Meeting: Rotorua Te Arawa Lakes Strategy Group

Meeting Date: 20 September 2024

Tabled Documents

Agenda Item 8.1 Toihuarewa Waimāori - Bay of Plenty Regional Council Chair in Lake and Freshwater Science - Annual Report for the period 1 July 2023 to the 30 June 2024

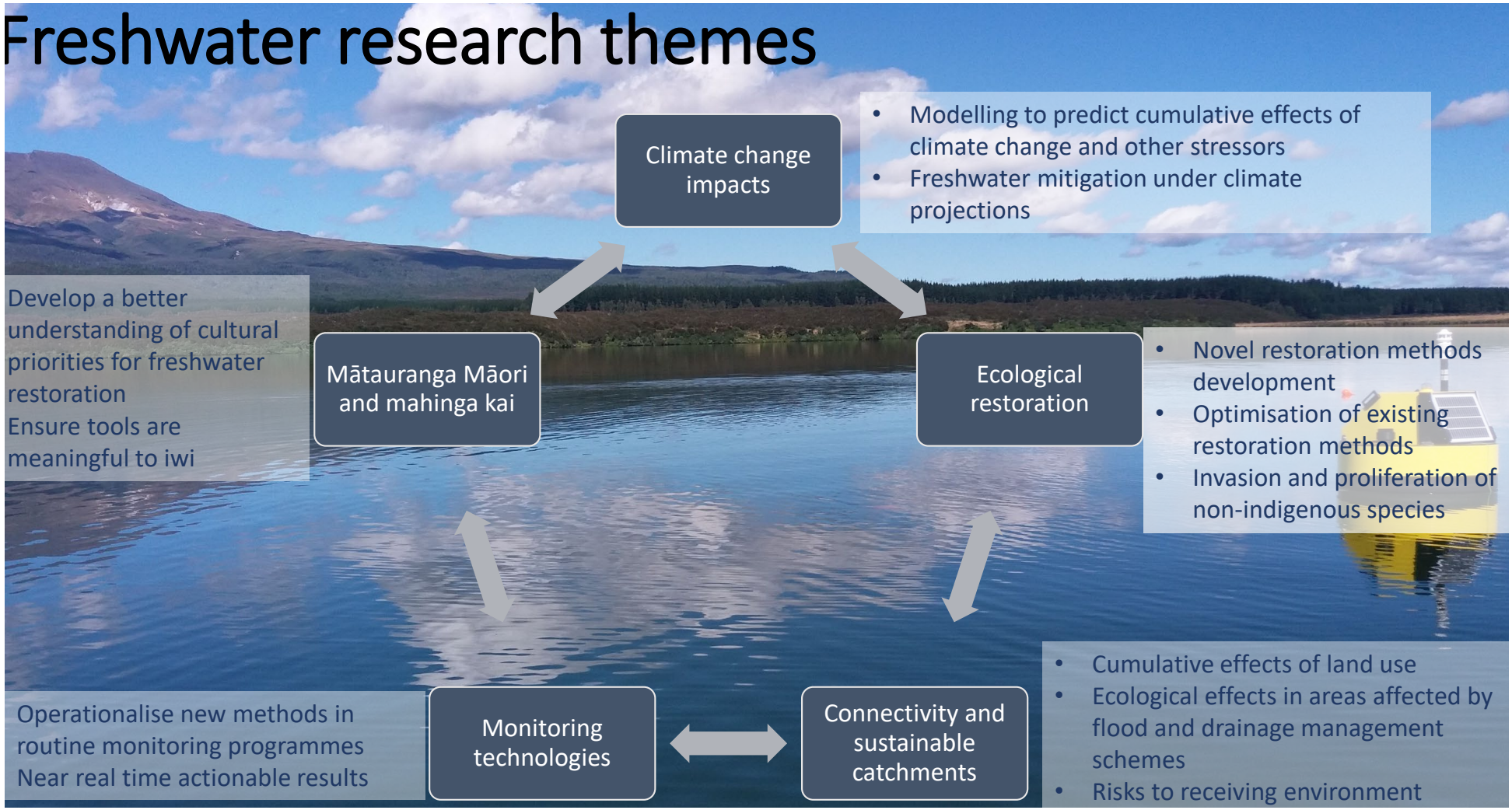
Agenda Item 8.2 Rotorua Te Arawa Lakes Programme Funding Deed Compliance - Purongo ā-tau 2023-2024, Te Mahere ā-toru tau 2024-2025 to 2026-2027

Agenda Item 8.8 Essential Freshwater Policy Programme - Draft Freshwater Plan Change

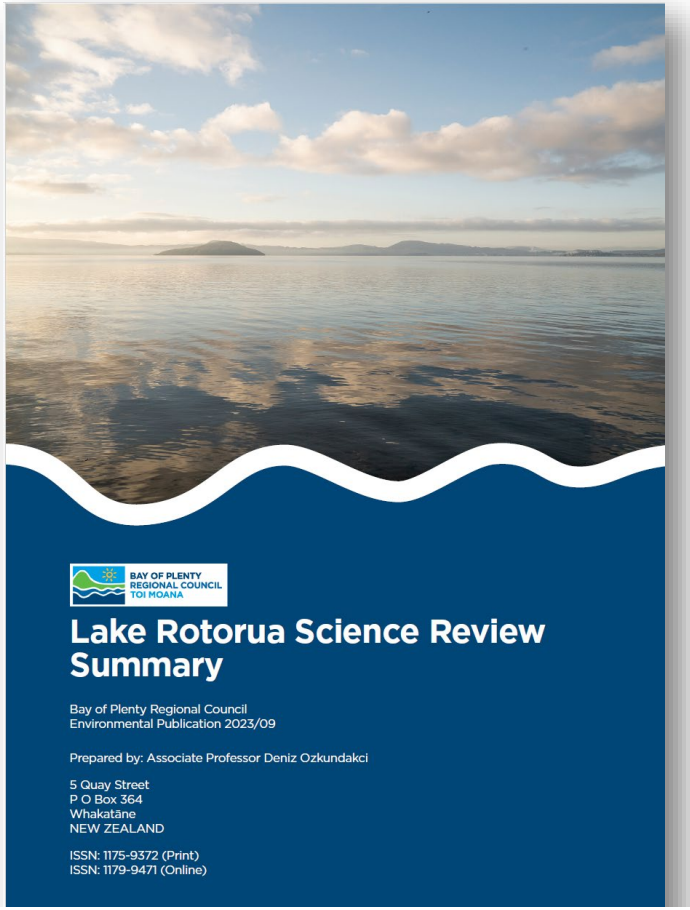
Annual Report of the Toihuarewa – Waimāori 2023-2024

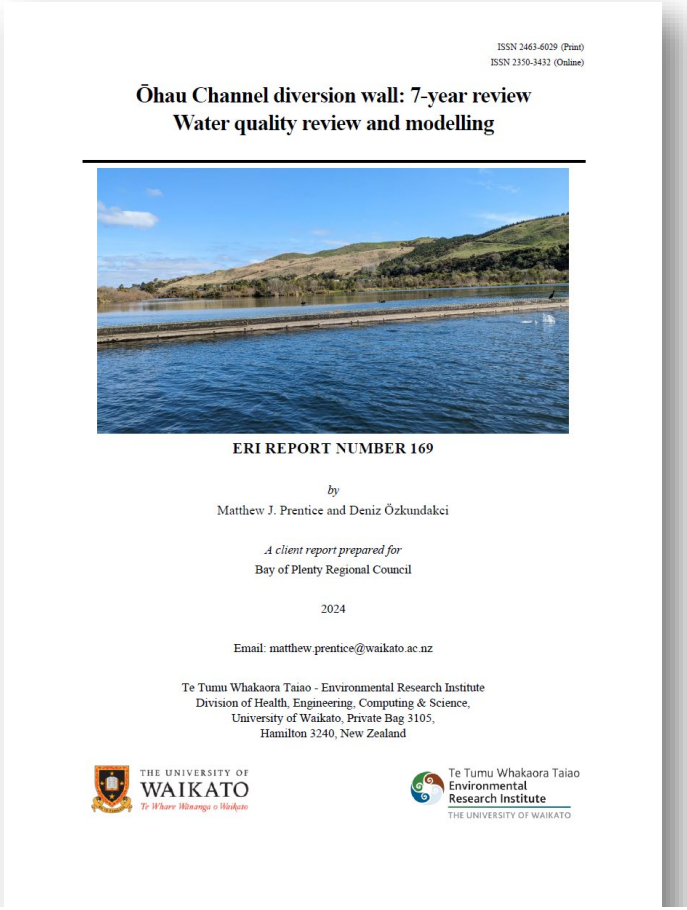
ake and freshwater science team

:reshwater ecology, chemistry, ecosystem modelling, next generation biomonitoring, pest management, nvasion ecology, hydrology…

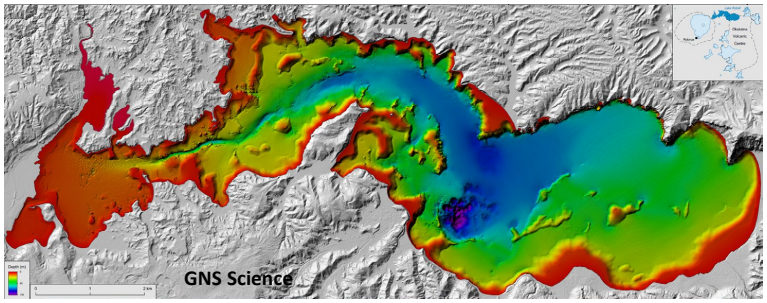

Freshwater research themes
Climate change impacts
• Modelling to predict cumulative effects of climate change and other stressors
• Freshwater mitigation under climate projections
Develop a better understanding of cultural priorities for freshwater restoration
Ensure tools are meaningful to iwi
Mātauranga Māori and mahinga kai
Ecological restoration
• Novel restoration methods development
• Optimisation of existing restoration methods
• Invasion and proliferation of non-indigenous species
Operationalise new methods in routine monitoring programmes
Near real time actionable results
Monitoring technologies
Connectivity and sustainable catchments
• Cumulative effects of land use
• Ecological effects in areas affected by flood and drainage management schemes
• Risks to receiving environment

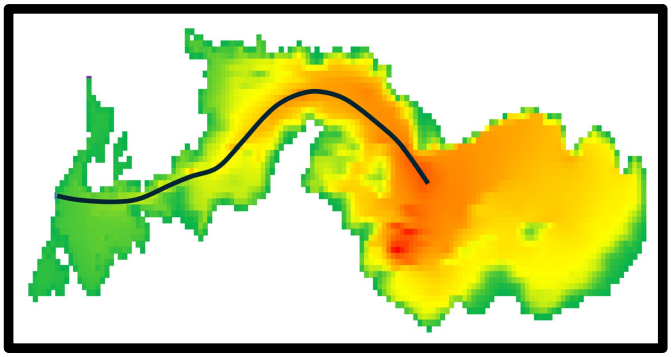
esearch to support ongoing lake management and restoration activities

