Freshwater Futures Community Group *Kaituna*

Workshop 5

BAY OF PLENTY REGIONAL COUNCIL TOI MOANA

Welcome

Tiaki pumautia te wai e hoki mai ai ngā rawa ki a tātau katoa

Treat the water wisely and it will return to us

Housekeeping

- Fire protocol
- Toilets
- Meals
- Recording process/Sharing notes
- Make yourself at home

Agenda

- Welcome
- Updates
- Towards objectives: Desired in-river state
- Freshwater quality and quantity issues
- Towards objectives: Use values
- Modelling/scenario development
- Next steps – scenarios and management options

am tea

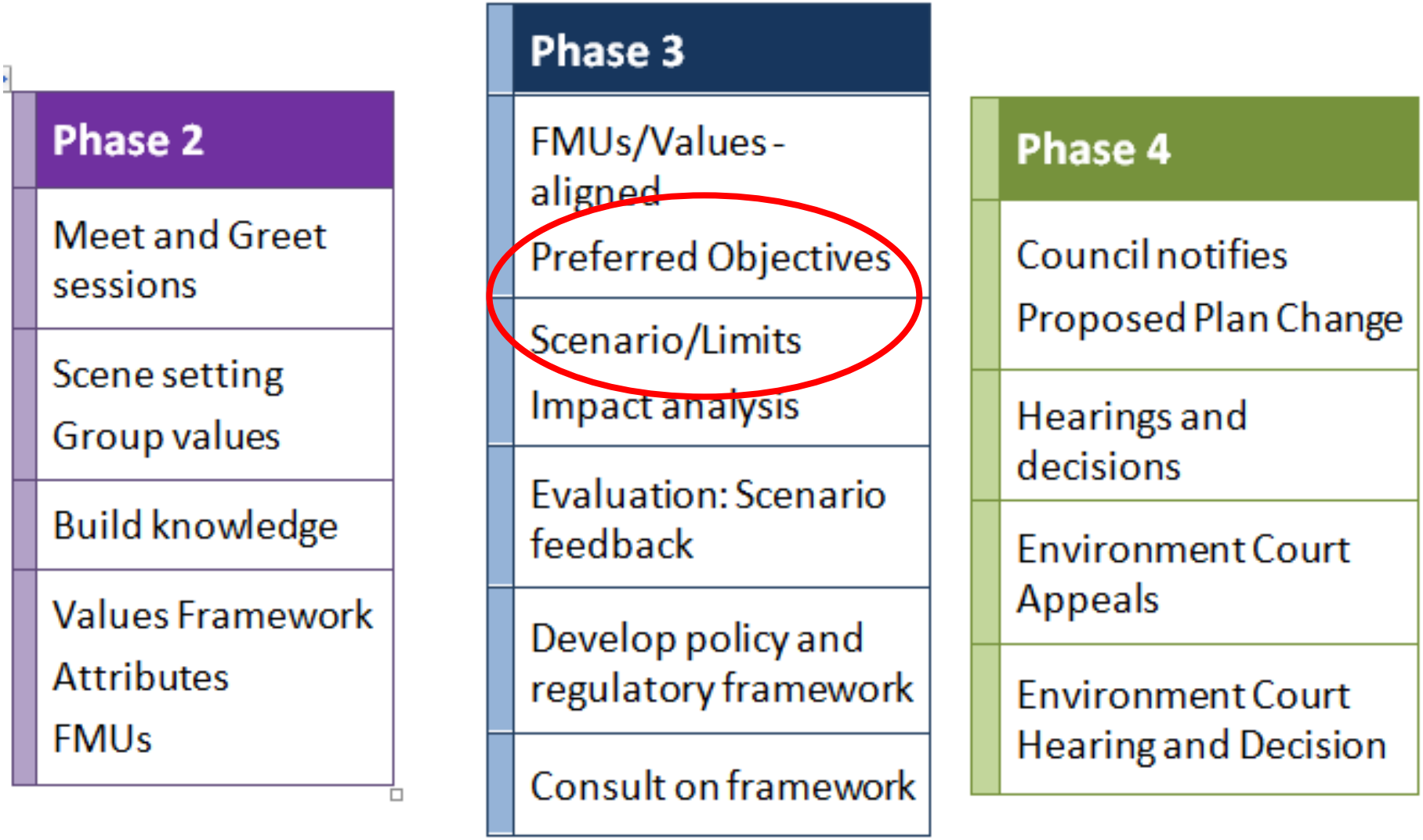
lunch

Purpose of this group

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

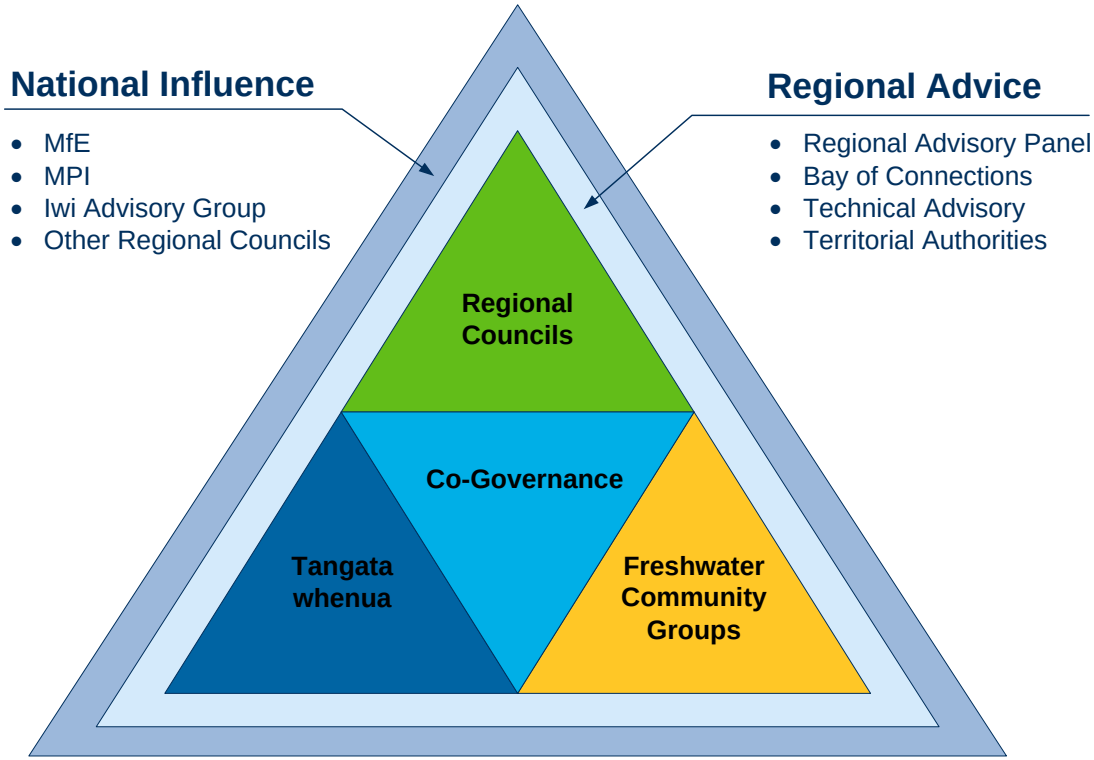
- confirm values, express preferred objectives
- provide feedback on limits for freshwater quality and quantity within this Water Management Area
- provide input to solutions for managing activities to meet those limits
- advise Council in their decision-making for Plan Change 12

Work Programme



Council direction

- Extended Phase 3 by 12 months to June 2018
- Approved approach to objective setting
- Confirmed engagement approach



- outreach to iwi
- meeting with key organisations
- engagement and publicity with affected public prior to draft plan

Outcomes sought today

- Towards setting objectives
  - Approve desired in river state statements
  - Understand use values in more depth
  - Agree on key freshwater quality and quantity issues and risks
- Understand how the catchment model will support our work
- Group provides input for developing scenarios, management options and assessment

Updates:

- On the ground
- National
- Regional

Post cyclones update

National freshwater management updates

Resource Management Act changes:

(Resource Legislation Amendment Act 2017)

- Iwi participation agreements/Mana whakahono a rohe
- Provision for stock exclusion regulations
- Provision for use of models (e.g. OVERSEER) in Plans
- Collaborative planning process
- Changes to planning and consenting processes

***Clean Water* consultation**:

- Suitability for swimming targets
- Proposed NPSFM changes
- Proposed stock exclusion regulations
- $100m Freshwater Improvement Fund

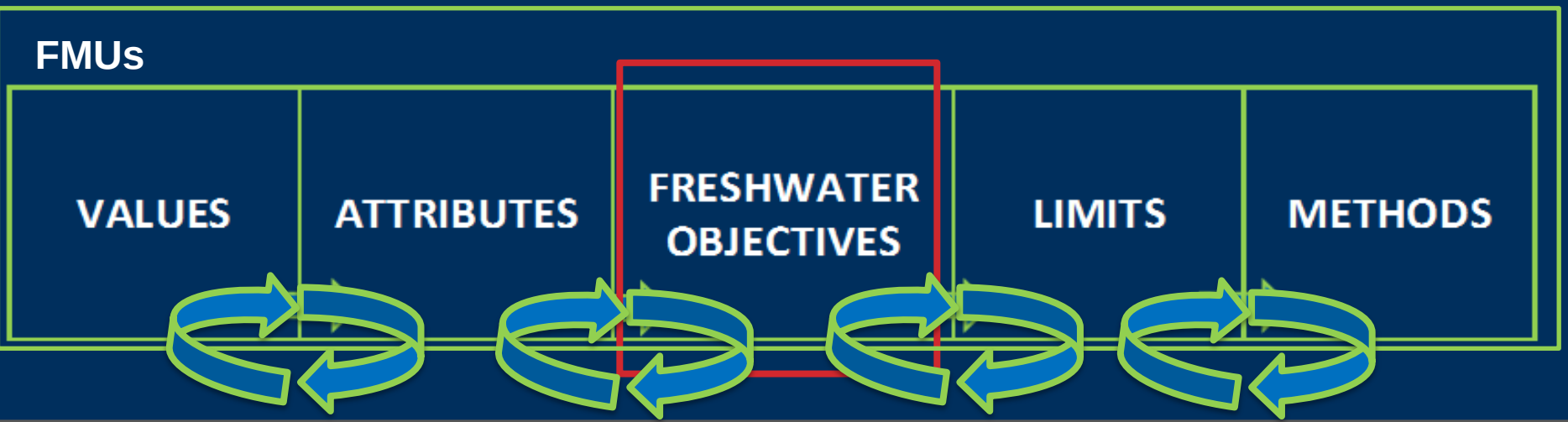
Regional freshwater management updates

- Proposed change to the Regional Policy Statement (Change 3: Rangitāiki)
  - to recognise and provide for Te Ara Whanui: Pathways of the Rangitāiki River Document
- Region-wide water quantity
  - Proposed change to the Regional Water and Land Plan (PC9)
- Lake Rotorua nutrient management
  - Proposed change to the RWLP (PC10)

Kaituna, te taonga tuku iho – *a treasure gifted to us*

- Publically notified 27 May 2017

Recap ……


FMUs
VALUES
ATTRIBUTES
FRESHWATER OBJECTIVES
LIMITS
METHODS

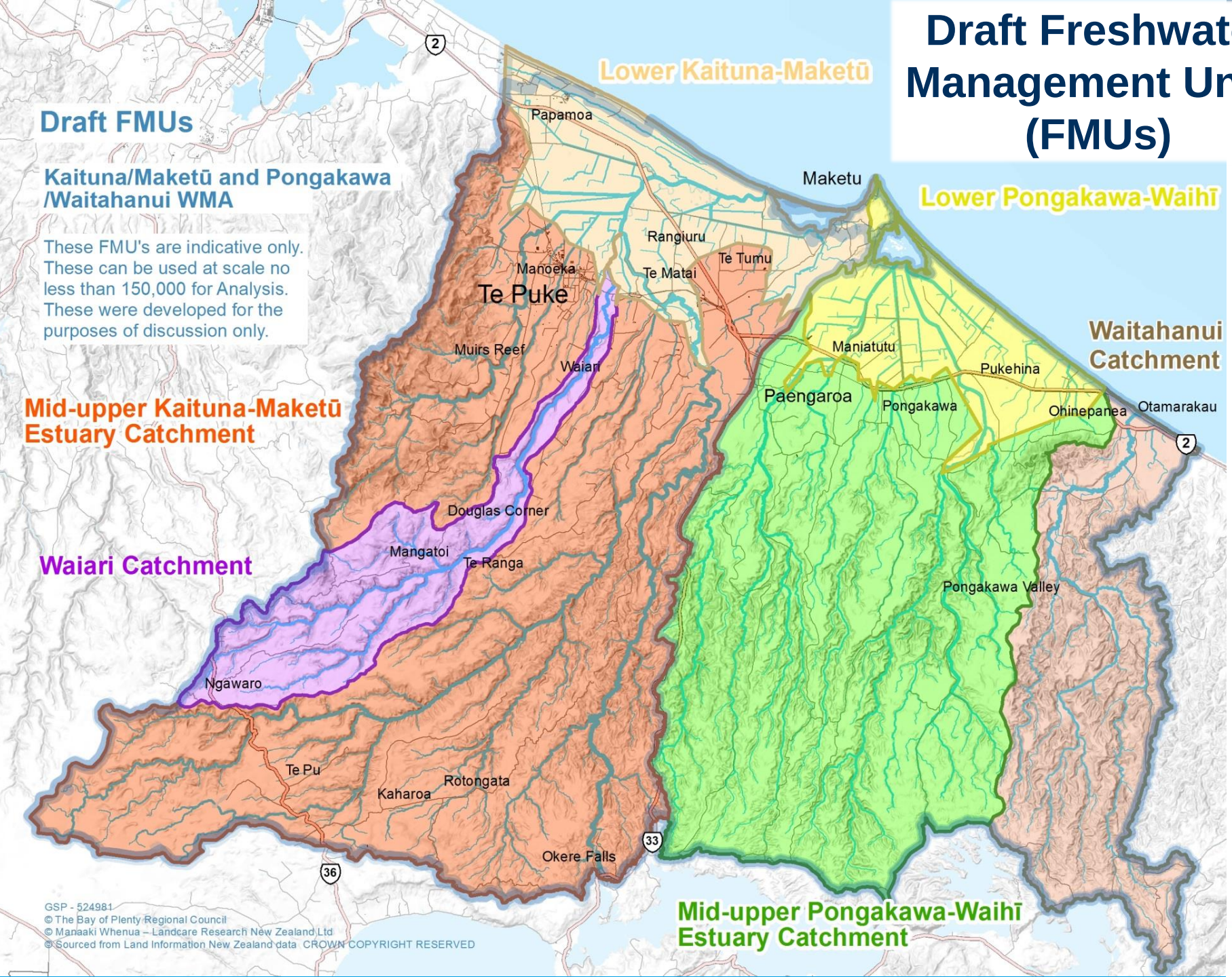
Freshwater values and uses

Freshwater values
Ecosystem health
Significant indigenous species
Swimming, white-water, water skiing/ primary contact
Wading, boating/secondary contact
Mahinga Kai
Fishing (+ game birds)
Natural form and character
Wai tapu
Site of cultural significance
Transport and tauranga waka
Rawa tuturu
Kaitiaki Relationships

