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

TANK

## Meeting 35:
## 22 November 2017

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# Karakia

# Karakia

Ko te tumanako

Kia pai tenei rā

Kia tutuki i ngā wawata

Kia tau te rangimarie

I runga i a tatou katoa

Mauriora kia tatou katoa

Āmine

Water is a taonga and the purpose of our meeting is to…….

# Agenda

| | |
|---|---|
| 9:30am | Welcome and notices (Robyn) |
| 9:45am | Objectives for today (Mary-Anne) |
| 10.00am | Wetland and lakes management – recommendations from LWWG (Gavin Ide) |
| 10.45am | Climate change – recommended policy (Ceri Edmonds) |
| 11.30am | Staged reduction – recommendation about its adoption (Jeff Smith) |
| **12:00pm** | **LUNCH** |
| 12.30pm | Water allocation (Malcolm Miller) |
| 2.00pm | Economic modelling presentation from AgFirst - agreement on approach (Leander) |
| **3:15pm** | **COFFEE BREAK** |
| 3.30pm | Monitoring Plan (Stephen Swabey)<br>• review of HBRC network and gap analysis for TANK catchments<br>• community scale monitoring options |
| 4:30pm | **CLOSE MEETING /CHRISTMAS DRINKS** |

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# Meeting objectives

1. Agree drafting instructions and recommendations for wetland management
2. Agree drafting instructions for climate change
3. Agree recommendations for managing staged reductions
4. Understand economic modelling approach
5. Agree TANK monitoring plan and policy recommendations

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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

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# 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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# TANK Lakes & Wetland Working Group Recommendations

**Working Group members:**
Nathan Burkepile, John Cheyne,
Neil Eagles, Peter Kay, Ivan Knauf,
Connie Norgate, Aki Paipper,
Gavin Ide (convenor)

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# Wetland and Lake Management

**Issue:**

The importance of wetlands recognised by TANK Group and development of measures to support the preservation of remaining wetlands.

**Options:**

1. Do nothing – rely on existing provisions in RRMP
2. Adopt approach recommended in LWWG's report (i.e. Recs A1-C3)
3. Adopt alternative or amended provisions

**Proposal**

1. Adopt the approach recommended by LWWG.

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# LWWG's report back

**Overall approach** *(Recs A1, A2 & A3)*

- Interim Agreements 30 & 31
- Policy as a package
- Notes for future work re lakes

**Enhancing HBRC's role and capacity** *(Recs B1 & B2)*

- Leadership and 'broker' of non-reg support (info & expertise)
- Reduce duplication of effort across agencies
- Complement activities of HBRC & other agencies

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# LWWG's report back cont'd

**Plan Change policy content** *(Recs C1, C2 & C3)*

a) Recognise values of all existing wetlands *[C1(a)]*

b) Unnecessary to generate exhaustive list of values for every individual wetland *[C1]*

c) Ensure decision-makers consider wide range of values *[C1(b)]*

d) Deliberate references to 'natural wetlands' in regulation *[C2, C3(a)&(c)]*

e) TANK PC as 'gap-filler' to complement existing RRMP rules *[C3(b)]*

f) Rules shouldn't discourage artificial enhancement of wetlands *[C3(c)]*

g) Collective mgmt of farming systems across properties *[C3(d)&(e)]*

h) Valuing wetlands, and wetlands as a 'tool' for water mgmt *[C3(d)&(e)]*

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# LWWG's Recommendations

**Issue:**

The importance of wetlands recognised by TANK Group and development of measures to support the preservation of remaining wetlands.

**Options:**

1. Do nothing – rely on existing provisions in RRMP
2. Adopt approach recommended in LWWG's report (i.e. Recs A1-C3)
3. Agree alternative or amended provisions, and reasons

**Proposal**

1. Adopt the approach recommended by LWWG.

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# BREAKOUT SESSION

1. Do you agree or disagree with the LWWG's recommended approach?

2. What should be amended or added, and why?

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# LWWG Recommendations (in full)

*A1. TANK Group reaffirms its earlier Interim Agreement #30*

*A2. TANK Group should not reaffirm Interim Agreement #31*

*A3. The overall policy package for wetlands in the TANK area is a mix of regulatory and non-regulatory support.*

*A4. Note that no recommendations have yet been made regarding spatial management units, levels and water quality limits for lakes.*

*A5. Note that the issue of 'swimmability' targets and action planning to achiever those targets in the Hawke's Bay region is underway. Those actions are being considered as part of a region package which will have relevance to TANK, but not solely targeted to TANK's large lakes and wetlands.*

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# LWWG Recommendations (in full)

*B1. TANK Group encourages HBRC to strengthen its wetland-related programmes and take the lead role in the region as 'broker' of information and expertise for wetland restoration and enhancement.*

*B2. TANK Group agrees that the non-regulatory support should complement other work by HBRC and various other agencies, rather than duplicate or work against them.*

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# LWWG Recommendations (in full)

*C1. It is unnecessary for the TANK plan change to identify the significant value(s) of each and every individual wetland in the TANK area. Instead policy should be drafted to:*

*a) recognise the values of all existing wetlands; and*

*b) ensure decision-makers actively consider the wide range of values that wetlands offer and apply those in the circumstances.*

*C2. In relation to non-regulatory support, references to the broader 'wetland' term used in the RMA is still useful, but in the context of rules, controls should be focussed in relation to 'natural wetlands'.*

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# LWWG Recommendations (in full)

*C3. In relation to recommended plan change content:*

*a) the RRMP's rules (at least for the TANK area) should be appropriately targeted at 'natural wetlands.' This term would be applied to create clearer distinction of rules that might apply to artificial and highly modified waterbodies – in a similar fashion to distinguishing between streams, drains and channels.*

*b) Regulatory content of the TANK plan change needs to complement the RRMP's existing rules which are already reasonably comprehensive. In that way, the TANK plan change just needs to ensure regulatory 'gaps' are closed appropriately rather than a wholesale rewrite.*

*c) Rules should be targeted at activities adversely affecting 'natural wetlands.' Rules should not lead to discouragement or impediments to artificial enhancement of wetlands and the creation of new wetland environments.*

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# LWWG Recommendations (in full)

*C3. In relation to recommended plan change content: ...*

*d) The TANK Group should support an approach of 'collective' [farm?] management plans/planning that duly consider protection of natural wetlands' values; maintenance and restoration of natural wetlands; wetlands as a tool for achieving broader freshwater outcomes; as well as encouraging the construction of new artificial wetlands that provide additional wetlands values and functions.*

*e) FEMPs (individual and/or collective) must have regard to the presence and current state of wetland(s) within the property(ies). Many of the larger wetlands/lakes in the TANK catchment span multiple properties. In those instances, it would be appropriate to require a suitably scaled management plan to carefully consider wetland state and what role the wetland might have in contributing to broader freshwater management objectives.*

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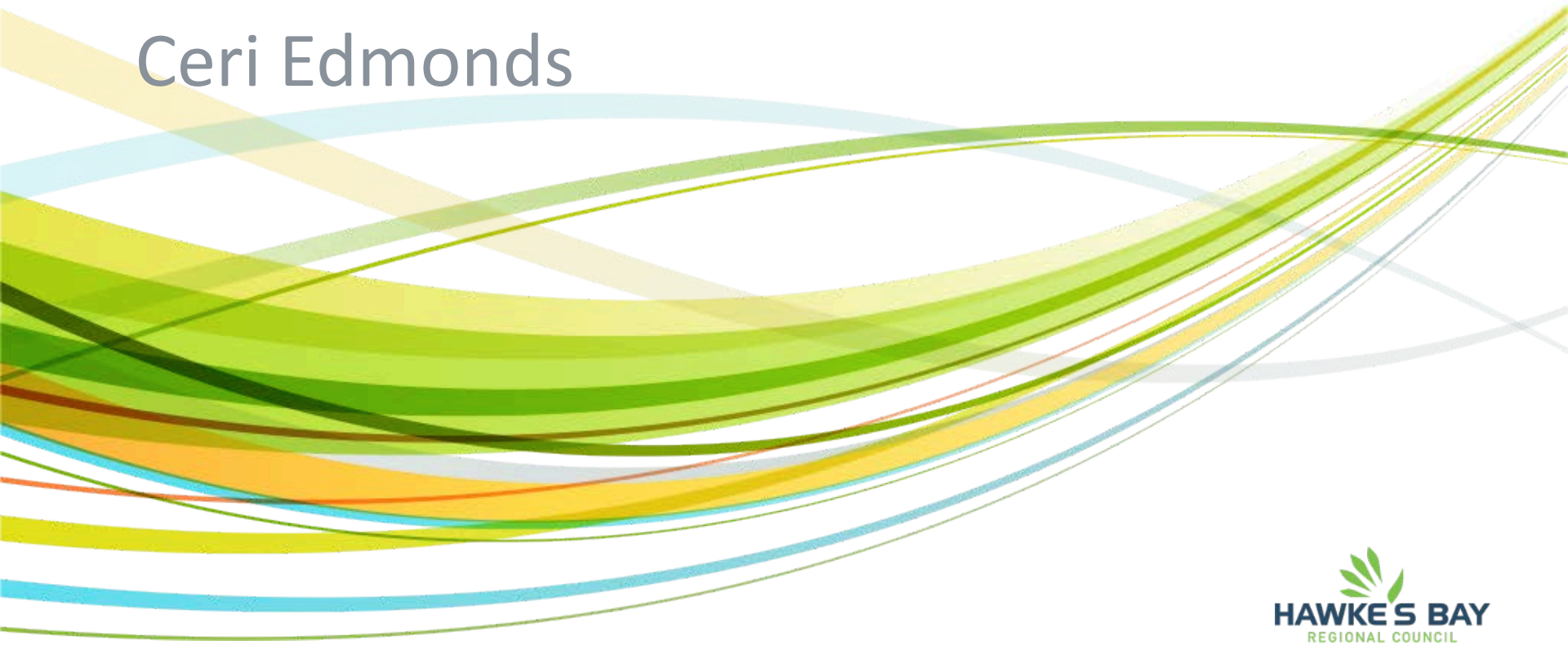
# Climate Change Policy

Ceri Edmonds



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# Why a climate change policy?

It was agreed at meeting 28 (held 28th April 2017) to incorporate a climate change policy within the TANK plan change.

**Decision:**

1. That policies should be included in the plan change that address climate change risks.
2. That existing climate change projections are not of sufficient certainty or difference from historic data at the annual scale for use in groundwater/stormwater modelling and therefore historic data should be used for this plan change.

**Options:**

1. Do nothing
2. Adopt approach recommended in meeting papers
3. Adopt alternative or amended provisions

**Proposal:**

Adopt the approach recommended in meeting papers

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# Policy justification

The RMA provides a definition of climate change within the interpretation.

> *Climate change – means a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.*

Section 7 'Other Matters' of the RMA states that in achieving the purpose of the Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall have particular regard to...

*(i) The effects of climate change*

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# What the Plan Change does not do

There is limited reference, policy or regulation within the RRMP and RCEP around climate change, however it should be understood that there is no mandate to develop an overarching plan change review.