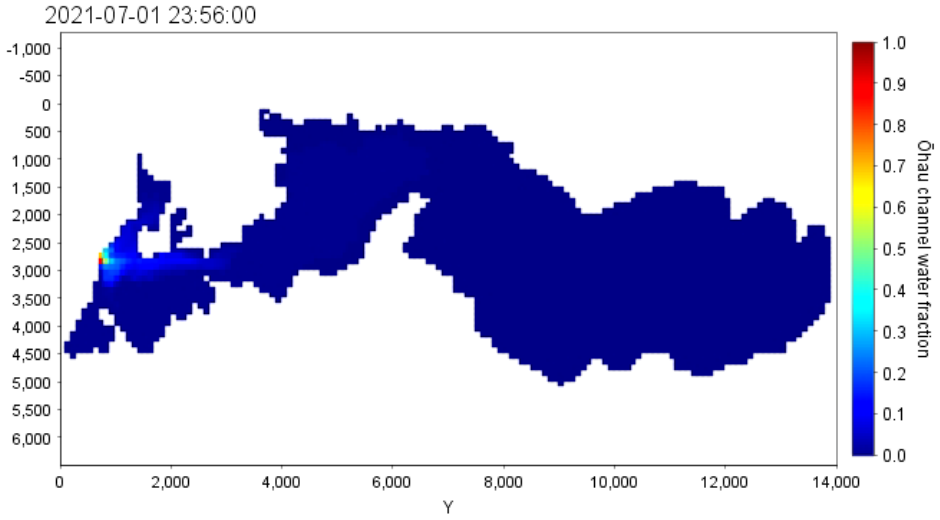


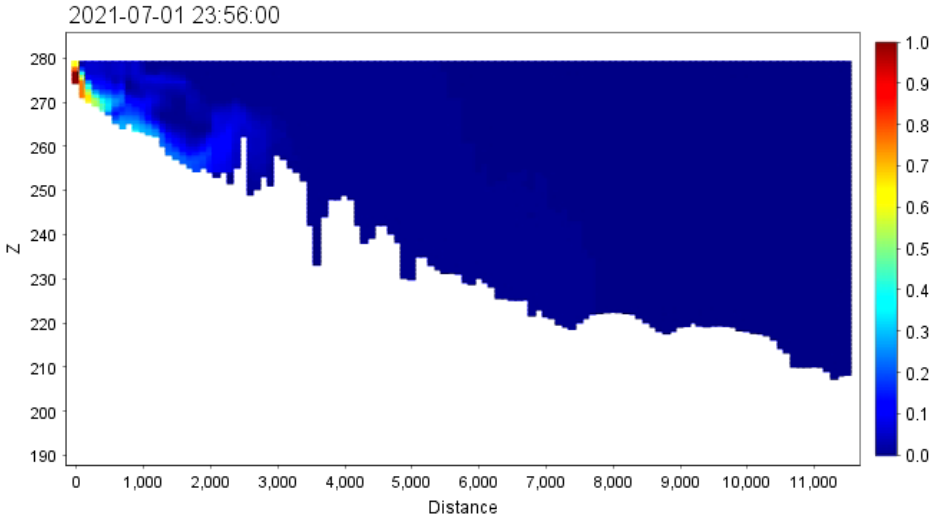


7-year review of the Ohau Channel diversion wall



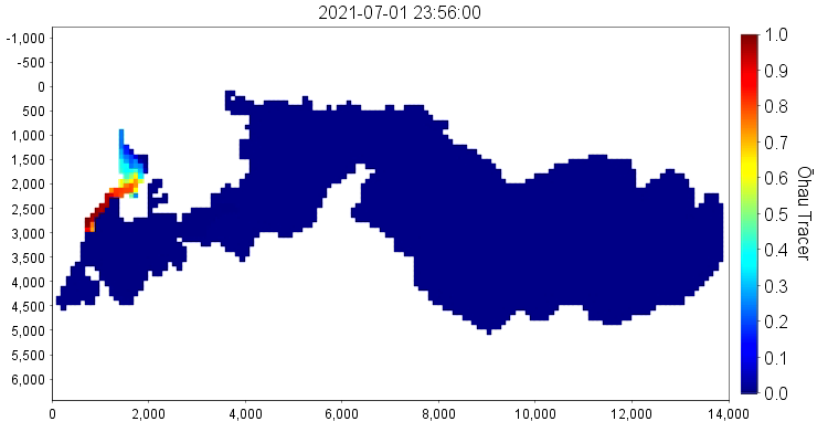






he diversion wall contributed to an improvement of water quality
ı Lake Rotoiti (28 years of data)

/ith wall



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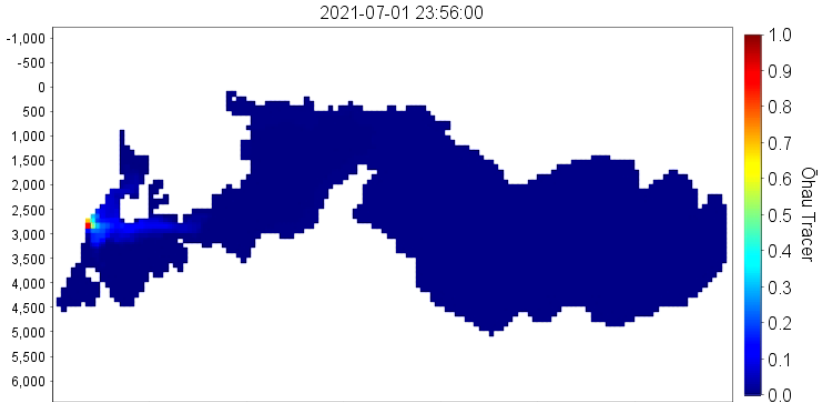
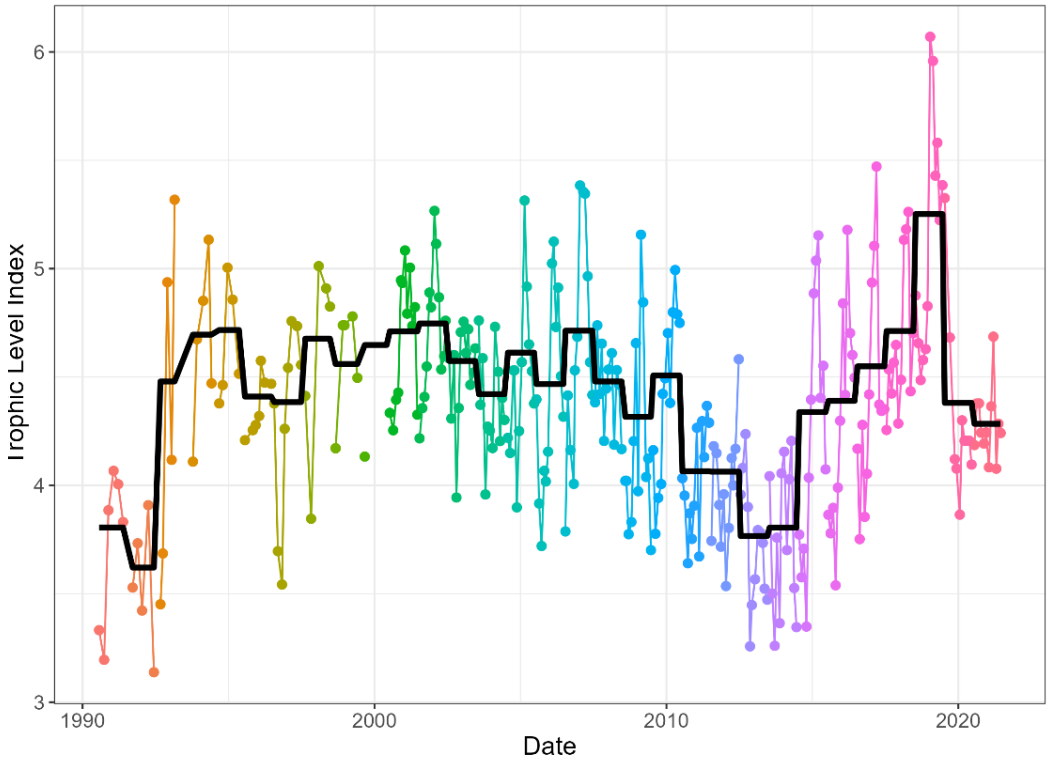
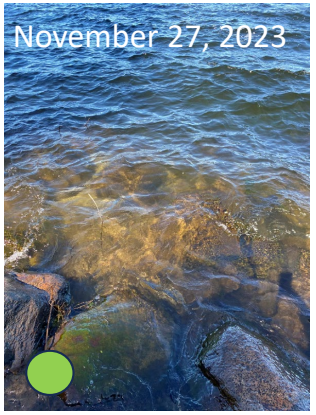


What drives the interannual variability in Lake Rotoehu's TLI?





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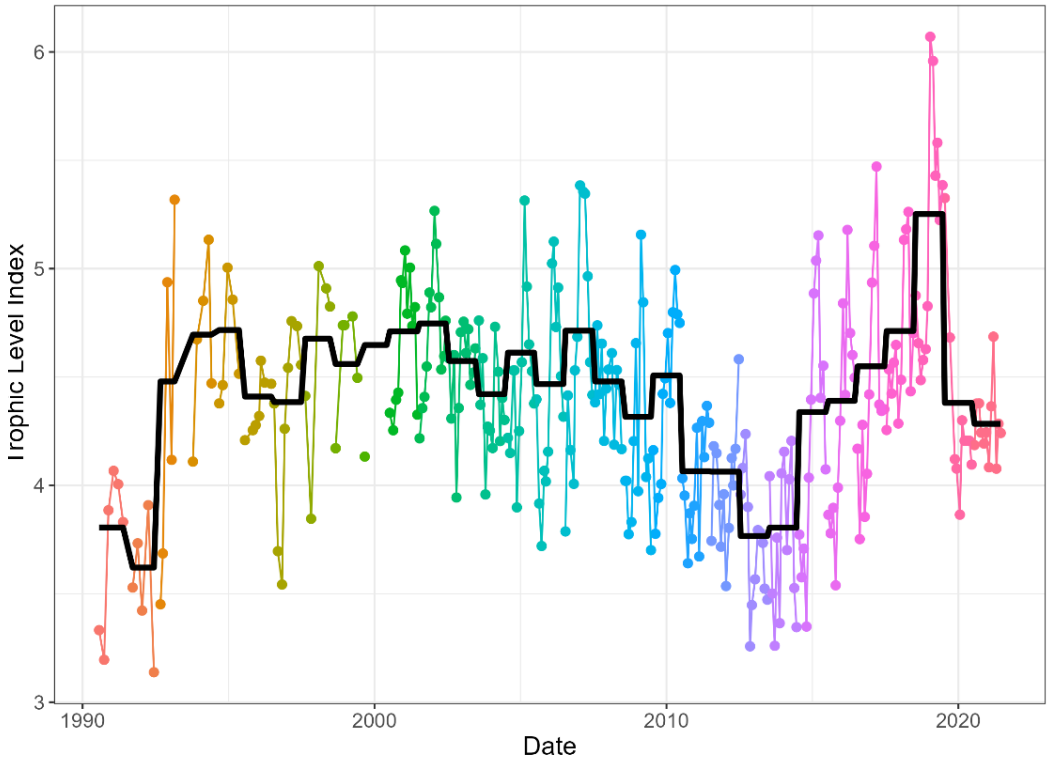