Freshwater values and uses cont'd…

Freshwater Values
Irrigation and cultivation
Animal drinking water
Municipal and domestic water supply
Treated wastewater discharge
Urban stormwater discharge
Commercial and industrial use
Hydro-electric power generation
Flood control
Influence on other fresh waterbody
Influence on geothermal

Draft Freshwater Management Units (FMUs)



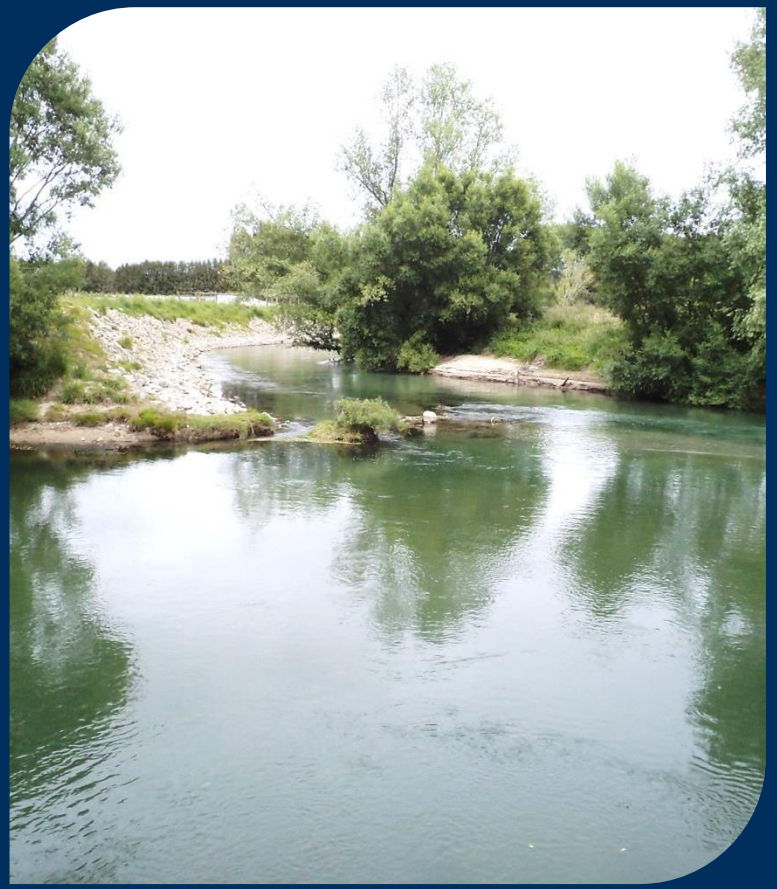
Freshwater state

- Maketū estuary in poor ecological health - affected by freshwater inputs
- Nutrient levels unlikely to be affecting even sensitive species directly (according to NPSFM toxicity attributes).
- Invertebrate monitoring: excellent under forest, good to fair in pasture
- National minimum acceptable state for swimming (primary contact) met at monitored sites

Freshwater state

- Increasing nitrate trend in catchment - worst in lower catchment
- Increasing phosphorous trend in soil
- Limited extent of remaining natural lakes and wetlands
- Some surface water sub-catchments and lower Kaituna groundwater over-allocated under interim limits
- Groundwater quality - limited state and trend data

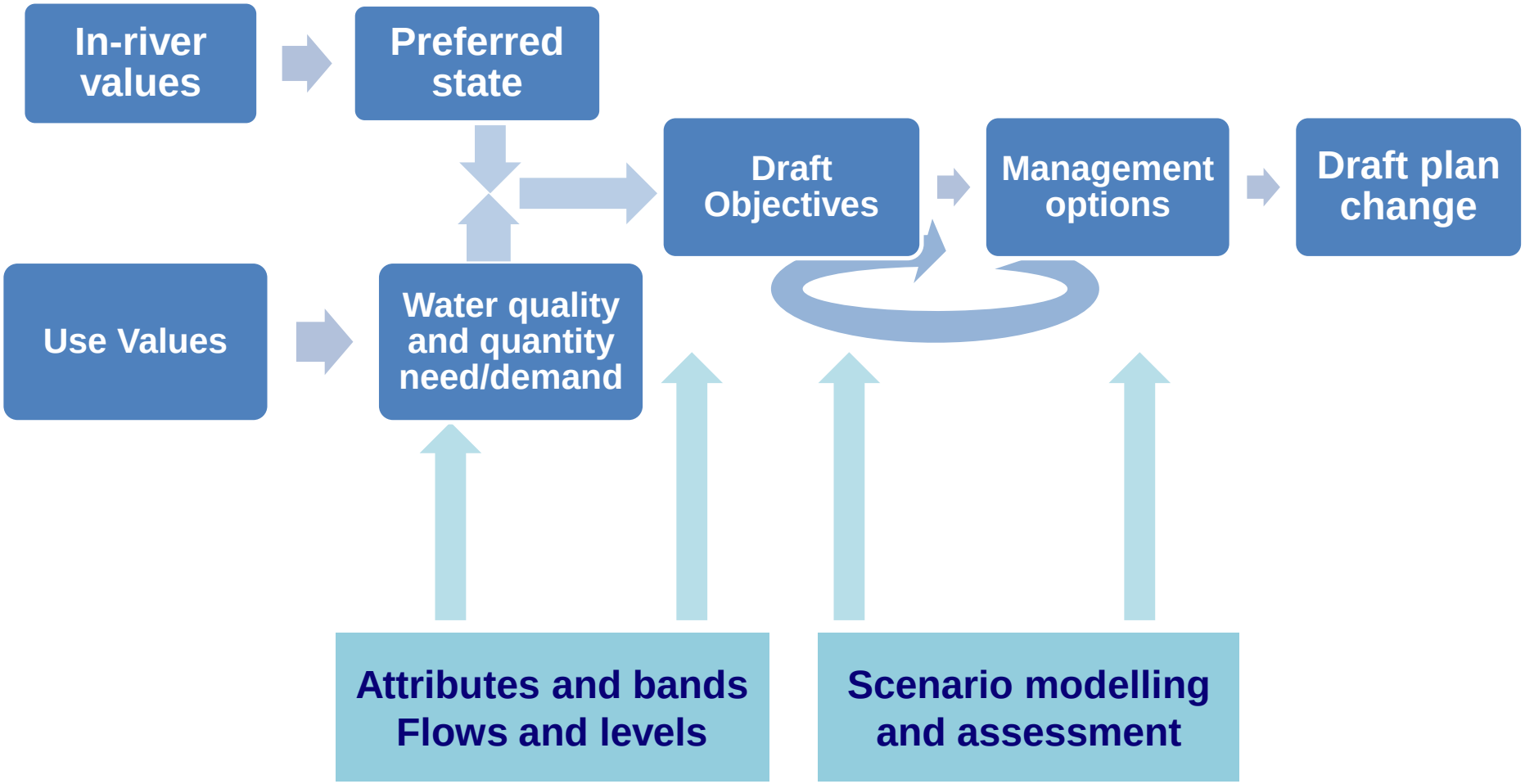
Towards Freshwater Objectives – *desired in-river state*



Freshwater objectives

- Describe the environmental state required for freshwater values to be appropriately provided for.
- Must be numeric based on attributes where practicable, but can also include narrative.
- Set at an FMU scale.

Objective setting process



Desired in-river state

In-river values → **Desired in-river state**

Te Hauora o te Wai - Ecosystem Health
Significant indigenous species

Te Hauora o te Tangata
Human health for recreation

Mahinga kai
Mahinga–kai are safe to harvest and eat
Fishing

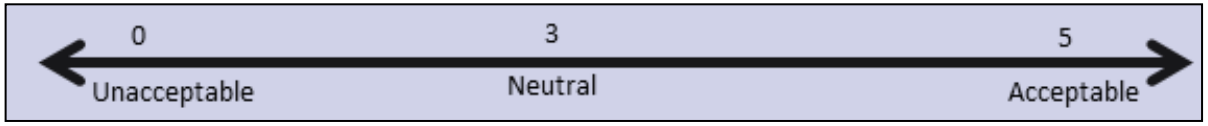
Wai tapu
Sites of cultural significance

He ara haere / navigation
Transport and tauranga waka

Te Hauora o te Taiao
Natural Form and Character

Coastal receiving environments

Workshop 4: In-river values

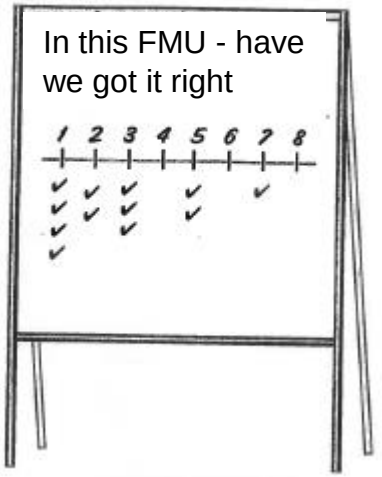


We asked….

1. Is the value at an acceptable level? *(answered on continuum)*
2. How would you expect it to be? *(where/why/by when)*

We have interpreted……

Have we got it right?



In your briefing notes: FMU BY FMU

- Discuss with neighbour - each bullet point
- Have we captured the essence of your input?
- If any issues:
  - **highlight on your sheet**
  - **make note of change/s**
- Gradients of Agreement check-in

Have we got it right?

1= whole hearted support

2= agreement with minor point of contention

3= support with reservations

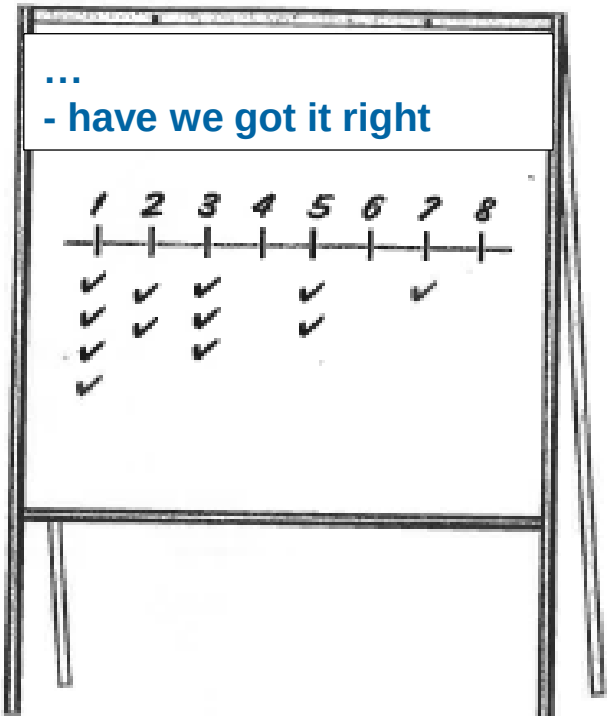
4= abstain

5= more discussion needed

6= don’t like but will support

7= serious disagreement

8= veto



Waiari catchment (not prioritised)

1. The water will continue to provide for ecosystem health in the upper and mid reach of Waiari, with no deterioration below the wastewater discharge.
2. The water will continue to provide for mahinga kai including tuna (eels), black mussels and watercress that are safe to eat. The water quality and flow will continue to provide a sanctuary for long finned eel and giant kōkopu in Waiari.

Have we got it right?

Waiari catchment cont'd

3. The water will continue to be suitable for swimming above the Te Puke highway bridge (except during winter) without getting sick or being affected by the wastewater discharge nearby

4. The Waiari has a very strong cultural significance for tangata whenua. The stream water will preferably be free from effluent, and continue to provide for customary swimming and ceremonies (baptisms, cleansing).

Have we got it right?

Waiari catchment

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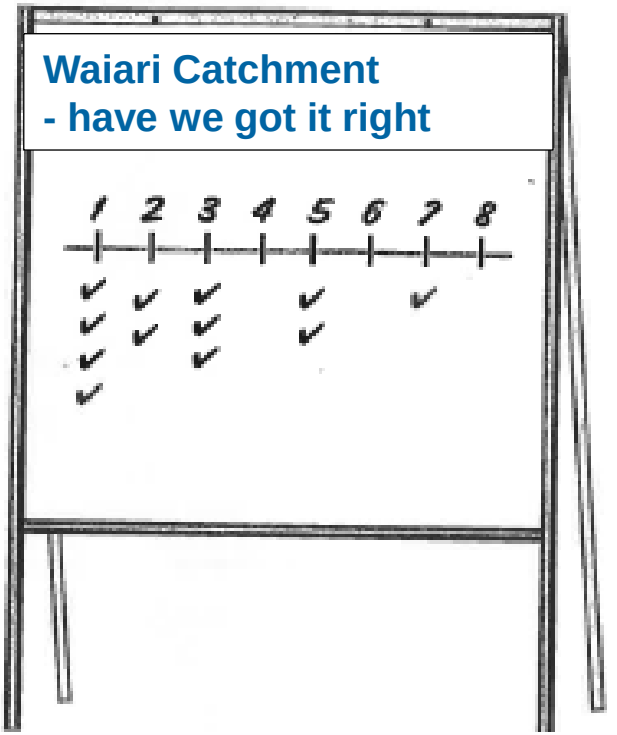

Middle-upper Kaituna

1. The water will provide for ecosystem health in the Middle-upper Kaituna, with suitable shade, temperature, stable river bank and neutral or improving trends for periphyton, nitrogen, phosphorus.

