Kaituna-Pongakawa-Waitahanui Water Management Area

Plan Change 12

BAY OF PLENTY REGIONAL COUNCIL
TOI MOANA

Community Group Workshop 9 - 26 Mar 2019

1. Introduction

- Welcome - Karakia
- Apologies
- New members
- Iwi representatives
- Staff

Housekeeping

- Fire protocol
- Toilets
- Meals
- Recording and sharing notes
- Make yourself at home

Purpose of this group

To help Council implement the National Policy Statement for Freshwater Management:

- confirm values, express preferred objectives
- provide feedback on limits for freshwater quality and quantity within this Water Management Area
- provide input to solutions for managing activities to meet those limits
- advise Council in their decision-making for Plan Change 12

We agreed that we would…..

Be….

* Respectful of others
* Respectful of cultural diversities
* Specific and frank
* Inclusive
* Focused
* Honest
* Timely
* Prepared for meetings

And….

* Work together
* Stay on topic
* Hear others
* Wait our turn
* Say what we think
* Share our experience
* Participate fully
* Keep a safe environment

Te awa honohono i te tangata mai uta ki te tai
A connector of people from the lakes to the sea

Focus today

Water quantity (surface & ground)

Engagement with iwi/hapū, community, stakeholders

Water quality &ecosystem health

Lowland drain quality

Matauranga Māori

Values and issues

Coastal receiving environment

Catchment modelling

Socio-economic information and analysis

Urban issues

Purpose of the day

To present surface water quality information and discuss and seek views on early policy options:

- estimated contaminant load reductions for Maketū and Waihi estuaries
- lowland water quality and ecology
- Waitahanui water quality
- change we need to achieve … potential ways to achieve it

A

or Maketū & Waihī Estuaries

ater quality and ecology

7. Summary and Next steps

2.
Updates

National Update – Essential Freshwater

Public consultation July/Aug 2019

Large policy package to:

- Stop degradation and loss
- Address past damage
- Address allocation issues

Proposed Plan Change 9:
Region-wide Water Quantity

Environment Court appeal topics

- Māori values and relationships
- Governance and decision making
- Cultural use and economic development
- Tangata whenua general
- NPSFM, Planning and WMA
- Unauthorised dairy takes
- Renewable electricity
- Limits, flows and levels, over allocation
- Rules, consents schedule 7
- Municipal water supplies
- Rootstock survival water
- Transfer of permits

Timeline:

Kaituna-Pongakawa- Waitahanui (PC12)

Community Group Timeline

Workshop 8: Sept 2018

- Modelling results - baseline and development

Workshop 9: Mar 2019

- Water quality - Waihī and Maketū estuary load, lowland water quality and ecology, potential policy direction

Workshop 10: April/May

- Water quality - Good practice modelling results, policy direction cont.

Workshop 11: May/June

- Surface water quantity

Workshop 12: June/July

- Groundwater quantity

Public communications

Engagement with Tangata Whenua

- An ongoing process
- Met with some once or several times
- Still to hold first meetings with some
- Updates presented to Te Maru o Kaituna – more discussion needed
- Summaries being prepared

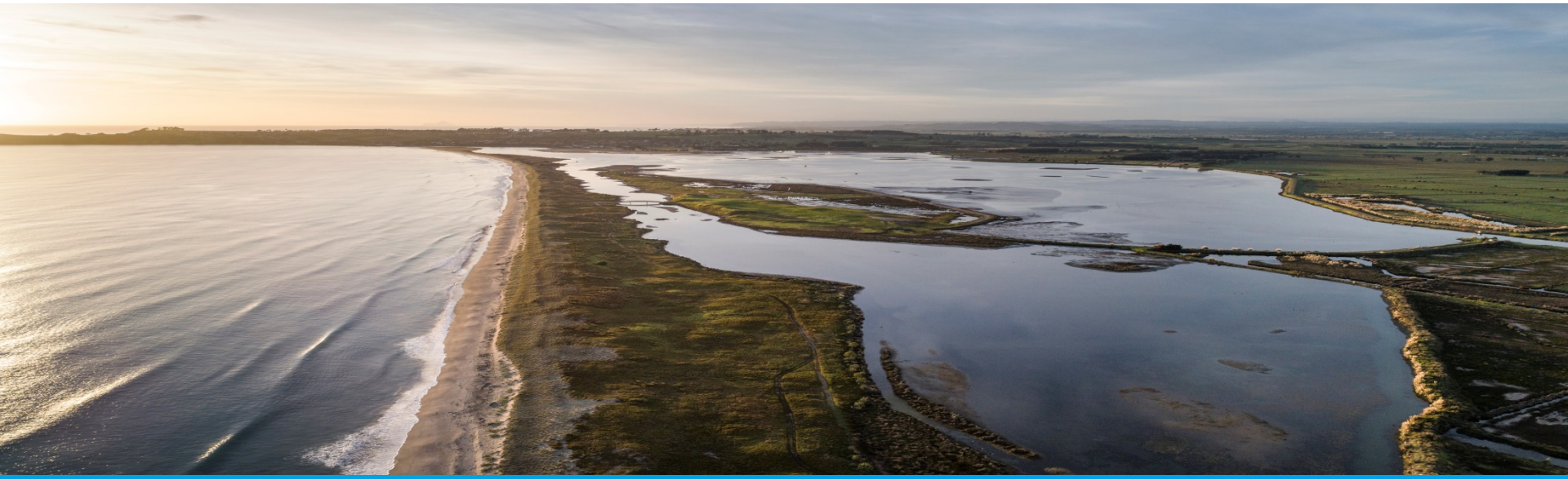
Modelling update

- Technical report peer reviewed
  - *Still awaiting response to questions*
- Model has been peer reviewed
  - *General acceptance*
- Your questions and queries
  - *Some answered, some still being responded to*
- Big changes unlikely, but sensitivity testing needed
- Good practice scenarios prepared – estimate only
- Load by FMU, and by land use today

3.
Maketū and Waihī Estuaries

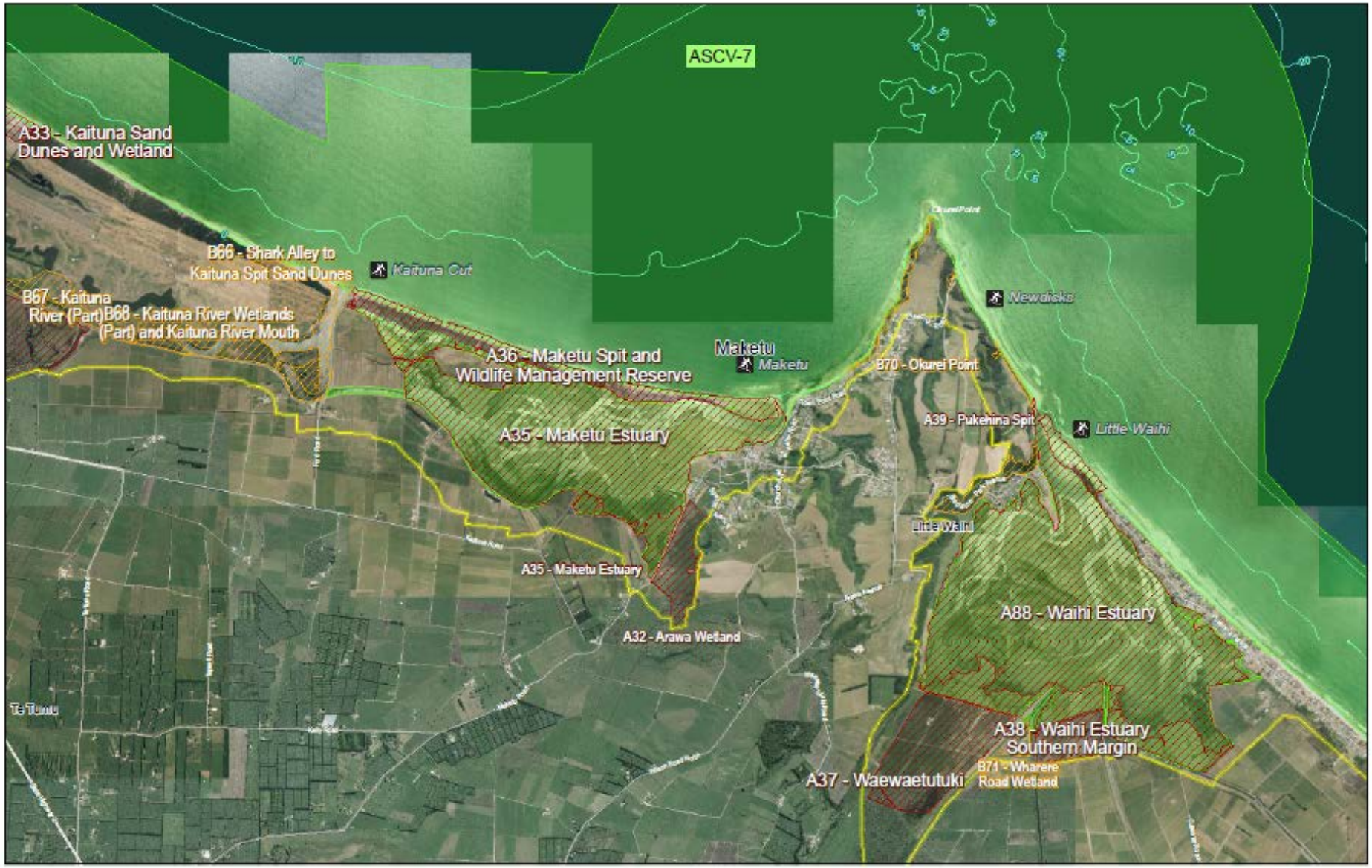
Today's mahi ....

