Greater Heretaunga and Ahuriri Land and Water Management Collaborative Stakeholder (TANK) Group

TANK

Meeting 24:
4 November 2016

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Karakia

Agenda

10:00am	Welcome, karakia, notices, meeting record
10:15am	Groundwater quality
11.45pm	Sediment
12:30pm	**LUNCH**
1:15pm	cont…Sediment
2:30pm	Future considerations
3:15pm	**COFFEE BREAK**
3:30pm	Managing flows
3:55pm	Agenda for next meeting
~4:00pm	**FINISH**

Meeting objectives

1. To understand groundwater quality and current management regime

2. To adopt an objective for managing sediment loss and indicate preferred options for meeting the objective

3. To identify future threats and opportunities that might result in changes to water quality and quantity and which may need a management response.

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Engagement etiquette

- Be an active and respectful participant / listener
- Share air time – have your say and allow others to have theirs
- One conversation at a time
- Ensure your important points are captured
- Please let us know if you need to leave the meeting early

Ground rules for observers

- RPC members are active observers by right (as per ToR)
- Pre-approval for other observers to attend should be sought from Robyn Wynne-Lewis (prior to the day of the meeting)
- TANK members are responsible for introducing observers and should remain together at break out sessions
- Observer's speaking rights are at the discretion of the facilitator and the observer should defer to the TANK member whenever possible.

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Meeting Record – TANK Group 23

- Matters arising
- Action points

Jet boat trip & End-of-year function

Confirmed date is **Sunday, 20 November**

10am	Launch at **Clive Boat ramp**
3pm	Bus back from **Whanawhana** to Clive
4-6pm	Drinks and nibbles (venue to be confirmed)

Partners are welcome to join us from 4pm.

You must bring:

- Warm and weatherproof clothes
- Warm hat
- Footwear that can be got wet if needed
- Packed lunch and water bottle

If bad weather, please check your email at 7:30am on the day, for possible cancellation.

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Groundwater Quality

Background information and latest science

- Values-attributes for groundwater
- Recap on regional plan framework
- Current provisions in RPS/RRMP (status quo)
- State and trends

Breakout session

- Values – attributes for groundwater quality
- Comfort with current provisions and identifying gaps.

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Groundwater Quality

State and Trends

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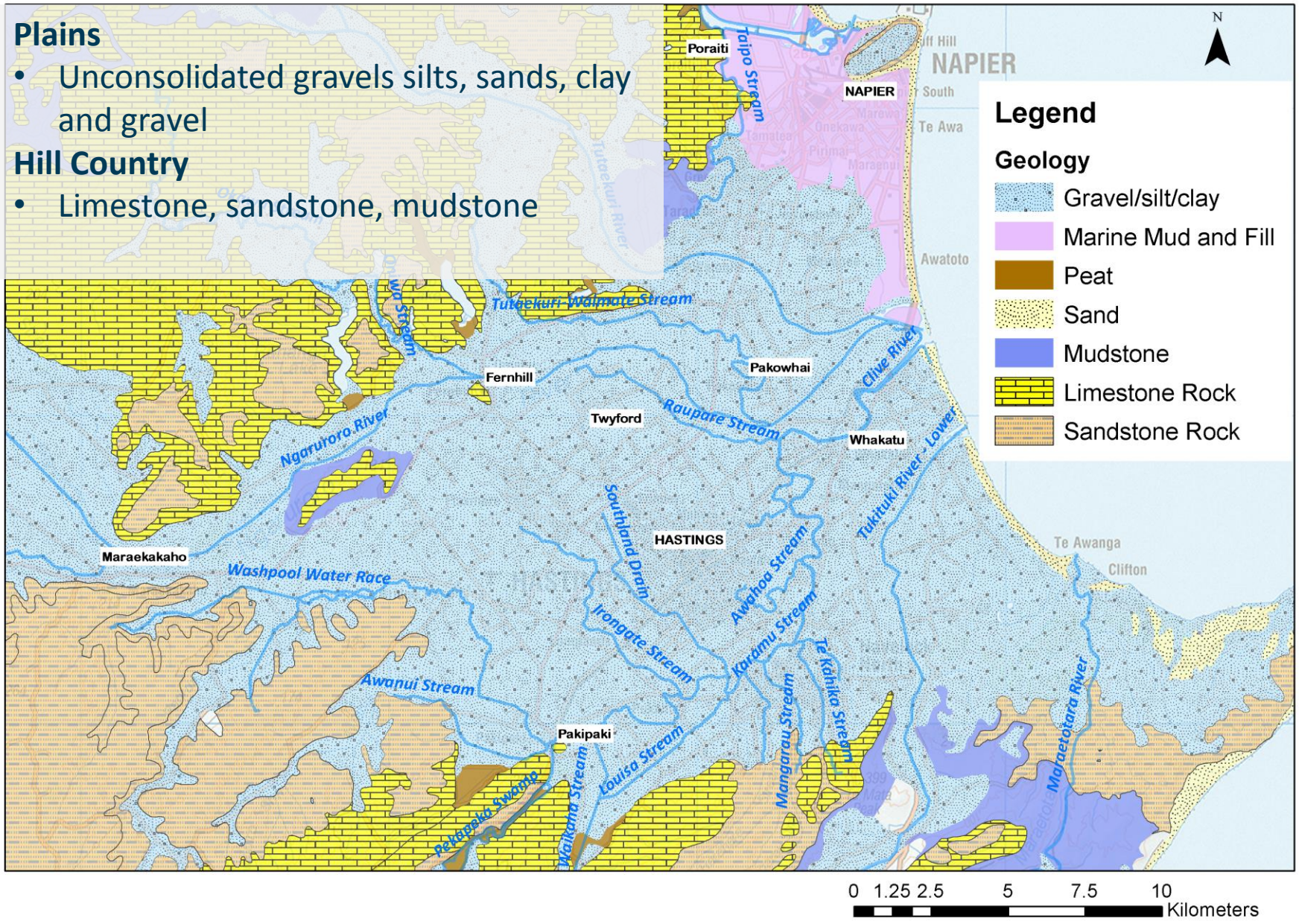
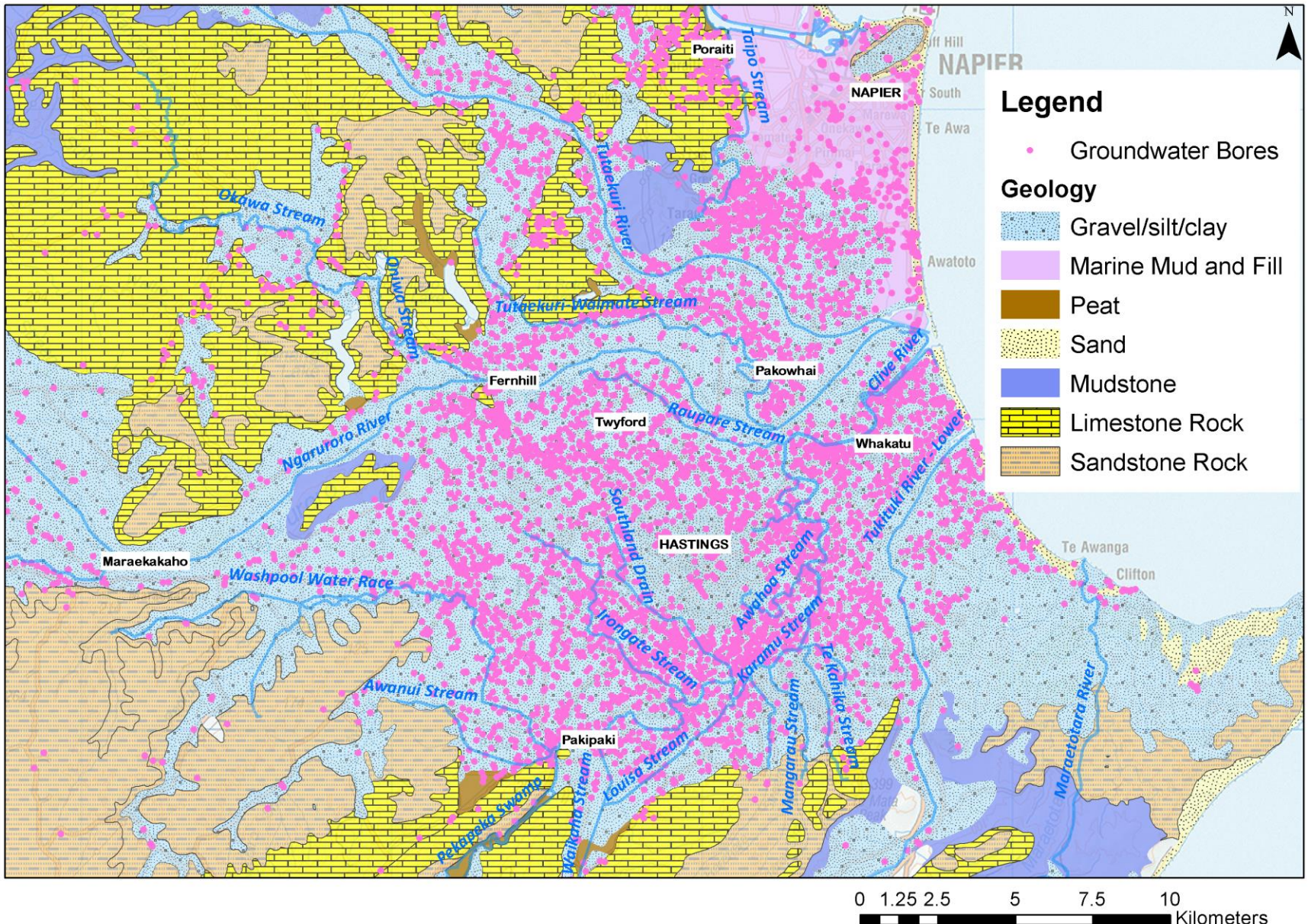
Where is the Heretaunga Aquifer Systems