2. The water will continue to provide suitable conditions for fish, tuna (eels), kōura (freshwater crayfish), kākahi (freshwater mussels) and giant kokopu, other indigenous species and watercress and halting the declining trend.

Have we got it right?

Middle-upper Kaituna cont'd

3. The water will continue to be good for swimming all year round (except after heavy rainfall) without getting sick.

4. That water will be of a suitable quality for baptism at places where these have been common practice in the past.

5. The water will continue to provide for navigation for continuing current use of tauranga waka.

Have we got it right?

Middle-upper Kaituna

1= whole hearted support

2= agreement with minor point of contention

3= support with reservations

4= abstain

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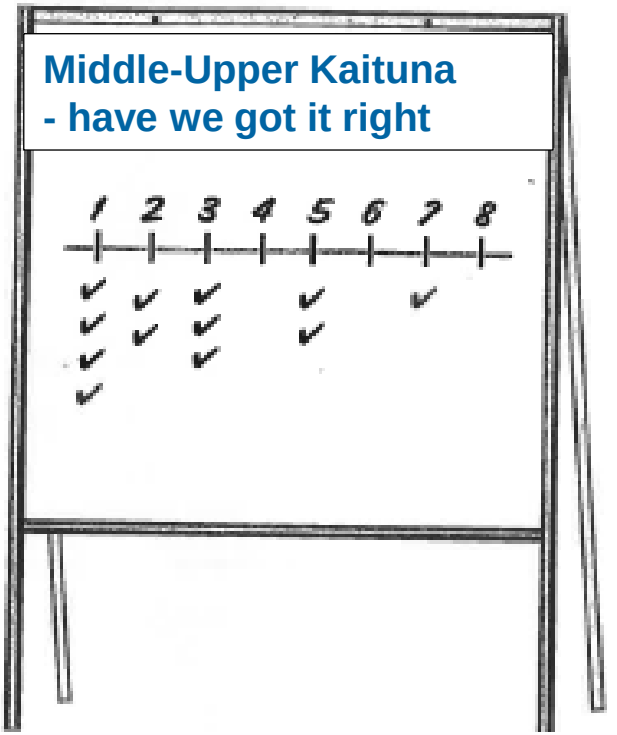
8= veto



Lower Kaituna

1. The water will provide for ecosystem health in the Lower Kaituna, with suitable temperature, shade, oxygen level and natural river bed.

2. The water will improve to suitable conditions and good habitats for important indigenous species, and kai species. That means it will continue to provide for a decent amount of watercress that is safe to eat and kai species coming from the sea; and will be able to provide for eels and īnanga and other expected mahinga kai.

Have we got it right?

Lower Kaituna cont'd

3. In the next 10 years, the water in swimming spots in the Lower Kaituna will provide for swimming all year round (except after heavy rainfall) without people getting sick.
4. The water will exhibit natural characters in the Lower Kaituna catchment.
5. The water will provide for wai tapu.
6. The water will continue to provide for navigable good transport and tauranga waka access.

Have we got it right?

Lower Kaituna

1= whole hearted support

2= agreement with minor point of contention

3= support with reservations

4= abstain

5= more discussion needed

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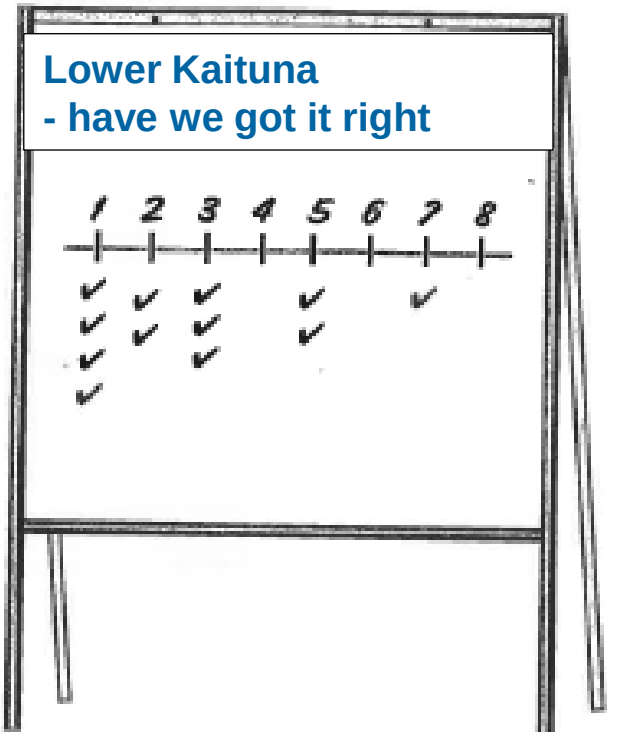
7= serious disagreement

8= veto



Maketū Estuary

1. The water will be swimmable in the upper estuary (at the mouth) as with parts of estuary with tidal flushing now.
2. The water will support estuary ecosystem health and significant indigenous species.
3. The water will support retaining and restoring tuna (eels), pipi, cockles (tuangi), flounder and inanga (whitebait) in plentiful numbers, safe to eat; to provide the very significant mahinga kai source.
4. Some aspects of the natural character of water will be restored through the re-diversion.
5. Maketū has a very strong cultural significance for iwi. Re-diversion and return of flow is culturally very important for wai tapu, cultural significance and as a customary food bowl. Note that the rock by the diving board is sacred.
6. The water flow and sediments level will maintain a navigable channel depth through the control of sediment from the water.

Maketū Estuary

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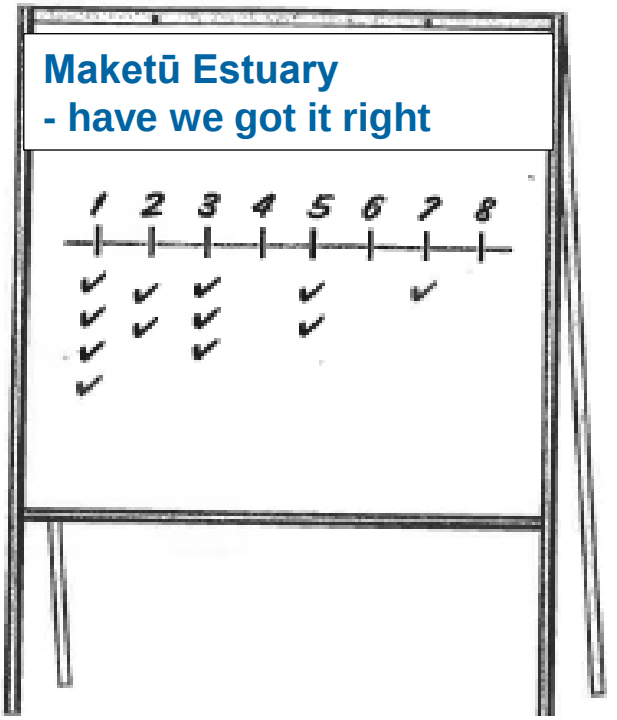


Additional attributes

- attributes are specific 'things' we can measure (e.g. E.coli, nitrate)
- process underway to recommend scientific attributes
- some preliminary attributes identified in briefing note, subject to expert review
- scientific attributes are well researched, reliable, appropriate and robust
- other attributes (e.g. social, cultural, economic) also need consideration

Preliminary recommendations for additional attributes - rivers

Attribute	Value(s) supported
pH	Ecosystem Health
Temperature	Ecosystem Health
Macrophytes - rivers	Ecosystem Health
Invertebrate communities: **MCI** **EPT** **BoP_IBI**	Ecosystem Health
Dissolved reactive phosphorus (DRP), dissolved inorganic nitrogen (DIN), total suspended sediment (TSS) also recommended, but no bands are currently developed.	

Preliminary recommendations for additional attributes - lakes

Attribute	Value(s) supported
TLI	Ecosystem Health (trophic state)
Lake SPI	Ecosystem Health (trophic state)

Morning tea

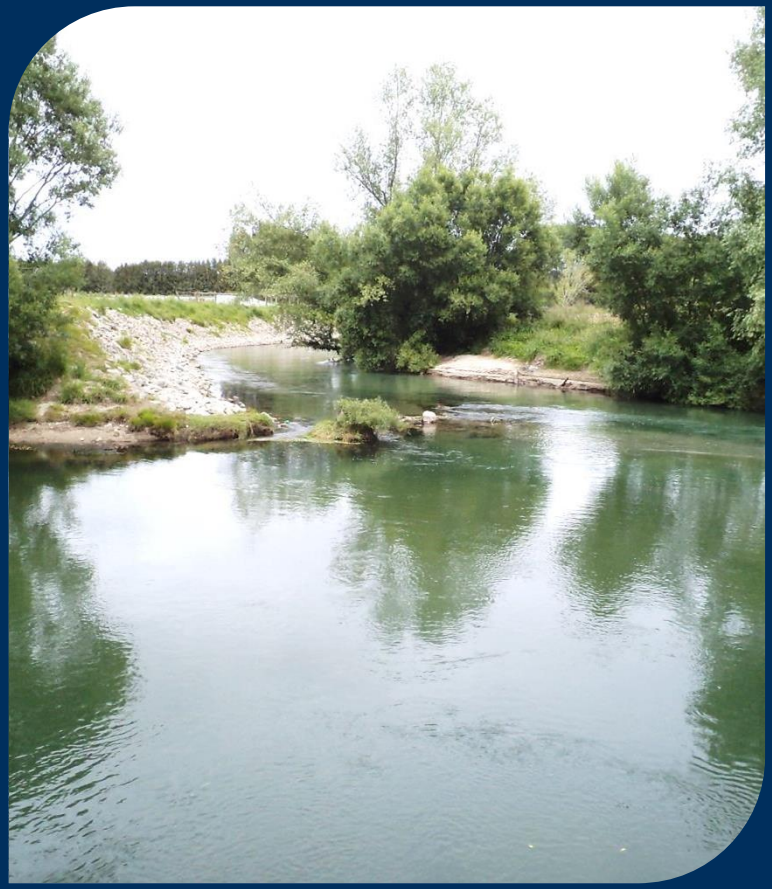
Resource Management Issues

- Ecological, social and cultural values degraded in **Maketū estuary**
- Social, cultural and ecological values impacted by water quality and waterbody modification in the lower reaches
- Increasing water demand, and some over-allocation under interim limits
- **Nitrates** increasing
- Indigenous fish impacted

Any:

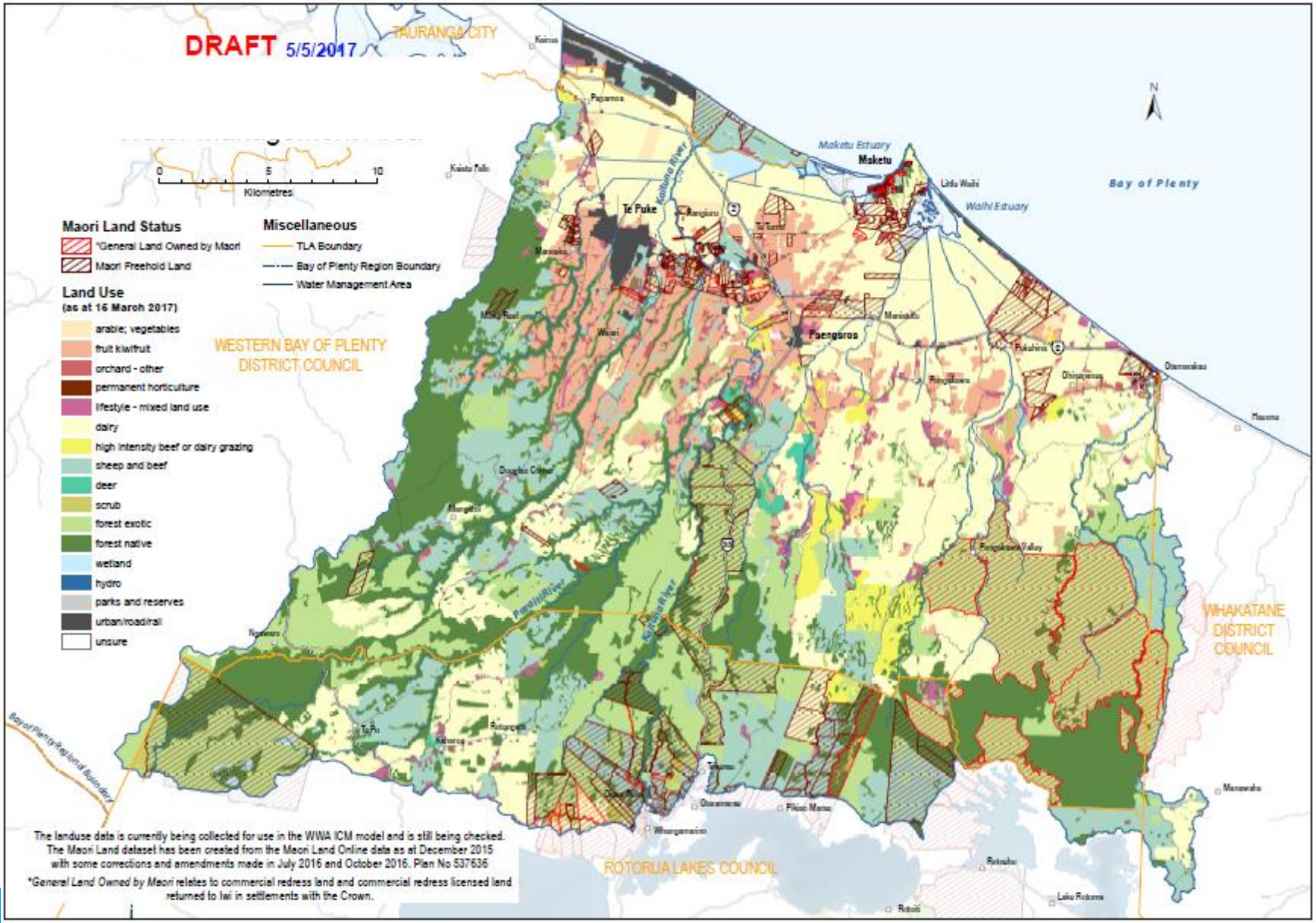
- gaps
- questions

Towards Freshwater Objectives - *use values*



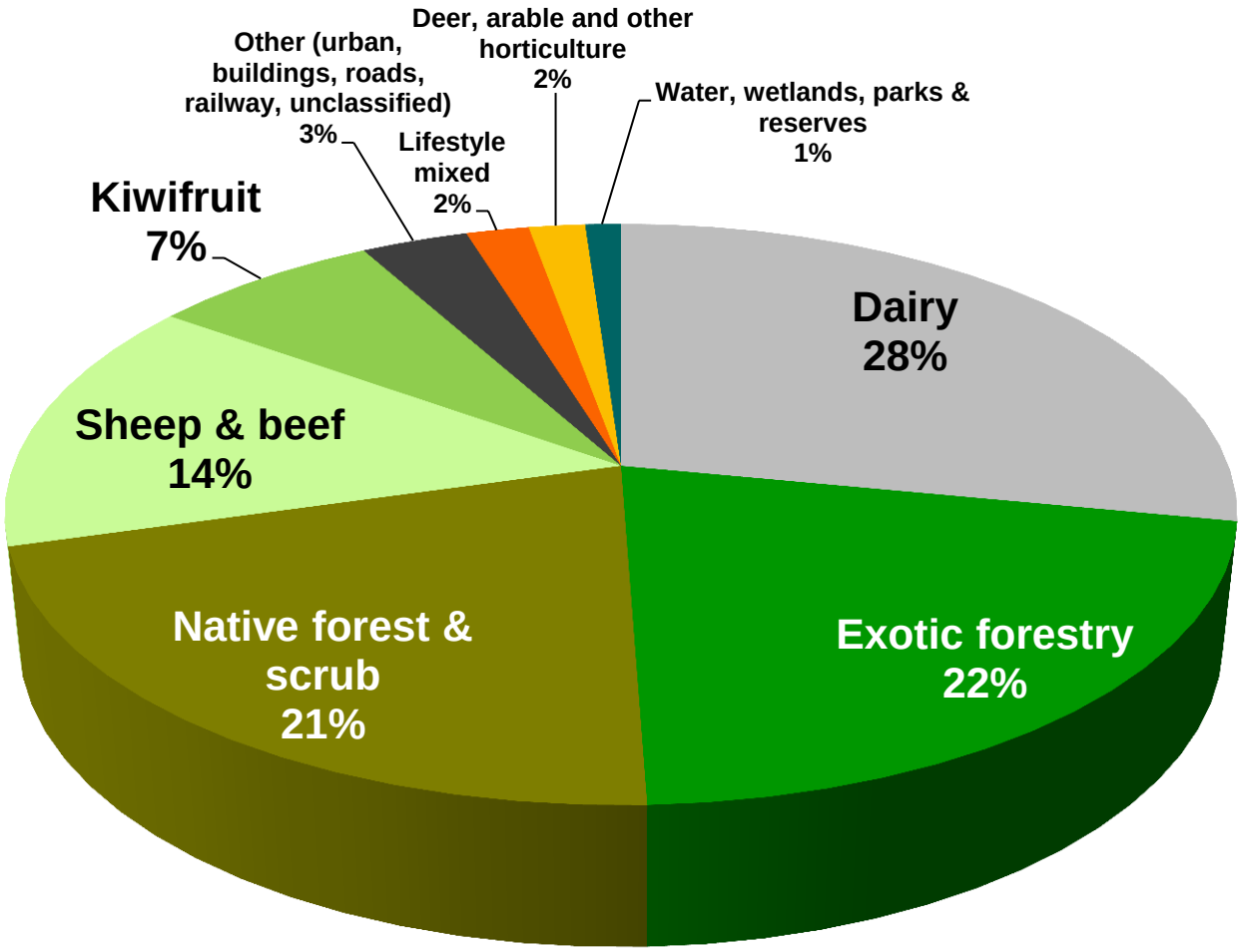
Use values: Land use

Kaituna-Pongakawa-Waitahanui



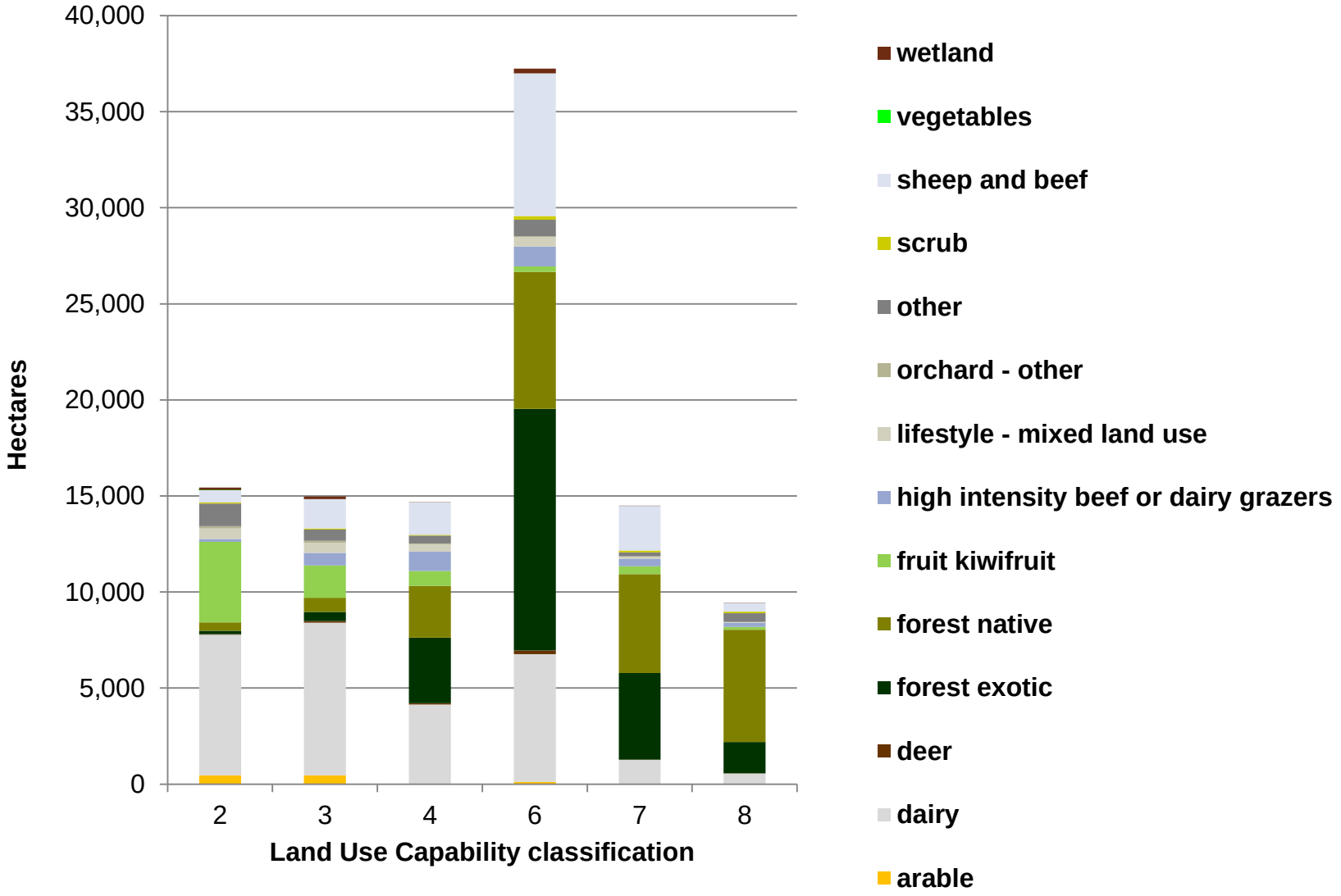
Use values: Land use

Kaituna-Pongakawa-Waitahanui

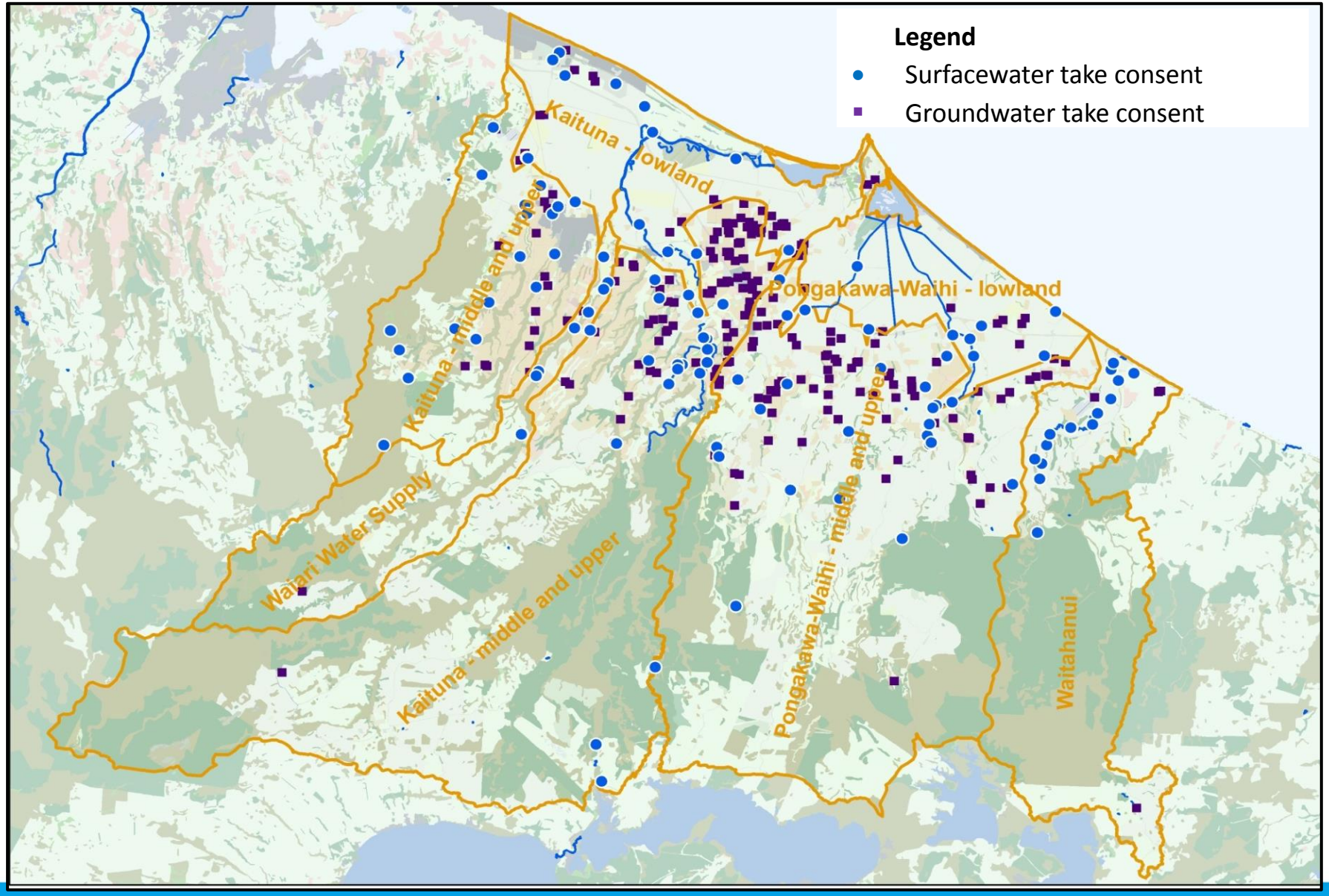


Land use by Land Use Capability class