- Recap estuary state and values
- Present and discuss estimated contaminant reduction needed
- Discuss early policy options



High Biodiversity, Cultural and Landscape Values

Protective policies in the Regional Coastal Environment Plan



Kaituna, he taonga tuku iho

Desired outcomes for Water

Limits to ensure water is:

- *Clean and safe for swimming in specified locations*

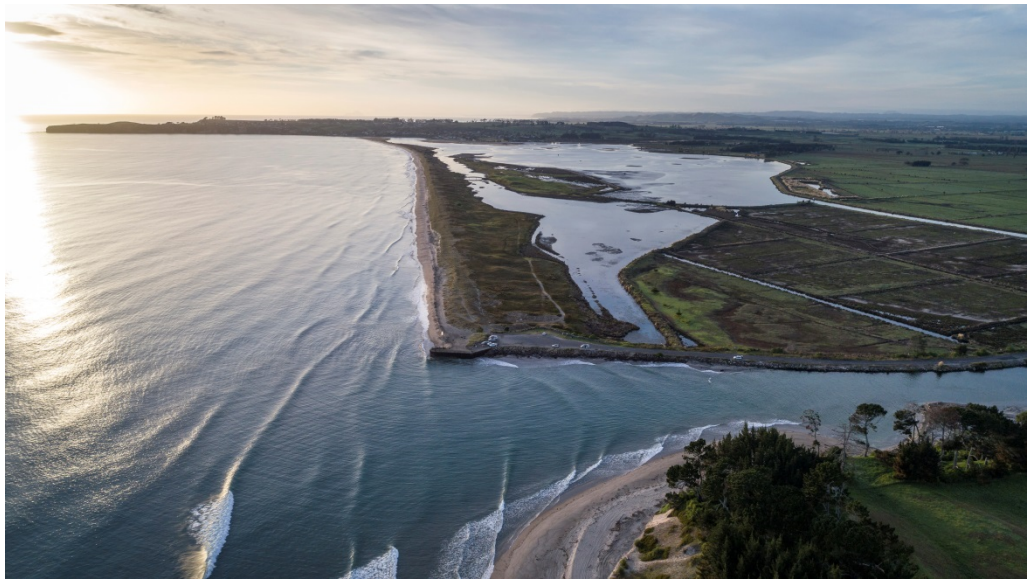
- *Suitable to sustain plentiful kai awa and kai moana from Maketū estuary which is safe to eat*

You have said (in summary)…

The water will be safe for swimming
Fresh water quality and quantity inputs will protect and improve/restore ecosystem health.
Fresh water quality and quantity inputs will provide for mahinga kai that is safe to eat, and for significant indigenous species.
Natural character will be improved
The very strong cultural significance
Fresh water quality and quantity inputs will provide for customary ceremonial activities and wahi tapu.
Enable navigation through channels

Estuaries

- Estuaries are very sensitive to altered water flows and contaminants from their catchment
- Estuary needs will drive catchment contaminant load limits



Ecological health

Ecological health in Maketū and Waihī estuaries is poor

Attribute	Maketū Grading	Waihī Grading
Macroalgae coverage	Poor-Very Poor	Fair
Seagrass extent	Very Poor	Very Poor
Soft mud extent	Poor	Poor

Ecological health indicators

Seagrass – Maketū

Ecological health indicators

Macroalgae – Maketū

Ecological health indicators

Seagrass – Waihī

Waihī Estuary historical seagrass cover (1943)

Ecological health indicators

Macroalgae – Waihī

Contact recreation
How safe are the estuaries now?

At monitored sites in Kaituna Pongakawa Waitahanui WMA

Site	*Suitability for recreation*
Maketū at Surf Club	**Good**
Waihī estuary main channel	**Fair**
Pukehina at Surf Club	**Good**

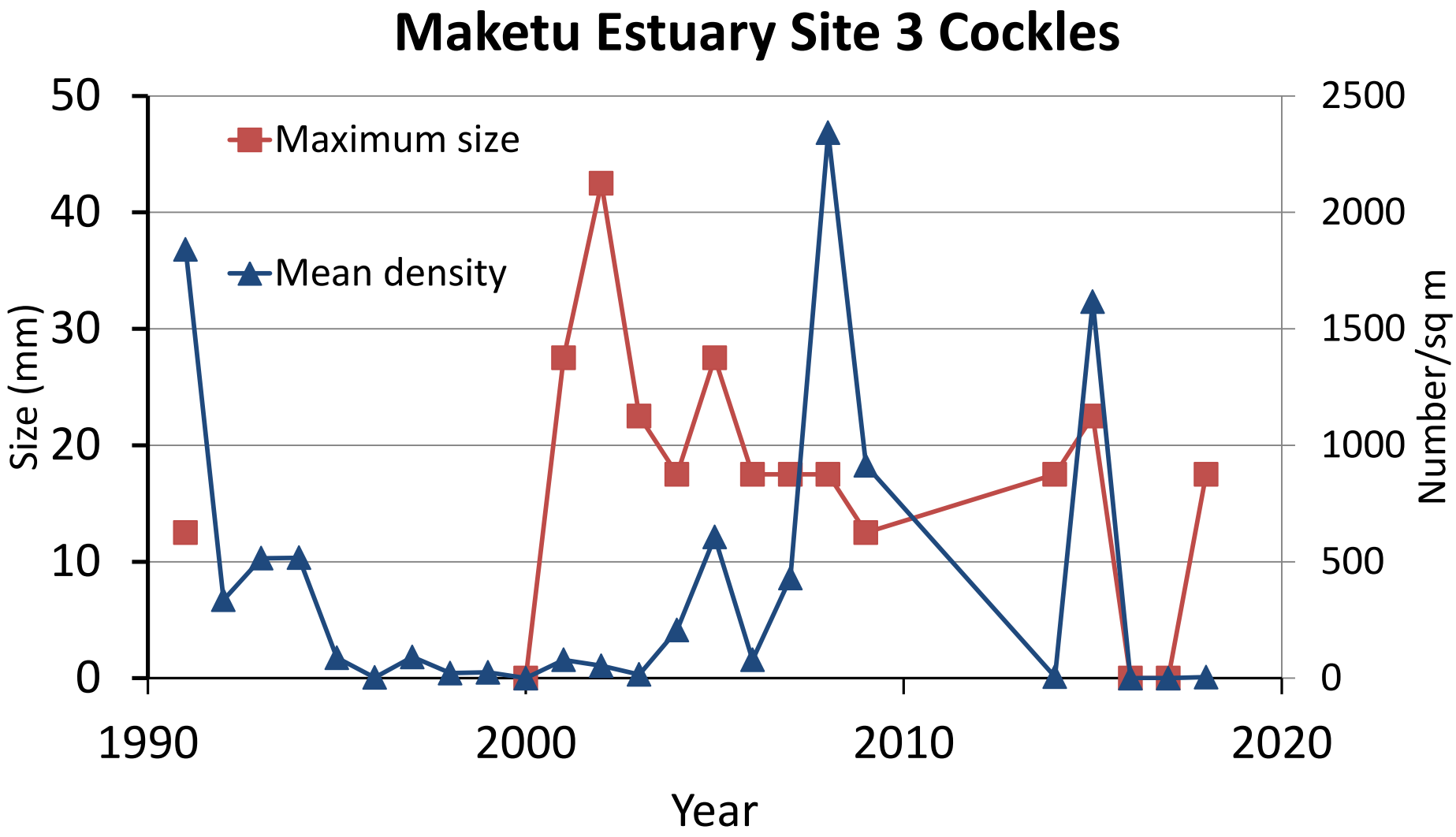
Mahinga kai from estuaries

How safe is it?

- Faecal coliforms in estuaries at times have not met shellfish gathering guidelines
- Waihī estuary at main channel has a permanent shellfish health warning in place due to faecal contamination (Toi Te Ora)

Tuangi - Cockles

Tuangi monitoring – Maketū



Maketū estuary – change underway

- Kaituna Re-diversion to Maketū Estuary
  - Improve export of sediment and nutrients
  - Increase flow from Kaituna River catchment
- Restoration of 40 Ha of wetland
  - Reduce/treat some contaminants
- Monitoring needed to improve certainty about future state

Modelling Approach

Step 1 – Loads to the estuaries

- Compare model outputs

Step 2 – Contaminant inputs under scenarios

- Current state compared to relative natural state and two potential future land use change scenarios.

Step 3 – Guidelines for contaminant limits

- NZ Estuarine Trophic Index (ETI) framework, Microbial Water Quality Guidelines
- Limits selected based above frameworks and reductions required to protect estuary ecological health.

Nutrient loading scenarios

Estuary	Relative comparable natural state N load (mg m^{-2} d^{-1})	Scenario C N load (mg $m^{-2}d^{-1}$)	Scenario D N load (mg m^{-2} d^{-1})	Current catchment N load (mg m^{-2} d^{-1})	Interim N load guidelines (mg m^{-2} d^{-1})
Maketū	174	374	478	534	200
Waihi	101	227	365	584	200

NZ Estuarine Trophic Index Framework

N load Susceptibility (mg m^{-2} d^{-1})	Very High > 250	High > 50 - 250	Moderate 10 - 50	Low < 10

Estimated contaminant reduction

To achieve a moderately healthy ecological state in the estuaries, the change needed is substantial

Contaminant	Maketū (after re-diversion)	Waihī
Nitrogen	63%	66%
Phosphorus	38%	30%
E.coli^	60%	50%
Sediment	?*	?*