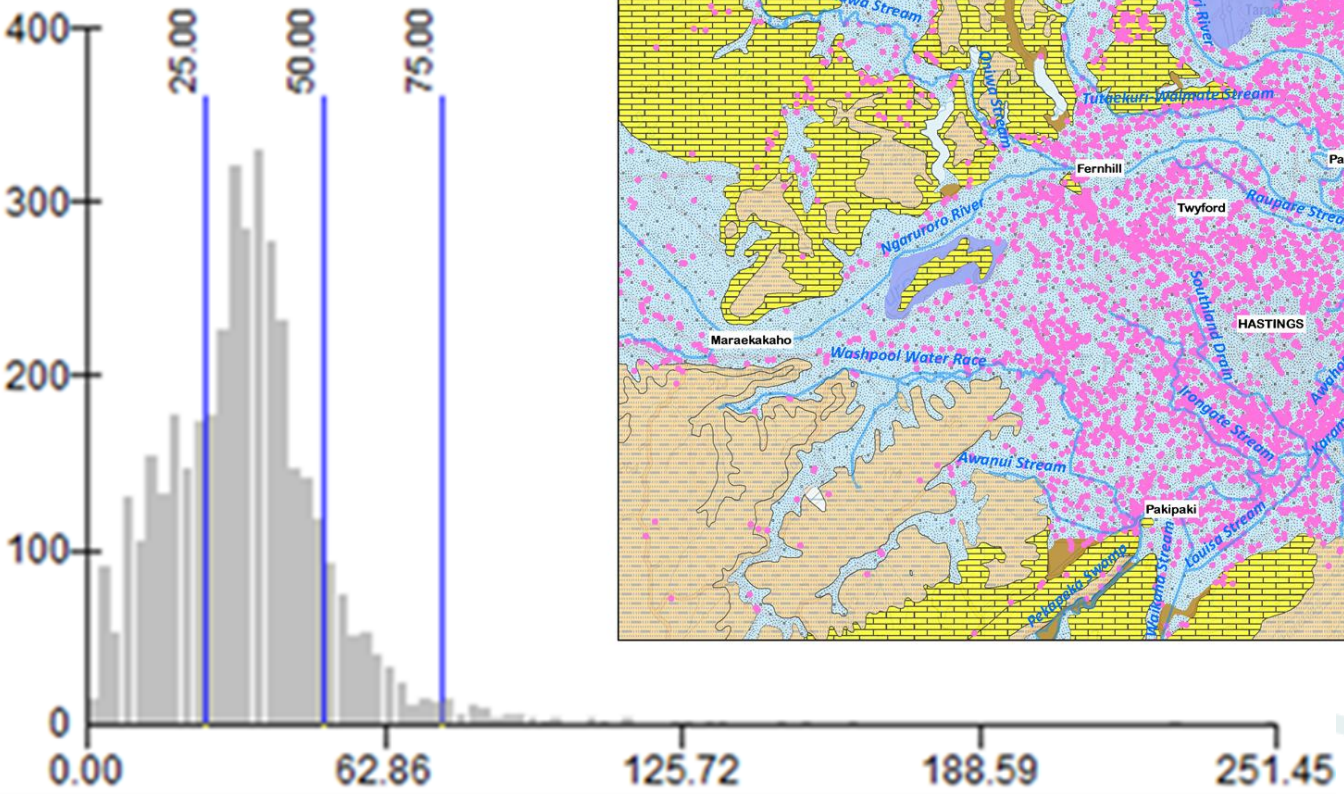


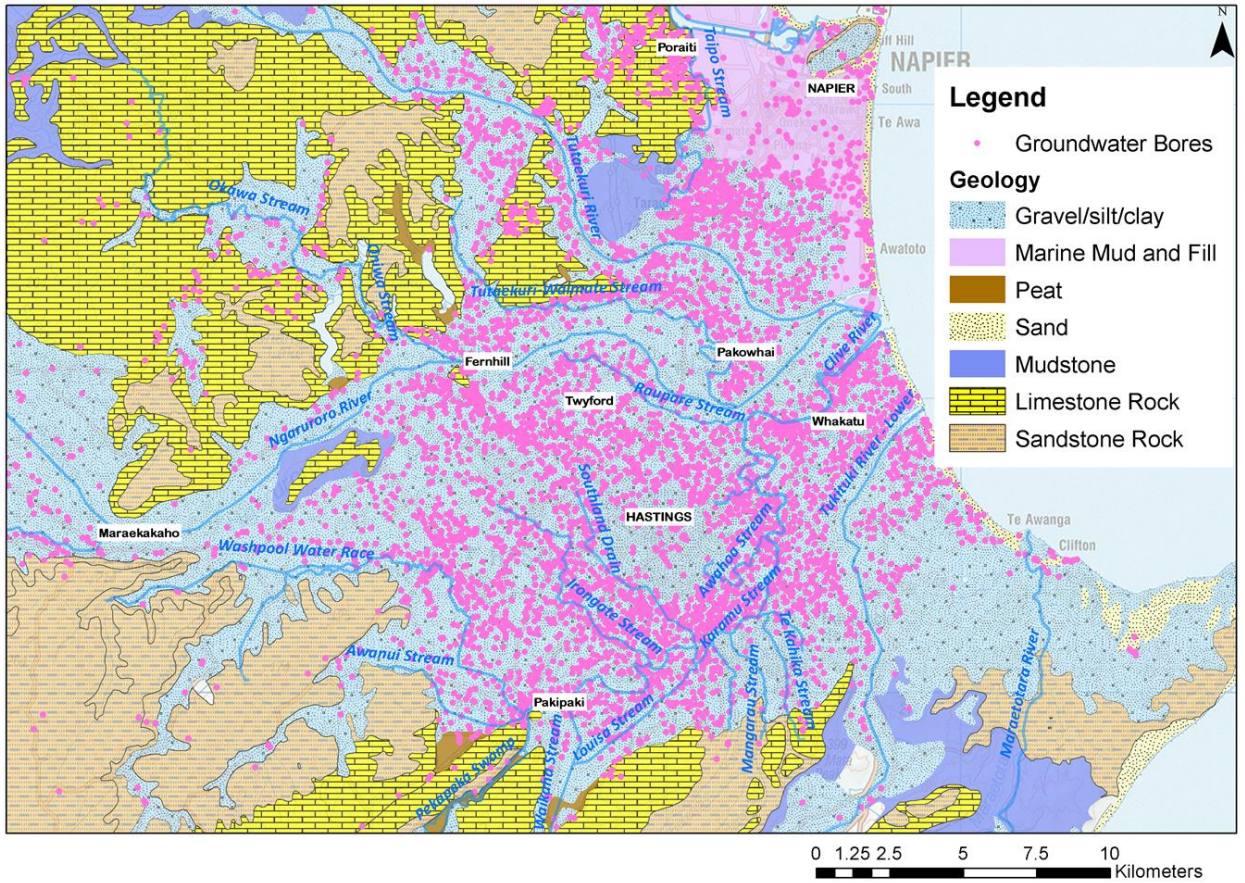
Heretaunga Gravel Aquifer



Groundwater Use and Bore Depth

- 5174 bores in Aquifer Plains Aquifer System
- Average bore depth is 32 metres





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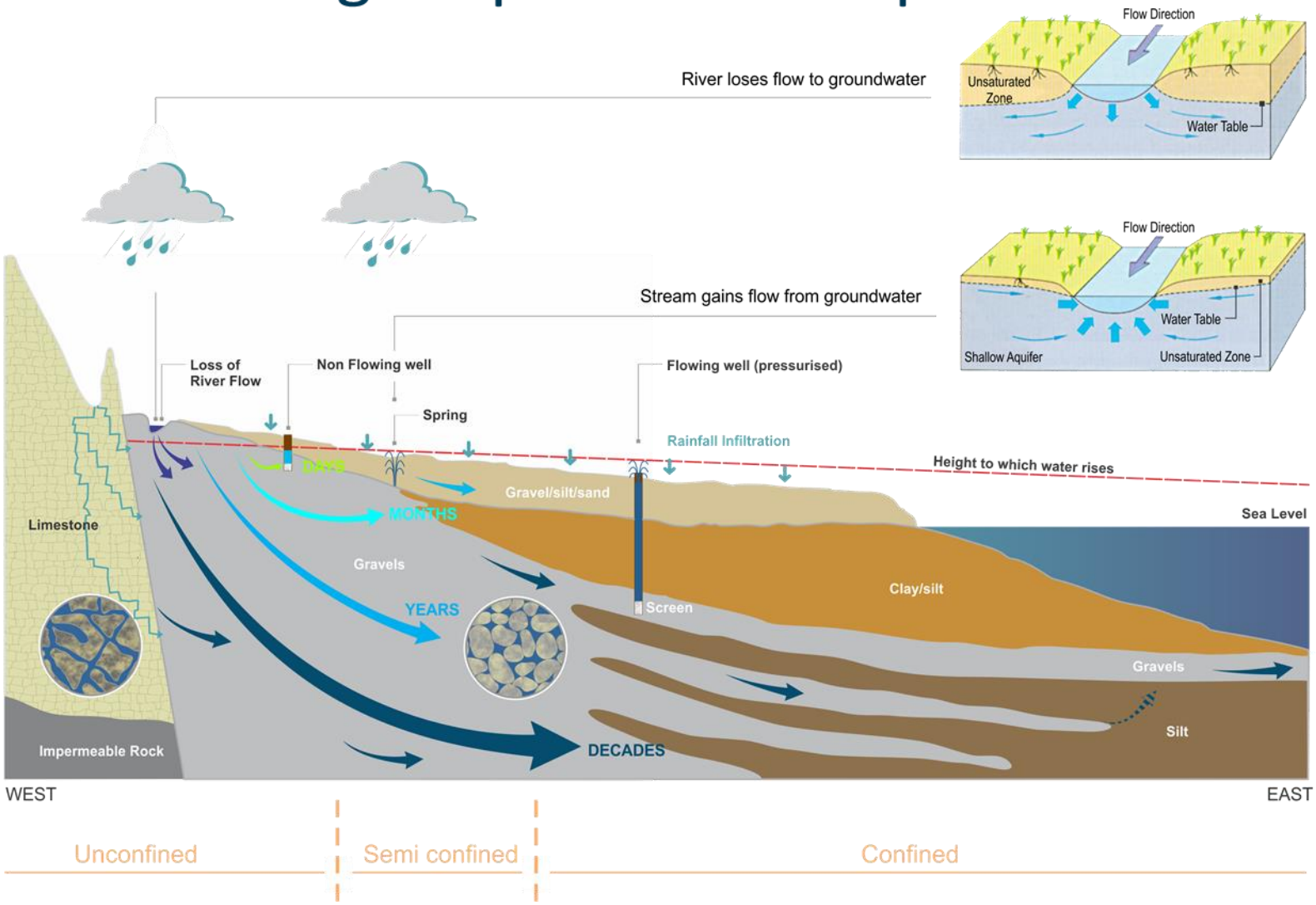
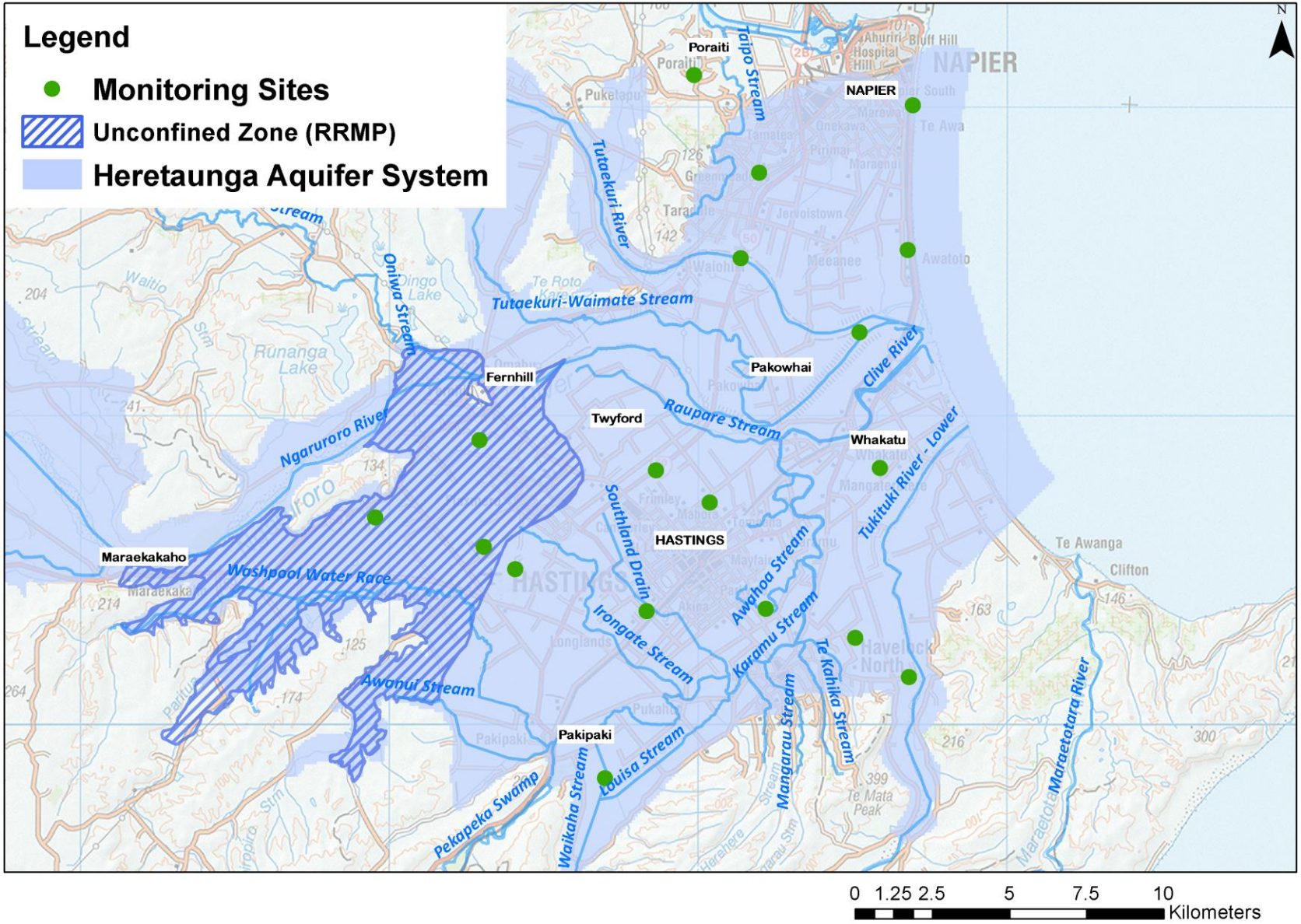
Heretaunga Aquifer - Conceptual Model