Modelling analysis to determine drivers of TLI

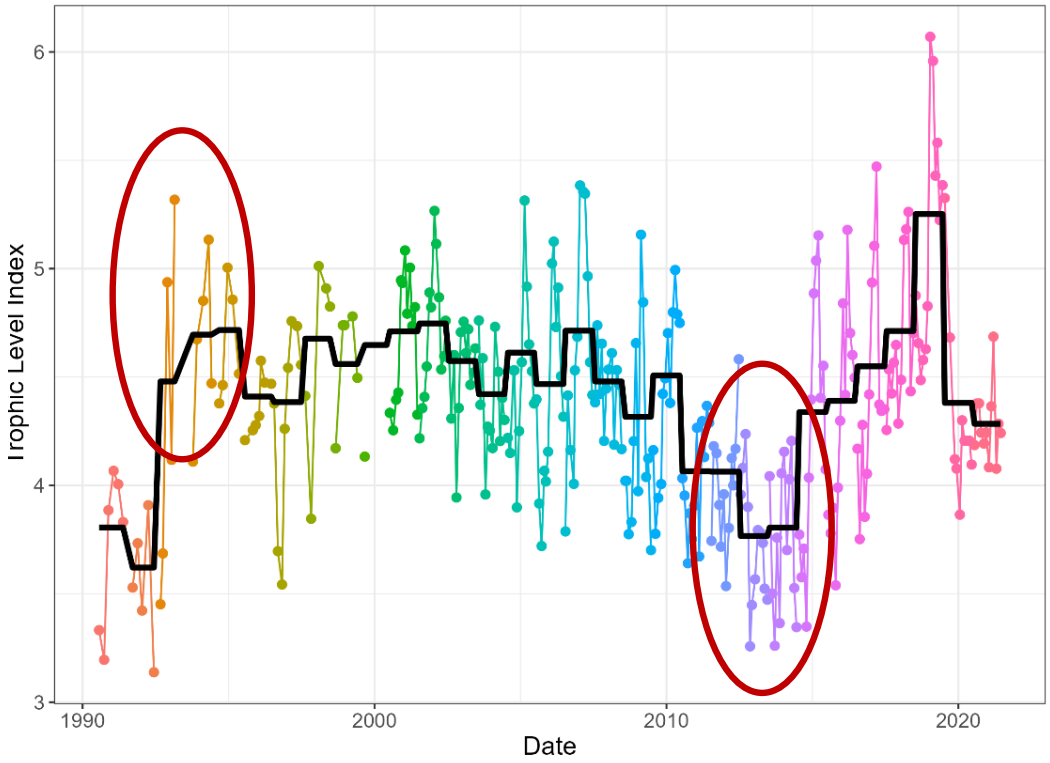
Air and water temperature

Bottom water N & P

Water level

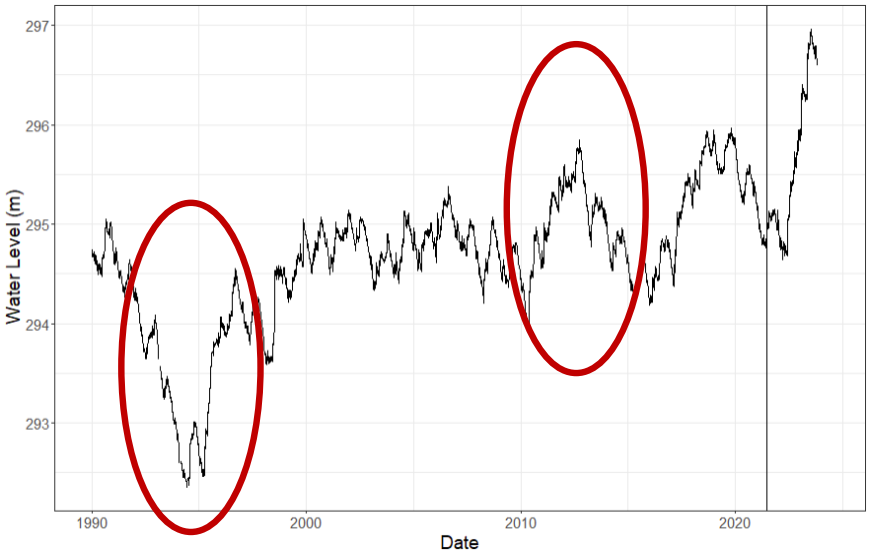
Windspeed

What drives the interannual variability in Lake Rotoehu's TLI?

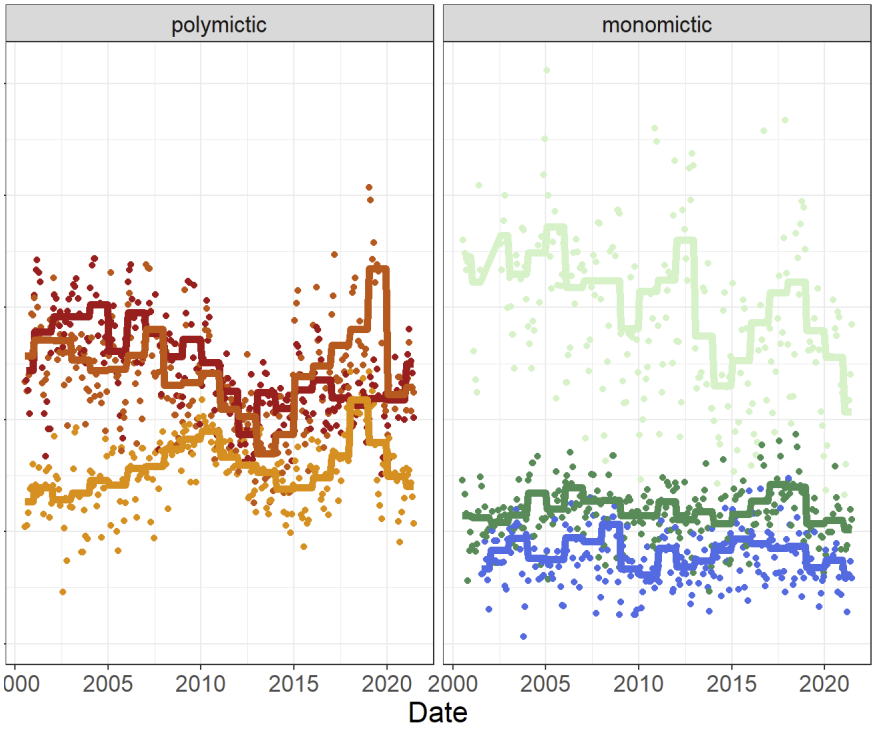


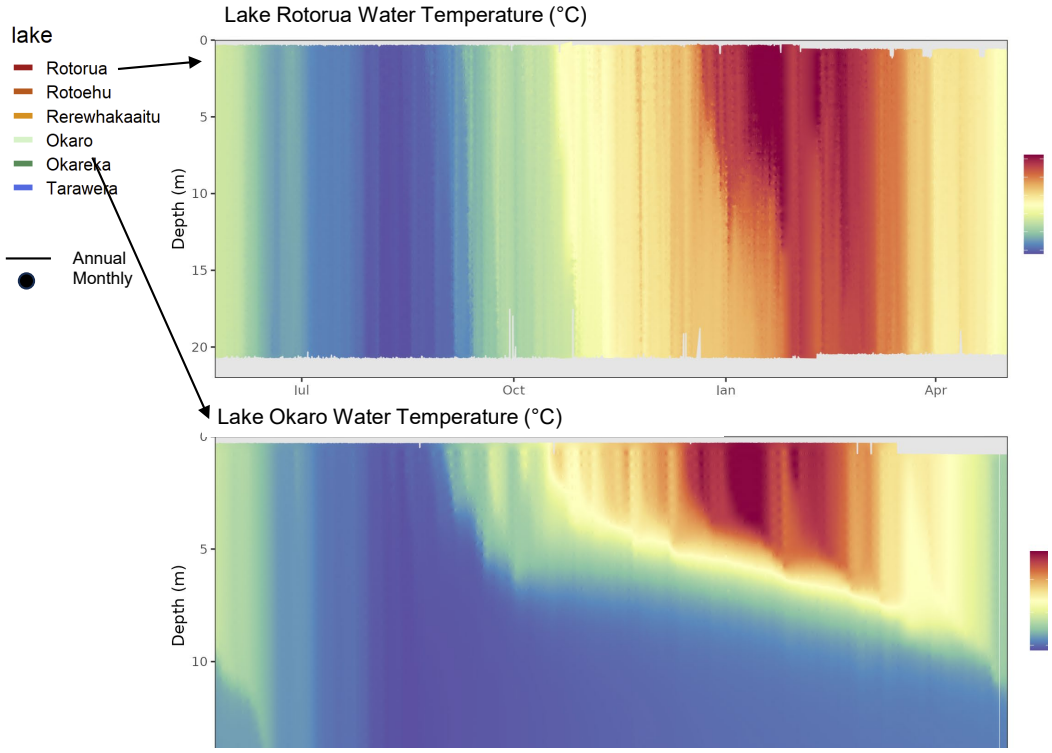
Water level

Importance of water level on TLI increases under extreme high's and low's

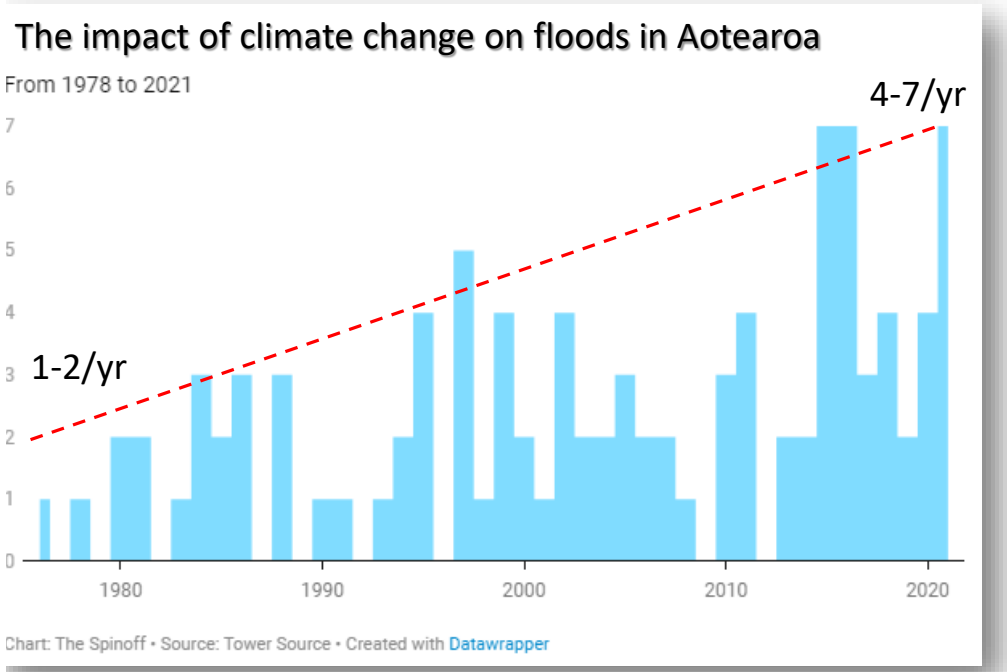


/espite understanding these drivers, we see high ariability in TLI across lakes and over time