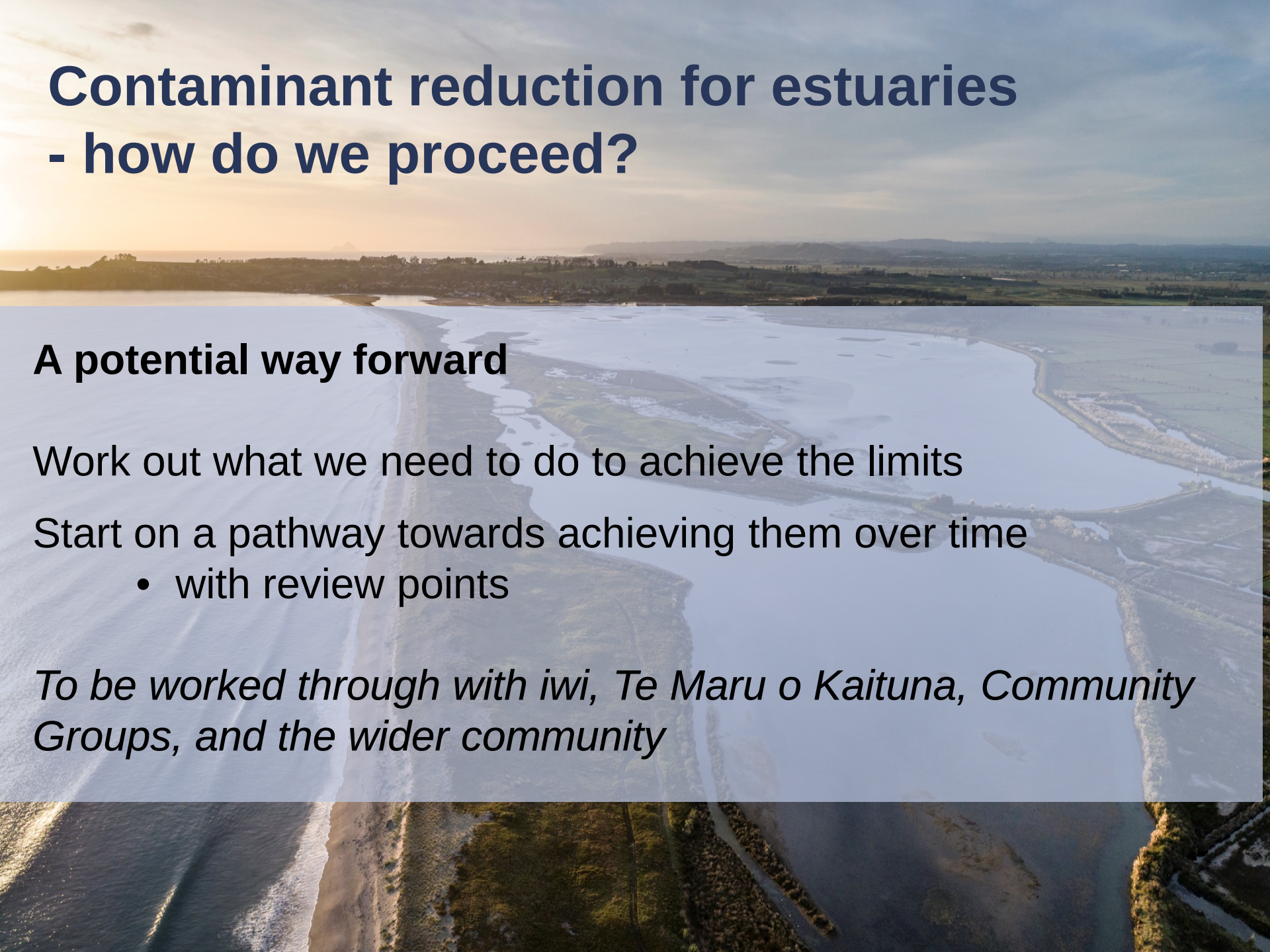
^ For shellfish gathering

* Interim : 2014 sedimentation rates

Considerations

- The load reductions would achieve moderate ecological health, not “natural state”
- N is the “limiting nutrient”
- Some key information gaps affect certainty
- Better certainty in 5-10 years time
  - Research and modelling for Waihī by 2021
  - Post-rediversion monitoring for Maketū
  - Sediment monitoring

Contaminant reduction for estuaries - how do we proceed?



A potential way forward

Work out what we need to do to achieve the limits

Start on a pathway towards achieving them over time

- with review points

To be worked through with iwi, Te Maru o Kaituna, Community Groups, and the wider community

Group check in

Fist of 5

0 - Not at all

1 - Slight possibility

2 - Possibly

3 - Likely

4 - Highly likely

5 - Certain

Have we explained this information/science well enough?

Concerns and questions?

In principle, do you accept the need to achieve the reductions estimated? *Discuss*

Limits and Targets

Limits have been estimated by scientists

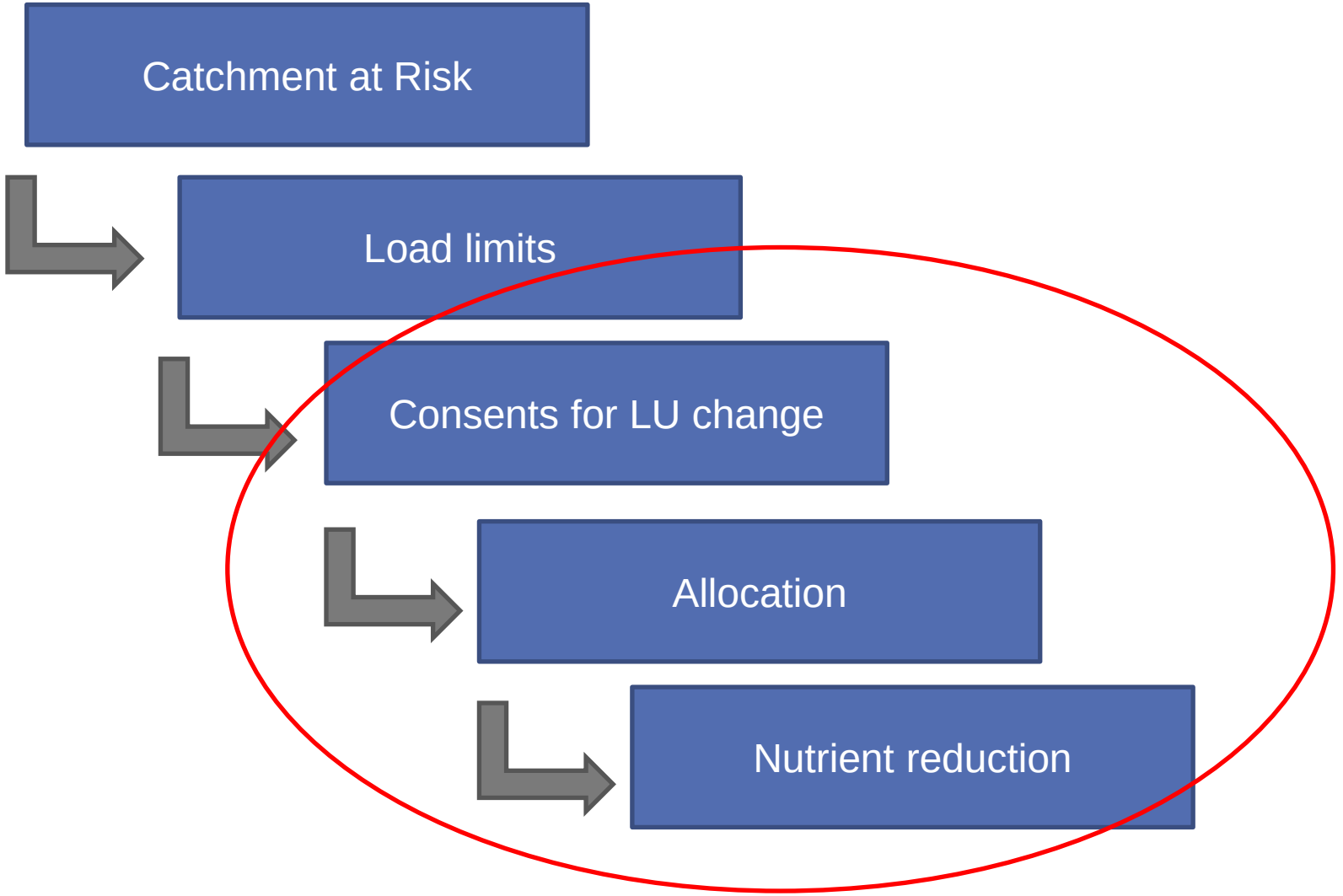
Options to work through:

- Timeframes
- Targets (steps along the way)
- How we reach them
- Review points
- Costs and distribution of these
- Social, cultural and economic implications

Before we set timeframes and targets …

- Explore sources and causes
  - Areas, land uses, point sources, hotspots
- Explore methods to achieve change
  - What? How?
  - Do we know they will work
  - Costs
  - Social, cultural and economic implications

RPS directs some methods



“Hold the line” options

1. Control change to more intensive land use
   - resource consent and mitigation requirement
2. Farm environment plan
   - good practice and standards
3. Benchmarking
   - estimating losses from the land
4. Set land use performance range? Cap at benchmarked amount?

Activity

Thinking about the options ….

- What are the pros, cons?
- What are your big questions about how they would work?
- Other options?
- What take away messages do you want staff to record?

“Reducing contaminant load” options

1. Water treatment technologies
2. Retirement of land
3. Wetlands
4. Allocation limits
5. Change of land use

Discuss at later workshop, after we have considered good practice modelling results

4. Lowland water quality and ecology

We will discuss ….

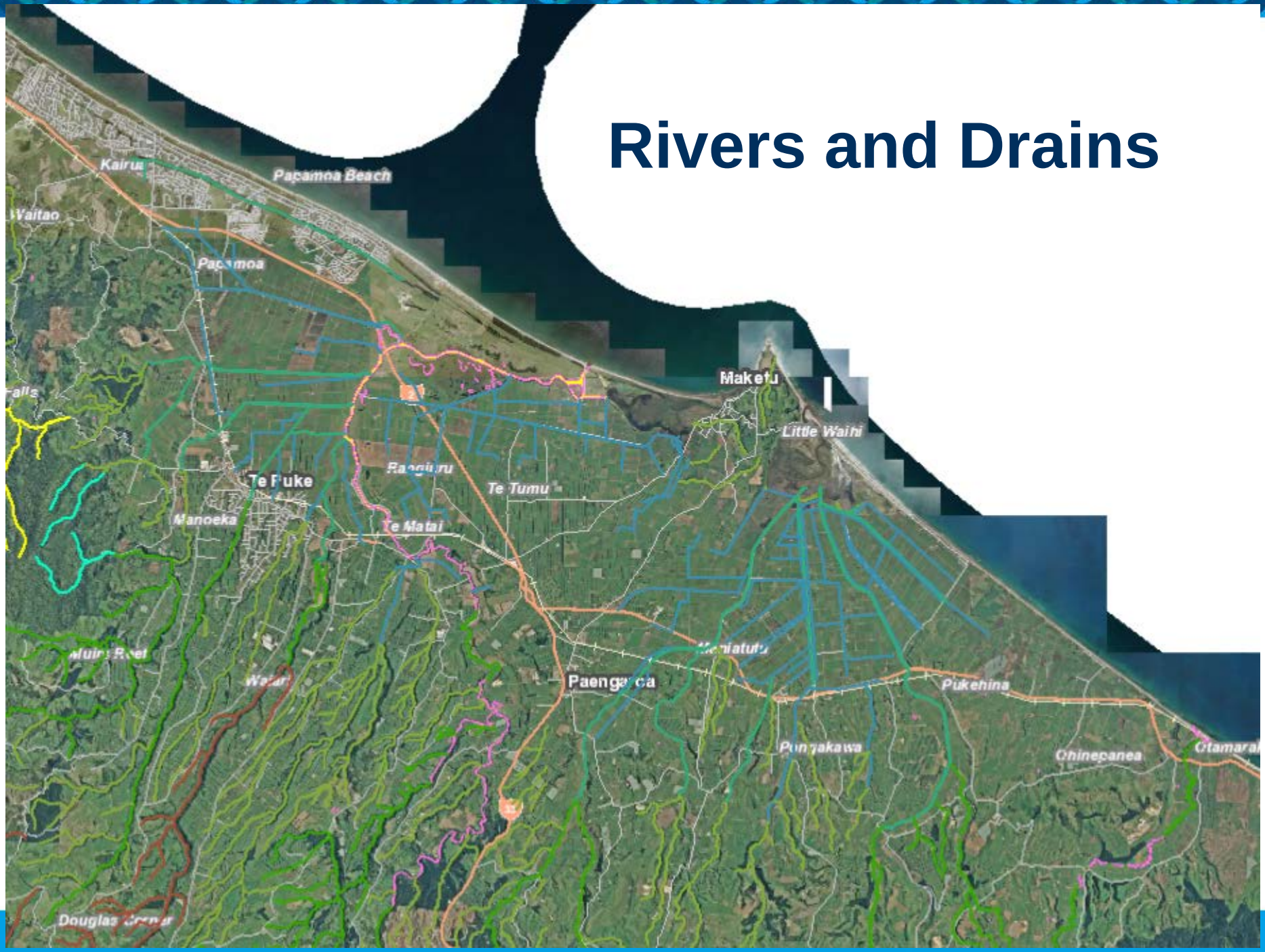
- Difference between rivers and drains
- Water quality and ecology science
- Issues
- Policy Options

Difference Between Rivers and Drains

Why does it matter?

