KAIPARA MOANA REMEDIATION

Agenda

Rārangi Take

Kaipara Moana Remediation Joint Committee
Monday 29 July 2024 at 1pm

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Kaipara Moana Remediation Joint Committee Agenda

Rā | Date:	Monday 29 July 2024
Wā | Time:	1pm
Tauwāhi | Location:	Warkworth Town hall, 2 Alnwick Street, 0910
Ngā Mana whakahaere | Members	Tame Te Rangi (Chair), Te Rūnanga o Ngāti Whātua Amy Macdonald (Deputy Chair), Northland Regional Council Cherie Povey, Ngā Maunga Whakahii o Kaipara Georgina Curtis-Connelly, Te Uri o Hau Greg Sayers, Auckland Council Jack Craw, Northland Regional Council Jane Sherard, Ngā Maunga Whakahii o Kaipara John Blackwell, Northland Regional Council Kerrin Leoni, Auckland Council Michelle Carmichael, Auckland Council Taiāwhio Wati, Te Uri o Hau Virginia Warriner, Te Rūnanga o Ngāti Whātua

RĪMITI (ITEM) **Page**

TITLE:	**Briefing Presentation**
Kaituhi Pūrongo | Report Writer	Sophie Bone, PA to Pou Tātaki and Governance Support

Te Kaupapa | Purpose

To present the items of the Joint Committee Presentation to the Kaipara Moana Remediation (KMR) Joint Committee.

Rīmiti |Items

1. **Indicative Wetlands Layer**
   Presented by Duncan Kervell (KMR Contractor) – Kervell Consulting
2. **Parliamentary Commissioner for the Environment review of freshwater models**
   Presented by Stephanie Versteeg (Amo-Rautaki Pākihi) – Kaipara Moana Remediation.

Pirihongi | Attachments

Attachment 1: Briefing Presentation.

KAIPARA MOANA REMEDIATION

Joint Committee Briefing

Kaipara Moana Remediation Joint Committee

Monday 24 July, 2024


Indicative
Wetlands Layers
Steph Versteeg and Duncan Kervell

Purpose and background

Indicative wetlands layers

- In mid-2022, NRC engaged Biospatial Ltd to develop a wetland mapping tool, with KMR support
- Aim was to predict the location and extent of **natural wetlands** in Northland and the Kaipara Moana catchment
- Both freshwater and estuarine wetlands were in project scope, with an aim to update saltmarsh and mangrove extent in the Coastal Marine Area
- Proposed methodology involved LiDAR and machine learning – the continuous learning throughout the project did lead to some delays in delivery
- The Biospatial Ltd data-set and methodology report were delivered to NRC early June 2024

How can KMR use these layers?

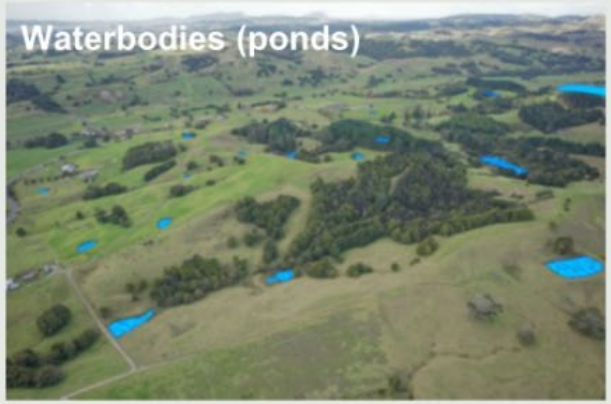
Two primary potential uses

- Wetlands are an important 'sink' for sediment – they can store sediment, reducing losses of sediment to rivers, streams and the Moana, and can reduce peak flow and stream bank erosion.
- For KMR, the project was an opportunity to develop high quality datasets to support decision-making (existing datasets incomplete and/or poor quality).
- Councils will have their own uses for these datasets including to meet requirements under the current NPS-FM to develop an inventory of natural inland wetlands and map wetlands >500m2
- KMR has identified **two primary potential uses** of these datasets:
    - To help KMR Field Advisors to identify opportunities on the whenua to reduce sediment through protection and restoration of wetlands
    - To help KMR track progress in protecting and restoring wetlands – a key leading indicator (alongside measures such as length of river/stream bank protected)


Northland
Purua
Ngunguru
Whangārei
Parua Bay
Portland
Maungakaramea
Tangowahine
Ruakākā
Dargaville
Maungaturoto
Ruawai
Tinopai
Kaipara Flats
Auckland KMR
Tinopai
Wellsford
Pouto
Tapora
Kaipara Flats
Waiōneke
Kaukapakapa
Parakai
Coatesville

Outputs – Map of freshwater (inland) wetlands

Further outputs



Kaipara Moana Catchment

	All wetlands		
Wetland type	**Number**	**Area (ha)**	**% land area**
Freshwater wetland	59,454	13,622	2.29
Mangrove	39,005	6,387	1.07
Saltmarsh	38,072	1,058	0.18
Waterbody	20,062	2,067	0.35
Gumland (Northland only)	5,376	21,163	1.67

- Vast majority of wetland area is in relatively few large wetlands (>500m2)
- This doesn't tell us about wetland condition or level of protection
- About 5% of catchment area in freshwater wetland provides optimal function
- Opportunity to protect and extend what we have

How were the layers developed?

- Primarily using slope, vegetation type and height data, from:
  - LiDAR
  - High resolution remote sensing
  - Aerial imagery (current and historic)
- Machine learning to recognise complex patterns and relationships among landscape data
- Some manual adjustment to segments based on desk-top validation
- Wetland segments merged / smoothed into polygons

Note: The wetland polygons have not been fully assessed against the wetland definition in the Resource Management Act due to limitations on the ability to assess hydrological and soil conditions and presence or absence of fauna adapted to wet conditions in the field.

Validation and improvement

To date, there has been limited validation of the datasets / layers

- To date, limited validation: All desktop data (not in-field)
- Dataset can be updated as needed – 'segments' can be edited and attributes added (eg. condition / fencing)
- Photooblique tool to assist desktop effort – enables overlay of GIS data onto aerial image (still in development)
- Systematic validation planned – approach needs to maintain and improve data quality

Next steps

Validation of dataset needed before it is used by KMR Field Advisors

- Validation: systematic review of performance for different wetland types and sizes
- Data management processes: to maintain and improve data quality over time
- Use in remediation project development: Data available in Mātai Onekura, after validation and appropriate training for Field Advisors about its uses and limitations
- Monitoring and reporting: Analyse the area of wetlands that KMR funding has protected.

Key take-aways

The wetlands layers are a tool to target KMR projects to increase sediment reduction

Once validated, KMR proposes to use the indicative wetlands layer to:

- Support landowners to develop sediment reduction plans that identify opportunities to remediate wetlands on their property with a focus on reducing sediment flows from the whenua.
- Discuss site-specific sediment loss risks, and support development of tailored 'best bang for buck' sediment remediation projects.
- Help spatially assess the area of wetlands protected/restored through KMR projects (compared to baseline), so we can understand and model KMR's impact on water quality over time.

Pātai?

Questions?


Parliamentary Commissioner for the Environment review of freshwater models
Steph Versteeg

Background

Freshwater modelling report

- Parliamentary Commissioner for the Environment, an independent 'watch dog' for the environment and advisor to Parliament
- An investigation recently completed on how models are being used by councils across New Zealand in freshwater management.
- Reports released
  - PCE report: *A review of freshwater models used to support the regulation and management of water in New Zealand*
  - Consultant report: *Te Mana o te Wai, Te Oranga o te Tāngata*
- KMR and our 'models' are profiled positively in these reports

Key challenges identified in both reports

The modelling system in Aotearoa NZ isn't set up for success

- Many models exist, often with overlapping functions, even the same purpose – but with different principles, assumptions, data they produce divergent results
- Models are often 'single-use', opaque, developed in siloes and a competitive approach limits collaboration
- There is limited guidance on evaluating and using models – judging which is best for a particular circumstance or if a model is fit for purpose
- Overall a number of mana whenua developed models, but a lack of commitment to and investment in these, particularly in a regulatory context
- Need for culturally appropriate modelling focussed on outcomes, and that empowers and enables tangata whenua

KMR case study

The programme has been designed to make better environmental management decisions by developing models. It draws on several information sources, including mātauranga Māori, science, and landowner knowledge to identify solutions that will be needed to implement the NPS-FM. Three models are being developed as independent tools but are interrelated and inform each other. Although not specifically developed for the implementation of the NPS-FM 2020, with some modifications they could be used in this way. These models are Tātaki Wai, Kōrero Tuku Iho and Mātai Onekura.

As each tool is dependent on the others, they all need to be functional and financially resourced. This allows for all tools to be improved together, ensuring their use for certain regulatory settings is appropriate. The next step in the development of these models will be to ensure that kaitiaki on the ground are included in their future development and use.

PCE report recommendations

Greater national support needed to ensure local approaches are robust and inclusive

Report recommends the following actions:

1. Develop national guidance on the use of models in a regulatory context to support FW management
2. Establish a rōpū of experts to support Māori FW model development and use
3. Evaluate existing models against guidance
4. Select or develop a preferred suite of models that can be adapted for different local circumstances
5. Establish a national freshwater modelling support centre

Initial thoughts on implications for KMR

Findings are relevant to KMR

1. KMR is a voluntary programme, with our models developed for a non-regulatory purpose
2. Nonetheless the findings are still relevant to KMR in our view: We are in a privileged position, guided by early JC decisions, to be investing in a sophisticated modelling ecosystem
3. Opportunity to help set and share good practice and work transparently and collaboratively with others (c.f. KMR's role as an exemplar)
4. All KMR 'models' (Tātaki Wai, Mātai Onekura and Kōrero Tuku Iho) need to evolve together – an aligned system bringing together biophysical science, economics, farm-scale planning, te ao Māori
5. Opportunity for KMR to consider how kaitiaki are involved in ongoing model development and use so we can best support needs on the whenua.

Pātai?

Questions?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