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

Date: **Wednesday, 9 June 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

Note: The reports contained within this agenda are for consideration and should not be construed as Council policy unless and until adopted. Items in the agenda may be subject to amendment or withdrawal at the meeting.

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

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 sixth meeting of the eleventh triennium of the Environment Committee held at 9.30am on Wednesday 10 March 2021, in the Tararua Room, Horizons Regional Council, 11-15 Victoria Avenue, Palmerston North.

PRESENT	Crs NJ Patrick (Chair), AL Benbow, EM Clarke (via audio visual link), DB Cotton, EB Gordon, FJT Gordon, RJ Keedwell, WM Kirton, JM Naylor, WK Te Awe Awe, 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), Mr G Shirley (Group Manager Regional Services & Information), Mr R Smillie (Biodiversity, Biosecurity & Partnerships Manager), Mr G Bevin (Regulatory Manager), Ms S Carswell (Coordinator District Advice), Ms A Matthews (Science & Innovation Manager), Ms M Patterson (Senior Environmental Scientist Water Quality), Ms C Morrison (Media & Communications Manager), Members of the public - Mr C Rudd, Ms V Bold, Ms A Hunt and Ms B Nicholls, Mayor Grant Smith, Ms M Voss, Ms S Sinclair and various other Palmerston North City Council staff and Councillors, and a member of the Press.	

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

APOLOGIES

ENV 21-31 ***Moved*** ***Te Awe Awe/Turkington***

That an apology be received from Cr Ferguson (attending official Council business).

CARRIED

PUBLIC FORUMS / DEPUTATIONS / PETITIONS

Ms B Nicholls and Mr C Rudd were both granted public speaking rights.

Ms Nicholls spoke on behalf of her role as Trustee for the Awahuri Forest/Kitchener Park Trust about the risks of an invasive weed, Phragmites Karka. She asked Horizons to help make the public aware of the weed, and whether Horizons would support an application to the National Pest Plant Accord (NPPA).

Mr Rudd mentioned his concern with the language used in various Horizons documents, the consenting process to discharge stormwater from Levin Township into Lake Horowhenua, and the proposed establishing of a Governance Group under the Covid-19 recovery programme 'Jobs for Nature'.

SUPPLEMENTARY ITEMS

There were no supplementary items to be considered.

MEMBERS' CONFLICTS OF INTEREST

Cr Turkington noted a conflict of interest in the agenda.

Later in the meeting, Cr Naylor noted a conflict of interest in Report No. 21-19 Update of Progress for the new Wastewater Treatment Discharge Consents for Palmerston North.

CONFIRMATION OF MINUTES

ENV 21-32 ***Moved*** ***Naylor/Kirton***

That the Committee:

confirms *the minutes of the Environment Committee meeting held on 11 November 2020 as a correct record, and notes that the recommendations were adopted by the Council on 24 November 2020.*

CARRIED

DISTRICT ADVICE UPDATE

Report No 21-17

Ms Carswell (Coordinator District Advice) spoke to the report which informed 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.

ENV 21-33 ***Moved*** ***Keedwell/B Gordon***

That the Committee recommends that Council:

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

CARRIED

REGULATORY MANAGEMENT REPORT - NOVEMBER 2020 TO JANUARY 2021

Report No 21-18

Mr Bevin (Regulatory Manager) introduced this report which updated Members on regulatory activity for the period November 2020 to January 2021. It also provided 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.

ENV 21-34 ***Moved*** ***Keedwell/F Gordon***

That the Committee recommends that Council:

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

CARRIED

ENVIRONMENT COMMITTEE PROGRESS REPORT
Report No 21-20

Dr Roygard (Group Manager Natural Resources & Partnerships) and Ms A Matthews (Science & Innovation Manager) spoke to the report which updated Members 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 date of the meeting. The item provided updates on progress against the Annual Plan targets.

ENV 21-35 ***Moved*** ***Keedwell/F Gordon***

That the Committee recommends that Council:

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

CARRIED

Meeting adjourned at 10.58am.

Meeting resumed at 11.12am.

Cr Naylor noted a conflict of interest in Report no. 21-19 Update of Progress for the new Wastewater Treatment Discharge Consents for Palmerston North.

UPDATE OF PROGRESS FOR THE NEW WASTEWATER TREATMENT DISCHARGE CONSENTS FOR PALMERSTON NORTH
Report No 21-19

Mayor Grant Smith introduced the attending staff and Councillors from Palmerston North City Council, and Ms M Voss from Palmerston North City Council made a presentation to the Environment Committee on the progress towards new wastewater treatment discharge consents for Palmerston North City.

ENV 21-36 ***Moved*** ***Turkington/Te Awe Awe***

That the Committee recommends that Council:

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

CARRIED

The meeting closed at 12.04pm.

Confirmed

_____ _____
CHIEF EXECUTIVE GROUP MANAGER STRATEGY & REGULATION

_____
GROUP MANAGER NATURAL RESOURCES

& PARTNERSHIPS

Report No.	21-68
Information Only - No Decision Required	

ENVIRONMENTAL EDUCATION

1. PURPOSE

1.1. The purpose of this item is to provide members of Council's Environment Committee with an Environmental Education progress report for the period from 30 October 2020 – 28 May 2021.

1.2. For the purpose of this report, the Environmental Educator role is split. 0.5FTE of the role is regional coordination of the Enviroschools Programme, with the remaining 0.5FTE of the role delivering Horizons' Environmental Education programmes.

2. RECOMMENDATION

That the Committee recommends that Council:

a. receives the information contained in Report No. 21-68.

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. The Environmental Education role is one of Horizons' key community engagement positions, where schools and community groups are connected to programmes such as Enviroschools and Waiora stream studies, along with biodiversity and biosecurity activities.

5. SIGNIFICANT BUSINESS RISK IMPACT

5.1. There is no significant business risk associated with recommendations in this paper.

6. CLIMATE IMPACT STATEMENT

6.1. This report is for information only so there is no or minimal climate change impact. However, our environmental education programmes provide support on sustainability issues of which climate change is a part.

7. ANNUAL PLAN TARGETS

Measure	Reporting Period		YTD Actual	Target	%
	1st	2nd			
Number of Enviroschools	75	80	80	50	150
Waiora sessions conducted	15	33	48	34	141
Community engagements	22	44	66	33	200

7.1. The measure for Waiora sessions conducted includes only sessions run by Mrs Williams. Sessions conducted using Horizons' kits without Mrs Williams are not included.

7.2. The measure for community engagements does not include Waiora sessions. This measure tracks all other events and activities that fall within Environmental Education. If a school has multiple classes completing set activities then these are counted as individual sessions.

8. ENVIROSCHOOLS DATA

8.1. In addition to the official 80 Enviroschools, there are 10 school/centres on the Friends of Enviroschools list in the region. The Friends list allows schools/centres to try out the programme to see how it fits within their own context before taking the next step to become an official Enviroschool. We also use this list to determine who will be our next Enviroschools when funding becomes available. Periodically this list is revised depending on the commitment shown from the schools/centres.

9. ACTIVITY REPORT – WAIORA

9.1. Mrs Williams conducted the following Waiora sessions: One session with Hiwinui School on Cone Creek at Sixtus Lodge; one session with Awahou School on the Pohangina River at Tōtara Reserve; two sessions with Ōhau School on the Ōhau River at Kimberley Reserve; four session with Clifton School on the Rangitīkei River at Bulls; one session with Longburn School on Cone Creek at Sixtus Lodge; two session with One School Global on the Kahuterawa Stream at the Kahuterawa Reserve; four sessions with Havelock North School on the Pohangina River at Tōtara Reserve; two sessions with Newbury School on the Pohangina River at Tōtara Reserve; four sessions with Pahiatua School on an un-named creek which runs next to the school; eight sessions with Ruahine School comparing Coppermine Creek and the Manawatū River at Ferry Reserve; one session for Central King Country REAP (school holiday programme) on the Whanganui River; and one session with Weber School on an un-named creek next to the school.

10. ACTIVITY REPORT – ENVIROSCHOOLS

10.1. Mrs Williams interviewed and recruited for a new Ruapehu Enviroschools Community Facilitator, Alistair Kydd who started the role in Term 2.

10.2. Mrs Williams and the lead Enviroschools teacher from Monrad Intermediate School gave a presentation on Enviroschools to Councillors at Palmerston North City Council's Environmental Sustainability Committee.

10.3. Mrs Williams and the Enviroschools regional facilitation team held a second regional Early Childhood Education (ECE) hui on Tuesday 4 May 2021 at Te Hotu Manawa O Rangitāne O Manawatū Marae. 18 teachers from 14 Enviroschools from across the region attended this day which focused on Zero Waste. After a pōwhiri, Para Kore presented on waste with a Māori Perspective before six centres talked about their own waste journeys. Afternoon sessions focussed on 'taking action' so teachers had the opportunity to, for example, problem solve with worm farms and think about repurposing items into something new such as making cloth bags from material remnants.

10.4. Following on the back of the success of our first primary Enviroschools hui on Forgotten Fauna (native bats, fish and lizards), for student enviro-leaders in Manawatū and Rangitīkei in October. The hui was ran again for primary Enviroschools in Palmerston North, Horowhenua and Tararua. This was held on Thursday 8 April at Horseshoe Bend Reserve, Tokomaru. This time 57 students from nine Enviroschools attended and were supported by presentations from Wildlife Foxton Trust, Wildbase Recovery and Horizons Biodiversity Officer Ruth Fleeson who has a passion for bats. In the afternoon, students worked in groups to plan how they would share this knowledge with their school communities and what they could do to take action to help preserve these animal groups in their local area.

10.5. Late last school year, Kimbolton School held a reflection review to reaffirm that they were still a Green Gold Enviroschool. This event also celebrated long term Principal Linda Campbell's retirement. The school have been an Enviroschool for over 15 years with Linda driving their sustainability journey at the beginning. Her leadership has been integral to the success of the programme in the school where all staff and students are engaged in learning and action on a range of sustainability themes. Mrs Williams captured some of her wisdom when she interviewed Linda for an article for the national Enviroschools website. This can be found on https://enviroschools.org.nz/creating-change/stories/wise-words-from-a-leader-of-action-learning/

10.6. Congratulations to these Enviroschools who have also held holistic reflections: Parkland Kindergarten reflected to Silver. West End Kindergarten, Hokowhitu Kindergarten, Aberfeldy School and Brunswick School all reflected to Bronze.

10.7. Additional funding may be available in Horowhenua for more Enviroschools to join the programme so Mrs Williams has been holding all staff meetings with a number of schools in the district to gauge their interest.

10.8. Mrs Williams co-facilitated a workshop for Palmerston North schools planning to hold holistic reflection in this school year. The workshop was run to assist schools in understanding the process and what a reflection looks like. Four schools attended this hui.

10.9. Mrs Williams attended the annual Enviroschools Regional Coordinator Hui in Wellington in 20-22 March 2021 and will be attending Enviroschools kaupapa training at Te Mauri Tau, Raglan on 16 – 18 June 2021.

10.10. Mrs Williams attended a 1.5 day workshop on Te Tiriti o Waitangi delivered by The Treaty People which was organised by the National Enviroschools Team.

11. ACTIVITY REPORT – ENVIRONMENTAL EDUCATION

11.1. Mrs Williams taught driftwood ecology to students from Halcombe School who were on camp in Foxton. Students enjoyed looking for what lived in and around the driftwood such as sand scarab beetle larvae and seashore earwigs.

11.2. Animal tracking and trapping activities involve students learning about what animal pests are in our landscape, and what traps can be used to humanely dispatch them to protect our native wildlife.

Mrs Williams conducted the following sessions: one session with Hiwinui School; two sessions with What Box? Gifted and Talented; two sessions with Longburn School.

11.3. Awahou School visit Tōtara Reserve most Fridays where they do 'bush' school. Together with Horizons Biodiversity Officer Neil Gallagher, Mrs Williams organised for the whole school to learn about the biocontrol beetle for Tradescantia which entailed helping to collect beetles from their nursery site near Massey University and release them into a site at the reserve. The school is regularly visiting the site to see how the beetles are doing as they munch their way through this invasive weed.

11.4. Seaweek ran from 6 - 14 March 2021. Mrs Williams and Horizons Freshwater advisor Gracen Coe along with Department of Conservation, Whanganui Regional Museum, and Sarjeant Art Gallery provided a range of beach and stream related activities at Kai Iwi Beach. Mrs Williams ran an activity looking for macroinvertebrates at Mowhanau Stream and Ms Coe ran an activity on migratory fish where approximately 160 students attended over two days. HRC sponsored bus travel for two of the schools which attended.

11.5. Outside of Seaweek, Mrs Williams supported the Whanganui Regional Museum and Sarjeant Art Gallery to run beach and stream themed activities for all of Westmere School.

11.6. Dannevirke South School have been monitoring the stream health of the Tapuata Stream, part of the Manawatū River catchment, for the past year. In Term 1 they saw some eels in

the stream so asked Mrs Williams if someone could help them identify what species they were and also if there were any other native fish in the stream. Mrs Williams talked to the students about native and introduced fish and Horizons Fish Passage Officer Tui Wright assisted by setting nets in the stream. The students were excited to catch upland and common bullies and both long and short fin eels. They are now discussing how they can take action to ensure they can preserve the habitat of these animals.

11.7. Mrs Williams joined other educators to run a series of activities at Awahuri Forest - Kitchener Park for local schools. She ran eight sessions over two days helping students to look for bugs in the native bush.

11.8. Mrs Williams met with students from Ruapehu College three times in this reporting period to support them in their long-term water monitoring project on the Makaranui Stream, Ohakune. One of these occasions was to assist Horizons Freshwater Advisors Ben Fraser and Gracen Coe to run a riparian planting day at one of the recording sites which had received a freshwater grant for fencing and planting. Over two days, two year 10 classes planted a variety of native plants and then collected water quality data for one of their assessments.

11.9. Mrs Williams represented Horizons at Rural Games on Saturday 13 March 2021 and Central Districts Field Days on Thursday 18 March 2021.

11.10. Green Gold Enviroschool Manchester Street School undertake many sustainability projects with the school grounds but were keen to commence a project within their local community. With a blessing from Ngati Kauwhata, Mrs Williams has supported the school by helping a small group of students called the 'Waiora Group' to begin regular monitoring of three sites on the Mangakino (Makino) Stream as it flows through Feilding. Prior to this, Mrs Williams provide a professional development session for teachers from the school on water quality and using the monitoring equipment. The students are collecting data twice a term and excitedly on one data collection day they managed to catch a good sized adult Īnanga.

11.11. Mrs Williams helped students from Mt Biggs School to explore invertebrates and their ecosystem while they were on camp at Camp Rangiwoods, Tōtara Reserve.

11.12. Whanganui Intermediate School have committed to being kaitiaki at Kai iwi Beach. They are engaged in the Sustainable Coastlines' Litter Intelligence programme and Mrs Williams together with other Whanganui environmental educators are helping their students explore the coastal landscape in additional to learning about marine litter and its effects on the ocean ecosystem. So far one school syndicate has completed activities with the rest of the school completing their days each term for the remainder of the school year.

11.13. Enviroscapes® is a water catchment model which explores non-point source pollution. This class-based resource has a range of activities which help students to identify the types of non-point source or run off pollution, coming from both urban and rural areas. Students can also discuss ways to mitigate the pollution to keep our waterways healthy.

Mrs Williams conducted the following sessions: two sessions with Ōhau School; and four session at Manchester Street School.

12. The following schools borrowed environmental education equipment in this reporting period.

12.1. Waiora Stream Study kit: three clarity tubes borrowed by Awatapu College; one kit borrowed by Kaitieke School; two kits borrowed by Fielding Intermediate School; two kits borrowed by Dannevirke High School; six kits borrowed by Partnership through Collaboration (PTC), and two kits borrowed by Longburn Adventist School.

12.2. Biodiversity: two invertebrate kits borrowed by Levin Intermediate School.

Tradescantia beetle translocation with Awahou School

Tradescantia beetle translocation with Awahou School

Native fish monitoring with Dannevirke South School

Native fish monitoring with Dannevirke South School

Riparian planting at the Makaranui Stream with Ruapehu College

Ruapehu College students collecting water quality data after riparian planting

13. END OF FINANCIAL YEAR SUMMARY

13.1. There are still a number of outstanding Waiora sessions, community engagement events and Enviroschools workshops which are scheduled until the end of the financial year, occurring after this report is due. Some of these are however weather dependent and so may be re-scheduled into the new financial year. These include 15 community engagements and five Waiora sessions. They are currently included in the 2020-2021 targets.

13.2. In 2020-2021, Mrs Williams has worked with 33 different schools delivering environmental education to over 2200 students (excluding Enviroschools).

14. SIGNIFICANCE

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

Sarah Williams
ENVIRONMENTAL EDUCATOR

Chrissie Morrison
MEDIA AND COMMUNICATIONS MANAGER

ANNEXES

There are no attachments to this report.

Report No.	21-69
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 24 May 2021) and other activities for the reporting period Feb 2021 to May 2021.

2. RECOMMENDATION

That the Committee recommends that Council:

a. receives the information contained in Report No. 21-69.

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 24 May 2021, and a forecast for year-end based on current trends. The District Advice

Service responded to a total of 1005 requests. 736 of these requests were for the general public and 269 for the TAs. The forecast for year end is 1130.

7.2. The total requests received for the same time last year (1 July 2019 to 24 May 2020) were 962. This shows that the trend for requests is a 4.5% increase compared to the same time period last year and a 6.5% increase from the same period two years ago.

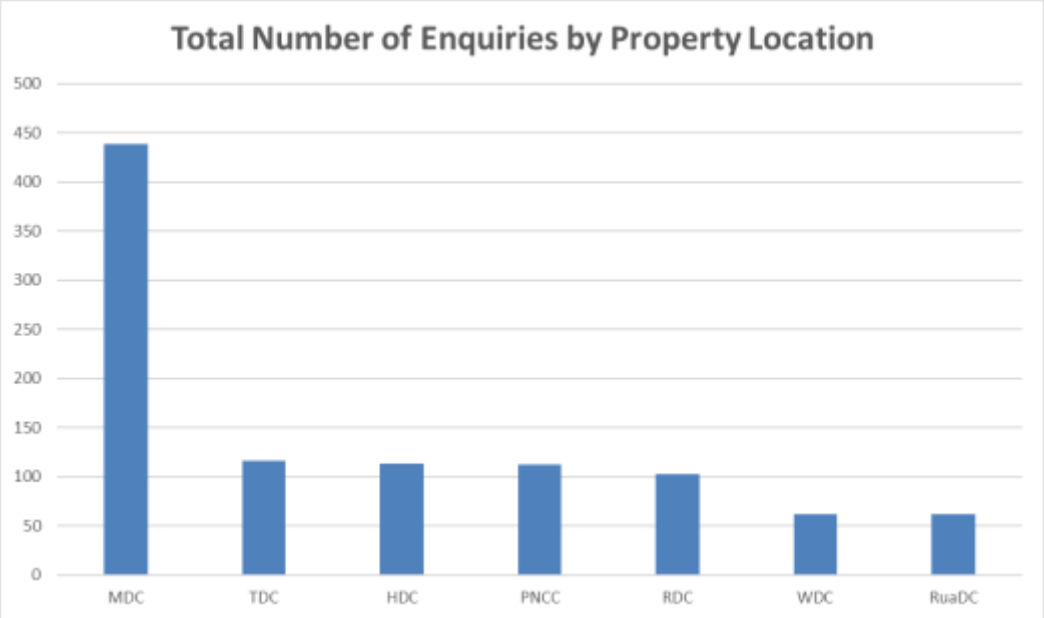


Figure 1

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

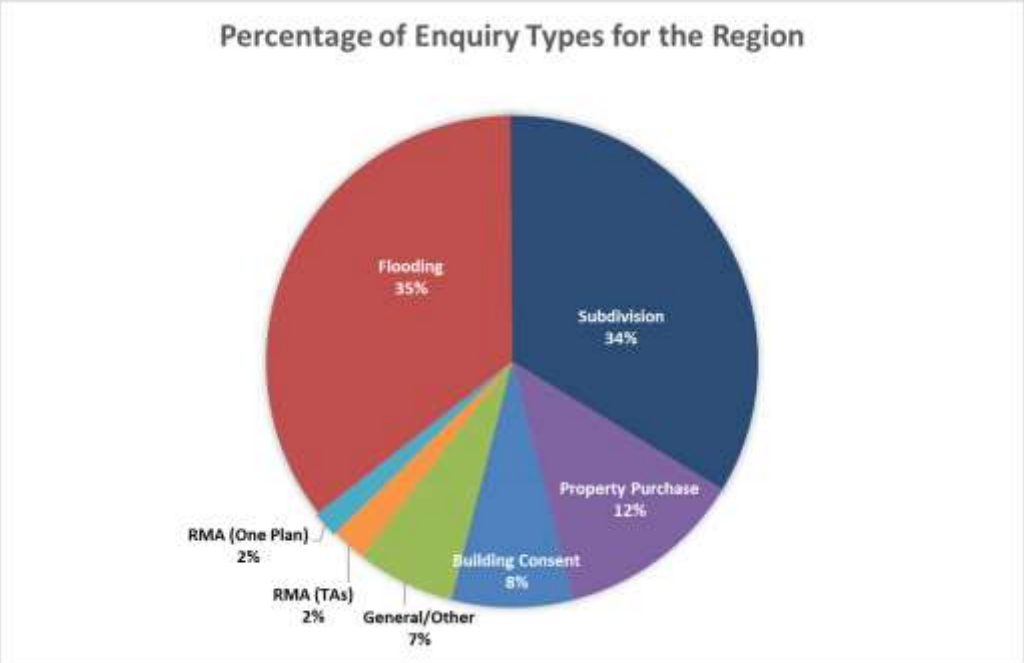


Figure 2

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

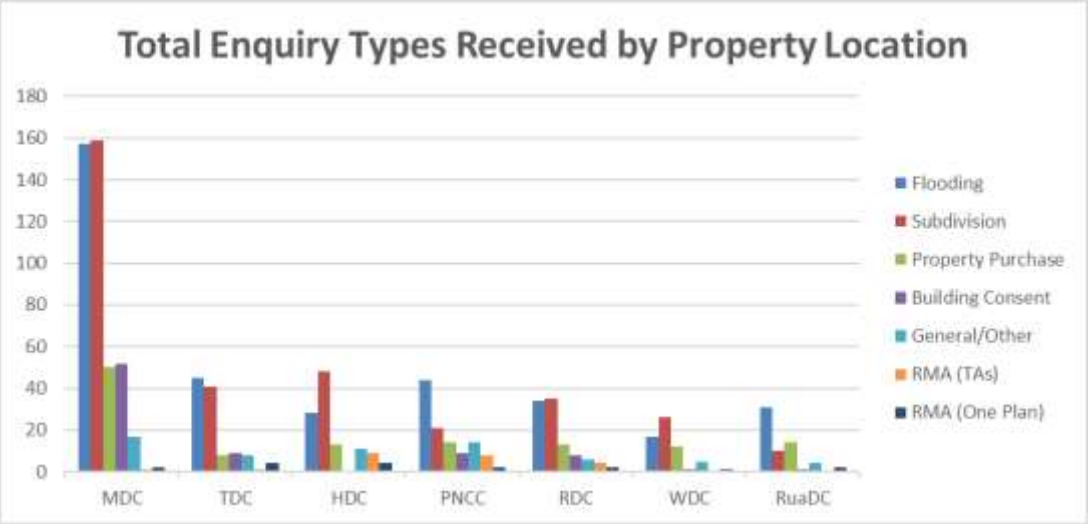


Figure 3

7.5. Figure 3 shows the enquiry types that the District Advice Team has responded to year to date by property location.

7.6. The main type of enquiry was for flooding (356), closely followed by subdivisions (340), and this is consistent across the majority of districts. This is followed by property purchases (124), building consents (80), and the remaining are general or other RMA related requests (105). There is a higher percentage of subdivision enquiries compared to previous years and generally they are time consuming because of their increased complexity and the information requiring assessment.

7.7. Given the uncertainly of COVID-19, we are unsure what the trend will be for the next reporting period. However, based on current demand it appears numbers are exceeding pre COVID-19 levels.

8. IMPROVEMENT INITIATIVES

8.1. With support from the Information Management and Infrastructure Technology Teams, the District Advice Team continues to work hard to implement initiatives to improve efficiencies and quality of information provided to customers. The District Advice is transitioning to Horizons service portal (thePortal) which is web based platform that provides staff with a single access point to information and customer requests. This will enhance the collaboration of information, triaging, improving coordination and overall customer service. From July all customers will be strongly encouraged to use the online form due to the many benefits. The form is continuously improving along with our public viewing maps. These improvements also create efficiencies for our Customer Services and Records teams. Feedback from customers and internal staff 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 March there was a field trip to Waikawa Beach and in May a field trip to Pahiatua to learn more about natural hazards. The group is currently reviewing the work programme for the next financial year which will include information sharing on the new flood modelling for Upper Mangaone, Ohura, East of Levin and Ohau-Manakau.

9. DAMS - BUILDING CONSENTS

9.1. Year to date there have been three 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). In March 2021 MBIE reported that cabinet has agreed to the development of the new safety regulations. Cabinet has agreed to regulations for dam safety that place the responsibility on dam owners to ensure dams are maintained to acceptable safety levels. The regulations will outline a system for identifying what dams are included in the regime, classifying a dam's potential impact failure and prescribing the required contents of a Dam Safety Assurance Programme to promote regular monitoring and surveillance practices for the safe operation of dams.

9.3. MBIE expect the details of the regulations to be approved by Cabinet later in 2021. There will be a two-year lead in time before they come into force. MBIE will be back in contact once the final regulations have been approved with a guide to help understand what is required under the regulations.

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 since our last report on 24 February 2021.This includes coordinating and providing Horizons' initial feedback and comment on proposed growth areas.

Horowhenua District Council

10.2. 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.

10.3. Continuing to work with Horowhenua District Council to help coordinate feedback on Horowhenua Growth Planning. The CDA arranged a meeting in March for relevant staff to answer questions and provide any additional feedback on growth areas under investigation for Horowhenua District Council's future plan changes. The feedback was from Horizons' technical staff and the District Advice service, including general considerations, regional matters including transport.

10.4. In May the CDA arranged and coordinated a meeting about the **Wellington Regional Growth Framework (WRGF)** project. That included the WRGF Project Director, Horowhenua District Council staff representative and a number of relevant Horizons staff from across many teams. Horizons expressed concerns about cross-boundary issues and lack of engagement, however, moving forward Horizons is now engaged with the project including participation in with various workshops including Structure Plans, Three Waters and Climate Change.

Manawatū District Council

10.5. In March the CDA participated in the meeting with Manawatū District Council staff and their consultant about their working draft plan change A and B (Rural residential and village). The CDA provided general advice and provided a desk top assessment on the Taonui Aerodrome proposed zone change.

Palmerston North City Council

10.6. On behalf of Horizons the CDA coordinated and drafted Horizons submission on the Notice **of Requirement (NOR)** from KiwiRail Holdings Ltd for a Designation for a Regional Freight Hub.

10.7. In late February, District Advice coordinated Horizons' comment on the Whiskey Creek (private proposed plan change) as public feedback was requested for a proposed residential plan zone for Cloverlea. The comments outlined relevant One Plan Policies including Policy 3-4 the strategic integration of infrastructure with land use, natural hazards, freshwater management, stormwater, stopbanks, connectivity and transport.

10.8. In March District Advice coordinated and drafted Horizons response to the draft proposed Plan Change G Aokautere Structure Plan (initial clause 3 phase). Comments included but not limited to stormwater management, flooding, biodiversity, transport, connectivity, energy and Te Ao Māori – The Māori World.

10.9. The CDA organised the third meeting in April for Horizons staff to meet with Palmerston North City Council staff for an information sharing session on flooding for the city. The fourth session is booked for June 2021.

10.10. In May the CDA arranged a meeting with relevant Horizons staff to meet with Palmerston North City Council staff and their consultants in regards to the Kākātangiata urban growth area options for Palmerston North. Discussions around a number of development options and Horizons provided advice on a number of considerations e.g. natural hazards, biodiversity (green corridors), volatile soils, transport, connectivity and energy. The CDA will arrange any follow up meetings and coordination of information.

Rangitīkei District Council

10.11. The CDA has arranged a meeting in July with Rangitīkei District Council staff to help with Rangitīkei District future growth and spatial planning.

Ruapehu District Council

10.12. The CDA is working with consultants engaged by Ruapehu District Council to help develop a Taumarunui Future Housing and Community Plan. At this stage the main discussion is the risk of flooding.

10.13. In May the CDA participated in GNS Science's presentation on the fault mapping project with Ruapehu District Council officers. The CDA discussed how this information can be provided to the public and how to work together to influence land development proposals near and on active faults.

Remaining Territorial Authorities / Region Wide Activities

10.14. There were no new notifications or engagements since our last report on 24 February for Whanganui and Tararua District Councils. District Advice participated in the Region's Civil Defence Emergency Management Group Hazards/Risks Workshop providing a regional perspective on natural hazards.

SIGNIFICANCE

10.15. 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.	21-70
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 January to 30 April 2021 with some additional updates up to the time of writing and forecasting to the end of the financial year (30 June 2021). The item provides updates on progress against the Annual Plan targets, including providing several annual reports to deliver on Annual Plan targets.

2. RECOMMENDATION

That the Committee recommends that Council:

a. receives the information contained in Report No. 21-70 and Annexes.

b. approves the receipt of the Annual Reports for:

i. The land and fluvial monitoring and research activity;

ii. The water quantity and quality monitoring and research activity and its findings;

iii. The Manawatū Catchment Freshwater Improvement Fund project;

iv. The Whangaehu Catchment Freshwater Improvement Fund project;

v. The Waipu Catchment Freshwater Improvement Fund project;

vi. Lake restoration activity including the Freshwater Improvement Fund project for Lake Horowhenua;

vii. The work with the horticulture sector through the Freshwater and Partnerships programme to improve water quality;

viii. The National Biocontrol Agent Development programme;

ix. The Biodiversity Monitoring and Research activity;

x. The management of Tōtara Reserve Regional Park for biodiversity and recreational values including managing the camping facility;

xi. Drinking water supply research;

xii. Climate Change research.

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. The item does include the annual report for the climate change research activity.

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. This report provides an operational update for the period of 1 January to 30 April 2021 and also provides a range of annual reports as required to meet Annual Plan Targets. The timing of the reporting to Council in June, and the preparation of this report in May requires that some aspects of the progress report and Annual Reports are required to include forecasts of progress of projects by 30 June 2021. Further reporting on the programmes final delivery on Annual Plan targets will be provided via Councils Annual Report, later in 2021.

7.3. Reporting to Environment Committee over the 2020-2021 year has been completed in a revised format introduced for the August 2020 meeting. Council items relating to the work programmes have included:

- Jobs for Nature Funding, item to Regional Council (July 2020);
- Tōtara Reserve Poplars, item to Regional Council (July 2020) & Totara Reserve Poplar procurement, item to Regional Council (September 2020);
- Environment Committee progress reports (August 2020, Nov. 2020, March 2021 and June 2021);
- National Wilding Conifer Programme & Wilding Conifer procurement, items to Regional Council (September 2020);
- Lake Rākau Hamama item to Regional Council (September 2020);
- Biodiversity Partnerships Programme, item to Strategy and Policy Committee (August 2020);
- Pest Plan Update to Strategy and Policy Committee (October 2020);
- Biodiversity Priority Sites Update to Strategy and Policy Committee (November 2020);
- National Environmental Standards for Stock Exclusion – implications for consenting of water abstractions, item to Strategy and Policy Committee (November 2020);
- Lake Horowhenua Restoration Update, item to Regional Council (March 2021); and
- Jobs for Nature Project Update, item to Audit and Risk Committee (March 2021).

7.4. Further reporting on the programmes is undertaken through reporting to governance groups including the Te Apiti Governance Group, Totara Reserve Advisory Group, the Biodiversity Contestable Fund committee, the Sustainable Land Use Initiative Advisory Group, the Governance Groups for the three Freshwater Improvement Fund projects, and

the governance groups for the three Jobs for Nature projects. Work has been initiated on a governance group portal to provide for easier access to information for the many governance group members.

7.5. Progress on the Land Management Activity has been reported to Council via the Catchment Operations Committee meetings in September 2020, December 2020 and April 2021.

Biosecurity animals

7.6. The Biosecurity Animals programme (Annex A) includes the possum control and rook control programmes as well as the amenity pest programmes. Overall, all three of these programmes are projected to meet the annual plan targets.

7.7. The possum control programme has completed a significantly greater amount of new area added to the programme, 45,225 ha, than the Annual Plan target of 6,217 ha for the year. There are currently 153 **possum control operations (PCO's)** that make up the over 1.574 million hectare programme (over 70% of the region). A total of 87 PCO's were planned for completion this year. One PCO, Whakarongo, will not be completed as a contractor has been unable to meet contractual commitments. The programme has encouraged further landowners to opt-in to the voluntary programme and focussed on returning to parts of PCO's with high possum density to provide further treatment.

7.8. Of the 153 PCO areas, 25% are monitored each year. Of the planned 38 PCO's to be monitored, 26 have been completed and the remainder are on track for completion by June 30. The average of the 26 possum monitoring results completed at this stage in the year is 2.9% **Residual trap catch (RTC)** for a target of less than 10%. Two results have been over the 10% target. Both PCO's, Waitarere and Ruatiti Stage 1 returned 13% RTC results, the next highest result was Matahiwi at 6.3% RTC. Follow up treatments, with further measures, are being planned in the Waitarere and Ruatiti State 1 PCO's for early in the new financial year.

7.9. The rook programme treated additional nests this year with 152 active nests spread over 47 active rookeries treated, within the 136 sites visited. This is up from 94 active nests treated over 56 active rookeries sites last year. Additional resourcing provided through the Annual Plan enabled a second round of treatment to treat nests where rooks had re-established nests following the initial treatment. A total of 56 rookeries were revisited and 14 treated. Increased public reporting was very helpful to the programme this year.

