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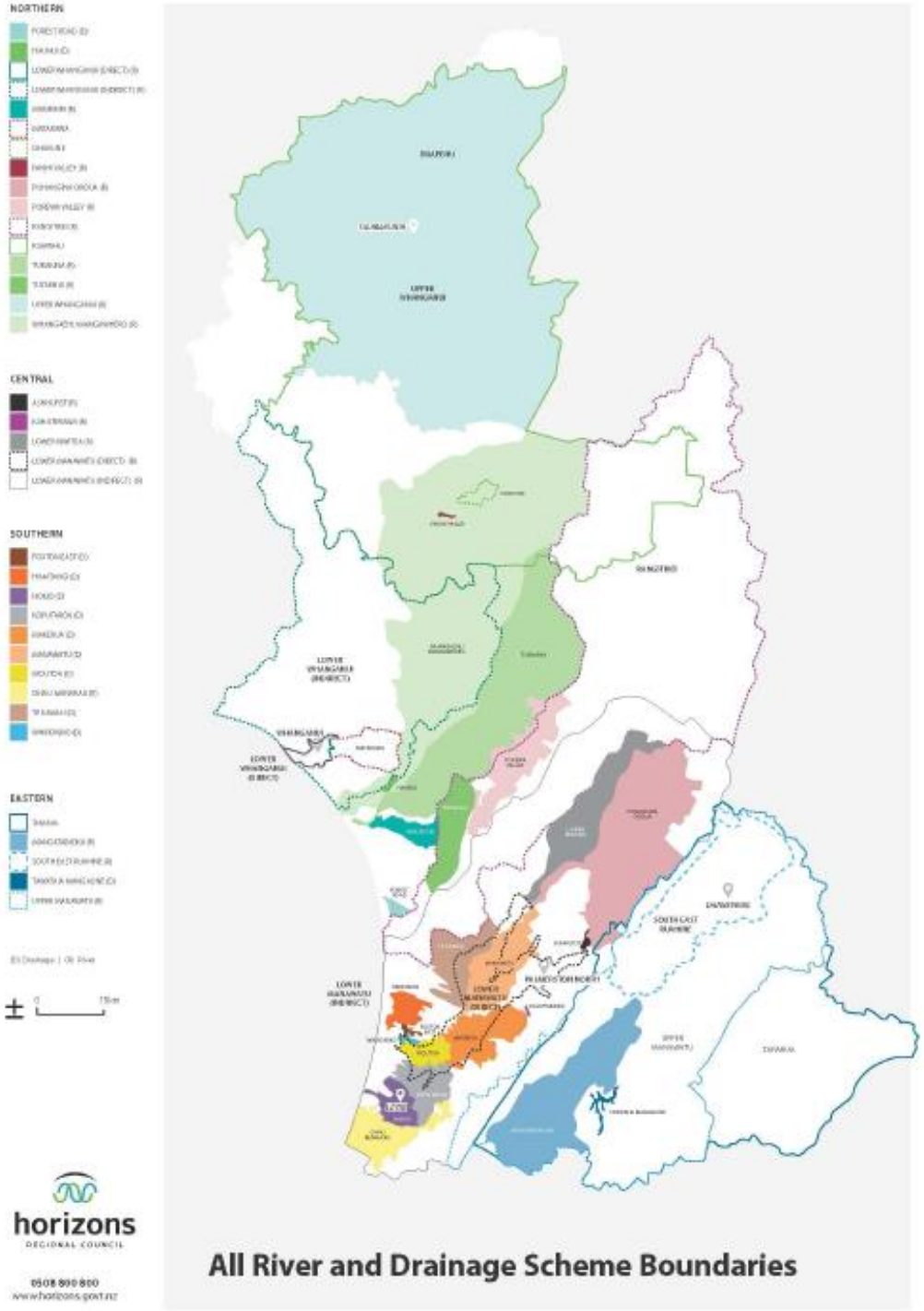
2021 SCHEME MEETINGS

Whangaehu/Mangawhero and Turakina Schemes



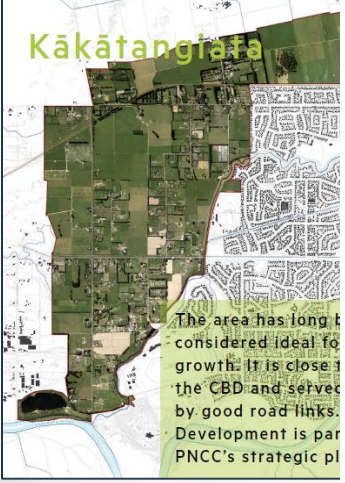
HORIZONS RIVER MANAGEMENT

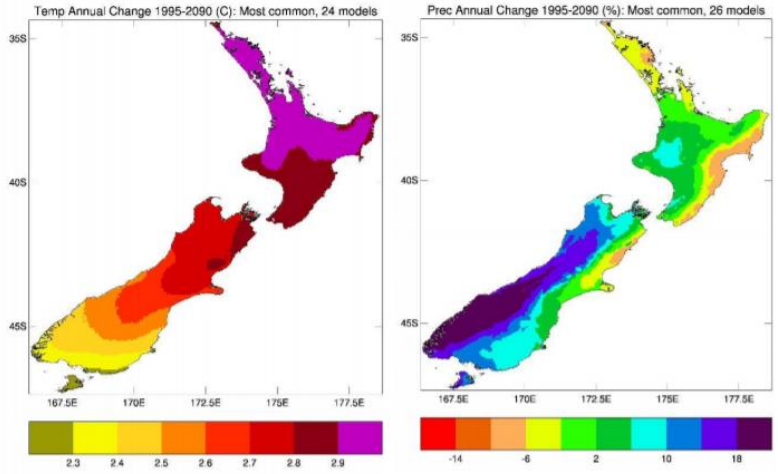
Provision of flood protection, land drainage and river control across the region.

- Current operating budget $14.3M
- 40 Staff
- 34 Schemes provide protection from flooding and erosion to:
  - 11 urban areas
  - 75,00ha rural land

$650M of assets

- 1,270km of river channel
- 1,100km of drain
- 23 pump stations with a total discharge capacity of 43m3/s
- 54 detention dams that can store 4.3M cubic metres of floodwater
- 500km of stopbanks





SIGNIFICANT RIVER MANAGEMENT ISSUES

- Accelerating land use change
- Unsustainable land use
- Climate change
- Asset reliability
- Evolving community expectations

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SCHEME UPDATE SUMMARY

Whangaehu-Mangawhero Scheme Facts

Scheme Assets.

None

Predominantly a vegetation Scheme.

Scheme Area 2834km^2

Two main catchments – the Whangaehu and Mangawhero Rivers.

Predominantly servicing dairy and hill country pastoral land.

Turakina Scheme Facts

Scheme Assets.

None

Predominantly a vegetation Scheme.

Scheme Area 860km^2 and 140km in length

Predominantly servicing dairy and hill country pastoral land.

WHANGAEHU-MANGAWHERO SCHEME and TURAKINA SCHEME

Strategic Direction

The focus of the Scheme over the next 3 years is to continue to maintain river banks in a vegetation state that maximises flow rates.

Aim

To maintain a level of service that meets the expectation of the local community for flood conveyance through vegetation management, drainage and recreational use.

Scheme Level of Service

To maintain river alignment, manage vegetation and clear blockages.

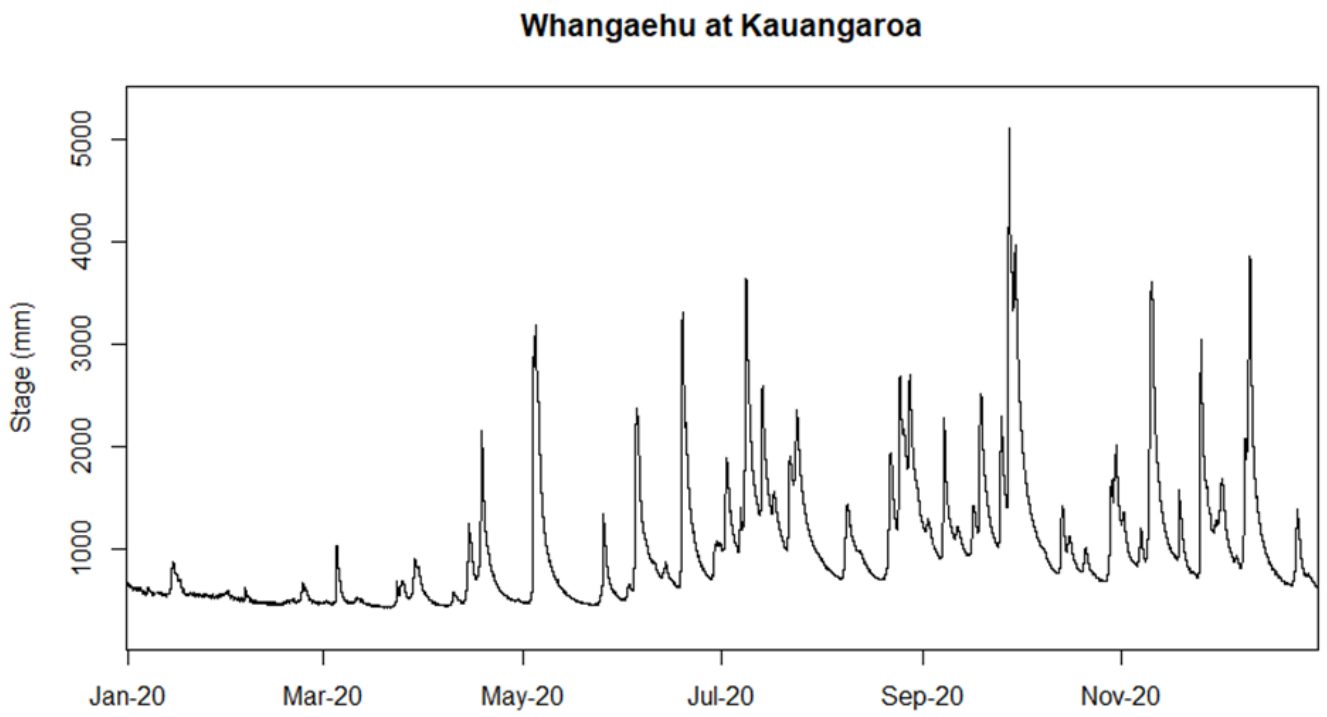
Scheme Funding

Funding Policy

The Schemes funding comes from three revenue sources:

