



Healthy Rivers  
PLAN FOR CHANGE

Wai Ora

HE RAUTAKI WHAKAPAIPAI



RAUKAWA CHARITABLE TRUST  
TE POARI MANAAKI O RAUKAWA



TŪWHARETOA  
MĀORI TRUST BOARD



# Sources of Faecal pollution in Selected Waikato Rivers

Presentation to CSG#14

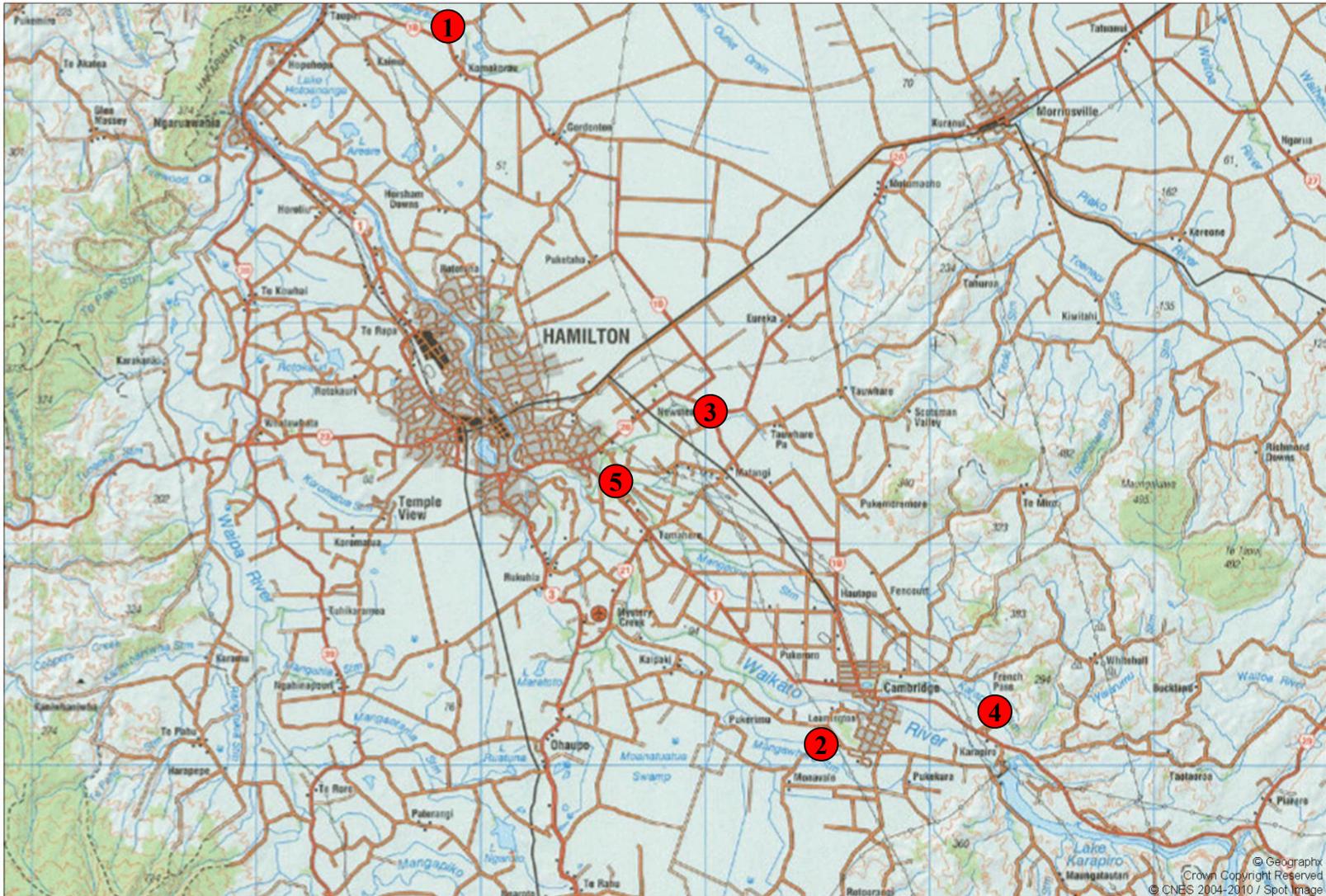
Aug 11th 2015

TLG

Based on DRAFT report to DairyNZ from ESR Ltd (31 July 2015)

# FST Sites

Date Printed: 17 March 2015



Legend



12.7  
0  
12.7 Kilometers  
Projection: NZGD\_2000\_New\_Zealand\_Transverse\_Mercator

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION



# Sampling sites

1. Komakorau Stream @ Henry Rd
2. Mangawhero Stream @ Ohaupo-Cambridge Rd
3. Mangaonua Stream @ Hoeka Rd (SH1B)
4. Karapiro Stream @ Hickey Rd
5. Mangaone Rd @ Annebrook Rd

# Sampling dates

1. 13 April – rain impacted
2. 20 April – rain impacted
3. 28 April – rain impacted
4. 4 May – dry weather
5. 20 May – dry weather
6. 11 June – dry weather

# FST Methods

- Extract total DNA from a water sample and examine the sample for DNA from source-specific organisms
- Eight assay markers were applied
  - Human
  - Avian (Duck, Swan, Seagull, Geese, Chicken)
    - + specific markers for ducks
  - Ruminant (Cow, Sheep, Deer, Goat)
    - + specific markers for Cows and Sheep

# Example results – Mangaonua (SH1B)

Table 6 *E. coli* and faecal source tracking results for the Mangaonua Stream

River Condition		Base flow			Rainfall Impacted		
Date Sampled		4 May	20 May	11 June	13 April	20 April	28 April
Indicator Bacteria	Total coliforms mpn/100ml	3900	9800	5500	>24000	>24000	>24000
	<i>E. coli</i> mpn/100ml	770	590	610	1600	3100	7300
PCR Markers	General Bac	very strong positive					
	Human-BacH	ND	ND	ND	ND	ND	ND
	Human - BiADO	ND	ND	ND	ND	ND	ND
	Ruminant	< 10%	Up to 100%	Up to 50%	Up to 10%	Up to 100%	Up to 100%
	Cow	ND	present	ND	ND	present	present
	Sheep	present	ND	ND	ND	ND	ND
	Wildfowl - GFD	present	present	present	present	present	present
	Wildfowl - E2	present	present	present	present	present	present

Specific to ducks



# Results

- Ruminant and avian pollution was detected in almost all samples
- Ruminant pollution was generally more dominant following rainfall
- No human pollution was detected at any of the sites
- The levels of PCR markers were lower than expected –pollution sources not fresh?