7.10. The amenity pest programmes programme received 376 enquiries during the reporting period with the highest number of enquiries being about rabbits. During the reporting period, Horizons initiated the collection of the data for the three yearly survey of rabbits including collection of blood samples to estimate the levels of resistance to rabbit calicivirus. Rabbit counts are on track to be completed by the end of the financial year. Results from the rabbit counts and blood samples will be reported to Council later in the year.

Biosecurity plants

7.11. The biosecurity plants programme (Annex B) provides an activity update for the reporting period. The biosecurity plants activity has been significantly increased over the financial year in response to new incursions and incursions in new locations (including alligator weed and delta arrowhead). The programme has also been expanded through additional funding from the Ministry for Primary Industries for Wilding Conifer control. Horizons administrates the funding for the Central North Island programme. This programme has recently received an additional $110,000 of funding for completion by the end of June 2021. Horizons is undertaking $10,000 of the work within this recent new funding allocation.

7.12. During the year, Councillors received a paper identifying progress against the pest plan that outlined the 46 of the 55 plant species in the pest plan, 84%, are on track to achieve pest plan targets and nine species are not likely to achieve the pest plan targets. The nine species include two eradication species (Chinese penistetum and purple loosestrife), two progressive containment mapped species (evergreen buckthorn and old man's beard) and five progressive containment unmapped species (the aquatic weeds eelgrass, egeria, hornwort, lagrospihon and reed sweetgrass).

7.13. The biological control programme has had several highlights over the year including across agents for tradescantia, tutsan and field horsetail. During the reporting period a field horsetail field day was held, including further releases of weevils. Work is now underway to secure funding for further breeding of weevils for future distribution. The national biocontrol collective has been financially supported again this year. The programme supports projects against nine pest plant species. Two of these are championed by Horizons, old man's beard and field horsetail. Two others are of direct benefit to the region, banana passionfruit and Japanese honeysuckle.

Biodiversity

7.14. The Biodiversity Programme (Annex C) is on track to meet Annual Plan targets. The priority sites programme is on track to add seven new bush remnant and four new wetland sites raising the number of sites at management level 3 from 68 to 79. Of the 68 sites at management level 3 at the start of the year, 30 are to receive some maintenance control with four of these being funded by other programmes (icon sites and regional park). The community biodiversity programme received additional funding in 2020-21. The programme has 18 projects allocated for a target of 12. The increased programme of pest management at Te Apiti Manawatū Gorge has been slower to initiate than anticipated. Updates on the individual projects are provided in the Annex. Totara Reserve also received additional funding in 2020-21, this has enabled an increased pest control programme to be established. Council approved additional work at Totara Reserve to remove poplar trees. This additional work programme was delivered and delayed the opening of the camp ground. The focus on the poplar removal did delay planning for some of the other capital work including the water supply upgrade and some of these capital projects may now need to span across financial years.

Water, Land and Fluvial monitoring and Research

7.15. Progress on the Water Quantity and Quality Activity and land and fluvial research and monitoring programme is reported in Annex D. This includes the annual reports on these activities as required by the Annual Plan. These annual reports are integrated with the reporting on implementation activity within Annex D.

7.16. The water quantity monitoring and research programme provides a seasonal update for the region on groundwater levels, river flows and the water allocation restrictions. In the Tararua District there have been significant water use restrictions in the Norsewood/Dannevirke area, with one site having water use restrictions for 89 days. This is a second year of significant water use restrictions for the irrigators in this area and a second year of significantly low flows for the water resources. The water monitoring programmes have progressed well over the summer season. The report overviews results from the 81 contact recreation sites monitored across the region. The recent season that was completed at the end of April 2021 was the 5th year of the expanded contact recreation monitoring programme. The annex also overviews lake and estuary monitoring results.

7.17. The fluvial survey programme has been focused on the completion of the remaining four catchments in the South-eastern Ruahine area which were paused due to COVID-19 Level 4 and Level 3 restrictions as well as the Kawhatau Catchment and Rangitīkei Catchment fluvial surveys. A further piece of work is being undertaken on best practice guidelines for gravel extraction.

7.18. The land monitoring and research programme has commissioned work with Landcare Research to provide soil mapping information for the Horowhenua and also continued the collaborative work with Landcare Research on the smarter targeting of erosion control research programme. Both of these projects have received significant external research funding. A further project completed with Landcare Research during the year produced an updated regional land-use map.

Freshwater and Partnerships

7.19. Progress on the implementation part of the Water Quantity and Quality Activity is also updated on in Annex D.

7.20. The Freshwater and Partnerships programme in the Annual plan included the three Freshwater Improvement Fund projects (Whangaehu, Waipu and Manawatū) as well as the work with Horticulture growers and the lake weed harvesting activity. The programme was significantly further expanded through the addition of the three Jobs for Nature projects (Regional Stream Fencing and Planting, Enhancing Fish Populations and Horowhenua Freshwater Management Unit Water Quality Interventions). The addition of the Jobs for Nature projects in July 2020 has required a significant upscaling of activity and all three of these projects are on track for delivery this year.

7.21. Each of the projects are reported on within the Annex. Overall the stream fencing, riparian planting and fish pass targets across the projects are on track for delivery, with several of the targets within the specific projects having already been met at the time of writing this report. At an overall level,

- Over 84 km of fencing has been completed for an overall target of 102 km of fencing, with a total of 178 km allocated.
- Over 139,000 riparian plants have been planted for a target of 78,333 with a total of 182,579 allocated.
- Eleven fish pass repairs have been completed for a target of 7, with 20 fish passage repairs allocated for the year.
- Five community projects have been completed for a target of 13, with 21 projects allocated.

7.22. The Lake Waipu Freshwater Improvement Fund project seeks to secure land and fully apply Rātana's wastewater to land, rather than the current discharge to Lake Waipu. The project secured funding in 2017 and was contracted in 2019. Work to date by Rangitīkei District Council has not resulted in securing of land for the project. The Ministry for the Environment have communicated with Horizons in May identifying their view of the high delivery risk and identified a process for reallocating the funds if land is not procured or close to procurement by 30 August 2020.

7.23. The Lake Horowhenua work programme has continued with the boat ramp for lake weed harvesting having been completed, and land secured for the wetland complex component of the Jobs for Nature project. Work with horticulture growers has continued through the Sustainable Farming Fund project "Future Proofing Vegetable Production".

Environmental Reporting

7.24. The Environmental Reporting programme (Annex E) is on track to meet all of the Annual Plan targets. The Air Quality monitoring programme has continued in the Taumarunui and Taihape air sheds with monitoring upgrades being undertaken this year to include the additional "PM2.5" measurement. An air quality public campaign has been undertaken in March and will be followed up in June. The drinking water research programme has focussed on public supplies for communities with populations between 25 and 500 people. Further work to prioritise and undertake bore inspections has also been initiated. The Climate Change research topic for the year has been the regional climate change risk

assessment. The project is divided into two stages, Stage 1: Exposure and Stage 2: Vulnerability and Consequence. The first stage considers hazards and consequences in terms of community values. The interim report will be delivered early June 2021. The final report covering both Stage 1 and Stage 2 will be delivered by June 30 2021 and will be presented to the Strategy and Policy Committee next financial 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

Dr 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 and Air Quality Monitoring 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 (RPMP) 2017-37.

2 ANNUAL PLAN TARGETS

2.1.1 A summary of the Annual Plan targets and progress to date is 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	26 of the planned 38 monitors for the 2020-21 year have been completed. The average result for these monitors is 2.9% RTC (+/- 1.2%) with two returning results >10% RTC.
Additional hectares included in the Possum Control Programme	6,217 ha[1]	45,225 new hectares have been completed to date this financial year.
All known rookeries are treated annually to reduce crop losses and damage.	100%	Surveillance and baiting preparation underway

[1] This target is from the current LTP, however due to the covid 19 lockdown in 2020 some new PCOs were not treated and have been included in this year's work programme, and also some new areas had very low possum abundance so were deferred for a year, increasing the total to 81,885 ha of new possum control for 2020-21.

Performance measure/ contract target	Target	Progress
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%	376 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% 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 non-regulatory 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 eliminates 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. This target is from the current Long-term Plan, however due to the covid 19 lockdown in 2020 some new PCOs were not treated and have been included in this year's work programme. Some new areas had very low possum abundance so were deferred for a year, increasing the total to 81,885 ha of new possum control for 2020-21.
- 865,655 ha (55.2% of the total area) i.e., areas that previously have been under Horizons control are scheduled for maintenance control and will receive bait station fills this yer.
- 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 population derived from a population modelling app (PosSim) that assists programme management decision-making.

3.1.3 The 2020-21 possum control programme comprises 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 each PCO is monitored at least once every four years. 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 treated 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 is reviewing each PCO being worked this year, analysing results and installing further bait stations where required. The team is also seeking landowners who have previously opted out of the non-regulatory 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 about the thresholds of possum abundance linked with the size and type of habitat that could trigger Good Neighbour Rules in Horizons 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 has completed 38 of the 57 PCOs planned for the year with eight more operations underway (Table 2, Map 1). Two complete PCOs planned for the previous financial year, with a total of 1,412 bait stations, were carried forward. More landowners than usual have opted in to 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 with 19 of the 30 operational areas now completed.

3.2.3 One new PCO (Raetihi Buffer) was completed during the reporting period and work commenced in Retaruke, the last new area. Operational work has been completed in 10 maintenance areas this period – Kirikau, Makino North, Matahiwi, Morikau, Parapara, Turakina Valley, Umutoi, Waikaka South, West Raetihi and Whangamomona.

3.2.4 Work is also well underway in five maintenance PCOs – Apiti, Hikumutu, Taumarunui Rollback, Tararua Ground and Waihi Valley.

3.2.5 Whakarongo, a maintenance PCO, will now not be treated this year as the contractor is unable to complete the work due to ill health and subsequent retirement. We have attempted to engage one of our other contractors to undertake the work but, due to full work commitments, none have the capacity so the operation will be carried over into next financial year and will be worked by the Regional Response Team.

3.2.6 The procurement process to select the contractors for the next three years of PCO work continues. The **registration of interest (ROI)** document was loaded on the

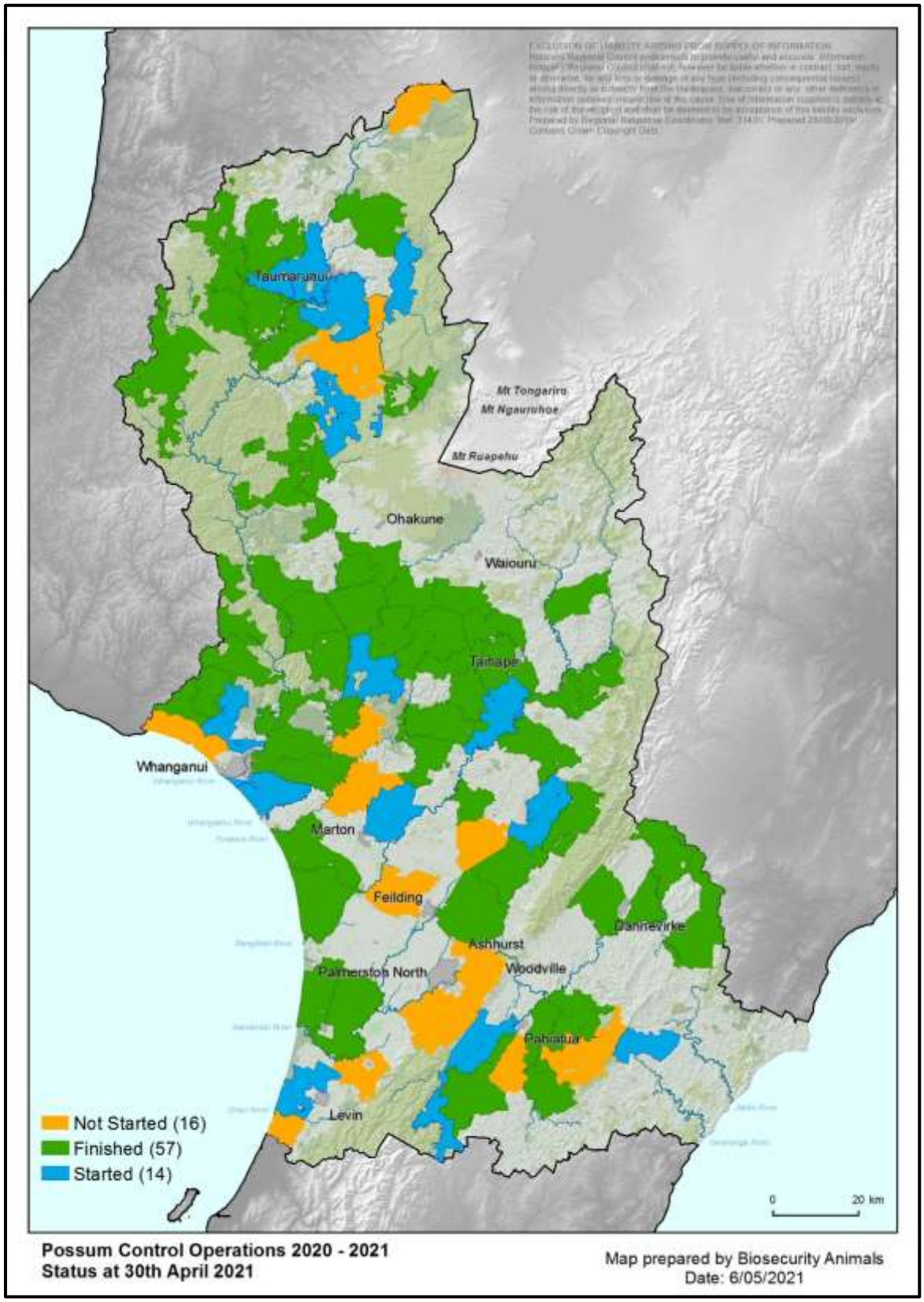
Tenderlink website in February, suppliers submitted their company profiles and were shortlisted to progress to the next stage of **request for proposal (RFP).** After the evaluations of the RFPs, three contractors were selected to progress through to the contractor workshops. The workshops were to be held in early May with the successful contractors entering into agreements in principle in mid- to late-May.

3.2.7 In line with Horizons procurement policy, staff will prepare a paper for Council to consider in relation to the procurement process prior to the final contracts being signed.

Table 2 Progress reporting for the Possum Control Programme against Operational Plan targets to the end of April 2021.

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	14		38	57	67%	
New hectares completed	1,620	11,000	6,217		18,837	41,423	45%	On track
Bait stations	14,158	20,093	18,066		52,317	62,014	84%	On track
External Contractors								
PCOs completed	1	7	11		19	30	63%	On track, except one PCO[2]
New hectares completed	12,200	12,100	2,088		26,388	40,462	65%	On track
Bait stations	6,967	12,233	16,195		35,395	49,362	72%	On track
Total PCO Programme								
PCOs completed	9	23	25		57	87	64%	On track
New hectares completed	13,820	23,100	8,305		45,225	81,885	55%	On track, Annual Plan target of 6,217 ha met
Bait stations	21,125	32,326	34,261		87,712	111,376	79%	On track

[2] One PCO will not be completed due to external contractor losing capacity to deliver control. This PCO will be treated early in the 2021-22 year.



Map 1 Status of Possum Control Operations 2020 – 2021.

Item 9

Annex A

4 MONITORING

4.1 Possum Monitoring

4.1.1 This is year three of the Possum Monitoring Programme, which aims to monitor all PCOs during a four-year period to provide an index of possum abundance.

4.1.2 The monitoring programme operators put out 250 wax-tags in 25 lines of 10 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 Six more of the 38 programmed PCO monitors were completed during the reporting period, with the RTC results ranging from 0.6% to 6.2%. The average result over the six monitors was 2.5% - $\pm$1.0%.

4.2.2 A total of26 PCO monitors have now been completed this year. Table 3 provides a summary of the RTC results for these monitors. Waitarere and Ruatiti Stage 1 monitors both returned a 13% RTC result, being above the target of 10% RTC (Table 3, Map 2). The next highest result this year was Matahiwi at 6.2% RTC. Waitarere is predominantly a forestry block where public access reduces the control options available. Staff are working with the forest owners to deliver a more comprehensive control operation in July. Ruatiti Stage 1 has untreated farms and bush areas throughout the PCO that are compromising the control on the treated areas. This PCO will be retreated again early in the next cycle as the contractor lacked the capacity to carry out another round of control this yea. An effort also will be made to invite more of the owners of untreated land into the PCO programme.

4.2.3 Table 4 shows the list of PCO monitors yet to be completed in this financial year.

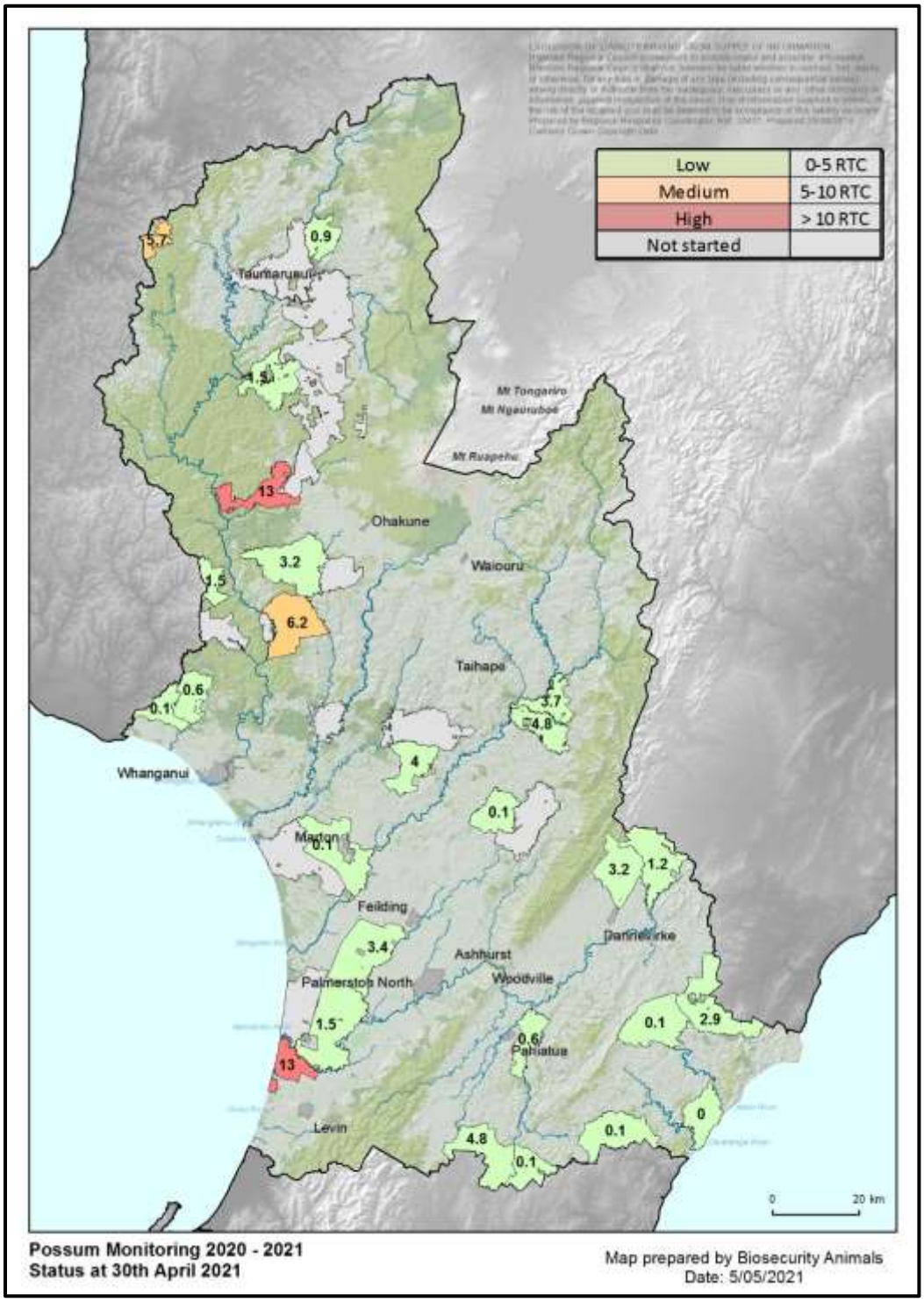
4.2.4 The procurement process to select the contractor for the next three years of PCO monitoring is nearing completion. A workshop was arranged for early May with representatives of the prospective monitoring company. Subject to a successful outcome, an agreement in principle will be signed in the weeks following the workshop. In line with Horizons' procurement policy, staff will prepare a paper for Council to consider in relation to the procurement process prior to the final contracts being signed.

Table 3 Monitors completed to end of April 2021.

PCO	RTC %	CI ± %	Completed	Rank
Waitarere	13	3.2	Aug-20	1
Ruatiti Stage One	13	2.3	Oct-20	2
Matahiwi	6.2	1.2	April-21	3
Waitaanga	5.7	1.8	Sep-20	4
Eketahuna South	4.8	3.2	Aug-20	5
Kawhatau	4.8	1.2	Aug-20	6
Hunterville	4.0	1.5	March-21	7
Toe Toe	3.7	1.5	Dec-20	8
Rongotea	3.4	2.6	Jul-20	9
Matamau West	3.2	1.5	Jul-20	10
Raetihi Buffer Two	3.2	2	Nov-20	11
Weber	2.9	1.8	Nov-20	12
Himatangi	1.5	0.9	Jan-21	13
Mangaporau	1.5	0.6	March-21	14
Whakahoro	1.5	1.2	Nov-20	15
Norsewood	1.2	0.9	Feb-21	16
Taringamotu	0.9	1.2	Sep-20	17
East Pahiatua	0.6	0.6	Feb-21	18
Kai Iwi	0.6	0.4	Sep-20	19
East Alfredton	0.1	0.1	Jul-20	20
Waihoki	0.1	0.1	Jul-20	21
Oporae East	0.1	0.1	Aug-20	22
Maxwell	0.1	0.1	Oct-20	23
Marton	0.1	0.1	Oct-20	24
Kimbolton	0.1	0.1	Nov-20	25
Branscombe Coast	0.1	0.1	Jul-20	26
Average	2.9	1.2		

Item 9

Annex A



Map 2 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
Hikumutu
Kaitieke
Makino North
Otairi
Pipipi
Raetihi Buffer 1
Retaruke
Taumarunui Rollback

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 aerially 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 a helicopter.

5.2.2 A total of 136 sites were visited over the region, 56 of which were been actively used.

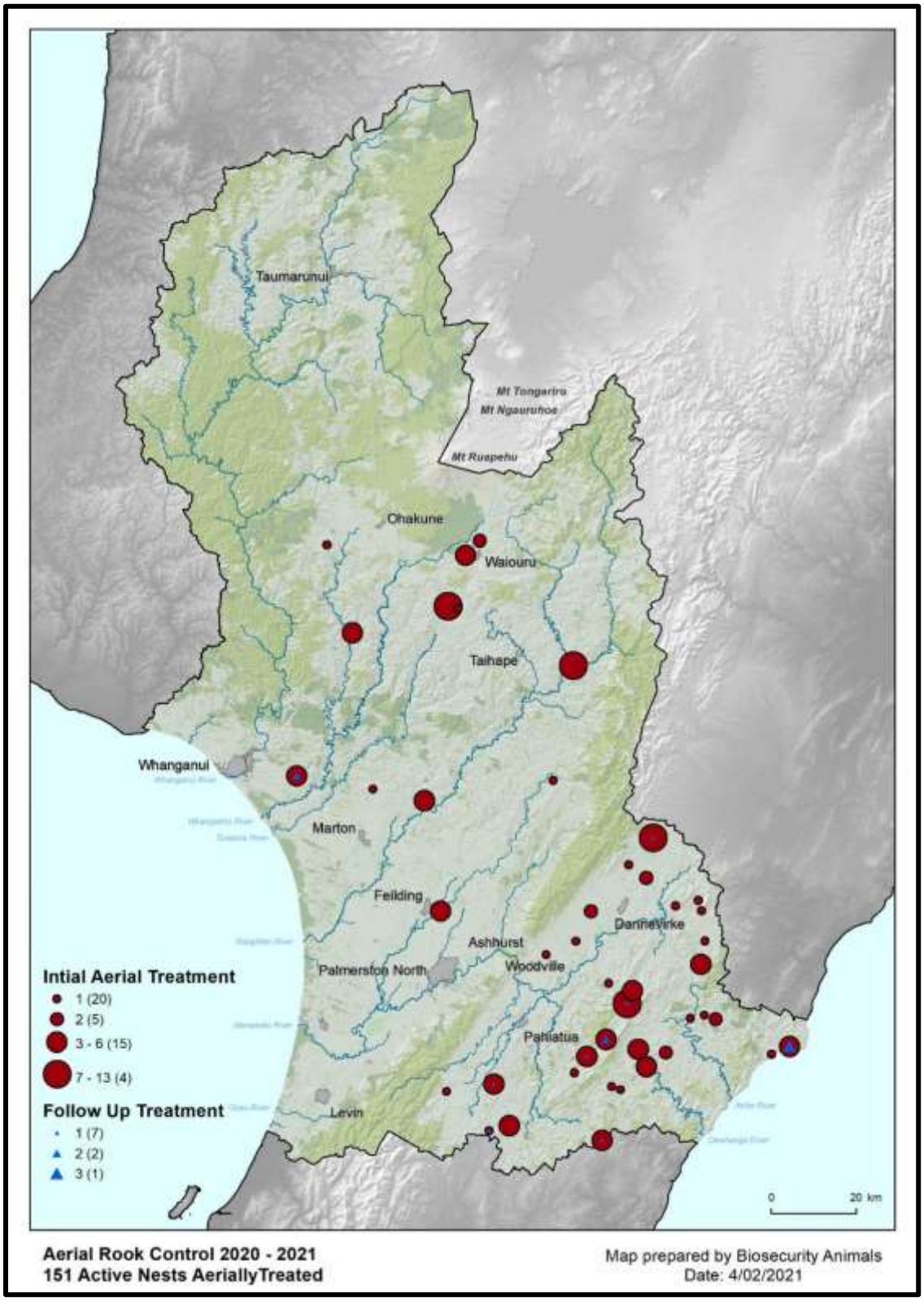
5.2.3 There was an increase in active nests treated this year with 152 active nests spread over 47 active rookeries (Map 3 below) compared to 94 active nests spread over 56 active rookeries in 2019.

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 was 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. 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.

5.2.6 No ground control has been carried out so far this year. An attempt was made at Waituna West but the pre-feeding wasn't successful due to the availability of other food.



Map 3 Rook control work 2020-2021.

Item 9

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 376 enquiries during the reporting period with the highest number of enquires relating to rabbits, followed by possums and mustelids (ferrets, stoats and weasels).

6.2.2 All enquiries were responded to within the agreed timeframes.

7 REGIONAL PEST MANAGEMENT PLAN (RPMP)

Annex A

7.1 Programme overview

RABBITS

7.1.1 Three years of very mild winters have spared rabbits their normal winter mortality, 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. However, our recent mild winters have reduced winter mortality and increased base breeding 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 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 three-yearly survey for rabbit calicivirus (aka **Rabbit Haemorrhagic Disease Virus (RHDV)** and a population monitor to measure trends in rabbit abundance across the region. The RHDV survey will provide information on the levels of immunity to the virus in the rabbit populations i.e., the percentage of the rabbit populations that won't be succumb to the virus.

7.2 Activity update

7.2.1 The field collection of rabbit RHDV samples was completed in March with 303 rabbit blood samples being obtained. The samples have been sent to Massey University for assaying, the results are expected to be available in May.

7.2.2 In addition to the RHDV sampling, Response Team staff will be undertaking rabbit night counts along the 11 count routes that are spread across the region in late May – early June 2021. The number of rabbits observed along the individual count routes will be compared with the results from past years to determine the trends in rabbit populations.

7.2.3 The results will be reported to Council later in the year in the context of the Regional Pest Management Plan strategy for management of rabbits.

Eric Dodd
BIOSECURITY ANIMALS COORDINATOR

Daniel Hurley
REGIONAL RESPONSE COORDINATOR

Rod Smillie
BIODIVERSITY, BIOSECURITY & PARTNERSHIPS MANAGER

Jon Roygard
GROUP MANAGER NATURAL RESOURCES AND PARTNERSHIPS

Item 9

Annex A

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 invasive plants transforming productive land and the region's natural biodiversity. 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. 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 is in progress after Sagittaria platyphylla, an aquatic plant, was confirmed in Pioneer Highway Drain and the Mangaone River in November 2020. Response plan initiated, initial control works completed January 2021; surveillance and late season follow-up at dump site and in-stream is taking place.**
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[3] 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**	**Financial support provided and an overview annual report provided below. Fuller reporting from Landcare Research is on track for delivery by the end of the financial year.**
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**	**Assessment of agent release sites across a range of species completed. Establishment of new agents, tradescantia leaf rust, tutsan beetle and field horsetail weevil, with range expansion of others occurring.**
Pest plant enquiries received are responded to within three working days.	**95% of enquiries will be responded to within three working days**	**Approximately 98% of Pest Plant Team enquiries responded to within three working days. Achieved.**

[3] 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 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.

3.2 Activity Update

3.2.1 Staff are engaging with farmers to plan infection zone (paddock) utilisation and surveillance following the 2016 velvetleaf incursion in Horizons region via fodder beet crops. As part of subsequent management operations Horizons funds the use of a surveillance dog at the most optimal time of year for velvetleaf detection. The find shown in Figure 1 was six weeks after the dog surveyed this known infection zone and highlights the potential for-late season growth and maturation. The farmer subsequently destroyed this crop.

Figure 1 Seedbank velvetleaf found in historic cropping paddock at Fordell, Whanganui (R.Sicely)

Item 9

Annex B

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 link[4]. 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 already 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 alstromeria and woolly nightshade.
Rolling back	Progressive Containment Programme	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.

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 The November 2020 *Sagittaria platyphylla* (delta arrowhead) discovery was controlled in Januaary 2021 using diggers to completely remove all plants in the Pioneer Drain, Palmerston North. The plants were transported to a secure site managed by Palmerston North City Council, where they were dumped onto weed mat and fenced to allow for decomposition.

4.2.3 The dump site has been monitored in conjunction with the alligator weed programme and we have found that the mass of plant and sludge material was not drying out quickly so the piles were spread across twice the area and treated with herbicide. This appears to be working and we will continue monitoring over the coming months.

[4] http://www.horizons.govt.nz/HRC/media/Media/Pests/2017-2037-Regional-Pest-Management-Plan.pdf

Figure 2 Palmerston North pioneer Drain *Saggittaria platyphylla* infestation. (C.Davey)

Eradication Programme

4.2.4 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 this year our information reported that 84% of the 1,624 sites were at zero levels.

4.2.5 The alligator weed (A*lternanthera philoxeroides*) surveillance and control programme was scheduled to continue to the end of May. For the Mangaone Stream control operation we trialed two new detection methods: samples of water were taken for eDNA testing and a pest plant detector dog was used. eDNA is a new surveillance tool for pest plant biosecurity, which comes with limitations due to its relatively recent development. We sampled below a known site to use as a control, and another site some distance downstream to give an indication of a reach able to be sampled with confidence, as well as above the last known location of alligator weed in the catchment to indicate whether we had located the most upstream start of the infestation. The results for this reach showed alligator weed was detectable, but possibly not over a reach of any considerable distance.

4.2.6 Sky, the alligator weed detection dog, is still in training so we tested its ability on flat paddocks adjacent to the Taumarunui effluent ponds in our restricted area, as well as alongside the Mangaone Stream. The trip coincided with a bad weather event making detection difficult; however, the dog and handler were able to locate previously discovered test plants. This was a positive sign of its detection abilities and the trainer has since modified the search environments to include a broader range of habitats.

4.2.7 In February and April the Mangaone Stream was searched by wading and using canoes, with the assistance of the Horizons Fish Passage Team. About 10 single plant sites were discovered in the known stretches. The rate of growth surprised the team, with plants reaching approximately 60 cm in length in just six weeks. All plants were removed and some areas of the bank were sprayed to make removal easier. Five key sites are being visited weekly, where possible, to continue active surveillance of the site.

4.2.8 We carried out a major excavation at Benmore Avenue and under the Highbury Avenue bridge in early March. Approximately 60 tonnes of gravel was extracted from the stream and transported to Bonnie Glen waste disposal site using Higgins', Alan Gibson's and Horizons' trucks. No alligator weed has since been found at the site.

4.2.9 TVNZ picked up the broader alligator weed story and ran it on the 6pm TV One News. Horizons excavation work featured, along with Waikato Regional Council staff and a concerned farmer.

Figure 3 Long reach digger removing rooted alligator weed plants in gravel beach. (K.Hoggard)

4.2.10 A Taumarunui alligator weed site continues to be monitored and vegetation of other plants sprayed to allow easier discovery of any new shoots from the treated root fragments. The original 6 ha fenced area has been reduced to about 4 ha due to concentrated control and surveillance efforts in removing alligator weed from the outer edge of the infestation.

4.2.11 After some months of planning, consultation with iwi and notification of affected landowners, Horizons submitted a Risk Assessment Plan to the Environmental Protection Agency (EPA) to use the herbicide metsulfuron on the Senegal tea (*Gymnocoronis spilanthoides*) in the Kuku Stream, south of Levin. Work was undertaken after approval was received.

4.2.12 Staff walked the first half of the Kuku Stream in the last week of March and sprayed the Senegal tea plants. The following day they canoed the final stretch of the deepening stream bed. In line with Horizons Monitoring Plan for application of herbicides over water, the treatment area and downstream reaches were walked 24, 48 and 72 hours after spraying to monitor for any adverse results. None were observed and control results were promising three weeks later.

