monitoring sites in the Horowhenua Catchment and monthly lake level measurements were recently established for Lake Waiwiri.

2.7.13 Between 2016 and 2019, an intensive fortnightly monitoring programme was implemented in the Ōhau and Waikawa Catchments to inform nutrient sources and surface water groundwater interactions. This data will be used to inform estuary limit setting, a project currently in the scoping stage.

2.7.14 The monitoring programme to support the Jobs for Nature project is currently being refined, with the following proposed on top of the established State of Environment programme:

- A synoptic survey of the Arawhata, Mangaroa and Pātiki streams. Radon, tritium, nitrate and isotopes will be sampled to establish the groundwater/surface water interactions and determine nutrient sources. This is a one-off investigation taking place in late February/early March 2021.
- An extended groundwater monitoring programme for groundwater level and water quality. Additional groundwater bores will be established, particularly in the Arawhata Sub-catchment, to determine groundwater flow and nutrient pathways.
- Additional continuous flow, nitrate and turbidity surface water sites will be established further up the Arawhata Catchment than the current site at Hokio Beach Road, to capture high rainfall events and identify nutrient and sediment transport in more specific locations.
- Nested piezometers will be installed around the perimeter of the lake to establish the groundwater gradient and refine the lake water balance.

2.7.15 A conceptual model for the Horowhenua FMU is in the scoping stage and the intensive monitoring will help inform a more detailed and refined groundwater model in later years of the project.

2.7.16 During the quarter ending 31 December 2020, under the Future Proofing Vegetable Production project, LandWISE have been setting up replicated nitrogen application

trials on 12 vegetable growers' paddocks. The trials are to validate soil tests, nitrate quick tests and the associated FAR Nitrate Mass Balance tool to make informed fertiliser application decisions. Over the next month, field walks across the trial blocks are planned with the wider growing community to reach as many growers as possible.

Staci Boyte
SCIENTIST - LAND

Mark Mitchell
SCIENTIST – WATER QUALITY (LAKES AND COAST)

Amber Garnett
ENVIRONMENTAL SCIENTIST – NATURAL RESOURCES

Stephen Collins
SCIENTIST – GROUNDWATER

Mike Patterson
SENIOR SCIENTIST – FRESHWATER

Raelene Mercer
SENIOR SCIENTIST – WATER ALLOCATION

Logan Brown
FRESHWATER & PARTNERSHIPS MANAGER

Abby Matthews
SCIENCE AND INNOVATION MANAGER

Jon Roygard
GROUP MANAGER – NATURAL RESOURCES AND PARTNERSHIPS



ENVIRONMENTAL REPORTING & AIR QUALITY MONITORING

1 ACTIVITY OVERVIEW

The Science and Innovation Team serves a range of environmental reporting functions including research into the effects of climate change and drinking water security, and ongoing development of data management tools to support environmental reporting. The team works closely with Horizons' Communications team to share data and information via the Horizons and **Land, Air, Water Aotearoa (LAWA)** websites, as well as provide annual **State of Environment (SOE)** reporting. The team also monitors air quality in Taihape and Taumarunui and works alongside the Communications Team to run public information campaigns about good wood-burning practices.

The activity update below reports on progress on environmental reporting and air quality activities during the reporting period (1 October to 31 December 2020).

2 ANNUAL PLAN TARGETS

2.1.1 The Annual Plan targets for Environmental Reporting and Air Quality Monitoring are aggregated in Table 1 below.

Table 1 Progress reporting for Environmental Reporting and Air Quality Monitoring Annual Plan targets for 2020-2021.

Performance Measures for Levels of Service	Target 2020-21	Progress Update
Environmental Reporting and Air Quality Monitoring Activity		
Provide an annual summary report on the state of the environment.	1	Catchment summary reports are on track to be delivered this financial year.
Develop and implement a science communication strategy.	Report progress to Council annually	The strategy and action plans for science communication will be implemented throughout the year.
Complete drinking water supply research with a focus	1	This year the drinking water programme will be funding the groundwater bore inspections in priority

Performance Measures for Levels of Service	Target 2020-21	Progress Update
on Council-operated drinking water supplies and complete an annual report on this to Council.		source protection zones and this will be reported on to territorial authorities and to Council. This work is currently being scoped.
Investigate one aspect of climate change impact in the Region and report on this to Council.	1	This year the climate change research budget is being used to fund a Regional Climate Change Risk Assessment. This project has been contracted to Tonkin + Taylor and the first round of community engagement is complete. Hui are planned for March 2021 with rangatahi from iwi across the region to look at risks from climate change hazards, as well as workshops with subject matter experts.
Air quality is monitored in Taihape and Taumarunui and reporting is made available to the public via LAWA and the annual State of Environment report.	Completed	Monitoring is ongoing and data is made available to the public via the Horizons and LAWA websites. New air quality monitoring equipment (5014i BAMS) for the Taihape and Taumarunui sites will be installed in the next two months. A new site is to be found in Taihape as the Fire Station is to undergo a rebuild.
Undertake an annual public education campaign on air quality.	1	A public awareness campaign was completed in March-April 2020 and guidance information on 'good' burning was shared via social media through winter. A similar campaign will be run this year.