The scope of this exercise is limited to TANK.

Other climate change strategies

- The 'Hawke's Bay Climate Change Resilience Programme'
- Clifton to Tangoio Coastal Hazard Management Strategy
- Heretaunga Plains Urban Development Strategy 2017

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# Climate Change - Risks

- higher temperatures
- a decrease in annual rainfall, drier season = more intense droughts
- wetter seasons and more intense storms/heavy rain events
- longer term risks of sea water intrusion with sea level rise etc.,
- natural hazards – coastal erosion, inundations, flash floods, landslips, drought etc.

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# TANK – Climate Change Issues

- **Times of water shortage** –in times of heightened water shortage (climatic variations) security of water supply is a critical factor. This pressure is exacerbated through climate change.

- **Times of water excess** - in times of flood and intense rain events, excess water poses a significant problem within the catchments. These are mainly focussed around health risk, hazard risk, infrastructure capacity, sedimentation of waterways and impacts on ecosystems.

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# Climate change – Indicative Objective

The effects of climate change in relation to each of the following are accounted for in making decisions about land and water management within the TANK catchments,

a) Predicted increase in rainfall intensity, and the effects on erosion and sedimentation of waterbodies, ecosystems and infrastructure;
b) Predicted increase in sea level, and the effects of salt water intrusion on freshwater;
c) Predicted drought, and the effects on water supply, human health, production and ecosystems, and improving community resilience.

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# Items to be addressed in policy

Suggestion - Incorporate climate change references in other TANK policies. Recognising the importance of :

- harvesting and storage of water to offset the effects of increasing drought intensity and frequency;

- collecting good hydrological information and ensuring that it is regularly assessed in relation to changing trends in climate and impacts on water allocation limits, minimum flow regimes and groundwater levels;

- national scale information and modelling about climate change to better understand and predict what might happen in Hawkes Bay, and building in flexibility in decision making to be able to adopt new information as and when it arises; and

- Identifying and adopting land management practices that mitigate adverse effects of increased rain fall.

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# DISCUSSION AND DECISION SOUGHT

1. **Do you agree with the proposed drafting instructions:**
   **A) the objective and**
   **B) the policy direction**

2. **What should be amended or added?**

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# Staged reductions

Jeff Smith

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# Staged Reductions

**Issue:**

Staged reductions is a possible management response that ameliorates the impacts of take restrictions as river flows gradually decline during droughts. Gradual reduction in takes as a minimum flow approaches could extend the time water could be taken while maintaining river flows for longer above the minimum. Modelling has shown the effect of staged reductions in the Ngaruroro has negligible effect and is likely to result in worse outcomes for irrigators.

**Options:**

1. Adopt a staged reduction regime
2. Do not adopt a staged reduction regime formally, but allow for irrigators to voluntarily adjust combined demand as low flows approach where this may assist in maintaining low flows

**Proposal:**

No formal staged reductions

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# Water Allocation – Existing Use

Malcolm Millar

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# Key decision points for today

Surface water allocation limits;

setting allocation limits and allocation methods

Groundwater allocation limit – What is it?

Takes with stream depletion effects

Allocation per activity

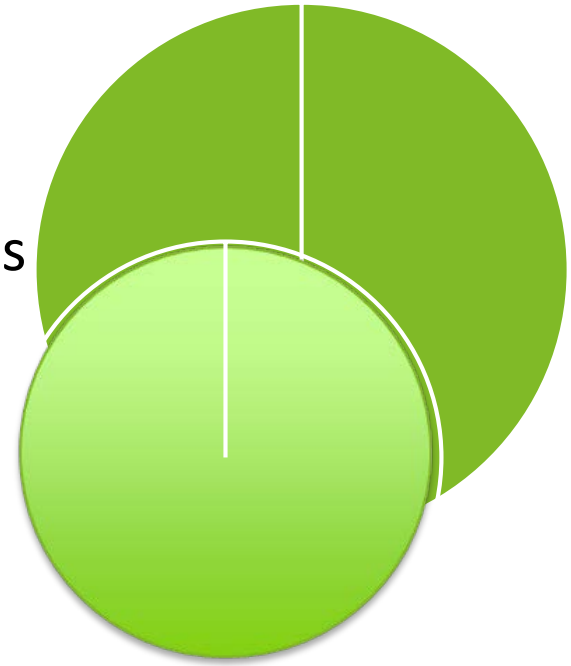
Actual and reasonable use

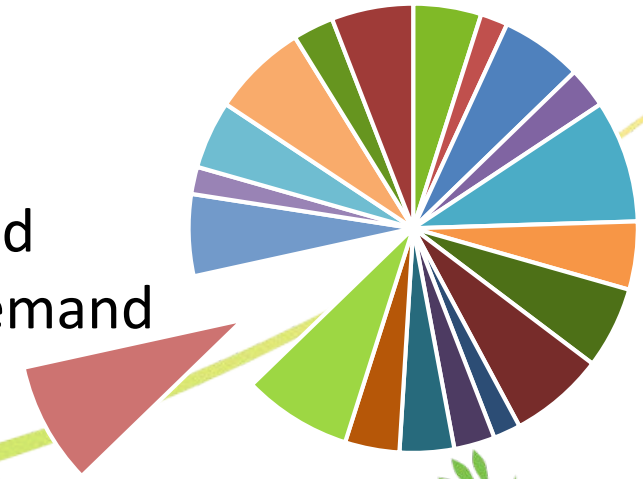
Efficient use

Reliability standards for irrigation demand

Methodology for calculating irrigation demand

Timeframes





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# Allocation of surface water and groundwater

**Previously discussed / decided**

**Surface water** minimum flows and impact on allocation

**Groundwater allocation**

- cap at the existing use
  - (i) 78 M $m^3$ per year – calculated demand in average year
  - (ii) 90 M $m^3$ per year – calculated demand in 2012-13
- investigate effect of reducing to below the existing level of abstraction

**Stream depletion** – Zones 1 - 4 defined

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# Surface water allocation limit

**Issue:**

RRMP contains policy directions for calculating surface water allocation limits that accounts for combined effect of allocation limit and minimum flow on security of supply for users. This approach still recommended – but security of supply for water users will be reduced with increases to minimum flow.

**Decision points**

1. What should be allocated?
2. How should the allocated amount be measured?
3. How can reduced reliability be mitigated?

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# Surface water allocation limits - How have these been determined previously?

**Policy 73 (c)**

To provide a known level of risk to resource users by ensuring that, for rivers with an established minimum flow, the total allocation authorised through the resource consent process does not result in authorised takes being apportioned, restricted or suspended for more than 5% of the time on average during November-April.

95% reliable

7 day avg summer flow exceeded 95% of time – min flow = SW allocation

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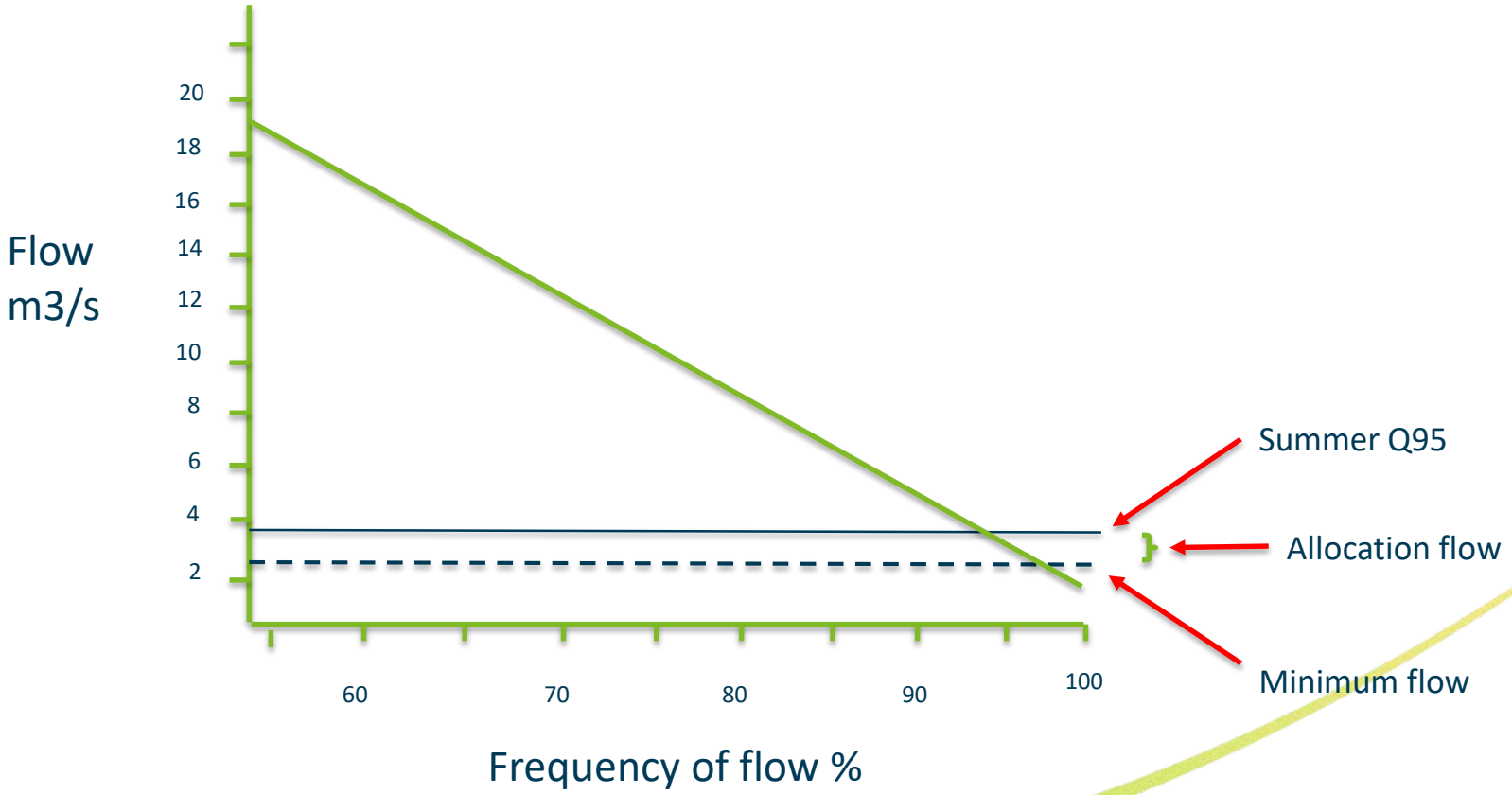
# How were these allocation limits determined?

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# How were these allocation limits determined?