4.2.13 African feather grass (*Cenchrus macrourus*) control has been completed for the season. Two days were spent in the lower Whanganui River controlling a number of sites from Pipiriki (77 km up river from Whanganui) down to Kemp's pole. Some sites were surprisingly large and equally surprising in that they had not been seen during previous years' control work. Seed heads were removed and plants sprayed.

4.2.14 Despite annual control and removal of all seed heads prior to maturation, the number of sites in the Whanganui River trench has remained steady for many years. Horizons works in partnership with the **Department of Conservation (DOC)** and shares the work in the river with DOC staff, who work above Pipiriki. To establish the source of re-establishment of the infestation, we carried out a further search and discovery operation far inland. More than two weeks of contractor time was required to spray the large and scattered infestation that originated from an old homestead. The reduction in the viable amount of seed produced at this site will have a significant impact on future African feather grass control programmes.

Figure 4 A very large area of African feather grass was discovered this year in the Mangatiti catchment of the Whanganui River (R.Bashford)

Item 9

Annex B

Figure 5 Mangatiti African feather grass distribution map.

Rolling back – Progressive Containment programme

4.2.15 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 are found, as in the Eradication designation

4.2.16 The Progressive Containment programme is split into species that are mapped (e.g old man's beard and banana passionfruit) and species that are unmapped (e.g gorse and tutsan).

Progressive Containment - Mapped Species

4.2.17 Eleven Progressive Containment species fall into the mapped category (e.g. old man's beard). This year started with 73% of 2,721 sites in actively managed sites at zero levels in the zones. A new version of the WEEDS software that the team use to track and report activity has provided a more robust method of defining sites. 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 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 an organism) allow the team to better communicate the hectares of land to be searched for pest plants, which should decrease over time.

4.2.18 The Ministry of Primary Industries-Horizons National Wilding Control Programme contract is well on the way to being completed this year. At the time of writing nine of 46 Operational areas have been completed, with the majority of others having work started and ongoing. Feedback from stakeholders is that they are expecting to complete their programmes; the DOC Hawkes Bay programme, which is large and covers much of the Kaweka Forest Park, is progressing but will not be completed until the end of June.

4.2.19 The ongoing control and the extra allocation of funds, which allows a shorter return period and more time on the site, has enabled our long-term programmes to progress. An update follows:

4.2.20 Ohinewairua Station is a success story with only wilding 298 trees found and only four coning. This is down from a high in 2016-17 of 8,464 with 154 coning.

4.2.21 Hihitahi Central operational area has also been successful with 119 trees treated and the only one coning was a large tree that had been treated but was not completely dead. The last time Hihitahi was treated we found 712 trees with 24 coning. Very few trees should be found in the next treatment round in three years.

4.2.22 Raketapauma wetland has been surveyed and aerial spot spraying operations completed. Aerial basal control is to be completed by the end of April and ground work was ongoing until the end of May. Aerial support is needed for some of the ground work. A shelter belt found when ground truthing another site is to be removed by Treescape Ltd in early May. This shelter belt consists of 60 medium-sized coning sylvestris and some large coning contorta.

4.2.23 Tongariro Management Unit: This management unit has been awarded a further $110,000, split between Horizons ($10,000) and DOC-Whakapapa ($100,000). All work is contracted to be finished on time and in full from these parties. DOC Taupo and Waikato Regional Council werere still to complete their programmes.

Item 9

Annex B

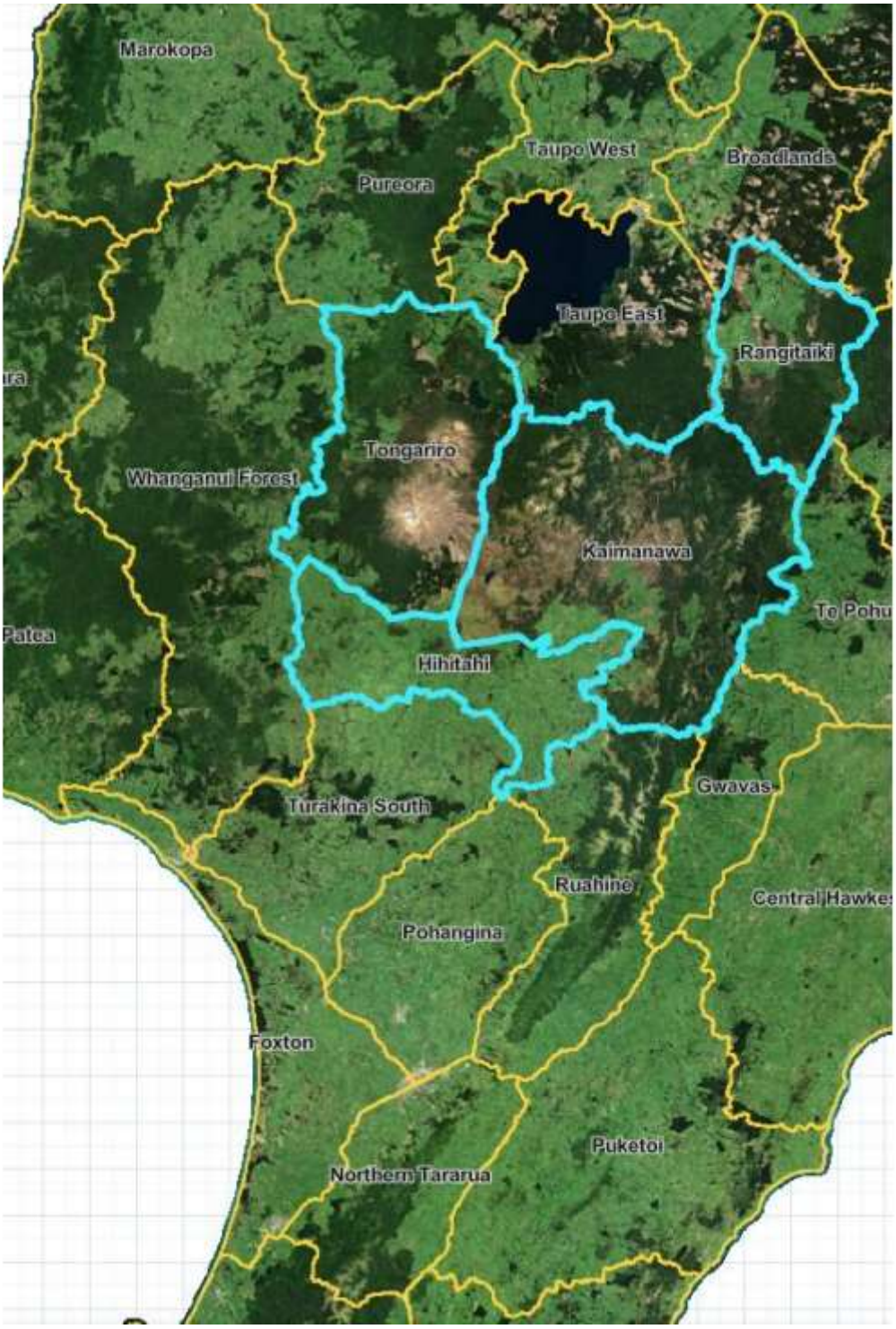


Figure 6 Currently funded Management Units of the Central North Island Regional Coordination Group. NB Hihitahi and Tongariro MUs are now combined under the name Tongariro and Rangitaiki is under Bay of Plenty Regional Council.

Progressive Containment – Unmapped Species

4.2.24 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.

4.2.25 Species we dealt with during the October-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-June 2021.

Description	Reporting Period 1	2	3	4	2020-21 totals
Boundary complaints received and actioned outside of compliance	2	1	4	0	7
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

4.2.26 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	18/02/2021		
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

4.2.27 Horizons has drawn up a **Memorandum of Understanding (MOU)** 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

4.2.28 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.

4.2.29 No control work has been undertaken but these species are the main topic of advocacy by the Check Clean Dry advocacy programme.

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

NATIONAL BIOLOGICAL CONTROL COLLECTIVE

5.2.1 The national collective has been financially supported this year. The programme supports projects against nine pest plant species, with Horizons championing old man's beard and field horsetail. Banana passionfruit and Japanese honeysuckle are of direct benefit to the region. A fuller report will be made available to Councillors when Landcare Research makes it available.

TRADESCANTIA RUST - UPDATE

5.2.2 The Whanganui tradescantia rust release site has successfully dispersed spores from the planted material to 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. Using this location as a nursery for agents to be distributed to future sites will able to take place once the rust has spread to enough plants to allow potting and removal of infected rooted material.

Figure 7 Tradescantia yellow spot fungus on plants in Whanganui. (R.Sicely)

Item 9

Annex B

FIELD HORSETAIL

5.2.3 The Landcare Research science technician contracted to work under the **Sustainable Farming Futures Fund (SFFF)** project for the Rangitikei Horsetail Group confirmed in February the wild establishment of the field horsetail weevil at two sites in our region – Tangimoana and Scotts Ferry. A field day was held 28 April to close-out the nine-year project and inform the community of interest about the development, next steps and all things horsetail management. There were about 30 attendees. Landcare supplied live weevils for release on the day, adding to the numbers of the weevils at Scotts Ferry.

5.2.4 Funding is needed for ongoing field horsetail weevil breeding and colony maintenance at Lincoln, at an expected cost of about $15,000 a year. Depending on the project finances and the National Biocontrol Collective budget, Horizons and other local councils may need to consider supporting this initiative for the next few years. This amount is much reduced from the expected $40,000 for high intensity mass rearing due to the recent discovery of small wild populations and progress on a cheaper, more resilient breeding method.

Figure 8 Paul Peterson and Arnaud Cartier from Landcare Research talking through the ins and outs of biological control agent rearing and what to expect in a few years post-agent release.(C.Davey)

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 No work was undertaken in this programme during this period.

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 in order to ensure region-wide best-practice pest plant management. This includes responding to enquiries from the community and undertaking collaborative projects.

7.1.2 Staff hosted the Palmerston North Forest and Bird Society at the Mangaone Stream and gave an informative talk about the vast range of aquatic/riparian species, both friend and invasive within this urban stream.

7.1.3 Staff presented to the Whanganui Garden Club during April to talk through the National Pest Plant Accord, roles and responsibilities. The presentation had a local slant as Whanganui is regarded as one of the more verdant cities in New Zealand, with its ease of growing introduced species.

7.1.4 The Check, Clean, Dry Advocate talked about the risk of didymo and other aquatic weeds to 557 people fishing at Lake Otamangakau in Tongariro, 73 at other locations, 447 campers, 87 people in accommodation venues and 47 general public.

Item 9

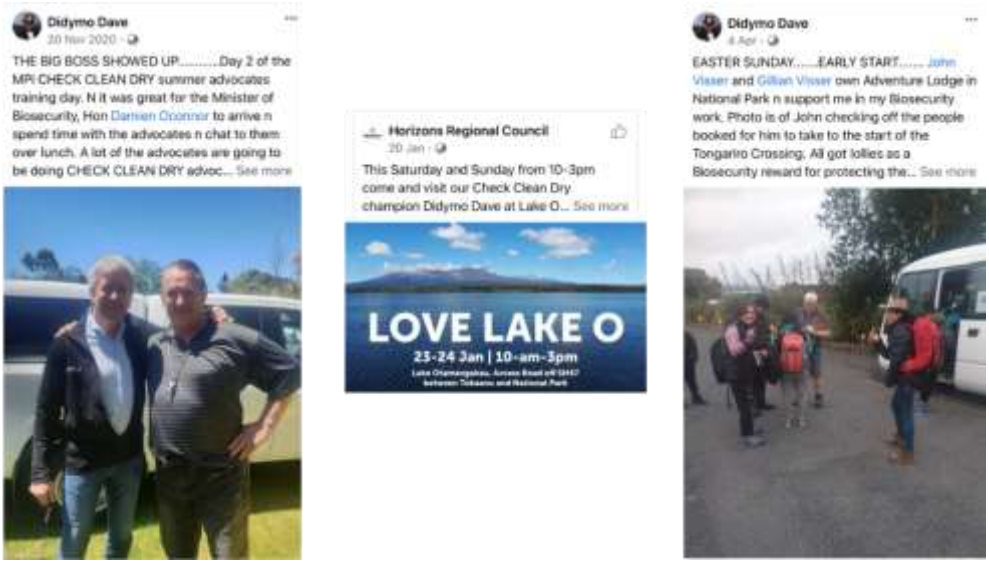


Figure 9 Check, Clean, Dry Advocate Dave Cade out and about in our region spreading the message to care and do the right thing.

Annex B

7.2 Activity Update

7.2.1 The pest plant team received 85 enquires during January-April and 98% were attended to within three working days.

7.2.2 There were many responses to our press articles regarding alligator weed as well as enquires driven by visible and flowering plants such as old man's beard at this 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 5.

8.1.2 Desert Road imagery for gorse has been turned into a distribution map (Figure 9). The results of the ongoing control in the project area show a big reduction in dense infestations since the beginning of the project, however these appear to have been targeted at the expense of the outliers, visible as small amounts of plants at the fringes. The map of the 2020 gorse distribution shows an increasing spread of moderate-density and low-density populations. This information will help guide management options into the future as it supports an early hypothesis that outlier control is as important as removing dense clusters. Landcare undertook a comparative change analysis and the results in the map in Figure 10 highlight the outcome of leaving outliers to chase dense stands.

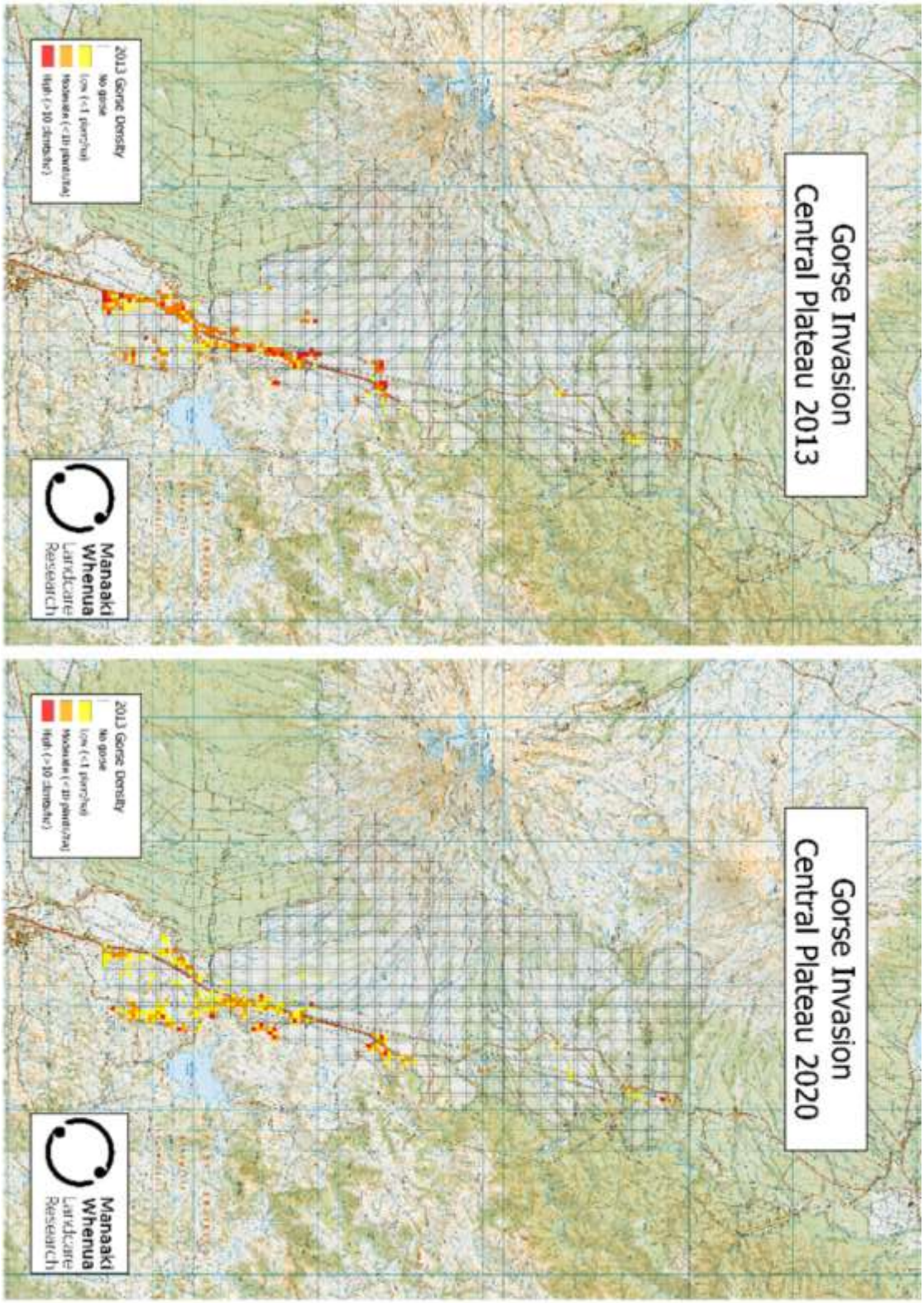


Figure 10 Comparative gorse distribution maps, 2021. (Landcare Research)

Item 9

Annex B

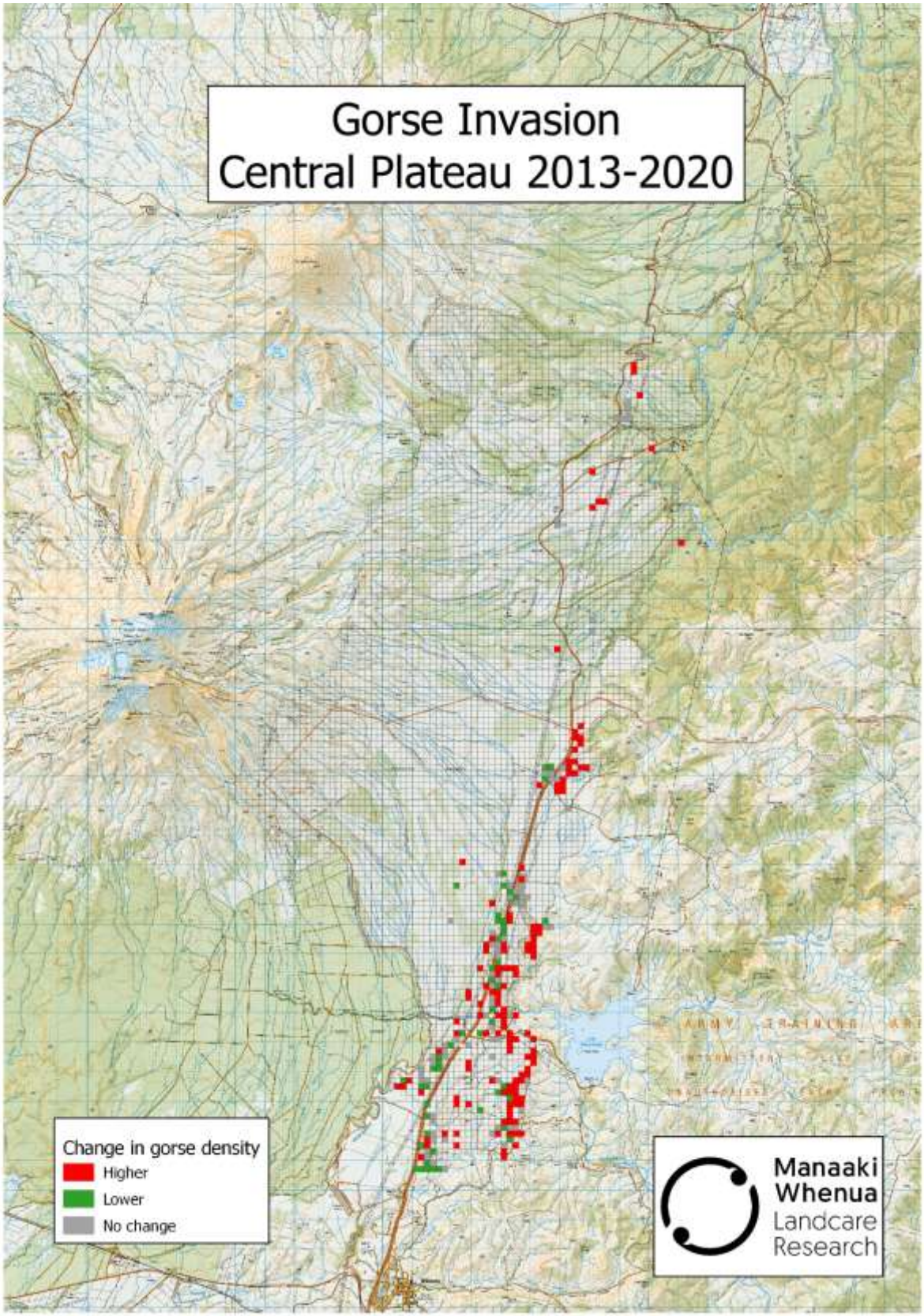


Figure 11 Score of reducing or increasing density (Landcare Research)

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	Work with partners and other stakeholders re: ▪ Planning for **management unit (MU)** activity and reporting ▪ Managing the budget ▪ Annual meeting scheduled 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.	At the time of writing, nine of 46 Operational areas had been completed with the majority of others having work started and ongoing.	Contracted to Government as the agency for managing Central Government funding for this activity in the broader area. 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.
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 final field day for **Sustainable Farming Fund (SFF)** held.	Partner to group and access to weevils and advice.
Desert Road Invasive Legume Control Group	▪ Relationship between parties maintained. ▪ Memorandum of Understanding maintained and implemented. ▪ Coordinated action in priority areas undertaken against target species.	Meeting held and collaboration agreements signed. Gorse distribution and abundance map completed.	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.	Check, Clean, and Dry advocate has been engaging with public at our region's waterways.	Provide and manage the programme in the greater region.

Item 9

Craig Davey
BIOSECURITY PLANTS COORDINATOR

Rod Smillie
BIODIVERSITY, BIOSECURITY & PARTNERSHIPS MANAGER

Dr Jon Roygard
GROUP MANAGER NATURAL RESOURCES AND PARTNERSHIPS

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 Horizons 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 NPSIB was delayed due to Central Government's Covid-19 response and release of the draft is now signalled for later in 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 The June 2021 Environment Committee report presents information for the period January 2021 to April 2021 in the context of delivery of the programme for the financial year (July to June). This includes an annual summary of the biodiversity monitoring and research activity completed in 2020-21. Due to the timing of this report writing, many reports had not yet been finalised. 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. All seven bush remnant sites and four wetland sites have been identified. Work planned or undertaken at these 11 sites is detailed in the priority sites section.

2.1.3 The biodiversity partnerships programme has 18 projects allocated toward an Annual Plan target of 12. Five projects have been completed: Betty Tripe Reserve planting, Cape Turnagain pest control and monitoring, Pūkaha Mt Bruce weeds, Rangitīkei Environment Group, Waitarere weed control.

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 planning for the replanting 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	4	1	25%
Additional top 200 bush remnants actively managed	7	7	4	57%
Support community involvement in biodiversity protection				
Support existing community-based biodiversity improvement projects	12	18	5	28%
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	-	1	100%
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	1	This report provides a summary of biodiversity monitoring and research activity completed.	

3 PRIORITY SITES PROGRAMME

3.1 Programme overview

3.1.1 The Priority Biodiversity Sites Programme is a habitat-focused programme with the objective "to *restore and maintain the representative range of ecosystems to a healthy and functioning level".*

3.1.2 The programme has four main components:

1) Monitoring and reporting on the management level status of known sites in the region;
2) Maintenance of the sites currently in the programme;
3) Finding and assessing new sites for addition to the programme; and
4) Addition of new sites to the programme.

3.2 Activity Update

MANAGEMENT LEVEL STATUS OF KNOWN SITES

3.2.1 Horizons tracks the management level status of known sites using a management level index framework. In broad terms the management levels are described as outlined below with each management level increase above management level 1, including the requirements of the management levels below that (e.g. a management level 2 site has both the requirements of management level 1 and management level 2).

The management levels are:

- 0.5: site may have received management from Horizons but has not been assessed;
- 1: Rapid Ecological Assessment 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.

3.2.2 A summary of the management level index status for all sites on the managed list, including the 11 new sites, is presented in Table 2. The number of sites that are considered part of the programme can be assessed by the number that have been assessed and received some support by Horizons e.g. management level 2 and above, or the number of sites considered to be actively managed (management level 3 and above). Due to the requirements for active management and ecological assessments within the last five years, sites that are management level 3 can reduce to management level 2 if management at the site is not considered sufficient or an ecological assessment has not been completed within the last five years.

3.2.3 In 2021, 11 new sites are allocated to be added to the programme (see below for more details). These additional sites are projected to increase the number of sites at management level 3 to a total of 77 sites. NB, some of the work to bring these sites into the programme is still underway and these sites are shown in brackets in Table 2.

Table 2 Priority Sites Management Level Index Status (see text above for description of the management levels). Note the bracketed numbers are the new additional sites that are yet to have their maintenance tasks completed this year.

Management level	Bush sites		Wetland sites		All sites	
	2019-20	2020-21	2019-20	2020-21	2019-20	2020-21
6	1	1	0	0	1	1
5	1	1	2	2	3	3
4	7	7	3	3	10	10
3	38	42 (+3)	14	15 (+3)	52	57 (+6)
Sub-total for Level 3+	**47**	**51 (+3)**	**19**	**20 (+3)**	**66**	**71 (+6)**
2	100	100	52	51	152	151
Sub-total for Level 2+	**147**	**151 (+3)**	**71**	**71 (+3)**	**218**	**222 (+6)**
1	348	350	66	69	414	419
0.5	4	4	6	6	10	10
Total	**499**	**505 (+3)**	**143**	**146 (+3)**	**642**	**651 (+6)**

3.2.4 Management actions in the 2020-21 year have been prioritised to fit the available budget through a process that is focused first on adding the 11 new sites to meet the Annual Plan target, then on the 66 sites at Management Level 3 and above.

3.2.5 The process for allocating the budget included all of these sites having full site summaries and management prescriptions prepared. These documents:

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.

3.2.6 Thirty of the 66 sites that are management level 3 or above received maintenance control in the current financial year. Twenty-six of these received funding from the priority sites programme and a further four sites from other programmes e.g., the icon site (3 sites) and regional park programmes (1).

Item 9

Annex C

3.2.7 In addition to the maintenance sites, 11 new sites are allocated to receive work to add these sites as management level 3 and above (Map 1). The new sites and the completed/planned work are described in Table 3 below.

Photo 1 Left - contractor Clint Purches with old man's beard stump removed from one of the sites included for management this year. Right – *Dactylanthus* flowers: this species was recently found at a new site included for management this year (Ngā Manu images).

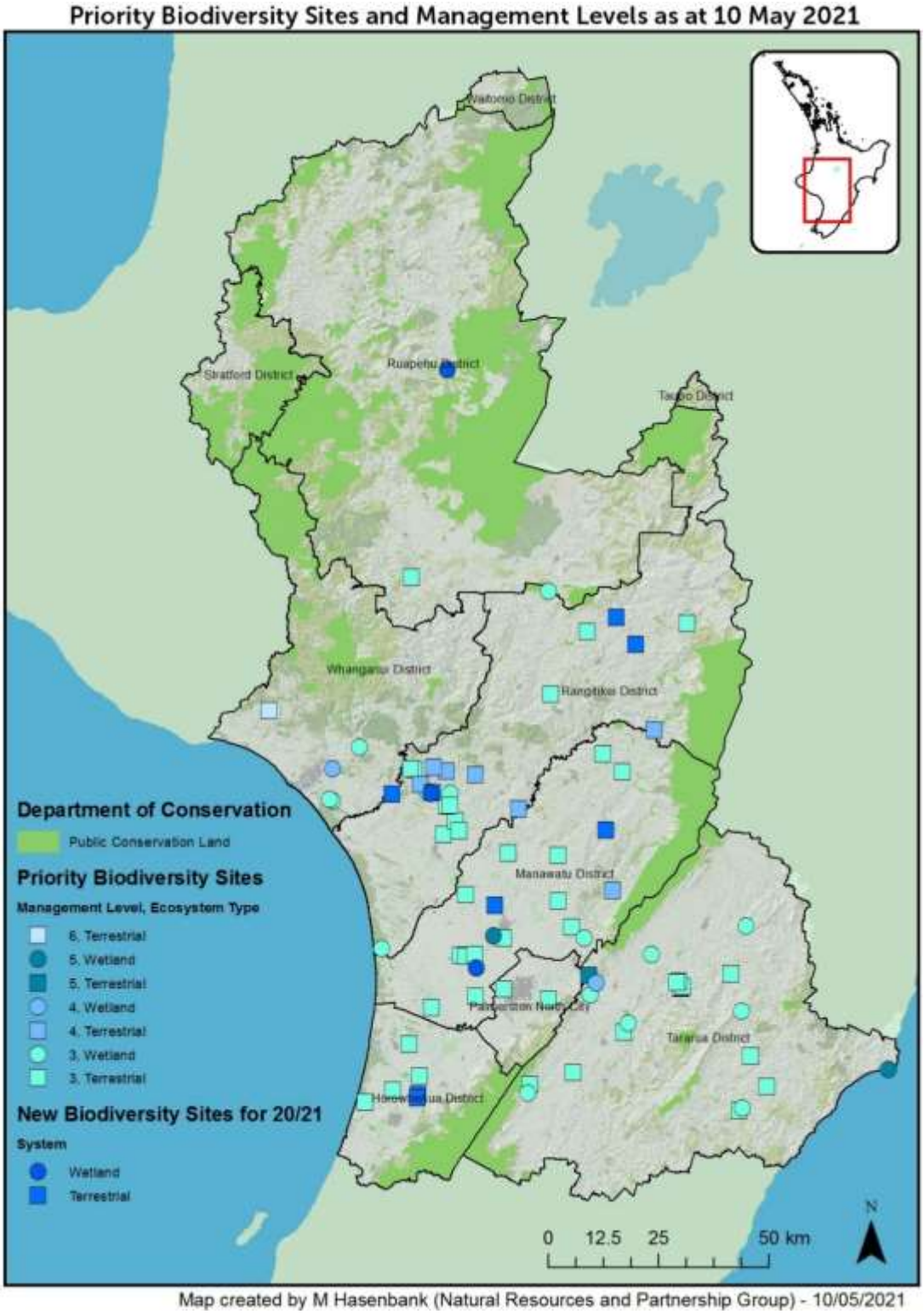
Table 3 2021 New wetland and bush priority sites under management.

	Type	Name	District	Short Description
1	Bush	Man260 Near Kimbolton	Manawatū	5 ha of tawa, podocarp forest – deer fenced with Horizons assistance in December 2020. Landowners retired an additional 1 ha of pasture and Horizons are providing plants to replant this in June 2021.
2	Bush	Rang187a North of Taihape	Rangitīkei	40 ha of kahikatea, tōtara and matai forest –that landowner had fenced off 20 years ago. Horizons contractors carried out ground control of **old man's beard (OMB)** in early May 2021. Contractors discovered Dactylanthus taylorii, variously known as "Daccy", "flower of Hades", "fingers of the gods" or "wood rose". This unusual plant grows only in New Zealand, and only in the North Island. It is a parasite, living on the roots of forest shrubs and trees and is a threatened plant that is also present in the remnant (Photo 1).
3	Bush	Rang253, North of Taihape	Rangitīkei	13 ha of kahikatea, tōtara and matai forest, currently grazed. Horizons Land and Biodiversity teams are working together to get the forest deer-fenced. Fencing materials have been delivered and contractor was booked for April 2021.
4	Bush	**Horo194,** Kōputaroa	Horowhenua	0.3 ha kahikatea forest, containing one of the three remaining populations of giant snail Powelliphanta traversi koputaroa. Landowner is retiring additional land adjacent to forest remnant and Horizons are replanting this to extend snail habitat. Rodent

	Type	Name	District	Short Description
				monitoring has been carried out and additional possum bait stations installed. Rat control and hedgehog trapping will begin in May.
5	Bush	Horo109, Kōputaroa	Horowhenua	5 ha swamp mosaic containing remnant population of giant snails Powelliphanta traversi koputaroa. Horizons has carried out weed control, and will be replanting with species that provide good snail habitat in June. Rodent monitoring has been done and additional possum bait stations installed. Rat control and hedgehog trapping was to begin in May.
6	Bush	Whan20, Fordell	Whanganui	7 ha kahikatea, pukatea forest. Horizons is assisting with deer fencing planned for this financial year.
7	Bush	Man169, Feilding	Manawatū	4 ha of tōtara, titoki forest. Horizons contractors are booked to carry out Tradescantia and karaka control.
1	Wetland	Rang61W, Marton	Rangitīkei	2 ha sphagnum mossfield. Horizons is assisting with fencing planned for this financial year.
2	Wetland	Rang205, Marton	Rangitīkei	5 ha kahikatea forest surrounding 0.6 ha sphagnum mossfield. Horizons is assisting with fencing and weed control planned for this financial year.
3	Wetland	Man210, Kairanga	Manawatū	10 ha kahikatea, tawa, titoki forest and oxbow lagoon. Horizons staff carried out old man's beard (OMB) control in early May 2021.
4	Wetland	Rua37W, Owhango	Ruapehu	12 ha wetland mosaic (sedgeland, reedland and fernland). Horizons contractors are booked to do weed control this year.

Item 9

Annex C



Map 1 Priority Biodiversity Sites and Management Levels as at 30 April 2021.

IDENTIFYING AND ASSESSING SITES

3.2.8 An important component of the programme is identifying which new sites that are to be added to the programme each year.

3.2.9 **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. As the habitat at a site can change over time (for example, due to new pests arriving or management interventions) REAs are repeated every five years for priority sites on the managed list. Since the start of the 2020-21 year REAs have been completed for 32 sites and another three are on track for completion by year-end.

3.2.10 Work to identify potential sites for management has focused on a subset of regionally critically endangered ecosystems, 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. This subset contains many hundreds of forested sites. Determining which are likely to have the highest ecological values and are most suitable for management has proved challenging.