- Targeted Rates – differential targeted rates levied on properties directly benefiting from or causing the need for the work.
- General Rates – uniformed rate levied over all properties in the Horizons Region.
- Other income – Revenue from lease land, forestry blocks, scheme reserves, etc. held by the scheme. This is used to reduce the level of the targeted rate

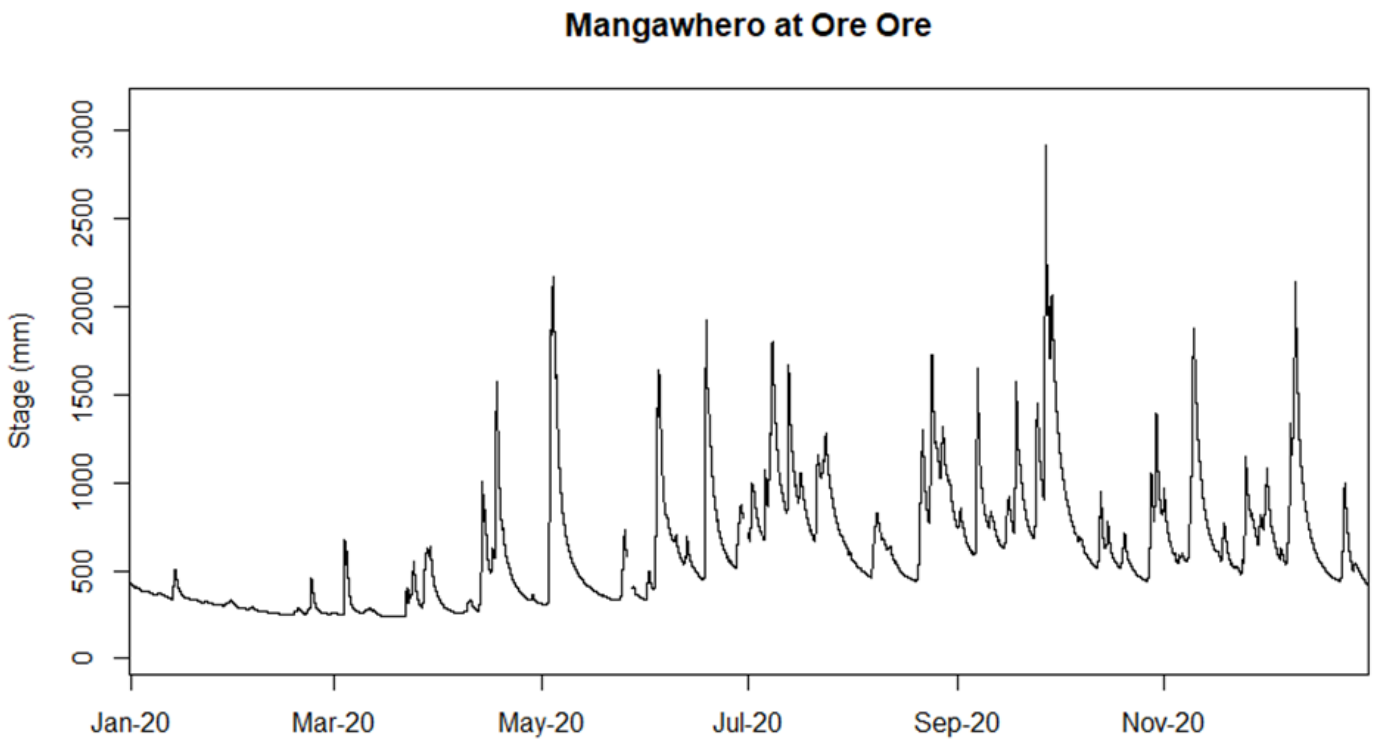
Whangaehu at Kauangaroa



Annual maximum stage for the past decade

Year	Stage	Flow	Date
2010	7.025	512.821	2010-09-07 05:45:00
2011	8.396	668.665	2011-01-24 07:45:00
2012	5.086	315.135	2012-01-09 04:15:00
2013	10.877	1004.555	2013-10-15 23:30:00
2014	6.518	459.313	2014-08-03 19:00:00
2015	12.513	1314.180	2015-06-21 02:00:00
2016	5.298	313.979	2016-07-24 18:55:00
2017	7.563	579.228	2017-04-04 20:45:00
2018	6.015	407.850	2018-12-26 03:10:00
2019	4.872	299.424	2019-07-15 05:45:00
2020	5.116	323.009	2020-09-28 01:10:00

Mangawhero at Ore Ore



Annual maximum stage for the past decade

Year	Stage	Flow	Date
2010	3.619	274.307	2010-09-06 21:30:00
2011	3.621	274.611	2011-01-23 23:45:00
2012	2.617	148.098	2012-01-02 02:35:00
2013	5.921	734.328	2013-10-15 16:15:00
2014	3.590	269.926	2014-08-03 10:55:00
2015	5.930	736.445	2015-06-20 17:15:00
2016	3.127	205.723	2016-07-24 08:00:00
2017	3.733	291.939	2017-04-04 11:05:00
2018	2.339	119.619	2018-04-16 16:25:00
2019	2.709	157.842	2019-07-14 18:50:00
2020	2.908	179.614	2020-09-27 14:15:00

Key Activities and Issues: 2020-21

Scheme Expenditure

Expenditure is on track to finish within budget this financial year.

Works Activity

On water inspection (Mangawhero) scheduled for April/May
On water inspection (upper reaches of Turakina) in April/May
Spray trials for Acacia trees on Whangaehu (drill and poison)
Aerial spraying (Whangaehu between Kaungaroa Bridge and SH3 Bridge)
Aerial spraying (Turakina between SH3 bridge and the coast)
Willow Layering (Whangaehu approx 1km upstream of SH3 Bridge)
Substantial Tree and debris removal (Turakina behind 1497 Turakina Valley Road)

Issues

Growth of Accacia trees being monitored along with the spray trials.
Large poplar trees behind Kiwifruit orchard (visible opposite Okirae Road).

Photos Whangaehu

Poplar trees overhanging (photo taken from Okirae Road)

Willow layering near SH3 Bridge

Photos Whangaehu/Mangawhero

Substantial Acacia tree growth on an inside bend

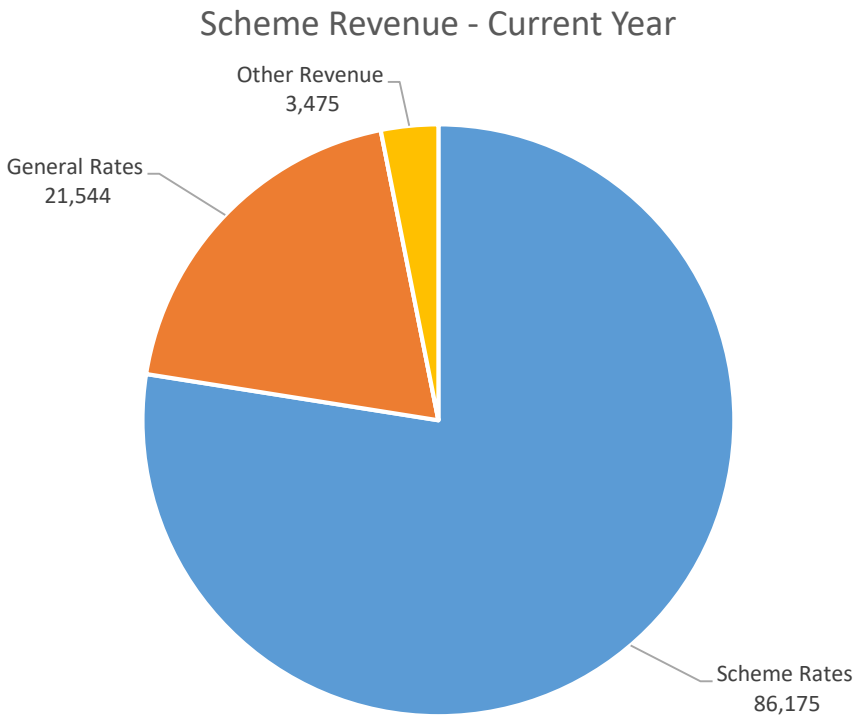
Willow growth to be thinned out selectively using drill and poison technique