7 day avg summer flow exceeded 95% of time – **min flow** = **SW allocation**

| | Summer Q95 | Minimum flow | SW allocation | Weekly volume |
|---|---|---|---|---|
| Ngaruroro at Fernhill | 3981 L/s | 2400 L/s | 1581 L/s | 956,189 $m^3$/wk |
| | | | | |
| Tutaekuri at Puketapu | 3536L/s | 2000L/s | 1536 L/s | 928,972 $m^3$/wk |

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# Heretaunga Plains - Surface water allocation

| Minimum flow site | Location | Minimum flow (L/s) | Allocatable volume (m3/week) | Allocatable rate (avg) (L/s) | Allocation status (m3/week) |
|---|---|---|---|---|---|
| Awanui Stream | At the Flume | 120 | 0 | | 17,143 |
| Irongate Stream | At Clarke's Weir | 100 | 0 | | 0 |
| Karamu | At Floodgates | 1,100 | 18,023 | 30 | 127,824 |
| Karewarewa River | At Turamoe | 75 | - | | 0 |
| Louisa Stream | At Te Aute Rd | 30 | 0 | | 7,450 |
| Mangateretere Stream | At Napier Rd | 100 | 0 | | 101,281 |
| Maraekakaho River | At Taits Rd | 100 | 5,443 | 9 | 18,561 |
| Ngaruroro | At Fernhill Bridge | 2,400 | 956,189 | 1591 | 1,059,447 |
| Raupare Stream | At Ormond Road | 300 | 83,844 | 139 | 298,746 |
| Tutaekuri River | At Puketapu | 2,000 | 928,972 | 1534 | 850,505 |
| Tutaekuri-Waimate | At Goods Bridge | 1,200 | 367,114 | 607 | 367,315 |

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# Should we use this same approach?

- This will provide high reliability of supply for those able to access the water.
- It will prevent more abstraction (except for high flow takes).
- But the allocation limit will need to be reduced if the minimum flow is increased if the same reliability is to be maintained.
- Or existing abstractors could agree to accept the reduced reliability and retain their current allocations

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# Setting surface water allocation limits – recommendation

1. Continue to allocate to provide 95% reliability for takes.
2. If the minimum flow is raised allow the status quo allocation even if this provides less than 95% reliability;

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# How should we allocate surface water to each activity?

**CONDITIONS**

1. The rate of taking shall not exceed **20 litres per second.**

2. The volume taken for irrigation and sprayfill shall not exceed the following:
   a) **25,674 cubic metres in any 28 day period**; and,
   b) **100,140 cubic metres within the 12 month period,** 1 July to 30 June in consecutive calendar years;

20L/s instantaneous rate = 48,384 m3/28 days
10.6L/s average rate = 25,674 m3/28 days
Take for 14.8 days to take 25,674 m3 at 20L/s

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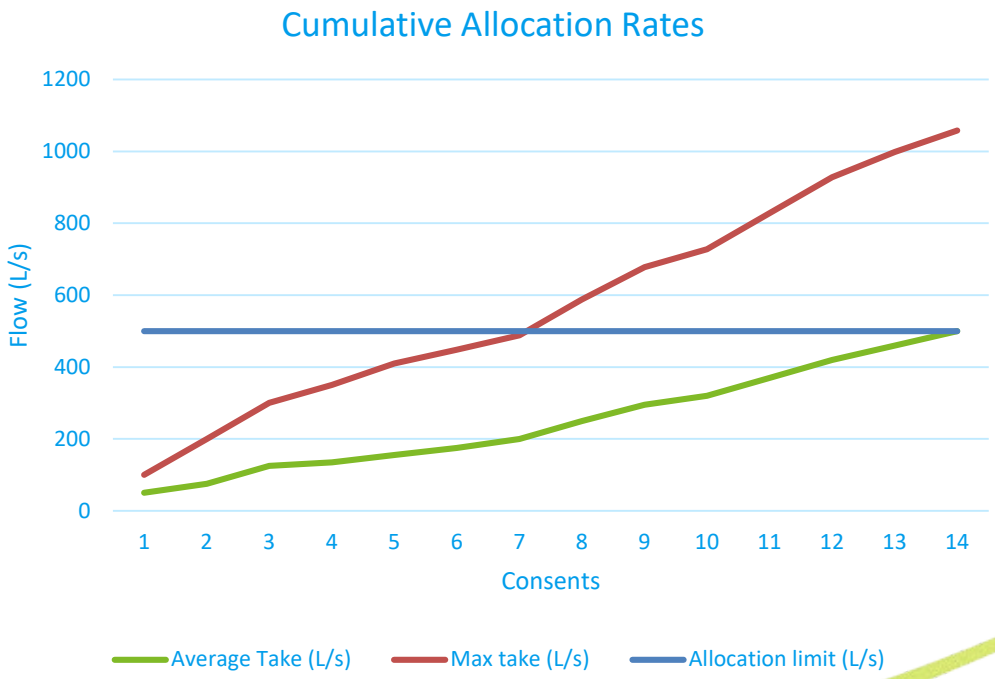
# How should we allocate surface water?

Allocation limit = Rate (500 L/s) and weekly volume (302,400m3/wk)?

Allocated = average rate (L/s) determined from weekly / 28 day volume

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# Setting surface water allocation limits – recommendation

1. Measure the allocated amount as the sum of the average rate (L/s) per consent determined from weekly / 28 day volume.
2. Provide for water sharing / rostering of water at times of low flow (when the full allocated amount is not available).
3. Augmentation – options being assessed by WAG

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## BREAKOUT SESSION

# Summary of recommendations

1. Allocation limit – continue to use existing formula but
   - irrigators to manage impact on their security of supply with any minimum flow increase
2. Permit allocations = average rate (L/s) determined from weekly / 28 day volume

**Do you agree?**
**If not why not?**

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# Groundwater allocation limit

**Issue:**

RRMP seeks to manage takes of groundwater

- to ensure abstraction does not exceed the rate of recharge (Policy 77(a)); and
- to ensure abstraction does not have an adverse effect on rivers, lakes and wetlands (Policy 77(d)).

**Decision points**

1. What should be allocated?
2. How should the allocated amount be measured?
3. How should stream depletion effects be measured?

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# How should the allocation limit be determined?

Previous TANK Group direction

– cap the allocation at the existing use and investigate the effect of reducing to below the existing level of abstraction

Modelled existing water utilisation;

(i) 78 M $m^3$ per year – calculated use in average year

(ii) 90 M $m^3$ per year – calculated use in 2012-13

Estimated allocated groundwater = 181 M m3 per year

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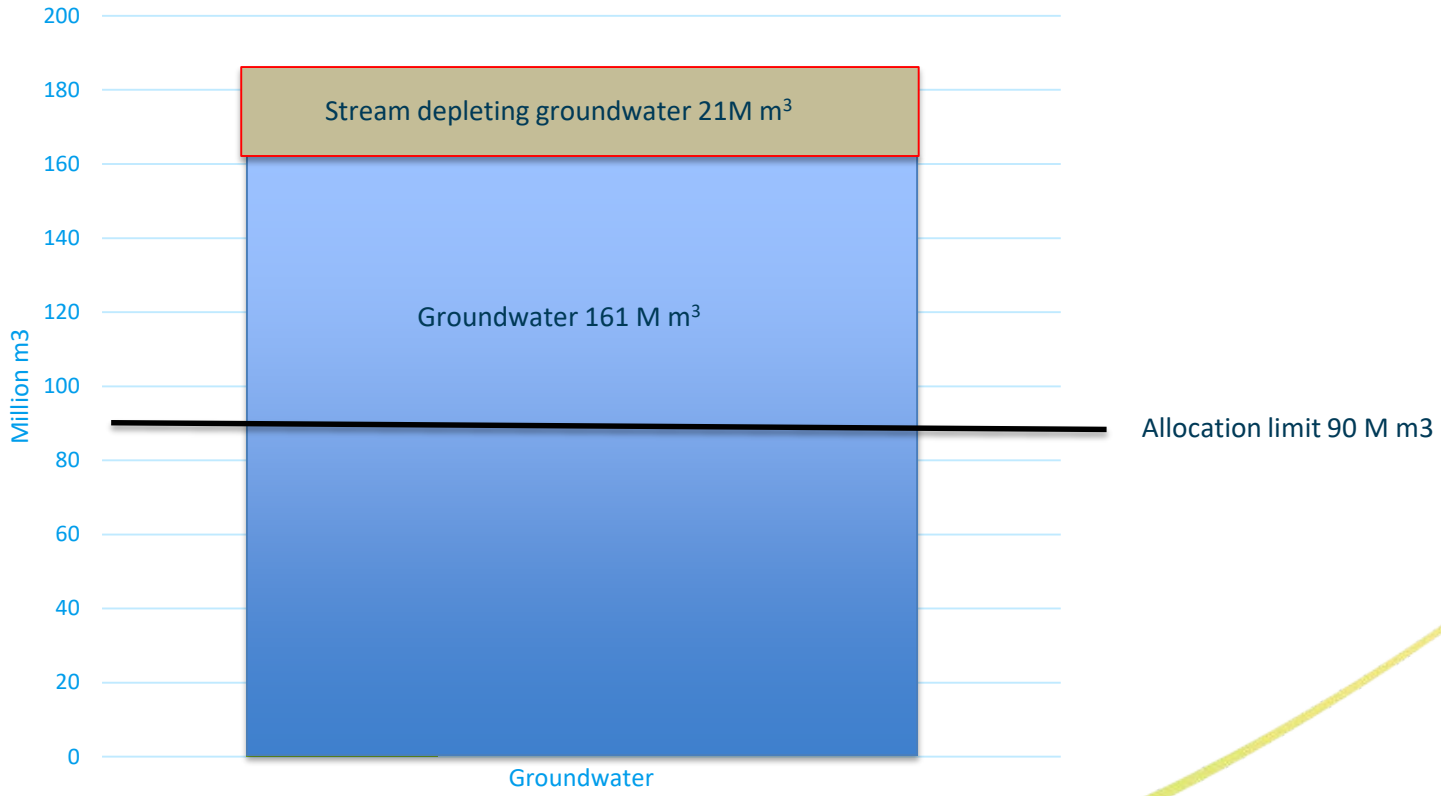
# Heretaunga Plains - Groundwater allocation

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# How should we allocate ground water?

Allocation limit = annual volume ($m^3$/yr) across the Heretaunga Plains

Allocated volume per activity = annual volumes consented ($m^3$/yr)

- Irrigation / frost- seasonal
- Municipal / industrial - annual

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# Allocation of stream depleting ground water

| Degree of effect | Allocation share | Example |
|---|---|---|
| Zone 1 - Direct | All counts as surface water | 50L/s sw |
| Zone 2 | All counts as groundwater | 385,000m3/yr |
| Zone 3 | All counts as groundwater | 385,000m3/yr |
| Zone 4 | All counts as groundwater | 385,000m3/yr |

Example assumes a rate of 100 l/s and take of 120,000 m3/28 days (average rate 50L/s) and 385,000m3/yr (average rate 30L/s)

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# Recommendations

- Set 90 Million $m^3$/year as the gw limit.
- Review consents to reduce allocated volumes down to this amount.
- Prevent the new takes after 18 August 2017.
- Zone 1 g/w takes managed as if a surface water take
- Zones 2-4 all part of total groundwater allocation limit

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# Breakout/plenary session

- Do you agree with recommendations (both the annual limit and the allocation recommendations):
- If not why not and what changes are required?