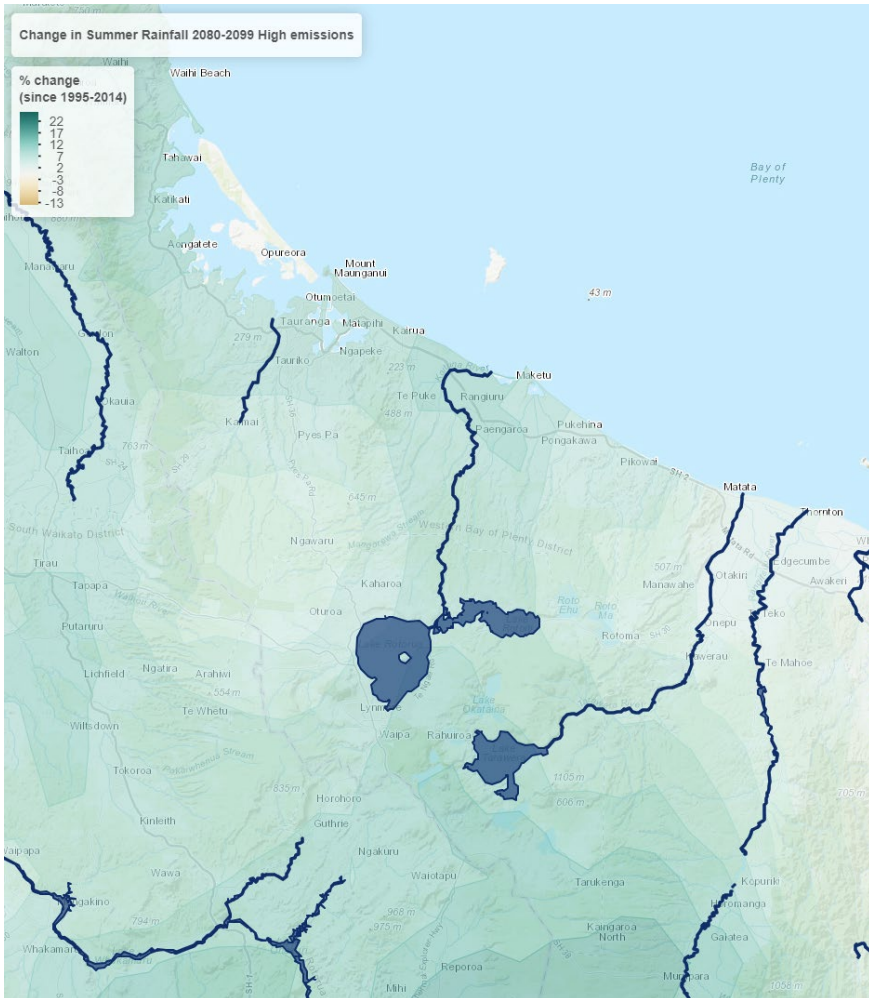


Climate change impacts

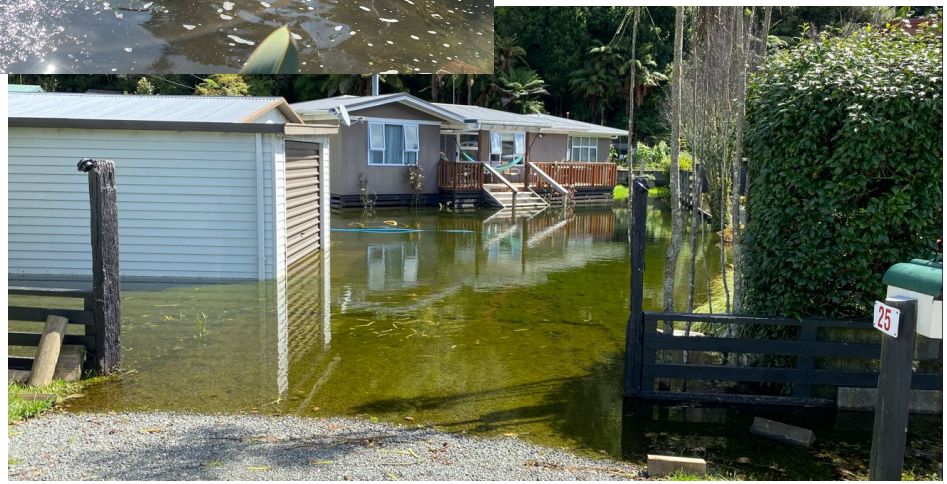


The number of floods that hit Aotearoa in a year has been steadily increasing since the mid-1970s. It used to be common to have one or two floods a year. Now, it's around four to seven, according to the Insurance Council of New Zealand

https://shiny.niwa.co.nz/climate-change/



Climate change impacts (MSc research on Lakes Rotoma and Rotoehu)

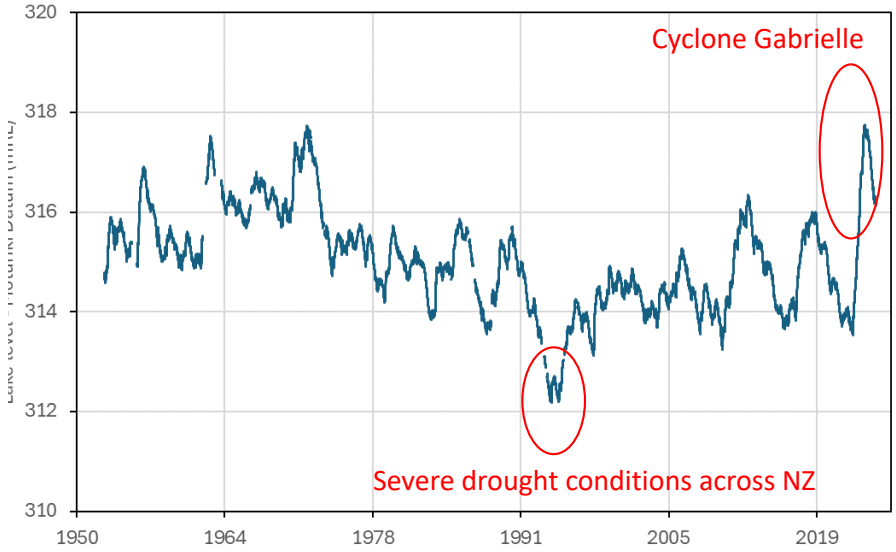


Photos: Andy Bruere

Climate change impacts (MSc research on Lakes Rotoma and Rotoehu)

The overall aim is to construct a comprehensive hydrological balance for these systems, enabling simulations of the impacts of climate change on future flood hazards.

Lake Rotoma at Otangiwai Point – daily mean lake level (up to 9 Aug 20224)



estoring freshwater habitats for future resilience

Trialling artificial reefs in the Rotorua Te Arawa lakes
Reef construction at Lake Ōkaro – Aug 2024)

Bay of Plen
REGIONAL COUN

TE ARAWA LAKES TRUST

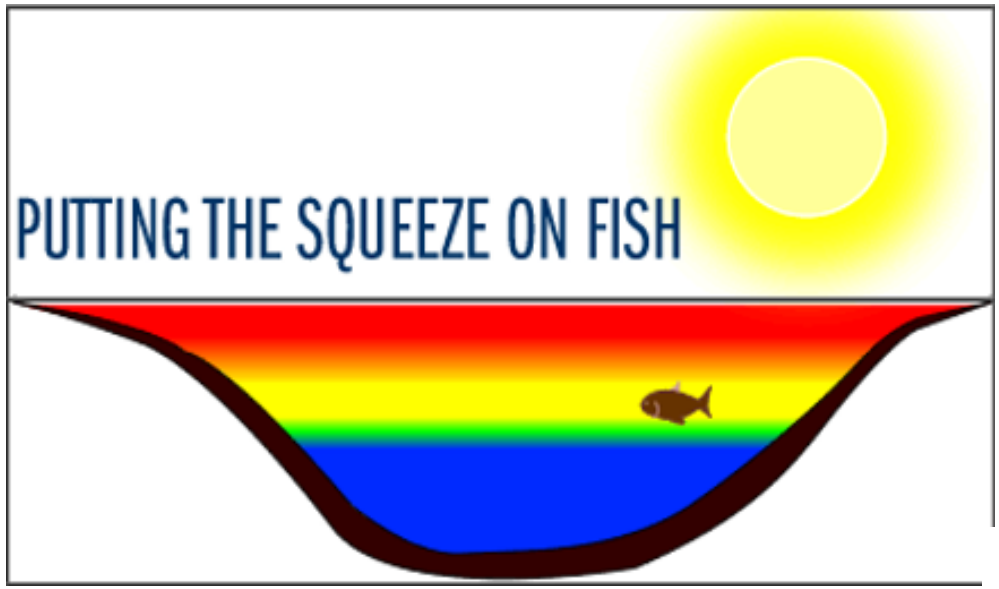
Environmental
Research Institute
Te Pūtahi Rangahau Taiao
THE UNIVERSITY OF WAIK