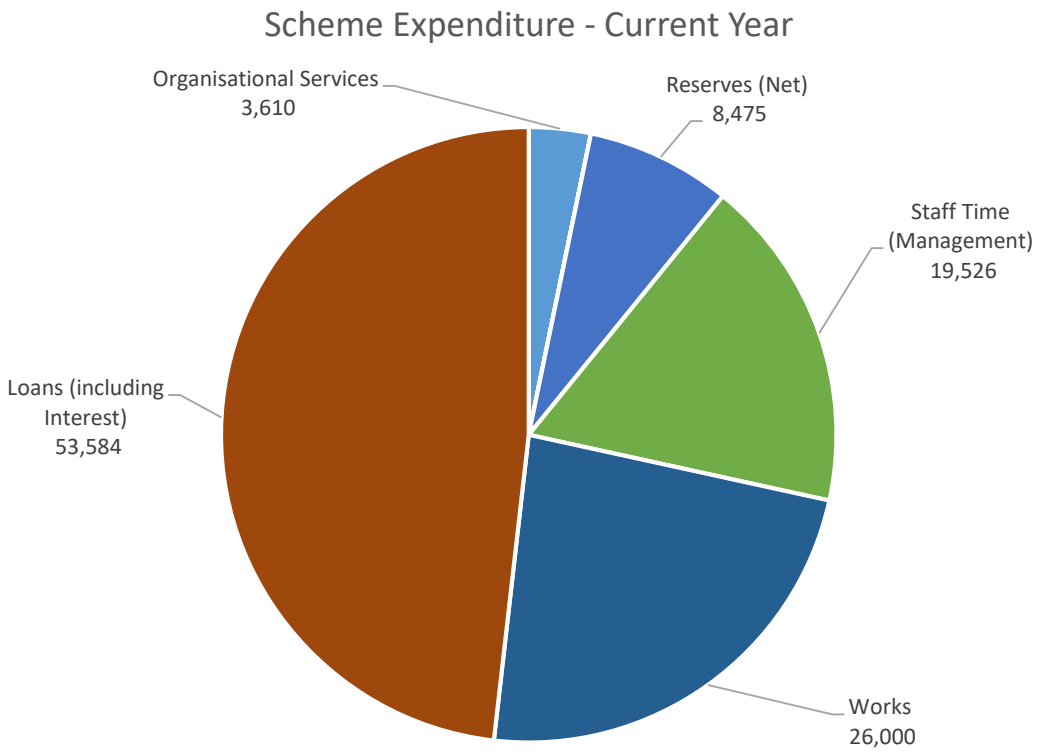
Photos Turakina

Tree fallen across the Turakina River. The build up of debris cause the river to divert

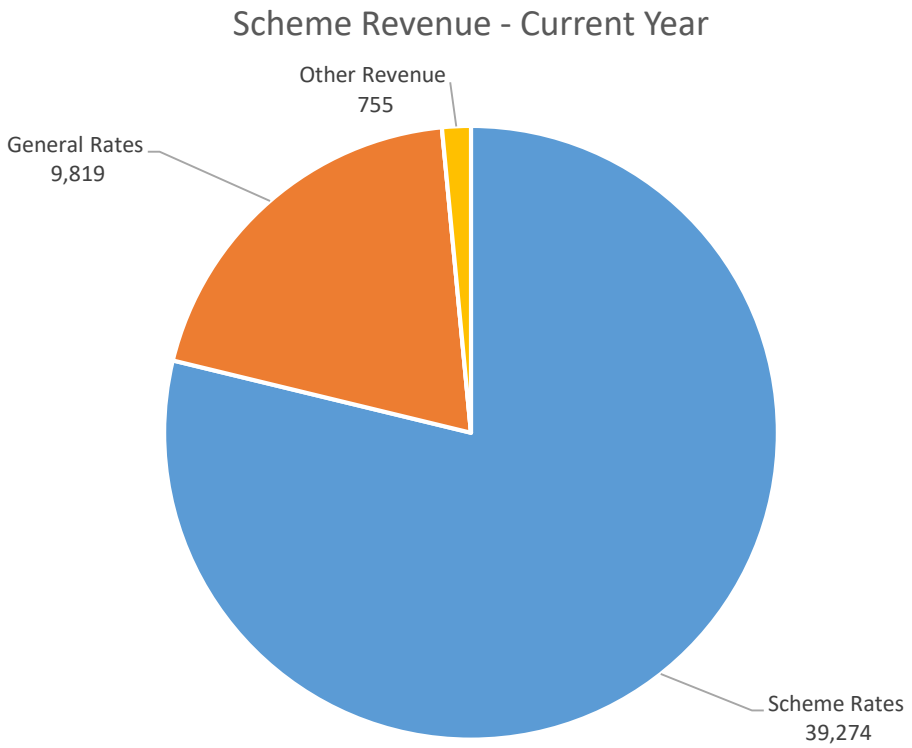
The same site with tree removed and water flowing as it should be

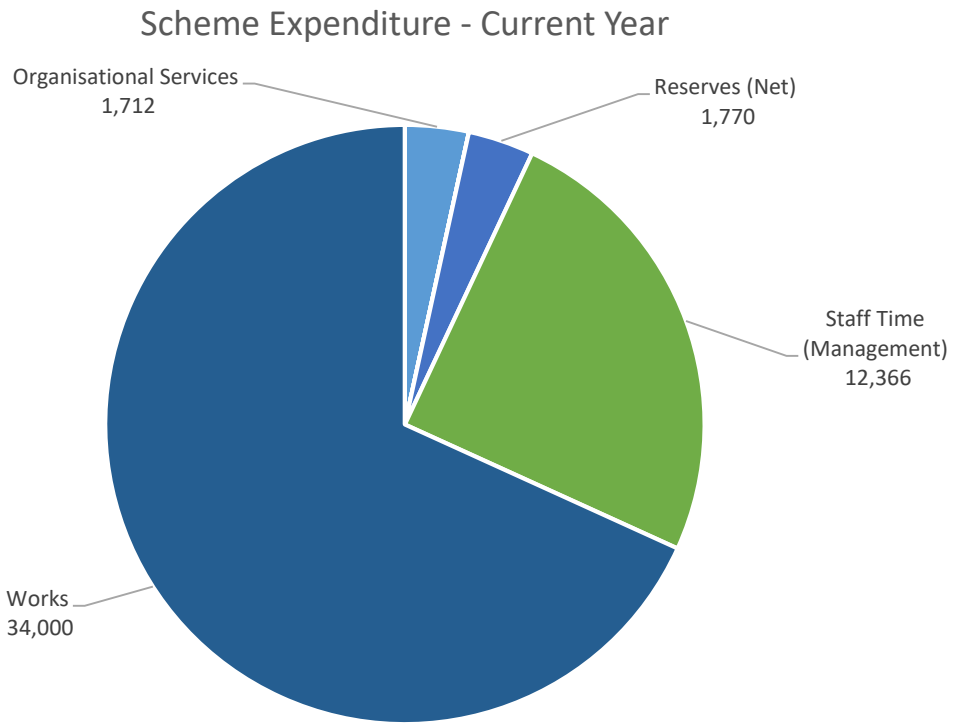
Income and Expenditure: 2020-21
Whangaehu-Mangawhero Scheme





Income and Expenditure: 2020-21
Turakina Scheme





Key Activities and Issues: 2021-22

Scheme Budget (Whangaehu-Mangawhero)

No change to works expenditure budget
$2,756 contribution to the Emergency Reserve Fund
Scheme Rate decrease 2.7%

Scheme Budget (Turakina)

$1,500 decrease in works expenditure
$3,282 contribution to the Emergency Reserve Fund
Scheme Rate increase of 0%