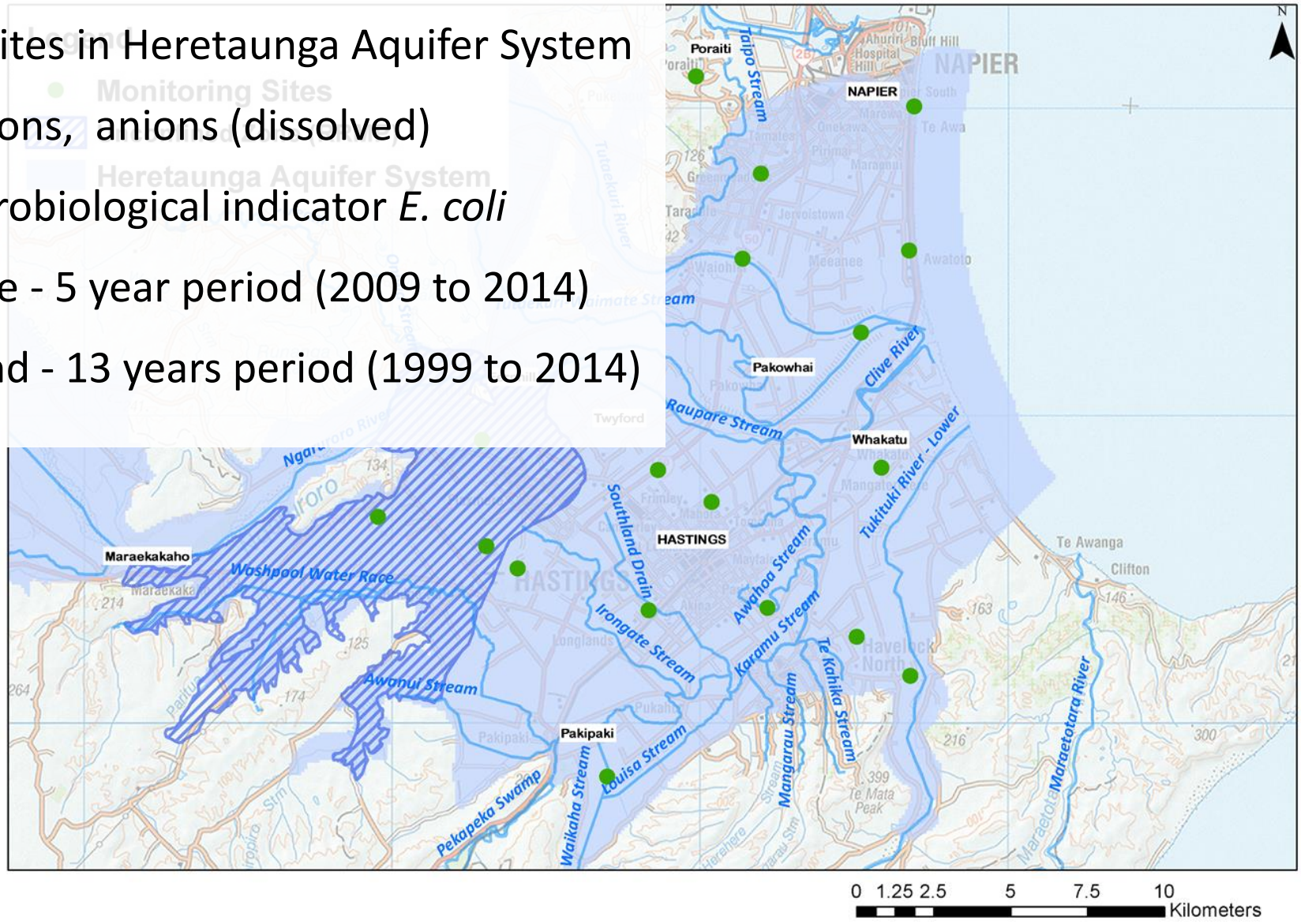


Heretaunga Gravel Aquifer System



Groundwater Monitoring Programme

- 51 regional monitoring sites
- 23 sites in Heretaunga Aquifer System
- Cations, anions (dissolved)
- Microbiological indicator *E. coli*
- State - 5 year period (2009 to 2014)
- Trend - 13 years period (1999 to 2014)



Limits and Standards

Regional Resources plan refers to:

- New Zealand Drinking Water Standards
- ANZECC Irrigation Guidelines
- NZ drinking water standards most stringent
- Apply to groundwater bores that are “secure”
- Water drawn from unconfined aquifers will not be given secure status when the bore intake depth is less than 10 m below ground surface (including springs).
- Bores supplying groundwater from depths of over 10 m need to be confirmed secure potable supply.

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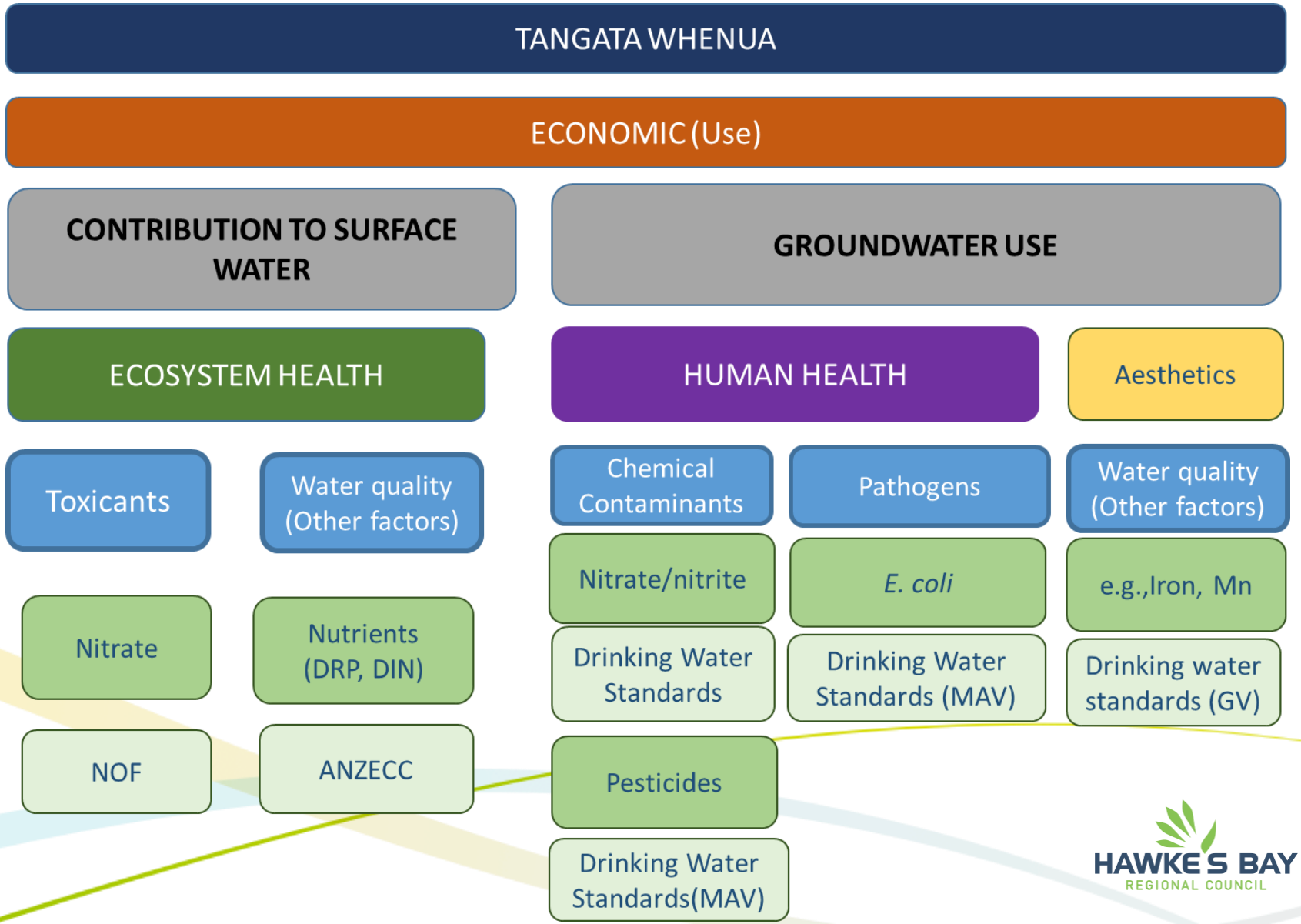
Values relating to Groundwater