3 ACTIVITY UPDATE

STATE OF ENVIRONMENT REPORTING

- 3.1.1 The previous **State of Environment (SOE)** report was published in May 2019 and a framework for annual reporting, in the form of catchment summary report cards, was developed. In September 2019, we published a suite of SoE summary report cards for each of the seven major catchments or **Freshwater Management Units (FMUs)** in the region.
- 3.1.2 Staff are updating the catchment summary (state of environment) report cards, with a view to publishing these in the first half of 2021. These report cards provide an annual snapshot of the current state of the environment for each FMU.

AIR QUALITY

- 3.1.3 Air quality monitoring at Horizons' designated airsheds, Taihape and Taumarunui, continues. Existing BAM units have had their pre-winter independent annual calibration checks and at present are operating adequately. There have been no

verified exceedances of the **Air Quality National Environmental Standards (NES)** recorded at either location this year.

- 3.1.4 We have purchased two new 5014i BAM units that are capable of monitoring both coarse and fine particles (PM₁₀ and PM_{2.5}) to comply with the amendments proposed by the **Ministry for the Environment (MfE)** to the **National Environmental Standards for Air Quality (NESAQ)** in late 2019. The changes propose limits on both daily and annual concentrations of fine particle (PM_{2.5}) in ambient air. An average daily limit of 25µg/m³ with no more than three exceedances per year and an annual limit of 10µg/m³ are proposed.
- 3.1.5 The two BAM recording units have been trialed in the office, calibrated and new housings for the units have been delivered; they will now be installed at Taihape and Taumarunui before winter arrives. The new BAM units will enable us to maintain a long-term record for PM₁₀ at the sites and will also allow us to comply with the proposed change to PM_{2.5} monitoring under the proposed amended NESAQ.

ENVIROLINK

- 3.1.6 Envirolink is a regional council-driven funding scheme which aims to support regional councils in two areas of environmental management: adapting management tools to local needs, and translating environmental science knowledge into practical advice by:
- Improving science input to the environmental management activities of regional councils;
 - Increasing the engagement of regional councils with the environmental **research, science and technology (RS&T)** sector; and
 - Contributing to greater collective engagement between councils and the science system generally.
- 3.1.7 The Envirolink scheme funds research organisations (Crown Research Institutes, universities and some not-for-profit research associations) to provide regional councils with advice and support for research on identified environmental topics and projects. Funds are administered by the [Ministry of Business, Innovation & Employment - Science and Innovation](#). Envirolink commenced on 1 December 2005 in trial form and is now a well-established investment scheme. Investment funding of \$1.6 million (excluding GST) per annum is available to regional councils to contract government-funded research organisations to transfer environmental research knowledge.

- 3.1.8 During 2020-21, Horizons has successfully secured Envirolink funding for six projects to the value of \$145,020. A synopsis of these projects is provided below.
- 3.1.9 A large advice grant for water quality trend analysis and reporting guidance was put forward on behalf of the regional sector. The project involves the preparation of a comprehensive guidance document to facilitate more consistent assessment of temporal trends in our monitored parameters for freshwater (nitrate, *E. coli*, dissolved reactive phosphorus etc.). The guidance will consider trend analysis requirements in the context of regional reporting purposes and the national freshwater policy reforms. The funding for this work totals \$46,632 and will be completed by NIWA and Land Water People Limited with review from scientists from the Cawthron Institute and Ministry for the Environment.
- 3.1.10 Over the last few years Horizons has been gradually acquiring baseline information about the state of its **coastal marine area (CMA)**. In 2018, NIWA prepared an initial stocktake that identified priority areas to obtain further information. NIWA will complete the following three priorities for this Envirolink (\$38,737) project:
1. undertake a summary and analysis of seafloor biotic sampling information for the western and eastern CMAs;
 2. extract maps of threatened marine mammals and marine invertebrate distribution on the reach of the CMAs from existing spatial models; and
 3. extract maps of reef and demersal fish (those living near the seabed) distribution in the eastern CMA from spatial models.
- 3.1.11 The **National Environmental Monitoring Standards (NEMS)** for discrete water sampling and laboratory testing were released in 2019. The aim of NEMS is to improve consistency in State of the Environment long-term monitoring. To ensure Horizons' data is in line with the new NEMS requirements, current methodology used to measure some water quality variables will need to be modified. Changes in methodology can, however, result in a "step change" in the data which can affect trend analysis. To address this risk, a paired laboratory nutrient analysis is being carried out by NIWA (\$10,000 funding). This has involved collecting and analysing nutrient samples applying the different methodologies over a 12-month period, from which NIWA will interpret the data and provide recommendations to align the datasets.