3.2.11 To better support Horizons work toward the goal "to *restore and maintain the representative range of ecosystems to a healthy and functioning level"* a project has been developed to identify approximately 50 representative high-value sites within the region to target for management over the next five years. Site selection will aim to ensure the full range of ecosystems within Horizons region are identified for management. Site selection will target high priority ecosystems i.e., rare and threatened while ecosystems that are not represented within the conservation estate, or are not reported as under management by DOC, will be prioritised. This work also recognises the additionality of larger and/or more complex sites that include multiple ecosystems. This work will span two financial years with part one – a geospatial layer identifying the initial 50 sites delivered this financial year. This will be reported as a static map once completed. Part two includes further details on identified sites and suggestions of other sites that could be prioritised for management if the first is unable to receive assistance from Horizons. Part two is due for completion in the first half of the 2021-22 financial year i.e., by December 2021.

3.2.12 Alongside the project above, a set of ecosystem factsheets are under development for all ecosystem types mapped under the potential ecosystem mapping project. These include: a description and the diagnostic features of each ecosystem; example sites for ecosystems where appropriate; regional and national distribution; likely effects of prior human-induced activities; and, in some instances, an outline of potential threats specific to an ecosystem. These factsheets will assist Horizons staff in identifying specific ecosystems and will be made available as a resource for communities connecting with biodiversity. This work is due for completion before the end of this financial year.

Item 9

Reports produced

Daly, E., Bocker, E., Moore, S., and Roygard, J. (2020). *Biodiversity – Priority Sites Update*. Report No 20-157 to the Horizons Regional Council Strategy and Policy Committee, 10 November 2020.

Singers, N. (2021). *Ecosystems of the Manawatū – Whanganui Region*. To be completed by end of this financial year and a link to the completed factsheets will be provided.

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 Community Engagement events (Map 2).

Annex C

Map 2 Community Biodiversity Project Sites.

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 4), biodiversity grant project (Table 5) 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.

Item 9

Table 4 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	Completed
Bushy Park Tarapuruhi	$20,000	On track
Targeted rate projects	**2020-21 FY (excluding GST)**	**Current Status**
Rangitīkei Environment Group (REG)	$95,000	Completed
Waiterere Beach Community Project	$7,000	Completed
Total	**$554,148**	

Table 5 Biodiversity Grant projects for the 2020-21 financial year.

Partnership Projects	2020-21 FY (excluding GST)	Current Status
Manawatū Estuary	$25,000	Underway
Turitea Reserve	$20,000	Underway weed control
Tawhata Eco-sanctuary	$15,000	Underway to be completed in June
Te Pōtae o Awarua Predator Control	$15,000	Underway Aorangi Awarua Trust proposed works and Health & Safety plan approved, grant provided.
Cape Turnagain	$10,000	Completed
Awahuri Forest – Kitchener Park	$8,000	Underway, 75% complete
Kahuterawa Stream	$8,000	Underway
Ahimate Reserve	$5,000	Underway
Massey Hill	$3,500	Underway
Total	**$109,500**	

Annex C

4.2.3 Horizons Regional Council opened the Kanorau Koiora Taetake - Indigenous Biodiversity Community Grant on 10 May 2021. This contestable fund is open for applications for community-led projects that support connections between nature and people, and work to restore and protect indigenous biodiversity. These connections include projects that support the regeneration and continuation of mātauranga Māori. Community-led projects includes those led by private landowners, individuals, Māori land trusts, not-for-profit organisations, umbrella groups and whānau/hapū/iwi.

4.2.4 This new Kanorau Koiora Taketake - Indigenous Biodiversity Community grant has been developed in place of the community grant programme, which no longer exists. Council is proposing through the Long-term Plan to increase funding for community biodiversity projects through the new contestable fund. This new approach to allocating funding for biodiversity projects requires some projects that have regularly received funding from Horizons towards community biodiversity projects to apply for funding where they may not have previously had to do so.

4.2.5 Applications closed on 4 June 2021, after which an internal panel will assess applications and provide information to the Council-appointed panel. The projected timeline is for applicants to be notified of decisions in late July with projects able to begin following that.

Reports produced

Daly, E., and Roygard, J. (2020). *Biodiversity Partnerships Projects*. Report No 20-100 to the Horizons Regional Council Strategy and Policy Committee, 11 August 2020.

Horizons Regional Council. (2021). *Kanorau Koiora Taketake – Indigenous Biodiversity Community Grants Guidelines*. Guidelines prepared for contestable fund, May 2021.

4.3 Project Updates – 2020-21

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

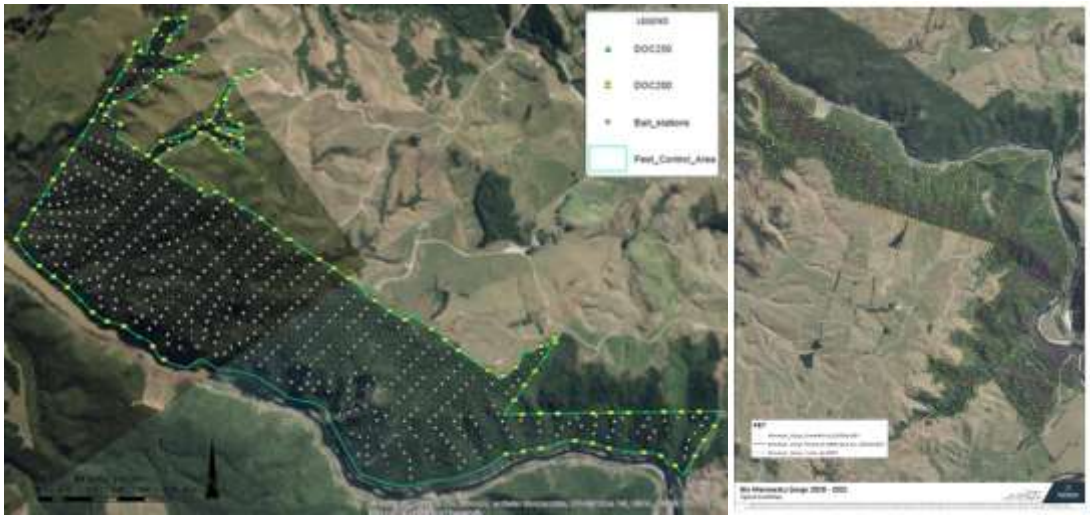
TE ĀPITI MANAWATŪ GORGE

4.3.1 The next Te Āpiti Manawatū Gorge Governance Group meeting is scheduled for 10 June 2021.

4.3.2 Activities during this reporting period have included:

- Weed control is almost completed for the year with low levels of regeneration at previously treated sites, and control undertaken on the northern side of the Manawatū River. The contractor's post-operational report will be completed by June 30.
- Pest animal control for possums in the current network on the southern side of Te Āpiti has not been completed due to short supply of approved bait meaning the contractor has continued to set up the bait station network for the untreated area of the southern side, to provide as much coverage as terrain will allow. Waka Kotahi (NZTA) has initiated its pest management plan on the northern Te Āpiti area to offset impacts from the new road construction, which has started. They have engaged contractors to establish a lizard sanctuary for any lizards located during the new road construction. A bait station network for possums and rats is being deployed over the northern Te Āpiti area and also includes the Kiwirail corridor. This is planned to be operational in July with a monthly refill of fresh Double Tap bait for five months to reduce possum and rat densities during the bird breeding season.

- Predator traps have been purchased and are awaiting delivery to be deployed around the perimeter of Te Āpiti. They will be checked 20 times per year by contractors to reduce the presence of mustelids at the Te Āpiti site. The Horizons Regional Response Team will also support this project by delivering an extra fill in bait stations that surround Te Āpiti, in July and autumn when juvenile pests are in dispersal mode.



Map 3 Planned bait station networks for north and south Te Āpiti

- Signage at Te Āpiti Manawatu Gorge is being upgraded and will have new content at both entrances at the east and west carparks describing the biodiversity and track maps at both entrances, bird identification signs throughout the length of the track, and swamp maire and wetland information at Ferry Reserve.
- We have purchased four pedestrian counters to count and report in real time the numbers of pedestrians and their direction of travel at the Tawa Loop, Ballance Loop, Manawatu Gorge Track, and Te Ara o Mahurangi mountain bike track. These are programmed to be installed in June.

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. Horizons' activity for this year has been contracted and is on track to being completed with 32 of the 36 planned predator trap checks completed by April 2021. The project is contributing to the Kia Whārite project, which covers 180,000 ha, in collaboration with DOC. Predator numbers to date are provided in Table 6 below.

Table 6 Predators caught in Kia Whārite trapping.

Species Caught	YTD Number
Cats	33
Ferrets	3
Hedgehogs	319
Rats	2916
Stoats	173
Weasels	124
Total	3,568

4.3.4 More than 500 goats have been so far as part of ground and aerial goat control operations in the Waimarino area.

4.3.5 DOC is undertaking a review of the Manganui o te Ao whio security site to refine the requirements for ongoing protection and enhancement of this taonga species. The review to date has continued funding for next year, with consideration of DOC's ongoing funding of the project not yet finalised. An update will be provided to Council following the review.

4.3.6 DOC Whanganui have reported that it has serviced 800 stoat boxes for the year and has monitored the Manganui o te Ao River, finding 32 pairs of whio and 15 singles. This is a stable result compared to previous surveys, and three pairs hatched a total of 11 ducklings.

PŪKAHA MOUNT BRUCE

4.3.7 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.

4.3.8 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 this year is $27,292. Trap catch data is presented below (Table 7).

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

	July – Sept Totals	Oct-Dec Totals	Jan-Apr Totals	Year to date
Stoats	6	1	8	15
Weasels	1	0	1	2
Ferrets	4	0	19	23
Rats	45	30	40	115
Hedgehogs	20	24	85	129
Cats	15	0	41	56

4.3.9 The Biodiversity team, alongside DOC, manages environmental pest plants within the reserve and the buffer. DOC funded an aerial survey to locate old man's beard sites in the area. The Horizons contracted weed control team has completed its work for the season, removing much of the OMB on the adjacent farmland. Horizons spends $10,000 annually on pest plant work at this site. ith This ongoing effort by Horizons, and continued work by DOC inside the reserve, will reduce OMB to a low infestation.

BUSHY PARK TARAPURUHI

4.3.10 Horizons contributes $20,000 per year to support activities at Bushy Park Tarapuruhi, near Whanganui. This year our funds have helped with predator monitoring, weed control within the sanctuary, mouse control, and work on the predator-proof fence and gates.

4.3.11 The motor on the outer gates at the entrance to Bushy Park Tarapuruhi failed in January. Volunteers manually opened and closed the gates (and chased away a cat that entered the gate cell) during busy periods until the motor was repaired. Horizons funds helped with an upgrade of the gate motors to prevent this problem recurring.

4.3.12 A translocation of pōpokotea (whitehead) birds into Bushy Park Tarapuruhi is planned for next year. The application for a wildlife permit to carry out this work is being finalised.

4.3.13 A translocation of titipounamu (rifleman) birds into Bushy Park Tarapuruhi is also planned and consultation with hapū at the potential source site is about to begin.

4.3.14 The Bushy Park Tarapuruhi halo project is underway to protect native species beyond the fence. Contractors funded through the DOC Community Fund carry out monthly trap checks across the 600 ha halo area and Horizons Regional Response Team carries out annual possum control in this area. The objective of the halo project is to allow Bushy Park Tarapuruhi to function as a nucleus to restore the wider environment.

RANGĪTIKEI ENVIRONMENT GROUP (REG)

4.3.15 REG completed its planned old man's beard control work in the Rangitīkei District in late April. Feedback from REG indicates that increased ongoing control is needed in the area. The REG annual report is expected in June.

4.3.16 REG are now in a partnership with the **Rangītikei River Catchment Care Group (RRCC)**, which has received approximately $1.5 million funding from MPI to be spent over three years on control of old man's beard in the Rangitīkei River Catchment. Horizons staff are providing some support for this project.

WAITARERE BEACH COMMUNITY PROJECT

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

4.3.18 Horizons contractors have controlled lupins, acacia and yucca at Waitarere Beach during this reporting period. This work is complete for the year.

MANAWATŪ ESTUARY

4.3.19 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/hapū, Horowhenua District Council and DOC about undertaking this work. Council allocated resourcing of $62,000 for this activity via a carry-forward of funds from the 2019-20 year. This additional project has not advanced to a point where a plan is projected to be completed within the financial year.

4.3.20 Horowhenua District Council, Horizons and keen volunteer Arnim Littek led a field trip to the estuary following the Coastal Restoration Trust Conference in March. Trip highlights included kuaka on the verge of migrating, plus threatened plants, katipō spiders and tuturiwhatu (banded dotterel) in the dune slacks near the river mouth.

4.3.21 Horizons increased the annual allocation of funding for pest plant and animal control from $8,000 per annum to $25,000 this financial year. Monthly checks of the DOC 200 series traps targeting mustelids continued until February. Trap catch data is presented below.

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

	Jul – Sep Totals	Oct – Dec Totals	Jan - Feb	Year to date
Stoats	17	8	2	27
Weasels	0	0	0	0
Ferrets	0	0	0	0
Rats	13	7	1	21
Hedgehogs	0	0	12	12
Other	1	0	0	1

Item 9

Annex C

TURITEA RESERVE

4.3.22 This project is a partnership between Palmerston North City Council and Horizons. An aerial survey for old man's beard and wilding conifers has been completed and ground control is underway. Horizons contributes $20,000 and is focused on weed control.

4.3.23 Thirty-nine toutouwai (North Island robins) from Bushy Park Tarapuruhi were relocated to Turitea Reserve in April 2021. Toutouwai were locally extinct in the Manawatū but the extensive predator control carried out at Turitea is enabling their return.

TAWHATA MAINLAND ISLAND

4.3.24 This financial year Horizons will contribute $15,000 towards the Tawhata project for goat control and has treated the bait station network for possums as part of our **possum control programme (PCO)** when our contractor treated that particular PCO this year. Previously, Horizons funded Tawhata Trust with $50,000 to treat the possums and goats on its land as part of a project to return the forested area to a sanctuary for kokako. However, the trust has now opted into the Horizons possum control operation and the area has been treated for possums by the Horizons programme. Goat control was expected to be completed by the end of May.

TE PŌTAE O AWARUA PREDATOR CONTROL

4.3.25 Horizons funding supports the Aorangi Awarua Trust with the costs of servicing remote predator trap lines on its land in the Taihape area and with Ruahine Whio Protection Trust volunteers servicing and maintaining more than 800 traps on public land in the Northern Ruahine range.

4.3.26 Servicing these remote predator traps protects whio and North Island Eastern brown kiwi populations in the area. Northern Ruahine trap checks were carried out in October, November and December 2020, and January, February and March 2021. Anecdotally, we have been told numbers of predators trapped are down and further information will be available when Awarua Aorangi Trust provides a report.

CAPE TURNAGAIN

4.3.27 Cape Turnagain is a significant natural landscape on the East Coast north of Herbertville. It covers 121 hectares and 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 but this doesn't address the pest issues that threaten the vulnerable flora and fauna.

4.3.28 In 2018, QEII National Trust, with Horizons, successfully applied 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.

4.3.29 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.

4.3.30 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.

4.3.31 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.

4.3.32 Camera traps have been operating in the area. All of the cats observed on camera have subsequently been caught. One cat was observed on the trail cams for two months before it was finally caught. Control of cats at this site is important to protect ground nesting shorebirds, lizards and threatened invertebrates. Full details of trap catches are in Table 9.

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

	Aug - Sept	Oct - Dec	Jan -March	Year to date
Ferrets	2	-	2	4
Stoats	-	-	-	-
Weasels	-	-	3	3
Rats	1	2	3	6
Cats	2	1	11	14
Hedgehogs	1	5	10	16
Mice	-	-	-	-
Birds	1	-	-	1
Possums	-	-	-	-
Rabbits	-	-		-
Total	**7**	**8**	**29**	**44**

4.3.33 The endemic moth *Notoreas perornata* ("Cape Turnagain") was monitored in March with four individuals found at one site and two at a second site. The sand daphne host plants that were planted for the moths in September were also monitored in March and are doing well. The original area inhabited by the moths was less than 1 ha in size, and the new host plantings provide more habitat for this nationally critical moth species.

Photo 2 The Cape Turnagain moth.

AWAHURI FOREST – KITCHENER PARK

4.3.34 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.

4.3.35 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* (common reed). The Ministry for Primary Industries has since agreed to undertake a national review and risk assessment of *Phragmites karka*. This outcome would not have been possible without the hard work and coordination of Trustee Bessie Nicholls. Horizons has assisted with pest plant team staff providing advice to the Trust.

4.3.36 The Trust has secured 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. Willow control has been undertaken in the areas earmarked for planting in the 2022 winter.

KAHUTERAWA STREAM BIODIVERSITY RESTORATION

4.3.37 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 partner contributing $8,000 this year.

4.3.38 During this reporting period, Horizons contractors have continued weed control, plant releasing, and some trackside vegetation management at this site.

AHIMATE MANAWATŪ RIVER URBAN RESTORATION PROJECT

4.3.39 The Te Motu o Poutua project, an extension to Ahimate Park (aka Anzac Park), is progressing well. Horizons is one of the stakeholders in this project alongside iwi, **Palmerston North City Council (PNCC)** and the community. The site is situated at the old Higgins metal crushing area below the recycling centre at the end of Maxwell's Line.

4.3.40 Horizons contributes $5,000 for contractors to carry out weed control and releasing native plants around Ahimate Park on a monthly basis.

MASSEY HILL

4.3.41 This restoration project is a partnership between Ferguson Hall, PNCC, Massey University and Horizons. Horizons contributes contractor services for weed control to the value of $3,500.

4.3.42 Horizons' contractors continue to control banana passionfruit, woolly nightshade, tutsan and old man's beard at this site, and have noticeably reduced the weed burden.

WEEDBUSTERS PALMERSTON NORTH

4.3.43 This programme involves responding to reports from the public of pest plant sites that are hidden away in backyards and other places. The areas covered include all of the PNCC area and the Feilding urban area. The programme covers contractors visiting sites to carry out weed control in response to public information. It also includes advice and information on other plants and herbicide treatment options. Weedbusters is a partnership between PNCC, **Manawatū District Council (MDC)** and the community.

4.3.44 Staff have received 61 enquiries so far this year with OMB, banana passionfruit and ivy being the most numerous species reported. Staff respond with advice on how to control the weed of interest.

4.3.45 Weedbusters this year had reduced funding from $52,000 in 2019-20 to $23,000 this financial year. This has reduced the capacity for aerial surveillance, however on-the-ground work responding to enquiries has remained similar to previous years.

Item 9

Annex C

COMMUNITY ENGAGEMENT

4.3.46 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.

4.3.47 Horizons supported the Coastal Restoration Trust NZ conference held in Whanganui on 10-12 March 2021. The conference brought together experts and community groups from all over the New Zealand, apart from Auckland which was at Covid-19 Level 2 restrictions. Fieldtrips to Koitiata, Castlecliff and Whanganui River were included.

4.3.48 Horizons is working with local Coastcare groups to run a fieldtrip to Tangimoana in June 2021 to keep the energy and ideas for coastal restoration in our region progressing.

4.3.49 Horizons is assisting Makuri School (Tararua district), Kimbolton School (Manawatū) and Mosston School (Whanganui) with revegetation projects on the school grounds. Ōhau School (Horowhenua) is receiving assistance with a trapping programme in its bush block.

4.3.50 Horizons is having a set of introduced pest animals professionally mounted to use at community events and school workshops. Species prepared by a taxidermist will include ferret, stoat, weasel, possum, hare, and rook. Skins will also be tanned to give children a tactile experience of the display animals.

4.3.51 Horizons is purchasing four acoustic recorders that can be used by school and community groups to survey for birds and bats. These recorders can be left out in the field for short periods of time, and then retrieved and recordings analysed. Horizons is also purchasing hand-held bat detectors for work with the community. These allow bat echolocation calls to be audible in real time, allowing community members to walk and hear any bats present. Both New Zealand species of bat are present in our region, and both are threatened species. Long-tailed bats are widespread on private land in many parts of our region.

SEEKING GOVERNMENT FUNDING

4.3.52 During the 2020-21 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 or biodiversity-based applications were successful.

4.3.53 Staff engaged with the Department of Conservation and some iwi regarding DOC's "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, a range of projects have been applied for and are being considered as a part of the assessment process.

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.

5.1.2 This item is the annual report on activities at Tōtara Reserve for the 2020-21 year.

5.2 Activity Update

REMOVAL OF POPLARS

5.2.1 Council approved the removal of poplars at Tōtara Reserve in July 2020 and the procurement for contractors for this work was issued in September 2020. Felling of poplars bordering the stopbank at the Kererū Campground was completed two weeks before Christmas. Planning for replanting the area where the poplars were felled with native species is well underway.

5.2.2 Replanting this area will be a multi-year project. Stage 1 this financial year will involve three local schools assisting with planting 1500 trees. This year's planting will focus on the area adjacent to the Kererū campground.

PEST ANIMAL CONTROL

5.2.3 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 less than 5% **residual trap catch (RTC),** and rat abundance to less 10%, to enhance the reserve's biodiversity and amenity values.

5.2.4 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. Uptake of bait varied and post-control monitoring will be undertaken over the next month.

5.2.5 A new toxin called Double Tap, which is designed to be less persistent in the environment, is being trialled. 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.

5.2.6 Predator traps for mustelids have been ordered and when delivered will be deployed into the reserve on a 500 x 200 metre grid and around the perimeter. Once deployed they will be checked 12 times each year.

PEST PLANT CONTROL

5.2.7 The annual programme of weed control at Tōtara Reserve is well underway. The contractor is revisiting previous treatment sites and surveying for other incursions of pest plants.

5.2.8 A Weed Management Plan (Adrienne Meys and Nick Singers, 2006) was developed in 2006 and provided direction for weed control from 2006-2020. A project to review and update the pest plant management plan for Tōtara Reserve is underway. This will review progress to date and provide direction to ensure we continue to build on the results achieved so far. The plan aims to bridge the space between strategy and implementation, building on the 2006 Weed Management Plan and providing an updated pest plant plan for Tōtara Reserve Regional Park.

5.2.9 Pest plant management within the reserve has been primarily managed by the biodiversity team as part of the Regional Park work programme. However, the surrounding area is managed at a landscape level by the biosecurity plants programme. A buffer area around the reserve has been identified and management of the buffer area has been negotiated between teams. Manawatū District Council is a significant stakeholder in pest plant control along roadsides adjacent to the reserve. a biocontrol beetle released to assist with control of transcatia pest plant.

5.2.10 This work is scheduled to be delivered early in the 2021-22 financial year and a copy of the report will be made available once finalised.

COMMUNICATION

5.2.11 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

5.2.12 There is a capex allocation of $157,930 for the 2020-21 year. The platform with safety rails around the septic system inspection point is now complete. Work on water storage and treatment upgrades to provide drinking wate, along with reliable source of water, is being undertaken. Horizons engaged Pattle Delamore Partners (PDP) Ltd to draw up plans and scope of works, and to tender the work. However, the

only response to the tender was unaffordable so Horizons is working with PDP Ltd to project manage the installation of an approved water treatment system before the next camping season, with installation work spreading across two financial years. The capital equipment ($60,000) will be purchased this financial year with the residual Capex going towards electrical upgrades of the powered sites.

5.2.13 A website booking and payment system for the campgrounds is also being procured to make the booking and paying for camping sites a much easier experience for visitors. This will be in place for the next camping season.

5.2.14 Additional projects being costed include an upgrade of the Kahikatea Campground ablution block, sealing of the entranceways to both campgrounds and the caretaker's house, and electrical upgrades at the powered camping sites.

CAMP GROUND

5.2.15 The poplar removal activity prevented the Kererū campground opening at Labour Weekend, while the Kahikatea Campground was able to operate all season. Although the season was delayed until just before Christmas, numbers of campers to the end of January were 5,660 adult nights, and 3,003 child nights for the season, which is slightly below the level budgeted for the period.

TŌTARA RESERVE ADVISORY GROUP

5.2.16 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 are completed, along with water supply upgrades and other health and safety actions.

Reports produced

Clapcott, L. (2021). *Pest Plant Review and Recomenations for Tōtara Reserve*. To be completed by end of financial year and a link to the completed report will be provided once finalised.

Hurley, D., and Smillie, R. (2020). *Pest Control Programme for Tōtara Reserve*. Horizons Regional Council Report, 2020.

Sue Moore
BIODIVERSITY COORDINATOR

Dr Lizzie Daly
SENIOR SCIENTIST - ECOLOGY

Rod Smillie
BIODIVERSITY, BIOSECURITY & PARTNERSHIPS MANAGER

Dr Jon Roygard
GROUP MANAGER NATURAL RESOURCES AND PARTNERSHIPS

Item 9

Annex C

Annex D

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 and Science & Innovation teams.

Horizons' Freshwater & Partnerships Team works closely with other Horizons teams, and people and organisations external to the council, to implement water quality and aquatic habitat improvement works. This work draws on monitoring and research undertaken by Horizons Science & 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. These include 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, enhancing fish populations through Fish Barrier Remediation programme and Horowhenua water quality interventions projects, and the **Community Environmental Fund (CEF)** 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 year.

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 swimming season from November to 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. It integrates the implementation work of the Freshwater & Partnerships Team, and the water quality and quantity activities of the Science and Innovation & 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;
- Waiopehu – including the Lake Horowhenua Accord and PWER project, as well as freshwater improvement work with horticulture growers; and
- Puketoi ki Tai – coastal Tararua area.

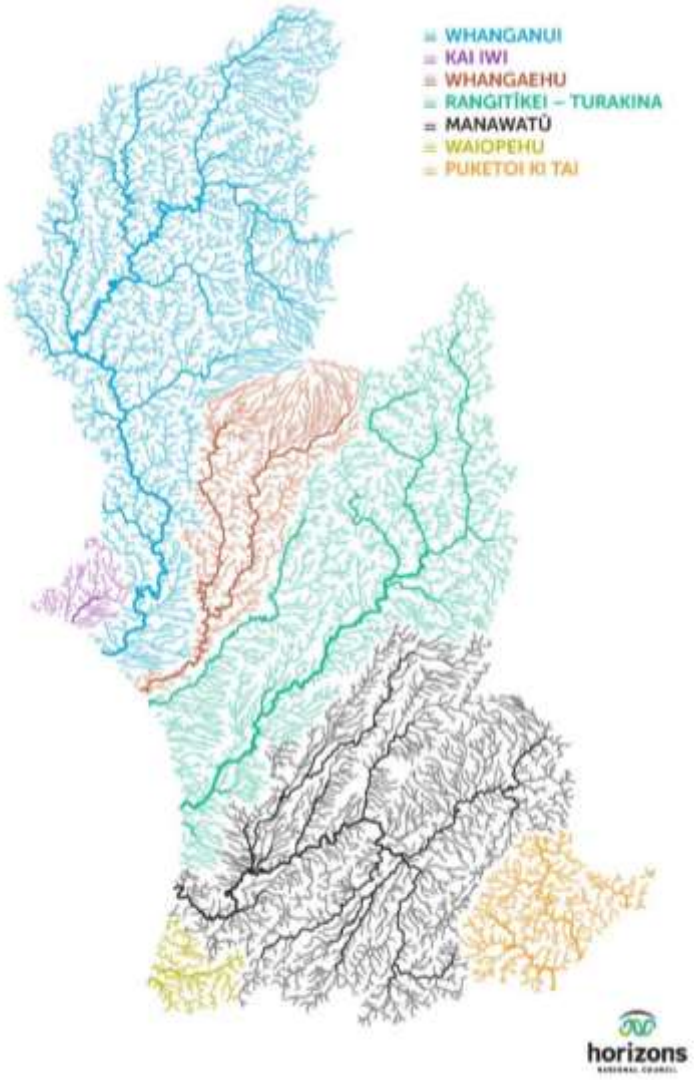


Figure 1: Freshwater Management Units in the Horizons region

The June 2021 Environment Committee report presents information for the period January 2021 to April 2021 in the context of delivery of the programme for the financial year 1 July 2020 to 30 June 2021, including an annual summary of the 2020-21 science monitoring and research activity completed. Due to the timing of this report, many reports had not yet been finalised but all will be made available once finalised.

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. They are:

- 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.

Item 9

Annex D

Table 1: Freshwater & Partnerships programme progress against the 2020-21 Annual Plan targets as at 30 April 2021.

	Riparian fencing (km)				Riparian planting			
	Target	Allocated	Complete	% complete	Target	Allocated	Complete	% complete
Regional	12	2.540	2.316	145%[5]	20,000	14,905	15,241	162%
Jobs for Nature[6]	35	43.687	15.094	43%	35,000	45,245	17,242	49%
Manawatū	50	95.2	64.2	128%	40,000	115,192	104,540	261%
Whangaehu	17	40.35	10.654	63%	3,333	7,237	2,364	71%
Total[7]	102	178.4	84.944	83%	78,333	182,579	139,387	178%
	Fish passes				**Community projects**			
	Target	Allocated	Complete	% complete	Target	Allocated	Complete	% complete
Regional	1	0	0	0%[8]	1	1	1	100%
Jobs for Nature	5	5	5	100%	n/a	n/a	n/a	n/a
Manawatū	4	9	3	75%	9	10	2	22%
Whangaehu	2	6	3	150%	3	8	2	67%
Total[3]	7	20	11	157%	13	21	5	38%

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

[6] 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.

[7] 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.

[8] Captured in the Jobs for Nature reporting for fish passage.

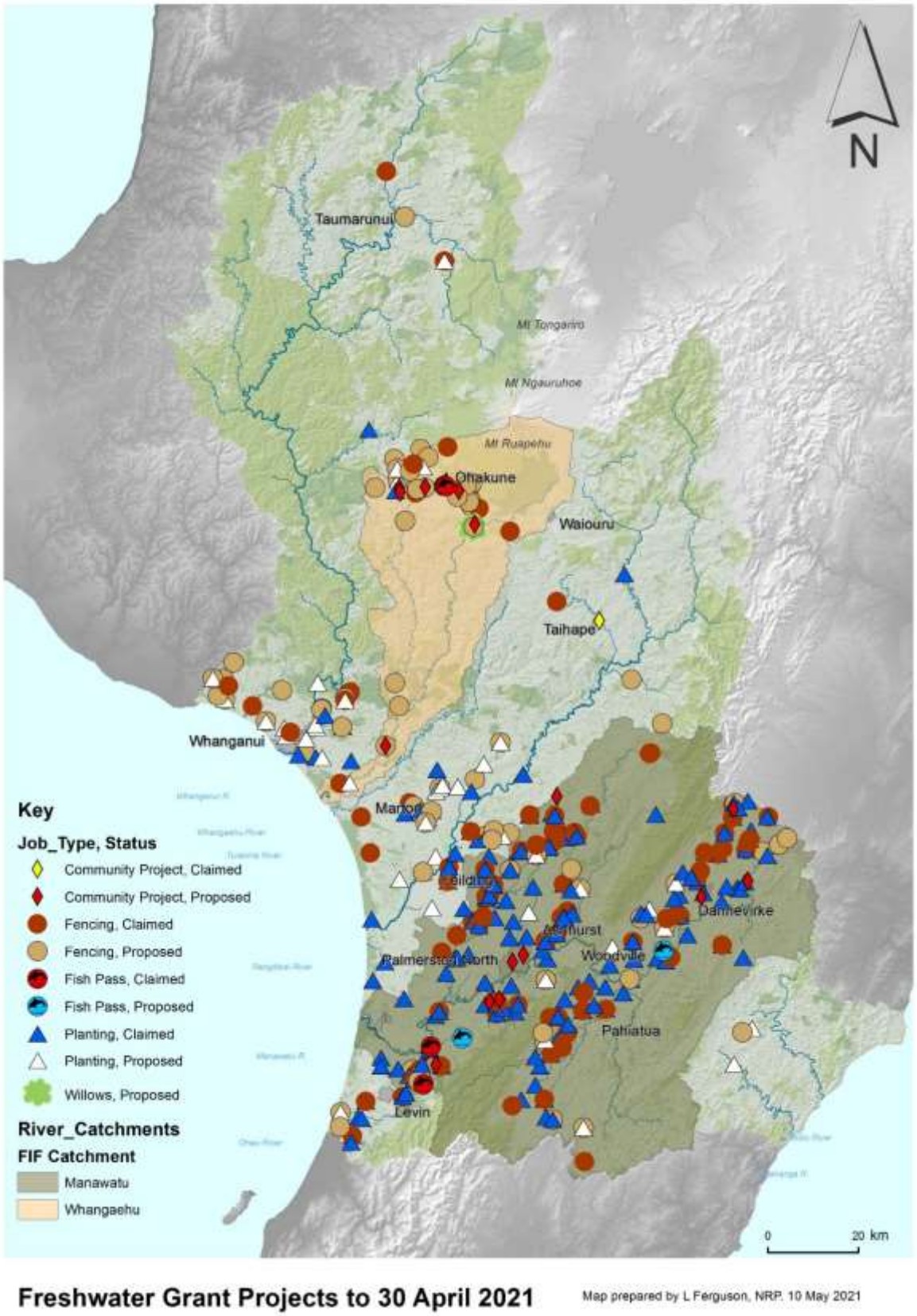


Figure 2: Freshwater implementation projects for stream fencing, riparian planting, community projects, and fish passes for the 2020-21 financial year (as at 30 April 2021).

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 MfE 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 were during October 2020.

2.1.5 During the reporting period the following positions were added to the team as a result of the additional funding:

- A research assistant on a fixed 12-week contract joined the Fish Passage team in March 2021;
- A recruitment process for a Freshwater Coordinator – Horowhenua FMU and Freshwater Advisor has been completed. The Freshwater Coordinator joins us on 3 May 2021 and the Freshwater Advisor on 5 July 2021; and
- The recruitment process for two monitoring roles for the Horowhenua FMU water quality interventions project was about to commence.