CAWTHRON
The power of science

Kusabs & Associates

Habitat quantity and quality for taonga species

Climate change effects on lake dynamics and processes

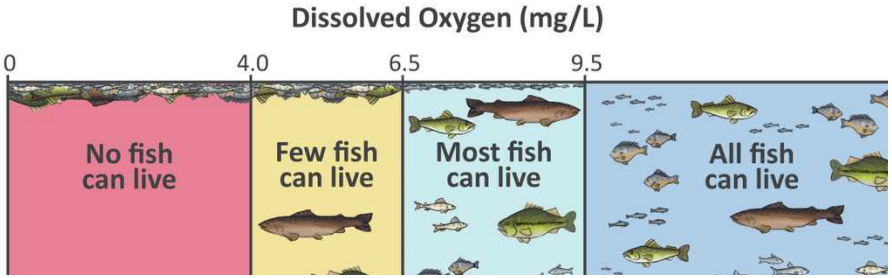


Collaborative project with Te Arawa Lakes Trust, NIWA, and Ian Kusabs

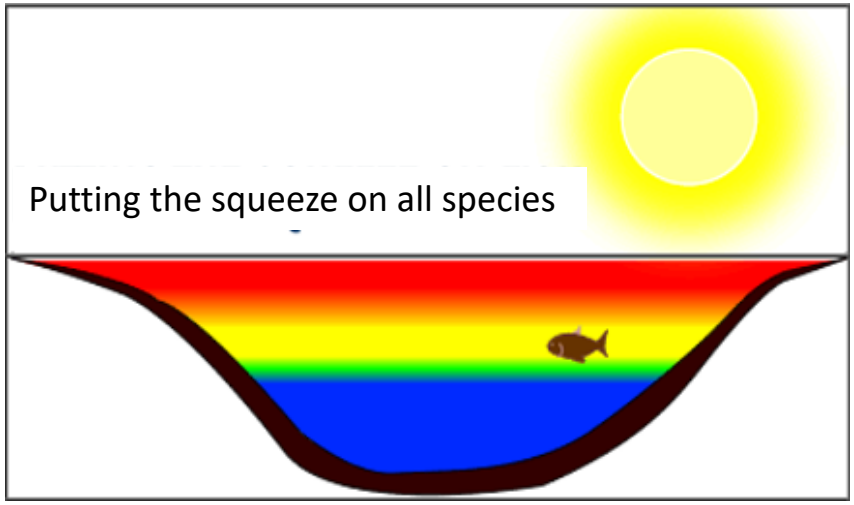
TE ARAWA LAKES TRUST

Environmental Research Institute
Te Pūtahi Rangahau Taiao
THE UNIVERSITY OF WAIKATO

NIWA
Taihoro Nukurangi

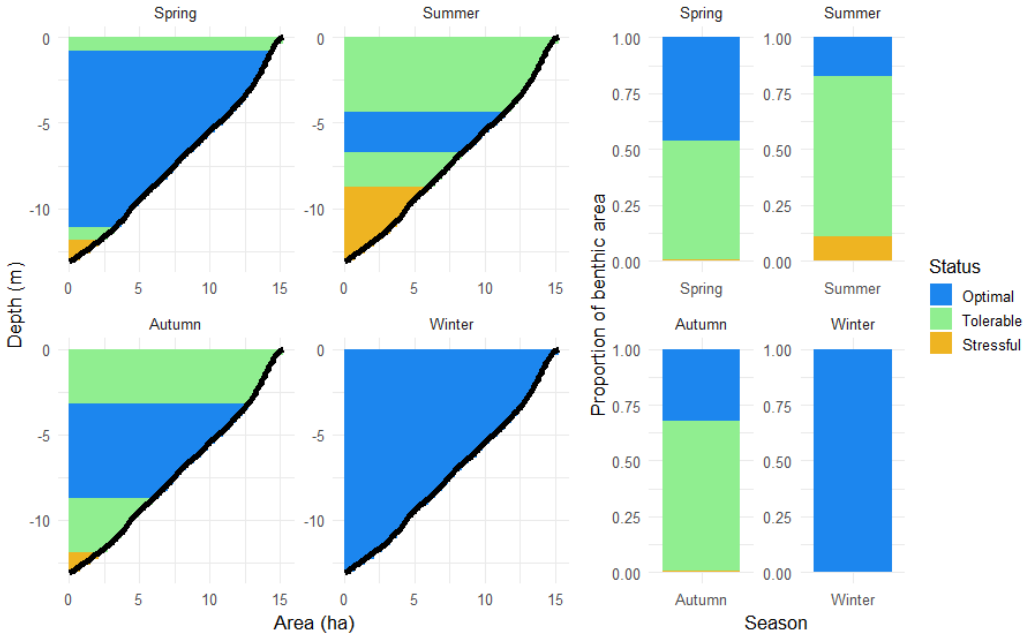


Temperature and oxygen suitability for kōura and kākahi



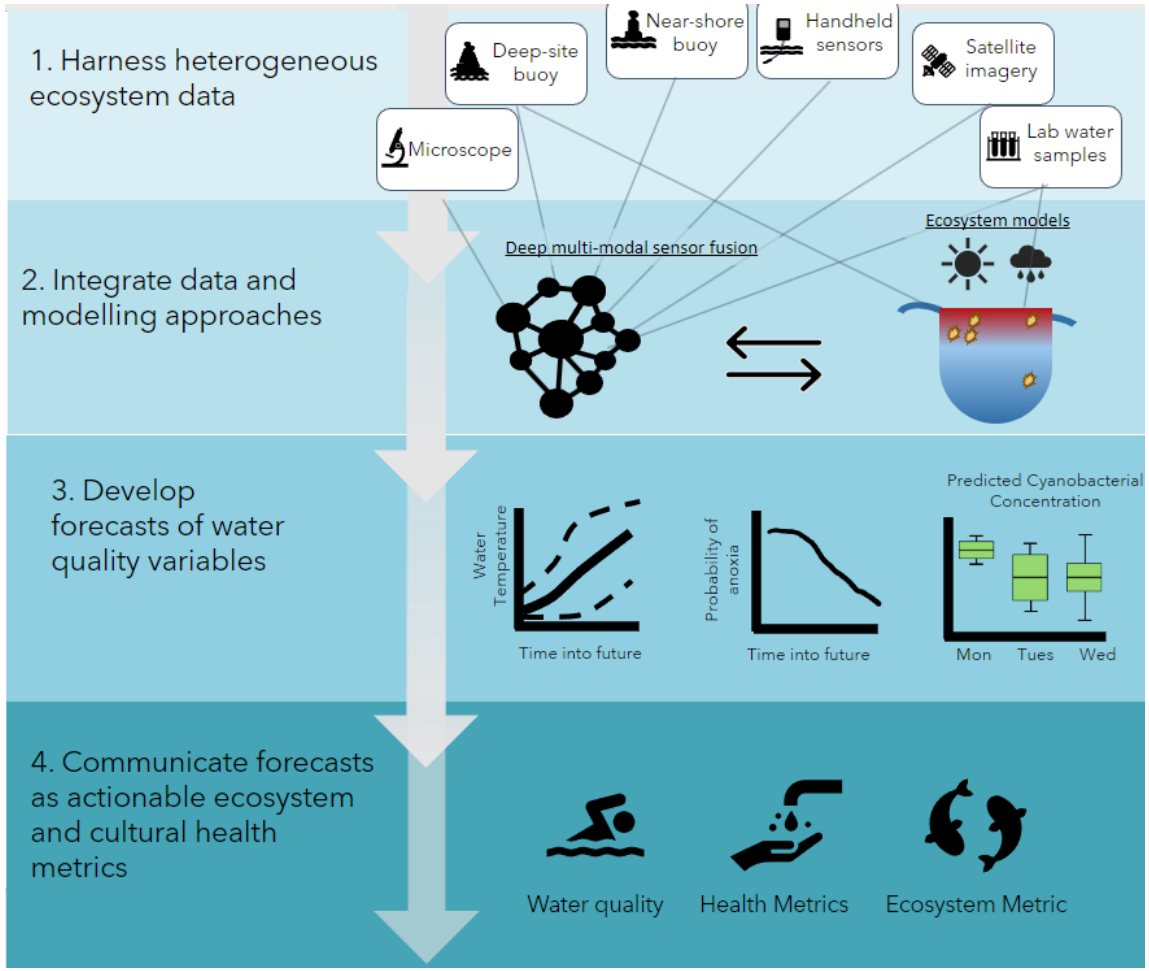
Photos: DOC

Vertical oxygen and temperature distributions in lakes



Proposed forecasting tools for Lake Rotorua

Pending MBIE proposal



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Te Whare Wānanga o Waikato

Bay of Plenty REGIONAL COUNCIL

Environmental Research Institute
Te Pūtahi Rangahau Taiao
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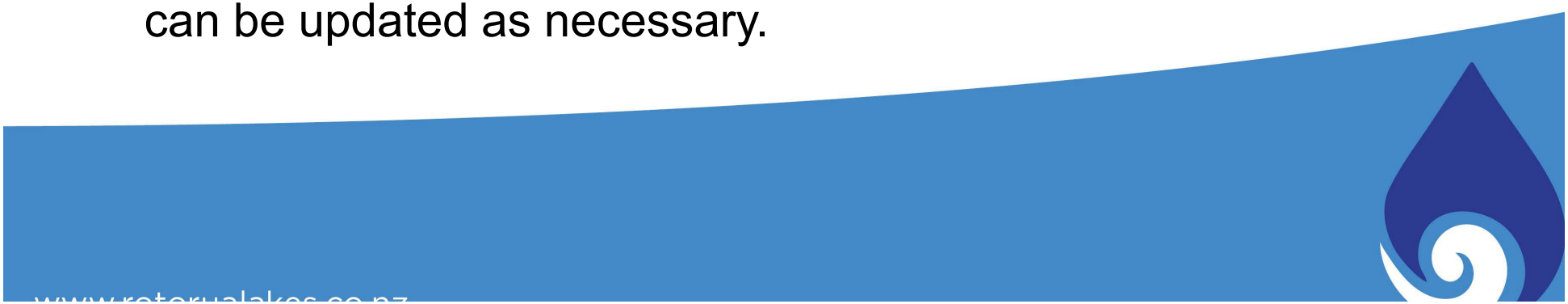
Lake Ecosystem Restoratic
New Zealand

Thank you for listening


Funding Deed Compliance
20 September Strategy Group Hui
Rotorua
Te Arawa Lakes
Programme

Purpose of Report

- To meet the compliance requirements of the Funding Deed that underpins some ongoing work on the Deed Funded lakes.
- Purongo ā-tau 2023-2024 and Te Mahere ā-toru tau 2024-2025 to 2026-2027.
- Changes to Funding Deed currently underway, Te Mahere ā-toru can be updated as necessary.



Purongo ā-tau – Deed Funded

- Winiata Wetland - 9 hectare constructed wetland.
- Rotoiti reticulation scheme completed (~50 connections to be made as approvals come through).
- No weed harvesting or alum dosing on Lake Rotoehu (no longer Deed Funded)
- Incentives Scheme continues with clear messaging about need for voluntary action – reporting shows 2027 Managed Reduction Target met.

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Te Mahere ā-toru tau

- Constructed wetlands and Incentives Scheme – as per Integrated Framework for Lake Rotorua sustainable nitrogen load.

- Consistent with Regional Council 2024-2034 Long Term Plan.


The Freshwater Plan Change
Essential Freshwater Policy Programme
20 September 2024
Rotorua
Te Arawa Lakes
Programme
www.rotorualakes.co.nz

Purpose

Opportunity to discuss the draft freshwater plan change before being released in draft for targeted engagement.

