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

TANK

Meeting 36:
30 January 2018

HAWKE'S BAY
REGIONAL COUNCIL

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

Introductions
Apologies
Housekeeping
Notices

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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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Agenda

9:30am	Welcome and notices (Robyn)
9:45am	Objectives for today (Mary-Anne)
10:00am	Updates – TANK programme/WCO (James Palmer/Tom Skerman)
10:35am	Food Security (Lesley Wilson)
10:45am	Mapping and water permit details - Zone 1 (Jeff)
11:30am	Managing stream depleting groundwater takes (Pawel)
12:30pm	**LUNCH**
1:00pm	Water allocation (Malcolm and Mary-Anne)
3:00pm	**COFFEE BREAK**
3:15pm	Tutaekuri Values (Te Kaha)
3.45pm	Confirm Meeting records (Mtgs 33-35)
4.20pm	Meeting 37 Agenda (22 February)
4:30pm	**CLOSE MEETING**

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Action points- Meetings 33, 34, 35

ID	Action item	Person responsible	Status
35.1	To agree whether minutes could/could not be circulated in draft to respective organisational bodies.	Robyn	This meeting
35.2	LWWG to work through a number of examples	Gavin	In prep
35.3	Include climate change mitigation measures in HBRC wider policy review	Ceri/MAB	In prep
35.3	Prepare a map of Zone 1 including irrigation consents within that zone	Jeff	This meeting
35.4	Schedule another meeting after 20 January 2018	Desiree	This meeting
35.5	Send Malcolm's presentation out again before the next meeting	Malcolm/Mary-Anne	This meeting
35.6	Email out Leander's presentation to everyone so that they can read and digest the detail.	Mary-Anne	This meeting
34.1	Bring back the Zone 1 map overlaid with existing consents (presented by hydrologists previously)	Jeff	This meeting
34.2	HBRC to consider how to action TANK's concern about vehicles on braided river systems	Mary-Anne	In prep
33.1	Further modelling required – Anna's recommendation +/- 20%	EAWG	In prep
33.2	EAWG and industry bodies be asked to consider the menu of management options for reducing nutrient losses to the estuary.	EAWG/MAB	In prep

Meeting objectives

1. Agree the TANK programme

2. Agree to proposed mapping of Zone 1

3. Agree to application of calculator in rules for managing stream depleting groundwater (provisional)

4. Agree drafting instructions for water allocation and priority

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TANK Programme review and update

James Palmer
Tom Skerman

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TANK Programme – Key Topics

1. Water values
2. Balancing costs and timeframes
3. Climate change
4. Wetlands and lakes
5. Water quality
6. Water quantity
7. Water conservation and future supply
8. Information and knowledge

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Significant decisions still to make

1. **Timeframes for meeting objectives**
   - Ongoing – linked to modelling results

2. **Management programme for Lakes**
   - Plan drafting

3. **Allocation regime for allocatable water**
   - Meeting 36

4. **Management framework for meeting water quality related objectives**
   - Meeting 37 – stormwater management
   - Meeting 38 – nutrients (linked also to modelling results)

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Significant decisions still to make

5. **Managing stream depletion effects of groundwater takes**

   Confirmation of allocation limit for groundwater takes

   - Meeting 38 - Linked to WAG modelling for mitigation options

6. **Flow management regimes – Ngaruroro and Tutaekuri Rivers**
   - Meeting 39 – linked to modelling results

7. **High flow allocation regime**
   - Meeting 39

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The TANK Programme – 2018

Tom Skerman

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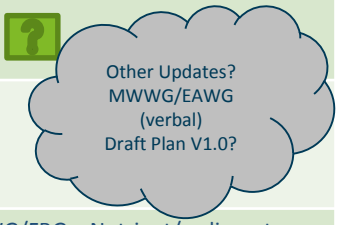
Decision	Meeting 36
Minimum Flows	
High Flows	
Stream depleting GW mitigation	Jeff Smith: Zone 1 & Water permits – drafting instructions Pawel Calculator
Allocation priority	Malcolm/Mary-Anne: Decision on sinking lid & Re-jig of recommendation groupings
Contaminant mgmt regime	
Lakes & Biodiversity	

Decision	Meeting 36	Meeting 37
Minimum Flows		
High Flows		Augmentation modelling (S.Harper + external) * Optimising GW augmentation * PR Data + external costs (Mark Everest)
Stream depleting GW mitigation	Jeff Smith: Zone 1 & Water permits – drafting instructions Pawel Calculator	WAG – final decision SDGW Flow Augmentation Grant – report back & presentation Lowland streams
Allocation priority	Malcolm/Mary-Anne: Decision on sinking lid & Re-jig of recommendation groupings	
Contaminant mgmt regime		AgFirst On Farm Results report (?) Rina – Stormwater Draft Policy Rina/TLA's – Drinking Water recommendations – Task Force (info item)
Lakes & Biodiversity		

Grant's Modelling

TLA Socialisation

Decision	Meeting 36	Meeting 37	Meeting 38
Minimum Flows			Modelling Economic Outputs – NimmoBell, AgFirst (decision item?)
High Flows		Augmentation modelling (S.Harper + external) * Optimising GW augmentation * PR Data + external costs (Mark Everest)	Jeff Smith (confirm)/WAG – report high flow regime - Decision - Policy options *WAG meeting to be arranged for early March*
Stream depleting GW mitigation	Jeff Smith: Zone 1 & Water permits – drafting instructions Pawel Calculator	Grant's Modelling WAG – final decision SDGW Flow Augmentation Grant – report back & presentation Lowland streams	Storage for SDGW – Ngaruroro Jeff?Grant?Williamson? (TBC)
Allocation priority	Malcolm/Mary-Anne: Decision on sinking lid & Re-jig of recommendation groupings		
Contaminant mgmt regime	TLA Socialisation	AgFirst On Farm Results report (?) Rina – Stormwater Draft Policy Rina/TLA's – Drinking Water recommendations – Task Force (info item)	EAWG/FRG – Nutrient/sediment management (report?) TLA Politics Socialisation Options- decision (incl. timeframes) TLA Politics Socialisation Land management?
Lakes & Biodiversity			LWWG – Briefing paper Lakes pre-circulate with brief discussion



Decision	Meeting 36	Meeting 37	Meeting 38	Meeting 39
Minimum Flows			Modelling Economic Outputs – NimmoBell, AgFirst (decision item?)	Information/Decision (Peer review pre-TANK? E.g. Primary Industry Leaders)
High Flows		Augmentation modelling (S.Harper + external) * Optimising GW augmentation * PR Data + external costs (Mark Everest)	Jeff Smith (confirm)/WAG – report high flow regime - Decision - Policy options *WAG meeting to be arranged for early March*	
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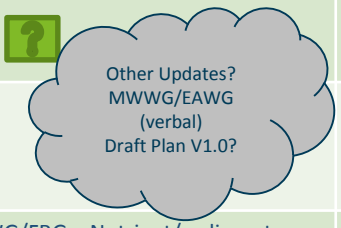
Lakes & Biodiversity			LWWG – Briefing paper Lakes pre-circulate with brief discussion	



Decision	Meeting 40 – 15 May 2018
Minimum Flows	
High Flows	
Stream depleting GW mitigation	
Allocation priority	
Contaminant mgmt regime	
Lakes & Biodiversity	

DRAFT PLAN

Food Security

Lesley Wilson
President Hawke's Bay Fruitgrowers' Association

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Food Security

- What is food security (four pillars)
- Where does NZ fit – (policies, future growth etc)
- Where does access to water for irrigation fit (water is for food production)
- What are the potential implications of limiting access to water for food production

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Stream Depleting Groundwater Takes Within Zone 1

Jeff Smith and Pawel Rakowski

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Overview

- Introduction – context, recap of previous work and implications for water users
- Modelling – groundwater takes with direct connection to surface water
- Direct takes in locations with modelling uncertainty
- Zone 1 map
- Proposal for consideration

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Introduction

- RRMP policy for managing stream depleting groundwater takes:

POL 33 TECHNICAL PROCEDURES - GROUNDWATER TAKES WITHIN THE VICINITY OF SURFACE WATER BODIES

3.9.33 To manage the effects of groundwater takes from unconfined or semi-confined aquifers on nearby surface water bodies in the following manner:

(a) < 400m = direct take (unless proven otherwise)

(b) > 400m may require assessment if SW interaction is likely

Purpose = to avoid adverse effects on SW bodies. Directly connected takes may be cut off during low flows.

Introduction

- Modelling identified 4 zones of surface water connection
- Zone 1 = directly connected – treated as surface water abstractions (cut off during low flows)
- Other abstractions may be more effectively managed with alternative mitigation (e.g. augmentation)
- Some areas of uncertainty = lower confidence in modelling