ENHANCING FISH POPULATIONS THROUGH FISH BARRIER REMEDIATION

2.1.6 Quarter 3 of year 1 of this four-year project was recently completed and overall it 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 (Waikawa and Ōhau) is now complete (Figure 1), with a total of 350 km walked. Small sections of these catchments were unable to be walked due to dangerous terrain and/or an inability to find landowner contact details and/or the landowner denying Horizons staff entry. Stream walking has continued in the Pohangina Catchment and other small sections of the Manawatū Catchment (Figure 2).

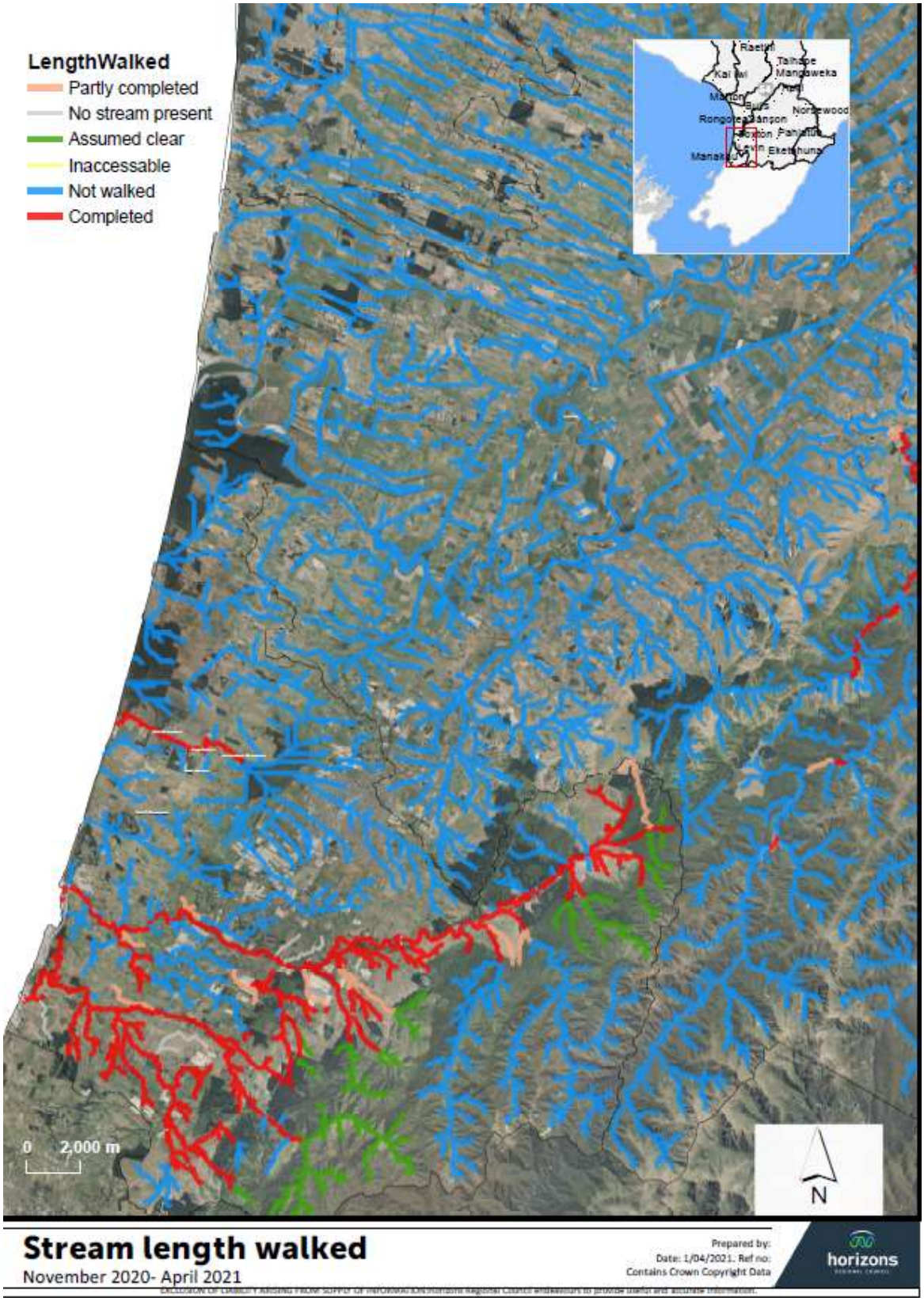


Figure 1: Stream length walked in Ōhau and Waikawa Catchments.

Item 9

Annex D

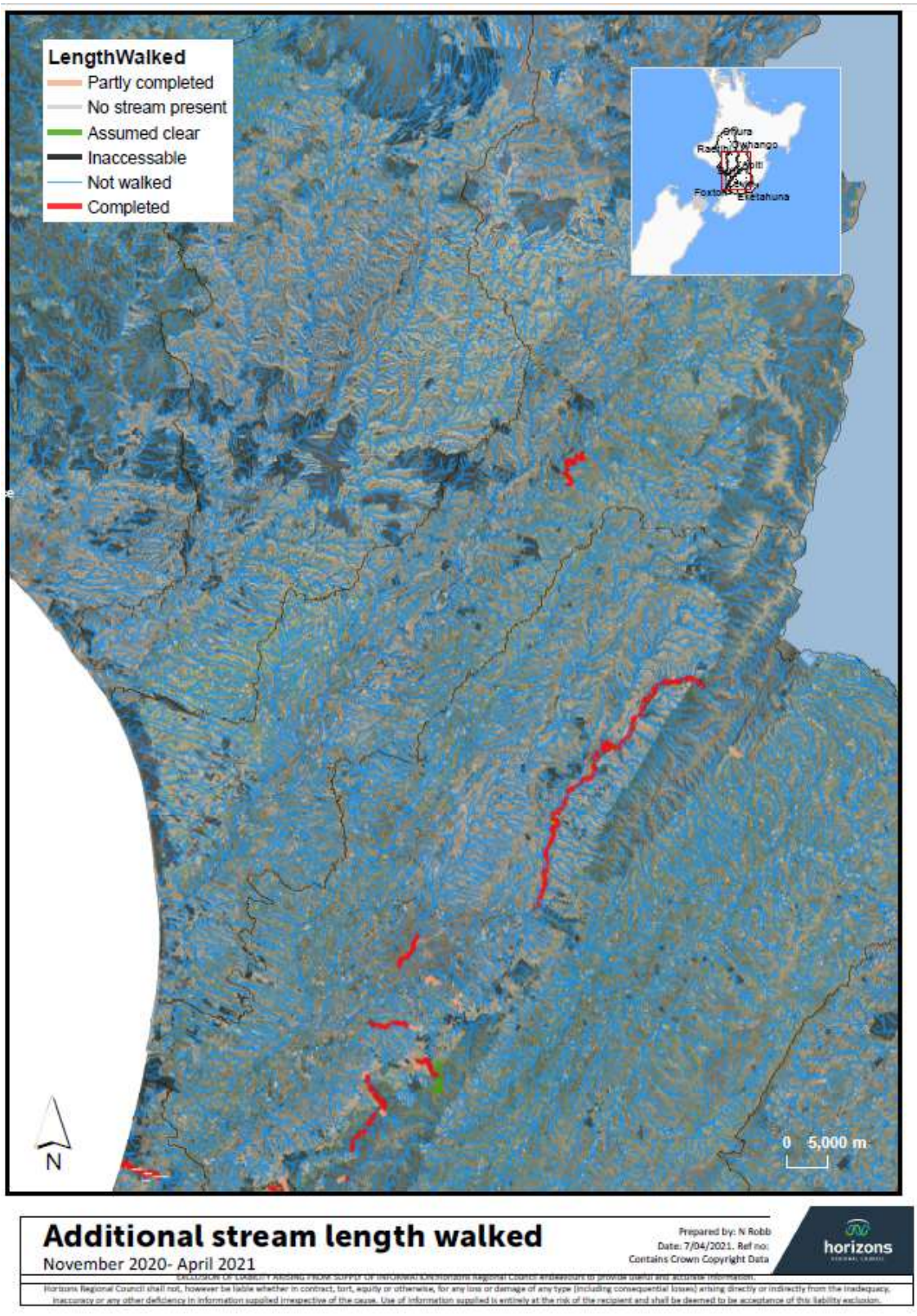


Figure 2: Stream length walked in the Manawatū Catchment

2.1.7 Fish and kākahi (freshwater mussel) monitoring has been progressing well with 24 fishing sites and 12 kakahi sites surveyed (Figure 3). A report on the current state of the region's fish and kakahi populations by Massey University is set to be completed by the end of this financial year.

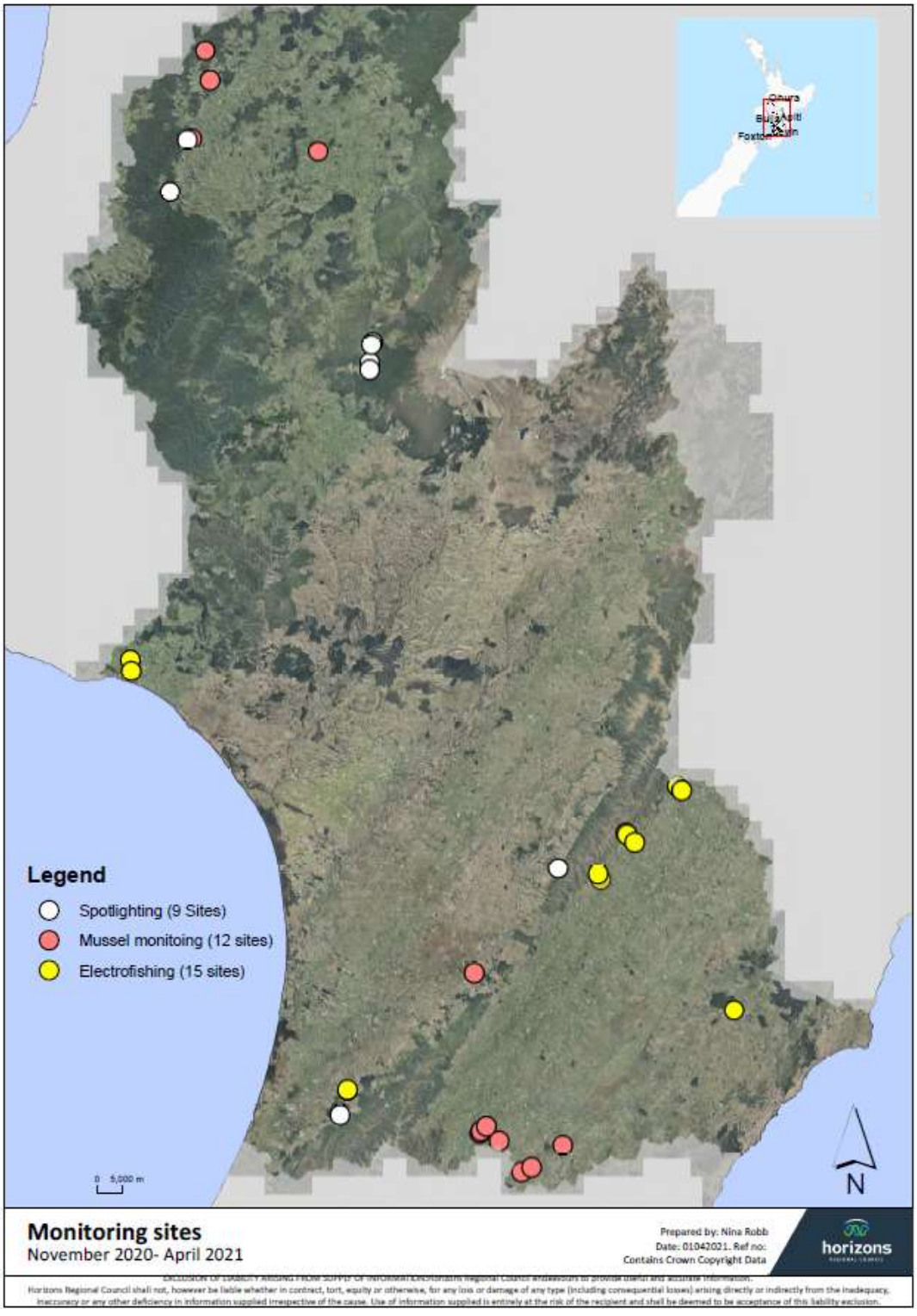


Figure 3: Monitoring sites completed through to the end of Q3. Note: Eleven electrofishing sites have been surveyed on the eastern side of the Manawatū (clumped yellow dots)

Figure 4: Top left: Koaro (*Galaxias brevipinnis*) found while spotlighting in an unnamed tributary of the Ōhau River. Top right: A 'blue' koura found while spotlighting in an unnamed tributary of Makomiko Stream near National Park, Ruapehu District..

2.1.8 The project has a target of five sites this year for barrier remediation and by the end of Q3 all five barriers were remediated, and 512 barrier assessments conducted (Figure 5). These fixes took place in an unnamed tributary of the Mangawhero River (Figure 6) and in the Purua (Figure 7) and Awaru (Figure 8) streams in Whanganui.

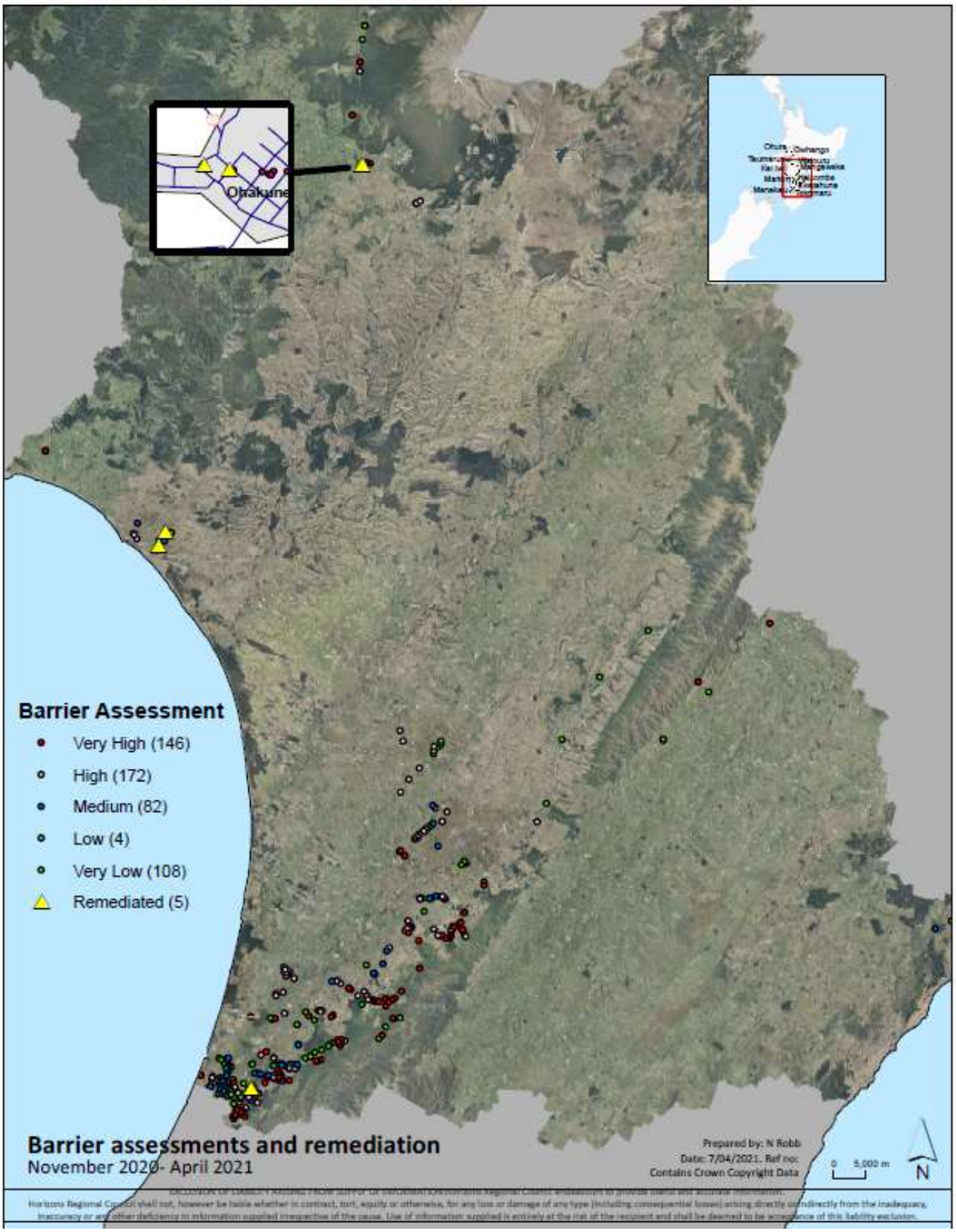


Figure 5: Map showing the five in-stream structures that have been assessed and remediated to date.

Item 9

Annex D

Figure 6: Culvert remediations in a tributary of the Mangawhero Stream, Ohakune. Flexi-baffles were installed throughout with mussel rope (top right) attached to the apron of one culvert to allow climbing species to pass.

Figure 7: Left: Large box culvert located in the Awarua Stream, Whanganui, prior to remediation. Right: Remediated culvert with lengths of flexi-baffles and a fish ramp installed.

Figure 8: Culvert remediation, Purua Stream, Whanganui. Flexi-baffles were installed throughout this 195 metre culvert running under SH4 into the Whanganui River.

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 SoE 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;
- 81 popular swim spots throughout the swimming season from 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.

ENVIROLINK RESEARCH

2.2.3 Horizons is one of a number of smaller regional councils that can access funding through the MBIE Envirolink Fund. Approximately $120,000 of Horizons' applications are successful each year. A number of potential projects have been identified and five advice grants totalling $110,830 were secured for 2020-21, as shown in Table 1. Further details and links to these reports, where available, can be found in the body of this report.

Table 2: Envirolink-funded projects for Horizons Regional Council in 2020-21.

Envirolink Project	Provider	Value	Deliverable
National Environmental Monitoring Standards (NEMS) macroinvertebrate review	NIWA	$5,460	Technical advice
Riparian and freshwater plant identification	NIWA	$10,000	Workshop
Paired laboratory nutrient analysis	NIWA	$10,000	Technical report
Coastal Marine Area (CMA) mapping of the Horizons Region	NIWA	$38,737.50	Technical report
Trend analysis and reporting guidance	NIWA	$46,632.50	Technical report
TOTAL		$110,830	

TREND ANALYSIS

2.2.5 This project around trend analysis is the largest grant for the year and is a good example of what the Envirolink fund seeks to do
i.e., transfer knowledge from science providers to the applied work of regional councils.

2.2.6 Practical guidance for the analysis and reporting of temporal trends in environmental data has been prepared for Horizons on behalf of the regional sector, via an MBIE Envirolink advice grant. The primary purpose of this guidance is to facilitate more consistent and transparent assessment and reporting of trends in freshwater and other environmental data. The emphasis of the work is on freshwater physico-chemical and biological variables. However, the methods are applicable to other environmental variables and domains e.g., lakes, groundwaters, estuaries and coastal waters, for which a suitable time-series record exists.

2.2.7 Trend assessments serve multiple purposes including informing the public about changes in environmental state, assessing the effectiveness of management actions and policies, evaluating relationships between environmental conditions and the factors that influence them i.e., driver or explanatory variables, and providing early warning of environmental problems. Trend assessments are used in New Zealand for regional and national environmental reporting, reflecting regional council responsibilities under Section 35 (2) of the Resource Management Act. Recently, the requirement for trend analysis has been made explicit in the **National Policy Statement for Freshwater Management (NPS-FM)**.

2.2.8 These guidelines start by describing three types of application of trend analysis: local, regional and national. Local applications are concerned with maximising information about trends at a single site whereas regional and national applications are concerned about obtaining consistent assessments over many sites. The details of trend analysis and reporting process vary to some extent depending on the type of application.

2.2.9 The guidance describes trend analysis in four main steps:

1. acquiring and compiling data,
2. accounting for confounding factors,
3. assessing trend direction, rate and confidence in these determinations, and
4. reporting the results.

2.2.10 Trend assessment is a process of building a statistical model of the behaviour of a variable at a site over a time period of interest. based on a series of observations. The guidelines describe methods for detecting and quantifying the two most fundamental aspects of the relationship between the variable and time: the direction i.e., increasing or decreasing and the rate of change e.g., change in concentration per year. In addition, because the observations are subject to random fluctuations and only comprise a sample of the variable's behaviour over the time period, the guidelines also describe methods for quantifying the uncertainties associated with the assessment of trend direction and rate.

2.2.11 This guidance is directly applicable for the requirement in Section 3.19(1) of the NPS-FM to characterise trends. However, NPS-FM Sections 3.19(2) and 3.19(3) concern the causes of trends i.e., trend attribution, which was out of scope for this guidance.

2.2.12 Reports

Snelder, T., Fraser, C., Larned, S., Whitehead, A. (2021). *Guidance for the analysis of temporal trends in environmental data.* NIWA Client Report 2021017WN, April 2021.

A copy of this report will be provided once available.

STATE OF THE REGIONAL WATER RESOURCE

2.2.13 The 2020-21 summer was dry for much of New Zealand, although most of Horizons region experienced near normal rainfall (Figure 9). However, Tararua District experienced low rainfall during the summer, along with Hawkes Bay and other eastern areas. The beginning of autumn saw above-normal rainfall in western Manawatū-Whanganui, leading to above-normal soil moisture conditions. The seasonal outlook for rainfall is about equally likely to be below normal or near normal.

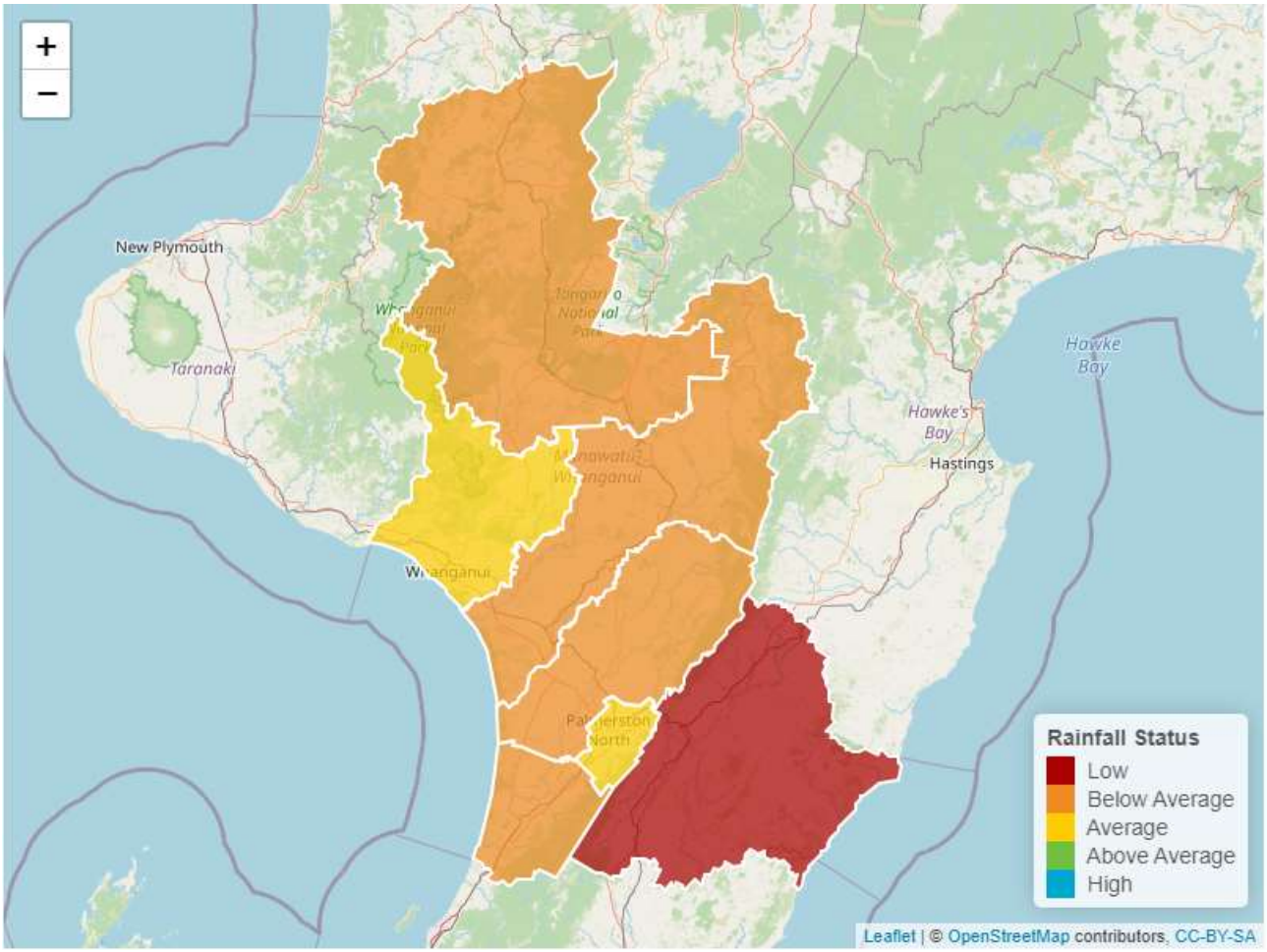


Figure 9 Hydrological status as determined by rainfall quantities during the preceding four months at 10 representative sites, May 2021.

2.2.14 Near normal rainfall during summer has helped support groundwater levels, particularly welcome at a time when water demand is highest (Figure 10). At the beginning of autumn, groundwater levels were showing signs of recharge and only 8% of the bores Horizons monitors were considered low with almost 75% above average or better.

Item 9

Annex D

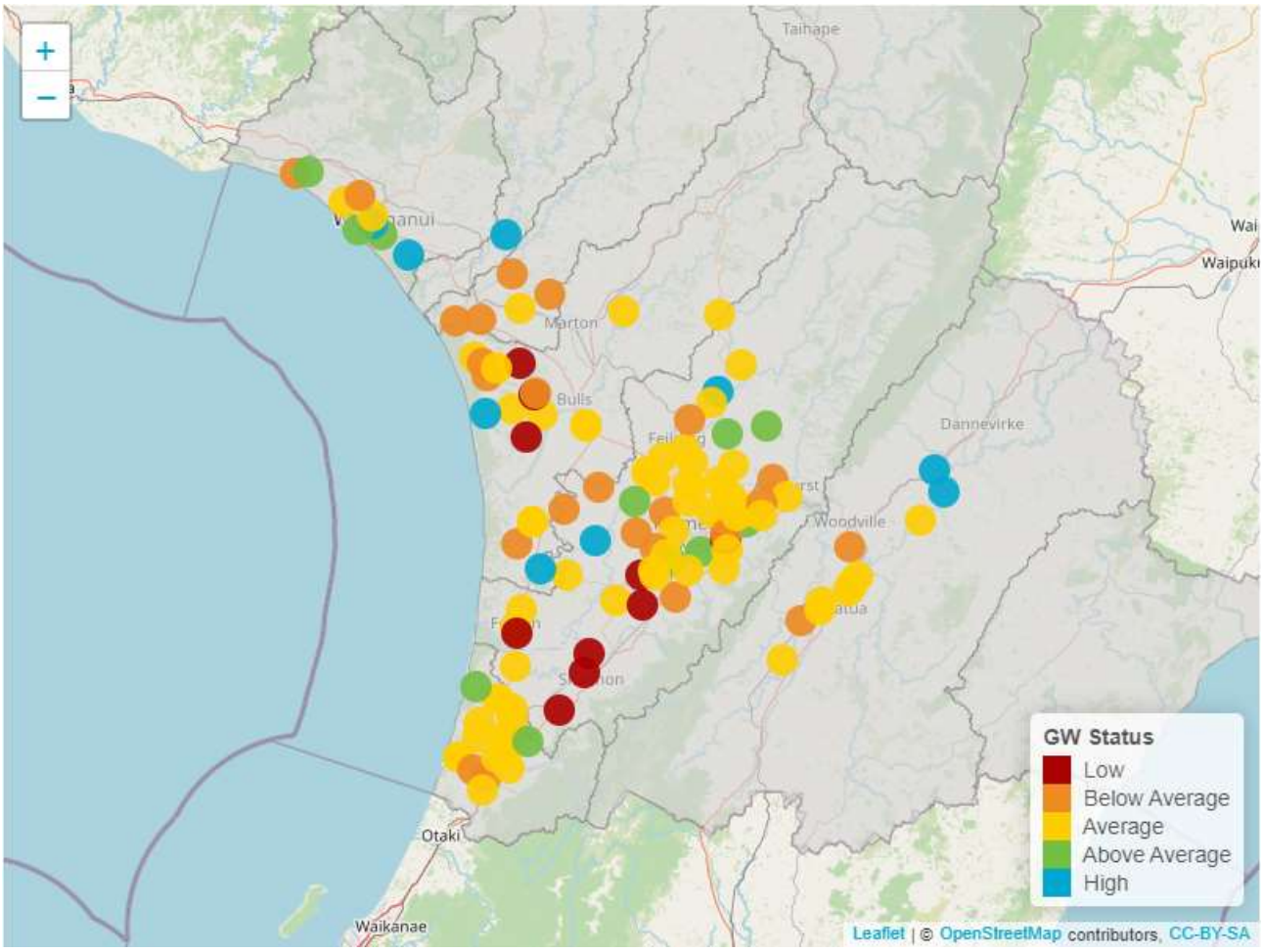


Figure 10: Groundwater level status as determined by monthly monitoring at 130 bores, May 2021.

2.2.15 Summer river flows reached, or have since reached, restriction limits in parts of the region. Lowest levels were reached in late March or early April. Figure 11 shows the river flow status as at 3 May 2021 compared to the same date in 2020.

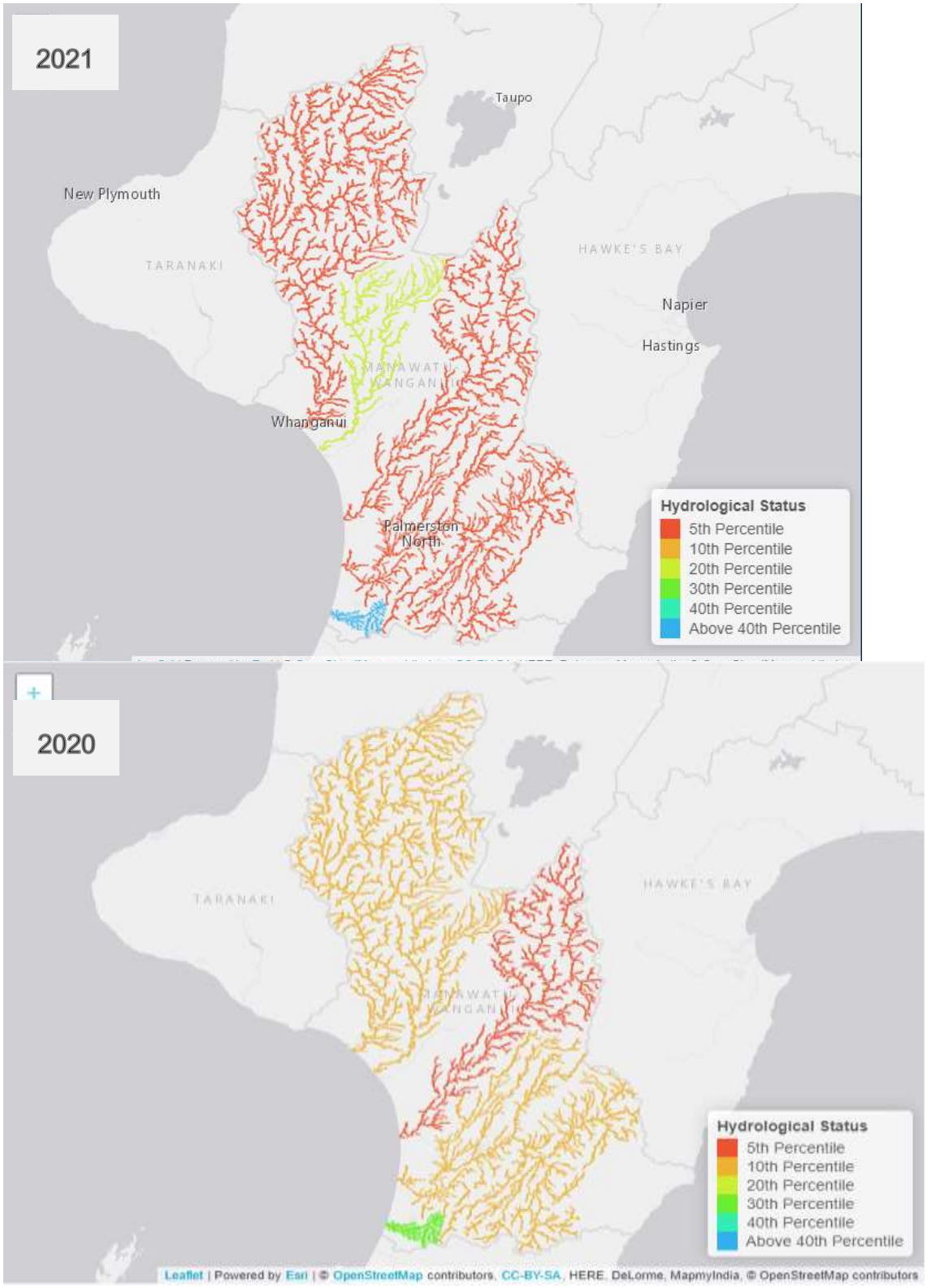


Figure 11: Hydrological status as determined by river flow over the preceding four months at 11 representative sites on 17 May 2021 (top image), compared to the same date in 2020 (bottom image). Flow bands are calculated on a daily scale based on every year in the dataset (1 January 2000 to 31 December 2018) e.g., the 5th percentile flow represents the lowest 5 percent of flows for every 17 May in the dataset.