	Controls in a Regional Plan Change
Rivers – Natural and modified natural watercourses.	**Set objectives** for ecological health, contact recreation and other values in the river.
Drains - Artificial/entirely human made watercourses	**Control water quality** of discharges to drains (from land and pipes), and discharges from drains and other points in to rivers and estuaries.
Land use	Can control use of land for the purpose of water quality and ecology.

Rivers and Drains



Rivers and Drains

Rivers		Drains
Natural watercourse	Modified natural water course	Artificial water course
Kaituna River and other rivers in mid - and upper catchments, including: Mangorewa River, Oeuteheuheu, Onaia, Pokopoko, Pongakawa, Pungarehu, Raparapahoe, Waiari, Waitahanui Streams	Kopuaroa, Ohineangaanga, Raparapahoe, Waiari, Parawhenuamea* Kaikokopu, Pongakawa, Pukehina, Wharere Canals	Remainder of land drainage network, farm drains, other road side drains

Water quality and ecology

1. Background and rationale
2. Habitat conditions
3. Water Quality
4. Invertebrate communities
5. Fish communities
6. Issues

1. Background

- Fertile plains cover large areas

WMA	Area m(km^2)	Total Waterway length (km)	Modified waterway length (km)
Kaituna Plains	175	270	250 (90%)
Rangitaiki Plains	335	513	430(83%)

- Productive farming vs loss of original wetlands
  - Wetlands transformed into straightened drainage channels
  - Managed only for drainage values
  - May adversely affect other values (ecological, aesthetic, cultural)

Rationale

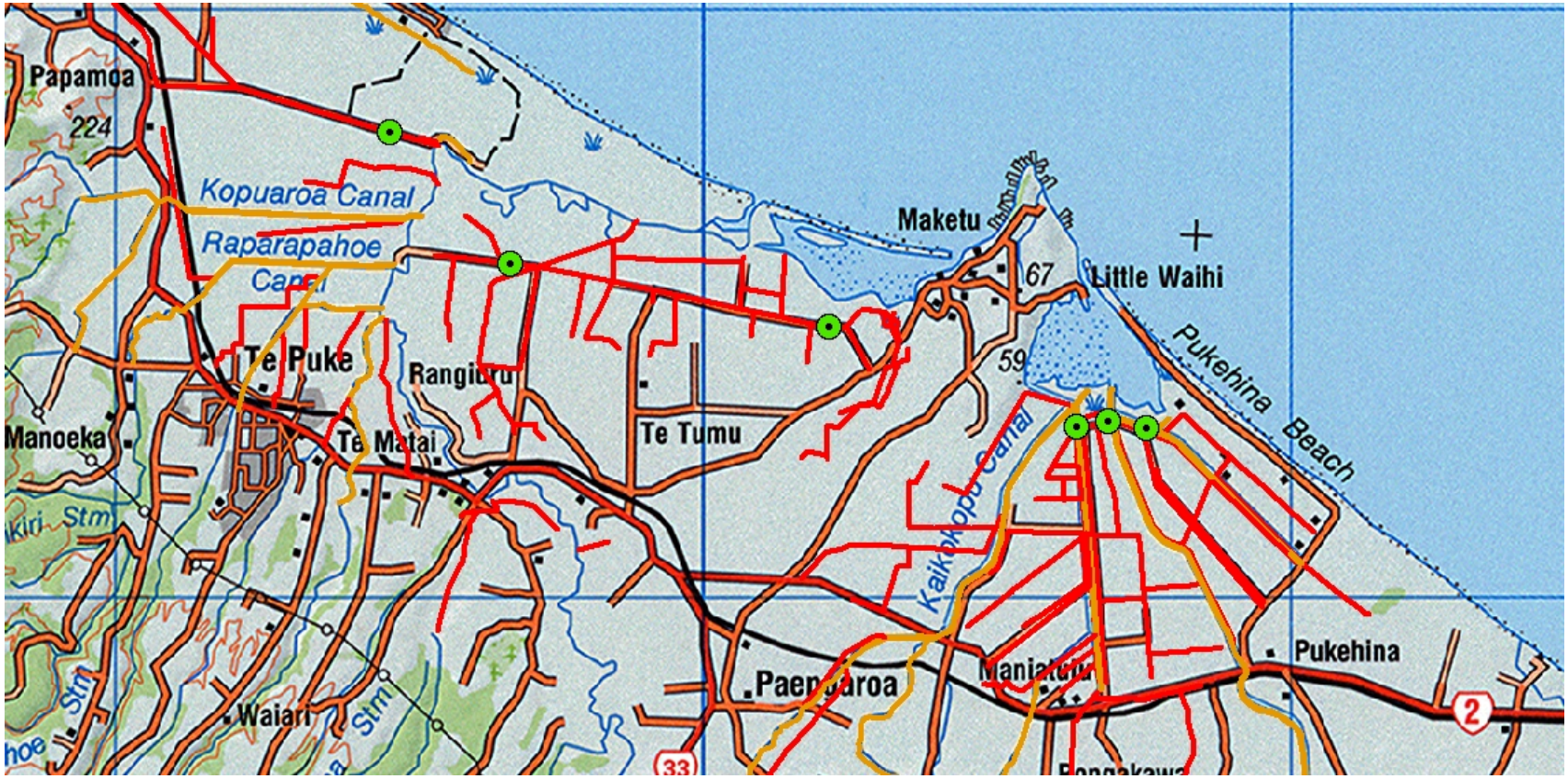
- Improve knowledge about these waterways - relevant to the NPS-FM process
- Highlight potential “hotspots” of poor WQ
- Understand effects on receiving environments
- Identify improvements in drain management

Methods

- 20 sites selected (6 Kaituna, 14 Rangitaiki)
  - Random selection based on a F&G survey
- Monthly water quality sampling
- Invertebrate and fish surveys
  - (contemporary and historic)
- Allocate sites to their water quality classification
  - Modified waterways with Ecosystem Values (MEV)
  - Drain Water Quality (DWQ)

Monitoring sites

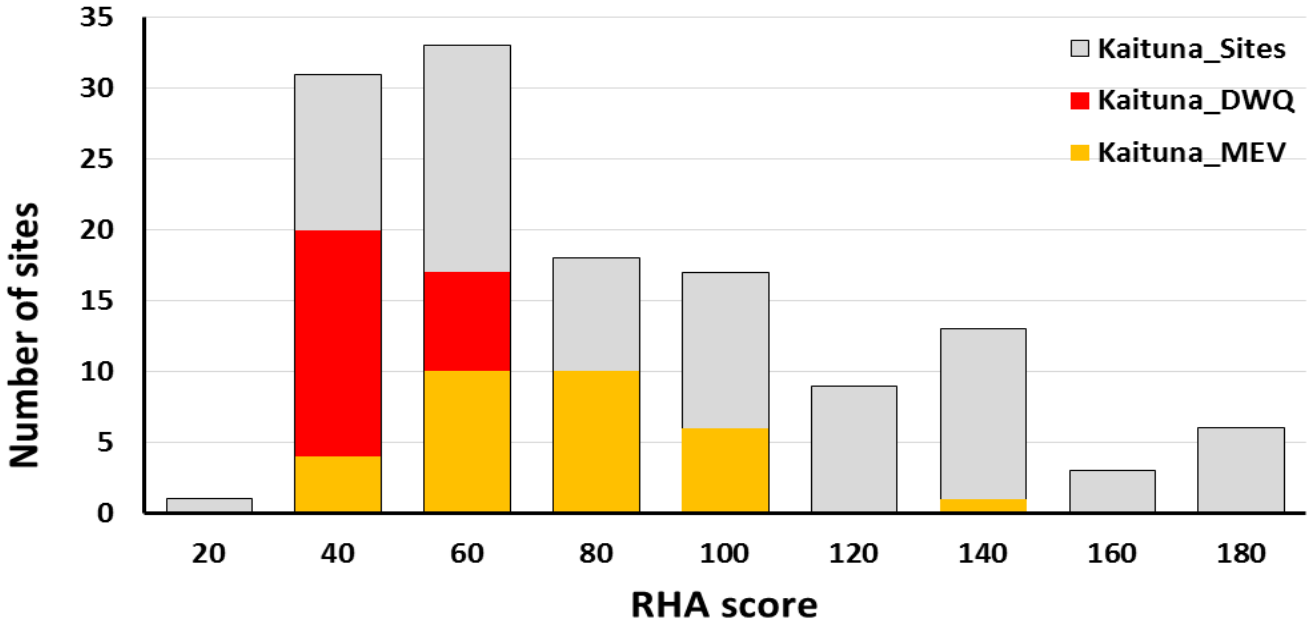
- 6 sites in Kaituna/Maketu and Waihī estuary catchments



2. Habitat condition

Habitat assessed using Rapid Habitat Assessment (RHA)

Assessments of shade, banks (stability, plants), morphology (shape, flow), sediment instream habitat