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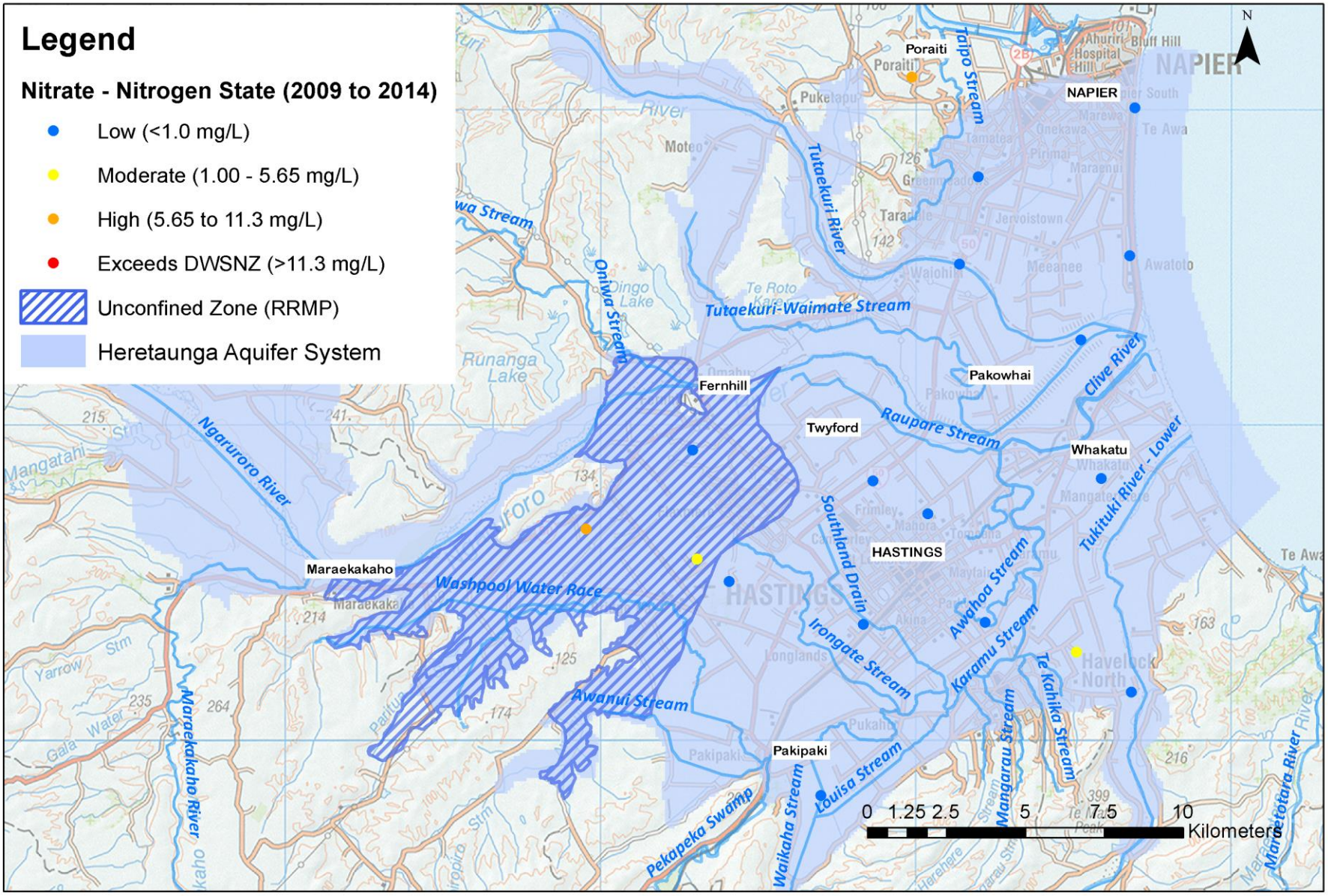
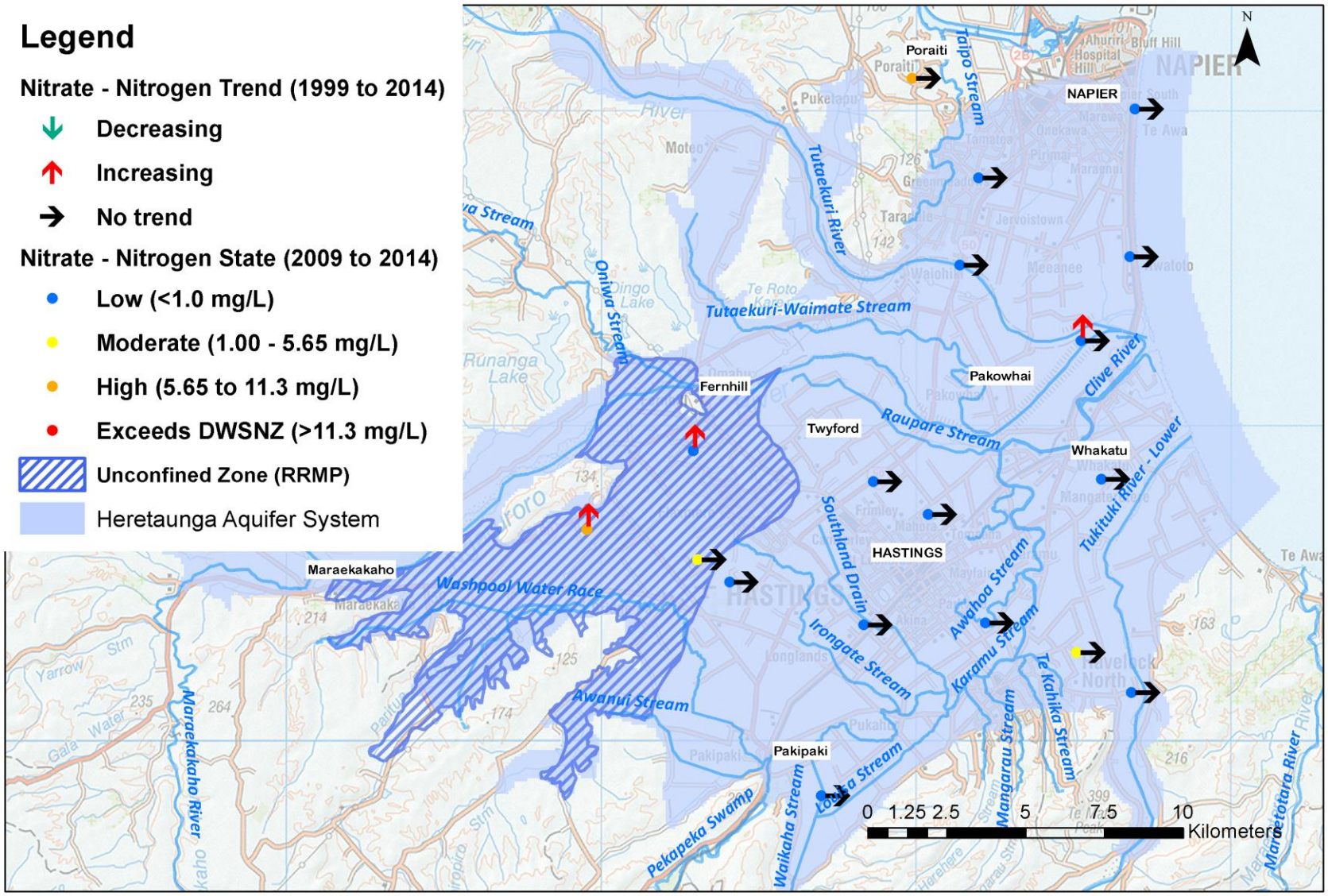
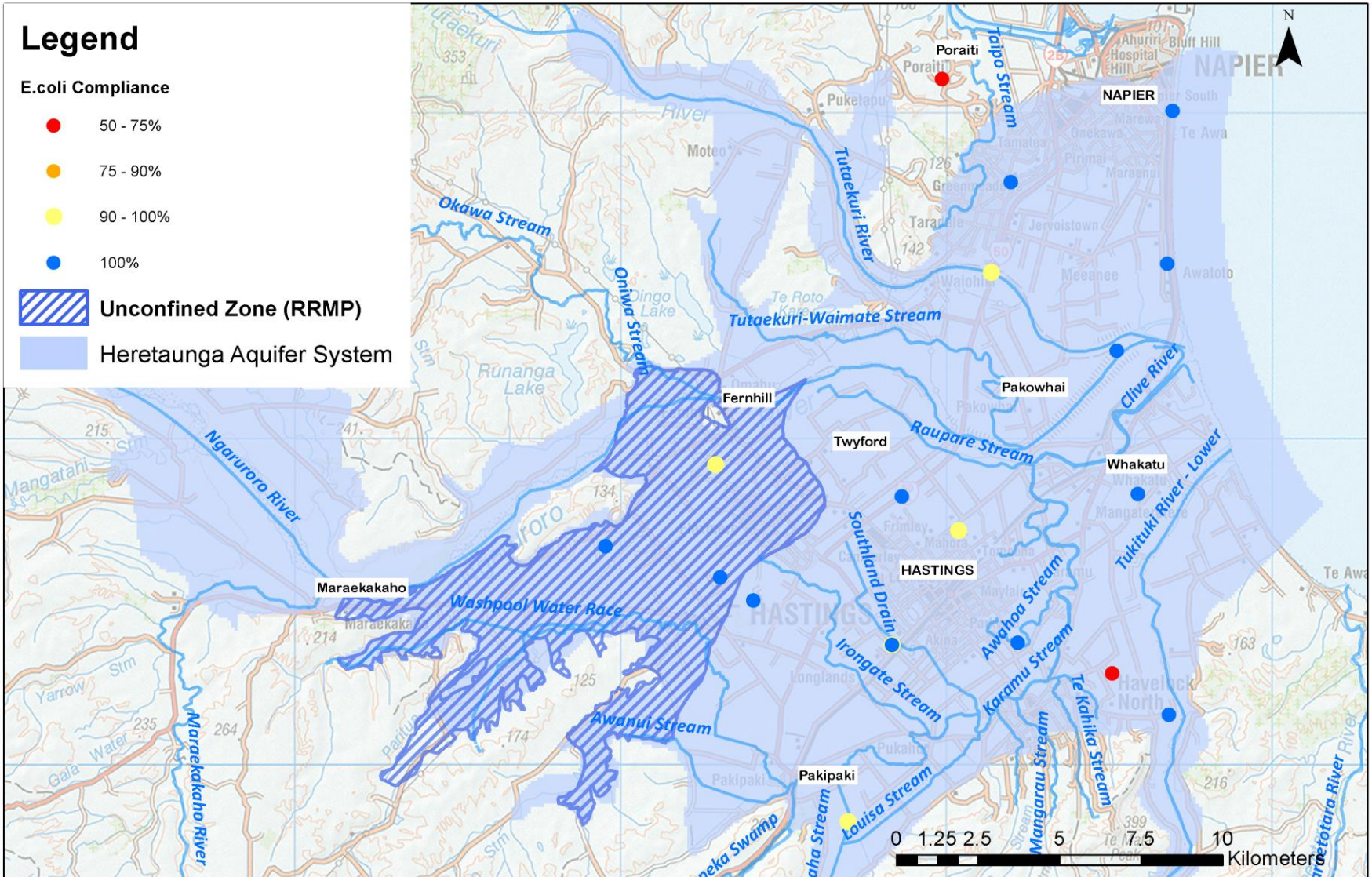
Nitrate – Nitrogen State Results