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# Allocation of Water to each activity

**Issue:**

The total amount of water allocated in the Heretaunga Plains exceeds sustainable limits. The Group has indicated it wishes reallocation of water to be at a level that reflects actual and reasonable existing use.

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# Assessing Existing Water Demand

Topics covered;

- Allocation based on actual and reasonable existing water use
- Efficient water use
- Reliability standards for irrigation demand
- Crop water demand models – consistent methodology

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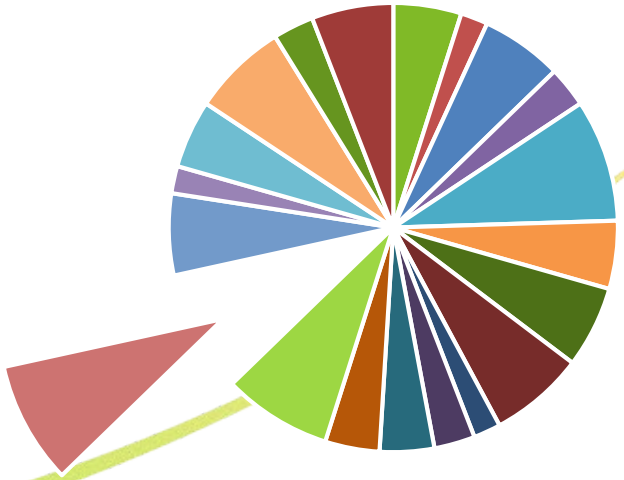
# How much is reasonable for each take?

Irrigation reliability (RPS)

- groundwater (Policy 32) 1:10 yr reliability
- surface water (Policy 42) 1:5 year reliability

System application efficiencies > 80%



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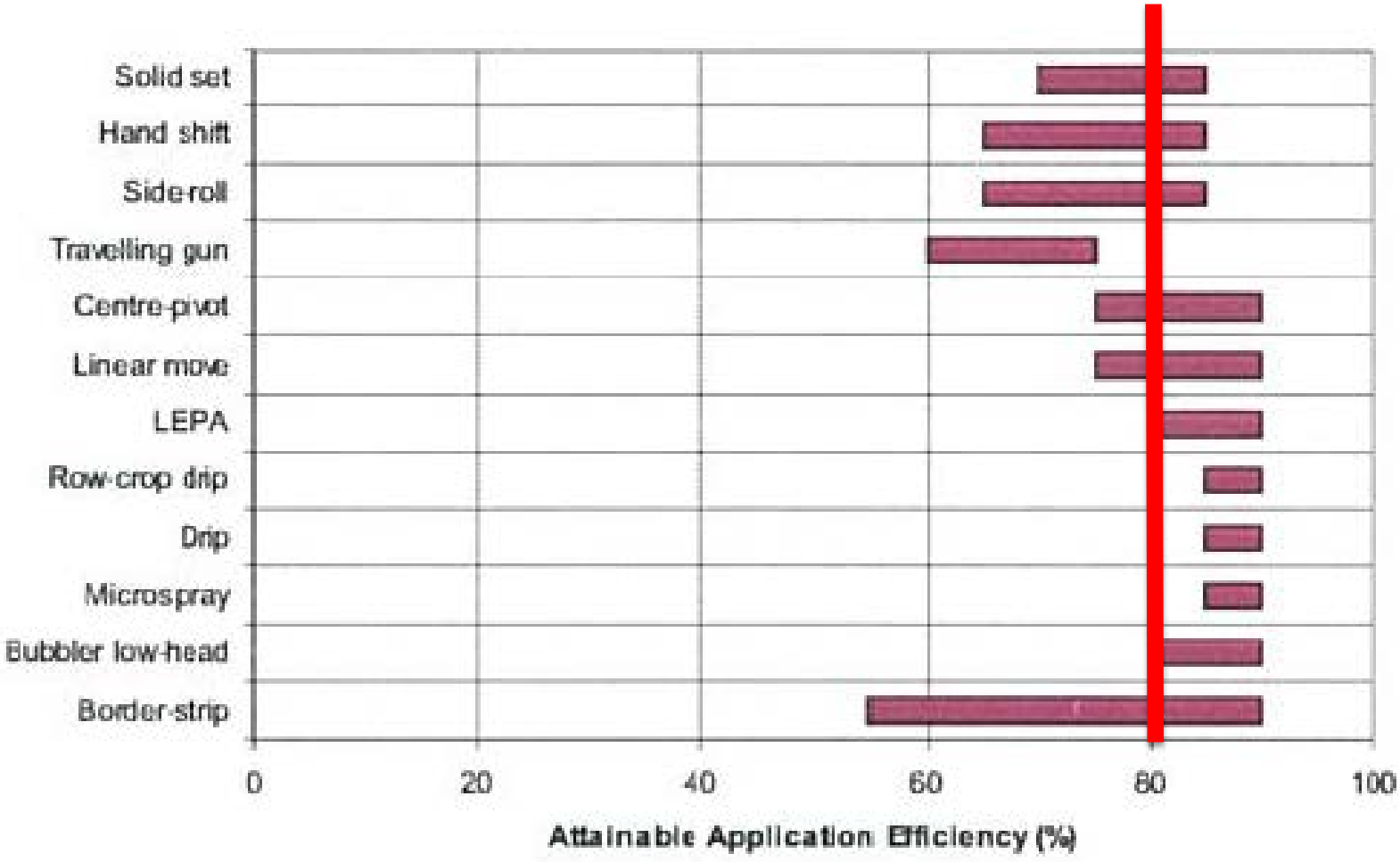
# Irrigation application efficiency (Clemens 2000)

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# Irrigation Demand - methodology

**Issue**

A variety of models and methodologies have been used to calculate irrigation water demand. It is necessary to consider a common methodology to ensure consistency, equity for users and ensure better data is collected for future reporting and modelling.

Options

1. Establish application rates/volumes for a range of crops/soil types using an agreed methodology
2. Define the expected methodology to be used (allow for variance with the model if supported by current, robust and verifiable evidence)

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# How much is reasonable for each irrigation take?

Water demand models Irricalc, Spasmo or consented volumes (choose the lesser volume)

WP080530T  Twyford 11 ha of apples

1. The rate of taking shall not exceed **21 litres per second**.
2. The volume taken shall not exceed that required to replace soil moisture depleted by evapotranspiration over the irrigated area, and shall not exceed the following:
    a) **13200 cubic metres in any four week period**; and,
    b) **52800 cubic metres within the 12 month period,** 1 July to 30 June in consecutive calendar years.

Monitored use in 2012/13 27,514 $m^3$ (250mm)

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# Modelled water for Apples in Twyford area

| Consent | Area (ha) | Rate (L/s) | 28 day (mm) | Seasonal (mm) | Method | Return period | PAW |
|---|---|---|---|---|---|---|---|
| WP080530T | 11 | 21 | 120 | 480 | | | |
| 80% | | | 131 | 480 | Morgan | 1:5 | |
| 80% | | | 142 | 445 | Spasmo | 1:5 | 139 |
| 80% | | | 169 | 515 | Spasmo | 1:10 | 139 |
| Micro/drip | | | 140 | 470 | Irricalc | 1:10 | 140 |
| 80% | | | 138 | 537 | Spasmo | 1:5 | 68 |
| 80% | | | 161 | 603 | Spasmo | 1:10 | 68 |
| Micro/drip | | | 140 | 519 | Irricalc | 1:10 | 60 |

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# Modelled water for Grapes in Twyford area

| System / application efficiency | | | 28 day (mm) | Seasonal (mm) | Method | Return period | PAW |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 80% | | | 95 | 247 | Morgan | 1:5 | |
| 80% | | | 6 | 9 | Spasmo | 1:5 | 139 |
| 80% | | | 10 | 14 | Spasmo | 1:10 | 139 |
| Micro/drip | | | 53 | 128 | Irricalc | 1:10 | 140 |
| 80% | | | 60 | 138 | Spasmo | 1:5 | 68 |
| 80% | | | 78 | 180 | Spasmo | 1:10 | 68 |
| Micro/drip | | | 59 | 170 | Irricalc | 1:10 | 60 |

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# Modelled water for Pasture in Twyford area

| System / application efficiency | | | 28 day (mm) | Seasonal (mm) | Method | Return period | PAW |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| 80% | | | 133 | 430 | Morgan | 1:5 | |
| 80% | | | 136 | 501 | Spasmo | 1:5 | 139 |
| 80% | | | 163 | 582 | Spasmo | 1:10 | 139 |
| 80% | | | 189 | 693 | Irricalc | 1:10 | 140 |
| 80% | | | 141 | 621 | Spasmo | 1:5 | 68 |
| 80% | | | 167 | 701 | Spasmo | 1:10 | 68 |
| 80% | | | 155 | 738 | Irricalc | 1:10 | 60 |
| | | | | | | | |

# Modelled water for Onions in Twyford area

| System / application efficiency | Area (ha) | Rate (L/s) | Monthly (mm) | Seasonal (mm) | Method | Return period | PAW |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| 80% | | | 140 | 442 | Spasmo | 1:5 | 139 |
| 80% | | | 169 | 512 | Spasmo | 1:10 | 139 |
| | | | | | | | |
| 80% | | | 153 | 537 | Spasmo | 1:5 | 68 |
| 80% | | | 178 | 603 | Spasmo | 1:10 | 68 |

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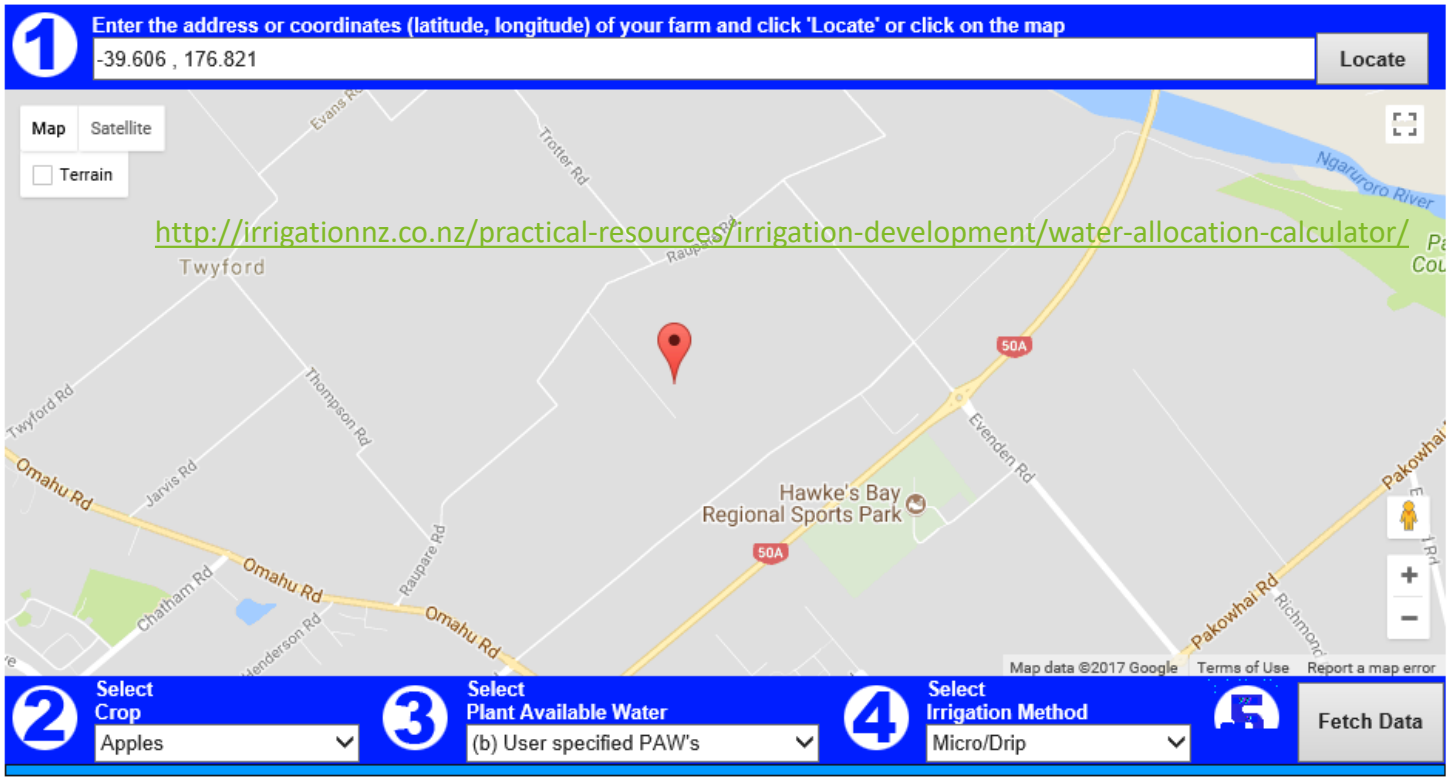