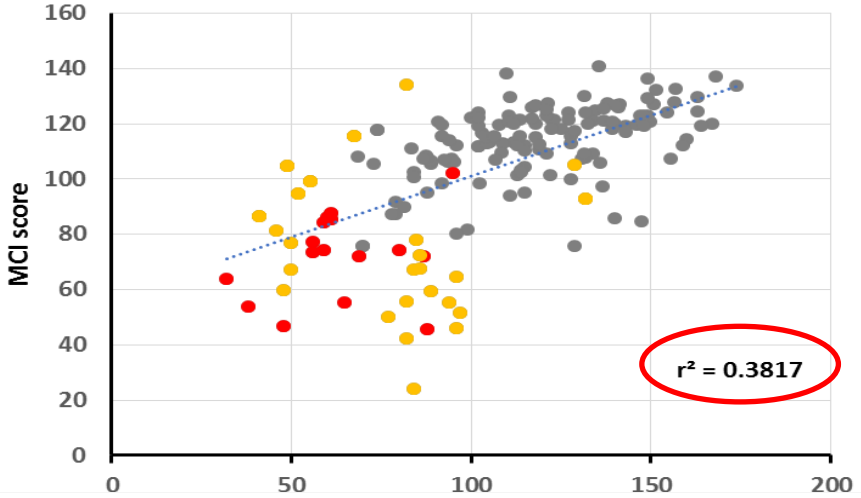


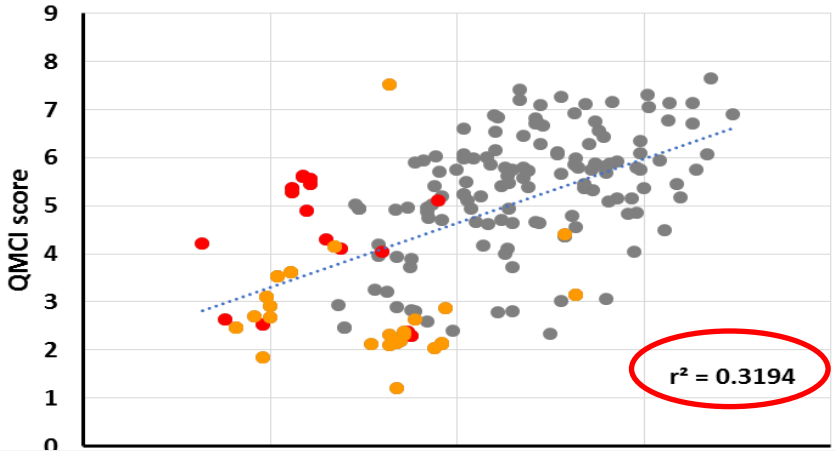
Data from the whole WMA

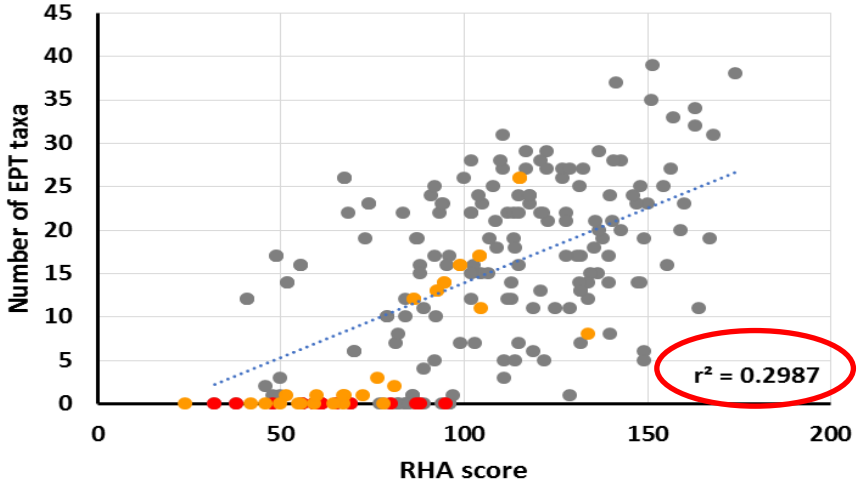
DWQ had the lowest RHA scores, followed by MEV streams

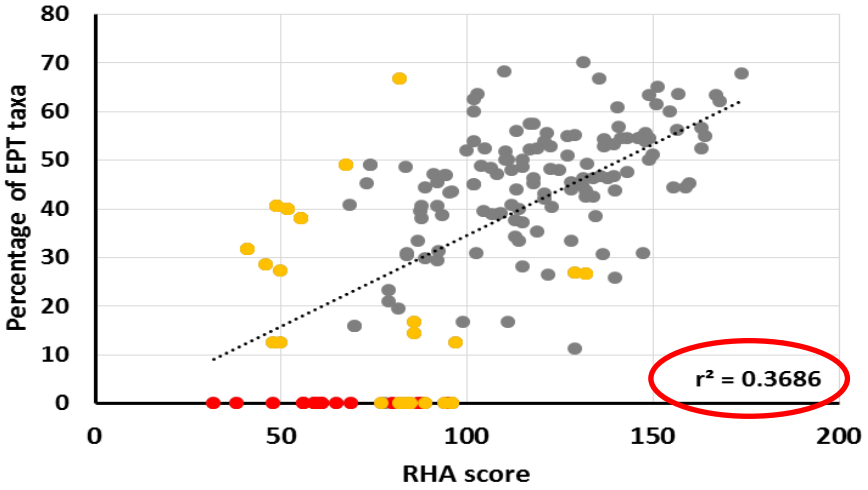
Poor invertebrate and fish habitat

May exacerbate poor WQ conditions







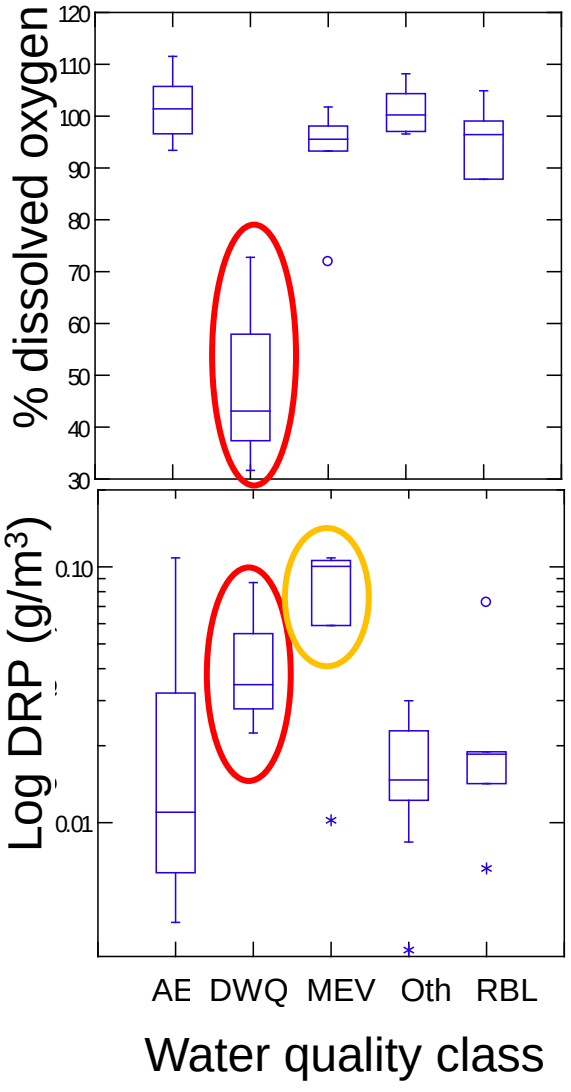


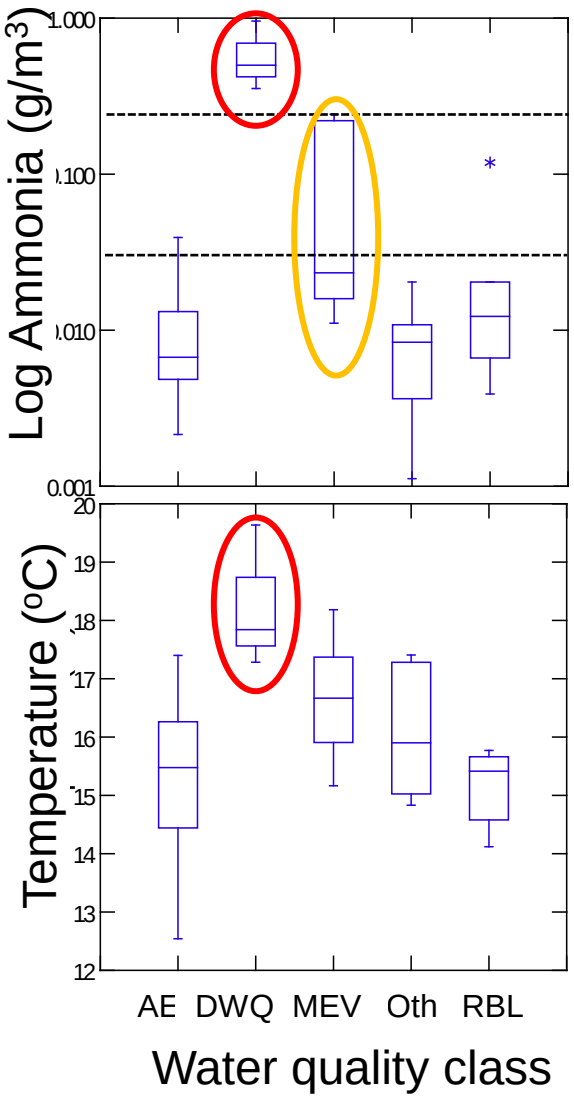
Strong relationships between habitat and ecological health

3. Water quality

Data from 6 drains (monthly for 17 months)

- Compared to data from other waterways
- Assessed against NPS criteria
- Calculated catchment loads (using modelled flow data)