- 3.1.12 A small advice grant of \$5,460 was approved for a review of the new NEMS for the collection and laboratory processing of macroinvertebrate samples. The key component of this review is an independent external peer review to inform revisions to the draft NEMS for macroinvertebrate monitoring ahead of its release to the public. This work will be carried out by Jon Harding (University of Canterbury) and Kevin Collier (University of Waikato).
- 3.1.13 A small advice grant for \$10,000 will be used to fund a two-day aquatic weed identification course run by NIWA. This is to upskill Horizons biosecurity officers on pest plants in the riparian and freshwater environment. The course will also cover management options for those weeds in the sensitive freshwater environment.
- 3.1.14 An Envirolink Tool grant of \$175,000 was approved to provide guidance on the selection and application of appropriate surrogate monitoring technologies for robust **suspended sediment concentration (SSC)** load measurements needed to support freshwater and coastal management. SSC is an important instream measurement of sediment as it plays a major role in decreasing water quality, degrading aquatic habitats and altering channel morphology. However, high frequency data in understanding sediment concentrations in stream, and a surrogate measurement, is often used to achieve this. This guidance on surrogate technologies is needed as there is currently little information available on which option is best used in each context and how to operate it effectively. It will address methods already used, such as optical turbidity as well as new (to New Zealand) methods such as acoustic back scatter point and profiling instruments. This tools grant was put forward by the Environmental Data **special interest group (SIG)**, championed by Horizons Regional Council and Auckland Council, with support from the Coastal SIG, River Managers Group, Land Managers SIG and Land Monitoring Forum. The work will be completed by NIWA over a two-year period.
- 3.1.15 Two other sector-wide tool grants that have been approved are the microbial risk assessment tool for discharges near drinking water wells, to be carried out by ESR and GNS Science (total \$230,000 over two years) and the monitoring and evaluation of riverine flow management under the NPS-FM to be carried out by NIWA and the Cawthron Institute (\$220,000 over two years). These grants were championed by the Groundwater and Surface Water Integrated Management (SWIM) SIGs, respectively.

DRINKING WATER

- 3.1.16 Since July 2018, Council has included additional funding of \$100,000 per annum in the Long-term Plan to inform decision-making concerning the management of existing and future public water supplies, including ensuring communication with other agencies involved in drinking water supply management.
- 3.1.17 Previous reports have delineated source protection zones for all council controlled drinking water supplies (and some selected large supplies) to help with risk identification and management. During the reporting period, the delineation of source protection zones was finalised for Council-operated supplies that serve fewer than 500 people, and some large non-Council operated supplies. The report outlines recommendations to improve security of the supplies assessed, and has been shared with stakeholders.
- 3.1.18 Building on recommendations from previous work, inspections of groundwater bores in source protection zones one and two are planned for this financial year. These are areas in the immediate vicinity of an intake structure and those where contaminants can reach the supply within eight hours or in harmful concentrations, respectively. A method for prioritising which groundwater bores across the region should be targeted first is currently being contracted. Field surveys and data analysis will assess the security of current groundwater bores in relation to drinking water supply.

COMMUNITY AND NATIONAL ENGAGEMENT

- 3.1.19 An important part of our role is to ensure up-to-date and relevant scientific information is effectively communicated to Horizons staff, Councillors, consent holders, iwi, the public, and any other parties interested in aspects of natural resource management.
- 3.1.20 Staff have been working on developing a community engagement plan for Horizons 'Our Freshwater Future' programme, with the first round of community engagement underway in late February 2021. Initial conversations will focus on confirming/identifying the values we associate with freshwater, to help frame our long-term vision and inform future discussions around setting objectives, limits and action plans to maintain/improve water quality. These conversations will involve iwi/hapū, stakeholders and community groups through print, digital and social media channels, community and public events, and local hui and meetings. Further

information will be made available to Horizons' Strategy and Policy Committee on 9 March 2021.

- 3.1.21 On 4 February 2021, Horizons Regional Council hosted a science and research exchange with staff and researchers from Manaaki Whenua – Landcare Research (Figure 1). The purpose of this exchange was to continue to build the relationship between the two organisations, to drive the application of science to support regional outcomes, community engagement with science, and uptake and value of data and information. The exchange focused on Council's key challenges: freshwater, climate change, biodiversity and unlocking information. Horizons staff provided an overview of issues within the local context, while Manaaki Whenua staff provided short presentations of relevant work underway that might assist Horizons. The exchange also provided an opportunity for both teams to explore a technique for engaging communities in identifying problems and solutions to environmental challenges, using the Ohau River as an example.



Figure 1 Staff and researchers from Horizons and Manaaki Whenua Landcare Research share ideas for water quality improvement in the Ohau River Catchment as part of their science exchange.

Staci Boyte
SCIENTIST - LAND

Amber Garnett
ENVIRONMENTAL SCIENTIST – NATURAL RESOURCES

Harold Barnett
ENVIRONMENTAL SCIENTIST

Abby Matthews
SCIENCE AND INNOVATION MANAGER

Jon Roygard
GROUP MANAGER NATURAL RESOURCES AND PARTNERSHIPS

Item 10

Annex E