Kaituna-Pongakawa-Waitahanui

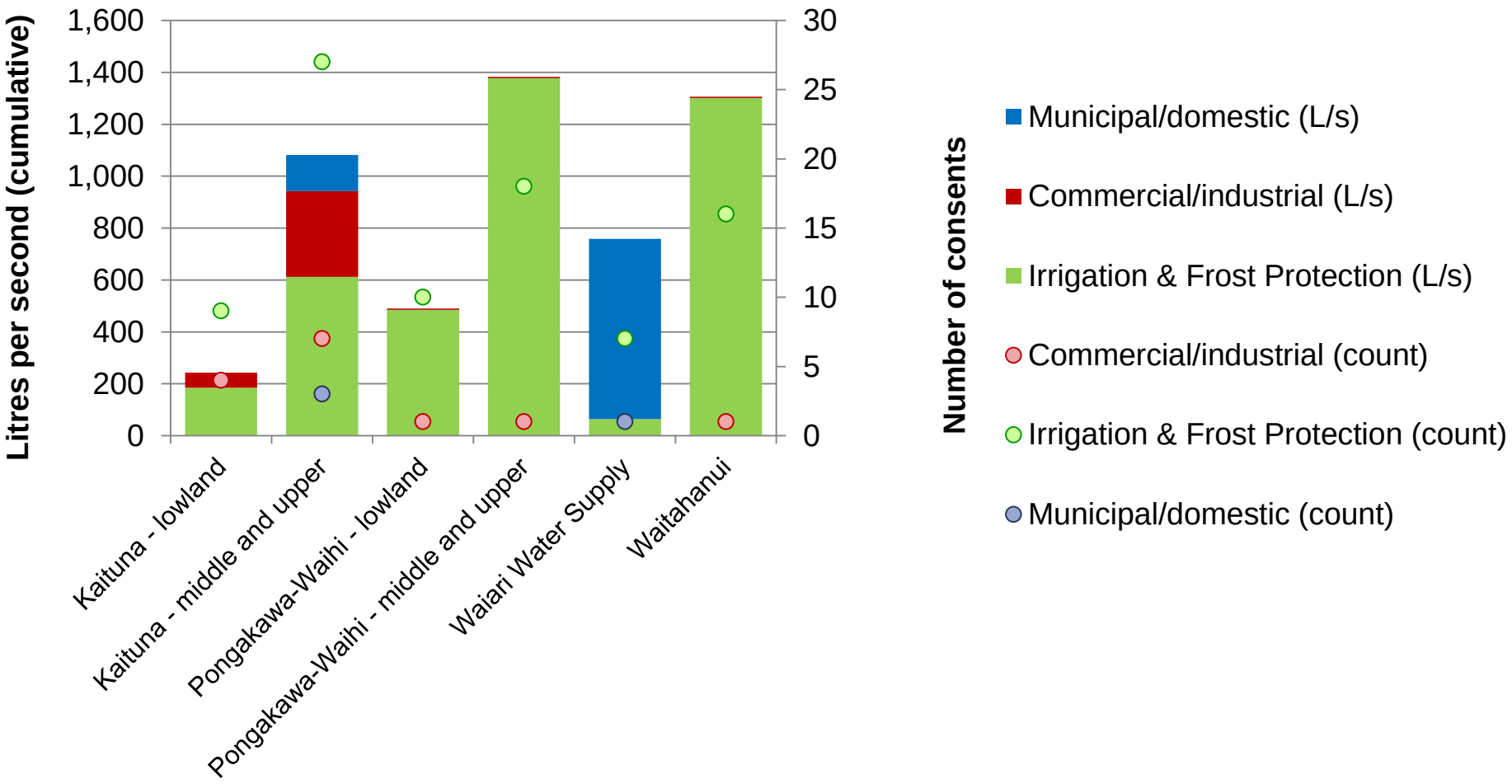


Use values: water take consents Kaituna-Pongakawa-Waitahanui

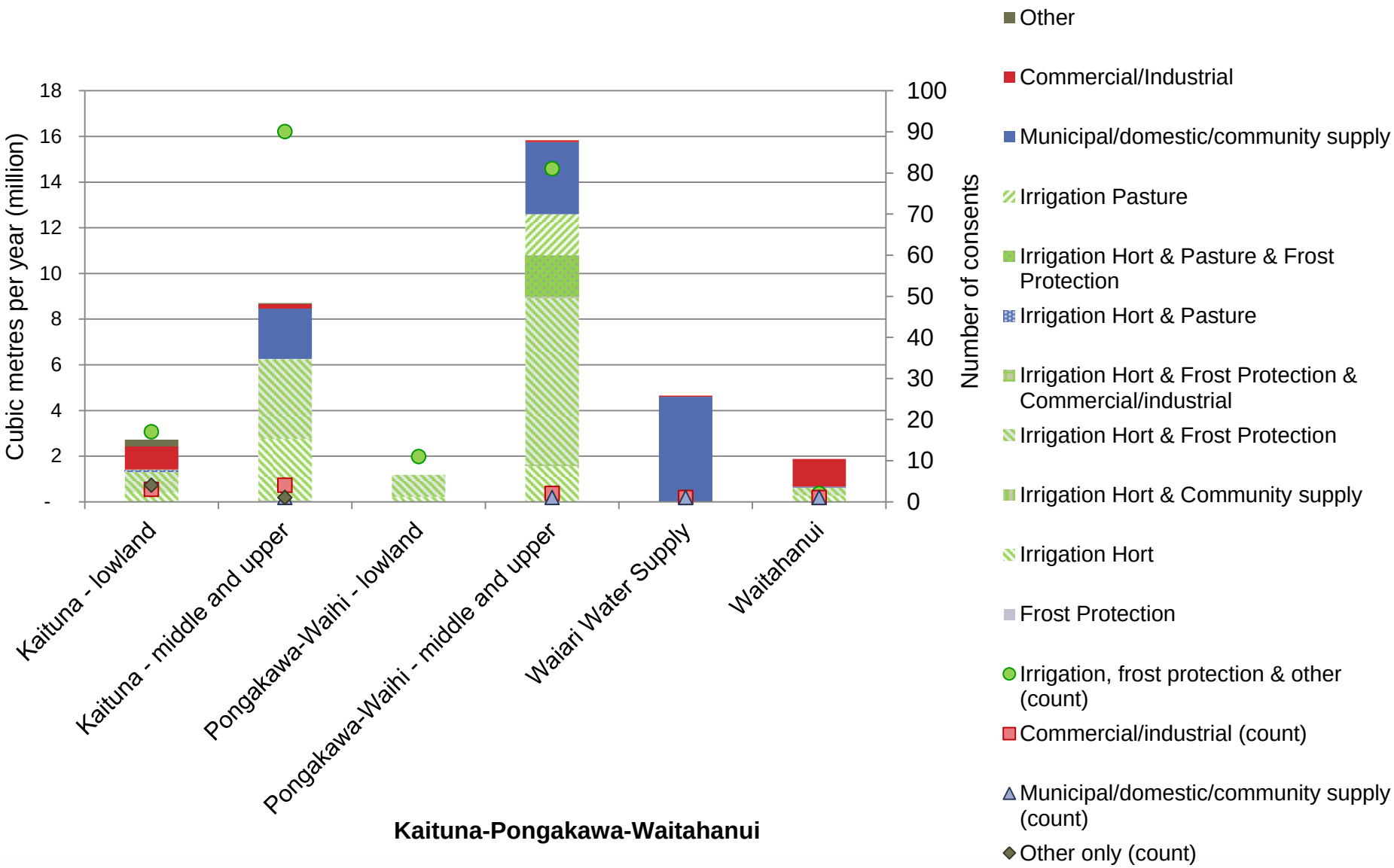


Use values: Surface water take consents (allocation)

Kaituna-Pongakawa-Waitahanui

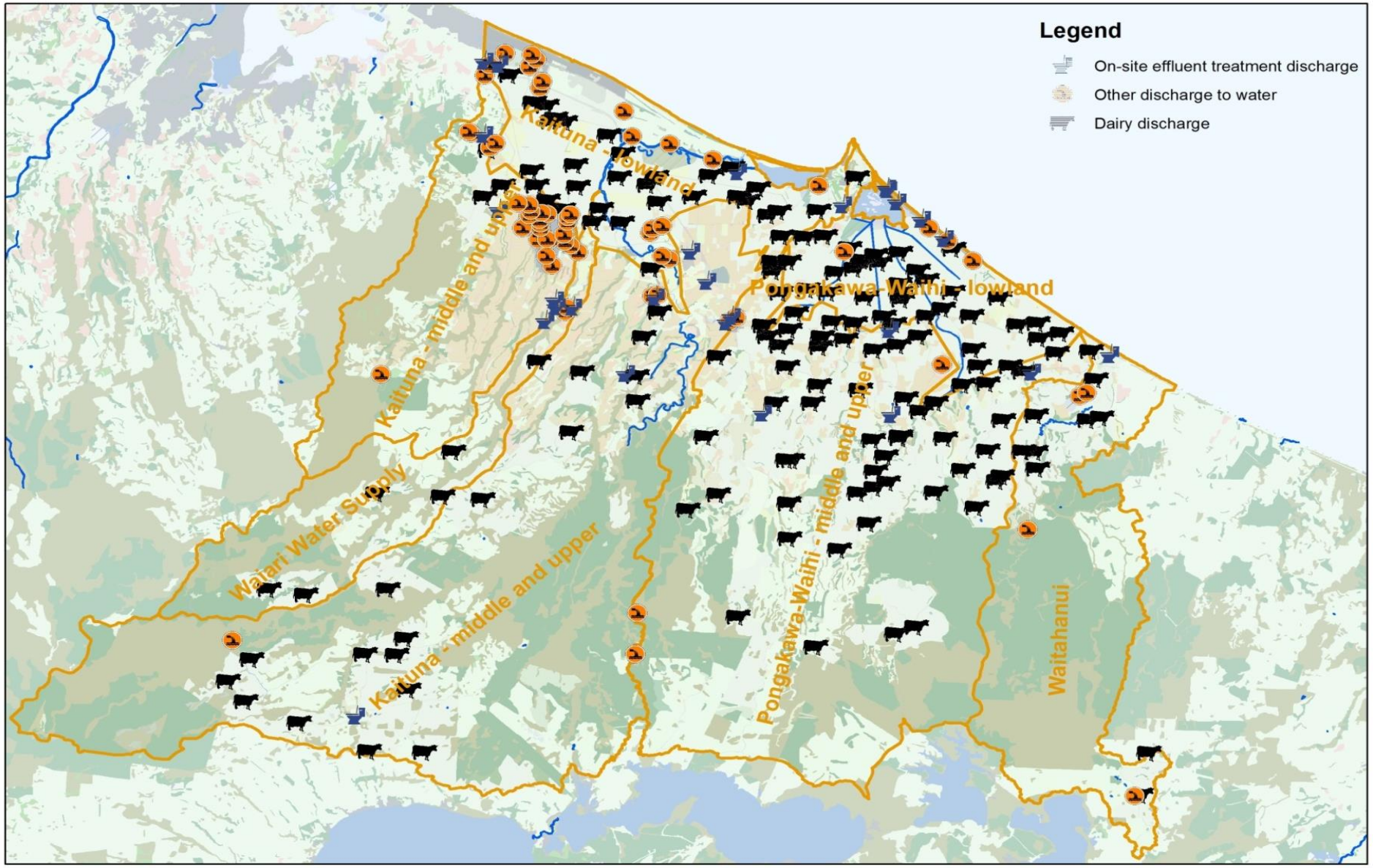


Use values: Groundwater take consents (allocation)