| Farm Details | | Plant Available Water Details | | | Irrigation Requirements | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Description | | PAW(mm) | Indicative Likelihood | Area (hectares) | | Per Hectare | | Total Area | |
| Latitude | -39.606 | 60 | 34.3 | 1 | System Capacity | 0.58 | (l/s/ha) | 0.58 | (l/s) |
| Longitude | 176.821 | PAW | | 0 | System Capacity | 5 | (mm/day) | | |
| Council | HawkesBay | PAW | | 0 | Daily Volume | 50 | ($m^3$/ha) | 50 | ($m^3$) |
| Climate Site ID | P217160 | PAW | | 0 | 7 Day Volume | 351 | ($m^3$/ha) | 351 | ($m^3$) |
| Distance to Climate Site (km) | 2.14 | PAW | | 0 | 28 Day Volume | 1,396 | ($m^3$/ha) | 1,396 | ($m^3$) |
| Rainfall (mm) | 745 | | Total area = | 1 | 90% ile Annual Volume | 5,197 | ($m^3$/ha) | 5,197 | ($m^3$) |

# Calculating Irrigation Demand

Recommended approach:

Use Council approved water demand models.

IRRICALC – on line
Spasmo – Restricted to HBRC use

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# How much is reasonable for allocation to other uses?

Municipal supply
Frost protection
Industry
Water Bottling
Permitted Activities (20m3/day)
Other

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# Efficiency policy for non irrigation

All non-irrigation takes subject to policy requiring information to show how water use efficiency of > 80% being met (and in line with industry best practice)

separate policy for municipal supplies – next slide

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# Managing Municipal Demand

- Better understanding and modelling of water demand based on existing and likely residential and non-residential development (HPUDS work)
- Allowance for meeting demand at peak times and network water losses;
- Measures to manage demand
    - *(i.e water meters, restricted supplies and pressure control, pricing and water saving technology and processes*
- Network management –and good practice performance
    - *leak detection and management etc to reduce network losses to acceptable levels/benchmarked performance*
- Provisions to manage reduced demand during periods of drought or low flow;

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# Review of Actual and reasonable demand

- If the allocation limit is exceeded by the allocated consented volumes HBRC will review all consents to determine actual and reasonable demand in order to reduce what is allocated.

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# Possible review process

- Review each consent's actual use.
- Review the actual irrigation area and crop types.
- Allocate only for existing development e.g. area of current irrigation and crop type.
- Use calibrated daily time step model to calculate 1 in 10 year crop water demand. This will need to take into account current industry practices (e.g. spacing/density).
- Assume industry standard efficiency (i.e. minimum 80%).
- Allocate the lesser of : existing allocation, crop model estimate, and 2012/2013 use (where the system has not changed since 2012/2013)
- Require irrigation system efficiency check/certificate

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# Managing site to site transfer of water

**Issue:**
Water transfer must be addressed (NPSFM). However, because water has been over-allocated, plan provisions should ensure further water use is not allowed for by transfer of unused water as this will worsen the over-allocation.

**Proposal**
Measures are recommended to limit the opportunities for new use as a result of site to site transfers.

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# Transfer of water permits

- Transfer of water is enabled by RMA, NPSFM and RRMP
- Allow transfer if allocation full but not overallocated.
- Don't allow transfers if allocation limit is exceeded.
- Don't allow transfers until an allocation limit is set.
- Allow transfer from sw to gw – in zone 1.
- Don't allow transfers from gw to sw.
- Allow transfer between uses / purposes?
- Allow temporary transfers? (E.g water reserved for municipal could be transferred to irrigation until needed for municipal.)
- Transferring may/will increase actual use… but might allow water to be used by most productive land use and allow changes in crop etc that current consent allocation does not provide for.

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# Summary of recommendations

1. The plan will establish an efficiency standard of at least 80% plus additional policy for municipal supplies
2. Continue with RPS reliability standards for calculating irrigation demand
3. Calculate irrigation demand based on Irricalc (Spasmo models where Irricalc not applicable)
4. HBRC will review all resource consents once the plan change is operative and reduce volumes to actual and reasonable use if the allocation limit is exceeded
5. Limit site to site transfers to avoid new water use

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# Breakout

Do you agree with the recommended plan provisions to manage allocation of water?

If not why not and what changes are required?

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# Timeframes

**Issue:**

There are a large number of existing water permits affected by the new TANK plan provisions. There are new allocation limits, minimum flow and water allocation regimes that will be applicable.

**Options:**

1. Call in and review all consents subject to the new provisions asap.
2. Review permits as each of them come up for renewal according to existing permit expiry dates

**Proposal**

Review consents as they come up for renewal

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# Possible process for 1st stage groundwater allocation review

- Set limits by 2022 or

- Use current expiry dates and zones:
  - Unconfined Aquifer: 2019, 219 consents
  - Twyford confined: 2020, ~ 80
  - St George: 2021, 193
  - Te Mata: 2022, 122
  - Longlands/Pakipaki & Hatsings : 2023, 431
  - Haumoana & Whakatu/Clive, Twyford / Raupare: 2025, ~ 200
  - Omarunui, Moteo, Pakaowhai, Tutaekuri-Waimate: 2026, 151

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# BREAKOUT

Do you agree with recommended management approach and timeframes for permits?

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# Economic modelling report back

Leander Archer - Agfirst

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# TANK – Environmental Monitoring Plan

Options for Augmenting Existing Networks

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# Environmental Monitoring Plan

The Environmental Monitoring Plan for TANK will identify:

- Which monitoring stations will be used to understand what aspects of the environment are changing within the TANK catchments
- Where additional monitoring stations are required
- Which additional parameters need monitoring

This presentation identifies what we have at present, and asks questions about what generally we might need to augment the existing network

The answers will be used to develop proposed changes

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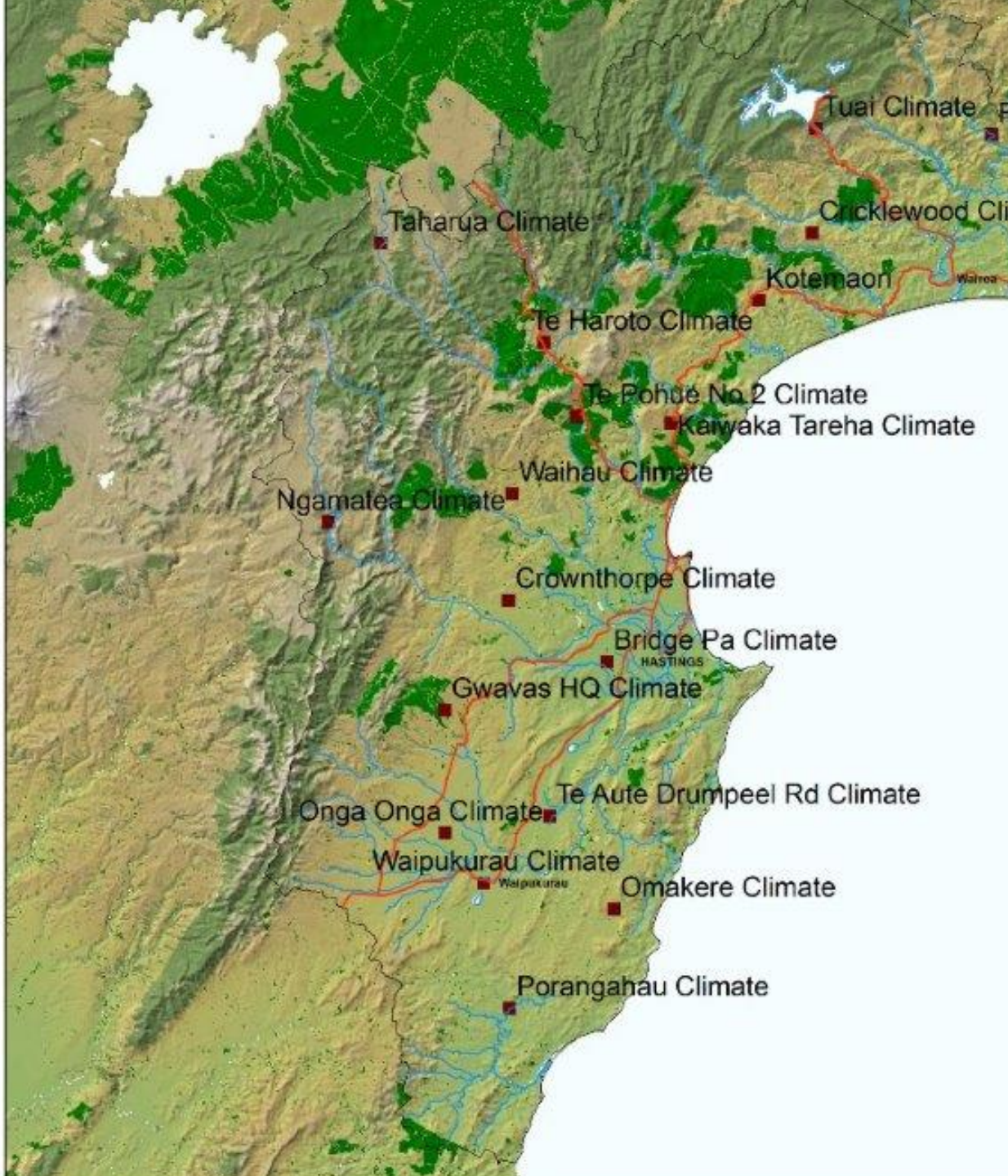
# Climate Stations