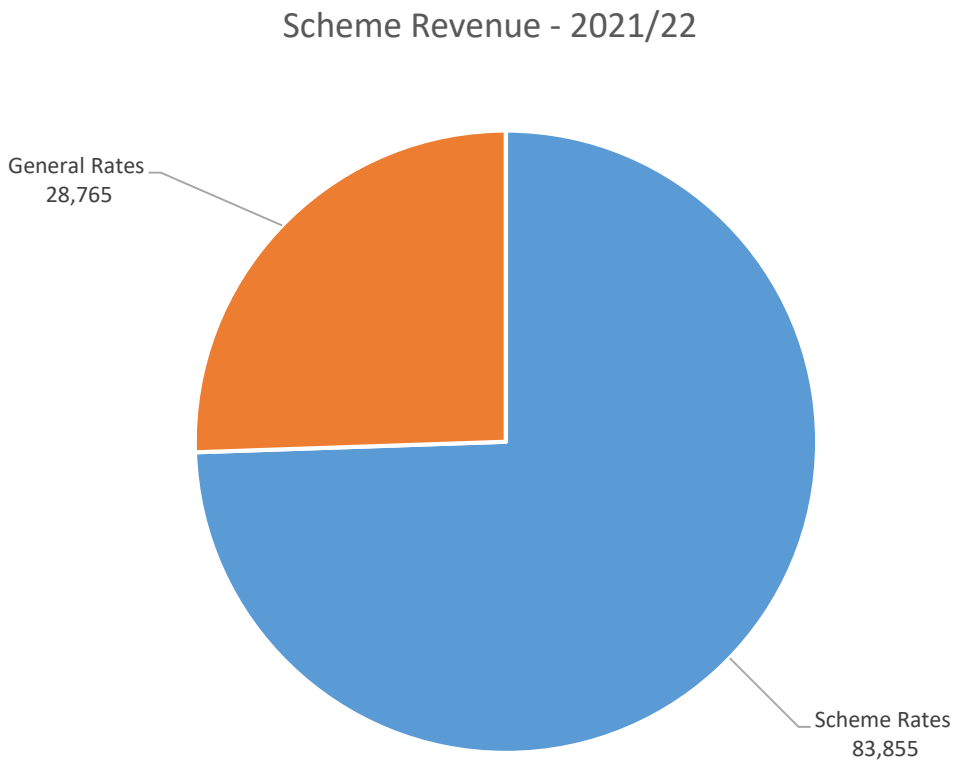
Works Activity

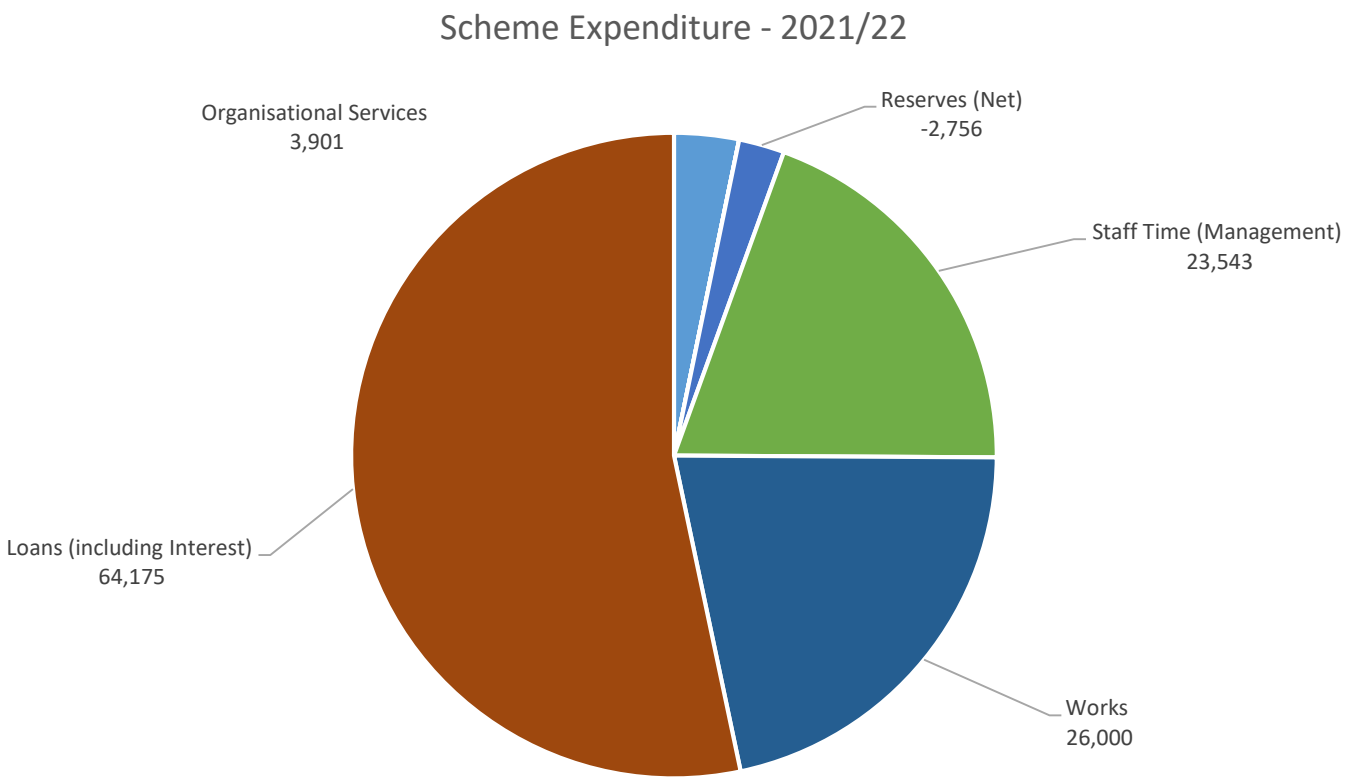
Maintain focus on channel and vegetation maintenance.

Scheme Review

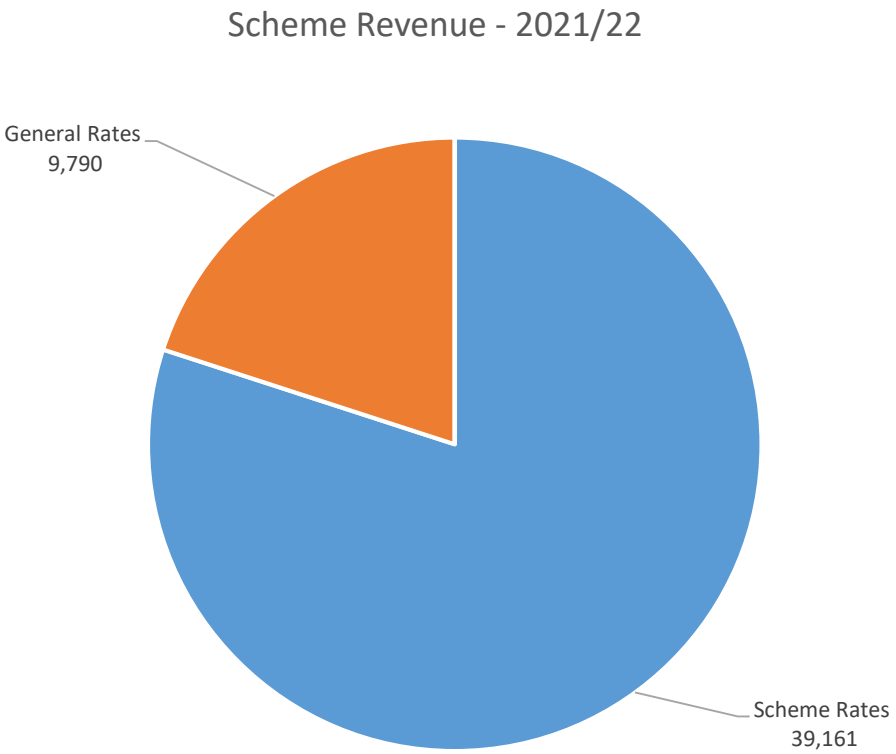
Operation and maintenance manual to be produced in the next 3 years

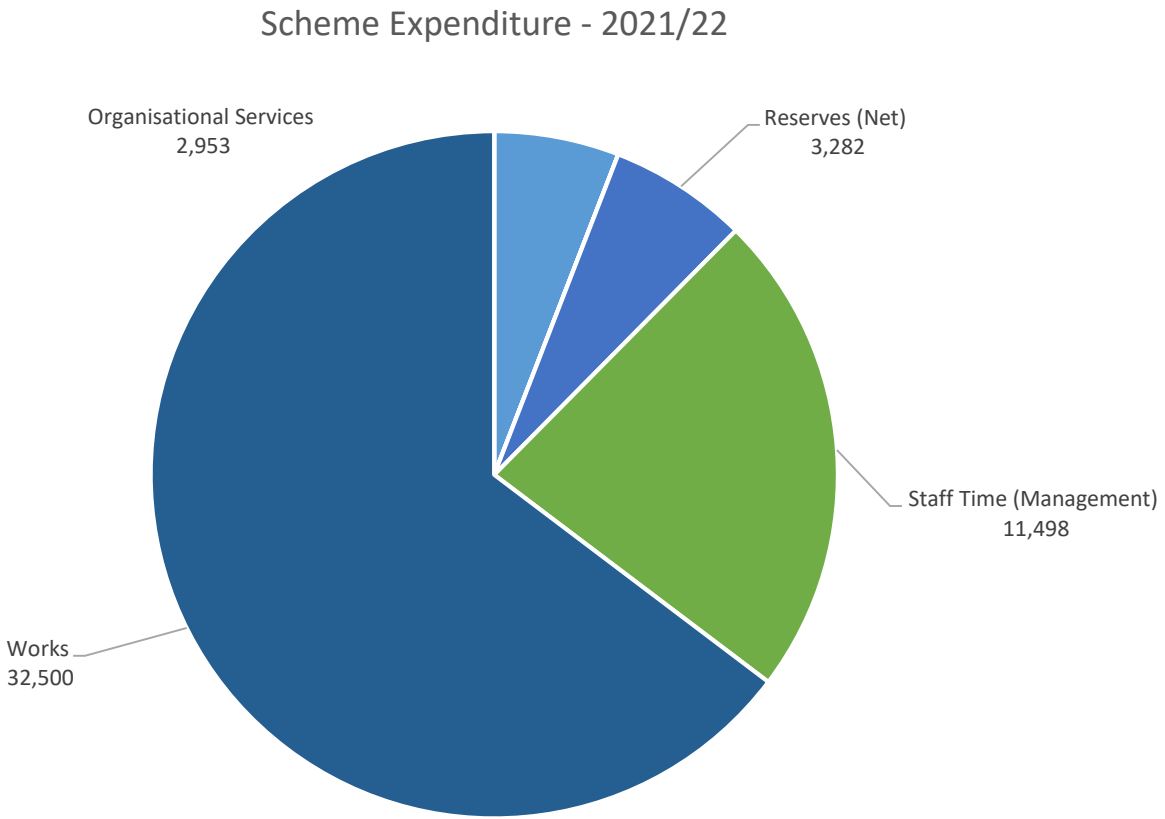
Income and Expenditure 2021-22
Whangaehu-Mangawhero Scheme



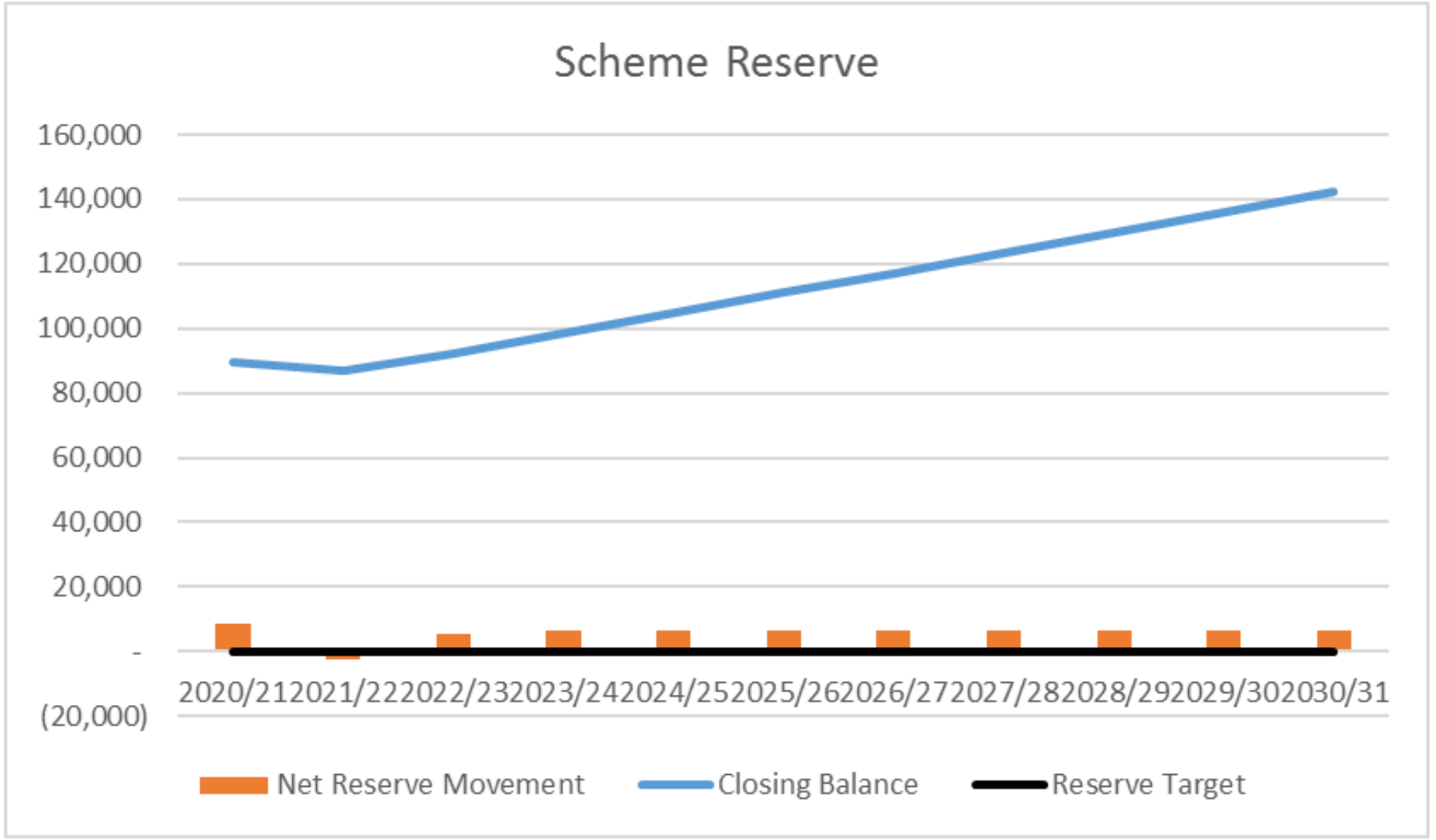


Income and Expenditure 2021-22
Turakina Scheme

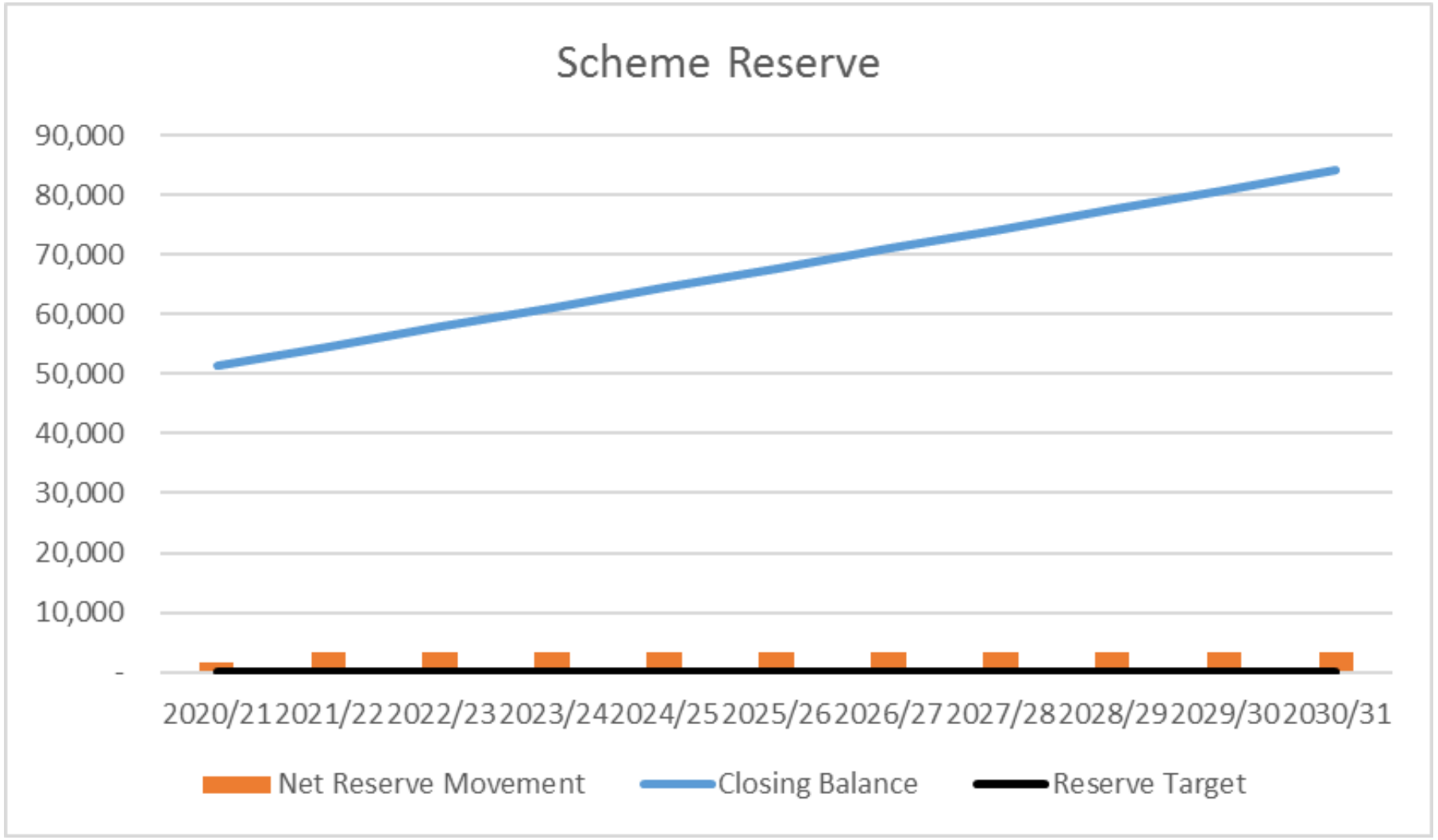




Emergency Reserve Balance
Whangaehu-Mangawhero Scheme



Emergency Reserve Balance
Turakina Scheme



Loan Account Balances
Whangaehu-Mangawhero Scheme

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CLIMATE RESILIENCE PROJECTS

Overview

CLIMATE RESILIENCE PROJECTS

Invitation from Central Government during lockdown to submit 'shovel ready' infrastructure projects for funding as part of post COVID lockdown economic stimulus.
Five flood protection projects submitted both directly by Horizons as a $36.9M package and as a $300M 'sector' package in April 2020. Confirmed for funding in July/ August at a rate of 75%.

Four approved projects:

- Palmerston North Flood Protection Resilience;
- Lower Manawatu Scheme Resilience;
- Foxton Flood Protection;
- Rangitikei Resilience/ Enhancement.

CLIMATE RESILIENCE PROJECTS

Key points:

- The projects put forward were intended (before COVID) for inclusion in the updated LTP, albeit with smaller budgets and longer timeframes. Foxton was already part of the LTP;
- Central Government has stipulated the end of March 2024 as the completion date;
- Funding tagged with a range of requirements including a focus on social procurement;
- Assembling a delivery team of five which is mostly in place;
- Local share is loan funded with repayments met from existing targeted rate classifications/ regional rate contribution.

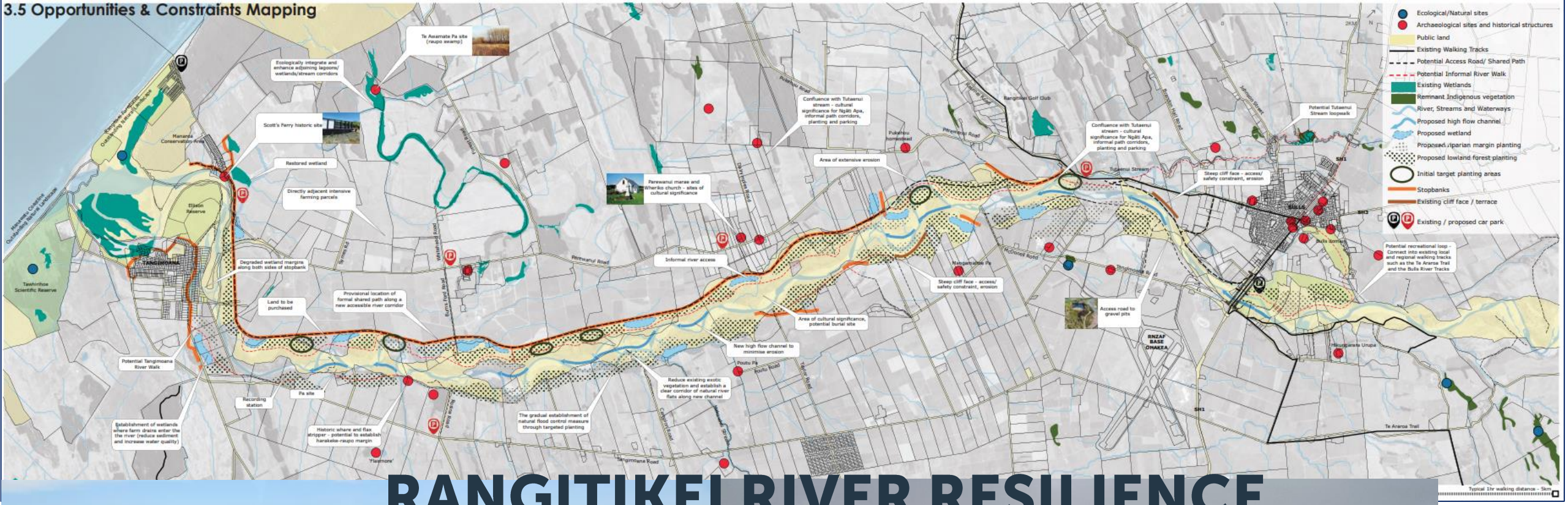
KAROLINE TUCKEY/STUFF

Upgrades to flood protection in Foxton could make sights such as this – Cook St turning in a canal in 2017 – a thing of the past.

FOXTON FLOOD PROTECTION

'Shovel ready' project that will substantially reduce the towns exposure to flooding.

- Looks to upgrade the drain that runs south along the eastern edge of the town and direct water south into the Whirokino drainage area;
- Includes a new pump station and constructed wetlands to improve the quality of the discharge to the environmentally sensitive Foxton Loop.



RANGITIKEI RIVER RESILIENCE

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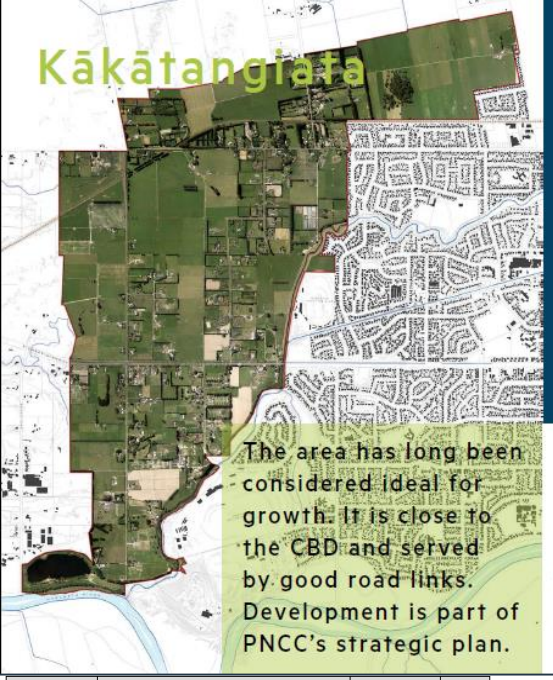
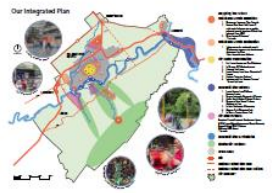


Kākātangiata will benefit from future infrastructure plans. These include a western ring road that necessitates a new bridge over the Manawatū River. This bridge could access the southern end of Kākātangiata.

The area has long been considered ideal for growth. It is close to the CBD and served by good road links. Development is part of PNCC's strategic plan.



Recommendation ID	Recommendation	Recommendation classification	Priority
GENERAL-REC10	Carry out research into and consider undertaking non intrusive testing to assess consistency of the stopbank and identify potential cracking / holes / other open defects in the stopbank embankment (e.g. electromagnatic testing)	Investigations & studies	Low
GENERAL-REC11	Review the current understanding of the earthquake hazard around Palmerston North, in conjunction with Palmerston North City Council. If the level of understanding is inadequate, consider doing a seismic hazard assessment	Investigations & studies	Low
GENERAL-REC12	Establish a periodic safety review for the stopbank in accordance with the Maintenance and Surveillance Regime to review the risk rating associated with the Manawatū and Mangaone stopbanks protecting Palmerston North, in light of new information and additional investigations and analyses	Investigations & studies	Medium
GENERAL-REC13	Carry out stopbank breach assessment to better understand the consequences associated with stopbank failure at specific locations	Investigations & studies	High
GENERAL-REC14	Carry out CPT testing into the stopbank and the foundation along the Manawatū and Mangaone stopbanks protecting Palmerston North to better understand the geotechnical characteristics of the stopbank and underlying foundation. Consider reviewing the liquefaction vulnerability of the stopbank foundation in light of additional data	Investigations & studies	High
GENERAL-REC15	After completing initial survey and additional geotechnical investigation, rerun the seepage and stability models and reassess the likelihood of failure at the following locations: the timber retaining wall on the Mangaone Stream downstream of Rangitikei Line bridge; the Mangaone stopbank slope steepened with silt bags; the Mangaone stopbank upstream and downstream of Tremaine Ave bridge with gabion baskets	Investigations & studies	Medium
GENERAL-REC16	Identify measures that will help reduce the risk of failure associated with the stopbanks, particularly at locations being highlighted as having high risk then estimate the cost to implement the measure. Implement the measure if it is considered more cost effective compared to undertaking additional investigations and studies to justify the risk	Investigations & studies	High
GENERAL-REC17	Monitor flood levels along the Mangaone Stream and Manawatū River to record and maintain a database of historical flood levels at critical locations throughout the city, and consider if monitoring of these levels could be improved	Monitoring & surveillance	Low
FM01-REC01	Review historical records and map all protrusions through the stopbank as far as practical, check ownership of assets and carry out initial condition assessment	Monitoring & surveillance	High

	Consequences				
	No damage	Minimal	Moderate	Major	Catastrophic
Likelihood	1	2	3	4	5
Almost certain	M^{8}	S^{14}	H^{20}	H^{22}	H^{25}
Likely	M^{7}	M^{10}	S^{15}	H^{21}	H^{24}
Possible	L^{3}	M^{9}	M^{12}	S^{17}	H^{23}
Unlikely	L^{2}	L^{5}	M^{11}	S^{16}	S^{19}
Extremely unlikely	L^{1}	L^{4}	L^{6}	M^{13}	S^{18}

Palmerston North FP

LOWER MANAWATU FLOOD PROTECTION RESILIENCE

- Improving stopbank integrity;
- Improving the integrity of existing structures;
- Addressing known pressure points;
- Tackling sedimentation;
- Environmental enhancements.

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ORANGA WAI - OUR FRESHWATER FUTURE

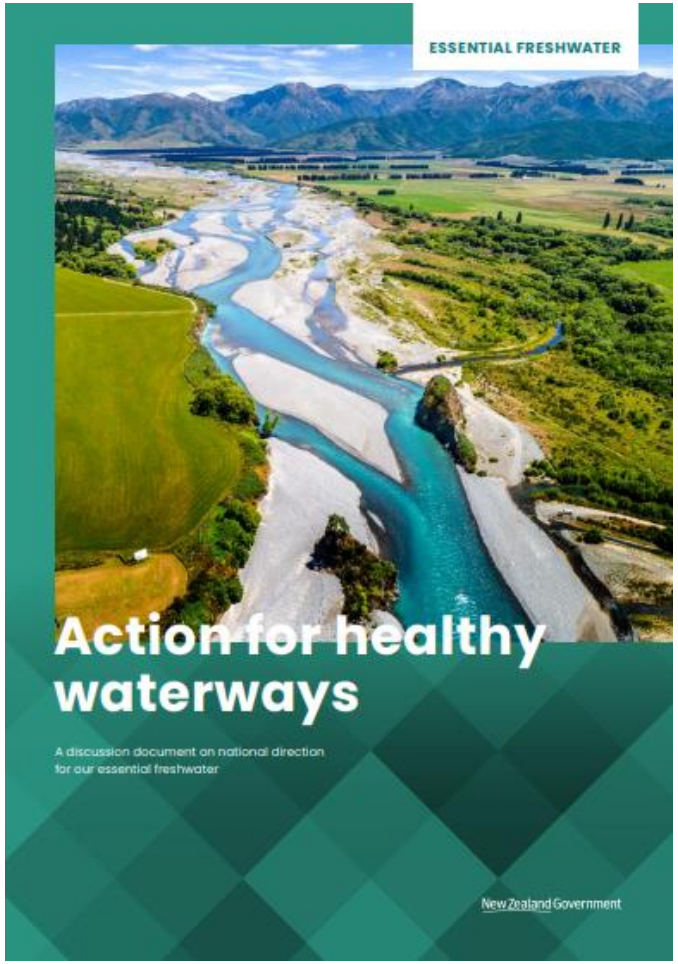
Implementing Government's 'Essential Freshwater' package

OVERVIEW

Government has introduced new requirements for managing the health of freshwater in New Zealand, including:

- Changes to the Resource Management Act 1991 (RMA)
- An updated National Policy Statement for Freshwater Management 2020 (NPS-FM)
- New National Environmental Standards for Freshwater (NES-FW)
- Additional new regulations under s360 of the RMA for:
  - Measuring and Reporting of Water Takes; and
  - Stock exclusion

Some of these changes come into effect immediately (from gazettal 3 August 2020), while others are phased in over time.



NATIONAL ENVIRONMENTAL STANDARDS FOR FRESHWATER & REGULATIONS

THE TASK AHEAD

Regional councils are required to:

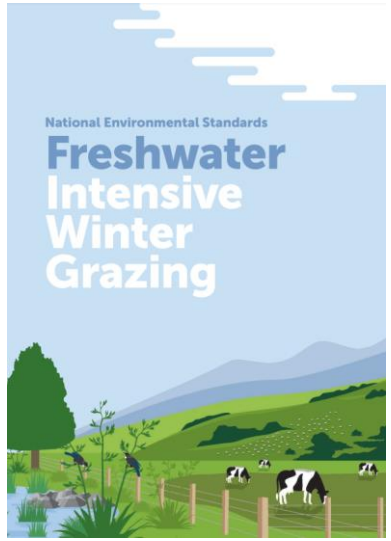
- Issue and monitor consents relating to intensification of land use (until the end of 2024), intensive winter grazing*, stock holding areas and feedlots – all come into effect from mid-2021, and activities that have more than a minor impact on wetlands and streams (effective from 3 Sep 2020).

  *Land owners seeking consent for intensive winter grazing need to work directly with iwi/hapū.

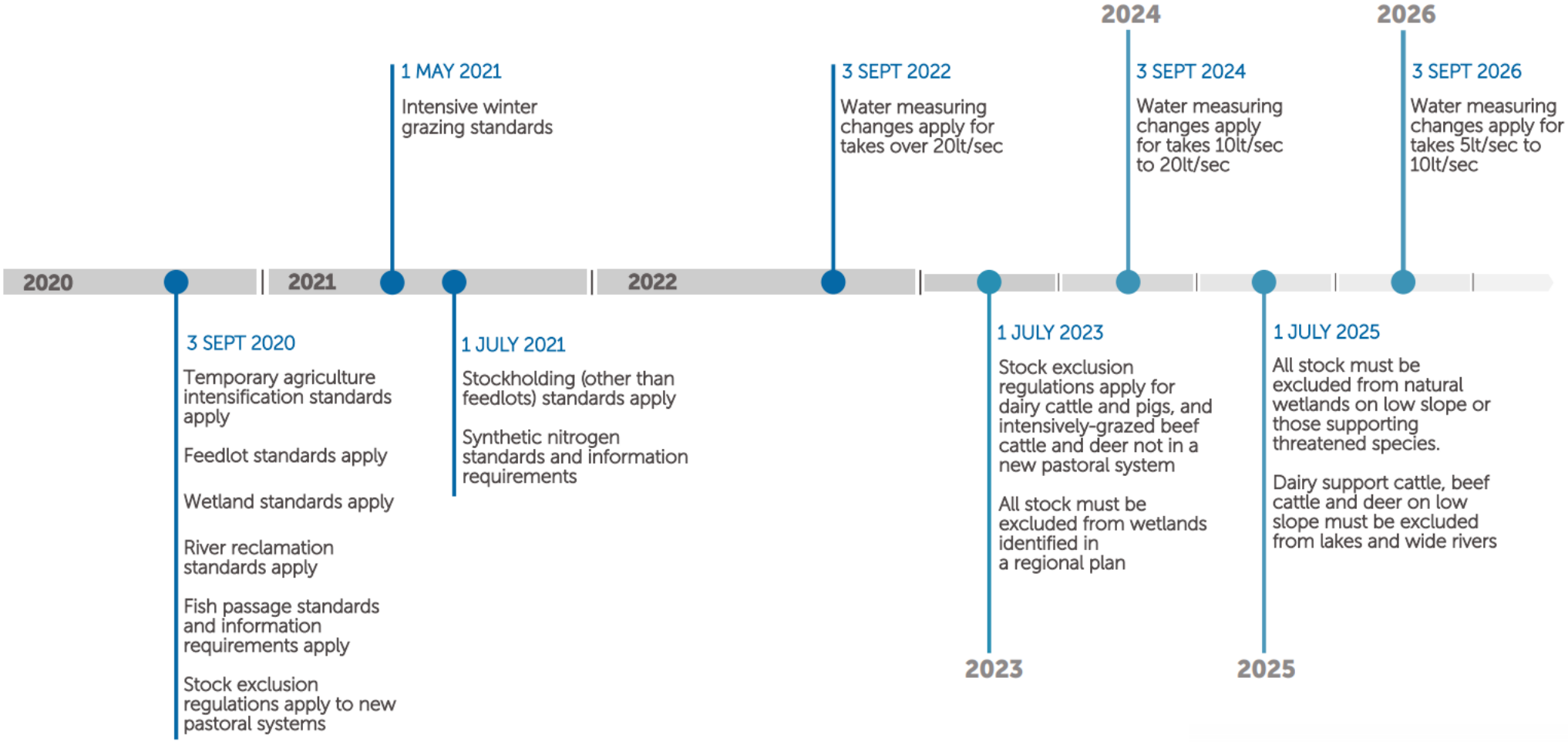
- Collect data and monitor levels of synthetic nitrogen fertiliser use
- Stock exclusion (dairy and beef cattle, pigs and deer) from wetlands, streams and their margins (>1m wide); requirements for bridges and culverts, phased in over time
- Real time monitoring and reporting of water takes >5 l/s

Also coming:

- Mandatory freshwater modules in farm plans (currently in draft)



New National Freshwater Rules



NATIONAL POLICY STATEMENT FOR FRESHWATER MANAGEMENT (NPS-FM)

NATIONAL POLICY DIRECTION

Aim is to halt waterway degradation within 5 years and improve water quality within a generation

NPS-FM introduces new (or updated) requirements including:

- Managing freshwater in a way that 'gives effect' to Te Mana o te Wai.
- Improving degraded water bodies, and maintaining or improving all others applying 'national bottom lines'.
- Compulsory values: ecosystem health, human contact, threatened species and mahinga kai, plus other values we must consider
- We must use the best information available including, where practicable, complete and scientifically robust data, but not refrain from decision making on the basis of uncertainty.
- Monitor and report annually on freshwater (including the data used); publish a synthesis report every five years containing a single ecosystem health score and respond to any deterioration.

What is a National Policy Statement?

In essence, national policy statements prescribe objectives and policies for local authorities for matters of national significance.

In some cases they provide direction as to how local authorities give effect to those policies and objectives.

This includes the NPS-FW and will likely include the NPS for Indigenous Biodiversity to be released in 2021.

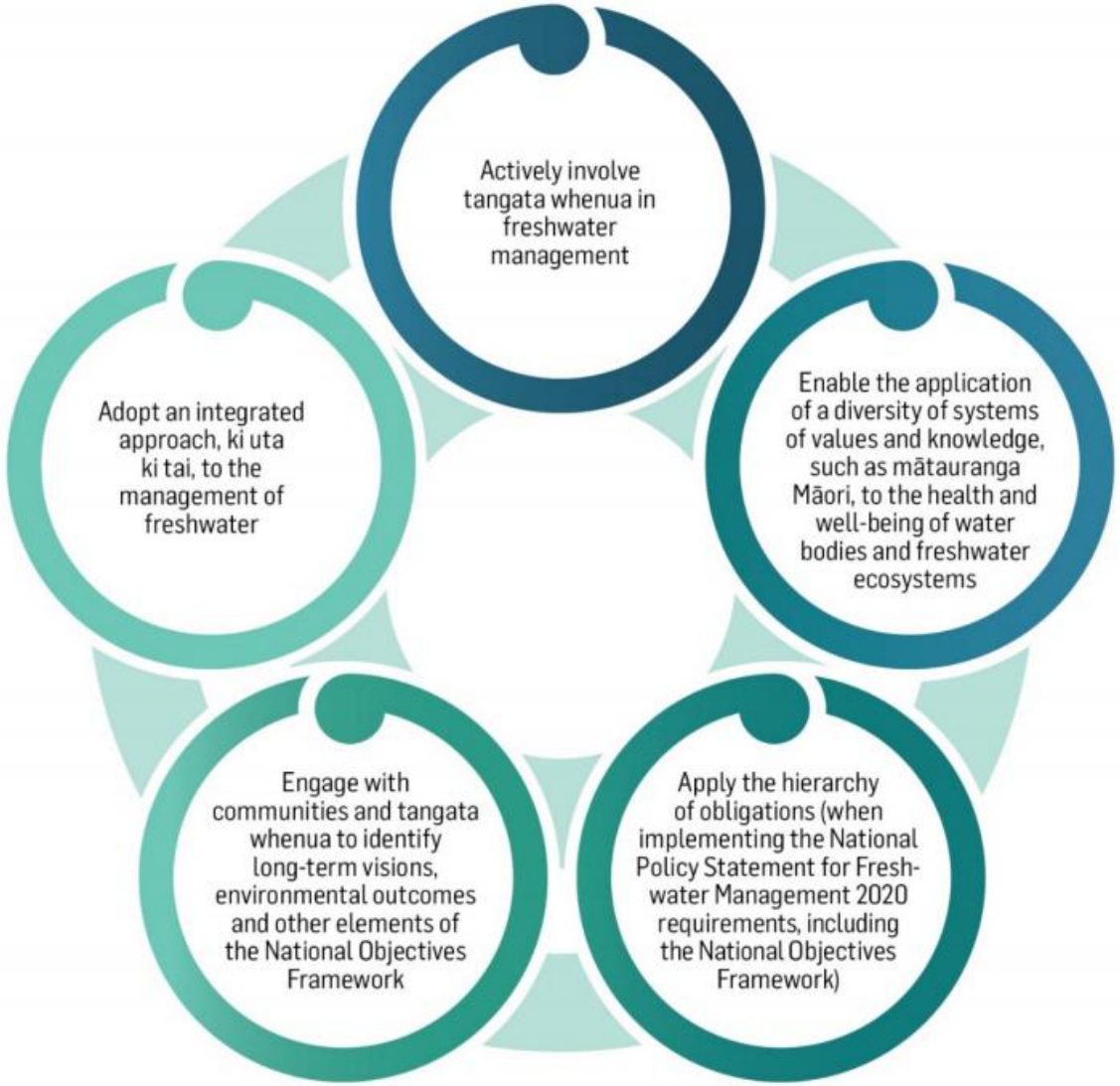


Figure 1: How regional councils must give effect to Te Mana o te Wai

TE MANA O TE WAI

6 principals:

- Mana whakahaere
- Kaitiakitanga
- Manaakitanga
- Governance
- Stewardship
- Care and respect

Hierarchy of obligations:

1. The health and well-being of water bodies and freshwater ecosystems
2. The health needs of people (such as drinking water)
3. The ability of people and communities to provide for their social, economic and cultural well-being, now and in the future

Read MfE's Te Mana o te Wai factsheet or watch their brief explainer videos

THE TASK AHEAD

Regional councils are required to:

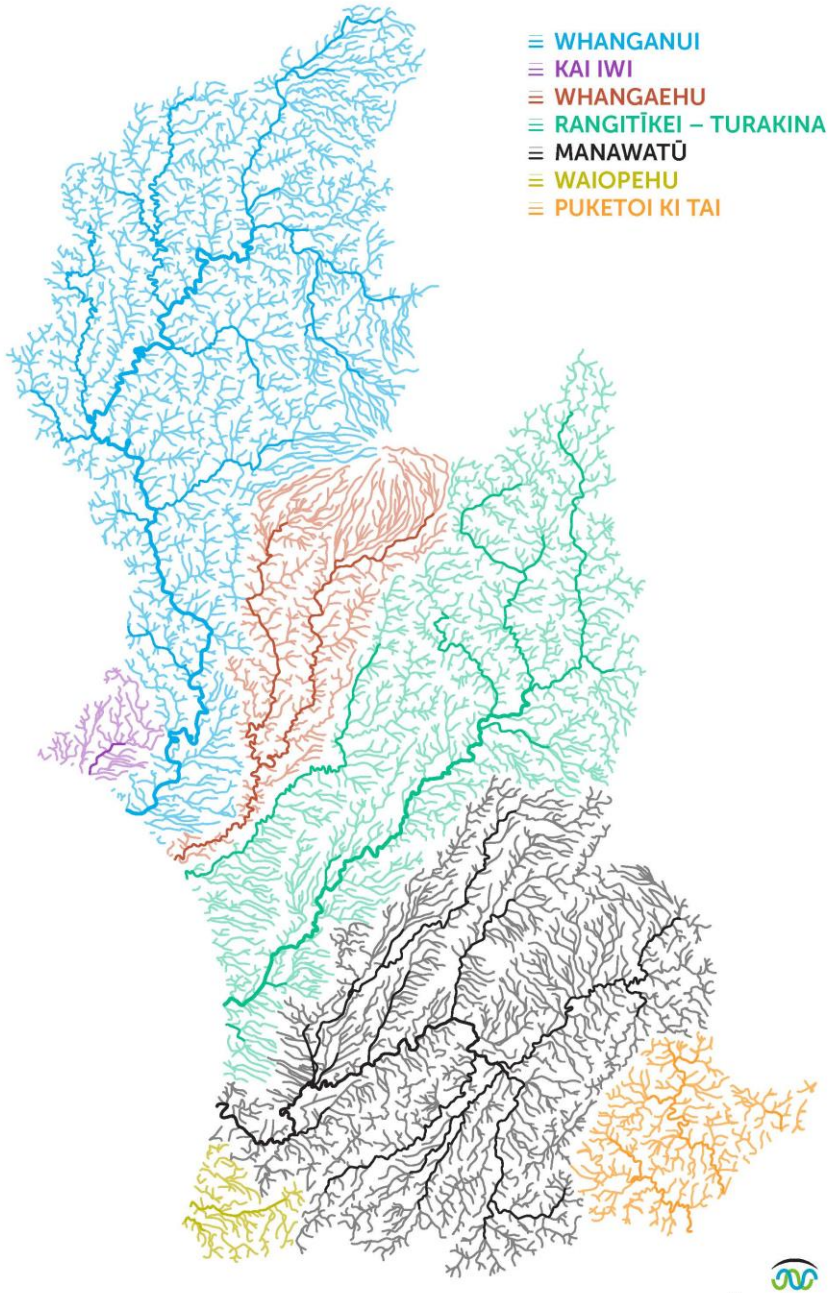
- engage with communities and tangata whenua to:
  - set our long-term vision (30 years and beyond);
  - implement the National Objectives Framework (NOF); and
  - report on progress towards this vision.
- map existing wetlands and encourage their restoration; address in-stream fish barriers

For each Freshwater Management Unit (FMU) we must identify:

- our values and vision for freshwater
- environmental outcomes (for each value), attributes (and their baseline and target states); and
- set limits and/or prepare action plans to achieve environmental outcomes.

We must use the best information available including, where practicable complete and scientifically robust data, but not refrain from decisior making on the basis of uncertainty.

Monitor and report annually on freshwater (including the data used); pul a synthesis report every five years containing a single ecosystem hea score and respond to any deterioration.



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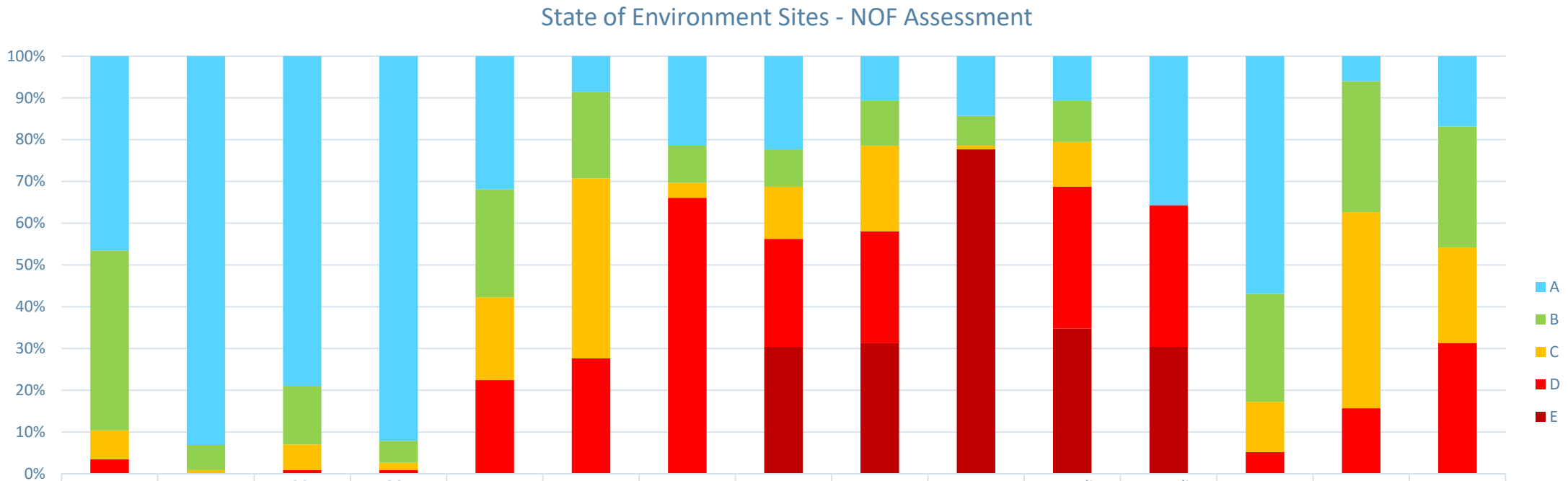
NATIONAL OBJECTIVES FRAMEWORK (NOF)

Table 5 – Ammonia (toxicity)

Value (and component)	Ecosystem health (Water quality)	
Freshwater body type	Rivers and lakes	
Attribute unit	mg NH_4-N/L (milligrams ammoniacal-nitrogen per litre)	
Attribute band and description	**Numeric attribute state**	
	Annual median	Annual maximum
A 99% species protection level: No observed effect on any species tested.	≤0.03	≤0.05
B 95% species protection level: Starts impacting occasionally on the 5% most sensitive species.	>0.03 and ≤0.24	>0.05 and ≤0.40
National bottom line	**0.24**	**0.40**
C 80% species protection level: Starts impacting regularly on the 20% most sensitive species (reduced survival of most sensitive species).	>0.24 and ≤1.30	>0.40 and ≤2.20
D Starts approaching acute impact level (that is, risk of death) for sensitive species.	>1.30	>2.20
Numeric attribute state is based on pH 8 and temperature of 20°C. Compliance with the numeric attribute states should be undertaken after pH adjustment.		

- 22 attributes that provide for identified values (compulsory and non-compulsory)
- Some require limits to be set, others require action plans to address issues.
- Most have a ‘national bottom line’ set above the ‘C’ or ‘D’ band.

CURRENT STATE – SOE SITES



	NH4-N (Max)	NH4-N (Median)	NO3-N (95th)	NO3-N (Median)	DRP (95th)	DRP (Median)	SFS	E. coli (>260)	E. coli (>540)	E. coli (95th)	E. coli (combined)	E. coli (Median)	Chl-a	MCI	QMCI
A	54	108	90	105	37	10	24	25	12	16	12	40	33	5	14
B	50	7	16	6	30	24	10	10	12	8	11		15	26	24
C	8	1	7	2	23	50	4	14	23	1	12		7	39	19
D	4		1	1	26	32	74	29	30		38	38	3	13	26
E								34	35	87	39	34			

LOTS OF WORK TO DO...

- Lots of new regulations
- More consultation and collaboration with tangata whenua, communities and industry
- Greater demand on iwi, Horizons, primary sector and industry, to provide guidance, and much more consent and compliance work
- New and expanded monitoring and reporting requirements (particularly for DO, fish, deposited sediment etc,)
- More data and information collection and sharing
- Establish limits and/or action plans to address water quality issues
- Ready ourselves to notify a plan change by Dec 2024
- Lots of work to do yet to meet with central and local government, iwi/hapū, primary sector reps, stakeholders to work through the details and interpretations, and communicate these with the wider community and write them into policy
- Further changes to come – NPS for indigenous biodiversity, implementing National Planning Standards, RM reform...

HORIZONS HELP AND GUIDANCE

Events and information:

Hui-a-iwi (twice a year) + three-weekly freshwater hui from late Feb 2021

e-newsletters, guidance documents and brochures, social media,

Events: Manawatu River Improvement Festival – Sat 27 February, Rural Games – Fri 12-Sun 14 March, Central Districts Field Days – Thu 18-Sat 20 March, Community and scheme meetings

Check out our website: https://www.horizons.govt.nz/managing-natural-resources/our-freshwater-future

Please direct enquiries to info@ourfreshwaterfuture.nz

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or freephone Horizons on **0508 800 800**