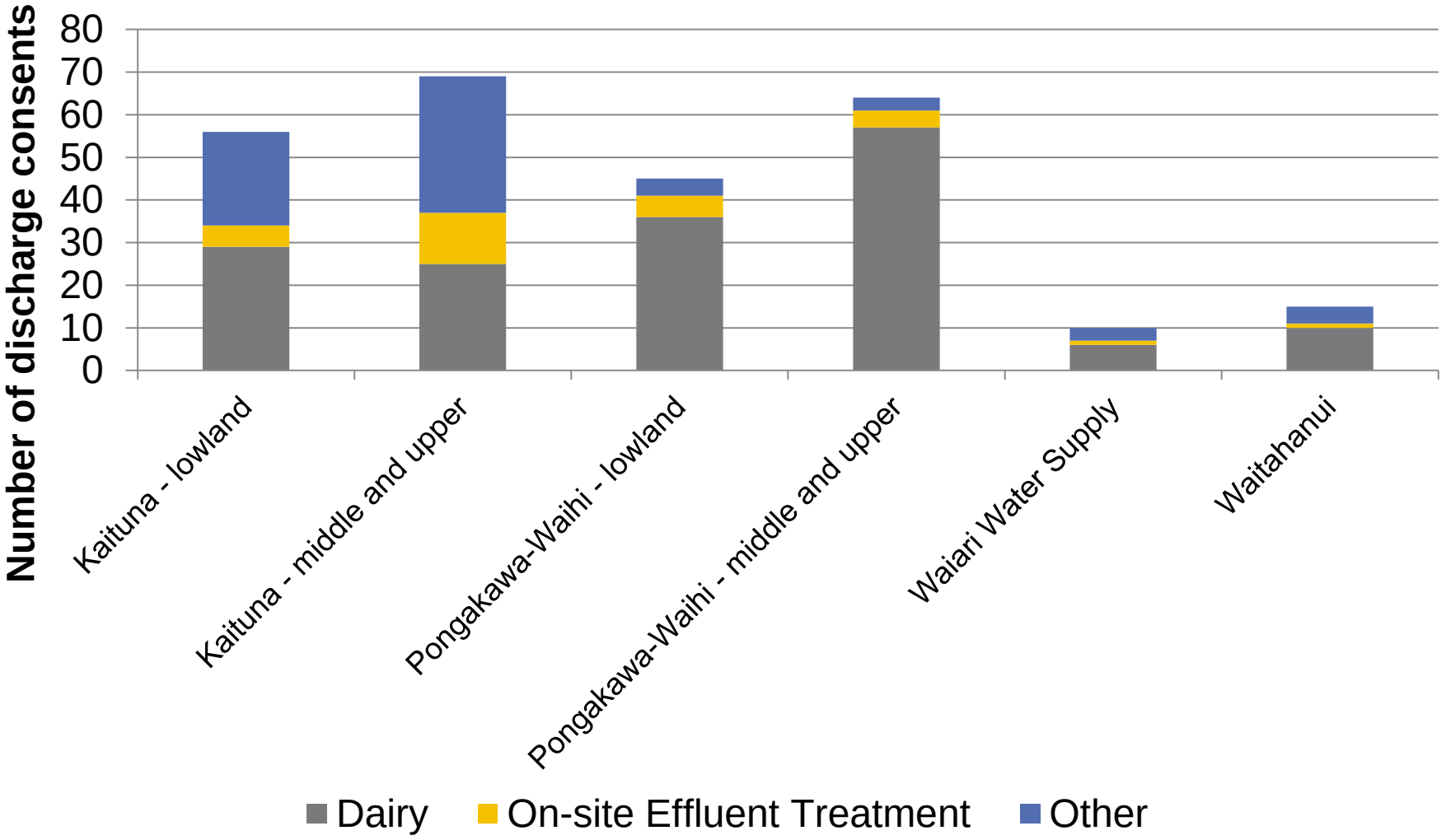
Use values: Discharge consents

Kaituna-Pongakawa-Waitahanui



Use values: Discharge consents

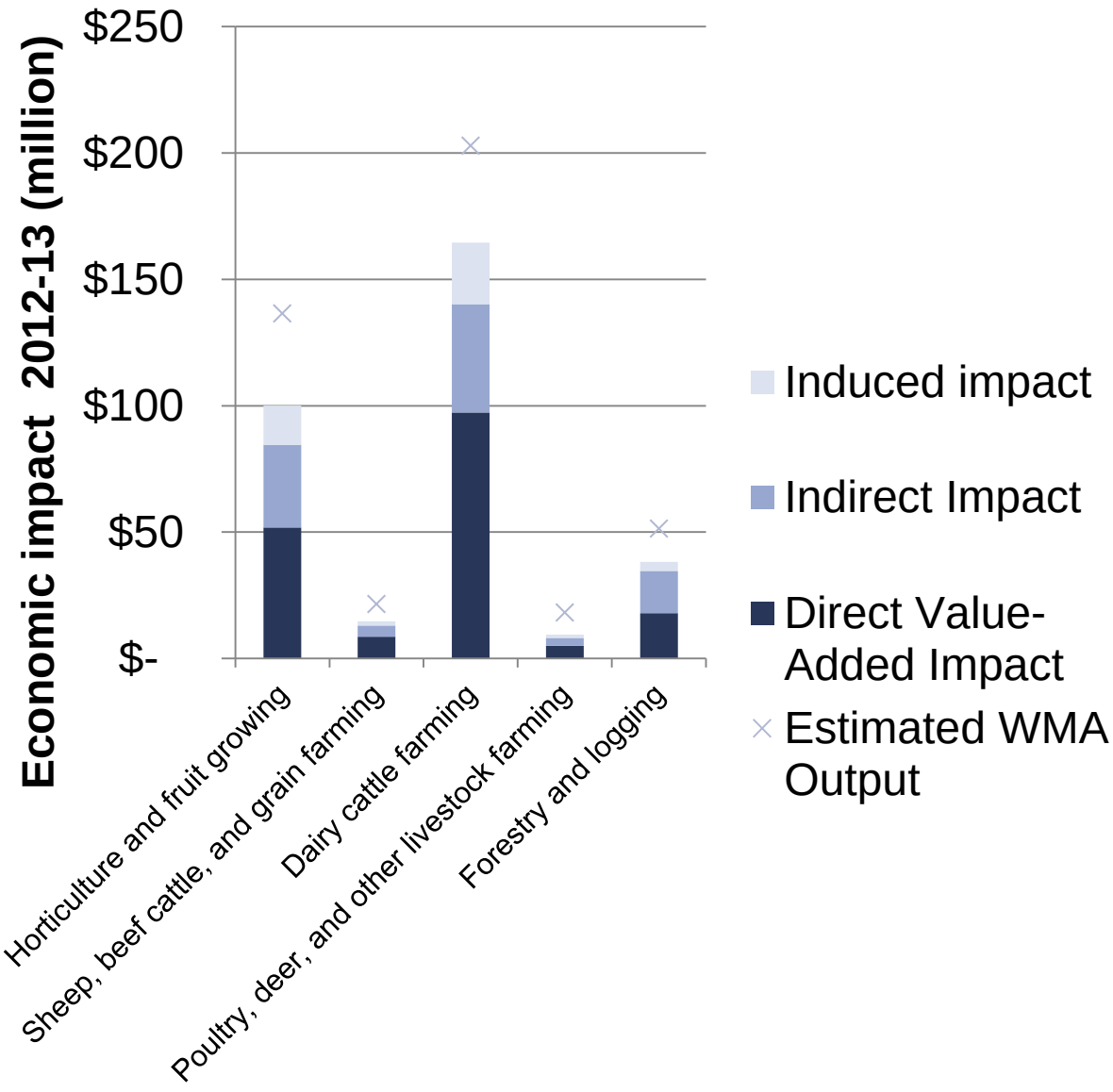
Kaituna-Pongakawa-Waitahanui



Use values:

Kaituna-Pongakawa-Waitahanui

Estimated economic value of land and water–dependent industries



Use values:

Kaituna-Pongakawa-Waitahanui

Economic value of land and water–dependent industries: industry data

Export returns by region.

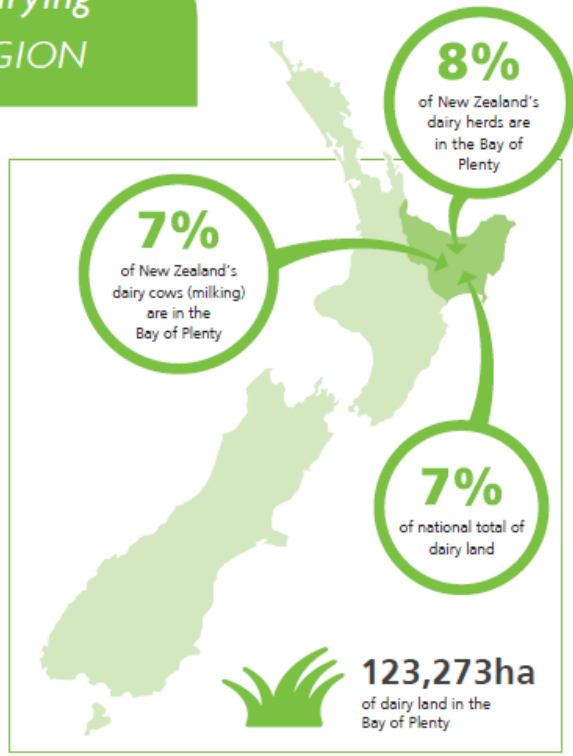
QuickStats about dairying – BAY OF PLENTY REGION

HERDS AND COWS

Total number of herds	919
Average herd size	373
Number of cows (milking)	342,997

FARMERS AND DAIRY LAND

Number of farm owner/ operators	663
Number of sharemilkers	255
Average farm size	134ha
Average cows per ha	2.8



The value of dairying in the Bay of Plenty

Value of milk production to the regional economy

$482 million (2015/16)

(124 million kilograms of milksolids produced)

What farmers spend (on average) per cow

2015/16 farm working expenses on-farm per cow **$1,297***

*this includes feed, veterinary services, fertiliser, dairy shed supplies (estimate)

DAIRY JOBS CONTRIBUTE

2.2%

of the total regional employment in the Bay of Plenty.

Numbers employed in the dairy industry in the Bay of Plenty

	Number employed
On-farm	2,382
Processing and wholesaling	707 (estimate)
Total dairy employment	3,089

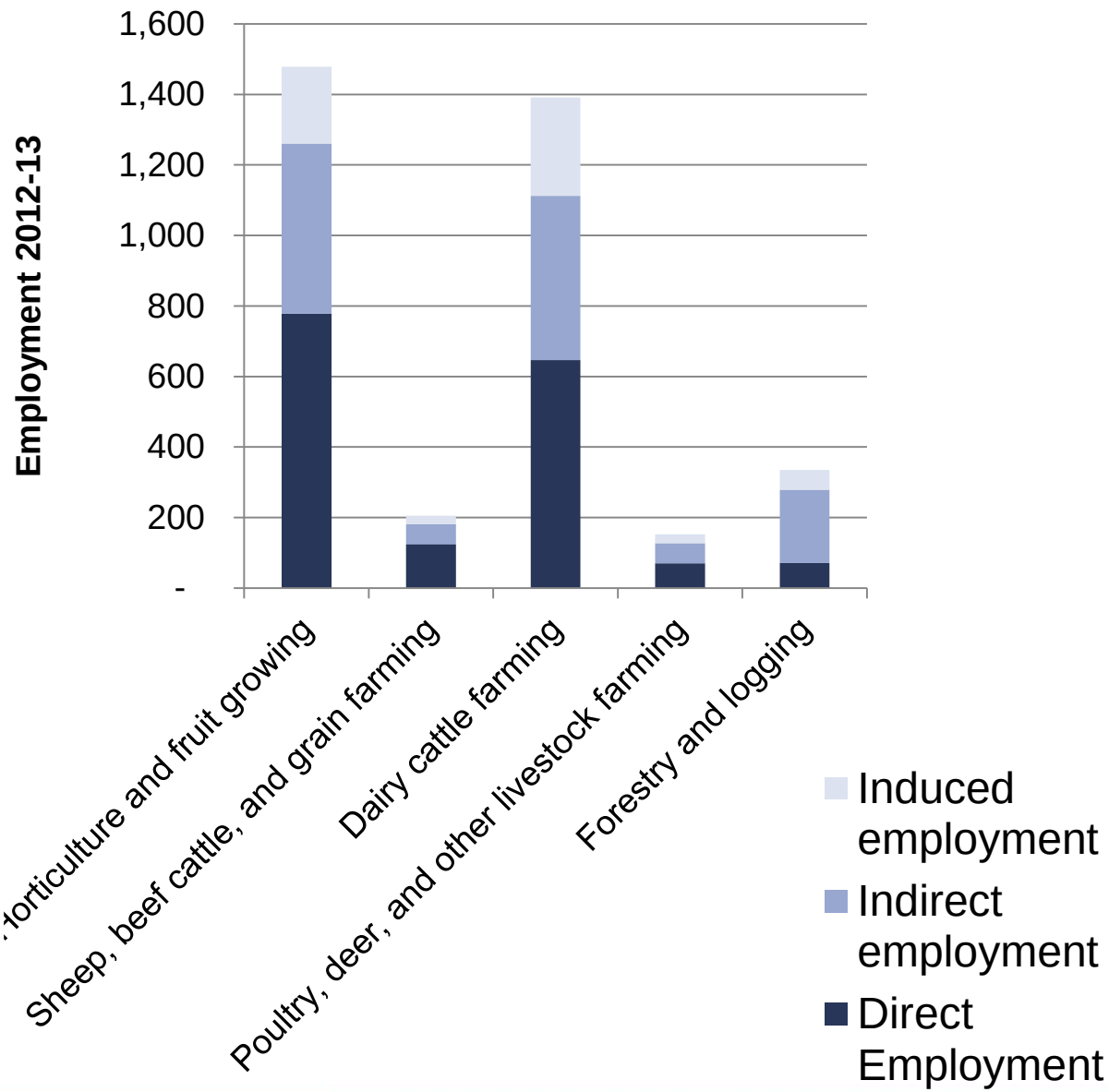
dairyatwork.co.nz

Source: NZIER, New Zealand Dairy Statistics, Statistics New Zealand, DairyNZ Economics Group. Nov 2016

Use values:

Kaituna-Pongakawa-Waitahanui

Estimated employment in land and water–dependent industries

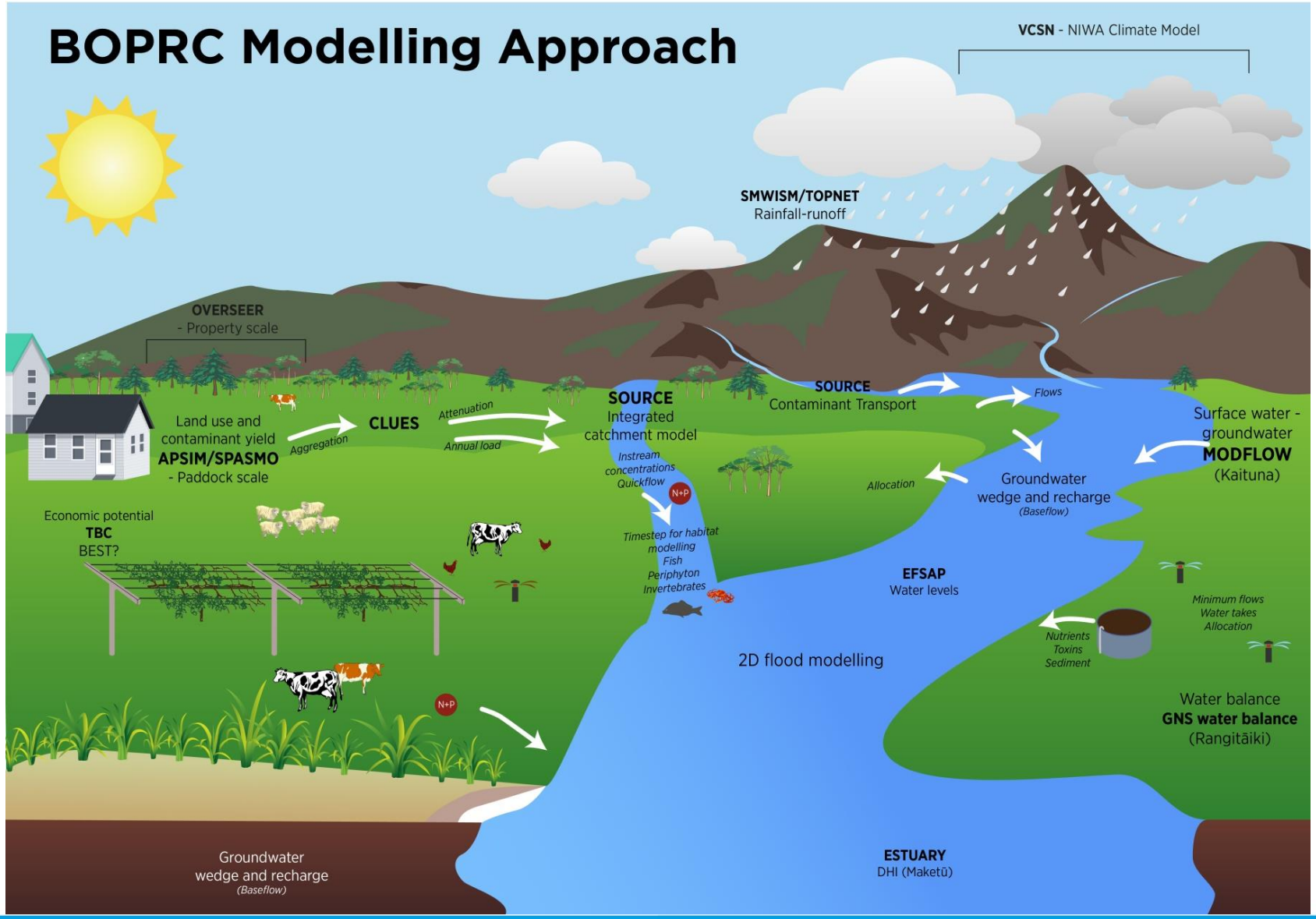


Any:

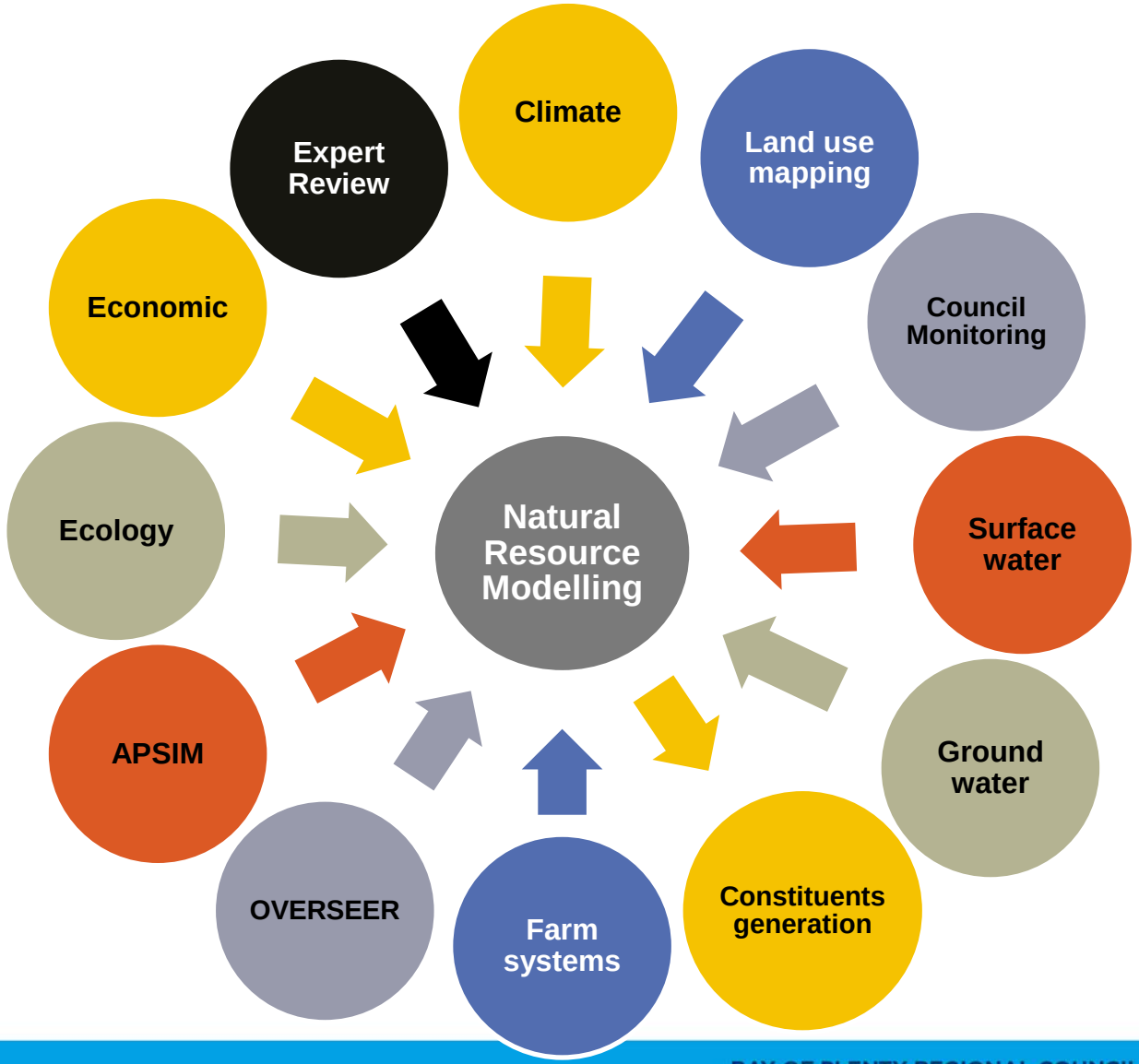
- further info
- thoughts
- questions

Lunch

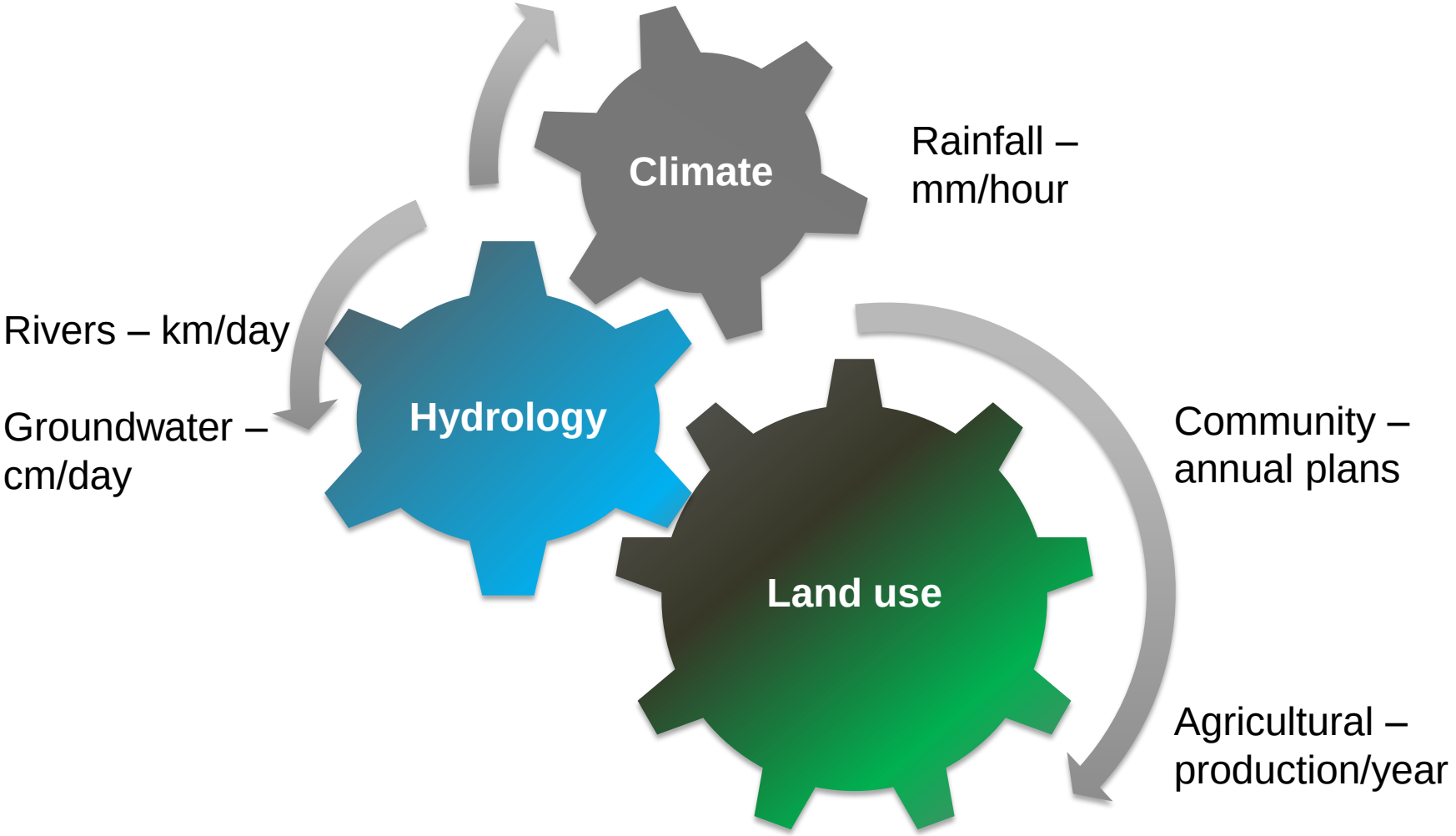
Catchment Models



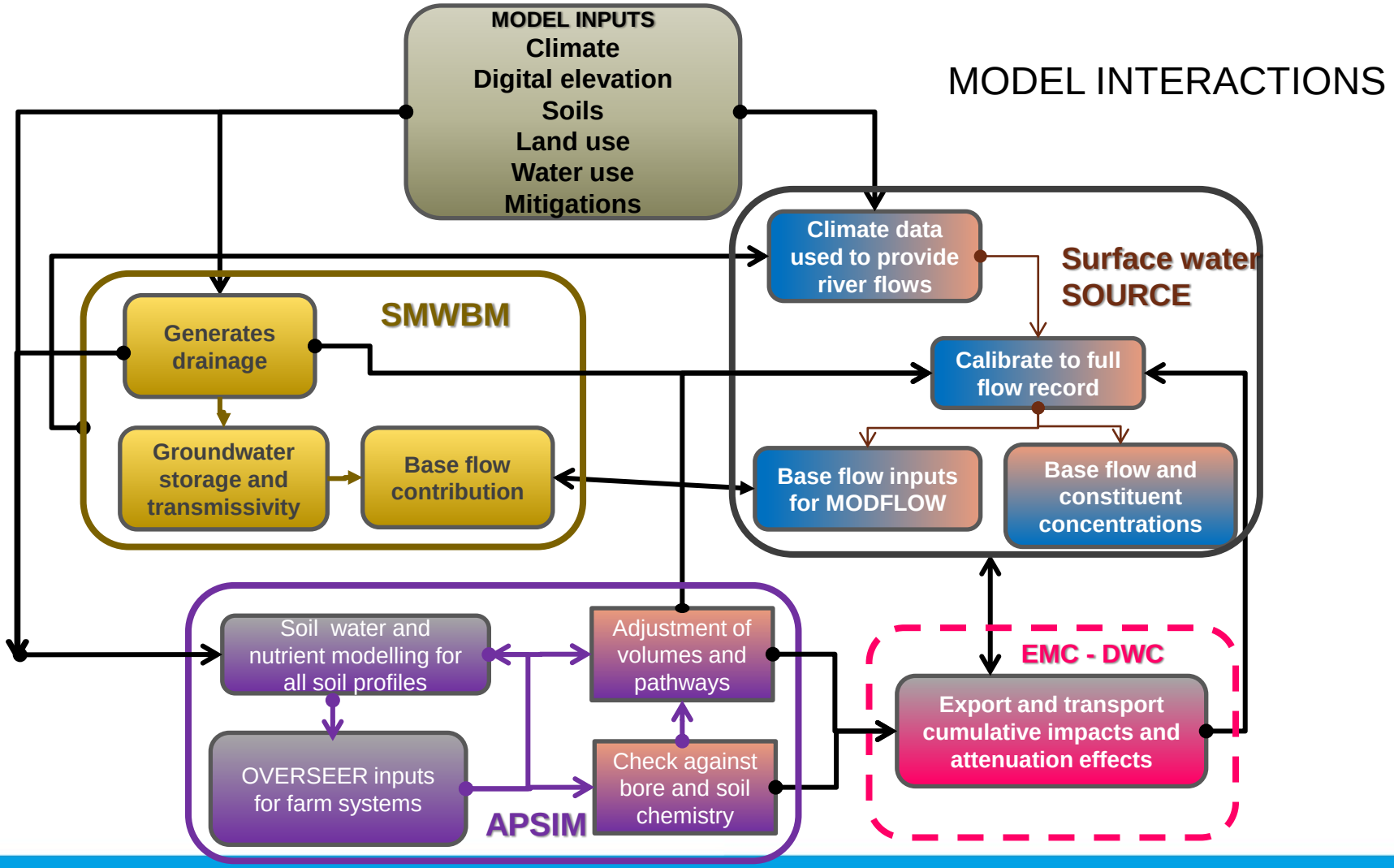
Development of a Catchment Calculator



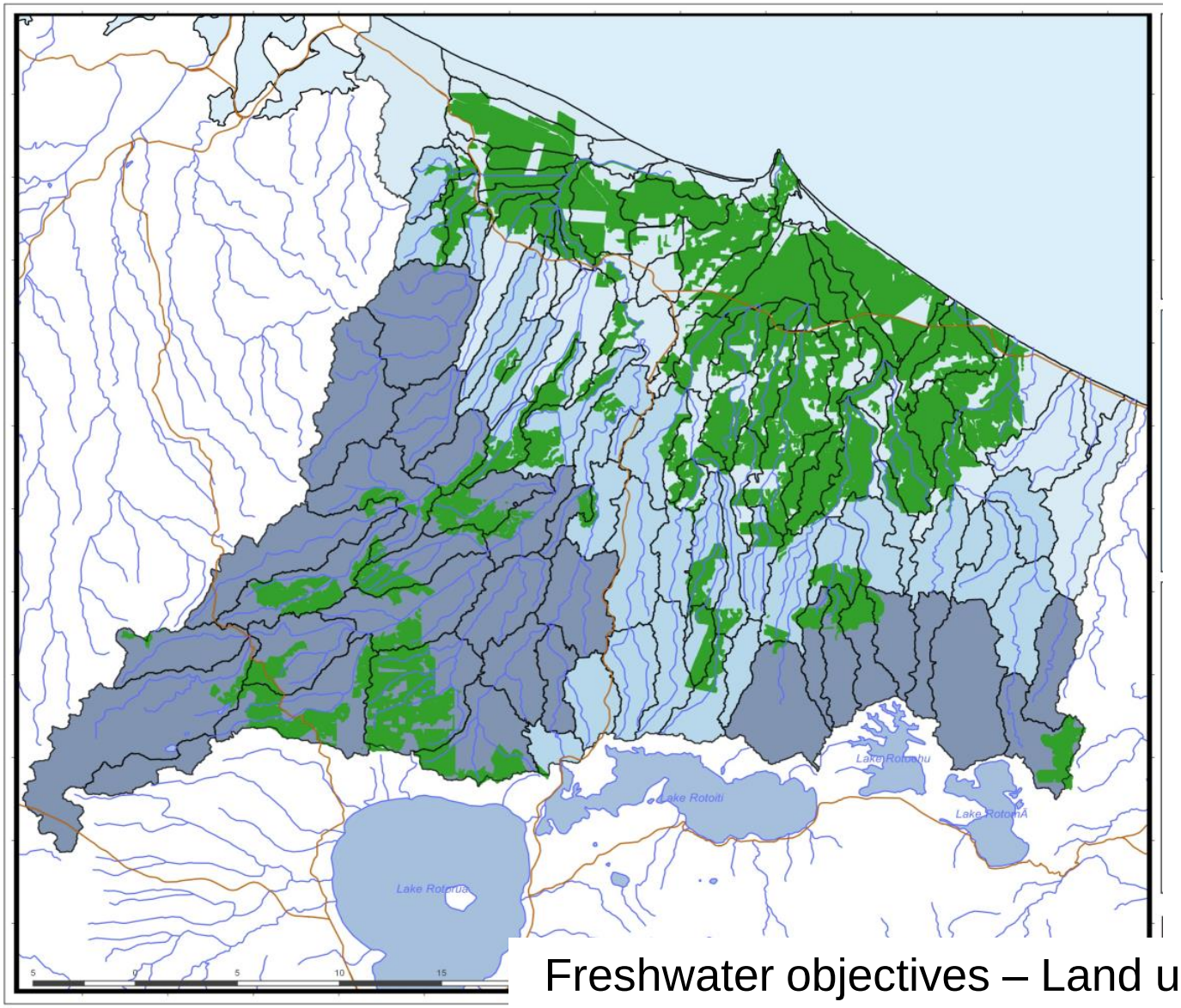
Capturing Changes Through Time



Interoperable Modules

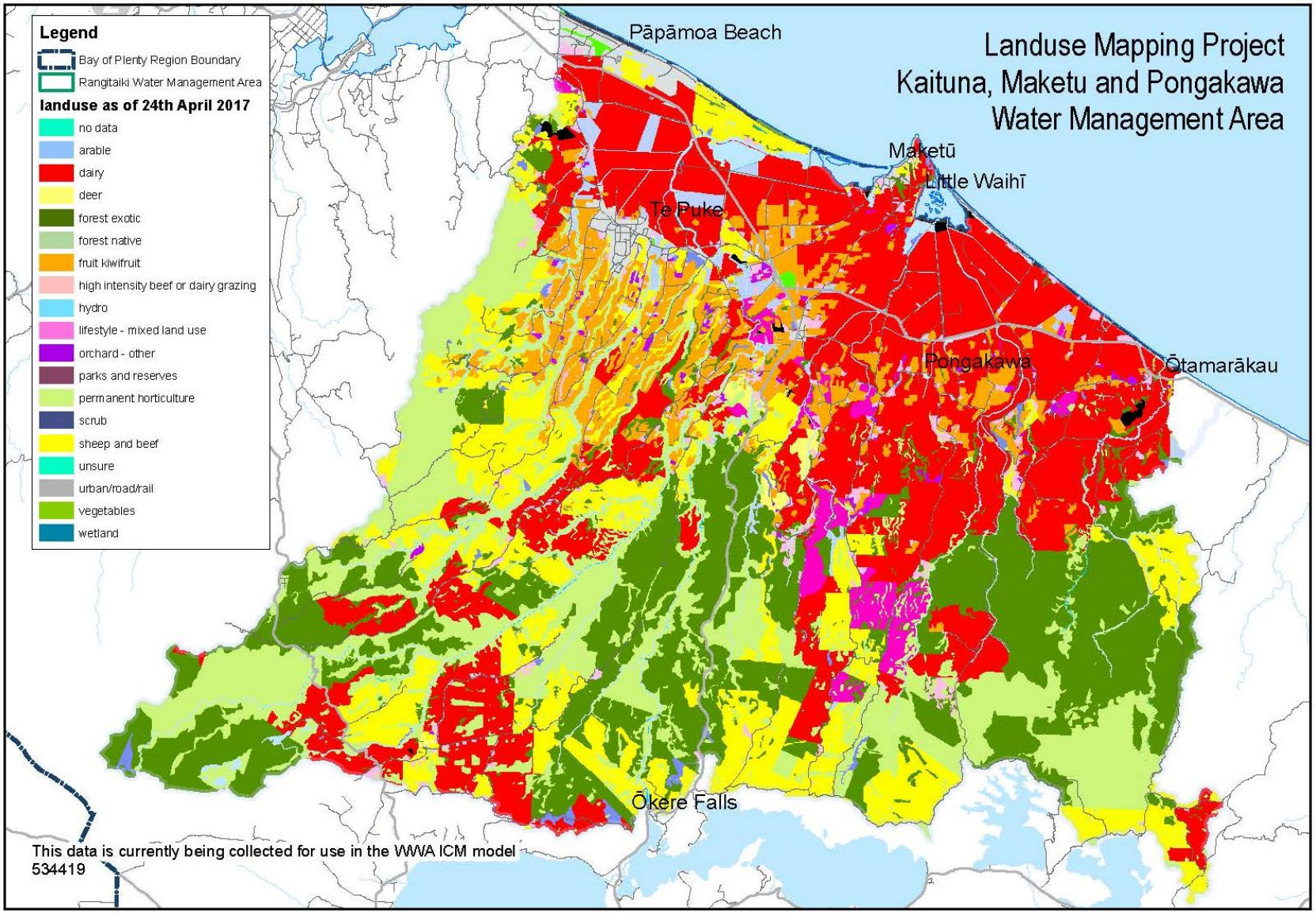


Catchment Based Decision Making



Freshwater objectives – Land use planning

Initial Land Use Mapping

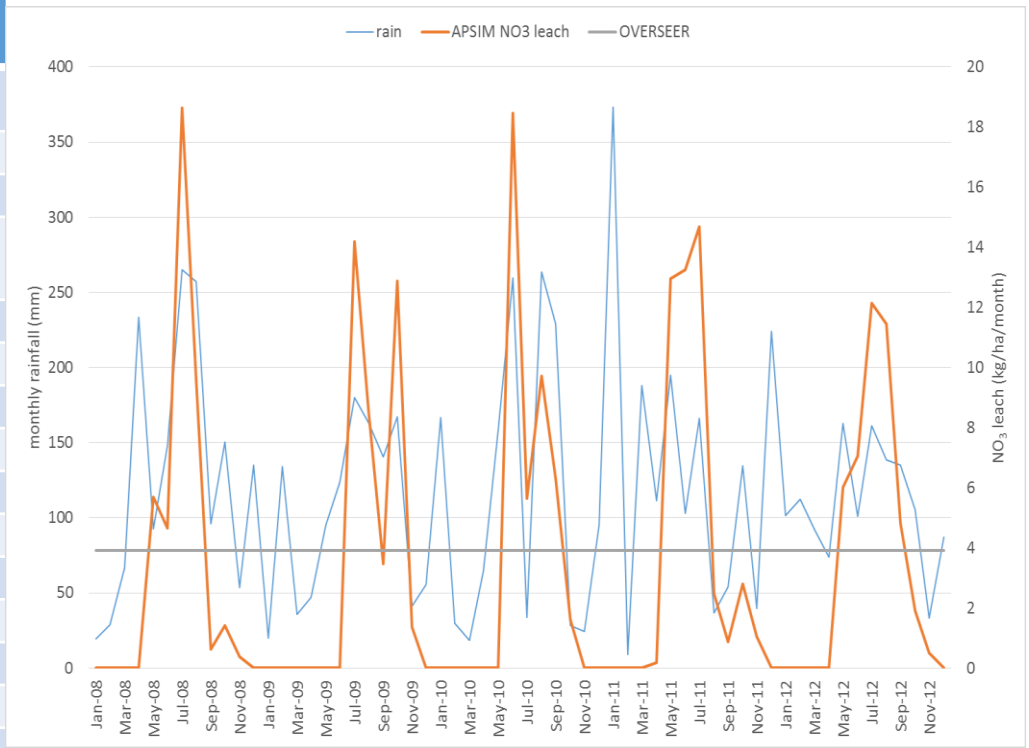


Nutrient Generation

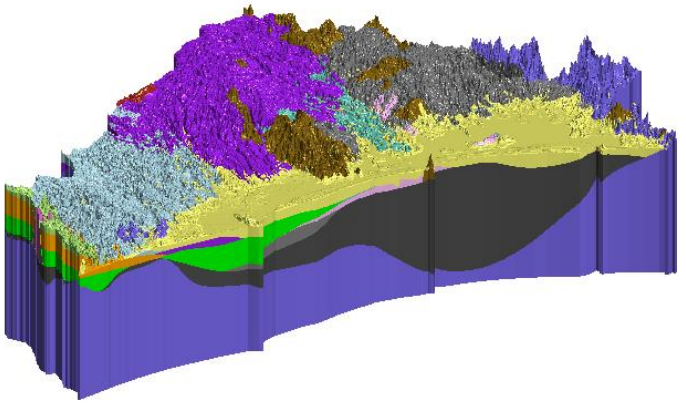
OVERSEER

Land use	OVERSEER	ASPIM	ASPIM: OVERSEER
Built Environment	-	-	
Converting first 2 yrs	-	9 – 46	
Converted 3-5 years	26	23	0.88
Converted 3-5 years – irrigated	25	25	1.00
Dry dairy 5-10	45	47	1.04
Dry dairy 10 plus	47	47	1.04
Sheep and beef	18	21	1.17
Sheep dairy	22	35	1.59
Irrigated dairy 5-10 yrs	58	53	0.91
Irrigated dairy 10 plus	68	*53*	0.78
Dairy support <5	21	21	1.00
Dairy support 5-10	35	32	0.91
Dairy support >10	38	*32*	0.84
Cropping	29	29	1.00
Lucerne	19	21	1.11
Forestry	2	3	1.50
Lifestyle	11	-	
Native forest	3	2	0.67

APSIM

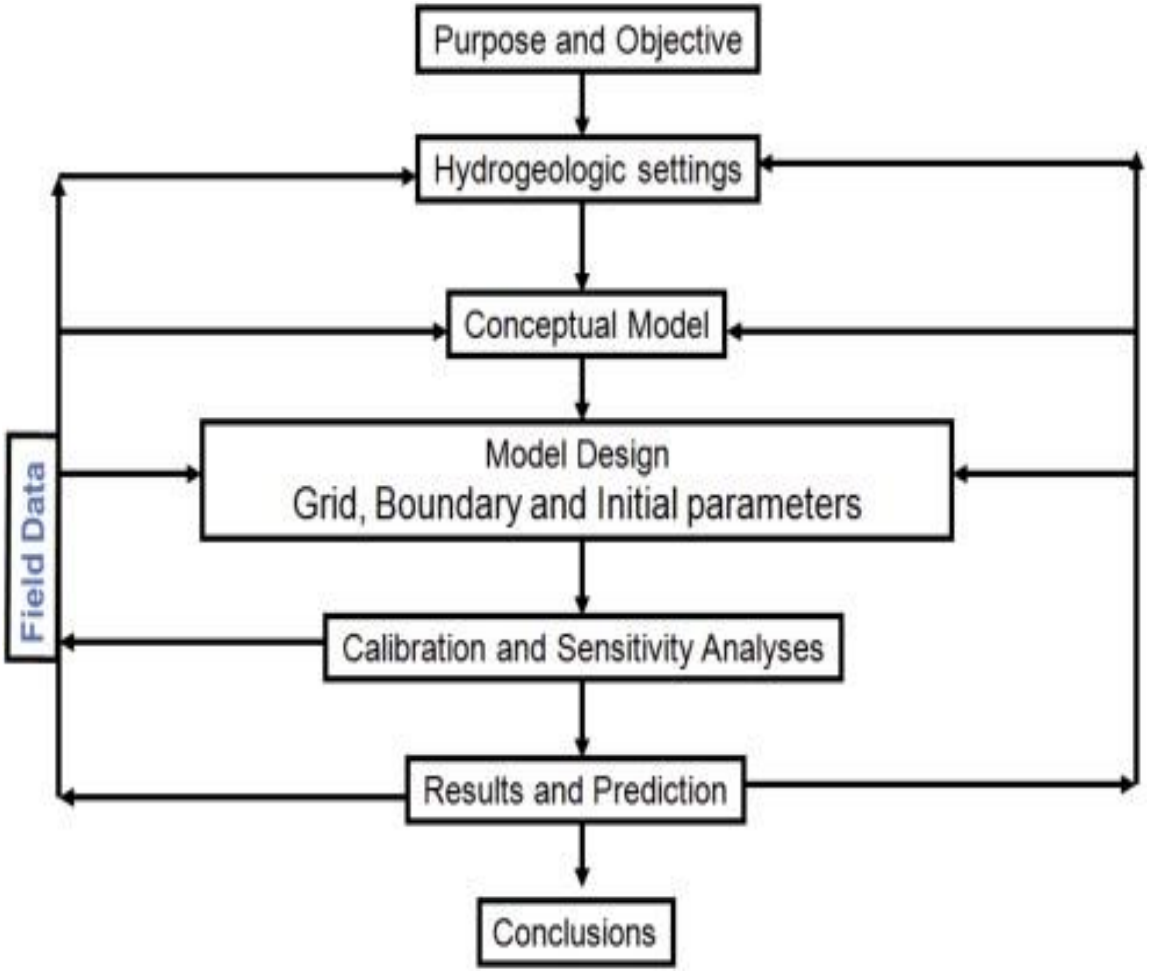


GROUNDWATER MODELLING



- Purpose – determine groundwater flow
- Hydrological setting – volcanic deposits & recent sediments
- Conceptual model – simplified hydrogeology
- Model design – populate MODFLOW software
- Calibration – match observed data
- Results predictions – access scenarios

GROUNDWATER MODELLING PROCESS



Any:

- thoughts
- questions

What’s next?

Next steps

- develop quality and flow needed for values
- building catchment models
- credible future scenarios – land use and activities, demand for water
- start to model effects of future scenarios and scale of change needed to achieve objectives