Existing climate stations are shown at right

Stations outside the TANK catchments are useful because they indicate weather that affects the TANK catchments

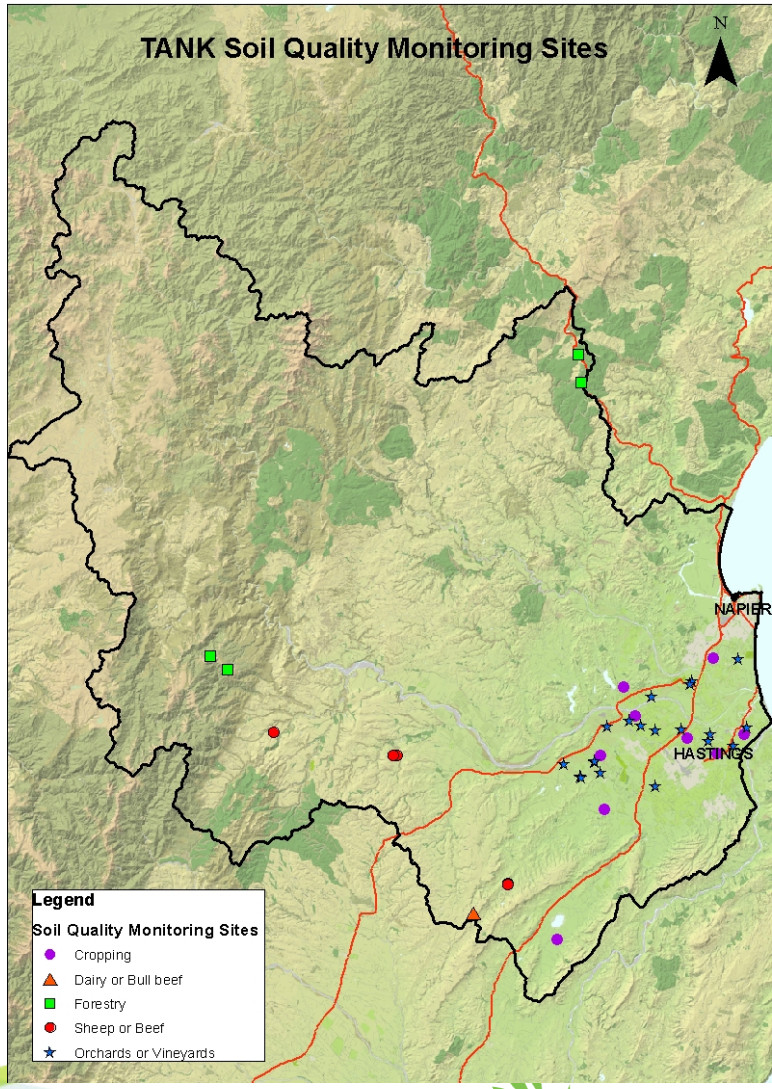
Q: *Where do we need additional climate stations*?



# Soil Quality Monitoring

Existing soil quality monitoring locations in the TANK catchments are shown at right

Q: *Where do we need additional soil quality monitoring locations in the TANK catchments*?

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# Additional Land Science Monitoring Starting/Proposed

- River suspended sediment load – initially x3 sites this year to x15 planned
- Wetland monitoring sites being decided – x15
- Riparian condition already completed as baseline – ongoing monitoring planned
- Dust monitoring sites being implemented now – x10 trial basis, x2 permanently
- Mapping soil erosion types and extent from repeat LiDAR data (when obtained)

Q: What/w*here do we need additional land science in the TANK catchments*?

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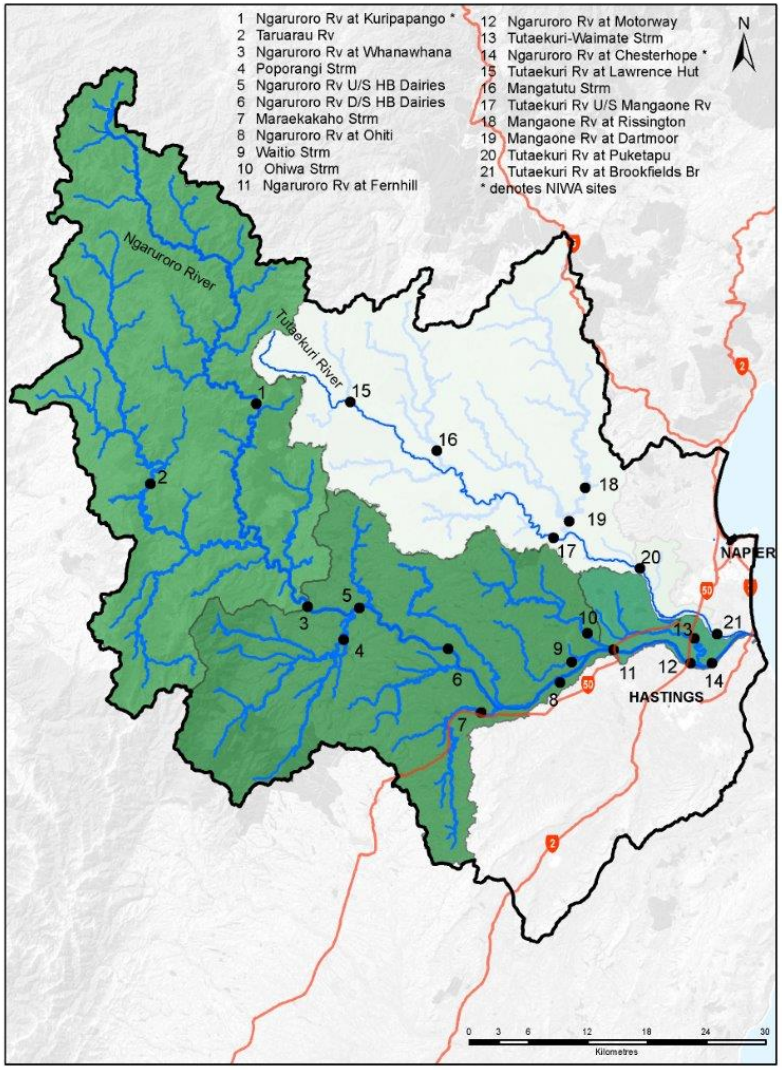
# Water Quality - Ngaruroro

Existing water quality locations in the Ngaruroro catchment are shown at right

Q: *Where do we need additional water quality monitoring locations in the Ngaruroro catchment*?

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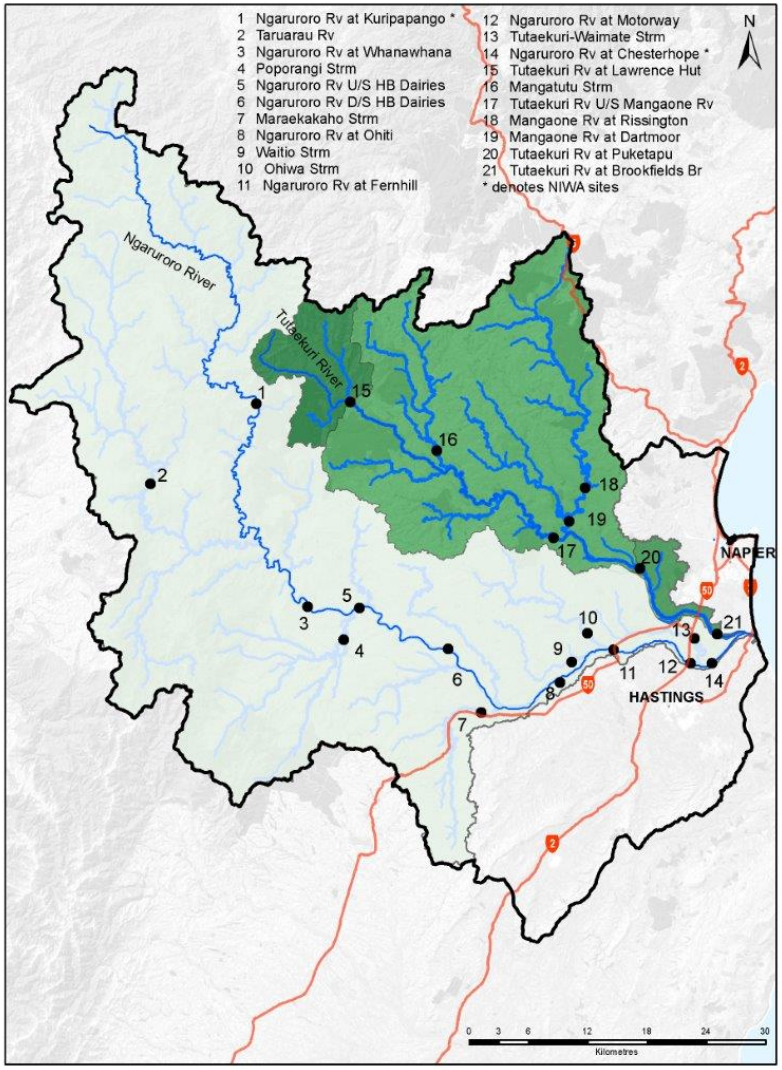
# Water Quality - Tutaekuri

Existing water quality locations in the Tutaekuri catchment are shown at right

Q: *Where do we need additional water quality monitoring locations in the Tutaekuri catchment*?

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# Water Quality – Ahuriri and Karamu

Existing water quality locations in the Ahuriri and Karamu catchments are shown at right

Q: *Where do we need additional water quality monitoring locations in the Ahuriri catchment*?

Q: *Where do we need additional water quality monitoring locations in the Karamu catchment*?


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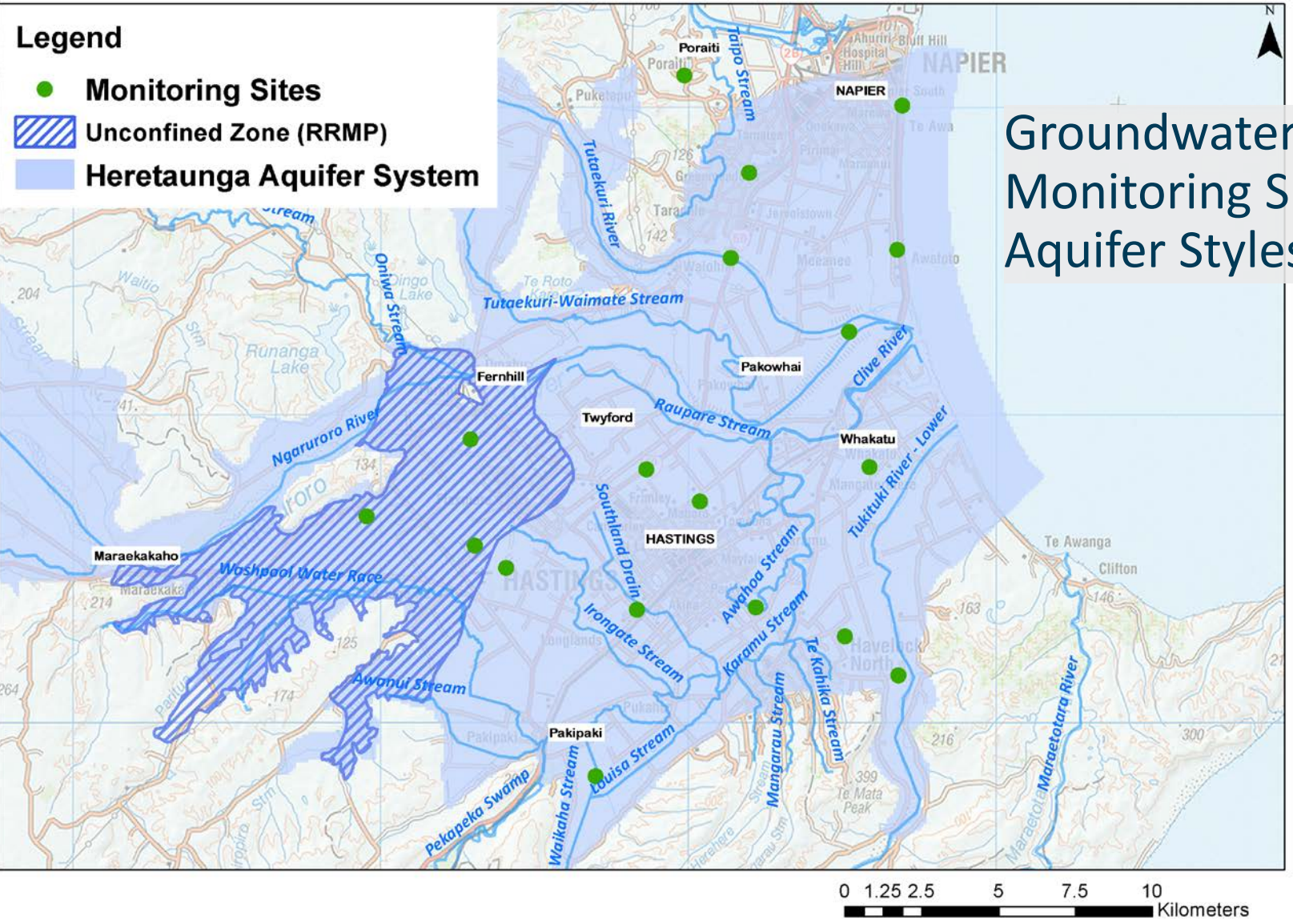
# Groundwater Quality Monitoring Sites & Aquifer Styles

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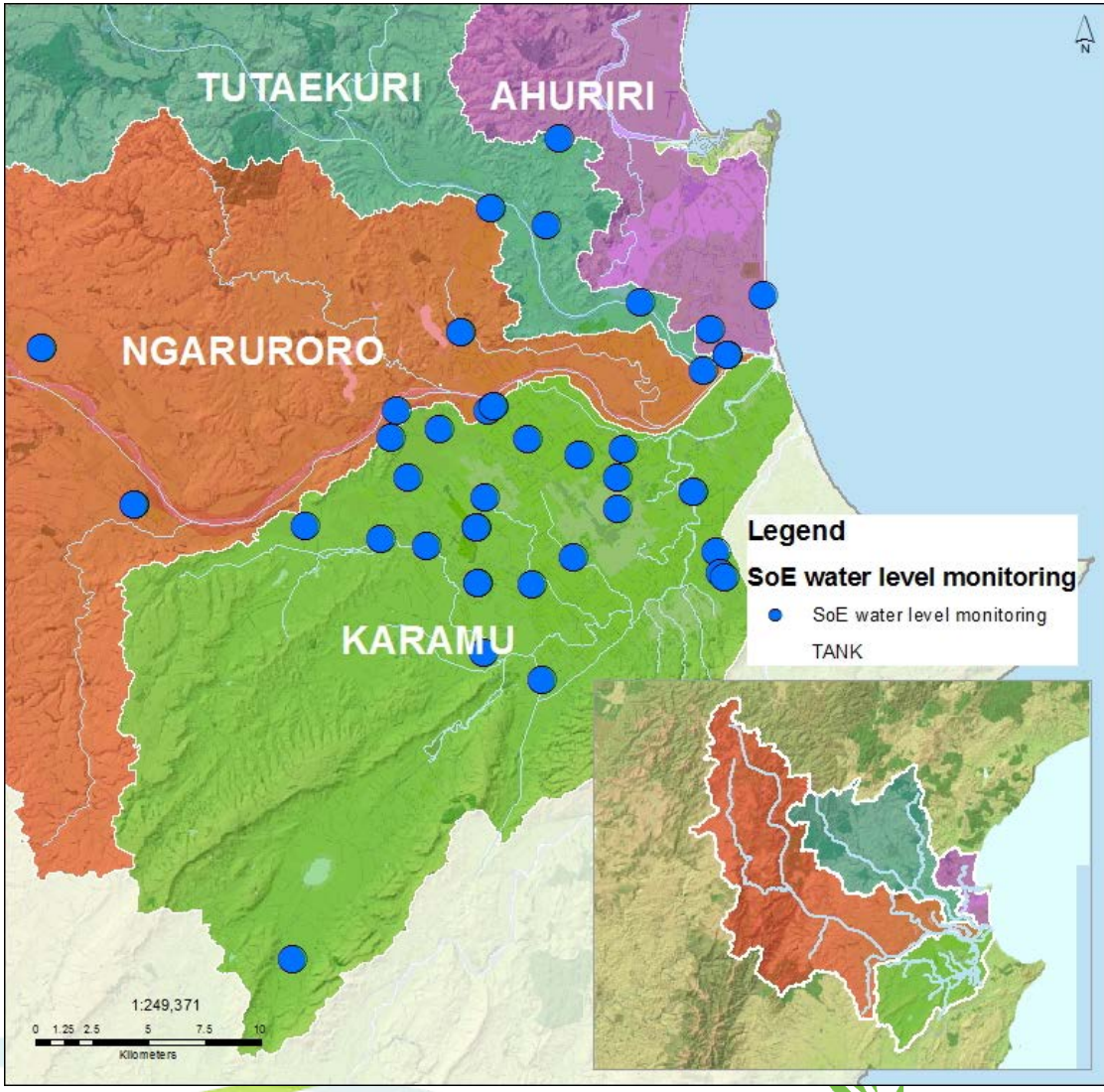
# Groundwater Quantity

Existing groundwater level monitoring locations in TANK catchments are shown at right

Q: *Where do we need additional groundwater level monitoring locations in the TANK catchments*?

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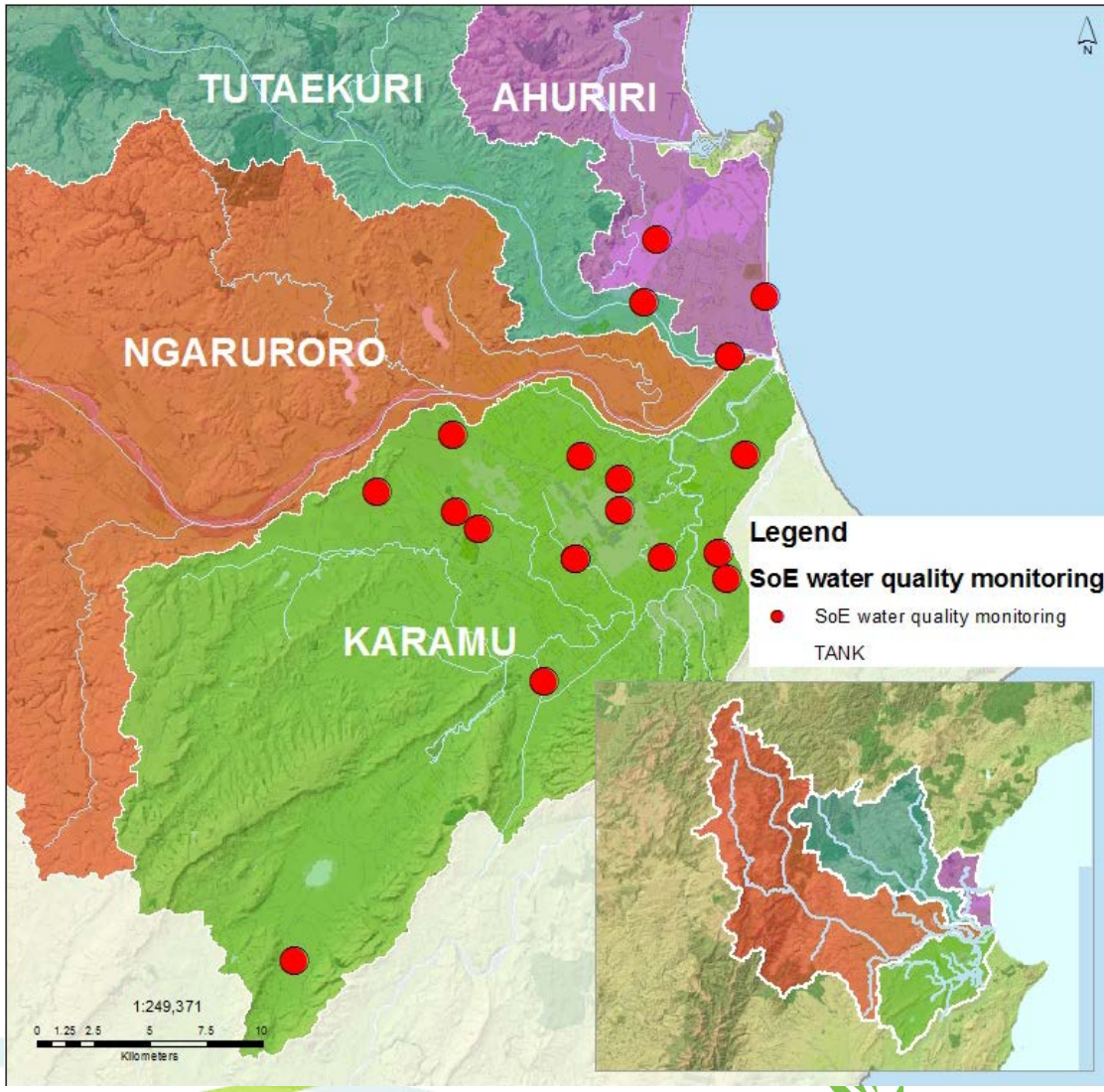
# Groundwater Quality

Existing groundwater quality monitoring locations in TANK catchments are shown at right

Q: *Where do we need additional groundwater quality monitoring locations in the TANK catchments*?

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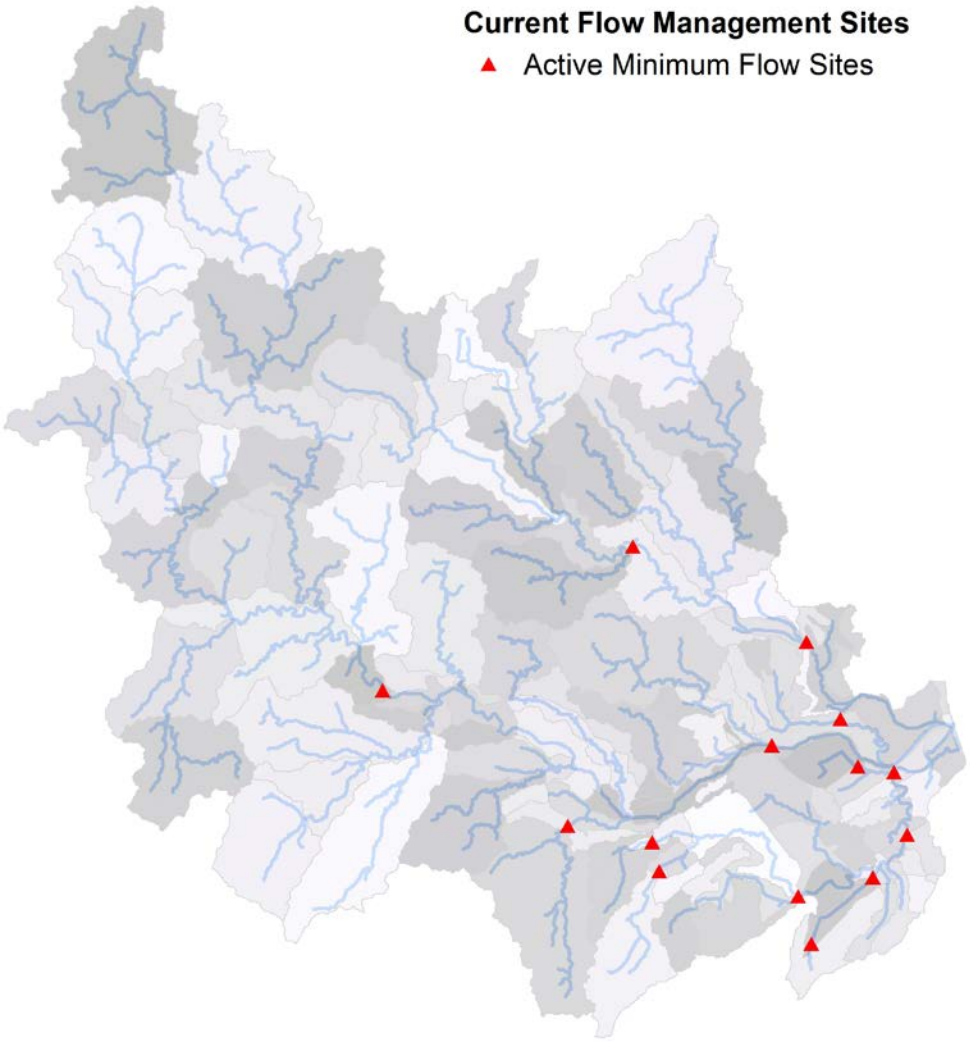
# Surface Flows – Now

Existing surface water flow monitoring locations in TANK catchments are shown at right. These are used primarily for minimum flow measuring.

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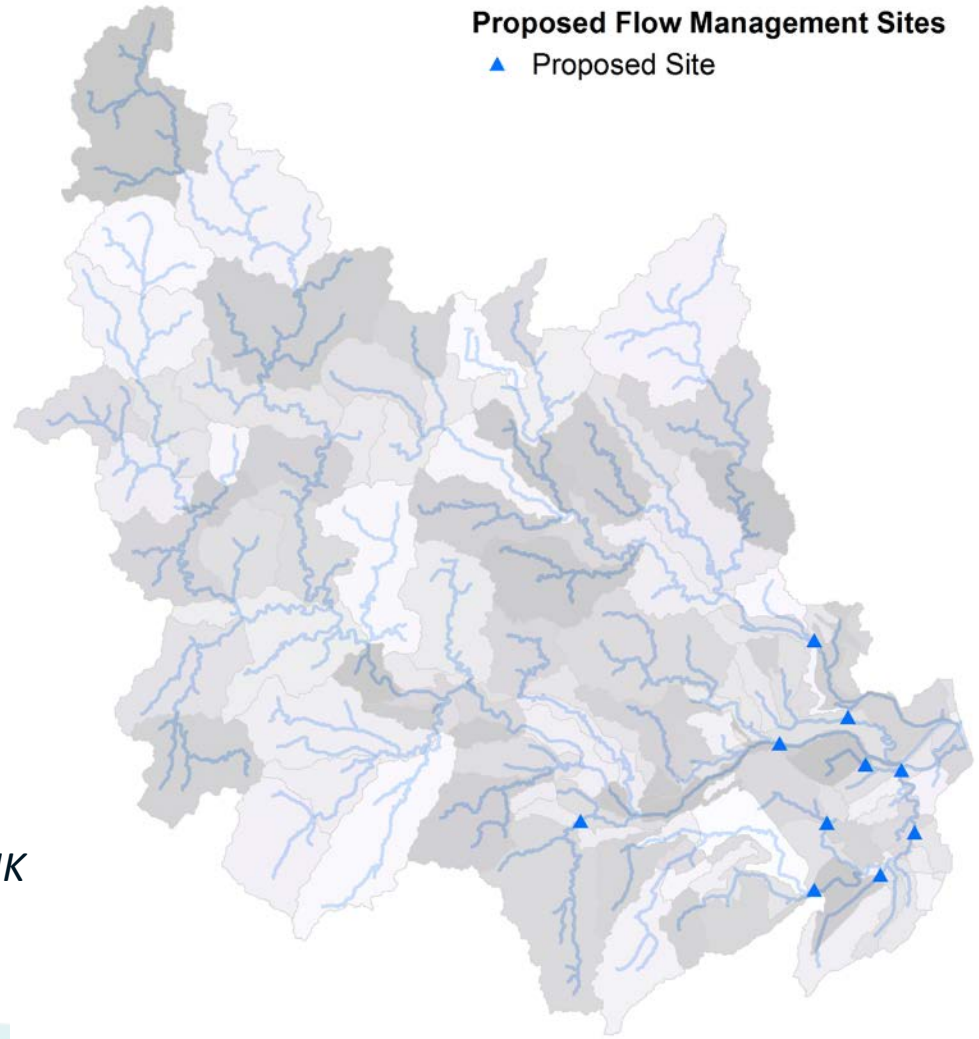
# Surface Flows – Future

Proposed surface water flow monitoring locations in TANK catchments at right

Sites may be used to trigger:

- Restrictions
- Staged reductions
- Augmentation
- Artificial recharge

Q: *Where do we need additional surface water flow monitoring locations in the TANK catchments*?

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# Matauranga Māori / Community Scale Monitoring

- Collection of data on Matauranga Māori is not defined yet
- Community scale monitoring could have similar characteristics
- Could include a wide range of possible parameters
- Could monitor a range of sites in various environmental domains

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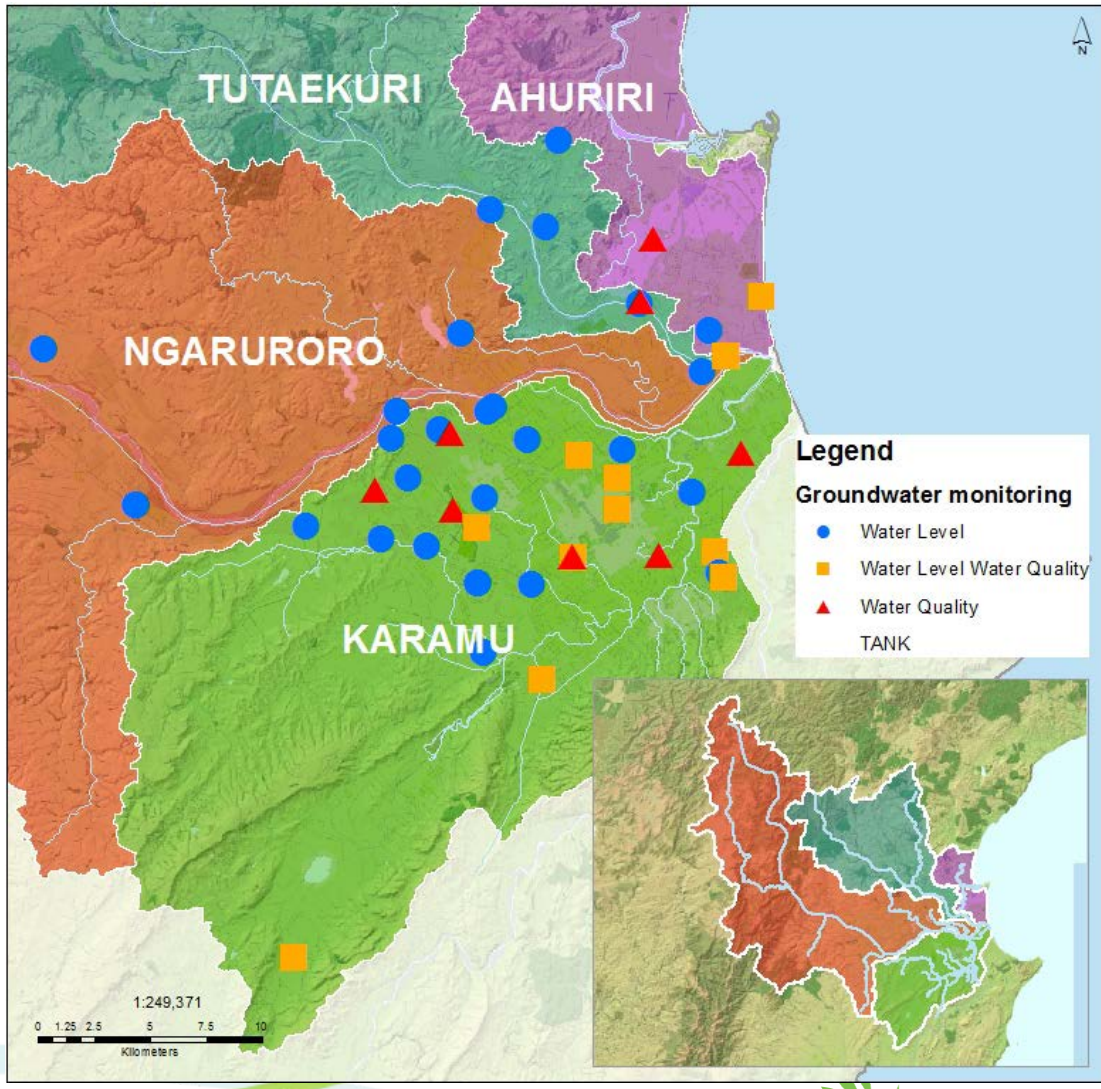
# Groundwater Quantity/ Quality Combined

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# Next meeting – 22 February 2018

- Stormwater management draft policy for decision making (Rina, SWG member)
- Report back on outputs from flow modelling (Jeff and Rob) and economic analysis reporting (AgFirst/NimmoBell)
- Report and recommendations from Joint Drinking Water Group (Nick Jones)
- Recommendations on nutrient and sediment management options (EAWG and farmer ref group members)
- ~~Review BBN outputs based on preferred options (Stephen Swabey)~~

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# 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