2.2.16 Table 3 provides an end-of-season summary of the days of low-flow restrictions experienced at flow sites across the Region and the number of consent holders who were affected.

Table 3: End-of-season summary of flow restriction. Days in restriction calculated from 1 November 2020 to 1 May 2021.

Site Name	No. of Consents linked to site	Days in Restriction
Hautapu at Alabasters	2	47
Kai Iwi at Handley Road	1	26
Kumeti at Te Rehunga	1	73
Makakahi at Hamua	1	30
Makino at Boness Road	2	0
Makotuku at Raetihi	1	37
Manakau at SH 1 bridge	3	0
Manawatū at Hopelands	11	46
Manawatū at Teachers College	17	8
Manawatū at Upper Gorge	4	6
Manawatū at Weber Road	6	82
Mangahao at Ballance	1	3
Mangapapa at Troup Rd	1	38
Mangatainoka at Pahiatua Town Bridge	6	0
Mangatoro at Mangahei Road	1	65
Mangawhero at Pakihi Rd Bridge	11	0
Ōhau at Rongomatane	6	0
Oroua at Almadale Slackline	8	14
Oruakeretaki at S.H.2 Napier	3	14
Pohangina at Mai's Reach	5	3
Rangitīkei at Mangaweka	6	25
Rangitīkei at McKelvies	14	0
Rangitīkei at Onepuhi	11	0
Rangitīkei at Pukeokahu	1	13
Raparapawai at Jackson Rd	1	13
Tamaki at Stephensons	4	53
Tamaki at Water Supply Weir	1	79
Tiraumea at Ngaturi	4	7
Tokiahuru at Junction	10	0
Tokomaru at Riverland Farm	4	0
Turakina at Otairi	1	15
Waikawa at North Manakau Road	1	0
Waitangi at Tangiwai	1	48
Whangaehu at Kauangaroa	3	19
Whanganui at Te Maire	4	26

2.2.17 Of the 157 surface-water consents across the region which have low flow restriction conditions, 57% (89) experienced some period of restriction over the low-flow season from 1 November 2020 to 30 April 2021. Thirty of these consent holders experienced 30 or more days in restriction, meaning they had to either cease or substantially decrease their abstraction volumes. The flow site with the largest number of days with flows below minimum flow was Manawatū at Weber Road, recording 82 day of restriction. There are six consents linked to this site.

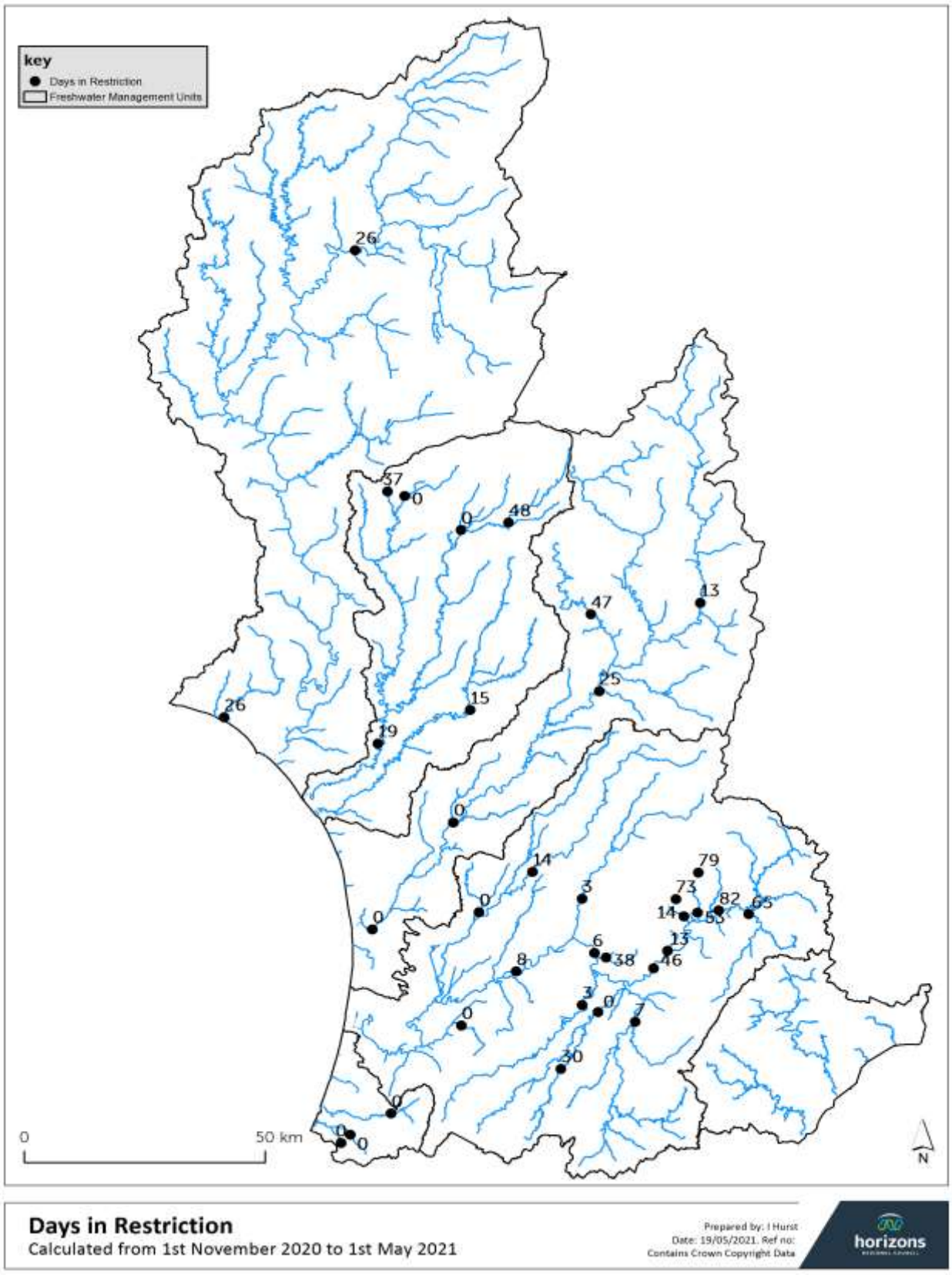


Figure 12: End-of-season summary of flow restriction displayed by location of sites (from Table 3) and the number of days in restriction.

Item 9

2.2.18 The telemetered water-use programme continues with the programme of annual inspections progressing well. At the time of writing 321 completed, 44 more than last year's total and 45 more than last year at the same time. Work will continue over the winter with a further 280 assessments, many of which are industrial, to be completed. New sites are prioritised over those which power-off over winter. Seventy-nine sites have been upgraded to the new equipment and a further 15 sites require telemetry to be installed, six of which are challenging due to limited network availability and some involving portable pumps. However, the team will endeavour to have them installed before next summer.

2.2.19 Reports

Mercer, R., Mitchell, J., Brown, L., Peet, N., and Roygard, J. (2021). *National Environmental Standard for Stock Exclusion – Implications for Consenting of Water Abstractions*. Report No 20-158 to the Horizons Regional Council Strategy and Policy Committee, 10 November 2020.

Annex D

LAKES MONITORING

2.2.20 The ecological condition of eight lakes was assessed during December 2020 using the LakeSPI Submerged Plant Indicators survey method. Rotokawau (known as Virginia Lake in Whanganui) and Hokowhitu (Centennial Lagoon in Palmerston North, were surveyed for the first time while the remaining six lakes (Alice, Dudding, Namunamu, Pauri, Pukepuke Lagoon, and Wiritoa) were last surveyed in 2015-16.

2.2.21 Of the two new lakes, Hokowhitu Lagoon was categorised in excellent condition and Lake Rotokawau in moderate condition. The Hokowhitu Lagoon, while shallow at approximately 2.4 metres, maintained a native plant community extending across the bottom and no impact from invasive weed species. Lake Rotokawau retained elements of native vegetation while also being impacted by the invasive weed *Egeria densa* and an extensive algae bloom was also present at the time of the December survey.

2.2.22 All six lakes re-surveyed in 2020 remained in a stable condition. However, New Zealand's worst submerged weed species, Hornwort (*Ceratophyllum demersum*), was recorded for the first time at LakeSPI sites in Lake Namunamu, near Hunterville, as it continues to spread around the lake.

Photo 1: Photo montage of LakeSPI field sampling (December 2020) in Horizons Region.

2.2.23 LakeSPI has been used to assess the condition of 47 lakes in the Manawatū-Whanganui Region with LakeSPI indices for lakes ranging from 0% (heavily impacted) to 97% (pristine, unimpacted). Eleven lakes were categorised in excellent condition, five in high condition, 18 in moderate condition, eight in poor condition and five as being non-vegetated (Figure 12). The final report will be completed by 31 May 2021. This monitoring will inform assessment of lake state against new water quality attributes required under the 2020 NPS-FM.

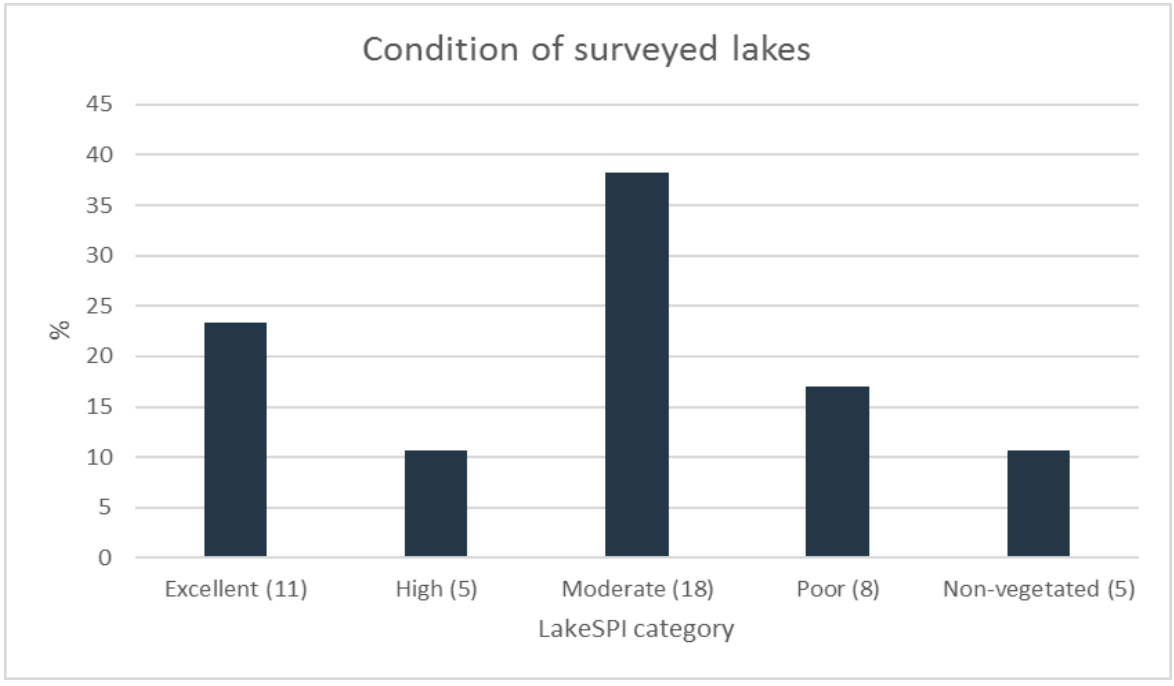


Figure 13: The percentage of surveyed lakes (n=47) that fall into each of the five LakeSPI categories. Numbers in brackets show the number of lakes in each category.

2.2.24 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 participated by sampling Lake Wiritoa and Lake Pauri, both near Whanganui, 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 e.g., land-use, population and catchment area. Samples were sent to the University of Milano-Bicocca in Italy for processing free of charge. There are now 57 lakes included in the project with 18 analysed so far with techniques ranging from visual identification to Raman Spectroscopy, and analysis was planned to conclude within months. This will lead to a collective research paper drafted by the end of the year, helping to advance global research around microplastics in freshwater systems.

2.2.25 Reports

Burton, T. (2021). *Assessment of 47 lakes in the Manawatū-Whanganui Region using LakeSPI*. NIWA Client Report prepared for Horizons Regional Council. This report will be provided once finalised.

ESTUARY ECOLOGICAL CONDITION MONITORING

2.2.26 Ecological condition and/or sedimentation monitoring of five estuaries across four FMUs was conducted by Salt Ecology in December 2020.

2.2.27 Fine-scale intertidal monitoring of Whanganui Estuary (Whanganui Kai Iwi FMU) was the culmination of a baseline of three annual ecological surveys undertaken between January 2019 and December 2020. One of the questions raised in the January 2020 survey report was whether the significant sedimentation measured at Site A in January 2020 was a reflection of a change in the catchment e.g., land disturbance, a climatic event that delivered a large pulse of sediment, and/or simply reflected a highly dynamic sedimentary environment. The present survey, which revealed a variable macrofauna community at Site A, coupled with the loss of sediment plates and pegs, suggest that the estuary environment is relatively dynamic and experiences naturally-driven temporal variability consistent with its river-dominated nature.

2.2.28 Annual sediment monitoring in the Whangaehu Estuary (Whangaehu FMU) has been undertaken since January 2018 to assess trends in the deposition rate, mud content and oxygenation of intertidal sediments. There are not enough data to calculate the five-year mean sedimentation rate, however the annual changes show the Whangaehu Estuary is highly dynamic and remains under pressure from fine sediments in catchment run-off.

2.2.29 Annual sediment monitoring in the Manawatū Estuary (Manawatū FMU) has been undertaken since January 2017 to assess trends in the deposition rate, mud content and oxygenation of intertidal sediments. There are not yet enough data to calculate a five-year mean sedimentation rate but this is due in 2022. The results to date indicate that despite observed erosion, the estuary remains under pressure from sediment impacts, with a macrofaunal community likely dominated by mud-tolerant species – a common situation in New Zealand tidal river estuaries.

2.2.30 Synoptic surveys of Ōhau Estuary and Waikawa Estuary (Waiopehu FMU) were conducted in December 2020 to quantify the ecological condition of the subtidal reaches. The survey targeted locations that showed symptoms of nutrient enrichment i.e., algal blooms and depleted oxygen in stratified areas when previously surveyed in January 2020. The results from December 2020 show some improvement in sediment condition and water quality in both the Ōhau Estuary and Waikawa Estuary compared to January 2020, likely as a consequence of recent flushing following heavy rainfall in the week prior to the most recent sampling. The results show that the estuaries remain under pressure from nutrient and sediment loads and continue to express signs of eutrophication. As recommended in the report, Horizons is undertaking bathymetric surveys of the estuaries to enable accurate delineation of areas likely to stratify, and to inform the development of hydrodynamic models. These models will be used to estimate nutrient concentrations and predict ecological outcomes of future nutrient and sediment management in the catchment, and have been commissioned via the Jobs for Nature Project.

2.2.31 Reports produced

Annex D

Whanganui and Kai Iwi FMU:

Forrest BM, Roberts KL, Stevens LM. 2021. Fine Scale Intertidal Monitoring of Whanganui Estuary. Salt Ecology Report 065, prepared for Horizons Regional Council, March 2021. 31p.

Whangaehu FMU:

Roberts KL. 2021. Whangaehu Estuary Sediment Monitoring Short Report. Salt Ecology Short Report 004, prepared for Horizons Regional Council, March 2021. 2p.

Manawatū FMU:

Roberts KL. 2021. Manawatū Estuary Sediment Monitoring Short Report. Salt Ecology Short Report 003, prepared for Horizons Regional Council, March 2021. 2p.

Waiopehu FMU:

Roberts KL, Stevens LM, Forrest BM. 2021. Synoptic Subtidal Monitoring of Ōhau Estuary, Manawatū. Salt Ecology Report 064, prepared for Horizons Regional Council, April 2021. 37p.

Roberts KL, Stevens LM, Forrest BM 2021. Synoptic Subtidal Monitoring of Waikawa Estuary, Manawatū. Salt Ecology Report 063, prepared for Horizons Regional Council, March 2021. 39p.

COASTAL MARINE AREA MAPPING

2.2.32 The CMA of Horizons region encompasses approximately 3,000 km^2 of territorial sea comprising distinct and separate western and eastern coastlines. Horizons manages the CMA in accordance with its combined Regional Policy Statement and the One Plan, a key objective being to ensure that the natural character and ecosystem processes are maintained while still allowing activities and development. Funded through an MBIE Envirolink Advice Grant, NIWA was commissioned by Horizons to report information on three CMA priority areas identified during a previous Envirolink project:

2.2.33 1. Seafloor biota information for the western and eastern CMAs to describe the likely distribution of biogenic habitat[9]-forming species and the distribution of corals and other vulnerable benthic[10] species.

2.2.34 2. Threatened marine mammal and marine invertebrate distribution information for the western and eastern CMAs.

2.2.35 3. Predicted distribution of reef and demersal[11] (living near the sea floor) fish species in the eastern CMA.

2.2.36 The habitat suitability and species occurrence modelling maps provide important information on the potential distribution of vulnerable marine invertebrates (corals), marine mammals, and reef and demersal fish, which allows the identification of important habitats and areas for protection and conservation. In comparison to much of the rest of New Zealand's coastal marine regions there are few data and datasets available on the habitats, fauna and flora of the Horizons CMAs. Considerably more information was available for the western than the eastern CMA, which appears to have a paucity of data on both marine habitat types and associated species diversity.

2.2.37 Horizons has a commitment within its Regional Policy Statement and Regional Plan (One Plan) to ensure that the natural character and ecosystem processes are maintained. This includes maintaining the life- supporting capacity and social and economic values of the region's coastal marine area (CMA). This project will inform: future policy development e.g., through identification of probable significant or vulnerable habitats/species that may require specific management; assessment of resource consent applications; and Horizons' SOE reporting for the CMA. It will also build on our existing baseline knowledge of the CMA for the further development of our coastal monitoring programme, which provides the most efficient use of limited resources.

2.2.38 Reports produced

Hale, R., Wadhwa, S., Anderson, T., Anderson, O., Hupman, K., Stephenson, F., Lundquist, C., Schnabel, K., and Neil, K. (2021). *Seafloor habitats and fish, invertebrate and marine mammal diversity in the Horizons Region coastal marine area*. NIWA Client Report 2021069NE prepared for Horizons Regional Council, March 2021.

CONTACT RECREATION WATER QUALITY MONITORING

2.2.39 Monitoring of 81 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 (formerly Ngāti Rangi 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. The 2020-21 contact recreation season ended on 27 April 2021.

[9] Biogenic habitats are habitats produced by living organisms.

[10] The benthic zone is the ecological region at the lowest level of a body of water such as an ocean, lake, or stream, including the sediment surface and some sub-surface layers.

[11] The demersal zone is the part of the sea or ocean (or deep lake) consisting of the part of the water column near to (and significantly affected by) the seabed and the benthos.

2.2.40 The 2020-21 contact recreation data is in the process of being finalised, quality coded and analysed before end-of-season data analysis and result dissemination to key stakeholders. As this is the fifth year of the extended contact recreation programme, a five-year dataset will shortly be available and staff can do an analysis of sites across the region. It is anticipated that this will feed into a review of the wider programme. Results across the 2020-21 season were variable. In general, beaches sampled across the region were mostly swimmable with a few exceedances at times. Further re-samples on these occasions, in line with recreational guidelines, did not warrant any beach closures and returned results within the guideline values for swimmability. River sites sometimes exceeded recreational guidelines for both *E. coli* and potentially toxic algae thresholds across the region. The Mangatainoka River, in particular, was graded unsuitable for swimming at times due to potentially toxic algae levels.

2.2.41 Whanganui lakes Wiritoa and Pauri were suitable for swimming for much of the season. 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 (caution advised) or green (suitable for contact recreation). Monitoring for *E. coli* at Hokowhitu Lagoon began in November 2017.

2.2.42 Lake Dudding was deemed unsuitable for swimming and had warning signs erected between 16 November 2020 and 21 January 2021 due to high bio-volumes of potentially toxic algae.

2.2.43 Faecal source tracking was planned last season and had to be delayed because of COVID-19. During the 2020-21 season, samples were taken at all lakes monitored for contact recreation, as well as a number of sites along the Wainui Stream (coastal Tararua). Samples were tested for *E.coli* concentrations and those that exceeded the amber alert level for contact recreation (greater than 260 MPN/100 mL), or close to this threshold, were further analysed for human, avian, ruminant markers and a general DNA marker. A summary of results for sites that were able to progress to faecal source tracking can be seen below in Table 3 (lakes) and Table 4 (Wainui Stream). NB: the threshold for the red alert level is 550 MPN/100 mL.

Table 4: Faecal-source tracking results for lake samples during the 2020-21 season

Site	E.coli (MPN/100 mL)	Conclusion
Stormwater drain at lake Pauri	140	Species-specific faecal source not identified
Lake Dudding	620	Faecal source – avian
Hokowhitu Lagoon at Outlet	1,900	Species-specific faecal source not identified

Table 5 Faecal source-tracking results for Wainui Stream during the 2020-21 season

Site	E.coli (MPN/100 mL)	Conclusion
Wainui u/s Wimbledon Stream	1,700	Faecal source – ruminant (50 - 100%)
Wainui d/s Wimbledon Stream	210	Faecal source – ruminant (50 - 100%) plus avian
Wainui u/s Waikopiro Stream	230	Faecal source – ruminant (10 - 50%)
Wainui d/s Waikopiro Stream	340	Faecal source – ruminant (10 - 50%)
Wainui u/s Mangaone Stream	130	Faecal source – ruminant (10 - 50%)
Wainui d/s Mangaone Stream	760	Faecal source – ruminant (50 - 100%)
Wainui u/s Herbertville Town	130	Faecal source – avian plus possibly low level ruminant

2.2.44 Further analysis and reporting of the results alongside results from the contact recreation season (including past seasons), land-use and current interventions is underway.

2.2.45 Further faecal source sampling on the Ōngarue River (Whanganui FMU) is underway and faecal-source tracking around the Arawhata Stream is planned as part of the wider work programme around Lake Horowhenua.

2.2.46 Other work underway includes a review of all of the contact recreation signage across the region and the 'Can I Swim Here?' campaign, ahead of the 2021-22 season. This will include additional information on the risk of drowning, following a coroner's report into a drowning in the region.

PLAN CHANGE 2 SUPPORT

2.2.47 Plan Change 2 was focussed on amending implementation issues with the nutrient management framework in the One Plan, including changes to Overseer and the inability to apply for consent if leaching was in excess of One Plan Table 14.2.

2.2.48 A team of science staff and external consultants provided support as technical experts to the Plan Change 2 process. Much of the work in the lead up to the plan change was carried out in the 2019-20 financial year. Preparation of evidence, caucusing and appearance before the hearing panel during the 2020-21 financial year.

2.2.49 Scientific evidence covered: the impact on water quality from proposed changes to the table; modelling for outcomes as a result of the new rule framework being implemented; soil science and Overseer changes;
on-farm management practices; good management practice; and economics.

2.2.50 Reports produced

Technical reports related to this process can be found on the Horizons website:
http://www.horizons.govt.nz/publications-feedback/publications/plan-change-2-documents

ESSENTIAL FRESHWATER IMPLEMENTATION

2.2.51 On 28 May 2020 the Government released the essential freshwater package, which included an amended **National Policy Statement for Freshwater Management (NPS-FM)** 2020 and a **National Environmental Standard for Freshwater (NES-FW)**. Oranga Wai - Our Freshwater Future is the way Horizons has chosen to represent the Essential Freshwater package and to allow for cohesion across the freshwater work we undertake.

2.2.52 Science staff have been undertaking a gap analysis of requirements of regional councils under both the NES-FW and NPS-FM and are subsequently developing a detailed science work programme for the next four years to support the Oranga Wai process.

2.2.53 Part of this development included commissioning LWP to lead a think piece around the role of science in the process and how it can best support the policy team to deliver Oranga Wai. This report was finalised in May 2021 and is available to council.

2.2.54 Reports produced

Snelder, T., Harris, S., Norton, N., Robson-Williams, M., Roygard, J., and Matthews, A. (2021). *Horizons Regional Council science plan*. LWP (landwaterpeople) Client Report 2019-10 prepared for Horizons Regional Council, May 2021.

STATE AND TRENDS OF WATER QUALITY

2.2.55 As part of the Oranga Wai processs, stocktake documents for each of the identified Freshwater Management Units are being compiled by the policy team. Science staff have been involved in the compilation of scientific information about the catchments, which included updating the state and trends of water quality for the period ending December 2019.

2.2.56 LWP were commissioned to undertake this analysis as an update to the 2019 SoE report. The analysis calculated the state of water quality as compared to the NPS-FM 2020 National Objectives Framework and the trend in water quality and biological indicators for both a 10-year and 20-year period. The data from the SoE river physico-chemical and biological monitoring programmes were collated to December 2019 and provided to facilitate this update.

2.2.57 The outputs of the analysis were completed by LWP in February 2021 alongside a short technical report outlining the methods used and a brief summary of results. The results of this analysis are being incorporated into the catchment stocktake reports and for updating the catchment summary report cards that were produced following the 2019 SoE Report.

2.2.58 Reports produced

Fraser, C., and Snelder, T. (2021). *Updated State and Trends of River Water Quality in the Manawatū-Whanganui*. LWP Client Report 2021-02 prepared for Horizons Regional Council, January 2021.

SUMMER BIOMONITORING PROGRAMMES

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

2.2.60 Freshwater aquatic macroinvertebrates provide a holistic view of water quality at a point as they are resident in a given water body for several months up to several years at a time. A metric named the **Macroinvertebrate Community Index (MCI)** and its variants measures the taxa composition i.e., which macroinvertebrates are found there, at a site and are used to indicate nutrient enrichment. This monitoring can only be undertaken during low-flow periods.

2.2.61 Long-term macroinvertebrate monitoring is critical in measuring our current state and progress against measures in the One Plan and NPS-FM (2020).

2.2.62 Sampling for macroinvertebrates was completed by end of March for 95 sites, with all samples sent to laboratories for processing. These results are expected due in the middle of the 2021-22 financial year. All results are displayed on the LAWA website and are incorporated with relevant state and trends assessments as they are undertaken.

2.2.63 Periphyton is the community of alga, cyanobacteria and fungi living on the beds of rivers and streams, and is important as a measure of nutrient enrichment. Both the One Plan and NPS-FM include periphyton measures that the regional council are required to meet.

2.2.64 Periphyton monitoring has continued on a monthly basis throughout the 2020-21 financial year at 63 sites. This data either was, or will continue to be, incorporated into state and trend reports for the region's waterways.

2.2.65 Freshwater fish monitoring is undertaken yearly at 12 SoE monitoring sites. Surveying, including both electric fishing, and netting and trapping was well progressed at time of writing, with nine of 12 sites planned for the year completed. Results are reported into the **New Zealand Freshwater Fish Database (NZFFDB)** administered by NIWA. They are used in our SoE reporting and will be used in part for assessing Horizons against the NPS-FM fish **Index of Biotic Integrity (IBI)** attribute.

2.2.66 Sampling undertaken on behalf of, or in conjunction with, consent holders Tararua District Council and Palmerston North City Council were completed successfully and results forwarded to the consent holders.

2.2.67 Surveys for didymo (*Didymosphenia geminate*) are undertaken in November, February and May each year at 14 sites across the region. May sampling had not been undertaken at the time of writing but all prior results were negative.

GROUNDWATER QUALITY MONITORING AND DRINKING WATER MANAGEMENT

2.2.68 Horizons monitors groundwater quality in 35 bores around the region on a quarterly basis. The aim of this programme is to monitor the general state and trends of the

groundwater resource and is similar to the river water quality monitoring programme. A range of parameters are collected including nutrients, metals, anions and field parameters. Nitrate is most associated with poor groundwater quality.

2.2.69 Elevated nitrate is often the result of agricultural land use or wastewater disposal. It is soluble in water and easily transported with groundwater to waterways, where it contributes to the growth of nuisance algae. Nitrate can also cause health issues, particularly for infants, as it can inhibit the ability of red blood cells to release oxygen to tissues (known as methemoglobinemia). To manage potential human health consequences, the **New Zealand Drinking Water Standards (DWSNZ)** sets the **maximum acceptable value (MAV)** for nitrate-nitrogen at 11.3 mg/L to prevent effects on pregnant women and bottle-fed infants.

2.2.70 More recently, concern for human health has grown out of a potential link between nitrate and cancer. A Danish study found a link with bowel cancer when nitrate-nitrogen levels were as low as 0.87 mg/L. However, at this stage no **MAV** or limit has been established for cancer as it has been for methemoglobinemia.

2.2.71 At our last review of groundwater state and trends in the 2019 SoE report, nitrate concentrations were well below the drinking water standard across most of the region, but elevated in at some sites in Horowhenua and Tararua (Figure 12). Within the region, three of the monitoring bores show concentrations that are above the drinking water standard, including some deeper bores greater than 50 metres deep). Both short-term (five-year) and long-term (10-20 year) trends in nitrate concentrations are generally indeterminate or improving, with only one bore to the north-east of Levin showing a slight degrading trend over five year and a bore near Whanganui showing a small magnitude of degrading long-term trend.

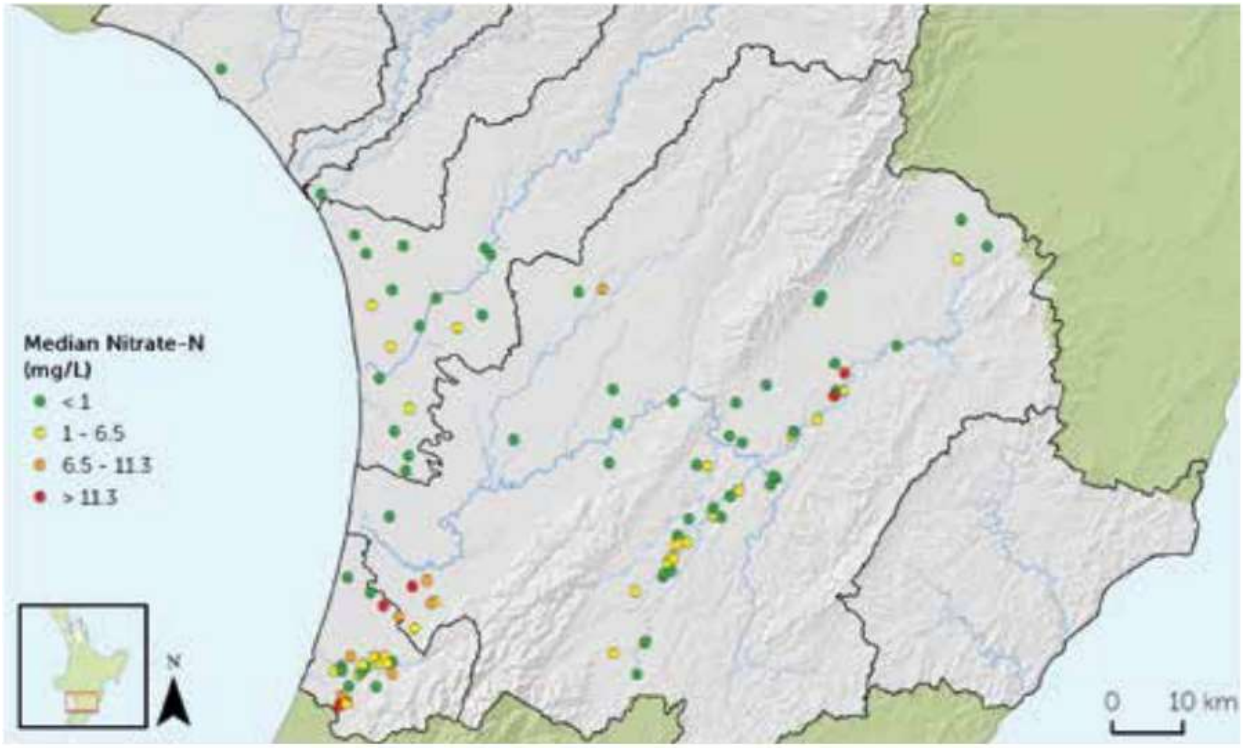


Figure 14: Median nitrate-nitrogen concentrations in bores across Horizons region

Item 9

Annex D

2.2.72 In addition to considering the effects on groundwater quality of of land use and wastewater disposal, it can also influenced by "reduction-oxidation" (redox) conditions that are distinct to groundwater. Subsurface redox conditions can broadly be described as either reduced where dissolved oxygen is low, or oxidised where dissolved oxygen is abundant. This concept is important because it can be a major driver of how contaminants such as nitrate persist in subsurface environments.

2.2.73 Reduced water is typically decades old or more and has less dissolved oxygen and generally lower nitrate concentrations but higher levels of minerals such as iron and manganese. This is because reduced-oxidation water has generally travelled further and had more time to interact with soil and rock particles, changing its chemistry over time. Elevated levels of naturally-occurring heavy metals can make groundwater unsuitable for drinking in some areas.

2.2.74 Oxidised water is typically younger, generally days or months through to a few years old. Groundwater in these gravel-rich aquifers tends to move more quickly and water is more oxygenated, with lower concentrations of dissolved metals. These zones are more susceptible to elevated levels of nitrate as they lack the natural conditions to attenuate nitrogen, i.e., denitrification – where nitrate is converted to benign molecular nitrogen in low oxygen environments. Oxygen-rich water generally is found near the surface in shallow aquifers such as in Tararua, but can also occur at depth in gravel and sand basins such as in Horowhenua.

Where drinking water is concerned, both surface water and groundwater are considered "raw water" when they have not received any treatment to make them suitable for drinking. The quality of the raw water must be good enough to produce safe and acceptable drinking water when treated. Once raw water is treated the **Drinking-water Standards for New Zealand (DWSNZ)** standards are applied. According to New Zealand's *Water Safety Plan Guide*, in many cases it can be better to protect the quality of the raw water than to treat it after it has become contaminated.