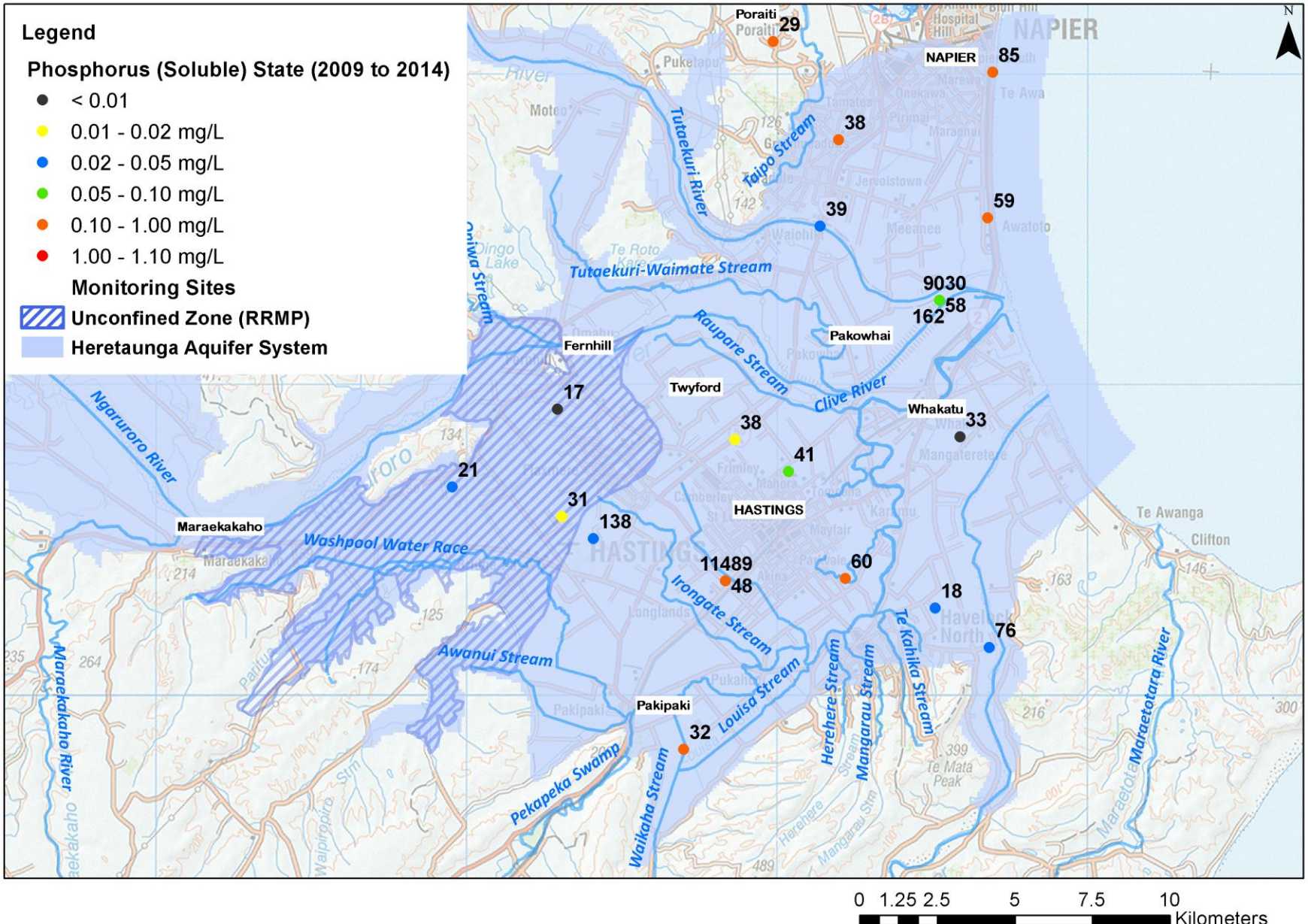
Nitrate – Nitrogen Trends Results



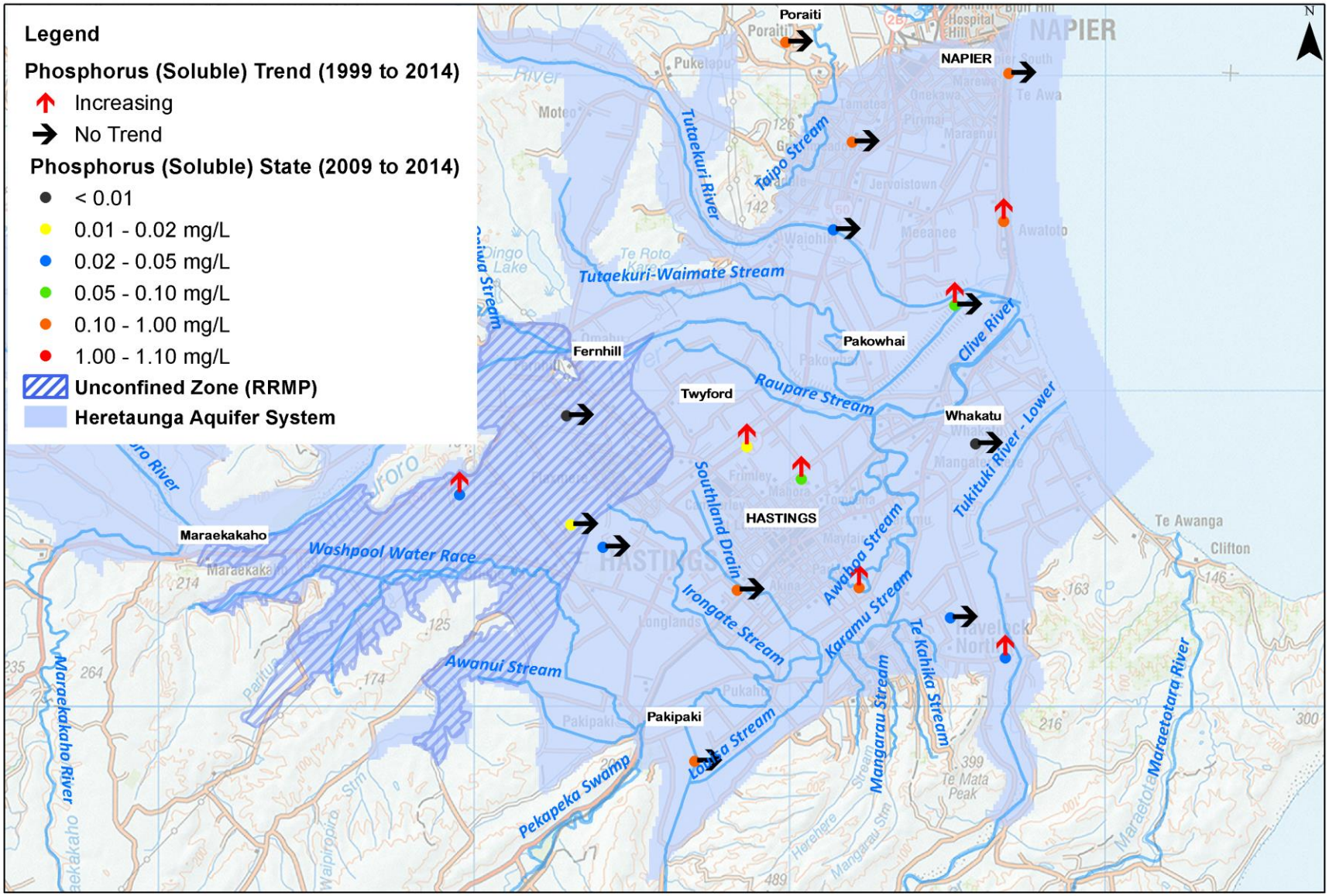
E.coli Microbiological Results



Phosphorus State Results



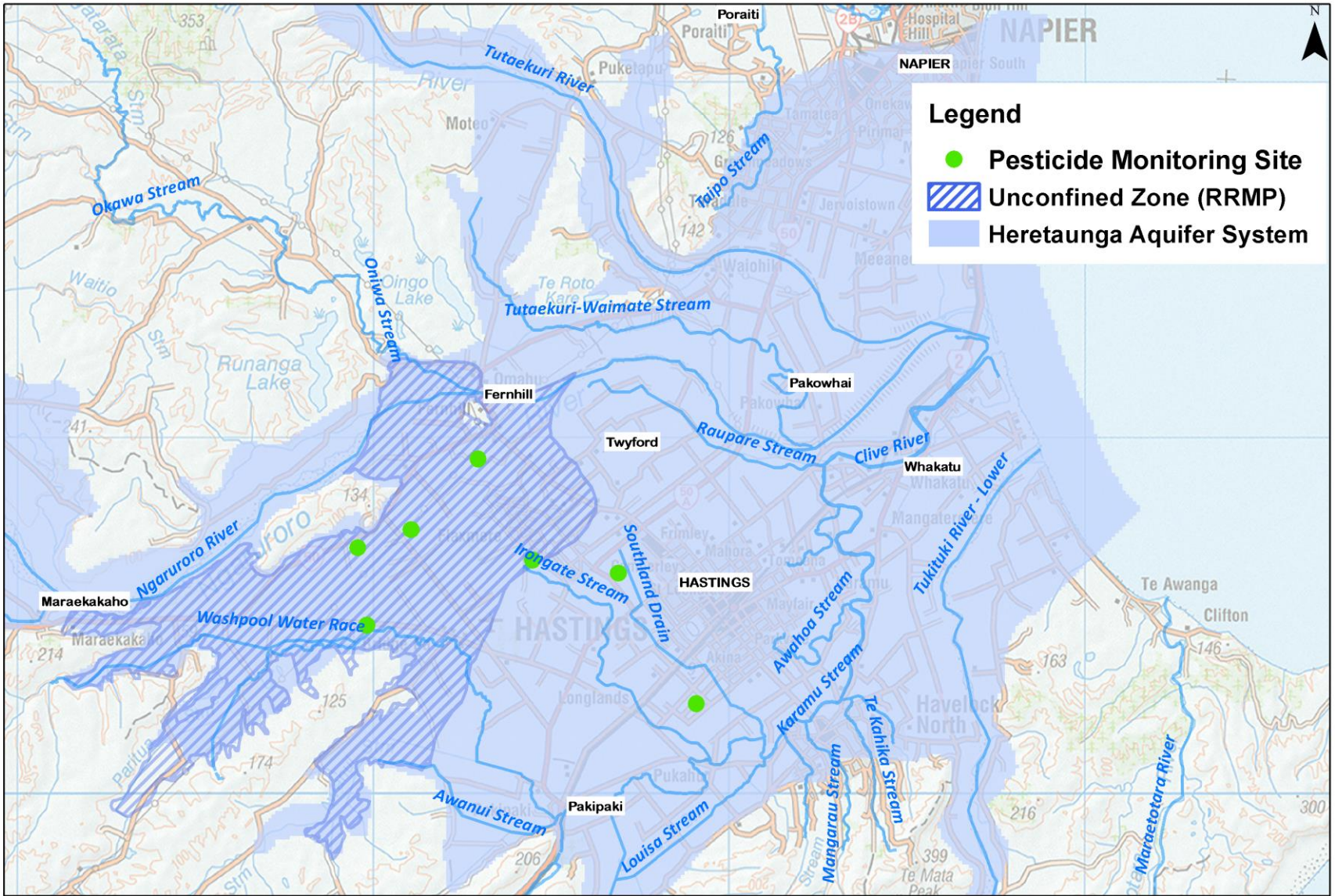
Phosphorus Trend Results



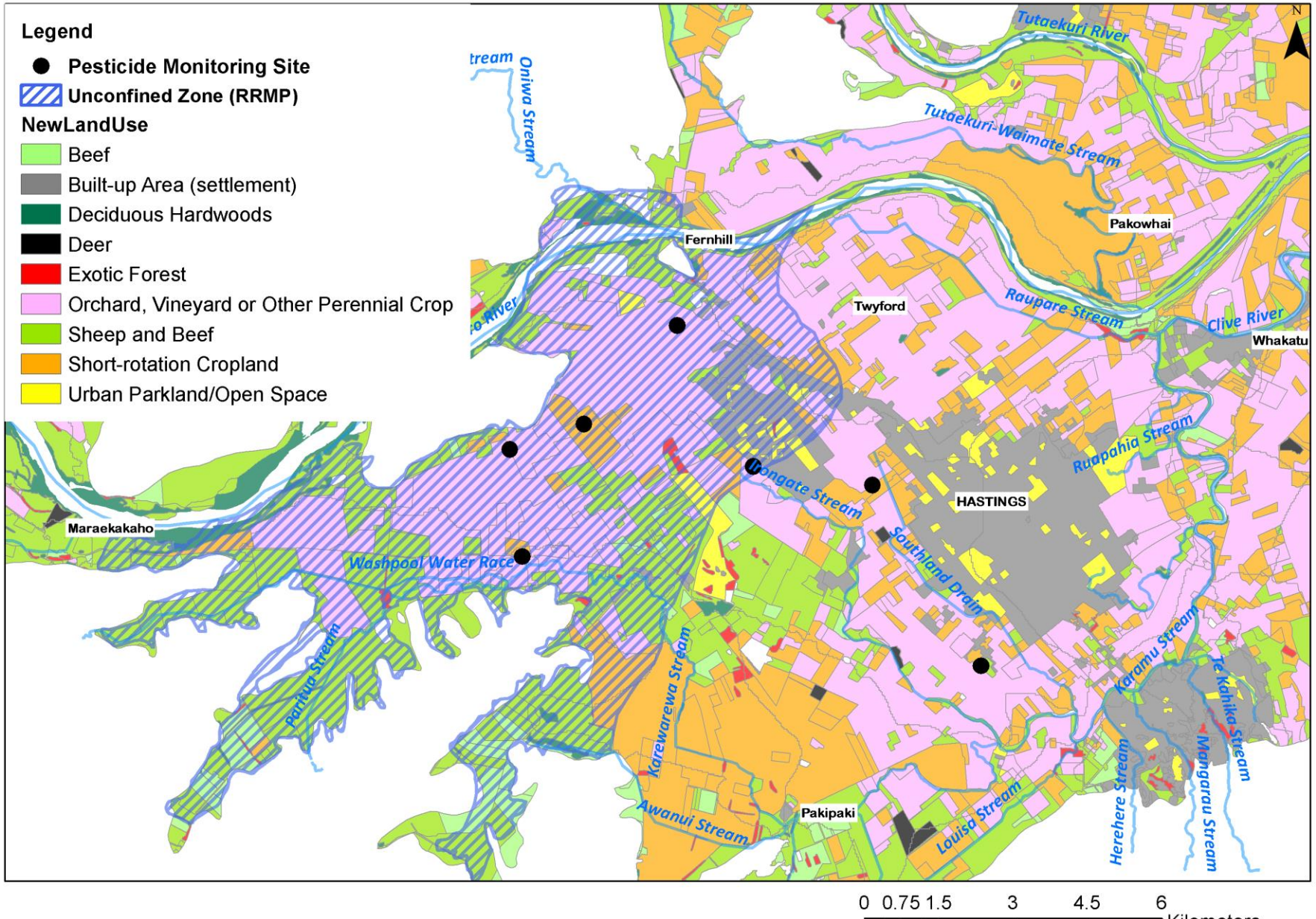
Pesticide Monitoring

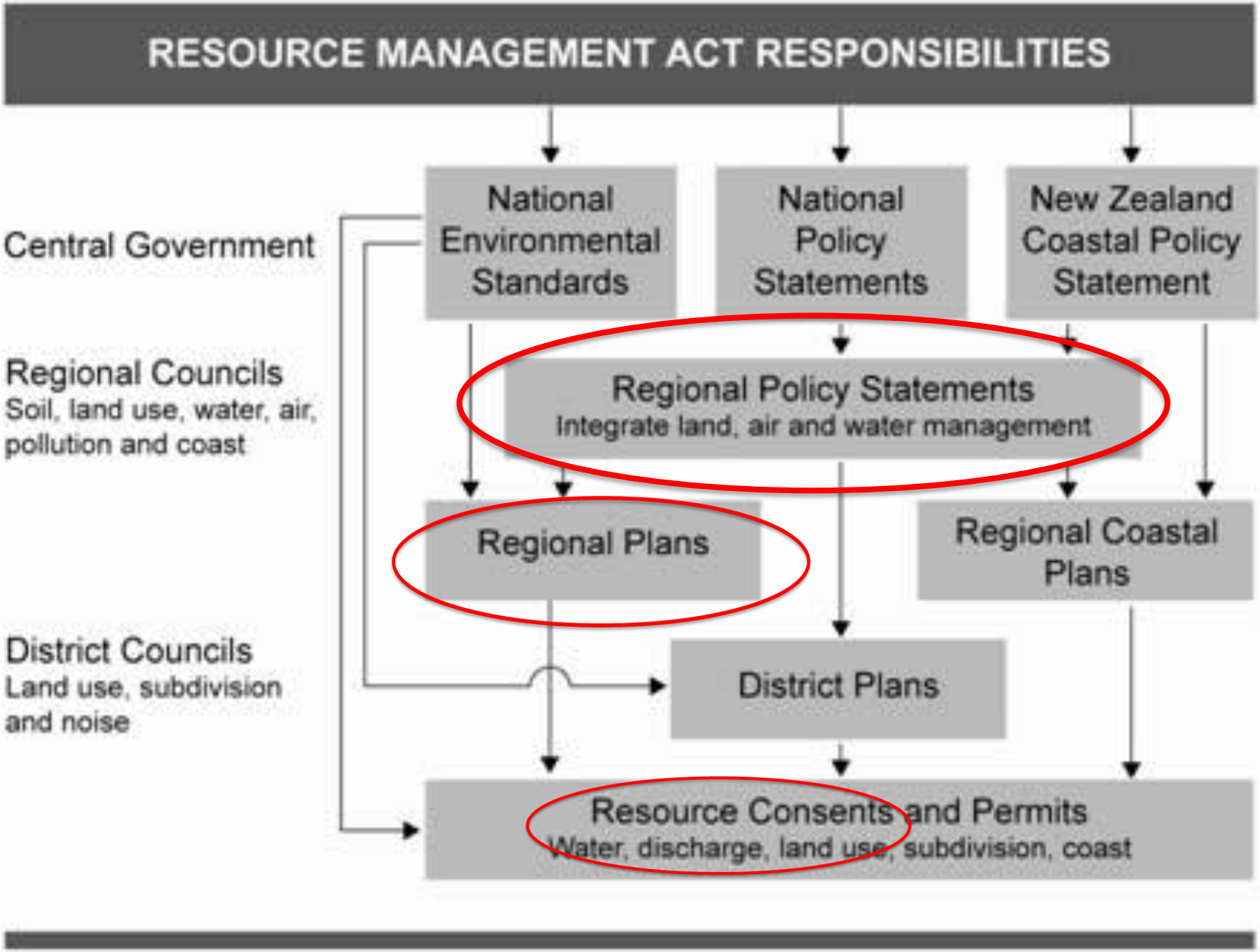
- National Programme
- 12 shallow groundwater sites in Hawke's bay
- Sites located in risk areas
- Range of pesticides
  - Organochlorine
  - Organonitrogen
  - Organophosphorus
  - Acid herbicides
- 2010 and 2014 Survey
- No pesticides detected

Pesticide Monitoring Sites



Pesticides Monitoring Sites & Landuse




RESOURCE MANAGEMENT ACT RESPONSIBILITIES
Central Government
National Environmental Standards
National Policy Statements
New Zealand Coastal Policy Statement
Regional Councils
Soil, land use, water, air, pollution and coast
Regional Policy Statements
Integrate land, air and water management
Regional Plans
Regional Coastal Plans
District Councils
Land use, subdivision and noise
District Plans
Resource Consents and Permits
Water, discharge, land use, subdivision, coast

Groundwater Quality
RPS – Chapter 3.8
RRMP Chapter 5.6

Issues

- Risk of GW contamination from land use practices, discharges of contaminants, and spills, particularly in the Heretaunga Plains and Ruataniwha Plans aquifers

Objectives

- No degradation of existing GW in the aquifers
- The maintenance or enhancement of GW quality in aquifers
  (Note inconsistency between RPS and RRMP objectives)

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Groundwater Quality cont.

Policies and Methods

- Non regulatory methods;

  Liaison with territorial authorities, education, encouragement for self regulation

- Management of specific activities

  Especially discharges over the Heretaunga Plains

- Regulation of activities
  - Decision making criteria for consent applications;
  - Key activities posing contamination risks;

    Onsite wastewater, hazardous substance and industrial activity management, intensive horticulture/agriculture, stormwater, landfills, mining/quarrying
  - Heretaunga Plains and its unconfined aquifers are specially managed

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Table of applicable rules – RRMP Discharges to land

Activity	Status	Attributes potentially affected
Feedlots Rule 5 operating feedlot or feedpad	Permitted – with conditions	Source of disease causing organisms Nutrient discharges – affect Nitrate concentrations and possibly Phosphorous Sediment runoff
Agrichemicals, fertiliser, feeds Rules 9-13	Permitted – with conditions	Nutrient discharges – affect Nitrate concentrations and possibly Phosphorous
Animal effluent – discharge to land Rules 14,15	Consent required. Discretionary in Heretaunga Plains	Source of disease causing organisms Nutrient discharges – affect Nitrate concentrations and possibly Phosphorous

Table of applicable rules - cont

Activity	Status	Attributes Potentially Affected
Rule 35 Existing **sewage systems** – not *Heretaunga Plains (unconfined*) Rule 37 new **sewage systems** – not *Heretaunga Plains (unconfined)*	Permitted with conditions *Restricted discretionary* Permitted with conditions *Discretionary*	Nutrient concentrations Disease causing organisms