A few key topics:

- Central government context
- Water quality and weeds
- Water quantity
- OSET and forestry

Freshwater planning process

Tangata whenua & targeted engagement - draft freshwater changes → Set policy position → Notify proposed plan changes → Freshwater Hearings

Nov / Dec 2024

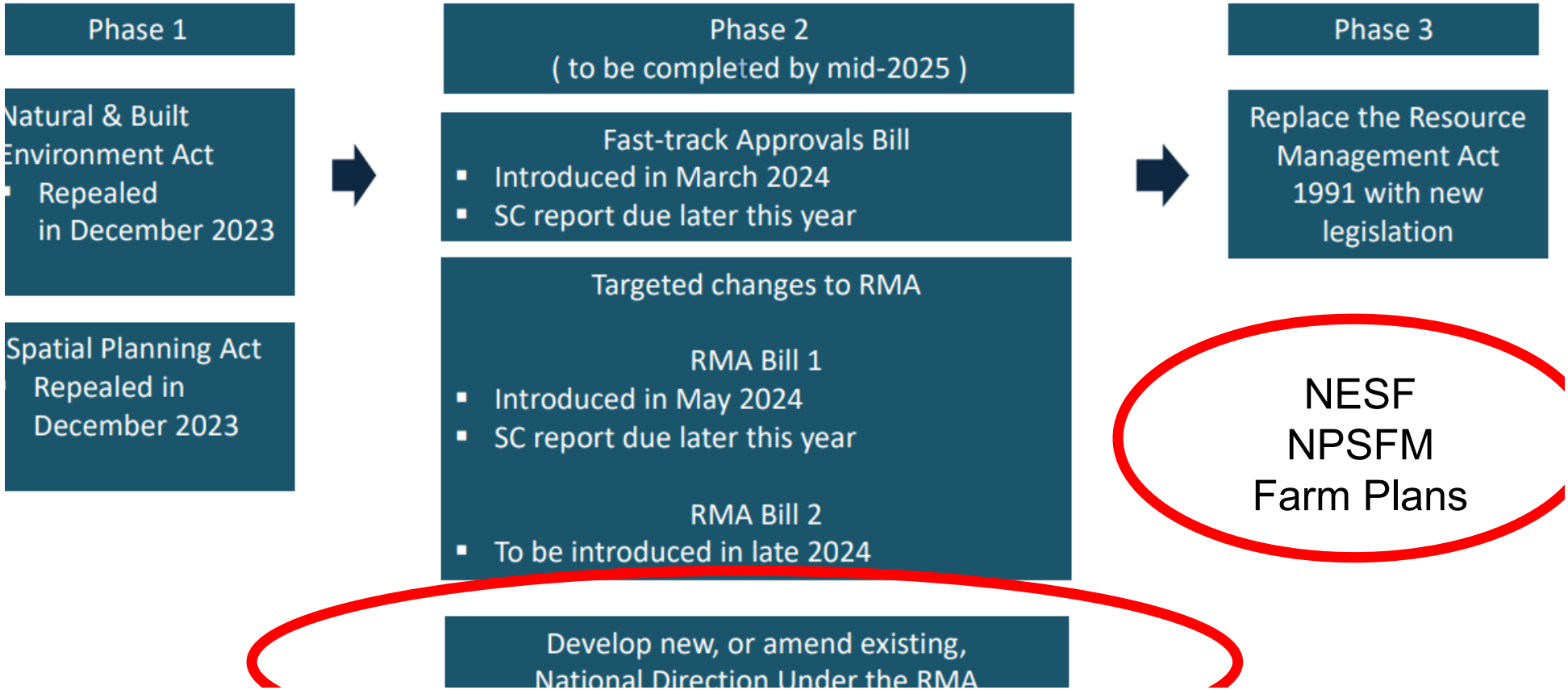
- **Draft RPS and draft Regional Plan freshwater changes** (excluding farming land use rules)

  PLUS

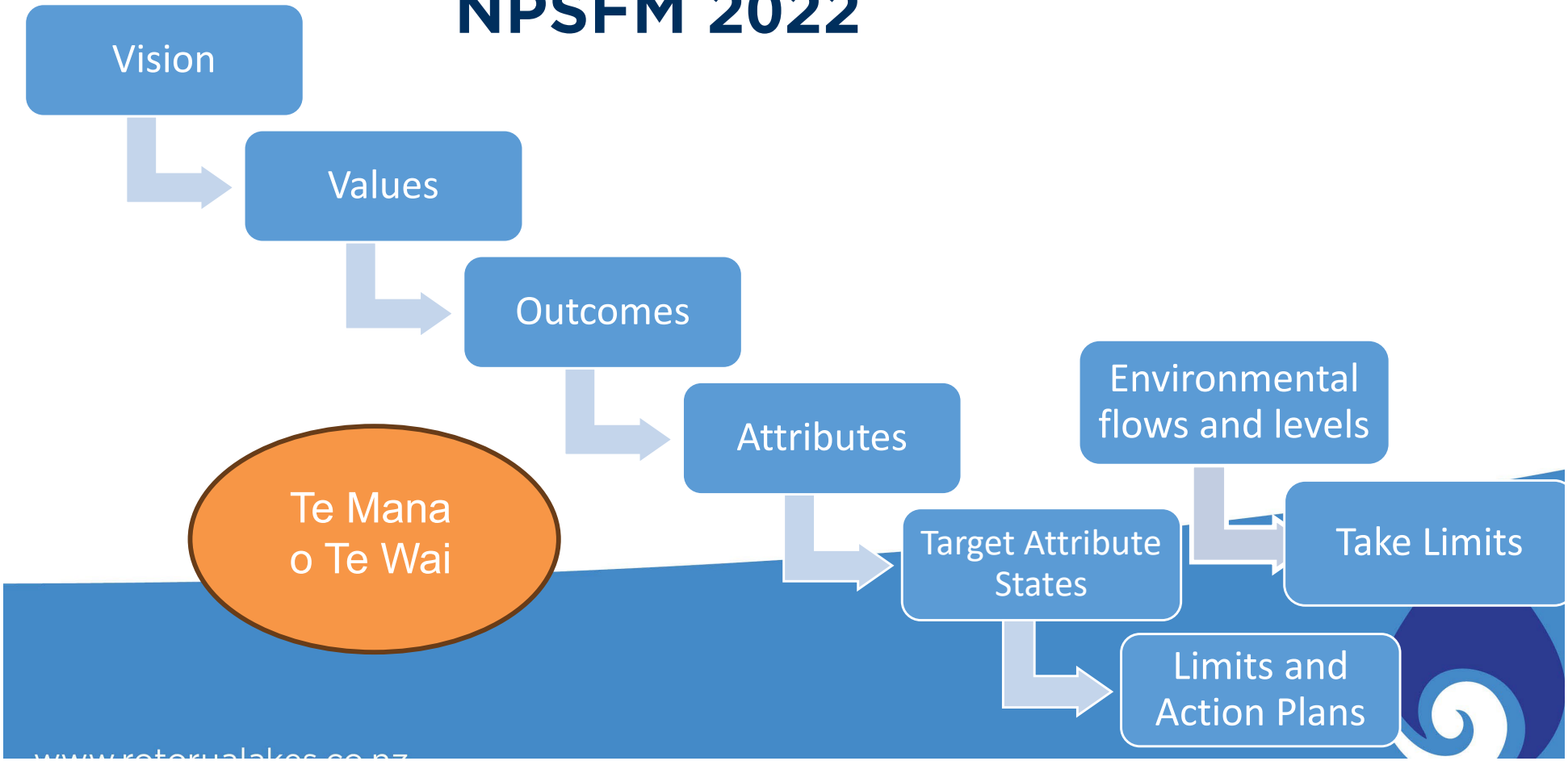
- **Discussion document** on options to address contaminants from farming land use

What does the regional plan do?

Central Government Context



Implementing the NPSFM 2022



Rotorua Te Arawa Lakes FMU vision

The lakes and their catchments are **restored** and protected for the use and enjoyment of present and future generations, while recognising and providing for the traditional relationship of Te Arawa with their ancestral lakes.

E tiakina ana, e haumanutia ana hoki ngā roto o te rohe o Te Arawa hei painga mō tātau me ngā whakatipuranga e ara mai nei, ā, me te aro anō ki te hononga tuku iho o Te Arawa ki ō rātau roto.

(1) In the catchments of Lakes Okaro, Rerewhakaaitu, Rotomahana, Rotoehu, Rotoiti and Rotorua, mahinga kai thrives, mauri is enhanced, ecosystem health, human contact and natural form and character are improved through sustainable land and water management practices which support food production, municipal use, commercial and industrial uses.

(2) In the catchments of Ōkataina, Tikitapu, Tarawera, Okareka and Rotomā, maintain healthy ecosystems and the natural form and character of water bodies, including their margins and fauna,

(3) In the catchment of Rotokakahi the privacy of the lake is respected.

(4) In the catchment of Lake Rotorua, nitrogen loads are reduced to a maximum of 435 tonnes per annum by 2032, phosphorus loads are reduced, and a Trophic Level Index of 4.2 is achieved.

This vision will be achieved by **2045.**

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Water quality and attributes of interest to RTALSG

Load Reductions

Small Moderate High

Rotorua FMU Lake Catchments	N	P
Ōkāreka		
Ōkaro		
Ōkataina		
Rerewhakaaitu		
Rotoehu		
Rotoiti		
Rotokakahi		
Rotomā		
Rotomahana		
Rotorua	RPS/RNRP Targets	
Tarawera		
Tikitapu		