2.2.75 The provision of drinking water is managed primarily by district or city councils (TAs) but regional councils have a role especially in the management of **source protection zones (SPZ).** SPZs are used to help assess the level of risk to a drinking water source by identifying three areas, or zones, around a water abstraction point (bores). SPZ I is closest to the abstraction point and activities within it present a high risk; those farthest away, in SPZ III, present a low risk.

2.2.76 Horizons has been working with the TAs in our region to assess their drinking water supplies and develop SPZs for each abstraction point. For groundwater abstraction points the primary risk comes from unsecured bores in SPZ I and II that may present a risk to drinking water supplies by allowing pathogens into the aquifer from which raw water is drawn.

2.2.77 In addition to the work with TAs, the One Plan (Policy 5-6 (a)) requires that discharges and
land-use activities, including diffuse run-off and other land-use activities, affecting surface and groundwater quality are managed to ensure the maintenance of existing

groundwater quality and improvement where it is degraded as a result of human activity.

2.3 Regional Land and Fluvial programme

2.3.1 This is the annual report for the fluvial component of the land and fluvial monitoring and research activity.

FLUVIAL PROGRAMME

2.3.2 The fluvial survey programme has been completed for 2020-21 as part of a long-term survey plan that has been developed cross-organisationally and overseen by the engineering investigations and design team. This project funds cross-section surveys and reports to provide information on the changes in levels due to aggradation and degradation, or river channels and berms to inform river management and decision-making about gravel extraction.

2.3.3 The focus for the fluvial programme in 2020-21 was completion of the remaining four catchments in the South-eastern Ruahine area which were paused due to COVID-19 Level 4 and Level 3 restrictions, the Kawhatau Catchment and Rangitīkei Catchment fluvial surveys.

2.3.4 The Kawhatau and Rangitīkei catchment fluvial surveys were carried out using **Light Detection and Ranging (LiDAR)** with the wetted channel being bathymetrically surveyed. The Kawhatau is considered a key gravel resource for the Rangitīkei River. **LiDAR** has enabled the survey to extend both upstream and downstream of previous surveys, which focused on gravel extraction beaches only to further our understanding of the fluvial processes occurring throughout the wider catchment. These surveys will inform gravel resource studies for both catchments, due to be completed in the 2021-22 financial year. The **LiDAR** 3-dimensional survey is also being used to help inform the Climate Resilience Rangitīkei River Enhancement project below Bulls.

2.3.5 Historical aerial imagery orthorectified by removal of distortion across an image because of how the sensor has captured information from above the above the earth's surface, acquired in 2020-21 will be used to carry out geomorphic analysis to examine the connectivity and sensitivity of the Manawatū and Rangitīkei catchments. The historical imagery is a valuable resource for other parts of the organization, including informing coastal erosion and accretion, identification of hazardous activities and industries, land-use change and assessing erosion control susceptibility, and review of river and drainage scheme management.

2.3.6 Work is underway with consent planning staff and regional engineers to review best practice guidelines for gravel extraction. Horizons has commissioned Professor Ian Fuller of Massey University to provide recommendations for technical assessments and best-practice guidelines for gravel extraction and monitoring requirements to ensure catchment integrity, habitat and ecosystem health are appropriately monitored. A copy of the report will be made available once finalised.

2.3.7 Reports produced

Fuller, I. *Gravel Extraction Habitat Advice*. Massey University, prepared for Horizons Regional Council. This report will be made available once finalised.

LAND PROGRAMME

Soil map coverage - Horowhenua

2.3.8 The land programme for the 2020-21 (and 2021-22) is focussed on obtaining S-Map coverage for the lowland area of the Horowhenua FMU. S-Map is the national online geospatial soil information system held and maintained by Manaaki Whenua. It is the only active and consistent soils database across the country. This data will be used to support the Our Freshwater Future – Oranga Wai process and provide more accurate soil information than currently available for catchment modelling. The land science budget is fully allocated to this project over the 2020-21 and 2021-22 years. This project has taken advantage of an opportunity provided by the Ministry for Primary Industries offering funding for two-thirds of the total cost of the project, provided to support the availability of better soil information in areas with highly productive land uses. The land area covers 23,300 ha of lowlands in the Horowhenua FMU. A progress report is due in June 2021, the final shapefiles will be available for internal use in June 2022 and the data will be available publicly online on the Manaaki Whenua S-Map website in August 2022.

Regional Land use map

2.3.9 Over the 2020-21 year, a land use map was updated for the region (funded internally by the Policy and Strategy team). Horizons commissioned Manaaki Whenua – Landcare Research to provide an updated land-use map as well as the provision of a tool to enable Horizons to update land-use information on a regular basis.

2.3.10 The land-use classification combines multiple classifications from a range of sources including AgriBase, Land Cover Database v5.0, Horizons Regulatory data, the **Sustainable Land Use Initiative** (SLUI) Whole Farm Plans, and Valuation and ratings data. **A Land Use Management Support System** (LUMASS, an open source spatial modelling tool) model for the automatic update of the land-use classification was developed, which allows us to update the land-use layer as updated input datasets become available. This map will be used to help inform the Our Freshwater Future process and ongoing support for freshwater accounting.

Sediment Source and Transport

2.3.11 Horizons is a partner in the **Smarter Targeting of Erosion Control (STEC)**, programme led by Manaaki Whenua Landcare Research in partnership with iwi, NIWA, regional councils and stakeholders. Key progress during year three of this five-year programme included continuing the measurement and monitoring of shallow landslides and earthflows, and quantifying the influence of tree planting on slope stability. Advances were made in the development of a **Temporal Erosion and Sediment Transport (TEST)** model to examine the effects of soil erosion on water quality. TEST will characterise where and when soil erosion occurs, what type of sediment is produced and how that sediment moves through catchments.

2.4 Whanganui and Kai Iwi FMU

2.4.1 This financial year, as a part of the freshwater programme, excluding the land programme), 9.432 km of stream fencing and 3,050 riparian plants have been allocated, 5.315 km of stream fencing 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 Ototoka streams in the Kai Iwi Catchment.

2.5 Whangaehu FMU

WHANGAEHU FRESHWATER IMPROVEMENT FUND (FIF) PROJECT

2.5.1 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 Ngāti Rangi.

2.5.2 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.

Item 9

Annex D

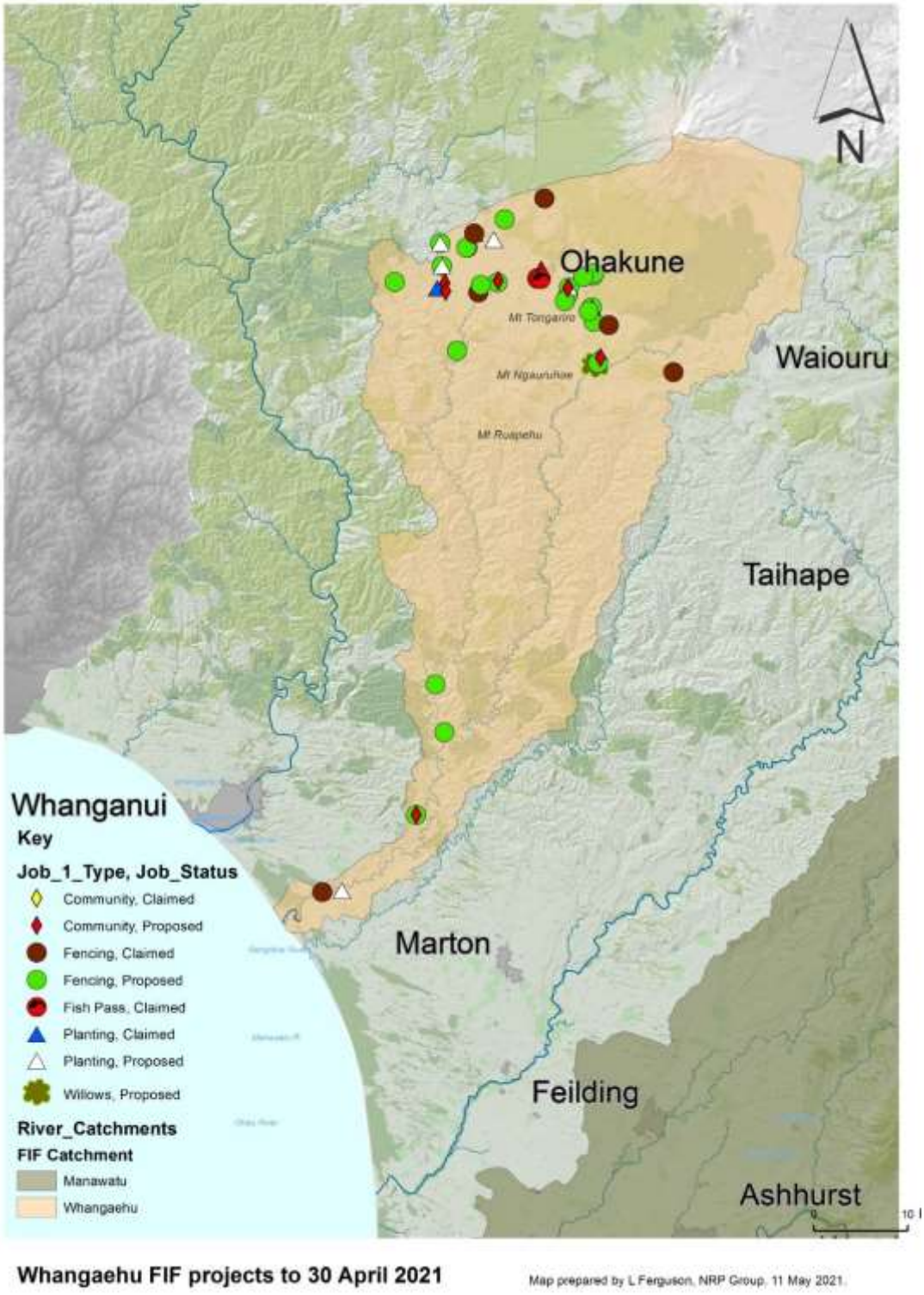


Figure 15: Stream fencing, riparian planting, and community projects that are proposed to be undertaken or have been completed in the Whangaehu Catchment.

2.6 Rangitīkei-Turakina FMU

PFAS MONITORING FOR OHAKEA

2.6.1 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 Ohakea Air Force Base. 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 time[12].

2.6.2 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. A copy of the report is now available on Horizons' website and has been shared with the Ohakea Water Contamination Committee and Manawatū District Council. The second round of sampling was undertaken in February 2021 and reporting will follow later this year.

2.6.3 Reports produced

PDP (2021) *Ohakea: Surface Water and Groundwater Monitoring for PFAS, October 2020*. Pattle Delamore Partners Ltd Client Report prepared for Horizons Regional Council, February 2021.

STREAM FENCING AND PLANTING

2.6.4 This financial year the Freshwater and Partnerships Programme has allocated 21.380 km of stream fencing and 38,810 riparian plants within the Rangitīkei – Turakina FMU. To date, 8.491 km of stream fencing has been completed and 23,479 riparian plants planted. Please note this excludes the Land Management Programme works.

FLUVIAL RESEARCH

2.6.5 The Kawhatau and Rangitīkei catchment fluvial surveys are reported on in the Land and Fluvial monitoring and research annual report above.

LAKE WAIPU/RĀTANA FRESHWATER IMPROVEMENT FUND (FIF) PROJECT

2.6.6 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 aims to understand the availability of host species for kakahi (freshwater mussel) recruitment within the lake and the ongoing sustainability of the kakahi population. The native

[12] PDP (2020) RNZAF Base Ohakea PFAS Investigation: Long Term Monitoring Plan

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 before the end of the financial year.

2.6.7 Horizons staff have been working with Rangitīkei District Council and MfE to update the project plan for the wastewater management component of this project, which is seeking to cease the discharge to water i.e., Lake Waipu and to fully apply the wastewater to land. This includes a meeting held with RDC, MfE, Horizons and landowners in December 2020. 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.

2.6.8 Horizons have continued to work with Rangitīkei District Council and the Ministry for the Environment over the year on this project. In May, a further governance group meeting has been held with Councillor Turkington being appointed as Chair of the group.

2.6.9 The Ministry for Environment has written to Horizons in May 2021 to identify the delays in the land procurement by Rangitīkei District Council for the project. The letter from the Ministry outlines that the project secured $875,000 of funding in 2017 and that the project Deed was signed in May 2019 for a project commencement 1 July 2019 and expiring 31 December 2023. The letter notes that visit to view land in December 2020 and the subsequent ecological assessment report prepared by Horizons that identified wetland and sand dune systems that deem that site unsuitable. The letter notes that:

"*The Ministry considers this project to have a high delivery risk, given the issues described above and this being year 2 of the project with no major deliverables being provided. As such, the Ministry is requesting Horizons Regional Council to procure suitable land for the project by 30 August 2021. If land is not procured, or close to procurement, the Ministry would like to meet with Horizon's Regional Council and project representatives to discuss alternative options to invest the Ministry's funding to improve the water quality of Lake Waipu, and ensure the needs of Ratana community are met*."

2.6.10 The Ministries request for land procurement is directed to Horizons Regional Council, however has to this point in the project been a responsibility of Rangitīkei District Council. Horizons have over the course of the project had a range of meetings with the Chief Executive and project managers at Rangitīkei District Council and will continue to work with Rangitīkei District Council to advance this project.

2.7 Manawatū FMU

MANAWATŪ FRESHWATER IMPROVEMENT FUND (FIF) PROJECT

2.7.1 During this reporting period, work has focused around fish passage projects and preparing for the planting season ahead, including working with nurseries and confirming with landowners that sites are ready for planting.

2.7.2 Three fish barriers have been remediated in the Manawatū Catchment using a combination of solutions including baffles, rubber matting and mussel rope, and a small rock & concrete ramp. Figure 14 shows baffles installed through the length of the culvert and rubber matting in combination with mussel rope to overcome the perched-out flow.

Figure 16: This culvert in the Waoku Stream catchment, a sub-catchment to the Koputaroa, had a small perch. This was remedied by placement of rubber matting and mussel rope.

Item 9

Annex D

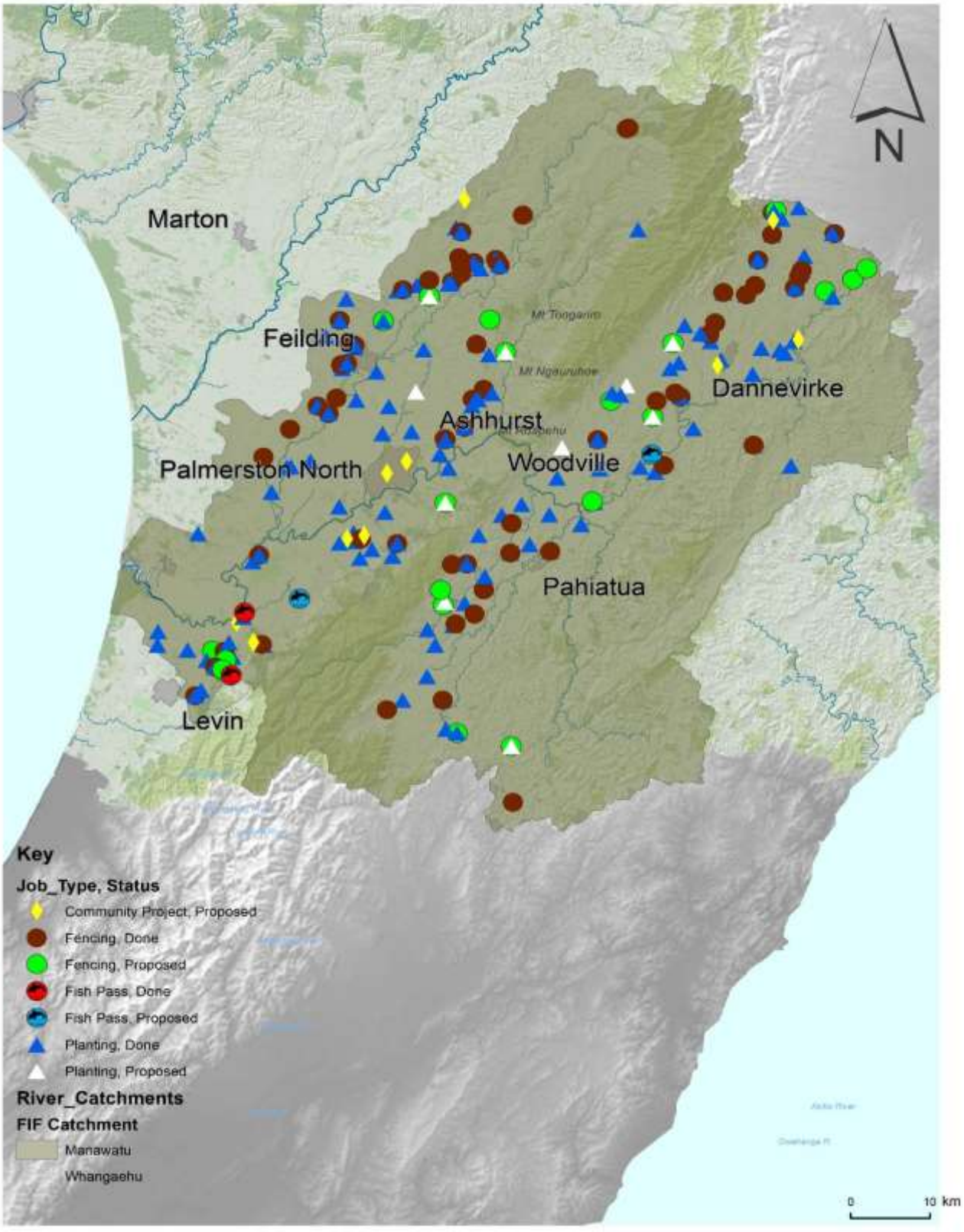


Figure 17: Stream fencing, riparian planting and community projects proposed to be undertaken or completed in the Manawatū Catchment.

2.7.3 During the next two months until the end of the financial year, work will focus on completing claims for riparian fencing and completing community projects including community planting days. The new planting season will commence.

2.7.4 The third quarterly report for the year, covering the period December through April, was submitted to MfE and approved.

2.7.5 The freshwater team (excluding the fish passage team), attended a constructed wetland workshop and visited two sites in the Tararua District over two days. The workshop was led by experts from Tonkin + Taylor, and covered the main considerations when constructing a wetland, including site suitability, size, appropriate design for pollutants present, planting, and cost.

2.8 Waiopehu FMU

2.8.1 The Waiopehu FMU encompasses the Lake Horowhenua and Lake Waiwiri, Waitarere beach, 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. The state of the water quality is related to sediment and nutrients entering the lake and the legacy contaminants already present.

2.8.2 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 of the Hōkio, Waiwiri and Wairarawa estuaries.

2.8.3 The Ōhau River itself is generally in good health, with a number of water quality and ecosystem health attributes achieving NOF Band A or Band B. The Waikawa Stream, and its tributary the Manakau Stream, show mixed results.

WORK TO DATE

2.8.4 Work to improve the state of freshwater in Waiopehu FMU 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, and funding, include:

- 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 percent 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 Horowhenua District to develop use of precise nutrient prescription and precise nutrient application, maximise retention of nutrients, and recapture nitrates that move beyond the root zone (Sustainable Farming Fund).

FUTURE FOCUS

2.8.5 The focus for the next few years in the Waiopehu FMU will be to carry out weed harvesting on Lake Horowhenua, complete the Jobs for Nature Horowhenua FMU water quality interventions 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 NPS-FM. There are several current and future work streams that are working towards improved water quality for Lake Horowhenua. The following diagram illustrates how the proposed work programmes dovetail together (Figure 16).

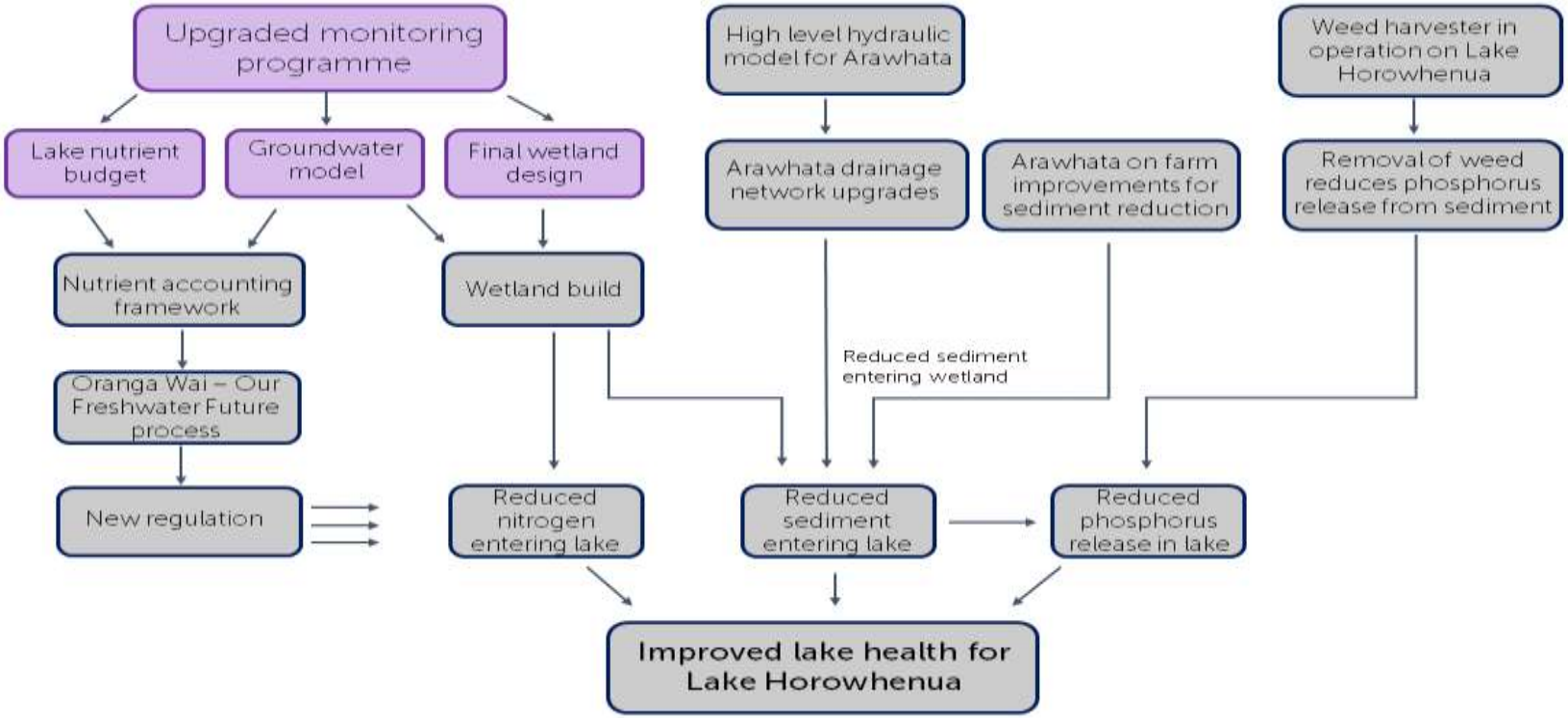


Figure 18. Diagram demonstrating how work streams in the Lake Horowhenua Catchment work towards improved water quality for the lake. Other regulatory activity is also underway for the stormwater consenting process.

WEED HARVESTER

2.8.6 Lake weed harvesting was recommended as a key restoration option for Lake Horowhenua and 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 plants.

2.8.7 Construction of the Arawhata boat ramp that will enable launch of the weed harvester onto Lake Horowhenua began in November 2020 and was completed on 12 May 2021.

Figure 19: The Lake Horowhenua boat ramp prior to the removal of the sheet piling and sediment curtain. The current sediment trap and proposed wetland site can be seen in the background.

Figure 20 The Lake Horowhenua boat ramp prior to the removal of the sheet piling and sediment curtain.

FUTURE PROOFING VEGETABLE PRODUCTION

2.8.8 This section summarises the work with the horticulture sector through the Freshwater and Partnerships programme to improve water quality.

2.8.9 The Future Proofing Vegetable Production project is a three year project that commenced in 2018, led by LandWISE, and funded by the MPI Sustainable Farming Fund, Regional Councils (including Horizons) and industry partners. It is focused on developing and testing new production techniques for vegetable growers including precise nutrition prescription, precise application, maximizing retention of nutrients and recapturing nitrate that moves beyond the rootzone. The overall aim is to reduce nutrient leaching and improving efficiency while maintaining production. Through working with the growers in the Arawhata catchment (as well as other focus areas in New Zealand), over the course of the project, LandWISE have identified opportunities to support growers to make more informed nutrient decisions. The following summarise those developments over the past year:

- The use of LandWISE Nutrient Budget by the growers in the crop planning stage to ensure planned fertiliser practice follows industry good practice. An online app version is currently in development.
- Adoption of the Nitrate Quick Test soil test to be used to validate any additional fertiliser applications.
- More regular calibration of the growers' fertiliser equipment has shown that there can be large variability in application and this practice helps to identify issues early.
- Drain monitoring is showing little nitrogen content, indicating any nitrate losses are via groundwater. This makes to construction of nitrate recapture interventions on farm difficult but reinforces our conceptual understanding of nitrate loss pathways in the catchment.

2.8.10 This project is due for completion by June 30 2021.

FRESHWATER IMPROVEMENT FUND

2.8.11 The Freshwater Improvement Fund project for Lake Horowhenua has been put on hold by the Ministry for the Environment and is open for discussion between the Lake Horowhenua Trust and the Ministry for the Environment.

JOBS FOR NATURE

2.8.12 In 2020, a four-year $12.5 million project was announced for a Horowhenua FMU water quality interventions programme with a focus on remediating nutrients and sediment in the Lake Horowhenua Catchment. This project is funded with $11.2 million through the Jobs for Nature Covid-19 recovery programme administered through the **Ministry for Environment (MfE)** and co-funded by Horizons with $1.3 million. One of the major projects is to establish a wetlands complex within the Arawhata Sub-catchment and develop other associated works programmes to inform further interventions within the Horowhenua FMU, with the aim of improving water quality and aquatic health in the catchment.

2.8.13 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, also by 2024).
- Communicate information on the lake and FMU to iwi/hapū and the wider community.
- Employ one Freshwater Coordinator – Horowhenua FMU, and three monitoring/science staff (3.5 FTEs).

2.8.14 The four-year funding term for this project commenced on July 1 2020 and the Deed of Funding was signed with MfE in February 2021. The following have been carried out in Year 1:

- 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.
- A wetland feasibility study in the Arawhata sub-catchment, including conceptual designs was carried out by Jacobs engineering consultancy.
- The Sedimentation and Drainage Management Plan for the Arawhata sub-catchment has been completed by Tonkin + Taylor.
- The land to be used for the wetland complex has been secured.

- A technical workshop was held on 15 April 2021 with technical experts to discuss the science and research work stream of the project and scope a path forward for final design of the wetland treatment complex.
- The development of a groundwater conceptual model, contracted to environmental consultants Pattle Delamore Partners (PDP), will be available by July 2021.
- The first synoptic survey of the Arawhata and Pātiki streams was completed in February 2021. This involved intensive gauging and water quality sampling on each stream to help characterise flow, water source and nitrate concentrations. A further synoptic survey was planned for May 2021.
- The Horowhenua FMU Freshwater Coordinator and Freshwater Advisor roles have been filled. The two remaining monitoring staff roles are yet to be filled.

MONITORING AND SCIENCE

2.8.15 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 17 groundwater level monitoring sites in the Horowhenua Catchment and monthly lake level measurements were recently established for Lake Waiwiri.

2.8.16 Between 2016-19, 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 now in the scoping stage.

2.8.17 The monitoring programme to support the Jobs for Nature project is being refine with the following proposed in addition to the established SoE 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 will be carried out each season with the summer surveycompleted in late February 2021 and the autumn survey planned for May 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 Hōkio Beach Road, to capture high rainfall events and identify nutrient and sediment transport in more specific locations.
- Addition of nitrogen and oxygen isotope sampling to the current surface water SoE monitoring programme, to help identify sources of nitrate in the Lake Horowhenua tributaries.

Item 9

- Nested piezometers will be installed around the perimeter of the lake to establish the groundwater gradient and refine the lake water balance.

2.8.18 The conceptual groundwater model for the Horowhenua FMU has been contracted to PDP and the intensive monitoring will help inform a more detailed and refined groundwater model in later years of the project.

Reports produced

Emond, H., Austin, D., Baker, T. J (2021). *Arawhata wetland – conceptual design report*. Jacobs client report prepared for Horizons Regional Council, April 2021

Ferguson, R (2021). *Integrated sediment, nutrient and drainage management plan for the Arawhata Catchment*. Tonkin + Taylor client report prepared for Horizons Regional Council. March 2021.

Annex D

Staci Boyte
FRESHWATER COORDINATOR (HOROWHENUA FMU)

Mark Mitchell
SCIENTIST – WATER QUALITY (LAKES AND COAST)

Amber Garnett
SCIENTIST – NATURAL RESOURCES

Stephen Collins
SCIENTIST – GROUNDWATER

Mike Patterson
SENIOR SCIENTIST – FRESHWATER

Maree Patterson
SENIOR SCIENTIST – WATER QUALITY

Lizzie Daly
SENIOR SCIENTIST – ECOLOGY

Logan Brown
FRESHWATER & PARTNERSHIPS 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 summarises environmental reporting and air quality activities during the 2020-21 financial year.

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 2020-21.

Performance Measures for Levels of Service	Target 2019-20	Target Achieved	Progress Update
Complete drinking water supply research with a focus on Horizons-operated drinking water supplies and complete an annual report on this to Council.	1	Yes	Drinking water source protection zones were delineated for the remaining 34 Horizons-operated and large non-council operated supplies. This year work began on implementing recommendations made during the initial delineation of source protection zones. One of these recommendations was to investigate bore security in relation to drinking water, in priority source protection zones across the region. There are 214 bores identified as being priority 1, 106 bores as priority 2 and 39 bores as priority 3. Work is underway with consultancy Pattle Delamore Partners (PDP) to

Performance Measures for Levels of Service	Target 2019-20	Target Achieved	Progress Update
			train field staff and begin assessing priority 1 and 2 bores across the region. This will carry over into the next financial year. Further work is underway to update the annual status report on compliance with drinking water regulations for all council-operated and large supplies across the region. The report is due on 30 June 2021. Finally, delineating source protection zones for remaining small sources is being scoped.
Investigate one aspect of climate change impact in the region and report on this to Council.	1	Yes	This year the climate change research budget contributed to the production of the Regional Climate Change Risk Assessment. This project was contracted to Tonkin + Taylor. The interim report will be delivered early June 2021. The final report covering both Stage 1 and Stage 2 will be delivered by June 30 2021 and will be presented to the Strategy and Policy Committee next financial year.
Air quality is monitored in Taihape and Taumarunui and reporting is made available to the public via LAWA and Horizons' annual State of Environment report.	Completed	Yes	PM_{10} monitoring continued in Taihape and Taumarunui until February 2021, when the old beta attenuation monitoring (BAM) units were removed for upgrading with new 5014i BAM units that can monitor both PM_{10} and $PM_{2.5}$ particle sizes. The 'new' 5015i BAM has been installed in Taumarunui and a new location for particulate monitoring in Taihape is being investigated.
Undertake an annual public education air quality campaign.	1	Yes	A social media post was released in March 2021 and guidance information on 'good' burning practices and an additional reminder post will be released in June 2021.

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 The LAWA website is a regional sector-driven initiative, working with a range of partners to present information about the state and trends of New Zealand's natural resources, including for Horizons. It now hosts surface and groundwater quality, quantity, lakes, swim spot monitoring, and air monitoring information, including Horizons region.

3.1.3 Data to the end of 2019 for surface and groundwater quality, water quantity, lakes and macroinvertebrates was released on World Rivers Day (27 September 2020). For the Horizons Region we now have 109 river sites with chemical and microbiological parameters and 82 river **Macroinvertebrate Community Index (MCI)** sites for **National Objectives Framework (NOF)** grades available on LAWA. We also have 29 impact sites, monitored downstream of a known point-source discharge, with chemical and microbiological parameters available for NOF grades and eight impact sites with MCI NOF grades.

3.1.4 State of river sites analysed for these measurements are based on data from January 2015 to December 2019. Preparation for the 2021 LAWA update has begun to make data to the end of 2020 available. Data delivery to the project is due in July 2021.

3.1.5 Staff are updating the catchment summary (State of Environment) report cards, which are in the final stages of design. These report cards provide a snapshot of the current state of the environment for each FMU and will be available by the end of financial year.

AIR QUALITY

3.1.6 Air quality monitoring at Horizons' designated airsheds, Taihape and Taumarunui, continues. Existing BAM units have had their pre-winter independent annual calibration checks and are operating adequately. There have been no verified exceedances of the **Air Quality National Environmental Standards (NES)** recorded at either location this year.

3.1.7 We have purchased two new 5014i BAM units that are capable of monitoring both coarse and fine particles (PM_{10} 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 (NES-AQ)** 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/m^3 with no more than three exceedances per year and an annual limit of 10µg/m^3 are proposed.

3.1.8 The new 5015i BAM has been installed at Horizons' Service Centre in Taumarunui and has been operating well. We are still looking for a suitable monitoring location in Taihape as the 'old' site (Taihape Fire Station) is no longer available and locating a suitable site has been challenging. The team is negotiating access to a land parcel attached to Taihape High School and expected that the station would be fully operational by the end of May 2021.

3.1.9 The new BAM units will enable us to maintain a long-term record for PM_{10} at the sites and will also allow us to comply with the proposed change to $PM_{2.5}$ monitoring under the proposed amended NES-AQ.

3.1.10 As with previous years, the 'Bernie and Chip' characters were used in a social media post in early March 2021 to promote good wood burning practices ahead of winter and an additional reminder post will be used in June.