Landfills, transfer stations, waste oil-Rule 39, 40 , 41 Discharges from landfills & transfer stations, closed landfills, waste oil	Consents required	Range of contaminants

Table of applicable rules cont..

Activity	Status	Attributes Potentially Affected
Stormwater- Discharges to land/water Rule 42 Diversion & discharge of stormwater Rule 43 Diversion & discharge of urban stormwater	Permitted – with conditions Controlled	Range of contaminants SWWG to address
General discharges of contaminations – discharges to land/water Rule 48 Discharges of solid contaminants to land – Rule 49 Discharges to land	Permitted (but not in Heretaunga Plains unconfined)	

Questions for the TANK Group

What attributes shall we focus on in order to manage GW values?

Human Health	Ecosystem – surface water
Nitrate/nitrite	Nutrients – nitrogen
E. coli	
Pesticides	

- Is current state acceptable?
- Management of contamination sources – gaps and issues

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Managing Sediment Loss

Sediment

1. Why managing sediment is important
2. How do we reduce sediment loss?
3. How much difference can we make?
4. What is the management objective?
   - e.g. x% reduction in sediment
5. How we are going to achieve it (i.e. policy/mgmt. responses)?
   - Some recommendations
6. Break out group discussion

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Q1. Why Manage Sediment?

- **Water quality attribute state is worse than guidelines**
  - Water clarity/turbidity
  - Deposited sediment
  - MCI values
  - Mud accumulation in estuary

- **Sediment pathways link to other contaminants**
  - Phosphorus
  - E.coli (bacteria)

Why Manage Sediment?

- **Adverse effects on values**
  - Ecosystem health
    - Fisheries health (native and trout)
    - Estuary and coastal ecosystems
    - Invertebrate health
  - Social/cultural
    - Swimming
    - Mahinga kai
    - Tourism
    - Uu, Mauri, Wairua
  - Flood control
    - Channel capacity

- **Loss of Farm soil resource**
  - Impact on farm production
  - Impact on farm infrastructure
  - Off site sediment deposition

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Q2. How do we Reduce Sediment and Control Erosion?

More vegetation –

- trees, good pasture cover

Less time/area with exposed soil

- Erosion control techniques
- Timing of land disturbance (civil and/or agricultural)
- Duration that soil is exposed

Management accounts for site specific constraints

- Cultivation according to steep slope, wind erodibility,
- Setbacks from rivers for some activities

Stock exclusion from river banks

How do we Reduce Sediment and Control Erosion ?- cont

Structures

- Bridges/culverts
- Debris dams
- Sediment ponds
- Land management techniques
- Constructed wetlands

Q3. How Much Difference Can We Make?

Estimate of human influence on sediment loss

Current Hillslope erosion compared to forested catchment

Catchment	Pre-human Hillslope Sediment Load (t/yr)	Current Hillslope Sediment Load (t/yr)	Prehuman as % of current load
TANK (Tutaekuri)	90,394	333,651	27
TANK (Ahuriri)	8,009	54,723	15
TANK (Ngaruroro)	197,780	554,382	36
TANK (Karamu)	7,340	46,538	16
TANK hill country total	303,522	989,294	31
River bank erosion total	50,916	166,024	31
Total for TANK	**354,438**	**1,155,576**	31

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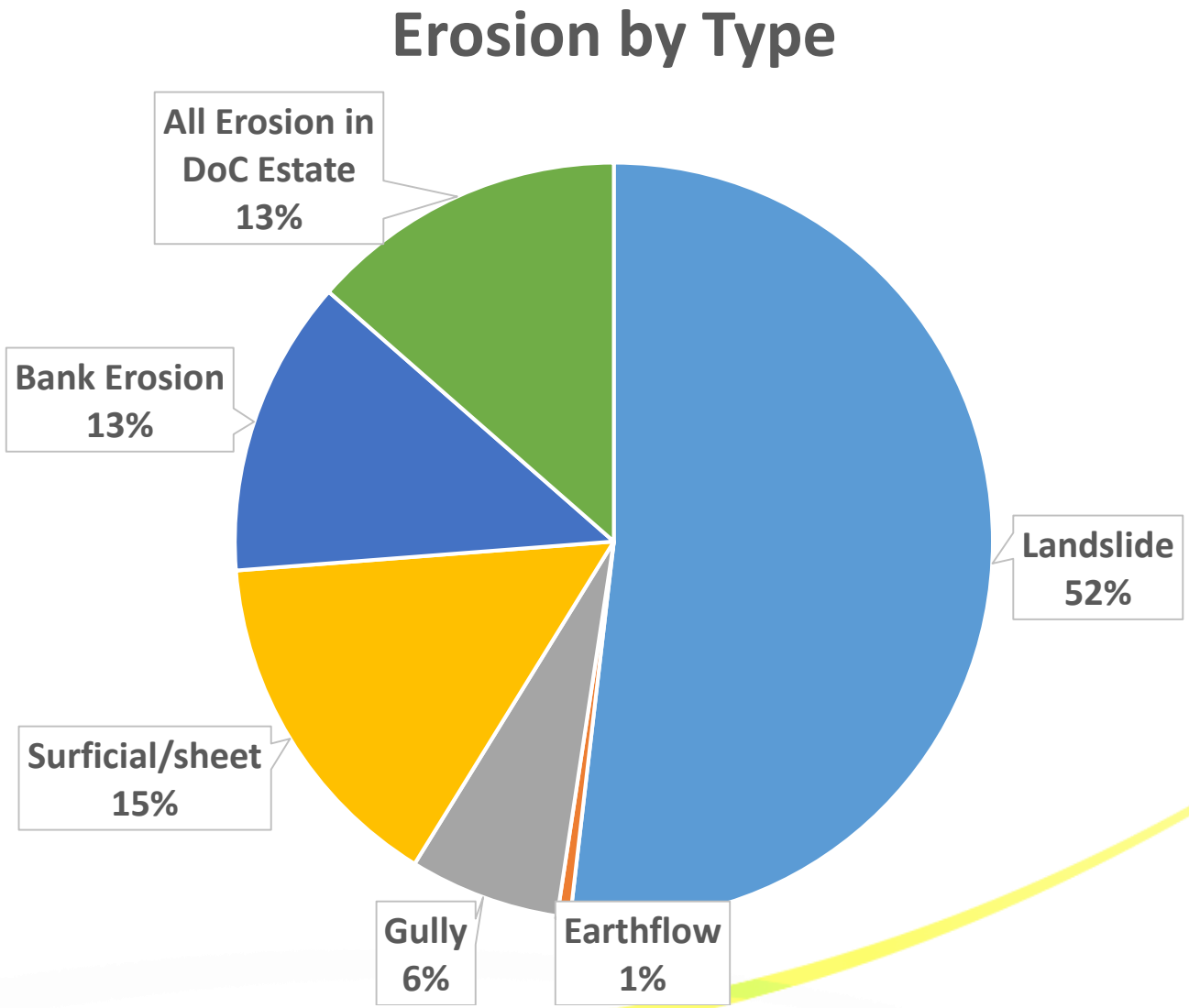
How much difference can we make ?