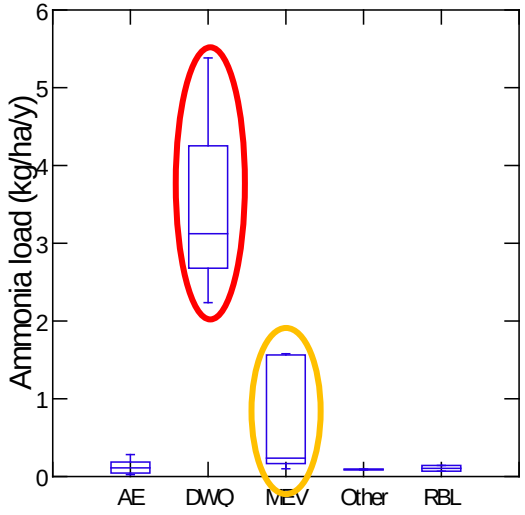


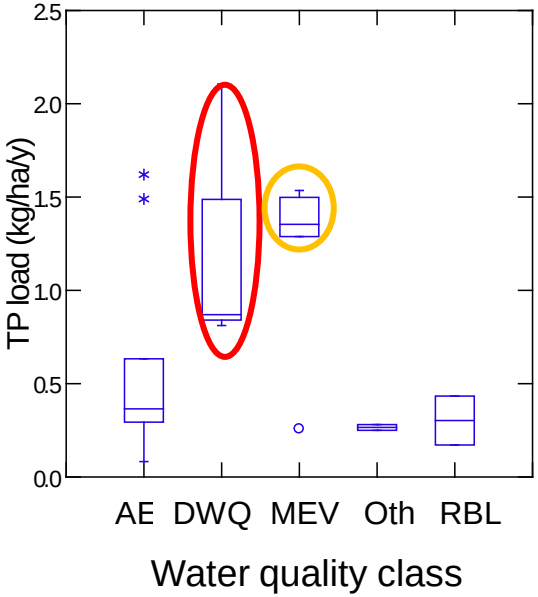
DWQ and MEV had poor WQ

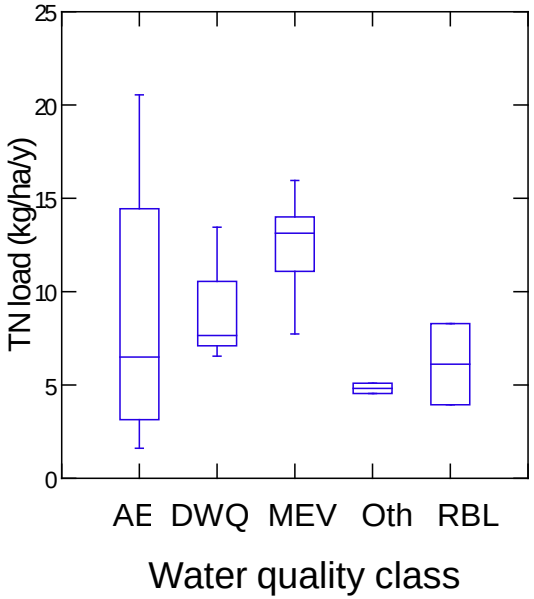
- Low DO (esp DWQ)
- High Ammonia (esp DWQ)
- High DRP (MEV > DWQ)
- Warm temperatures

Reflects poor habitat and intimate links to land

Catchment loads







High catchment loads for many parameters

- especially ammonia and TP

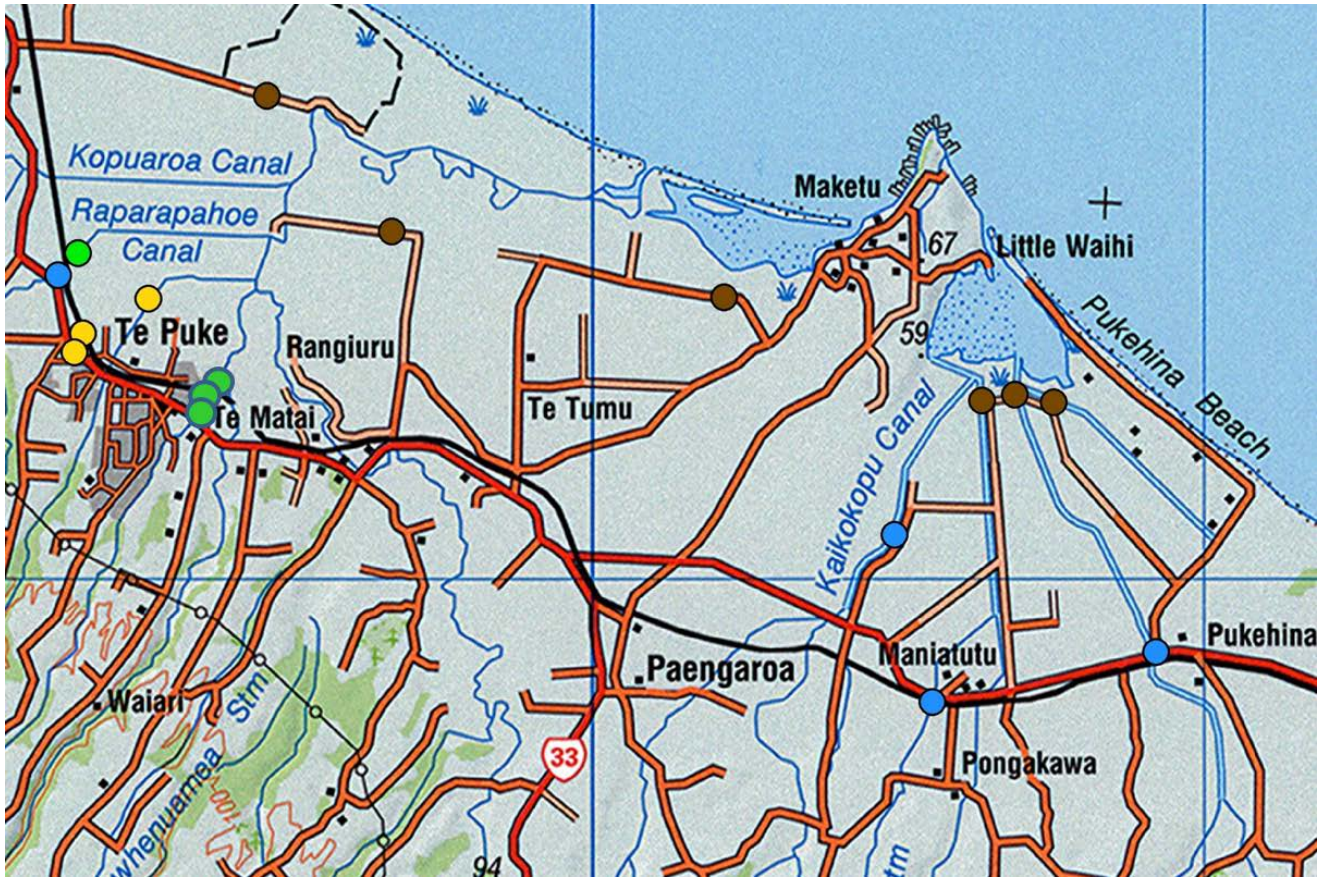
Despite the small size of drains

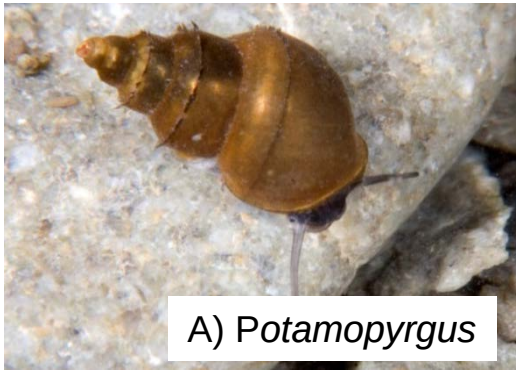
- reflects intimate contact with land

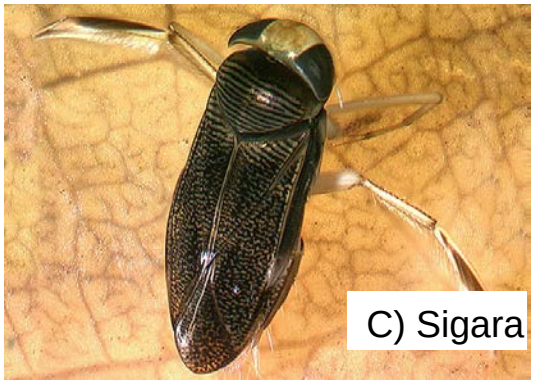
Invertebrate communities

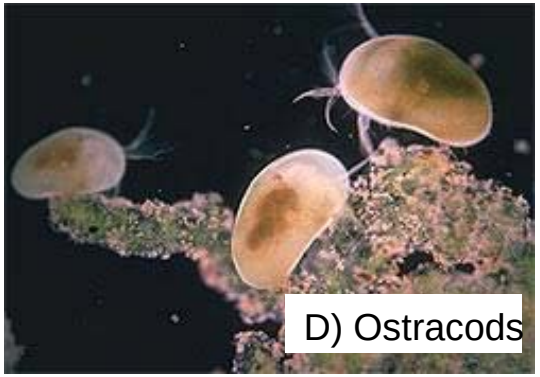
Data source:

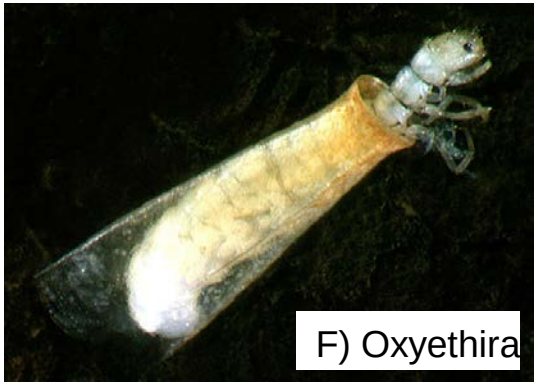
- One-off samples
- Other samples collected from agricultural and urban areas



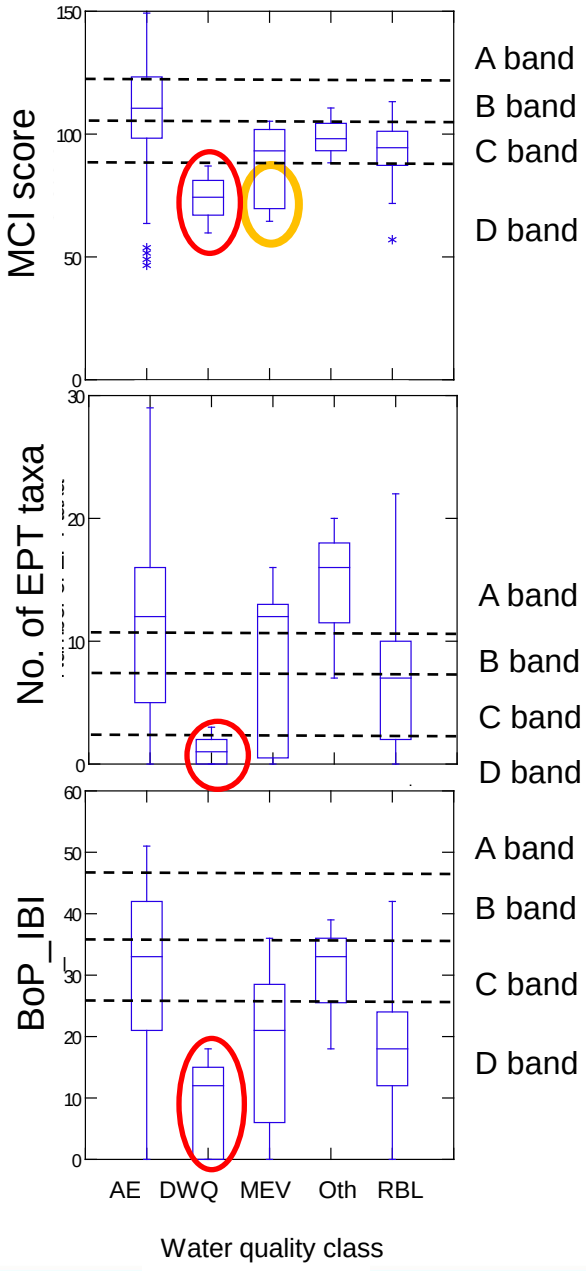








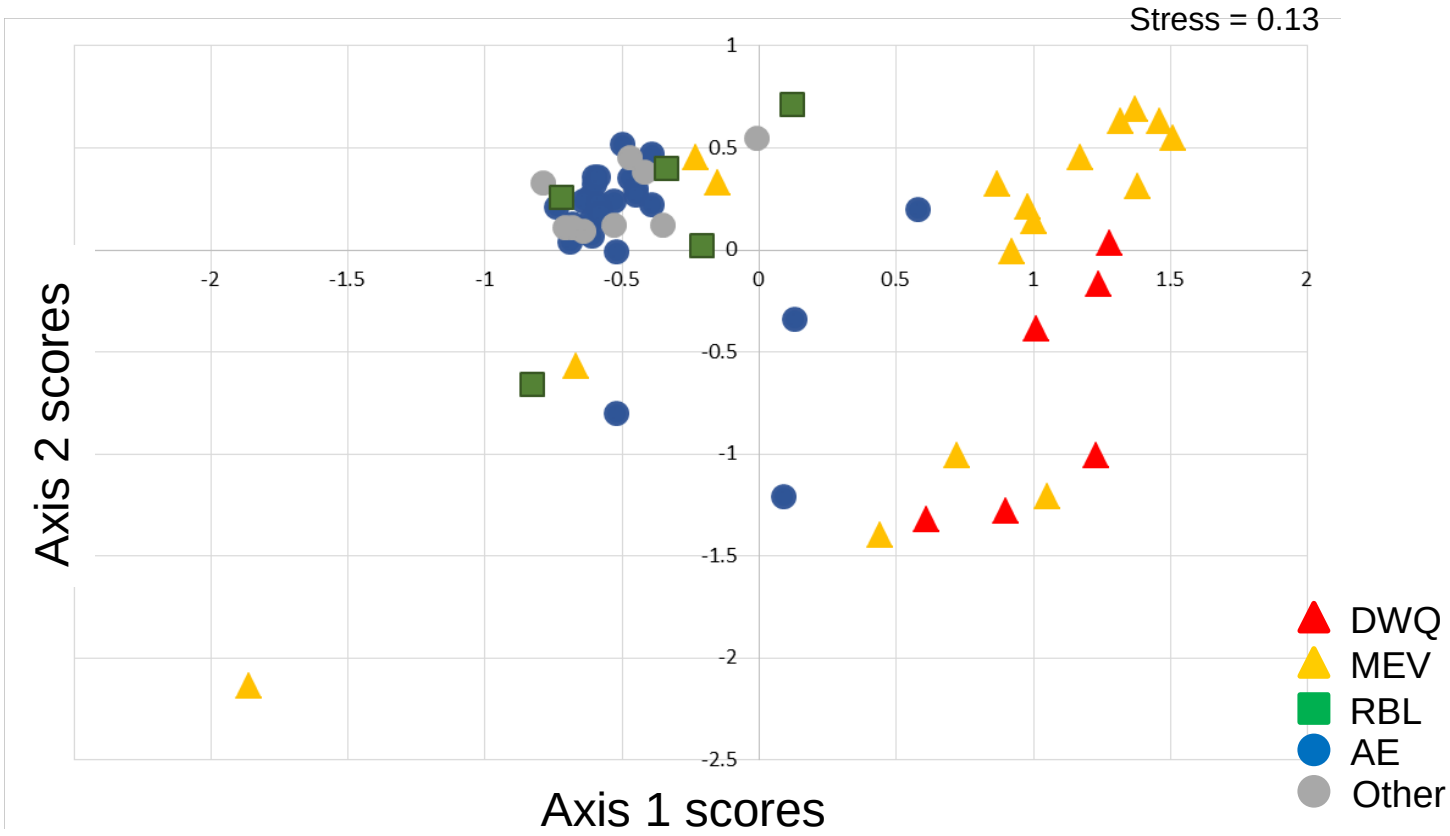
Invertebrate assemblage indicative of low ecological health



Comparisons

- DWQ indices were always lower than other waterway types
- MCI scores for some MEV sites < 80
  - requires investigative response from BOPRC

Community composition

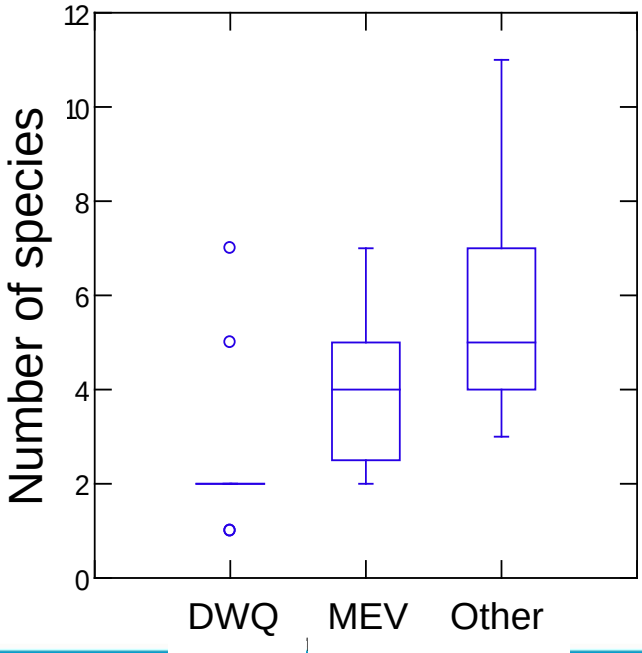


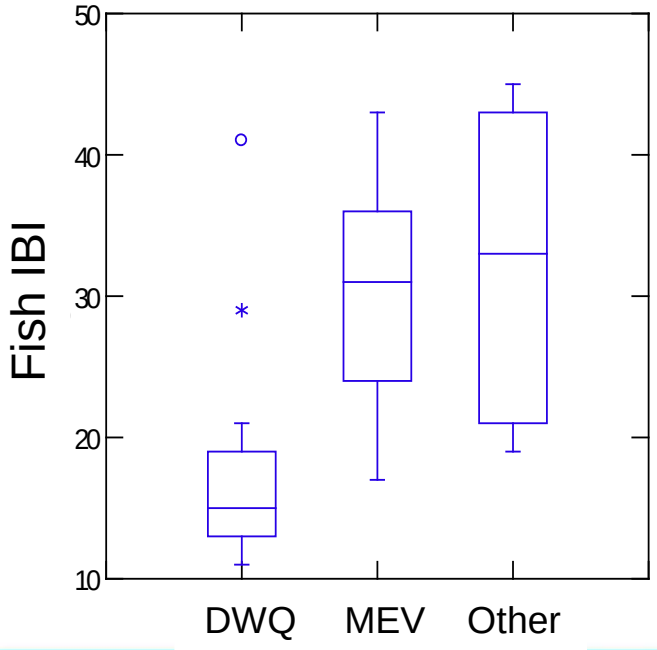
Invertebrate communities differed between water quality classes

- especially DWQ and MEV
- linked to high ammonia-N concentrations

Fish

- Surveys not done due (Cyclone Debbie and Cook)
- Data sourced from NZFFD
  - 18 fish species recorded
  - shortfin eels, inanga, and mosquito fish, found at > 50% of sites
  - species richness and Fish IBI: Lowest in DWQ





Pump stations

- may have substantial detrimental effects on migrating eels
- need to minimise eel mortality
- use of screens and traps

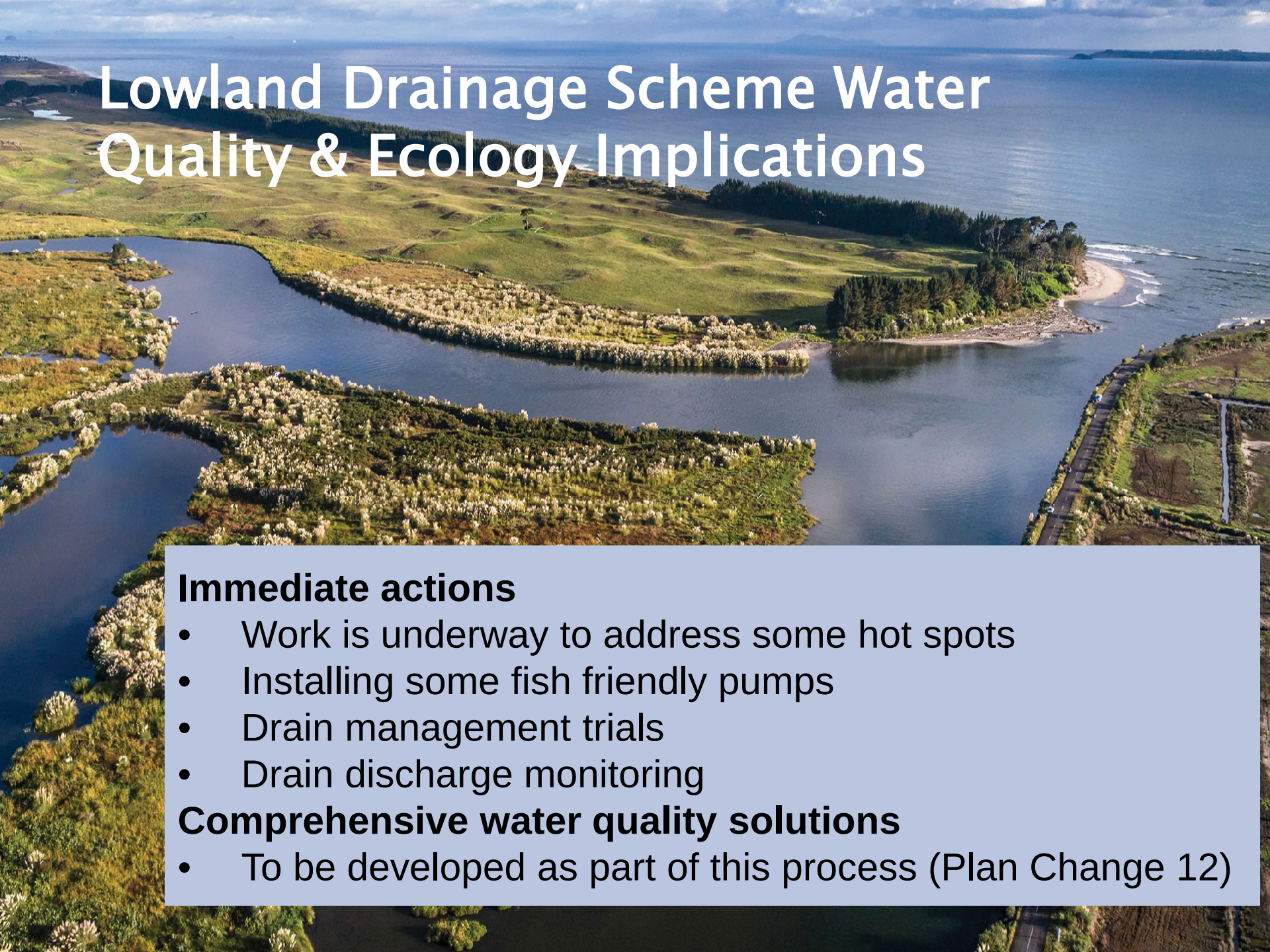
Summary

- Poor habitat at all sites, reflecting heavily modified channels, lack of bank vegetation and shade
- Poor water quality - high nutrients (ammonia in particular), high turbidity, low DO levels
- Low macroinvertebrate (MCI) scores - poor ecological conditions
  - Linked to high ammonia

Summary continued

- Some MEV sites meet national bottom lines for ammonia or trigger action levels for MCI
- Relatively diverse fish fauna (18 species)
  - Lowland and coastal sites
- Low richness and Fish_IBI in DWQ and MEV
- Eel mortality at pump stations
- Drainage focus to protect from flooding has adversely affected other values

Lowland Drainage Scheme Water Quality & Ecology Implications



Immediate actions

- Work is underway to address some hot spots
- Installing some fish friendly pumps
- Drain management trials
- Drain discharge monitoring

Comprehensive water quality solutions

- To be developed as part of this process (Plan Change 12)

Lowland modified watercourses

You have said (in summary) …

- Water quality will be suitable for swimming, customary and ceremonial activities
- Ecosystem health and habitat for indigenous species will be improved
- Natural character will be improved
- Enable navigation/tauranga waka that does not impact river banks

Lowland modified watercourses

National requirements …

In modified natural watercourses:

- Action plan to improve MCI where it is <80
- Reduce ammonia levels to at least C band for toxicity

Also needed …

- Reduce ammonia levels (working draft objective is B band)
- Reduce temperature
- Reduce *E.coli*
- Reduce turbidity
- Improve habitat and fish passage

Lowlands

Policy options

- Develop and implement action plans to improve ecological health (habitat restoration etc)
- Control loss of contaminants from land
- Control drain management
- Stronger controls on drain and other discharges

To explore …

- Sources and causes
  - Areas, land uses, point sources, hotspots
- Methods to achieve change
  - What? How?
  - Do we know they will work?
  - Costs?
  - Social, economic and cultural implications

Activity

- Do you agree we need to focus on lowland drain management, land management, and pump station discharge management?
- What options are there to improve the water quality and ecology of lowland water bodies, and the water quality of drain discharges? What are the pros, cons and challenges?
- What further information do we need to inform this?

Check in

Level of comfort with where this is heading?

Fist of 5

0 - Not at all

1 - Slightly

2 - Possibly

3 - Likely

4 - Highly likely

5 – Certainly comfortable

5. Waitahanui

We will ….

- Recap:
  - Values and preferred state
  - Water quality and ecology
- Discuss issues
- Discuss policy options

Values

- Ecological health
- Contact recreation –swimming
- Mahinga Kai – access, fish passage, habitat, water quality, connectivity, flows
- Swimming/recreation
- Natural character
- Mauri, Wahi tapu, sites of cultural and spiritual significance

What you have said:

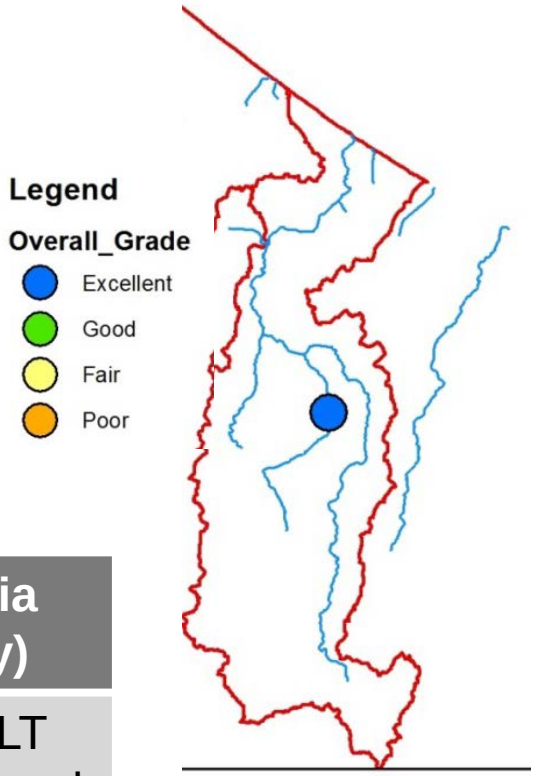
1. The water quality will be suitable for swimming.

2. Water quality and quantity will protect and enhance ecosystem health, species diversity, significant indigenous species, valued species, and mahinga kai that is safe to eat.

3. Water level and quality are managed to enable navigation/tauranga waka of the channel.

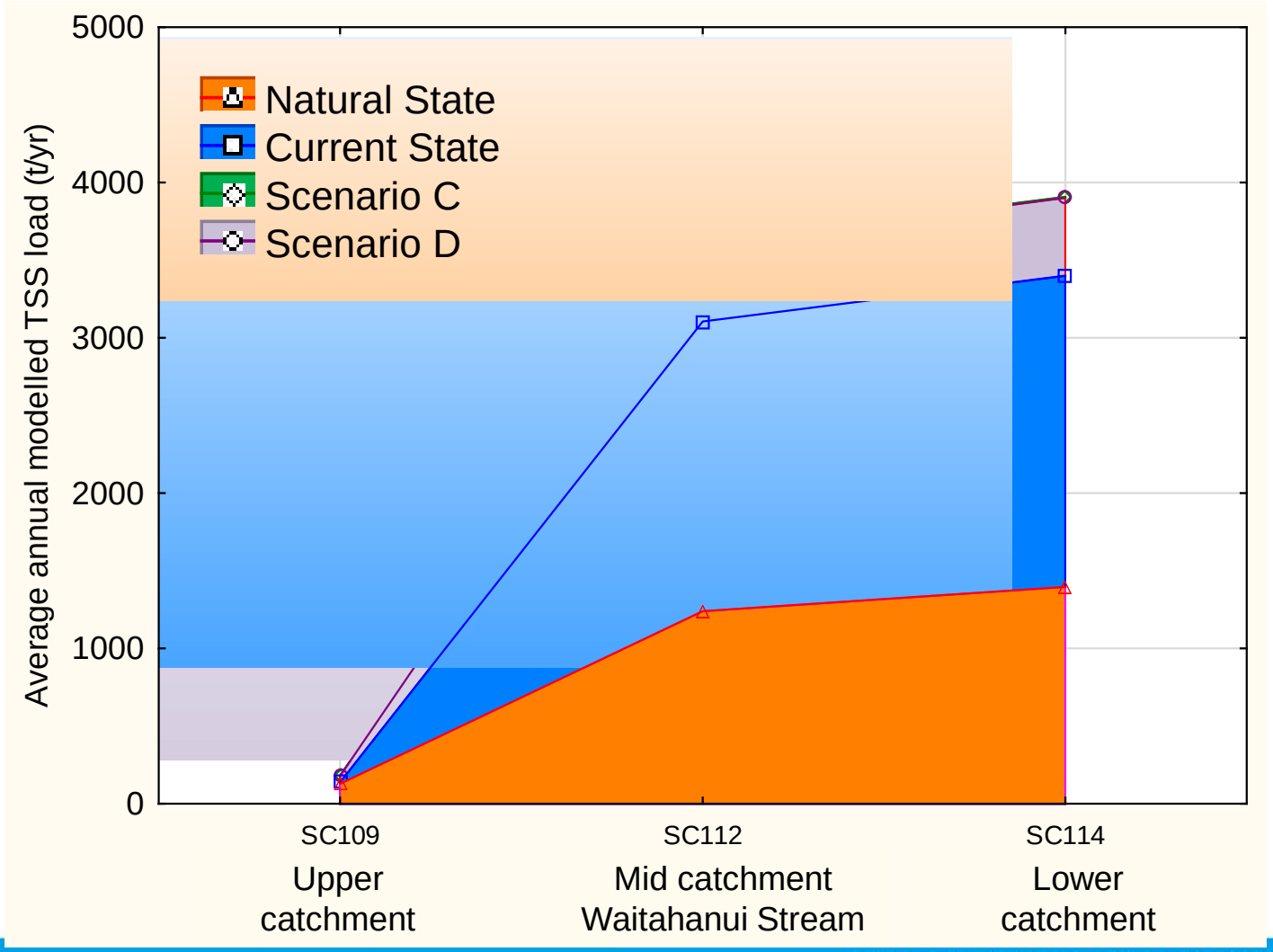
Water quality and ecology

Site	*E. coli*	
Kaituna Pongakawa Waitahanui WMA	State	* LT Trend
Waitahanui	**C**	☞



Site	Nitrate (toxicity)		Ammonia (toxicity)	
Kaituna Pongakawa Waitahanui WMA	State 2017	LT Trend	State 2017	LT Trend
Waitahanui	**A**	👎	**A**	☞

Average annual TSS load



Issues

- High *E. Coli* in lower reaches
- Worsening nitrate trend
  - Toxicity A band
  - Periphyton – no problem indicated
- Sediment loads high

Options

"Hold the line" and improve

1. Farm environment plan
   - good practice and standards
2. Benchmarking?
   - estimating losses from the land
3. Set practice performance range? Cap at benchmarked amount?
4. Control change to more intensive land use?
   - resource consent and mitigation requirement

Activity

- Do you agree with the focus issues for Waitahanui?
- Do you agree with the policy direction considerations?
- What outstanding concerns and questions do you have?

Check in

Level of comfort with where this is heading?

Fist of 5

0 - Not at all

1 - Slightly

2 - Possibly

3 - Likely

4 - Highly likely

5 – Certainly comfortable

7. Summary and Next Steps

Summary

Key areas of agreement

Notable points of disagreement

Actions

Any burning questions still unanswered?

Next steps

- Next workshop – May
  - sources and causes
  - good practice modelling scenario … what will they achieve?
- Information for the public
  - estuary and lowland issues
  - early policy options
  - community group members invited to use and discuss