Item 9

Annex E

Figure 1: The *Good Wood* campaign features Bernie and Chip on social media.

CLIMATE CHANGE RESEARCH

3.1.11 Climate change research was introduced as a dedicated budget in year one of the LTP seeking to investigate one aspect of climate change in the region and report on this to council annually. This item provides the annual report on climate change research noting that climate change has been reported to council via a range of items over the year.

3.1.12 This financial year Horizons has led the development of the region's first **Regional Climate Change Risk Assessment (RCCRA)**. The RCCRA aims to identify community risks, prioritise those risks for action, and share, with communities, information about vulnerabilities and the approach we are taking. A high-level risk assessment will allow decision-makers to identify hotspots, raise awareness and prioritise action. It is a preliminary step to a more in-depth consideration of what actions could be taken in a particular place, utilising existing datasets, reports, information and expert knowledge.

3.1.13 This project is a collaboration, led by Horizons with a steering group representing the region's councils, facilitation by an external consultant and a project team across the councils.

3.1.14 The project is divided into two stages, Stage 1: Exposure and Stage 2: Vulnerability and Consequence. The first stage considers hazards and consequences in terms of community values.

3.1.15 The first phase of this project began with a social media campaign called #ClimateChangeInOurRegion using the Social Pinpoint interactive map with the aim of identifying community values that may be affected by climate change in the region.

3.1.16 The next stage of the project involved three hui with subject matter experts and rangatahi iwi held over March and April 2021. These hui presented an opportunity to test an initial set of community values that were developed through the community engagement carried out in October 2020. Attendees also developed initial risk scores for community values that are exposed to climate hazards.

3.1.17 The interim report will be delivered early June 2021. The final report covering both Stage 1 and Stage 2 will be delivered by June 30 2021 and will be presented to the Strategy and Policy Committee next financial year.

Reports produced

Tonkin + Taylor *(2021) Manawatu-Whanganui Climate Change Risk Assessment.* Client report produced for Horizons Regional Council and the Region's District and City Councils (via the project's steering group)**.**

DRINKING WATER

3.1.18 Drinking water research was introduced as a dedicated budget in year one of the Long-term Plan to annually complete drinking water supply research with a focus on council operated drinking water supplies and complete an annual report on this to council. This item provides the annual report on drinking water research.

3.1.19 Over the past two years this funding has contributed to co-funded work with all of the Territorial Authorities in the region to delineate source protection zones for the Council-controlled drinking water supplies for larger populations (500 people or more), and selected other large supplies, to help with risk identification and management. During the financial year, the delineation of source protection zones was finalised for Council-operated supplies that serve more than 25 people and 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.

3.1.20 A programme of inspections of groundwater bores across the region was scoped, building on recommendations from previous work. We have completed a prioritisation report looking at bores within source protection zones 1 and 2 for all drinking water sources that have had the source protection zones delineated. 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. The report recommended

three levels of priority. Total bores identified numbered 359 with 214 as priority 1, 106 as priority 2 and 39 as priority 3.

3.1.21 Work is underway to train field staff in bore inspections using a custom reporting form. This training was expected to be completed in May and inspections of priority 1 and 2 bores were expected to begin in May-June. Due to the high number of bores identified, this piece of work will continue in the next financial year. Field surveys and data analysis will assess the security of current groundwater bores in relation to drinking water supply. Approximately 60 bore inspections are expected to be completed this year.

3.1.22 Further work to update the prioritisation report of all Council-controlled and large takes is underway. This report uses the most up-to-date drinking water compliance data from the Ministry of Health and is expected to be finalised before the end of the financial year.

3.1.23 Source protection zones have been delineated for all Council-controlled supplies and other large suppliers. However, there are a number of small network supplies that serve a population of under 25 that have not had source protection zones delineated and that work is being scoped.

Reports produced

Pattle Delamore Partners (2020) *Summary of source protection zone management zone recommendation*. Client report for Horizons Regional Council.

Pattle Delamore Partners (2021). *Source protection zone 2 bore inspection prioritisation*. Client report for Horizons Regional Council.

Pattle Delamore Partners (2021*). Community drinking water supply assessment in Horizons Region 2019-20 compliance period.* Client report for Horizons Regional Council.

COMMUNITY AND NATIONAL ENGAGEMENT

3.1.24 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.

3.1.25 Staff have developed a community engagement plan for Horizons' 'Oranga Wai Our Freshwater Future' programme. Initial conversations are focusing on confirming/identifying the values we associate with freshwater This will help frame our long-term vision and inform future discussions about setting objectives, limits and action plans to maintain/improve water quality. These conversations involve iwi/hapū, stakeholders and community groups through print, digital and social media channels, community and public events, and local hui and meetings.

3.1.26 The first round of community engagement began with iwi on 25 February 2021 with a hui held in Marton attended by several of the region's iwi representatives and Horizons staff. Further hui will be held every six weeks, alternating between Marton

and Ohakune. Staff have found these early discussions with iwi/hapū valuable, guiding our approach to implementation, helping improve communication and enabling participation and engagement.

3.1.27 Staff were also available at community events including the Rural Games and Central District Field Days (both held in mid-March) and the public River Scheme meetings during March and April 2021 to invite discussion on the Oranga Wai Freshwater Future process.

Photo 1: Staff attended community events including Rural Games and Central Districts Field Days.

3.1.28 The Ngaturoa Catchment Group open day on 8 April 2021 was attended by Maree Patterson and Anna Regtein. The Nguturoa **Seeing, Understanding, Believing (SUB)** Project was established by a group of landowners and farmers in the Nguturoa Catchment of the Manawatū. The purpose of the project, funded by Our Land and Water, is to measure trends in the ecological health, nutrient levels and sediment status of the Nguturoa Stream, directly linked to waterways draining from critical source areas on agricultural properties. Three participating landowners have developed farm plans showing how they are contributing towards improving the waterway in the catchment as part of their farming businesses.

3.1.29 This field day was funded by the Manawatū River Leaders' Accord community funding programme. Staff presented at the field day on water quality in the wider Manawatū

Catchment, how community monitoring can be used to inform decision-making and the Oranga Wai programme.

3.1.30 Staff have been increasingly engaging with regional sector special interest groups (SIGs) and 2020-21 saw the establishment of a freshwater implementation group and an implementation SIG focused on the delivery for the Jobs for Nature projects. Recent SIG attendance includes:

- SWIM (Surface Water Integrated Management) SIG annual meeting held in April, attended by Michael Patterson and Mark Mitchell.
- Groundwater Forum, attended by Stephen Collins in May 2021.
- Land Monitoring Forum, attended my Malcolm Todd in March 2021.

3.1.31 Other national conferences and meetings attended by staff include the National Air Quality working group meeting in March 2021, attended by Harold Barnett.

3.1.32 Horizons was Gold sponsor and host of the Coastal Restoration Trust Conference held in Whanganui on 10-11 March. The theme was *Ko Te Kawa o Tangaroa, he kawa ora - Living on a dynamic coast*. Scotty Moore and Neil Mickleson, with support from the Horizons Communications Team, contributed to the overall success of the conference as members of the organising committee. Whanganui District Mayor Hamish McDouall and Horizons Councillor Sam Ferguson spoke as part of opening proceedings and staff from across the organisation contributed to and/or attended the conference and associated conference workshops and field trips.

Photo 2: Left: Horizons Councillor Sam Ferguson speaks as part of opening proceedings at Coastal Restoration Conference. Right: Scotty Moore from Horizons Freshwater Team lends a helping hand to conference attendees during field trip.

3.1.33 The New Zealand Land Treatment Collective Annual Conference was held in early May in Palmerston North. Horizons sponsored the event, staff from our **Natural Resources and Partnership Group (NRP)** and the Consenting Team attended.

SCIENCE COMMUNICATION

3.1.34 An air quality educational social media post was made in March 2021, to increase public understanding of a good wood burning practices for better air quality outcomes. A follow-up campaign is scheduled for June to remind people how they can do their bit to keep the air clear and reduce the risk of releasing particulate matter caused by smoky fires.

3.1.35 A guest lecture was given in February 2021 to environmental health students at Massey University in Wellington for the paper 214.312 Environmental Monitoring and Investigative Methods. The presentation focused on Horizons' contact recreation programme and how we work collaboratively with MidCentral District Health Board, in particular, to ensure that water quality in relation to human health is communicated to the public throughout the season. The course provides a pathway for students to become Environmental Health Officers with territorial authorities and/or Health Protection Officers with district health boards.

3.1.36 A guest lecture was given by Stephen Collins on Groundwater Allocation and Management as part of the 121.213 Applied River Management paper at Massey University in April 2021. This lecture is given annually.

3.1.37 Stephen also spoke at the annual LandWISE conference in Havelock North in May. LandWISE is a collective, mainly made up of farmers, which seeks to coordinate and promote on-farm research and development, primarily in the vegetable and arable cropping industries. Stephen presented his nitrogen attenuation research as part of his PhD study with Massey University (Farmed Landscapes Research Centre).

Staci Boyte
SCIENTIST - LAND

Amber Garnett
ENVIRONMENTAL SCIENTIST – NATURAL RESOURCES

-

Harold Barnett
ENVIRONMENTAL SCIENTIST

Lizzie Daly
SENIOR SCIENTIST - ECOLOGY

Jon Roygard
GROUP MANAGER NATURAL RESOURCES AND PARTNERSHIPS

Report No.	21-71
Information Only - No Decision Required	

REGULATORY MANAGEMENT REPORT - FEBRUARY TO APRIL 2021

1. PURPOSE

1.1. This report updates Members on regulatory activity, for the period February to April 2021. It also provides a summary of the Incident Response and work being undertaken in relation to the implementation of the National Environmental Standards for Freshwater Regulations 2020 and Plan Change 2.

2. RECOMMENDATION

That the Committee recommends that Council:

a. receives the information contained in Report No. 21-71 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, 305 applications have been lodged, resulting in 204 applications being granted. Eighty four percent (84%) of applications were processed within the required statutory timeframes and 38 administrative discounts have been applied as required under the **Resource Management (Discount on Administrative Charges) Regulations 2010 (Discount Regulations).**

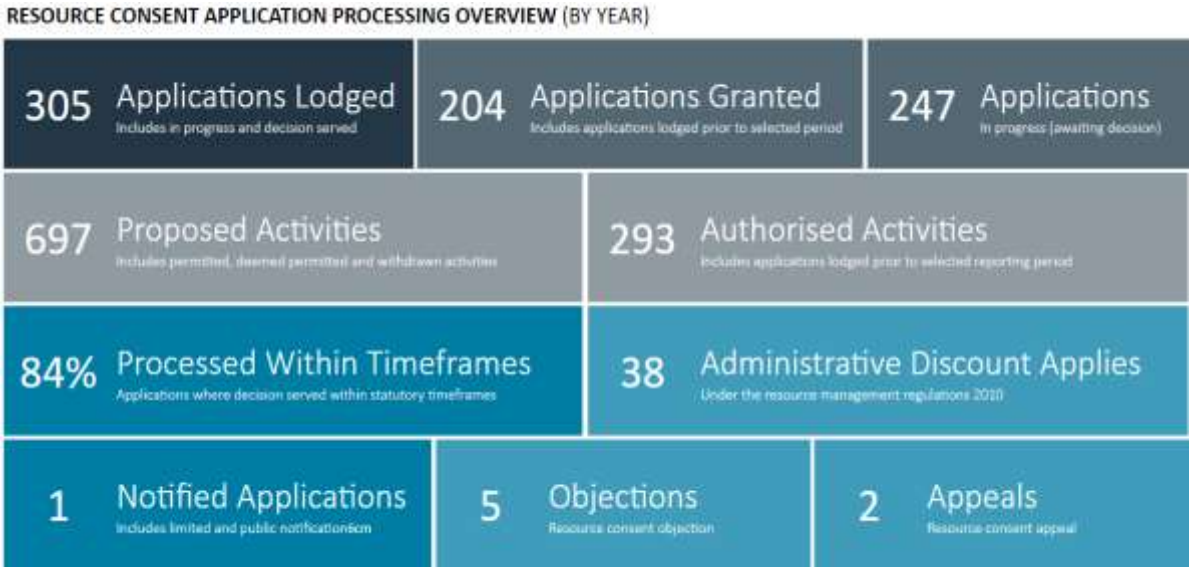


Figure 1. Resource consent processing year to date.

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. DOC and iwi continue 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 heard and we have received interim decisions from the Environment Court. We are now waiting on final decisions from the Environment Court.

ii. Regarding the Woodville WWTP, a hearing was held on 12 May 2021. The Applicant is to provide a right of reply to the Hearings Panel, who will then make a decision on the application.

7.2.4. **Horowhenua District Council**

i. The application seeking to discharge stormwater into Koputaroa Stream catchment is proceeding to a hearing. The hearing has been rescheduled for August due to additional information being considered.

ii. 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 Rangi 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. RDC is proposing to provide updated information to submitters and progress to a hearing later in the year if matters cannot be resolved.

7.2.6. **Manawatu District Council**

i. Works are progressing on the centralization project.

7.2.7. **Te Ahu a Turanga**

i. The focus 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. Staff are also looking forward to the next construction season (commencing on 1 September) to scope the increased workload associated with the significant increase in works that will be occurring on site.

Implementation of NES-FW and PC2

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. The Minister for the Environment has made an announcement in relation to the **Intensive Winter Grazing (IWG)** regulations. A copy of this announcement is attached as **Annex A** but in summary notes:

- There is a deferment in relation to IWG regulations for permitted activities and related resource consents for a period of one year (from 1 May 2021 to 30 April 2022);
- The deferment is on the basis both the farming sector and regional councils commit to improving IWG practice during the year by rapidly deploying the IWG module and there is increased monitoring and reporting to ensure there are measurable improvements in IWG during the year;
- The regulations that relate to further expansion of IWG will not be deferred and will need to be enforced;
- Clear expectation from the Minister that councils will carry out more monitoring of IWG practices and take compliance action against breaches of the law;

- More effective monitoring by councils of receiving environments such as rivers and estuaries to show their health is improving;
- Councils monitor total hectares in IWG and enforcement of the rule against the area in IWG increasing on any one farm; and
- Councils and the farming sector provide quarterly updates to the Minister that need to include information on progress towards implementing the IWG module and Councils compliance monitoring, and enforcement of IWG.

7.5. In response to this, Horizons is now actively developing a compliance monitoring programme around IWG. This programme will include both reactive and proactive components, with the former being based around complaints received, whilst the latter will see the proactive identification and monitoring of IWG activities. This amount of effort will need to be balanced against competing priorities.

7.6. At the end of the 12 month deferral the Minister intends to re-apply the regulations from 1 May 2022. It is expected the certified **Freshwater Farm Plan (FW-FP**) regime, including the IWG module, will be in place by this time and farmers will then have the option of undertaking IWG through a certified FW-FP as an alternative to complying with the default permitted activity pathway, or obtaining a resource consent.

7.7. 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. There is also work occurring in relation to FW-FP and how these plans and the process around certification and auditing are to be implemented.

7.8. Horizons has also established a designated page on its website where information on the NES-FW and regulations are held. This is being 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

7.9. 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

7.10. At the time of writing this report the decision of the commissioners relating to PC2 was still within the appeal period. Nonetheless, staff have commenced work on preparing for when resource consent applications will start to be lodged for Intensive Land Use Consents. This work has included:

- Reviewing current ILU resource consent application forms;
- Drafting up explanatory material on the different consenting pathways under PC2; and
- Engaging external expertise to assist with developing guidance material around good and best management practice and the use of overseer in a consent application process, and discussing these matters with the various sector groups.

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 incidents programme for the year to date.

Incident Response

8.1.1. This programme focuses on Horizons 24-hour incident response function and involves incidents relating to both consented and unconsented activities. When received, incidents

are categorised on priority basis from 1 to 5. The categorisation is based on a number of factors, including environmental risk, compliance history and public interest. From an operational perspective, the categorisation means that for:

- Category 1 incidents - there must be an immediate response. These incidents are normally characterised by an organizational wide response, such as the Raetihi diesel spill in 2013;
- Category 2 incidents are to be responded to within one day;
- Category 3 incidents are to be responded to within two weeks;
- Category 4 incidents are to be responded to when an officer is next in the area; and
- Category 5 incidents no physical response is required.

8.1.2. As noted above, incidents can vary from the large and complex to the simple and small. They cover the spectrum of environmental activities including discharges to air, discharges to water, land use and vegetation clearance and requests to attend emergency situations, such as vehicle crashes and fires from police and fire service. Figures 1 and 4 below represent some of the incidents responded to during the reporting period.

Figure 1. Offal onto State Highway as a result of a truck accident.

Figure 2. Complaint regarding burning of whiteware

Figure 3. Unauthorised earthworks

Figure 4. Burning prohibited material such as PVC pipes.

8.1.3. Year to date, Horizons has received 1129 complaints (see figure 5). It is likely that complaints received will exceed those received last year and will be closer to the 2018/19

year where a total of 1298 complaints were received. The high number of complaints does impact on Horizons proactive compliance programmes as resource is diverted away from these programmes as complaints are responded to.

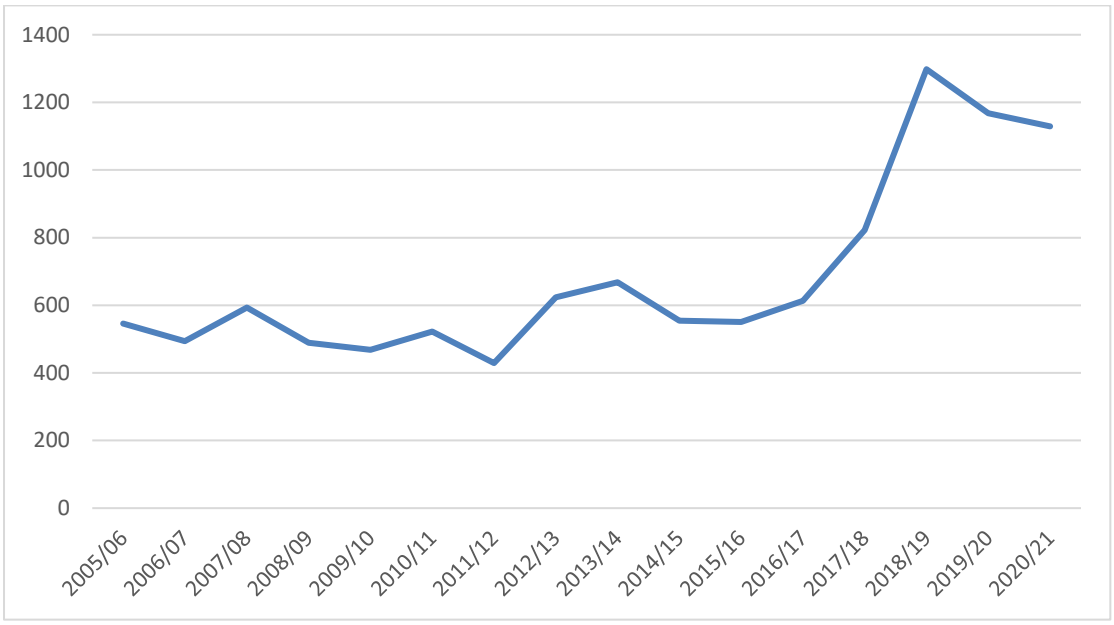


Figure 5. Complaints received 2005 to May 2021.

8.1.4. Currently incidents are categorized according to the resource affected (i.e. whether it relates to air, water or land). Figure 6 below shows the number of complaints by percentage resource affected for the year to date.

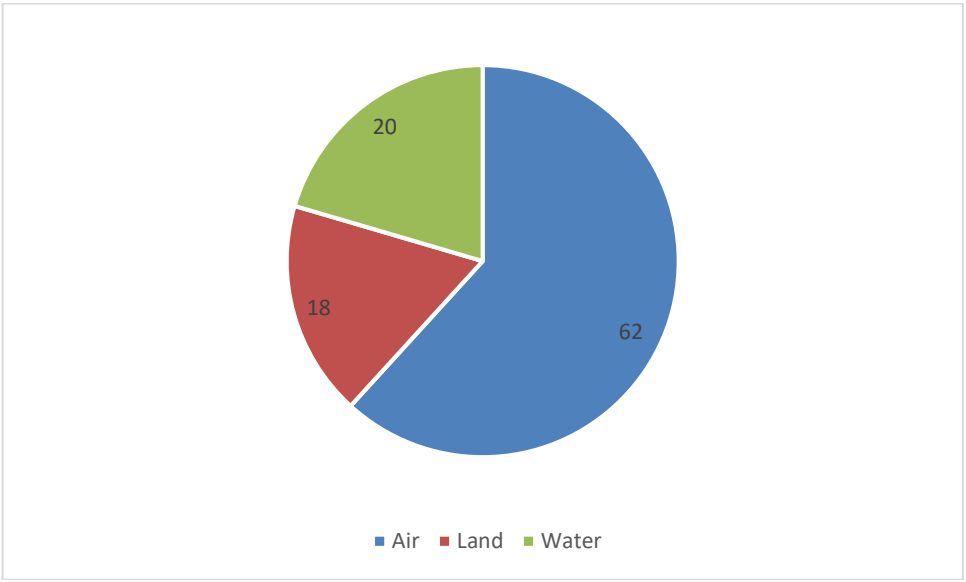


Figure 6. Percentage of resource type by complaint for 2020-2021

8.1.5. The majority of complaints received relate to air, which primarily relates to complaints regarding odour.

8.1.6. There is often a time delay from when a complainant is first affected by an odour and when Horizons Regional Council staff can complete their own odour assessment. Due to this time delay the nature of the odour (particularly its intensity and character) can change (i.e. can become less intense or disappear altogether).

8.1.7. To this end, in determining whether an odour is offensive or objectionable requires an overall judgement to made that considers the Frequency, Intensity, Duration,

Offensiveness/character and Location of the odour event. These are known as the FIDOL factors and are summarized below.

8.1.8. Council can rely on a number of factors in determining whether an odour is offensive or objectionable including Council officer assessments, information provided by complainants in the form of statements and/or odour dairies, and expert advice or review of a particular sites practices and odour mitigation measures. A copy of an odour assessment form is attached as **Annex B**.

Frequency	How often an individual is exposed to the odour.
Intensity	The strength of the odour.
Duration	The length of exposure.
Offensiveness/character	The character relates to the 'hedonic tone' of the odour, which may be pleasant, neutral or unpleasant.
Location	The type of land use and nature of human activities in the vicinity of an odour source.

Figure 7. Description of the FIDOL factors. Source: Ministry for the Environment 2016. Good Practice Guide for Assessing and Managing Odour.

COMPLIANCE PROGRAMME SUMMARY FOR FEBRUARY TO APRIL 2021

8.2. This section of the report provides a summary on the compliance programme for the reporting period.

8.3. During the reporting period, there were 215 compliance monitoring assessments. Of the 215 completed assessments, 131 Comply Full, 39 Comply At-Risk, 21 Low Risk Non-Compliance, 16 Moderate Non-Compliance and 13 Significant Non-compliance gradings were issued. Overall, this equates to a 79% compliance rate across the entire programme for the reporting period.

8.4. Below is a breakdown of the non-compliances by consent area, for the reporting period:

Industry: 11 Low risk non-compliance, eight moderate non-compliance and 4 significant non-compliances; and

Rural: 10 Low risk non-compliance, eight moderate non-compliance and nine significant non-compliances.

8.5. Horizons currently has four 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.

Table 1. Summary of Court proceedings

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 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.

9. INCIDENTS

9.1. Over the reporting period, a total of 413 complaints were received the majority of which related to discharges to air (304). The remainder of the complaints related to discharges to land (64) and water (83). It is important to note, the total number of complaints may not necessarily match the number of complaints per resource type. This is because one complaint may result in two resource types being affected (e.g. a discharge of a contaminant onto land may also result in a discharge of a contaminant onto or into water).

9.2. 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, 5 abatement and 11 infringement notices were issued. Table 2 below provides a summary of the formal regulatory action taken during the reporting period.

Table 2. Regulatory action taken during reporting period.

Recipient	Enforcement	District	Section of Act contravened	Nature of Offence / Action required
Terry Edward Yates	Abatement Notice	Tararua	15(1)(b)	Overflow of sump causing significant effluent ponding.
Rachael Summers, Collin Wheeler	Abatement Notice	Palmerston North	15 (2) (a)	Burning of prohibited items
Nestle Purina Petcare Marton	Abatement Notice	Rangitikei	15(1)(c)	Offensive Odour beyond property boundary
Venison Packers Feilding Limited	Abatement Notice	Manawatu	15 (1) (b)	Discharge of unauthorised contmainats (paunch material) to land
Farmgear Limited	Abatement Notice	Palmerston North	15(1)(b)	Dischange of contaminant (sewage) to land
Chris Satherley	Infringement notice	Palmerston North	14(2)(a) and 14(3)(a)	Stream Diversion
Chris Satherley	Infringement notice	Palmerston North	338(1)(c)	Failure to comply with Abatement Notice.
Julian Dalefeild	Infringement notice	Palmerston North	15(2A)	Odour
Terry Edwards Yates	Infringement notice	Tararua	15(1)(b)	Ponding of Farm Dairy Effluent
Drymix New Zealand Limited	Infringement notice	Manawatu	15(1)(c)	Discharge of objectionable dust beyond the boundary from an industrial trade premise
Drymix New Zealand Limited	Infringement notice	Manawatu	338(1)(c)	Failure to comply with an Abatement Notice.
Crowley Farms	Infringement notice	Whanganui	15(1)(b)	Ponding of Farm Dairy Effluent
Rachael Summer	Infringement notice	Palmerston North	15 (2A)	Burning prohibited items
Nestle New Zealand Ltd	Infringement notice	Rangitikei	15 (1)(c)	Discharging objectionable odour beyond the boundary
Venison Packers	Infringement notice	Manawatu	15(1)(b)	Discharging contaminants to land and water.
Farmgear Limited	Infringement notice	Palmerston North	15(1)(b)	Discharge of contaminant (sewage) to land

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 Intensive Winter Grazing - Minister's announcement

B Odour Assessment Form

Hon David Parker BCom, LLB

Attorney-General
Minister for the Environment
Minister for Oceans and Fisheries
Minister of Revenue
Associate Minister of Finance

16 March 2021

Nicol Horrell
Chair, Environment Southland

Dear Nicol

Intensive winter grazing module for freshwater farm plans

I really appreciate the time and effort that members of the Southland Intensive Winter Grazing NES Advisory Group (SAG), including from your Council, put into their report of 10 December 2020 (the report). This advised on the implementation of the intensive winter grazing (IWG) regulations in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-F).

The Minister of Agriculture and I believe that improvements in IWG practice relating to freshwater will be achieved in the medium term primarily through certified freshwater farm plans (FW-FPs), rather than through default permitted activity conditions in the NES-F that serve as a bottom line (although that may still be necessary for some).

In response to SAG advice, I have decided to defer the start date for parts of the IWG regulations (ie for permitted activities and related resource consents) for a period of one year (from 1 May 2021 until 30 April 2022). This will be country-wide, bearing in mind that SAG members were reflective of views elsewhere, although the most serious IWG issues are in southern areas of the country.

The Minister of Agriculture and I are announcing the deferment today. See the attached embargoed press release. The deferment is in return for regional councils (councils) and the farming sector committing to:

- Improve IWG practice during the year by rapidly deploying an IWG module that will be a prototype for inclusion in the certified FW-FP regime currently under development; and

- Undertake increased monitoring and reporting to ensure there are measurable improvements in IWG practice during the year.

The NES-F regulations that control *further* expansion of IWG will not be deferred and will need to be enforced.

The roll-out of a prototype IWG module (a draft of which was in the report) is an opportunity to show the effectiveness of a FW-FP approach to improving freshwater health outcomes. The deferment will facilitate the prototype being ready for formal incorporation into certified FW-FPs in 2022.

1
Private Bag 18041, Parliament Buildings, Wellington 6160, New Zealand
+64 4 817 8710 | d.parker@ministers.govt.nz | beehive.govt.nz

Annex A

For IWG during the year, my expectations of councils and the farming sector are:

As above, to:

- Improve IWG practice during the year by rapidly deploying an IWG module that will be a prototype for inclusion in the certified FW-FP regime currently under development
- Undertake increased monitoring and reporting to ensure there are measurable improvements in IWG practice during the year.

And further to this:

- Demonstrable and early progress in deploying the IWG module
- Farmers putting in place better practices such as providing appropriate buffers that are uncultivated and ungrazed around waterways and critical source areas, as recommended in the SAG report; and retiring steeper slopes that are unsuitable for IWG
- Councils carrying out more monitoring of IWG practices and taking compliance action against breaches of the law
- More effective monitoring by councils of receiving environments such as rivers and estuaries to show if their health is improving, ie whether significantly less sediment and other contaminants are ending up in them
- Council monitoring of the total hectares in IWG, and enforcement of the rule against the area in IWG increasing on any one farm; and
- Quarterly progress reporting to me on the above points through Environment Southland (and other councils as appropriate), ie on 1 August and 1 November 2021, and 1 February and 1 May 2022.

The Ministry for Primary Industries will also be responding to animal welfare complaints and prosecuting as appropriate where breaches of the law occur.

Once the IWG regulations enter into force from 1 May 2022, farmers will have the option of undertaking IWG through a certified FW-FP as an alternative to complying with the default permitted activity pathway in the regulations, or obtaining a resource consent.

In addition, any changes (if desirable) to rules associated with the default permitted activity pathway will have been progressed by this time.

Thank you again for your important contribution to this work, and I have asked officials to continue working with you, SAG members and others to ensure the successful roll-out of the IWG module.

I look forward to receiving regular updates on progress. Meanwhile, please note that this letter will be made available to other parties with an interest in IWG.

Yours sincerely

Hon David Parker
Minister for the Environment

Attachment:

Copied to:

Hon Damien O'Connor, Minister of Agriculture

Members of, and observers to, the SAG

Data Record Sheet for Odour Measurements

Site Being Monitored: _____ Assessors Name: _____

Location of Assessment: _____ Date: _____

Reason for investigation: **COMPLAINT / PROACTIVE**

INITIAL IMPRESSIONS

Time of the intial impression: _____ Character: _____

Odour intensity: _____ General hedonic tone: _____

Plume width (if known): _____

Odour samples every ten seconds. The time between the ten seconds is disregarded (interval method)

Start time: _____

		Intensity	Character/notes
1st min	0		
	10		
	20		
	30		
	40		
	50		
2nd min	0		
	10		
	20		
	30		
	40		
	50		
3rd min	0		
	10		
	20		
	30		
	40		
	50		
4th min	0		
	10		
	20		
	30		
	40		
	50		
5th min	0		
	10		
	20		
	30		
	40		
	50		

		Intensity	Character/notes
6th min	0		
	10		
	20		
	30		
	40		
	50		
7th min	0		
	10		
	20		
	30		
	40		
	50		
8th min	0		
	10		
	20		
	30		
	40		
	50		
9th min	0		
	10		
	20		
	30		
	40		
	50		
10th min	0		
	10		
	20		
	30		
	40		
	50		

Scale of Intensity

6	Extremely strong
5	Very strong
4	Strong
3	Distinct
2	Weak
1	Very weak
0	No odour

Weather Data (see over)

Wind direction:
Wind velocity:
Cloud cover:
Temperature:

General Hedonic Tone

☐	-4	Extremely unpleasant
☐	-3	
☐	-2	
☐	-1	
☐	0	Neutral
☐	1	
☐	2	
☐	3	
☐	4	Extremely pleasant

Based on your assessment on this occasion, which of the following applies:

- ☐ I did not detect any odour
- ☐ I did detect odour and consider it would would not be objectionable at any location for any duration or frequency
- ☐ I did detect odour and consider it would not be objectionable, UNLESS it became continuous
- ☐ I did detect odour and consider it would be objectionable if it occurred on a regular or frequent basis
- ☐ I did detect odour and consider it to be objectionable even in periods of short duration.

FINAL CHECKLIST

- ☐ Upwind Assessment completed. If not, detail reason: _____
- ☐ Aerial photo showing location of assessment attached
- ☐ Are there potential witness statements to obtain YES / NO

REMARKS:

horizons

Definitions

OBJECTIONABLE	The term objectionable is the term used in consent conditions and is an ingredient of any subsequent enforcement action. It is a subjective term and is open to interpretation. There is guidance from case law which defines objectionable as: Unpleasant or offensive or repugnant Open to objection or undesirable or disapproved of Noxious or dangerous A test will be applied by the court that the term objectionable will be as it applies to "the minds of a significant cross section of reasonable people in the community". The assessor must bear this test in mind when completing their assessment.
INTENSITY	The strength of the odour (e.g. 3 'distinct')
CHARACTER	What the odour smells like (e.g. fishy)
HEDONIC TONE	The degree to which an odour is perceived as pleasant or unpleasant (e.g.-4 'extremely unpleasant')

Land Beaufort Wind Scale

B. No.	Description	How to Recognise
0	Calm	Smoke rises straight up
1	Light Air	Smoke drifts
2	Light Breeze	Wind felt on face; leaves rustle
3	Gentle Breeze	Flags flap; twigs move all the time
4	Moderate Breeze	Papers blow; small branches move
5	Fresh Breeze	Small trees sway
6	Strong Breeze	Large branches move, wind whistles
7	Near Gale	Whole trees sway

Measuring Cloud Cover

During the day the sun is always shining, so the amount of sunshine reaching the ground depends on the amount and duration of any cloud cover.
The amount of cloud cover is usually given in units called oktas.
Each okta represents one eighth of the sky covered by cloud.

Okta No.	Description
0	Clear Sky
1	Sunny
2	Mostly sunny
3	
4	Half the sky is covered in cloud
5	
6	Mostly cloudy
7	Considerable cloudiness
8	Overcast
F	Fog / Mist

Measuring Temperature

Use descriptors below:

Cold	Cool	Mild	Warm	Hot

REMARKS continued: