



SNAPSHOT OF COASTAL STREAM MOUTH WATER QUALITY IN THE COROMANDEL AREA (JANUARY/FEBRUARY 2015)

WHAT WE'VE DONE

Waikato Regional Council conducted a one-off survey of 18 coastal stream mouths in the Coromandel area during January and February 2015. Sites were selected based on their popularity and whether members of the community had previously raised concerns regarding water quality.

The purpose of the survey was to investigate the water quality at these locations to provide an initial assessment of the suitability of these water types for the organisms that live there and the people that use them recreationally.

We also used this survey to trial a new investigative technique in the Waikato coastal marine area — faecal source tracking. This technique provides some information about where faecal contamination in the water may have come from; for example, cows, humans, or possums.

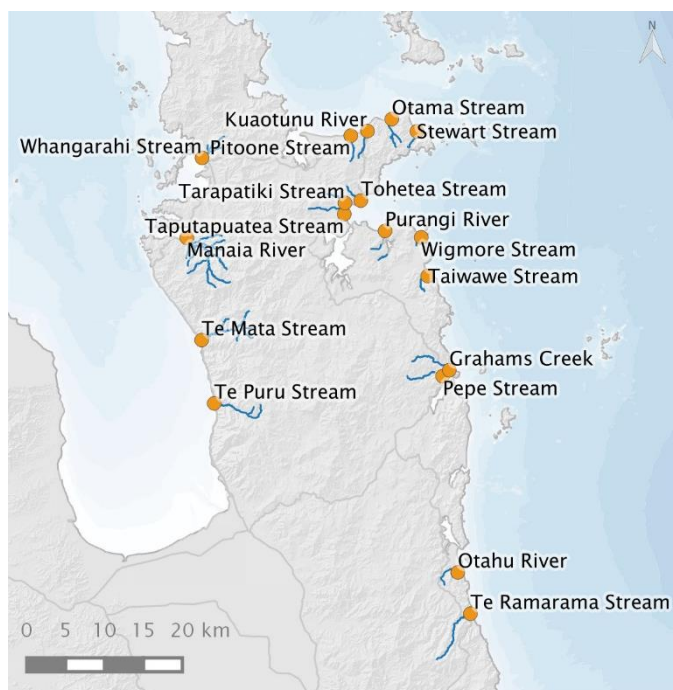


Figure 1: Locations of the 18 coastal stream mouths sampled weekly during January and February 2015.



HOW WE DID IT

Council staff visited each site weekly and collected water samples during the outgoing tide. This was to ensure that we were sampling water that was coming down the stream, rather than sampling the well mixed and diluted oceanic water. Samples were then delivered back to Hill Laboratories by the end of the day for analysis.

In order to assess the suitability of the water, the laboratory results for each sample were compared to guideline values that are used widely throughout New Zealand. Results relating to ecological health were compared to ANZECC guidelines¹ and results relating to the suitability for recreation were compared to the New Zealand recreational water quality guidelines².

The ANZECC guidelines are conservative, which means that exceedances do not imply that there are any adverse effects (e.g., nuisance algal growth). Instead, further investigation may be necessary to determine the extent of the effects, if any.



WHAT WE FOUND

- These water types are particularly susceptible to contaminants (excess nutrients and faecal contaminants) that are washed from the surrounding land, particularly 24–48 hours after heavy rainfall.
- The water clarity was good (low turbidity) and dissolved oxygen concentration was typically high at most sites.
- Median nutrient concentrations were within the guideline values at most sites. This means that at most sites, nutrient concentrations were within the guideline values at least half the time. The reason for these exceedances is more complex than just heavy rainfall.
- Most sites were within the recreational water quality guideline value most of the time. However, most sites exceeded the guideline value following heavy rainfall in the area. Some sites also exceeded guideline values during spring tides.
- Faecal source tracking was useful to identify possible sources of faecal bacteria in the water, however, it couldn't determine exactly how much each source contributed overall.
- Ruminant animals were one of the most common sources of faecal contamination. Possum and gull sources were also seen at most locations.
- Human sources were only detected at few sites and only on few occasions following heavy rainfall or high spring tides