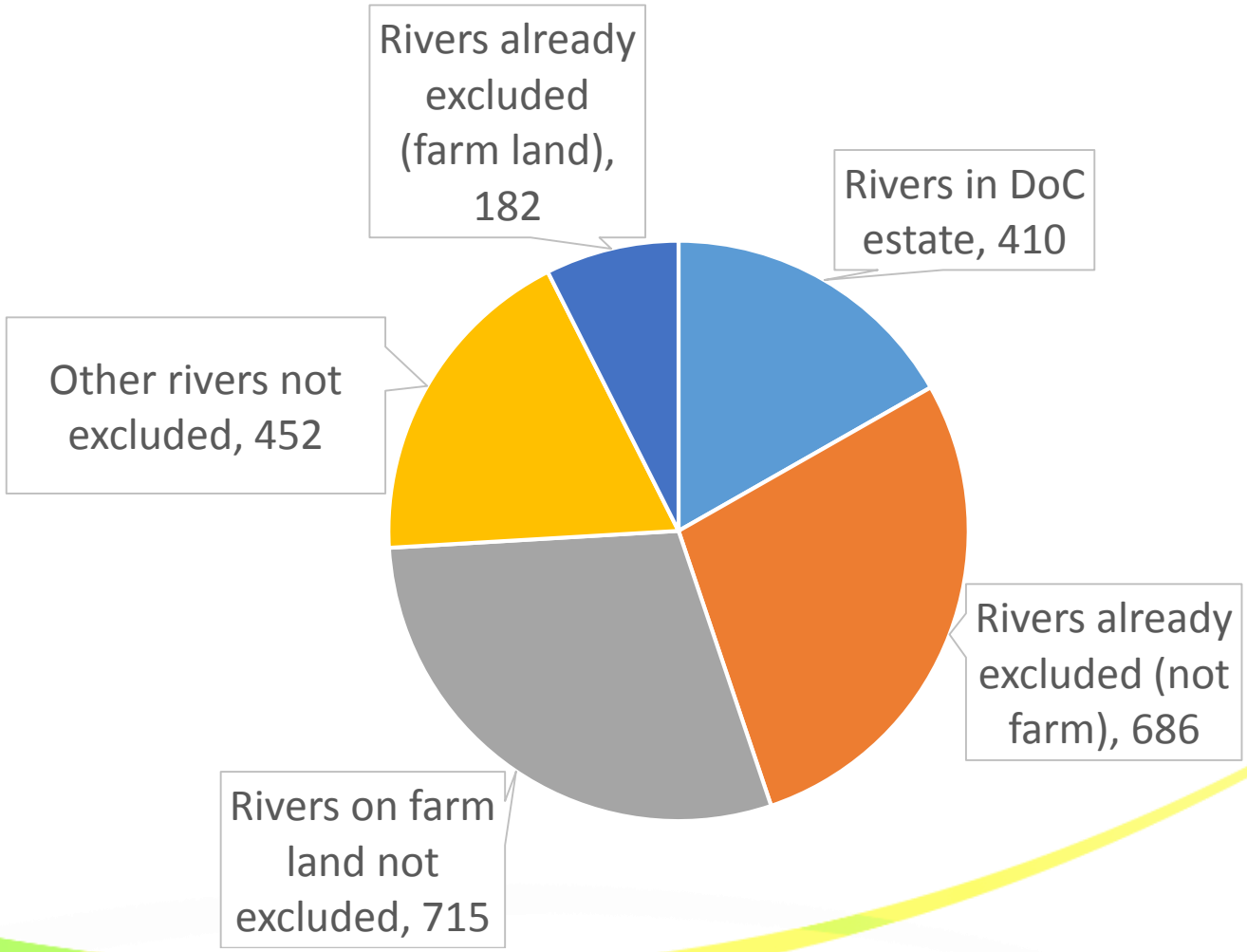


Effect of managing landslides on pastoral hill country

Landslide area on farm land	less than 113,500 ha
Sediment from landslides in TANK area	54% of total sediment loss
Sediment from landslides only on farm land	47% of total sediment loss
Effectiveness of hill stabilisation (pole planting)	~70%
Estimated reduction as % of total TANK sediment	~30 -35% of total sediment loss

Effects of managing sediment loss – river banks

River length showing stock exclusion (km)



Effect of Stock Exclusion

Total river length	2445km
River length – farm land	897 km
River length – farm land already excluded	182 km
River length where stock exclusion possible	715 km

Estimated 80% reduction in sediment loss by exclusion

As percentage of total sediment loss ~5%

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Q3. How much difference can we make? Effects of other measures

- Loss reduction from improved land use practices - (cultivation/setbacks)
    - uncertain %
- Loss reduction from other soil conservation work –
    - uncertain %

*Research is underway in these areas.

Costs and effectiveness of mitigation – indicative only

Erosion Mitigation Measure	Cost	Effectiveness	Contribution to total sediment load	Estimated Cost
Pole planting for slip control	Space planted poles at 30-50 trees/ha $800/hectare	Effectiveness 70-80% reduction in slips compared with pasture	~30-35%	56500 - 113000ha $45.2m - $90m
Fencing for stock exclusion	Fencing costs vary; $3/m - temporary $18-20/m – post and wire $36/m - deer	Up to 80%	~5%	$2.1m -$12.8m ($3 -$18/m)
Other measures	Variable	Variable	Unknown	

Q4. Management objective for sediment loss

Reduce sediment loss by 20% over the next ten years

or

10% or 30%?

Q5. TANK Challenge; How will we achieve the objective?

Finding the right combinations of ;

(a) erosion and sediment controls

(b) Plan change instruments to meet objectives

(c) Realistic timeframes

Plan Change; Instruments for TANK

- **Regulation** - national and local rules
- **Incentives**
  - Subsidies/grants
  - Industry/landowner commitment
- **Education/advocacy**
  - Industry focussed Farm Plans
- **Works and services**
  - Council advice and support

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Regional Policy Statement (RPS) Regional Resource Management Plan (RRMP)

Existing provisions for soil erosion and land disturbance

– objectives, policies and methods, rules

RPS 3.3 Loss and Degradation of Soil
RRMP 5.2 Land

Issues

- Loss and degradation of soil, in particular:
  (a) Accelerated hill country erosion
  (b) Wind erosion
  (c) Degradation of soil health due to inappropriate management practices.
  (d) The adverse effect of soil loss on water quality.

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3.3 Loss and Degradation of Soil

Objectives

RPS

- An ongoing reduction in the extent and severity of hill country erosion.
- The avoidance of loss as a result of wind erosion.
- The avoidance of nuisance effects or economic losses as a result of wind erosion.
- The avoidance of loss in the productive capability of land, as a result of reduced soil health.

RRMP

- The sustainable management of land so as to avoid compromising future use and water quality.

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Policies

- Use of a range of methods
- Best practicable options to manage wind erosion
- Management of vegetation removal on highly erodible land, including regulation

- To encourage landowners and occupiers to manage the effects of activities affecting soil in accordance with the guidelines setout in the RRMP

- Implementation of guidelines through non-regulatory, and regulatory methods, and unregulated activities

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Table of applicable rules – land disturbance

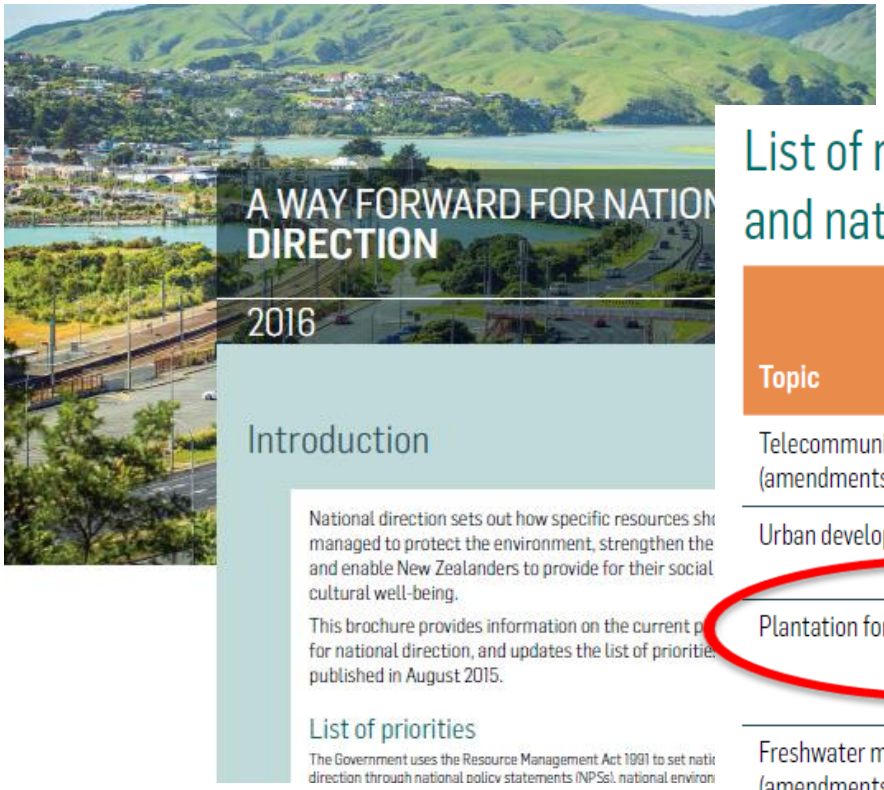
Activity	Status	Attributes Potentially Affected
Vegetation clearance and soil disturbance Rules 7 - 8	Permitted - with conditions	Sediment – possibly with associated phosphorus and other nutrients.

Possible Management Response Package

New targeted policy for TANK

Regulation options	Incentives / subsidies (industry commitment)	Advocacy/ Education (Farm Plans/GAP)
National rules Plantation forestry NES Stock Exclusion *details still tbc*	Subsidy for targeted soil and erosion control works programme Specified programme of work Industry and landowner commitment to outcomes Monitored and reported on	Options include; (i) regulation for all farms, (ii) targeted farm plan regulations – required in specified areas (iii) industry commitment and support - targeted to key areas. Farm Plans developed and advocated for as farm management tool.
More stringent local forestry/stock exclusion rules? Other targeted local rules setbacks cultivation winter grazing etc		

National regulation imminent



List of regulations, national environmental standards and national policy statements

Topic	Indicative date of completion	Description
Telecommunication facilities (amendments)	Late 2016	Changes to bring the existing NES up to date with current technology and to expand permitted activities outside the road reserve.
Urban development capacity	Late 2016	Requirements for councils to provide sufficient capacity for urban development to meet demand for housing and business needs.
Plantation forestry	Early 2017	Nationally consistent rules to manage plantation forestry with more efficiency and certainty, and maintain or improve environmental outcomes.
Freshwater management (amendments to the National Policy Statement)	Consultation in late 2016	Potential amendments to clarify how existing policies are to be applied.
Stock exclusion from water bodies	Mid-2017	A nationally consistent approach to exclude stock from water ways, starting with dairy cattle and pigs, and ultimately applying to beef cattle and deer.