Scenarios – to be developed

Broad categories	Notes/assumptions
Naturalised flow and quality	• All take and use of water removed. • All anthropogenic diffuse and point source discharges removed. • Structural changes remain. • No change to RWLP or Council's current non-statutory programmes.
Status quo	• All current take and use of water continues with no change. • All current anthropogenic diffuse and point source discharges continue. • No change to RWLP or Council's current non-stat programmes.

Scenarios cont.

Broad categories	Notes/assumptions
Development scenario	• Credible “market driven” change in land and water use and discharges. • No change to RWLP or Council’s current non-stat programmes.
Mitigation scenario	• Credible “market driven” change in land and water use and discharges AND • Mitigation package to reduce specific contaminants and manage quantity. • More than one scenario: E.g., serves in - river values (restrict use, reduce contaminants), serves use values (GMP only), mixed option.

Management Options

Flipcharts on wall show staff initial thoughts:

- Take a walk *(on the wild side)*
  - Any other management option ideas?
  - When we start discussing management options, what would you expect us to consider/assess?

Summary

Today we have…..

- Agreed desired in-river state
- Agreed resource management issues
- Developed understanding of use values and of modelling
- Received input on scenarios and management options
- You have asked us to…

Any burning questions still unanswered?

Thanks once again

- In closing…
  - Any feedback to us on this session?
- Next meeting…..
- Talk to others ……
  - The key highlight/achievements from this session
  - Ask - what would they have added to the session?