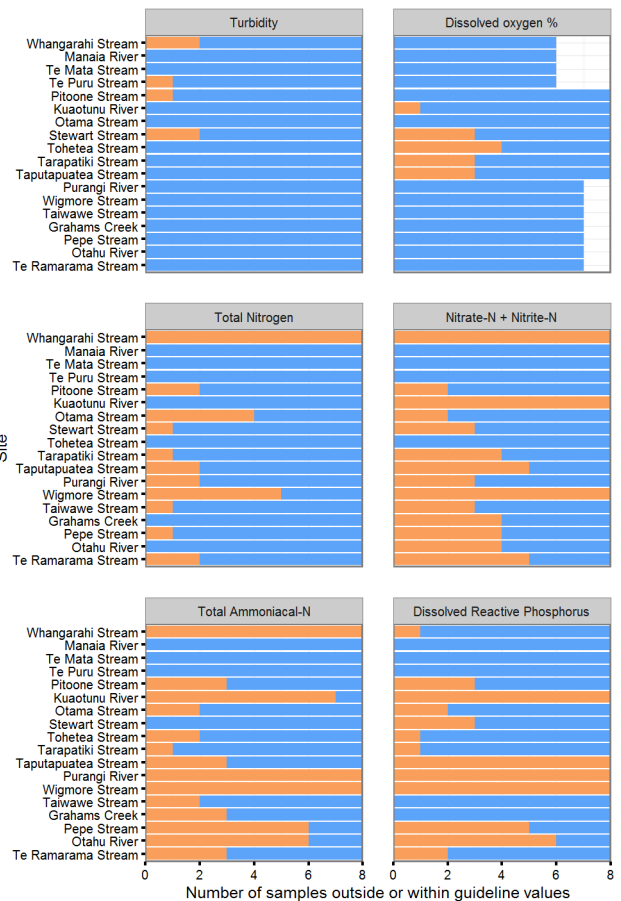


Figure 2: Summary of results used to assess the ecological health of the water. Water quality results were compared to the ANZECC guidelines. Results within the guideline are shown in blue and results exceeding the guideline are shown in orange.

WHERE TO FROM HERE?

- Work is being planned to conduct further investigations in these water types around the Coromandel area during 2016/17. The purpose of this work will be to develop our understanding of weather conditions and contamination sources that may impact water quality in these water types.
- We are developing processes between Waikato Regional Council, Thames—Coromandel District Council and Waikato District Health board to better deal with results that may have implications for public health. This includes better communication of results to the public.
- We are developing our regional-scale State of the Environment coastal water quality monitoring programmes. This will include open-coast beach bathing monitoring over the summer months.

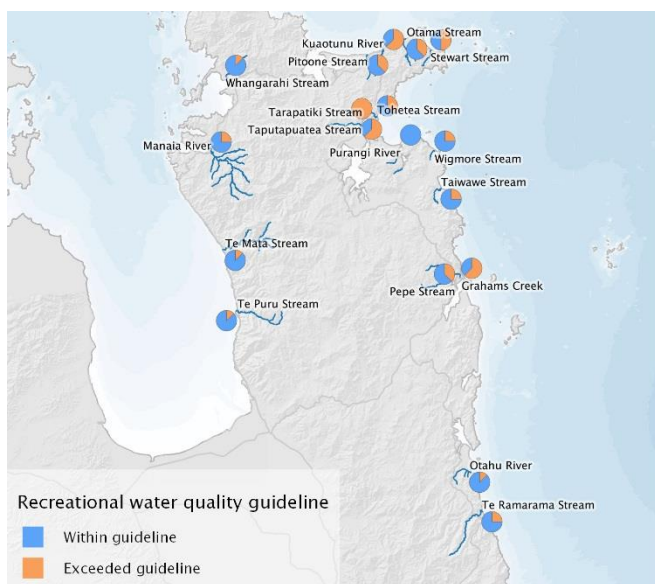


Figure 3: Summary of the faecal bacteria results used to assess the suitability of the water for recreation. Water quality results for faecal bacteria were compared to the recreational water quality guidelines.