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Regulatory options – Forestry and Stock Exclusion

Fencing Regulations and Plantation Forestry National Environment Standard (NES) is due soon

Detail not yet known – but;

- *Consider national bottom lines in relation to state of TANK water quality and possible risks*
- *Would the TANK catchments require higher levels of performance?*

Plan rules – options

Land disturbance rules

- Cultivation setback
  - *? metres from any flowing stream*
- Cultivation slope restriction
  - *Cultivation on the contour of cultivated area*

Stock access rules

- National bottom line
- Winter grazing setbacks
  - *? metres from any flowing stream*

- Feedlot rule – improvements possible
  - *Further work underway*

A different approach to subsidies/grants

- A non-regulatory, transparent, outcome-focussed industry and farmer commitment to soil conservation works
  - Requires MoU or Accord approach with industries landowners and Council
  - Supported by community groups – planting, etc

- Based on a specified works programme
  - Outcomes/works programmed
    - Specified works
  - Measureable and monitored
  - Focussed on key areas/activities – criteria for funding
  - Funding sources – to be confirmed

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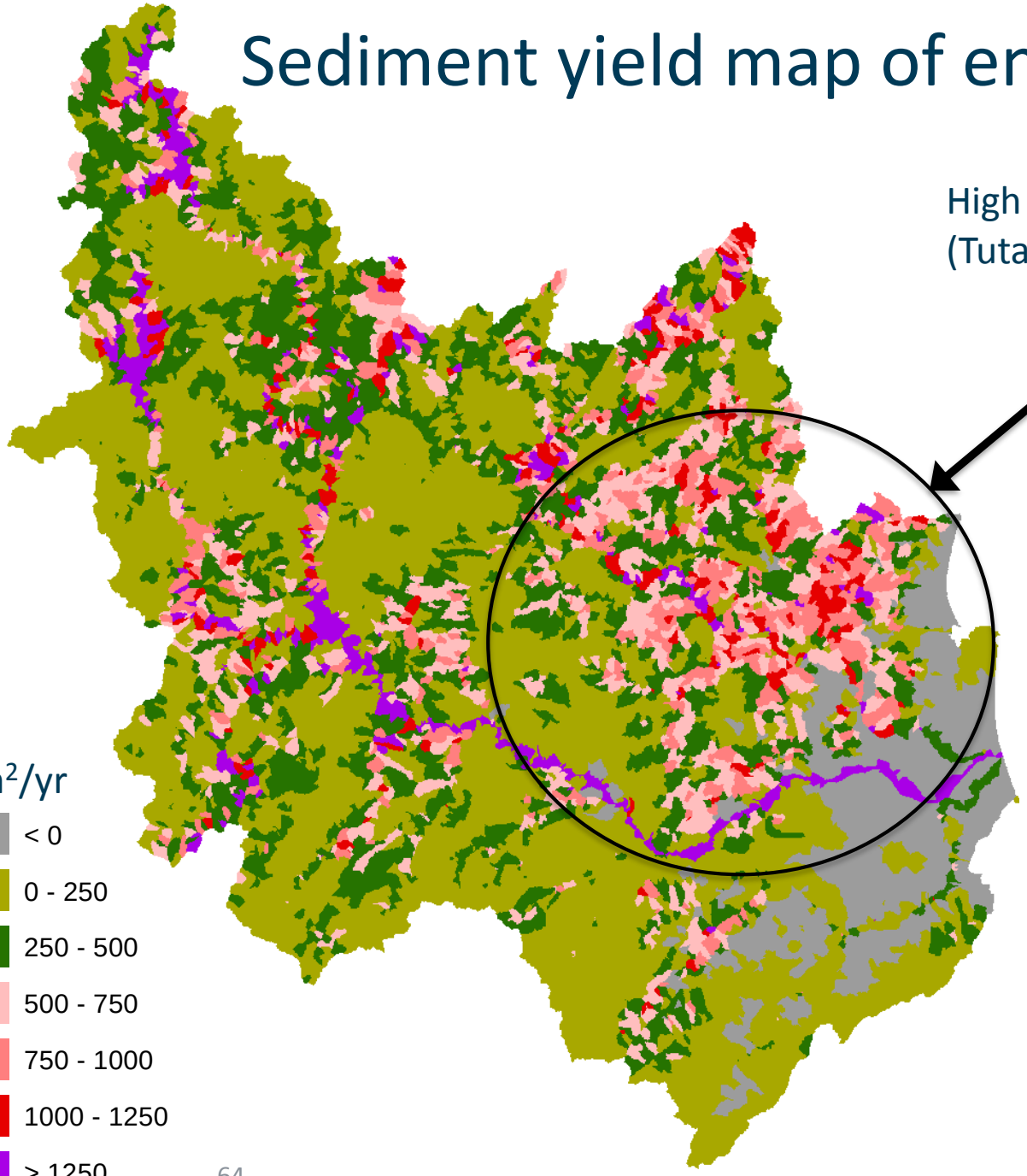
Farm Plans (Soil Conservation and Erosion Control) - Options for the TANK catchments;

1. Regulate all - all farms to have a Farm Plan (soil conservation)
2. Target Regulation;

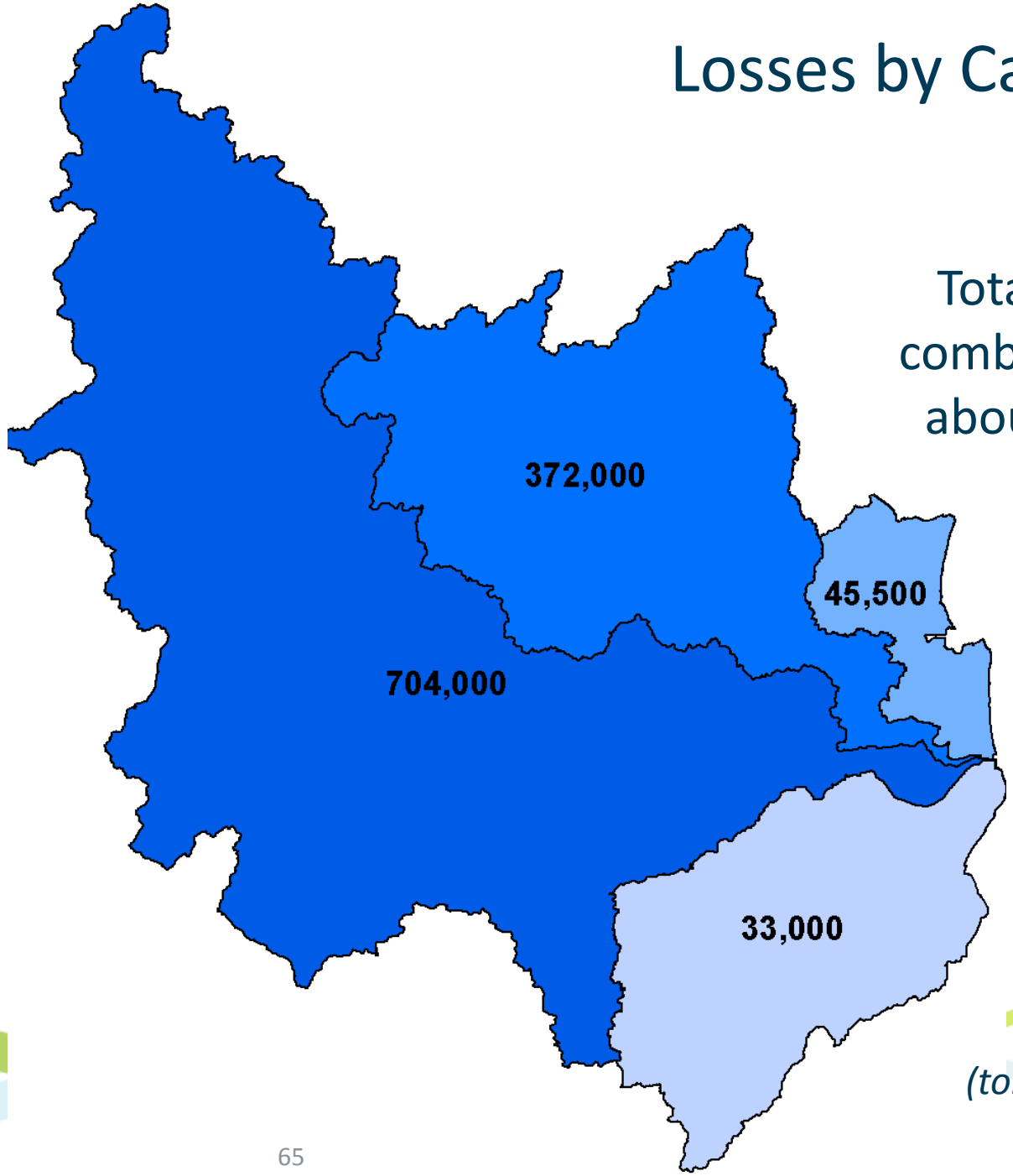
   (i) Farm (erosion control) rule for areas where more erosion likely to occur
   - This could be the 20% overall reduction by worst areas

   (ii) Focus on key catchments/ areas of concern, e.g
   - Ahuriri
   - Tutaekuri
3. Non- regulatory - Industry commitment

Sediment yield map of entire TANK area



Losses by Catchment



Total sediment loss from combined TANK catchments about 1.16 million tonnes each year

(tonnes/year)

Each of the Farm Plan options has costs and benefits

Option 1 Farm Plans (soil conservation); Regulation

Benefits

- Could build on industry systems
  - Hort NZ Global and NZ GAP
  - Fonterra Sustainable Dairying
  - Beef and Lamb LEPs
- Clear requirement to manage properties according to site specific risks to environment.
  - Evidence of social license
- Performance monitored and potentially auditable (?)

Costs

- Focus on the Farm Plans
  - Success might be measured by number of farm plans
- If farmers not in support of regulation they will adopt avoidance strategies or ways of doing the minimum necessary
- May be inflexible and prevent innovation
- Needs significant resources & expertise
  - Staff time
  - Compliance and auditing challenges
  - 2500 farms @ $3-5,000 per plan costs about $7.5-12.5m
- Compliance and monitoring costs significant

Option 2 – Targeted Farm Plan Regulation

Benefits

Similar to Option one – but smaller in scale

Reduces overall farm plan costs to smaller number of property owners

Focuses on where sediment loss is a greater problem

Costs

Similar to Option 1 but smaller in scale

All solutions to meet 20% target to be met by smaller number of farmers – no collective responsibility

Option 3 Farm (soil conservation) Plans; Industry and Farmer supported approach

Benefits

- Farmer support and development of 'good practice'
  - Better buy-in by farmers
- Industry commitment and support for outcomes
- Enables a farm specific targeted approach
- More able to be responsive to innovation
- Allows limited resources to be better targeted to environmental outcomes
- Reduces regulatory cost/burden for farmers
- Can fit in with other industry requirements

Costs

- All sectors not providing the same support/service for their farmers
- FEMP preparation still likely to cost $$
- Voluntary uptake in some sectors may not be as fast as regulation
- Requires trust with community –
  - Will water quality outcomes be met?
- Requires regular auditing and sanctions if performance not met
  - Not currently available to all industry sectors

Possible Management Response Package

New targeted policy for TANK - still to come

Regulation options	Incentives / subsidies (industry commitment)	Advocacy/ Education (Farm Plans/GAP)
National rules Plantation forestry NES Stock Exclusion details still tbc	Subsidy for targeted soil and erosion control works programme Specified programme of work Industry and landowner commitment to outcomes Outcomes monitored and reported on	Options include; (i) regulation for all farms, (ii) targeted farm plan regulations – required in specified areas (iii) industry commitment and support - targeted to key areas. Farm Plans developed and advocated for as farm management tool.
More stringent local forestry/stock exclusion rules Other targeted local rules setbacks cultivation winter grazing etc		
Feedback – issues/gaps		

1. **Breakout Group Discussion and Report Back**

   - Gaps and issues ?
   - Recommended management direction
     - Identify any preferred options for further analysis by working group

2. **Working Group options**

   (i) Economic Assessment Working Group or

   (ii) Appoint new group

Future considerations for water quality and water quantity

- What things might change water quality and water quantity?
  - How likely is this change?
  - What are the water quality or quantity consequences
    - Are the consequences likely to be significant?
  - How might this change affect how we manage water?
    - What management responses could be considered?
    - What is the timeframe for management responses
  - Will this change affect or inform how we model scenarios?

Future considerations

Threat	Effect	How likely and how significant	Possible management responses	Planning horizon
Climate change	Drier	Climate change models show range of outcomes	Allocate less water Water augmentation, more storage	Longer term
Land use changes *e.g. more intensification*	Increased nutrients & sediment entering waterways		Thresholds and limits	

Breakout discussion

HAWKE'S BAY
REGIONAL COUNCIL

Next meeting – 13 December 2016

AGENDA - TANK #25

- Confirm Karamū values/attributes/attributes states
- Consider Karamū management solutions
- Continuing Waitangi Estuary state/trends information – nutrient load limits
- Report on Heretaunga Source Model
- Develop scenarios for modelling

HAWKE'S BAY REGIONAL COUNCIL

Verbal updates from Working Groups

- Engagement
- Economic Assessments
  - RfP
- Stormwater
- Wetlands/Lakes
- Mana whenua

Closing Karakia

Nau mai rā

Te mutu ngā o tatou hui

Kei te tumanako

I runga te rangimarie

I a tatou katoa

Kia pai to koutou haere

Mauriora kia tatou katoa

Āmine