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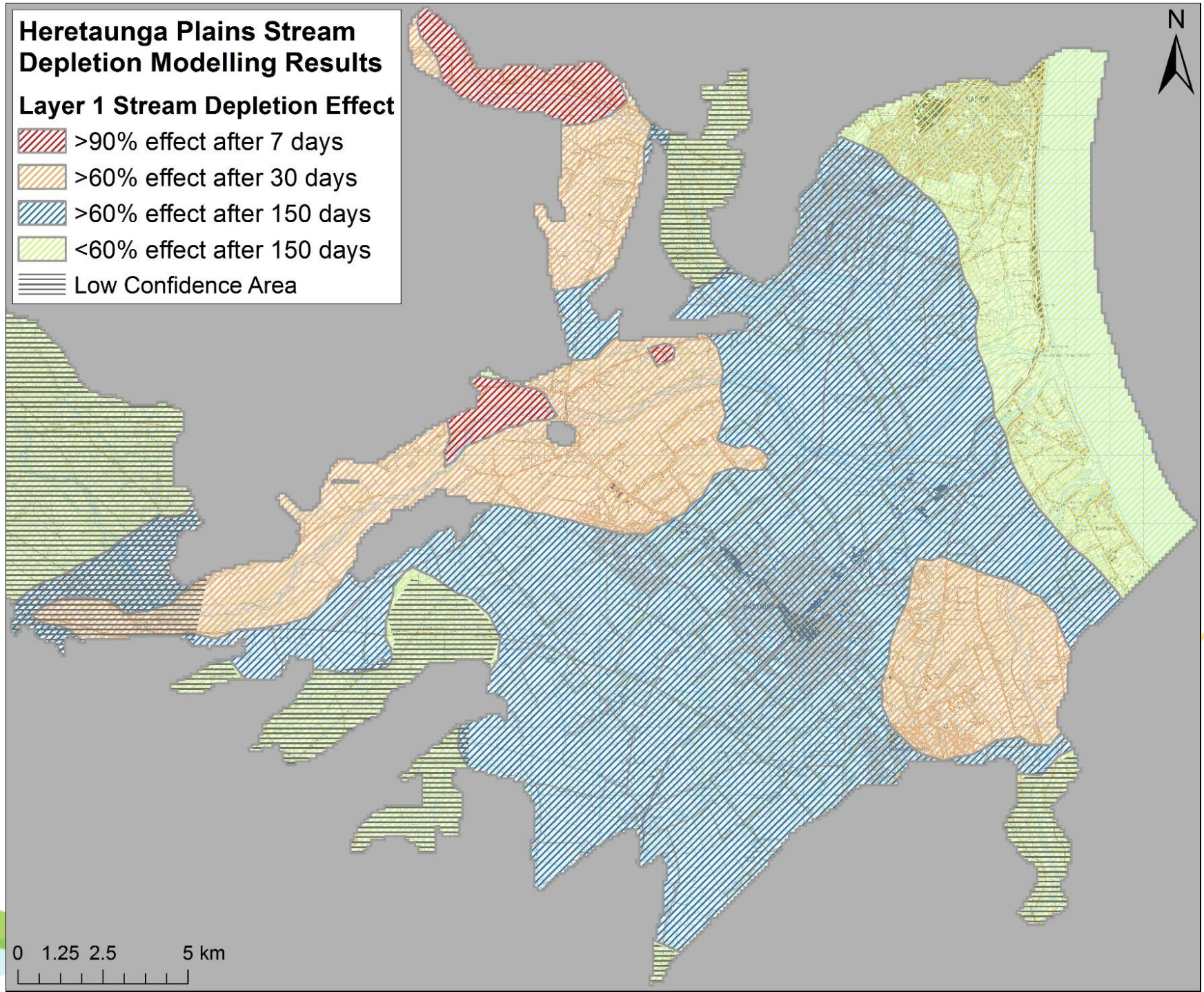
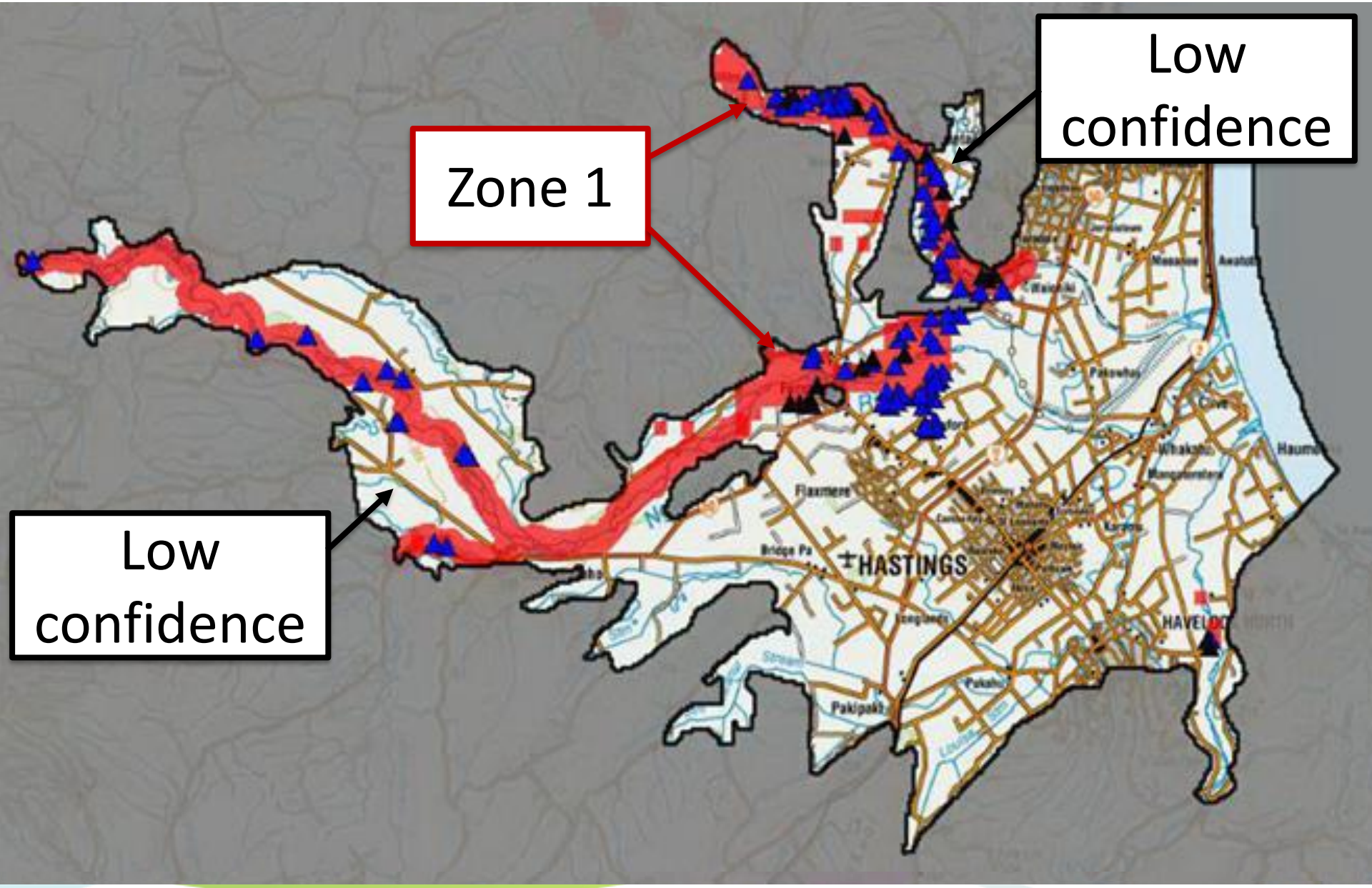
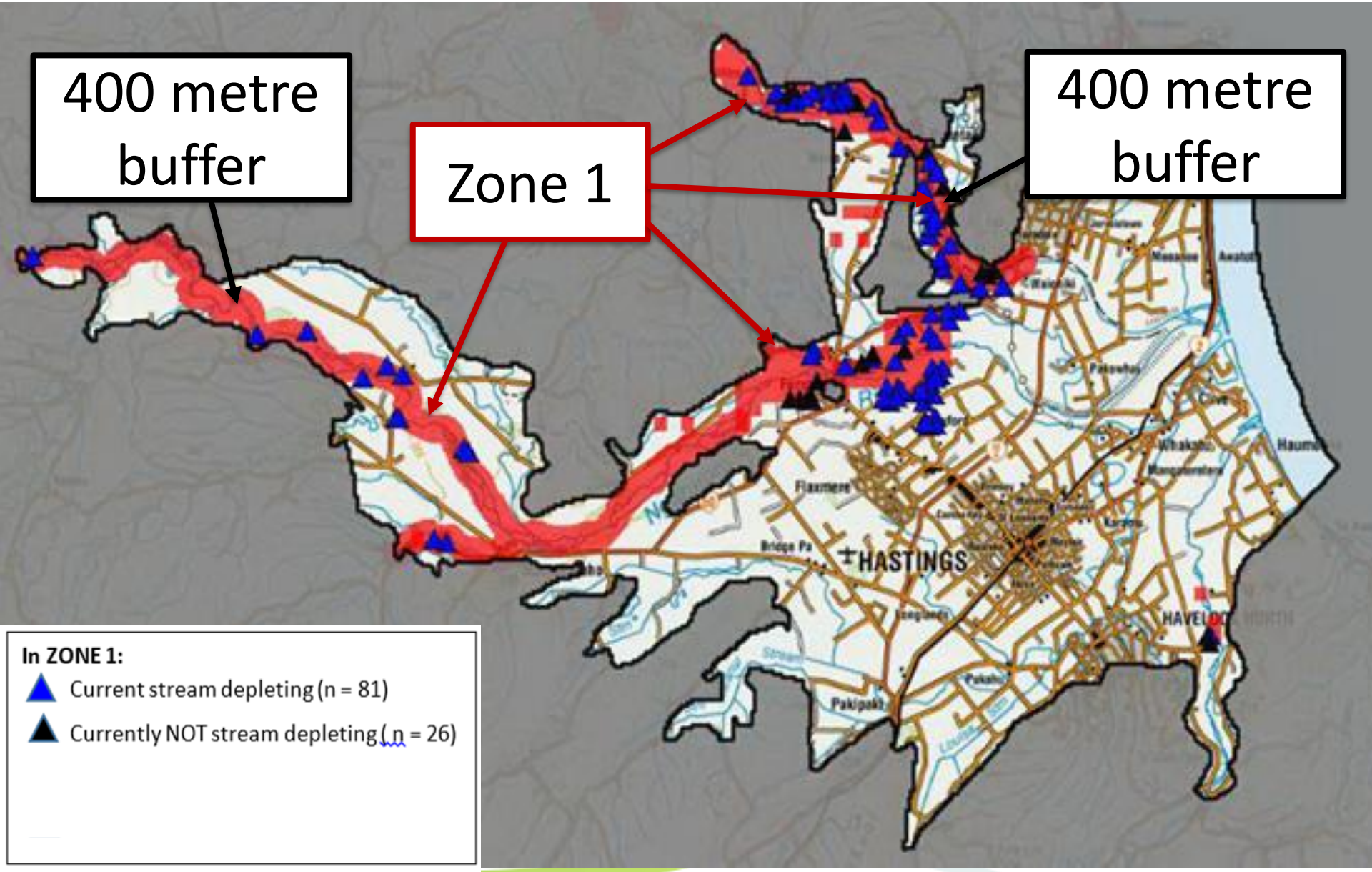

Heretaunga Plains Stream Depletion Modelling Results
Layer 1 Stream Depletion Effect
>90% effect after 7 days
>60% effect after 30 days
>60% effect after 150 days
<60% effect after 150 days
Low Confidence Area
N
0 1.25 2.5 5 km

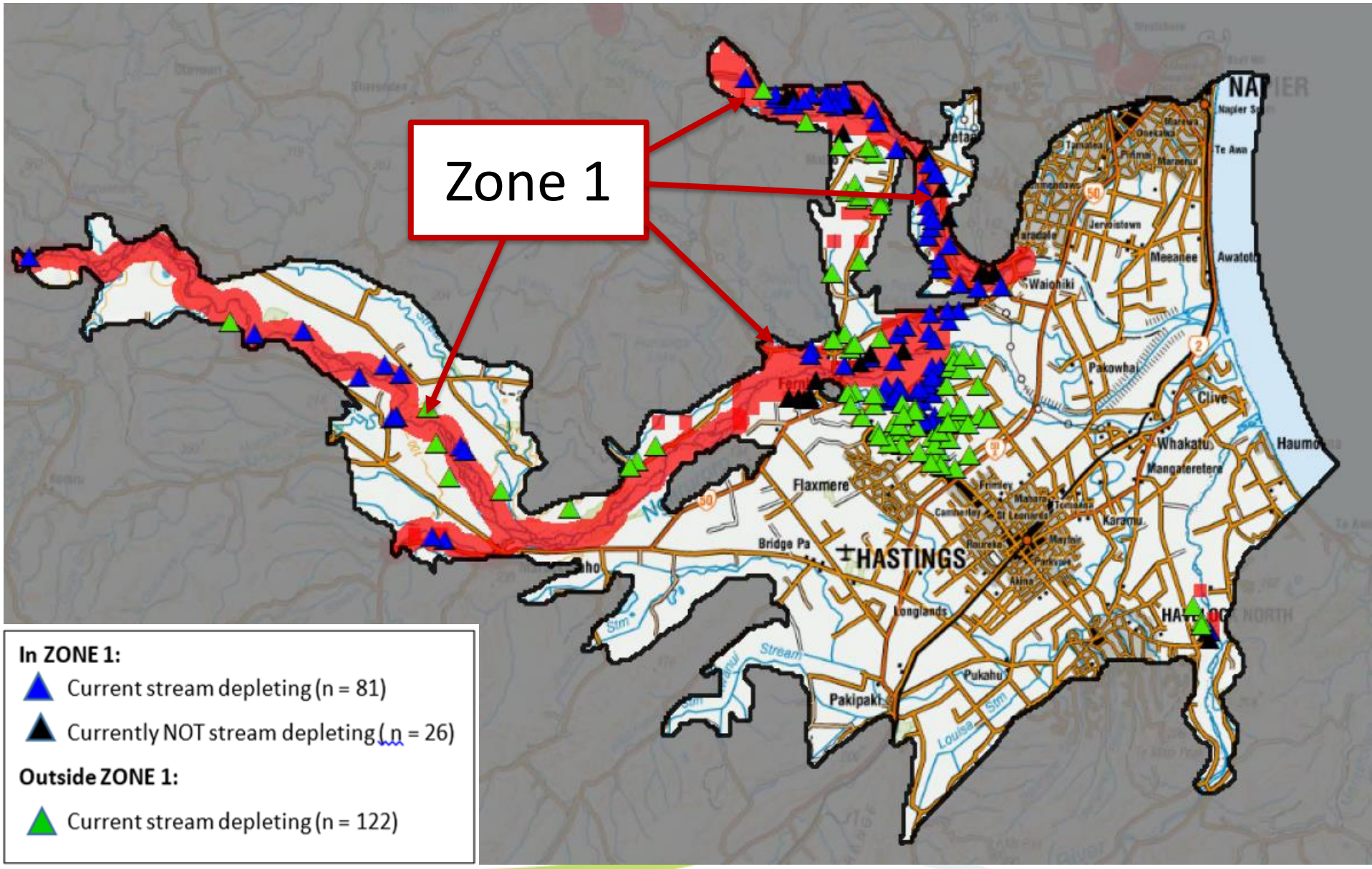
Recalibrated model – Zone 1



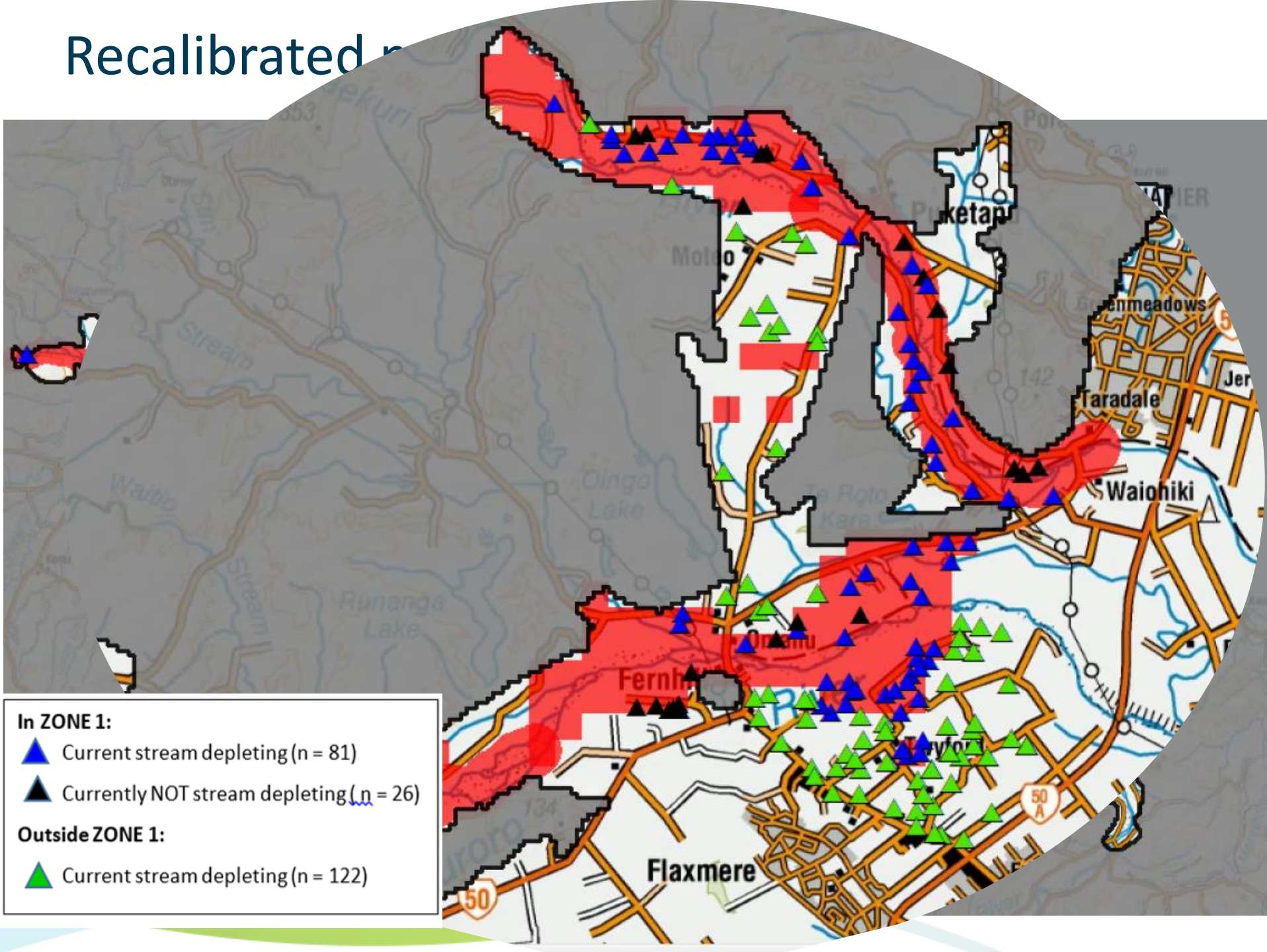
Recalibrated model – Zone 1



Recalibrated model – Zone 1



Recalibrated r



Recommendation: Zone 1 groundwater takes

That Zone 1 is defined by:

1. areas identified by modelling, with >90% stream depletion after 7 days pumping

AND

2. a 400m buffer around Ngaruroro and Tutaekuri Rivers, where there is lower confidence in the model results.

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Recommendation: Zone 1 groundwater takes

1. That each groundwater take in Zone 1 is managed as if it were a surface take from the adjacent river and is:

   included in an allocation limit for the surface water zone

   and

   subject to the flow restrictions for that river

   OR

2. applicant provides additional information to confirm if the take fails to meet the stream depletion definition for zone 1.

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Recommendations: Zone 2 – 4 groundwater takes

1. That any groundwater take in modelled zone 2-4 is a groundwater take in the Heretaunga Plains Zone and:
    - subject to the allocation limit for that zone
    - subject to the requirements for stream flow mitigation (using Pawel's calculator)

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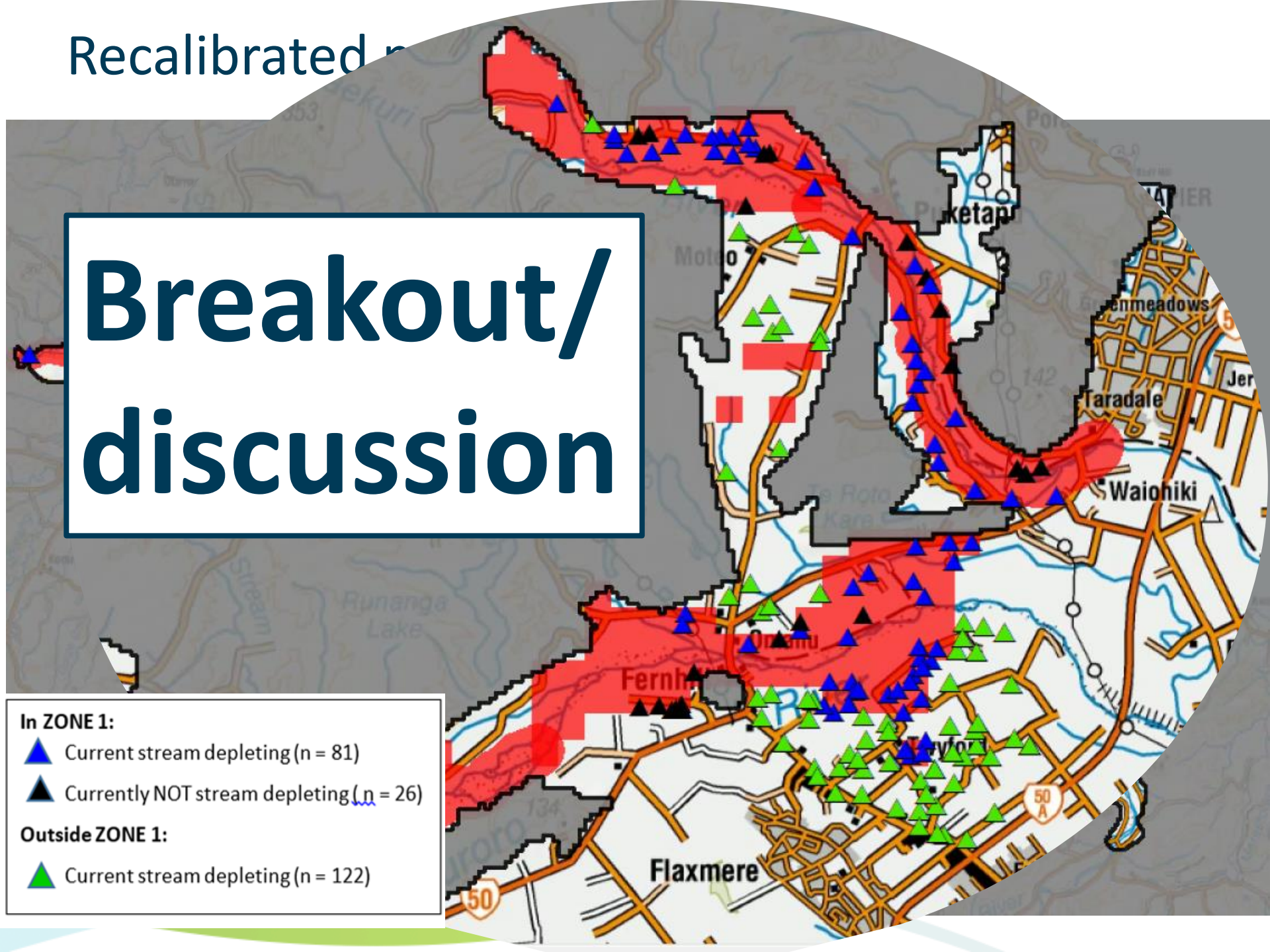
Recalibrated n

Breakout/ discussion



Agree with recommendations

Or

State why there is disagreement

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Extra slide – if discussion takes us here

To manage the effects of groundwater takes from the Heretaunga aquifer system on nearby surface water bodies in the following manner:

(a) Any taking of groundwater within Zone 1 will be treated as if it were a direct take unless the extent to which the groundwater will deplete water in the surface water body has been assessed using an appropriate scientific procedure in which case the effects on surface water will be assessed on that basis.

(b) Any taking of groundwater outside Zone 1 may require an assessment of effects in the river, lake or wetland if the scale of the take, the groundwater flow direction, and the transmissivity and storativity characteristics of the aquifer indicate interaction is likely to occur; in which case it may be treated as if it were a direct take.

Purpose = to avoid adverse effects on SW bodies. Directly connected takes may be cut off during low flows.

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Calculating Stream Depletion Effects

Pawel Rakowski

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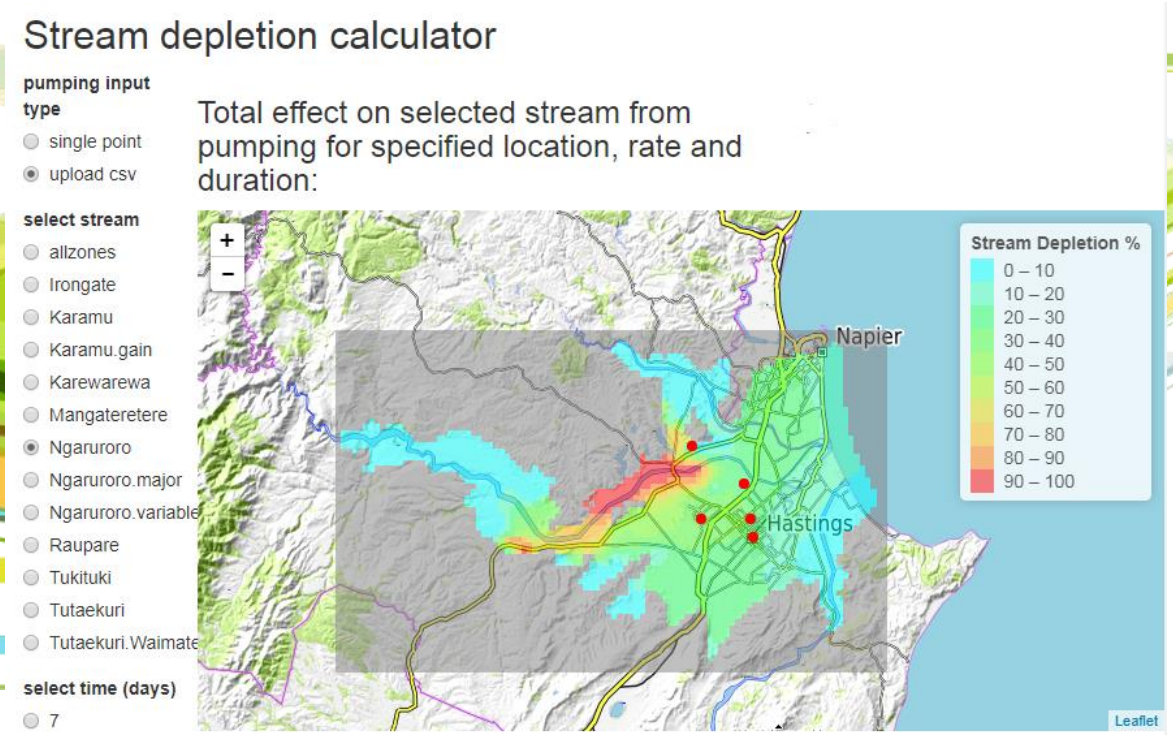
Stream Depletion calculator

by Pawel Rakowski

Outline:

- Background
- Calculator demonstration
- Possible uses and examples



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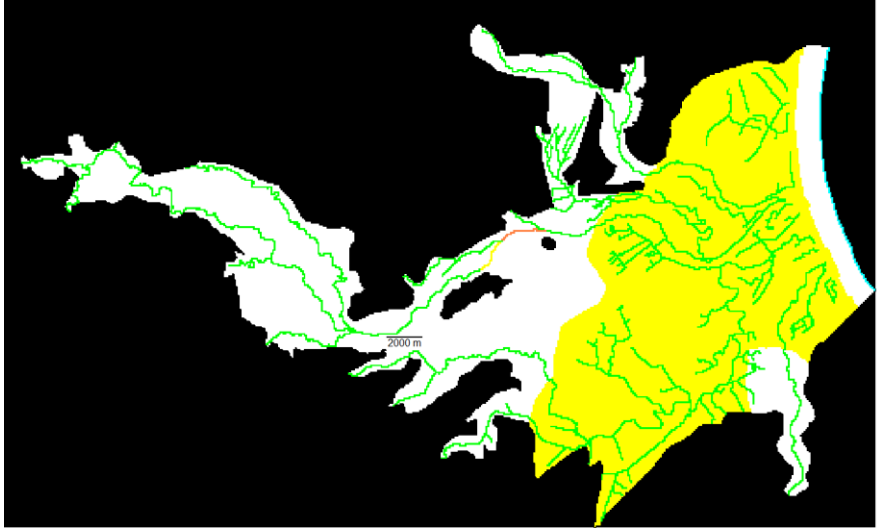
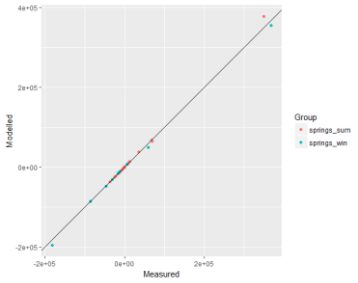
Groundwater model

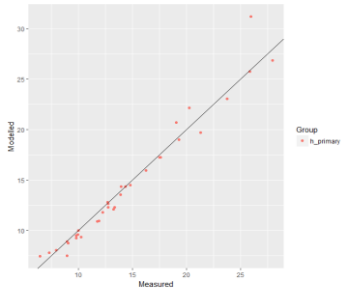
High resolution grid 100x100m
2 layers
MODFLOW 2005
Simulation time: 1980 – 2015, monthly timestep
Rivers and springs – river boundary condition
Over 800 parameters



Spring flow/river loss

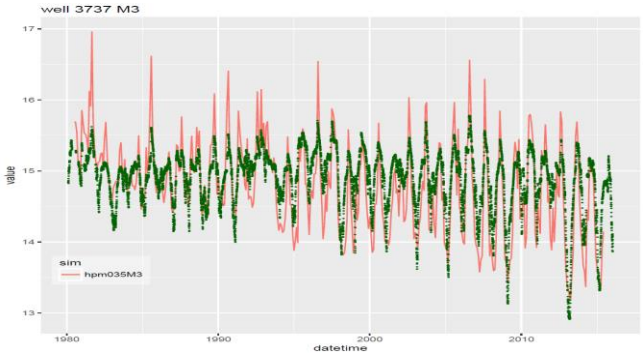


Average GWL

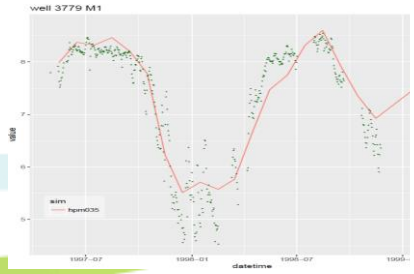


Successful model calibration

Long term water level trends



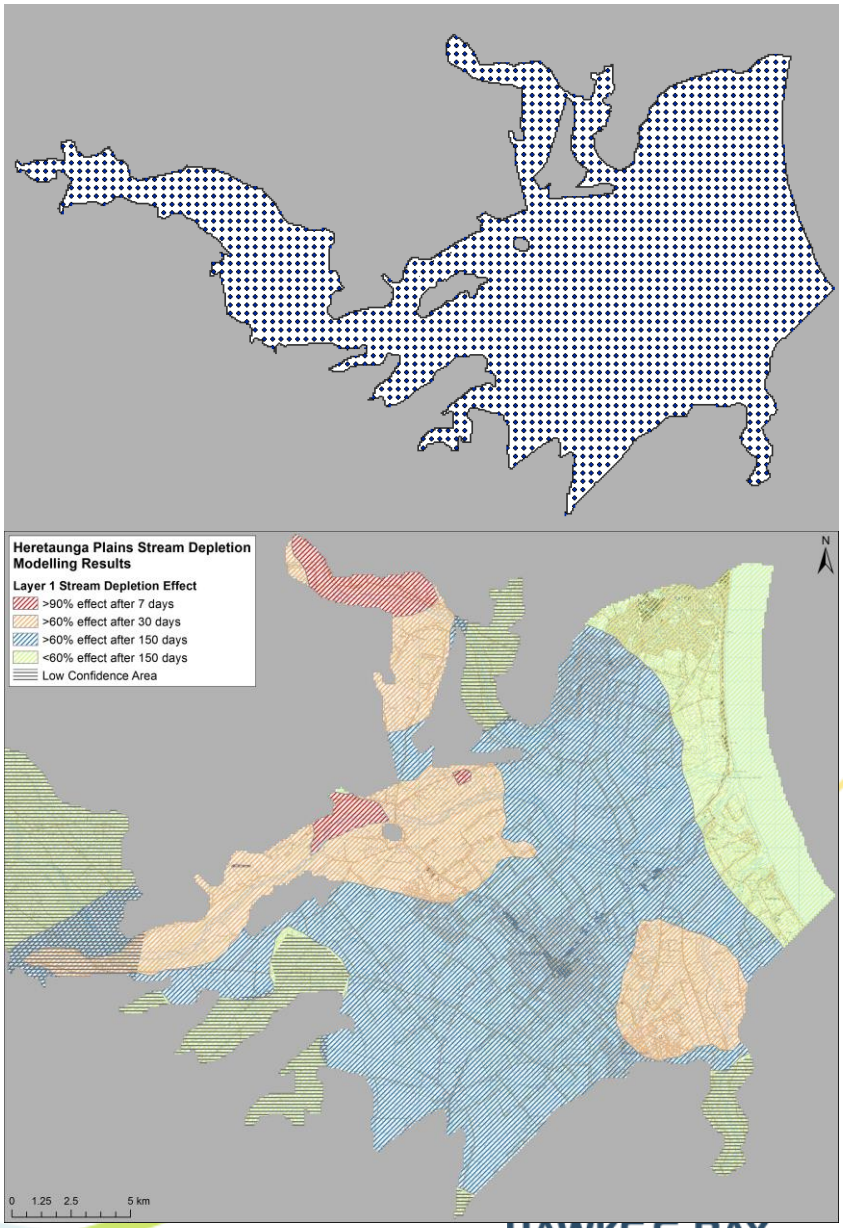
Seasonal GWL change



- **Good calibration to stream flows**
- **Model can estimate stream depletion from pumping**

Stream depletion zones

- Calculation for a reference period (very dry summer 2012-2013)
- Calculation can be repeated in multiple locations
  - E.g. every 5th model grid cell
  - Calculation can be automated
- Result: map of stream depletion
- E.g. calculate stream depletion for
  - Ngaruroro River,
  - after 7 days of pumping
  - Pumping rate of 50 L/s rate
- Over 3000 model runs
- Run management and processing:
  - R script
  - Bud2hyd
- Parallelised calculation



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Response functions

Stream depletion fraction established and mapped

$$\textit{Stream depletion fraction} = \frac{Stream\ Depletion}{Pumping\ rate} = \frac{90\ l/s}{100\ l/s} = 90\%\ \text{of pumping}$$

Unit: fraction of pumping rate

Actual effect can be calculated:

$$\textit{Actual effect [L/s]} = \textit{Stream depletion fraction[−]} * actual\ pumping\ rate\ [L/s] =$$
$$90\%*50\ l/s = 5l/s\ depletion$$

Data input:
location and pumping rate

Combined effect from multiple pumping locations can be calculated
Without the use of the model

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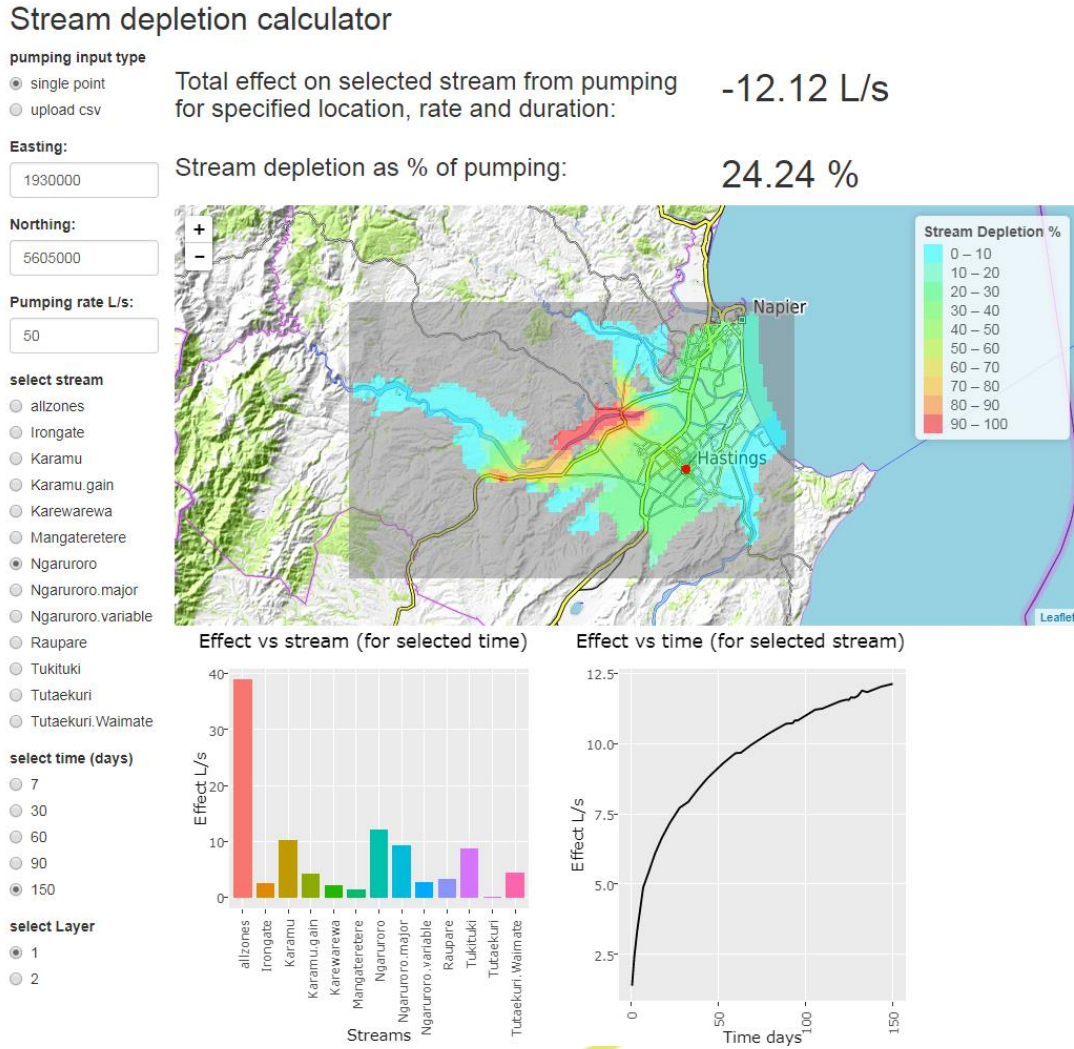
Web application

- Calculation can be automated
- Pre-calculated stream depletion distribution
- For multiple time intervals, streams
- Calculation for single well of group of wells
- [stream depletion calculator]



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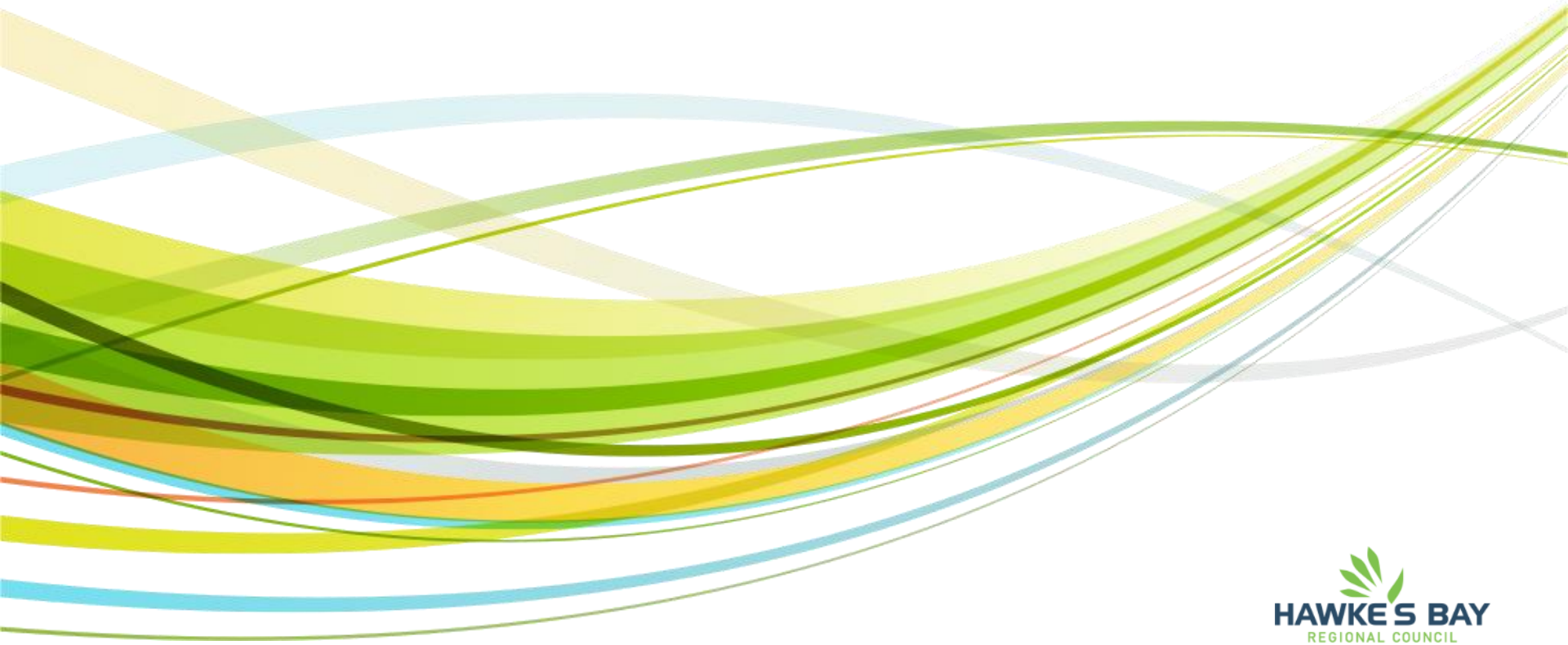
Stream depletion tool offline



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Overview

Stream depletion calculator

pumping input type

- (•) single point
- ( ) upload csv

Easting: 1930000

Northing: 5605000

Pumping rate L/s: 50

select stream

- ( ) allzones
- ( ) Irongate
- ( ) Karamu
- ( ) Karamu.gain
- ( ) Karewarewa
- ( ) Mangateretere
- (•) Ngaruroro
- ( ) Ngaruroro.major
- ( ) Ngaruroro.variable
- ( ) Raupare
- ( ) Tukituki
- ( ) Tutaekuri
- ( ) Tutaekuri.Waimate

select time (days)

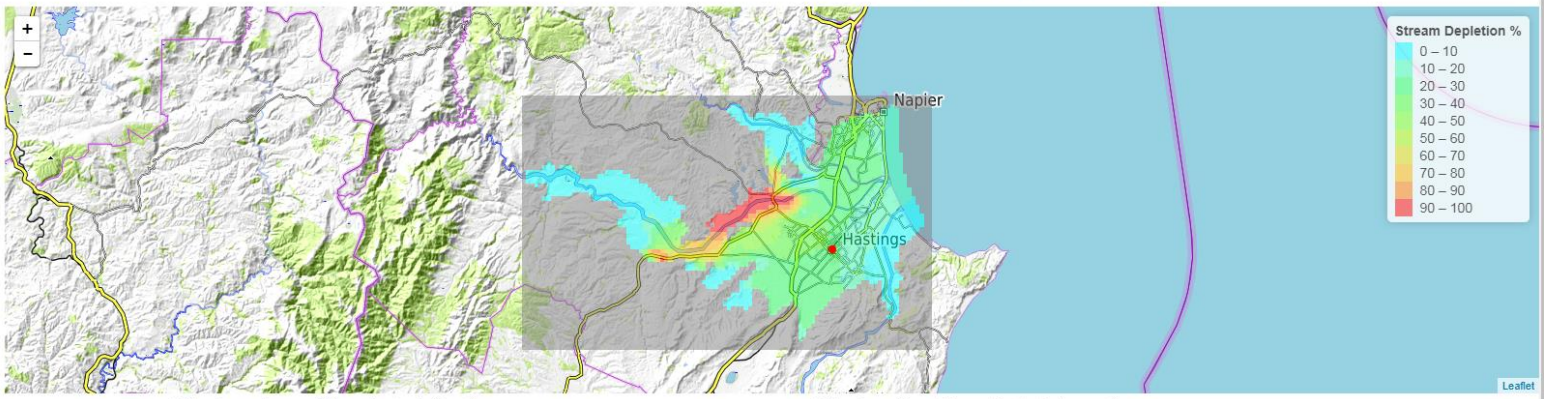
- ( ) 7
- ( ) 30
- ( ) 60
- ( ) 90
- (•) 150

select Layer

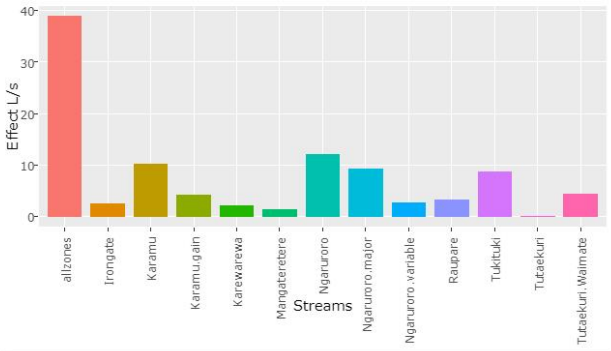
- (•) 1
- ( ) 2

Total effect on selected stream from pumping for specified location, rate and duration: -12.12 L/s

Stream depletion as % of pumping: 24.24 %

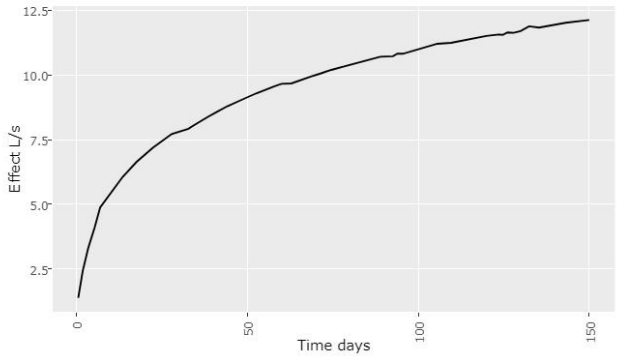


Effect vs stream (for selected time)



[1] "Hover on a point!"

Effect vs time (for selected stream)



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Select location
(click on map or entercoordinates)

Stream depletion calculator

pumping input type
- (•) single point
- ( ) upload csv

Easting:
1925633.81663996

Northing:
5610306.85616821

Pumping rate L/s:
50

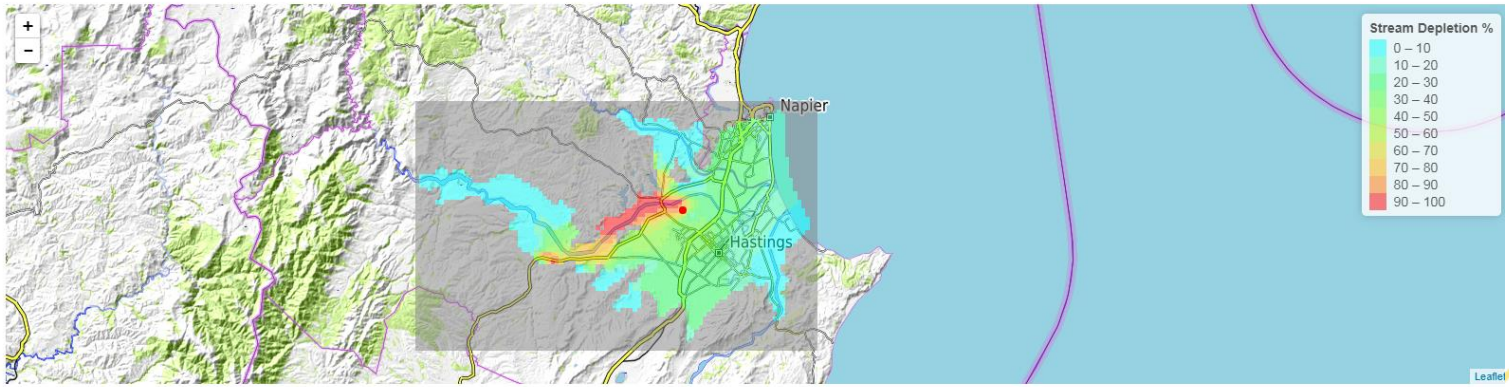
select stream
- ( ) allzones
- ( ) Irongate
- ( ) Karamu
- ( ) Karamu.gain
- ( ) Karewarewa
- ( ) Mangateretere
- (•) Ngaruroro
- ( ) Ngaruroro.major
- ( ) Ngaruroro.variable
- ( ) Raupare
- ( ) Tukituki
- ( ) Tutaekuri
- ( ) Tutaekuri.Waimate

select time (days)
- ( ) 7
- ( ) 30
- ( ) 60
- ( ) 90
- (•) 150

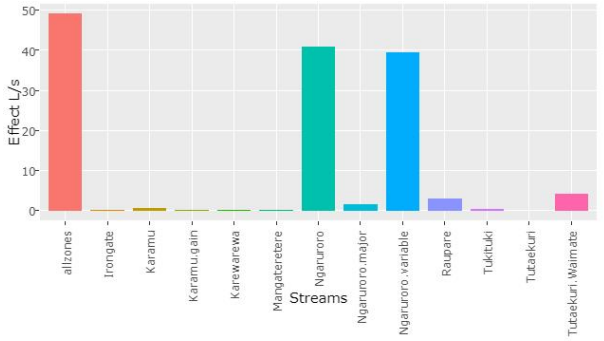
select Layer
- (•) 1
- ( ) 2

Total effect on selected stream from pumping for specified location, rate and duration: -40.9 L/s

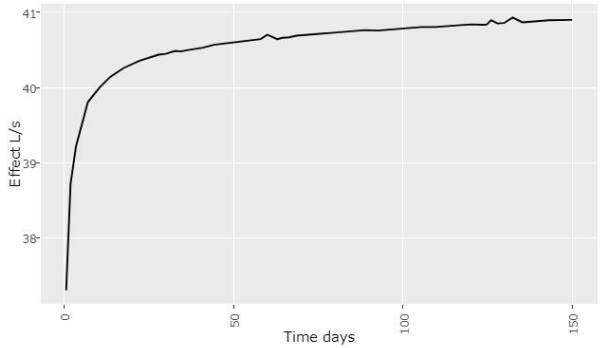
Stream depletion as % of pumping: 81.8 %



Effect vs stream (for selected time)



Effect vs time (for selected stream)



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Effect for different rivers

Stream depletion calculator

pumping input type

- (•) single point
- ( ) upload csv

Easting: 1930000

Northing: 5605000

Pumping rate L/s: 50

select stream

- ( ) allzones
- ( ) Irongate
- ( ) Karamu
- ( ) Karamu.gain
- ( ) Karewarewa
- ( ) Mangateretere
- ( ) Ngaruroro
- ( ) Ngaruroro.major
- ( ) Ngaruroro.variable
- (•) Raupare
- ( ) Tukituki
- ( ) Tutaekuri
- ( ) Tutaekuri.Waimate

select time (days)

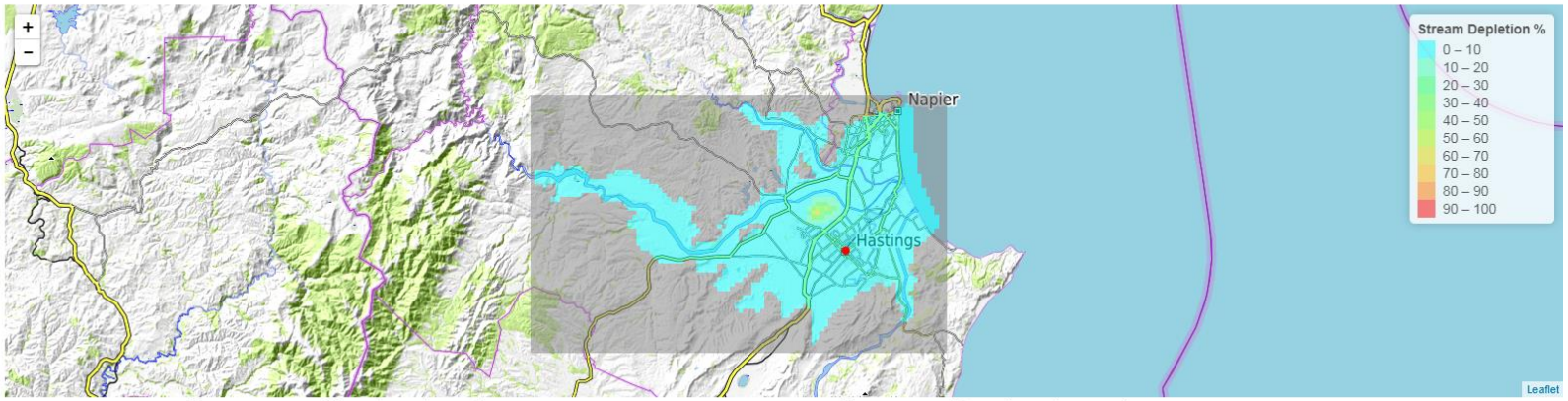
- ( ) 7
- ( ) 30
- ( ) 60
- ( ) 90
- (•) 150

select Layer

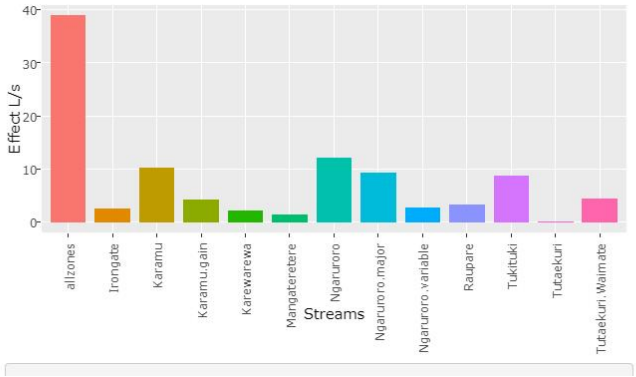
- (•) 1
- ( ) 2

Total effect on selected stream from pumping for specified location, rate and duration: -3.23 L/s

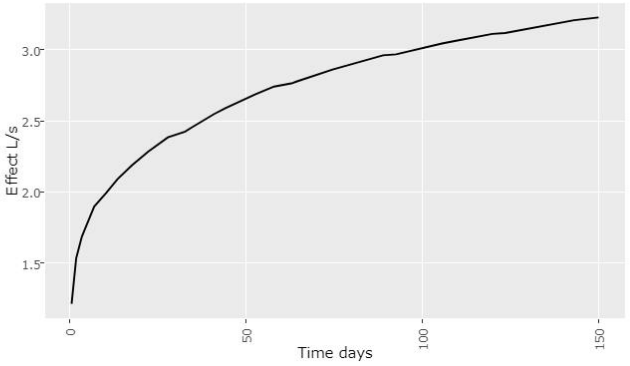
Stream depletion as % of pumping: 6.45 %



Effect vs stream (for selected time)



Effect vs time (for selected stream)



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Effect for different times

Stream depletion calculator

pumping input type
- (•) single point
- ( ) upload csv

Easting: 1930000

Northing: 5605000

Pumping rate L/s: 50

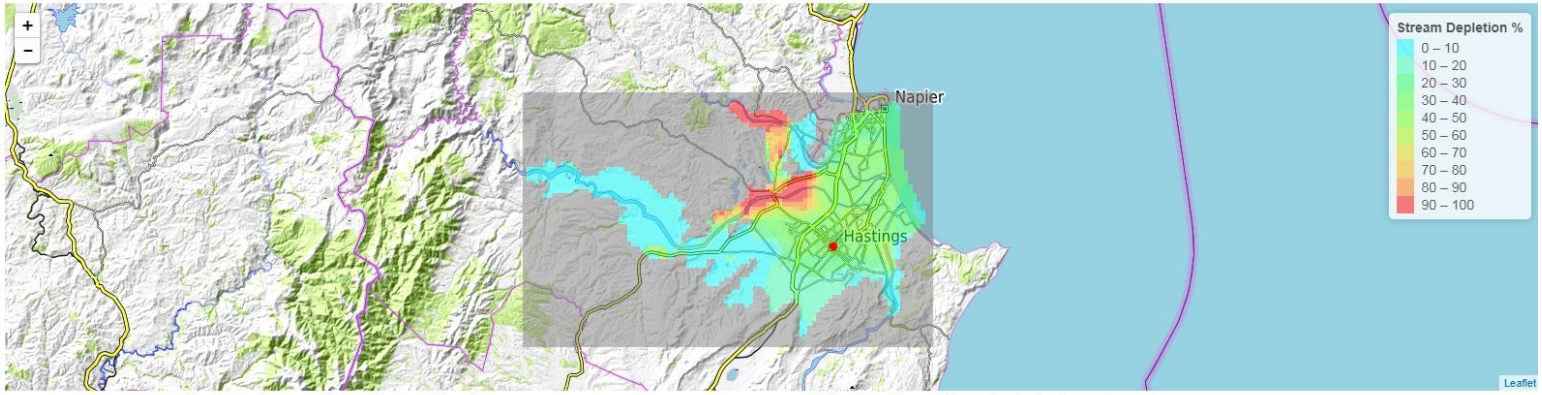
select stream
- (•) allzones
- ( ) Irongate
- ( ) Karamu
- ( ) Karamu.gain
- ( ) Karewarewa
- ( ) Mangateretere
- ( ) Ngaruroro
- ( ) Ngaruroro.major
- ( ) Ngaruroro.variable
- ( ) Raupare
- ( ) Tukituki
- ( ) Tutaekuri
- ( ) Tutaekuri.Waimate

select time (days)
- (•) 7
- ( ) 30
- ( ) 60
- ( ) 90
- ( ) 150

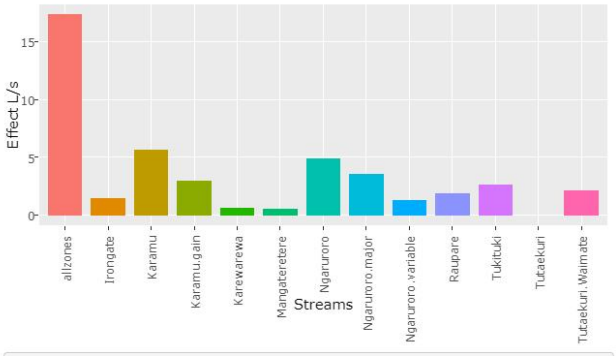
select Layer
- (•) 1
- ( ) 2

Total effect on selected stream from pumping for specified location, rate and duration: -17.33 L/s

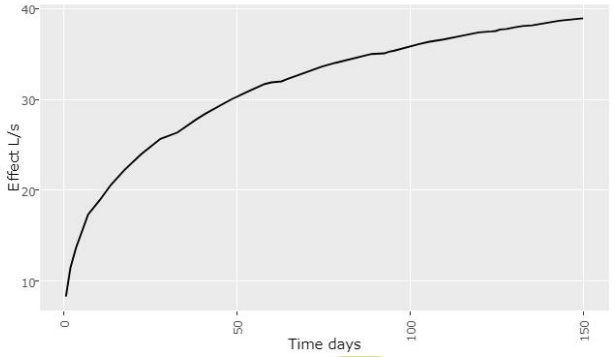
Stream depletion as % of pumping: 34.66 %



Effect vs stream (for selected time)



Effect vs time (for selected stream)



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pumping input type

- (•) single point
- ( ) upload csv

Easting:

1930000

Northing:

5605000

Pumping rate L/s:

50

select stream

- ( ) allzones
- ( ) Irongate
- ( ) Karamu
- ( ) Karamu.gain
- ( ) Karewarewa
- ( ) Mangateretere
- (•) Ngaruroro
- ( ) Ngaruroro.major
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- ( ) 7
- ( ) 30
- ( ) 60
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select Layer

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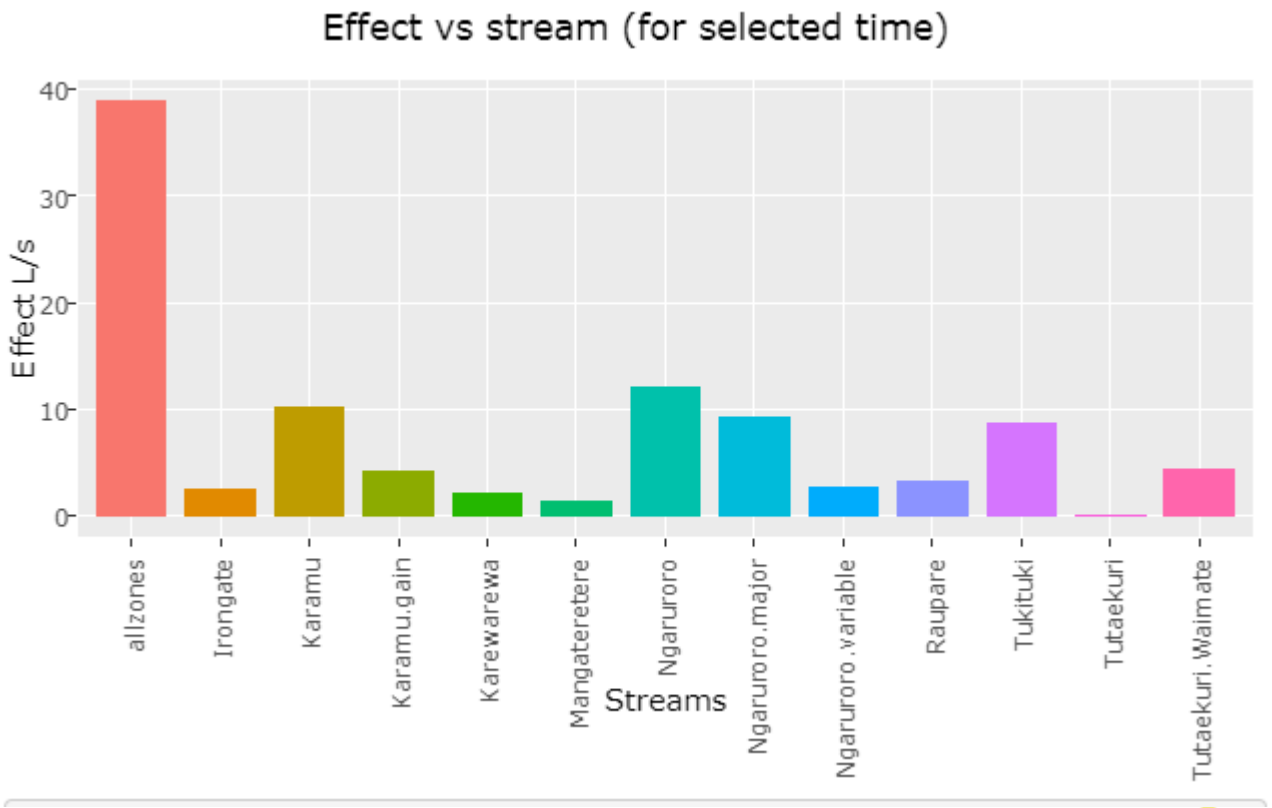
- ( ) 2



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1930000

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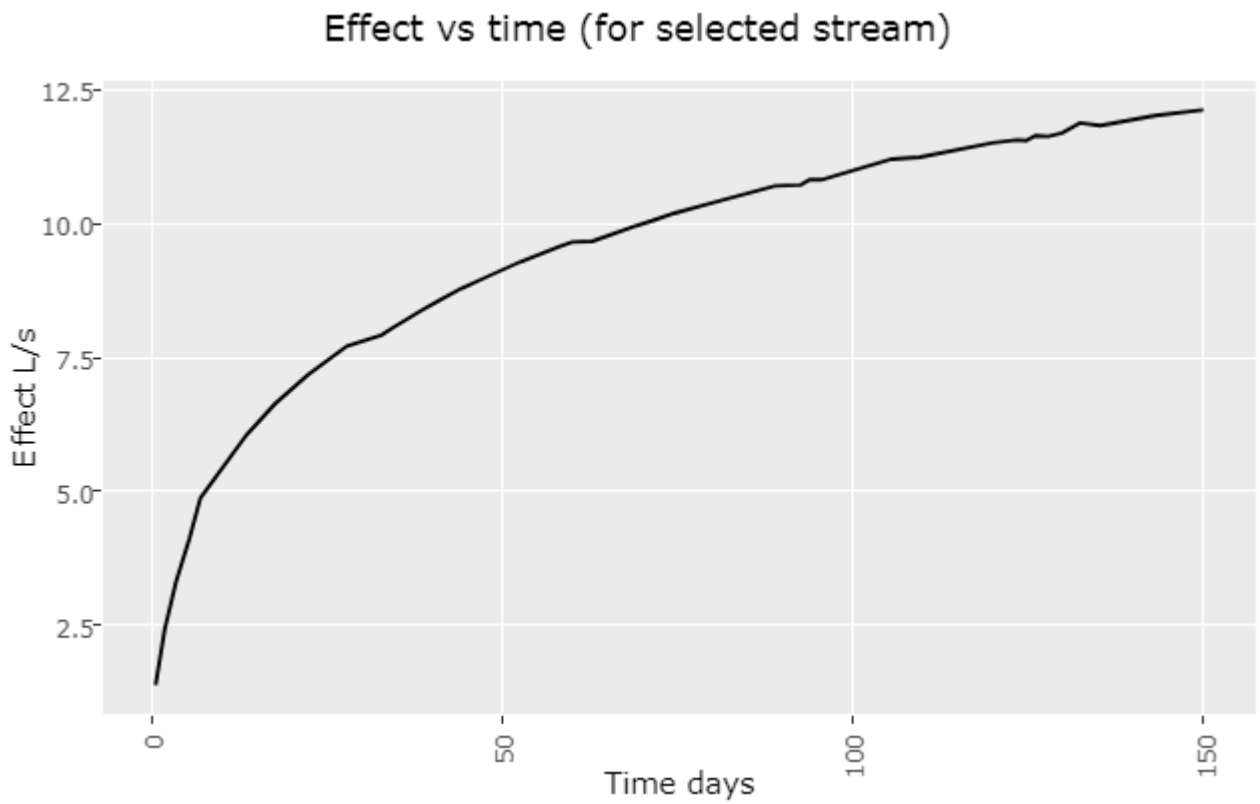

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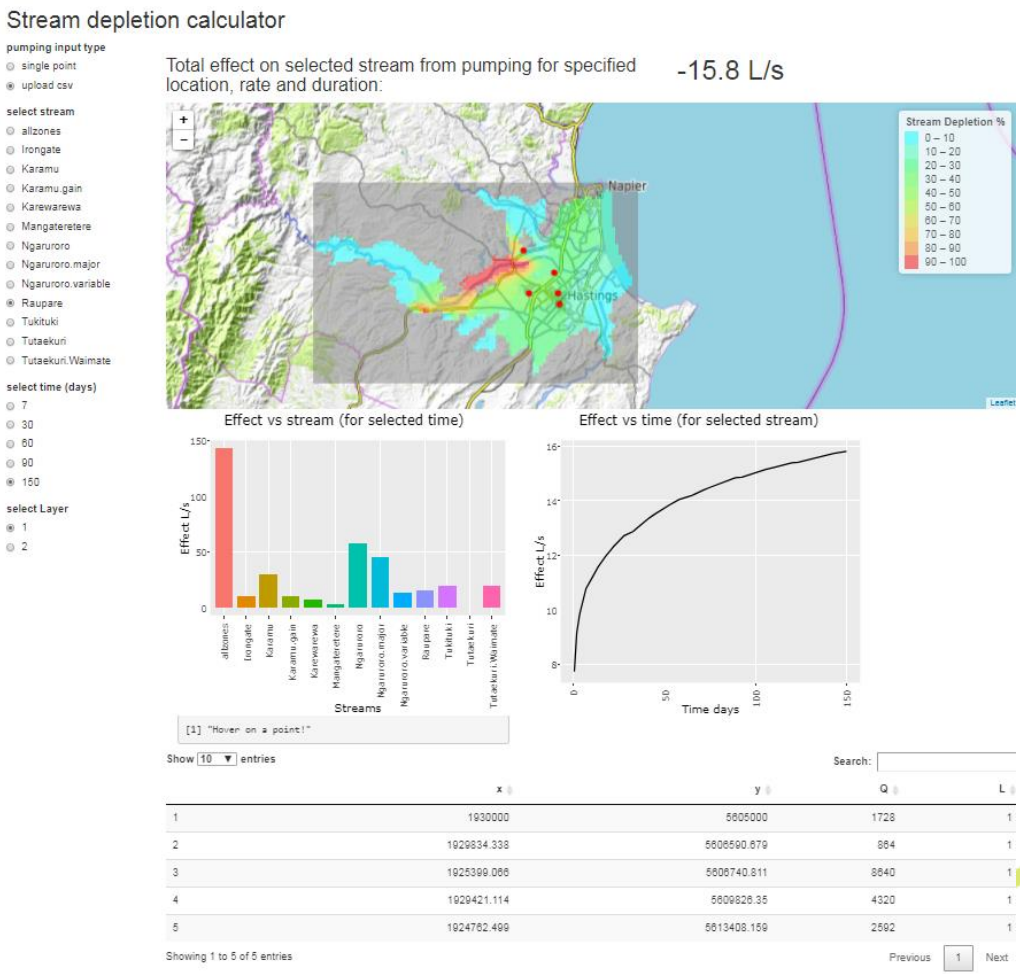
Multiple bores at once



End of offline slides

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Web application advantages

- Consistent methodology for estimating stream depletion
- Cheap to use, no skills required
- Could be made available to the public (e.g. consent applicants – generate automatic report)
- Consent officers - quick assessment of impact for new consents
- Could be a default tool (but could be followed with more detailed investigation when required)
- Model
  - Model results are made available to public
  - Extending life cycle of a model

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Response functions – mitigation calculator

- Calculate how much users should contribute to mitigation schemes (e.g. augmentation) base on their proportional impact
- **Example**

Total effect on a stream from all users: **Eff_tot** = 200 L/s

Total cost of augmentation scheme: **cost_tot** = $ 50,000

Impact caused by specific user: **Eff_user** = 5 L/s

Cost for the specific user cost_user:

$$\textbf{cost\_user} = \textbf{cost\_tot} * \frac{\textbf{Eff\_user}}{\textbf{Eff\_tot}} = \$50000 \frac{5\ L/s}{200\ L/s} = \$1250$$

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Example

	stream	user1	user2	user3	user4	user5	total
pumping per user (L/s)		**20**	**10**	**100**	**50**	**30**	210

Stream depletion calculator

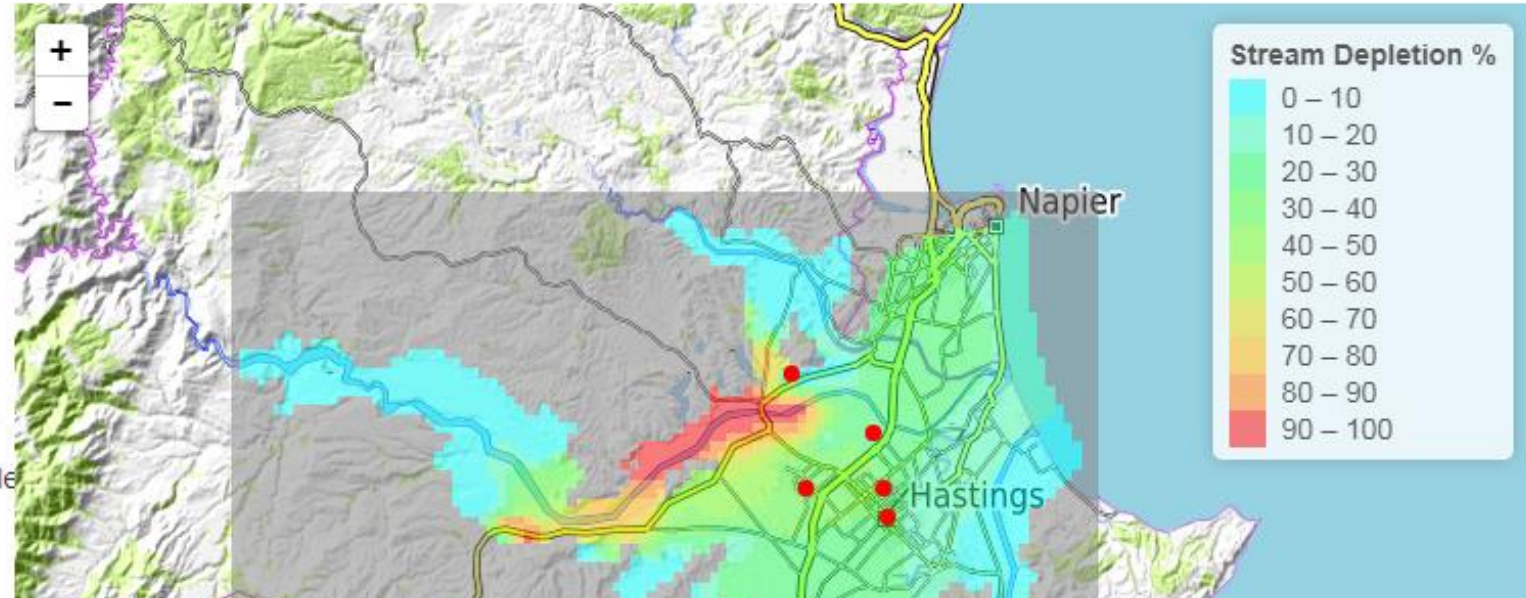
pumping input type

- single point
- upload csv

select stream

- allzones
- Irongate
- Karamu
- Karamu.gain
- Karewarewa
- Mangateretere
- Ngaruroro
- Ngaruroro.major
- Ngaruroro.variable
- Raupare
- Tukituki

Total effect on selected stream from pumping for specified location, rate and duration:

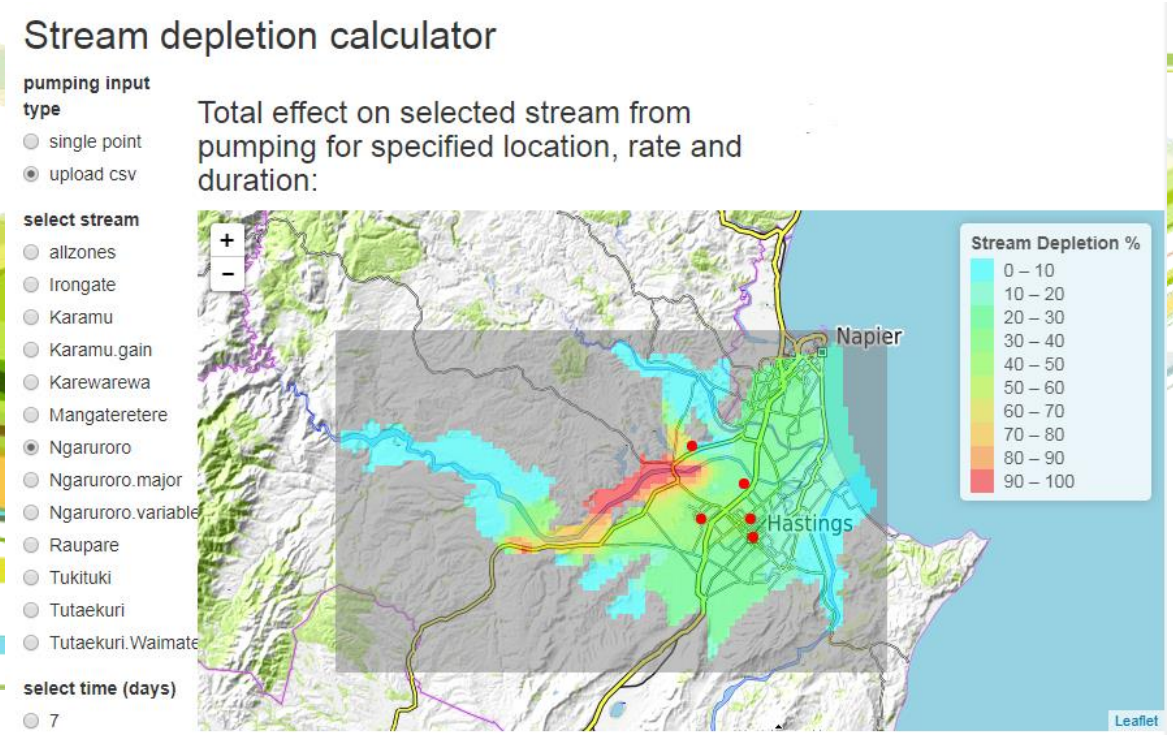


Stream Depletion calculator

by Pawel Rakowski

Outline:

- Background
- Calculator demonstration
- Possible uses and examples



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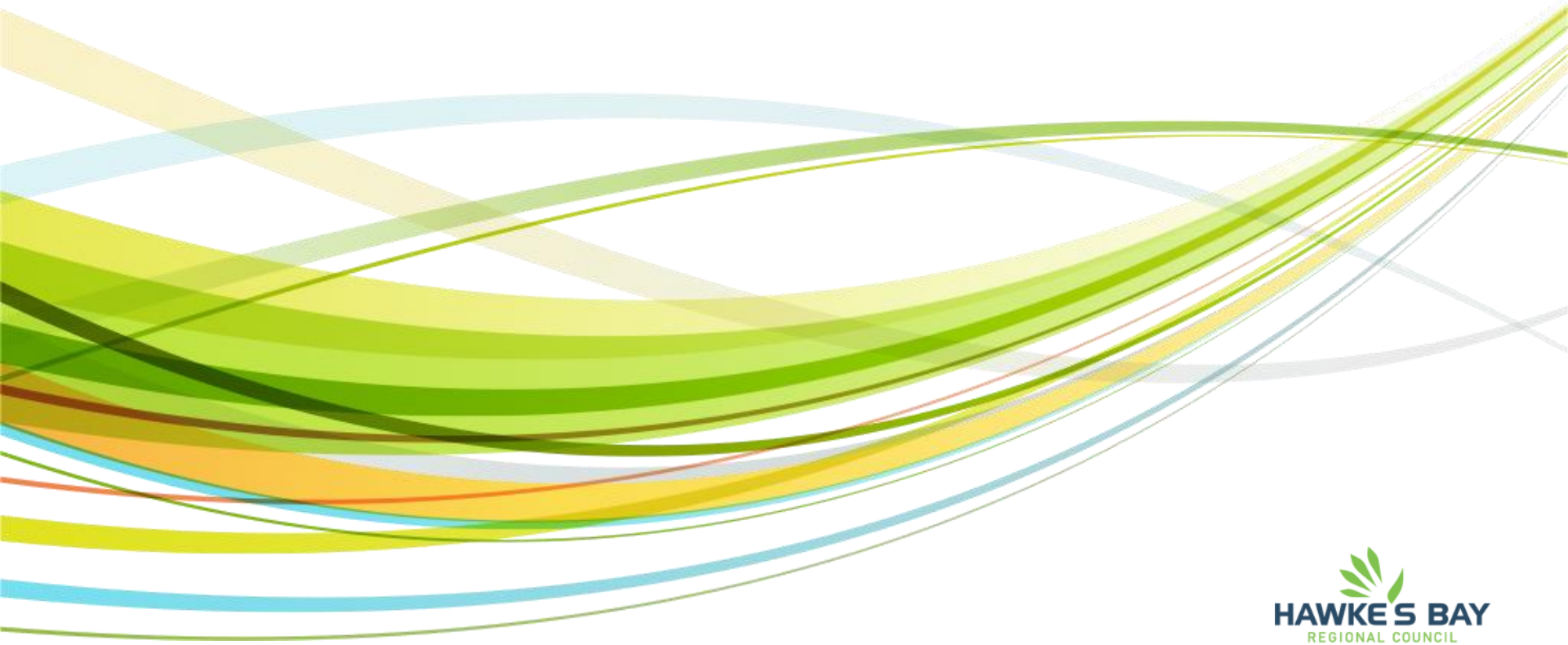
Using the Stream Depletion Calculator in the Plan



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Managing effects of stream depleting g/w takes – review of options

1. The combined effect of g/w takes in the Heretaunga plains has a cumulative adverse effect on river flows

2. Management options considered
   - *Zones cannot be developed to manage specific takes effects on nearby streams**
   - *Restricting groundwater use during lower flows very has delayed effects and needs to be significant cutback across all users to make a difference*

3. Other management tools being developed;
   - allocation limits,
   - reduction in allocations to reflect actual/reasonable
   - water allocation subject to annual limits
   - water use efficiency requirements

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Management option being assessed;

- directly mitigate stream depletion effects
- WAG carrying out feasibility study

Other management options being considered;

- Other riparian land management where augmentation not effective
- Wetland construction
- Possibility of mitigation of Ngaruroro flows by storage also being assessed
- Reduction in total allocation

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Proposal; Further develop use of Stream Depletion Calculator to manage stream depletion effects

If the flow augmentation option is feasible and cost effective;

1. Costs of scheme estimated for all stream depletion in plains (WAG).

2. Each consent subject to contribution to costs of scheme development through consent conditions.
   - Costs for each permit are assessed on basis of stream depletion calculator

3. Flow mitigation installed over time as consents are renewed and subject to the new conditions.

4. Council to co-ordinate funding, but allow for collective management of schemes (as demonstrated by Twyford)

Agree with proposal?

State why there is disagreement

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Water Allocation – Priority Allocations

Mary-Anne Baker

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Water Allocation and Priority End Uses

1. Discussion papers with policy options pre-circulated
    - Questions and clarification

2. Recommendations
    - Discussion and debate

3. Agree with recommendations
   or
4. Agree any amendments/solutions

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	Summary of Recommendations
1	That development of a “high value” allocation policy based on economic returns is not pursued.
2	That development of an “added value” allocation policy is not pursued.
3	Agree that recognition for food/drink production is already provided for in the RPS, both in relation to water use and the protection of land for primary production.
4	That the importance of water use for existing and planned future community health and well-being is recognised and granted priority within the allocation limit for the Heretaunga Plains groundwater
5	That development of an allocation policy for specific water use activities (sectors) is not pursued (except as in recommendation 4).
6	That granting of permits for the taking and use of water be made conditional on the preparation of a farm environment plan or membership of an applicable industry good practice programme.
7	Remove the 20m^3/day provision for **new** uses in TANK catchment. No new permitted use of water except continue to allow domestic and stock drinking water takes only. **Existing** users depending on the 20m^3/day permitted quantity continue as existing permitted use
8	That policy direction be provided to guide consent conditions and decision making during droughts or when making water shortage directions.

1. Questions and Clarification

2. Discussion of Recommendations

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Agree with recommendations

or

State why there is disagreement

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Water Allocation – Existing Use

Malcolm Miller

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Water Allocation

1. Discussion papers with policy options pre-circulated
    - Questions and clarification

2. Recommendations
    - Discussion and debate

3. Agree with recommendations
   or
4. State why there is disagreement

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Surface water allocation

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	Summary – Surface Water Allocation
1	Allocate surface water to reflect the historical amounts allocated. Once the TANK Plan Change is operative replace/review all surface water take resource consents to ensure that they are efficient in their take and use of water and reduce the amounts allocated where it is appropriate to reflect this.
2	Remove groundwater takes from the surface water allocation count except for Zone 1 groundwater takes.
3	Set each surface water allocation limit as a rate of take (L/s)
4	For each water permit measure the amount of surface water allocated as the average rate of take (L/s) derived from the maximum weekly volume
5	Sum these amounts to determine the total amount allocated for all surface water and zone 1 groundwater take water permits for each surface water resource
6	Provide for water sharing / rostering / augmentation of water at times of low flow (when the full allocated amount is not available in the river or stream
7	Provide additional allocation blocks to allow for takes at higher flows (WAG)

Water Allocation – Surface water

1. Discussion and debate

2. Agree with recommendations
   or
3. State why there is disagreement

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Groundwater allocation

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Summary –Groundwater Allocation

1	Set a groundwater allocation limit for the Heretaunga Plains based on existing peak use (provisionally 90 million m^3 per year).
2	For each groundwater permit, count the annual volume that is assigned as the amount that is allocated.
3	Sum the annual volume of each consent to determine the total amount allocated across all groundwater water permits in the Heretaunga Plains.
4	Once the plan is operative replace or review all groundwater take water permits to assess actual and reasonable use and to ensure that they are efficient in their take and use of water. Reduce the amount allocated where it is not demonstrated that water is needed and/or used efficiently.

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Water Allocation - Groundwater

1. Discussion and debate

2. Agree with recommendations
   or
3. State why there is disagreement

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Efficient water use

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Summary –Efficient Allocation and Use

1	To require all water use activities to be efficient in their use of water and therefore to avoid wasteful use.
2	To update and use the Irricalc water demand model to determine efficient water allocations
3	To allocate water on the basis of activities being 80% efficient or better in their use of water.
4	To require all non-irrigation water takes to show how water use efficiency of > 80% is being met (and in line with industry best practice).
5	Provide for each water permit to be issued for a 20 year duration providing it has been demonstrated that the take is an actual and reasonable amount for the purpose which the water is taken and that the cumulative allocation is within the allocation limits that have been set for the water body

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Water Allocation Efficient Use

1. Discussion and debate

2. Agree with recommendations
   or
3. State why there is disagreement

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Consent Management

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Summary – Consent Management

1	Provide for each water permit to be issued for a 20 year duration providing it has been demonstrated that the take is an actual and reasonable amount for the purpose which the water is taken and that the cumulative allocation is within the allocation limits that have been set for the water body
2	Implement the provisions of the TANK Plan Change as water permits expire up until 2026 and by reviewing all other water permits that haven't expired by that date. If TANK introduces changes to minimum flows in rivers and streams review consents sooner if necessary to align them with the provisions of TANK.
3	No removal of minimum flow conditions from groundwater takes until augmentation schemes are implemented.

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Water Allocation – Consent management

1. Discussion and debate

2. Agree with recommendations
   or
3. State why there is disagreement

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Next meeting – 22 February 2018

- Stormwater management draft policy for decision making (Rina, SWWG)
- 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, Craig Thew)
- Updates;
  - nutrient and sediment management (EAWG and farmer ref group)
  - mana whenua group and plan drafting
  - WAG and g/w depletion modelling

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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