Large E.coli reduction required for Lake Rotorua catchment

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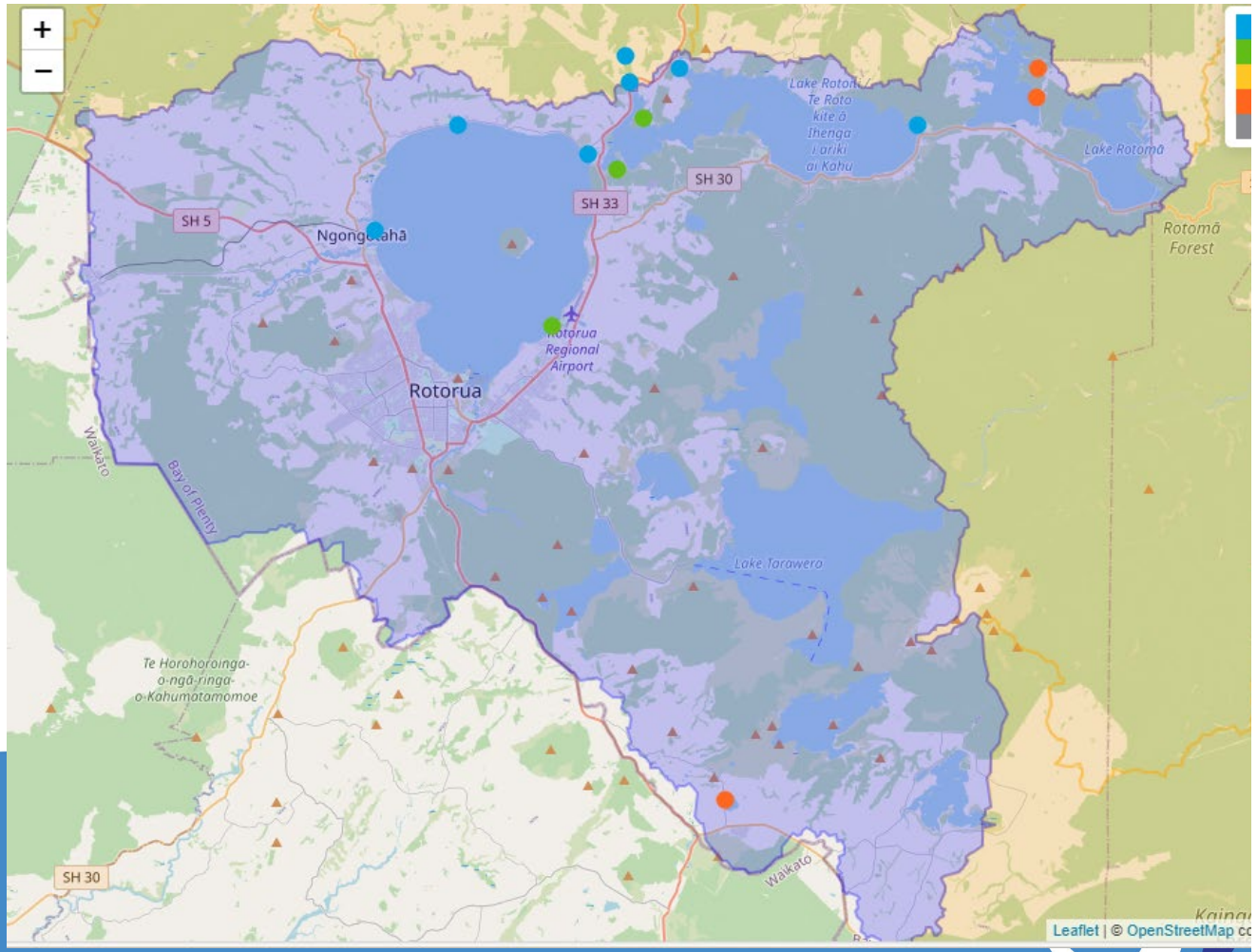
Cyanobacteria



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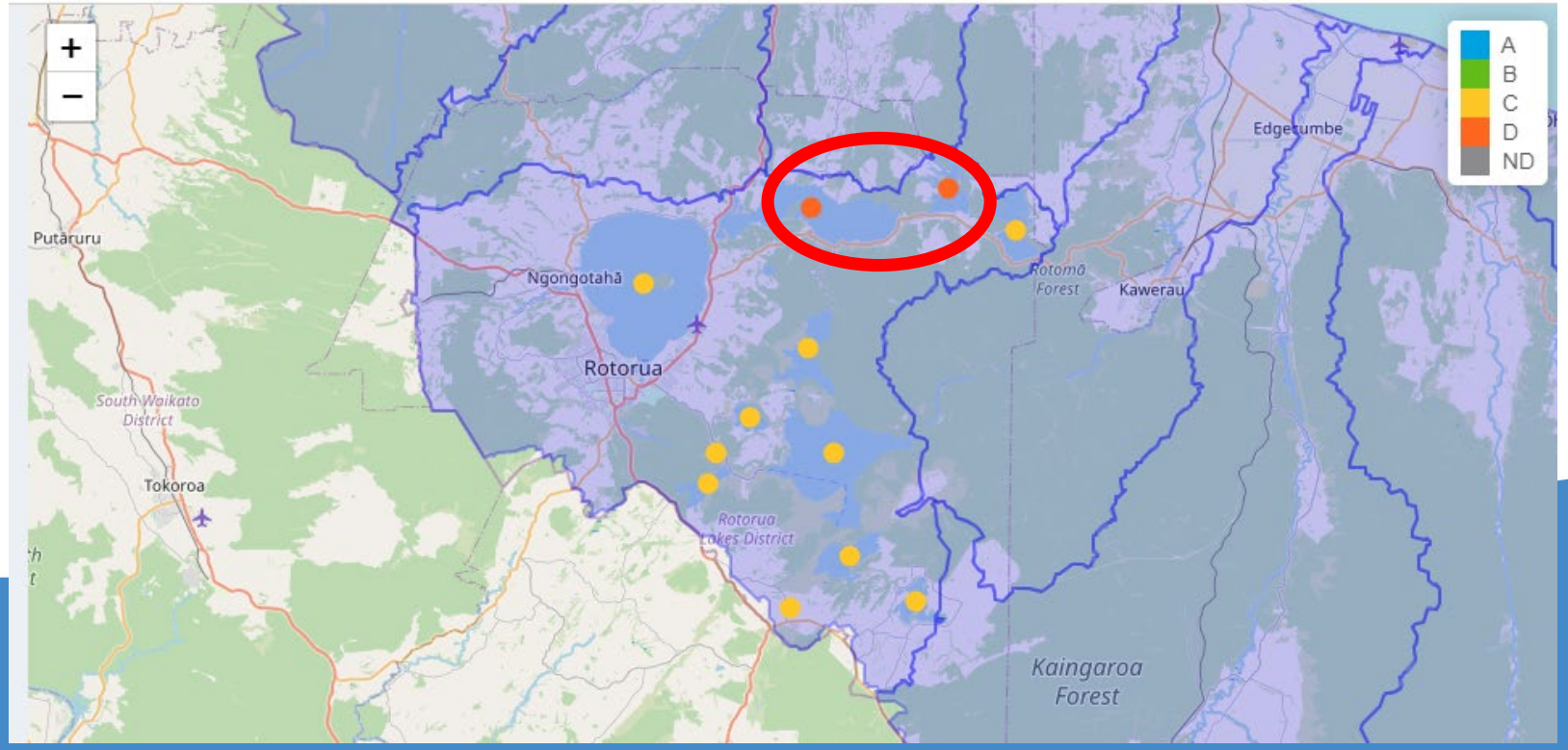
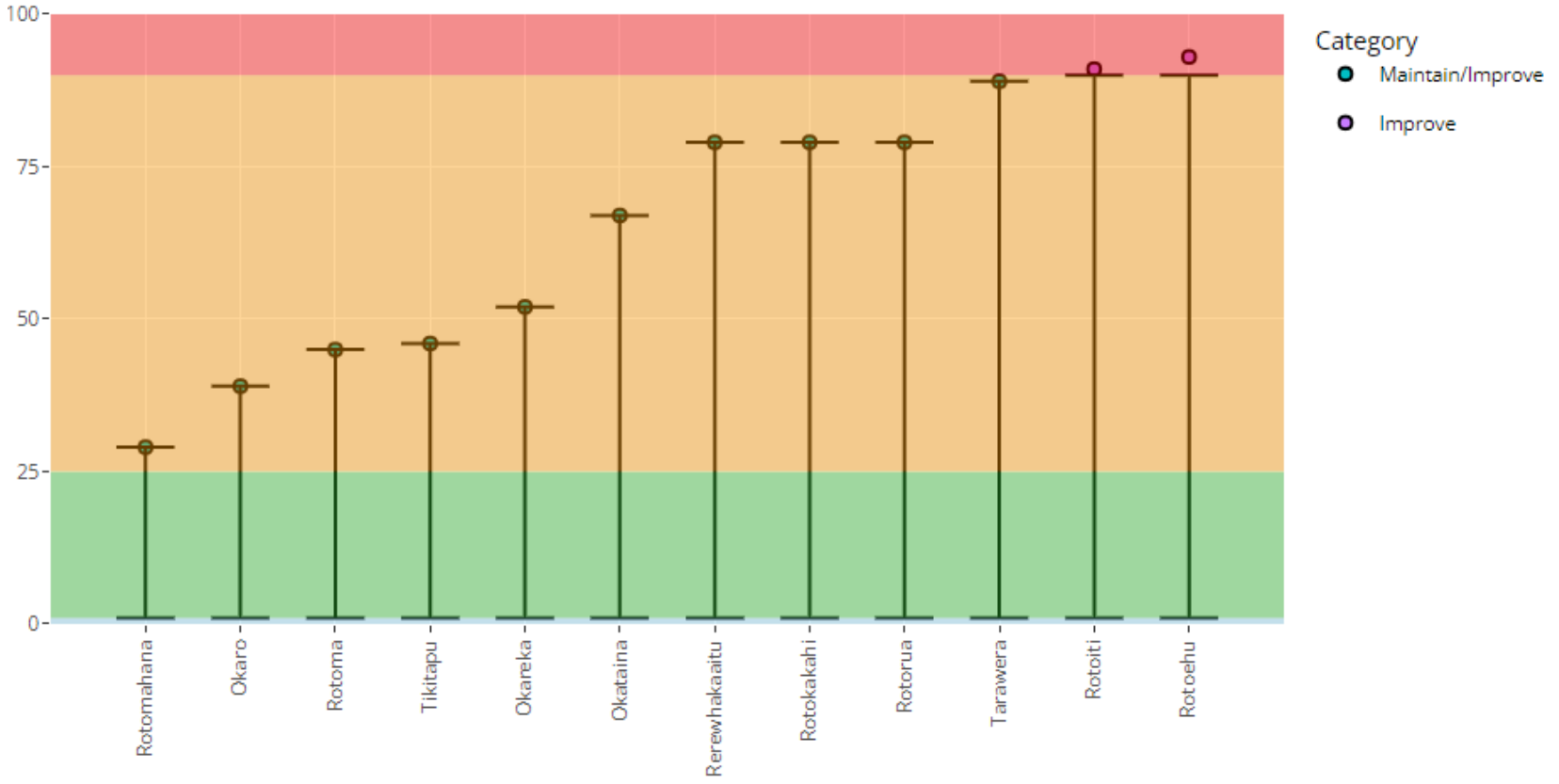
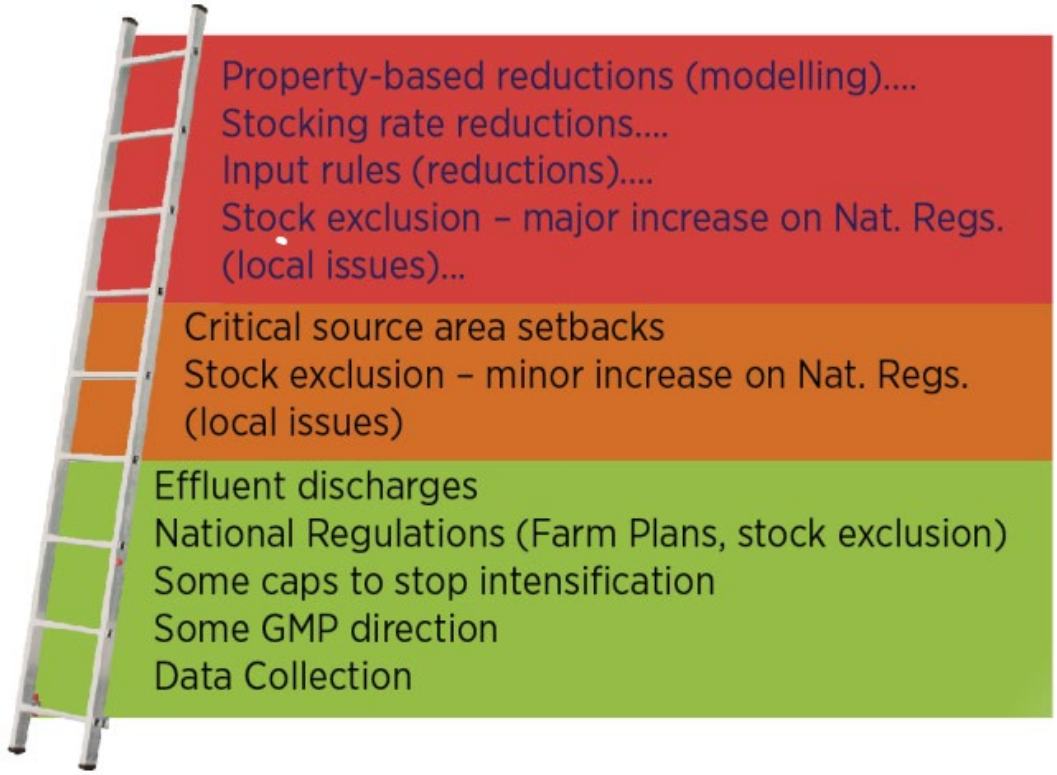
Submerged Invasive Plants




100
75
50
25
0
Rotomahana
Okaro
Rotoma
Tikitapu
Okareka
Okataina
Rerewhakaaitu
Rotokakahi
Rotorua
Tarawera
Rotoiti
Rotoehu
Category
Maintain/Improve
Improve

Discussion Document

Engagement - How far should we go?



Bringing down contaminants from farming

The Discussion document will outline options. It will cover:

- Freshwater Farm Plan (FWFP)
- Possible minimum standards for some high-risk activitie
- Practice direction/expectations for FWFP certifiers
- Where and when consents may be required.
- How far we should go?
- Whether the options are likely to be practical and effective

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OSET

OSET system discharges - Regionwide

- **Require replacement or improvement to most polluting OSET system discharges** e.g. replace soak holes, replace or upgrade pit latrines. Limit where these discharges are permitted.
- **Require consent for new OSET discharges in reticulated areas**, expectation of a reasonable time to connect where practical.
- **Every OSET system must be maintained** to avoid environmental damage and potential health risks.
- **Retain Maintenance Areas** (zones) - mapped settlements requiring regular maintenance/inspection of OSET discharges within sensitive receiving environments.
- **Properties in Maintenance Areas must connect if reticulation available.**

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OSET discharges Rotorua Te Arawa Lakes

- **Manage nutrients for Lakes Rotorua, Ōkāreka, Rotoehu, Rotoiti, Rotomā and Lake Tarawera where no reticulation:**
  - **New discharges** from subdivisions meet **minimum site sizes**, as per RLC permitted rule in Rural 2 Zone (RURZ-S4) *and* install Aerated Wastewater Treatment Systems with Nutrient Reduction **(AWTS+NR).**
  - **Existing discharges** - consent where not possible to connect to reticulation. Designer confirms site constraints limit AWTS+NR and identifies **the best practicable solution** to be implemented for the site.
  - **Limit greywater reuse and composting toilets.**
  - **Discharges remain within nutrient discharge allowance** for properties located in the Lake Rotorua groundwater catchment.

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OSET Rotorua Te Arawa Lakes

Maintenance Areas

- New - Mamaku, Clayton Rd, Fairy Springs and Brunswick (Rotorua)

Other lakes

- **Remove requirement for all new OSET installs to be AWTS+NR**
- **Consent for new discharges** in Rotomā (Ngamotu), Ōkaro, Okataina, Tikitapu, Rotokakahi and Rotomahana

Commercial forestry

Managing sediment losses and addressing gaps in NESCF forestry

Further changes to the NESCF expected.

At this stage, build on NES + additional rules to fill gaps:

- Upfront planning
- Tethered machine assisted harvesting
- Larger setbacks from mapped natural inland wetlands
- Additional 5m setback from waterways in moderate and large reduction catchments
- Notify Council of wind snapped/thrown trees

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Water Quantity

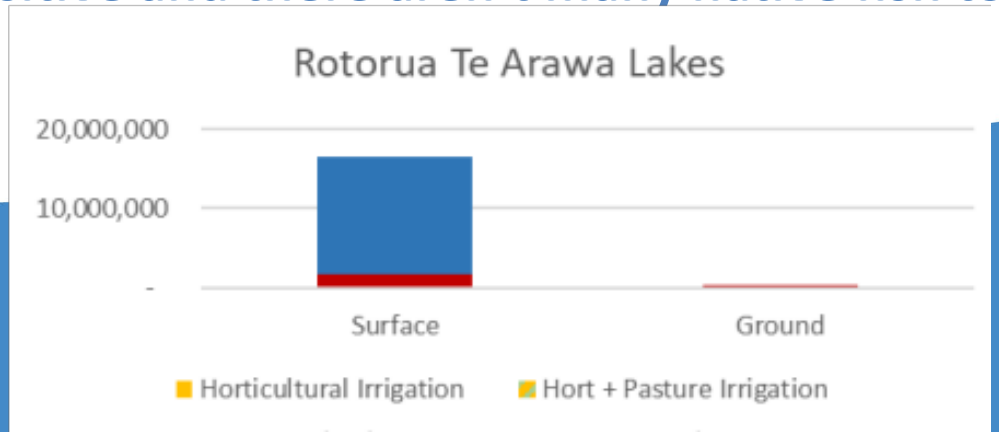
Water Quantity

Reset of ground and surface water limits

- **Revised all water allocation limits and minimum flows**
- **Rotorua (and the region in general) is water rich**
- **Strengthening of Permitted Activity**
- **No irrigation or frost protection use**
- **Maximum dairy herd size (215 / 500)**
- **Less groundwater for small properties**

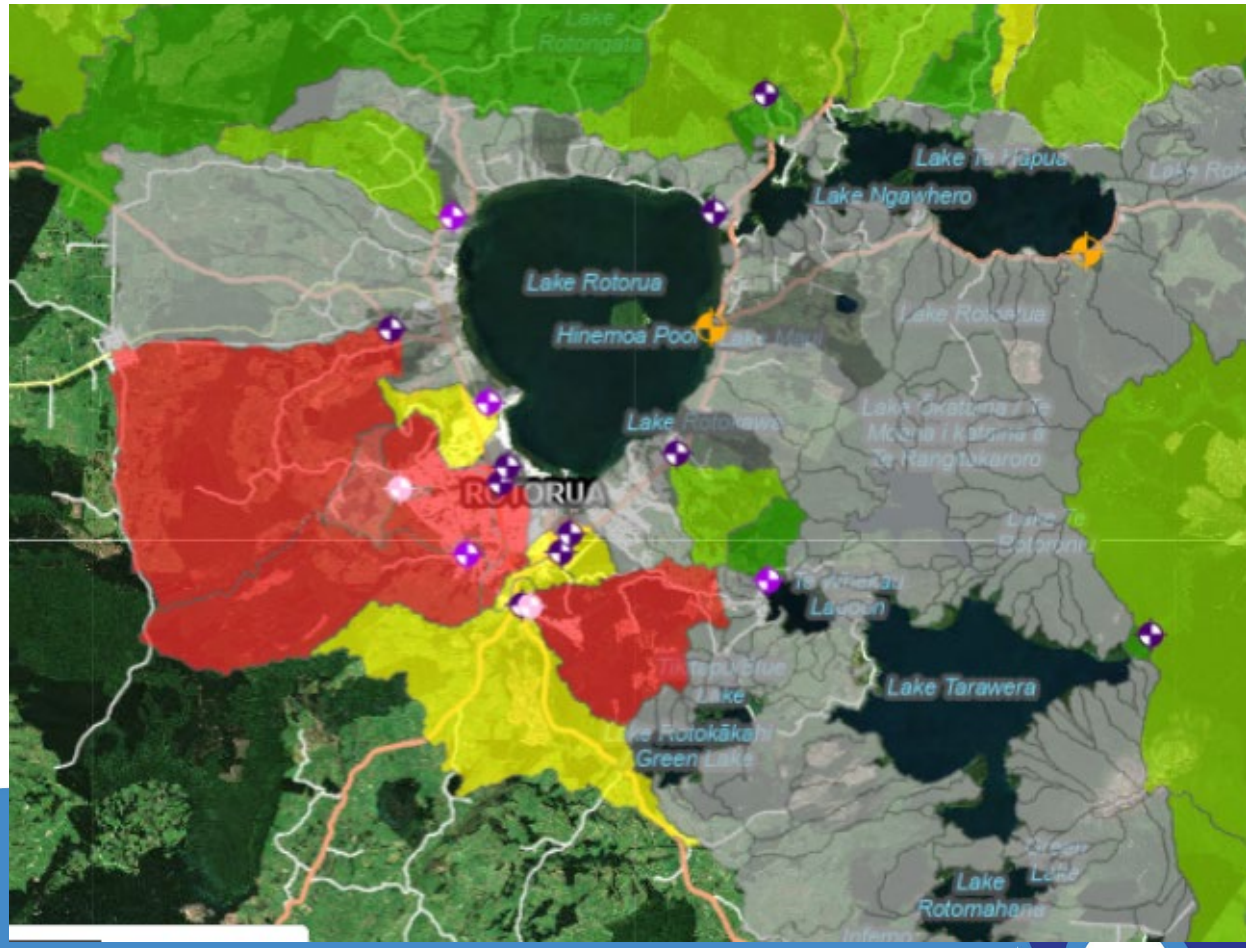
Water Quantity

- Demand is primarily municipal use, with some industrial
- Some municipal take streams are allocated above our draft limits – detailed work programme being undertaken by RLC for consent renewal.
- Limits for Rotorua streams generally based on trout habitat retention levels
- Trout are very flow sensitive and there aren't many native fish to protect in Rotorua FMU



Surface Water

- Lack of flow data for many streams in this FMU
- No/low demand
- Future applicant would need to gather information (in grey area)



Lake levelling

- Continued operation of existing authorised lake control level measures – Rotorua, Rotoiti, Okareka, Rotoma, Rotomahana.
- Water levels naturally fluctuate in other lakes.

Kaupapa Māori Freshwater Workstream

We have maintained an ‘Open Invitation’ to iwi and hapū to engage when they are ready to do so.

When the draft plan is ready to be shared with Iwi Authorities (likely November) an initiative will be available to Iwi Authorities to support the preparation of their feedback.

For policy specific kōrero, we can engage with iwi and hapū directly.

We acknowledge iwi and hapū are stretched (capacity and capability) on multiple fronts!

Freshwater mahi – kōrero

Kōrero from around the room

Sharing of the mahi going on

Who is involved

Who needs to be involved

What learnings can inform the draft freshwater changes