

Microbiological Quality of Shellfish in Estuarine Areas

Joint Agency Research Report 2009



Why was the study done?

To obtain better information on the pathogen levels in shellfish stocks, so the public could be better informed of the risks of collecting and eating shellfish from local beds.

Project goal

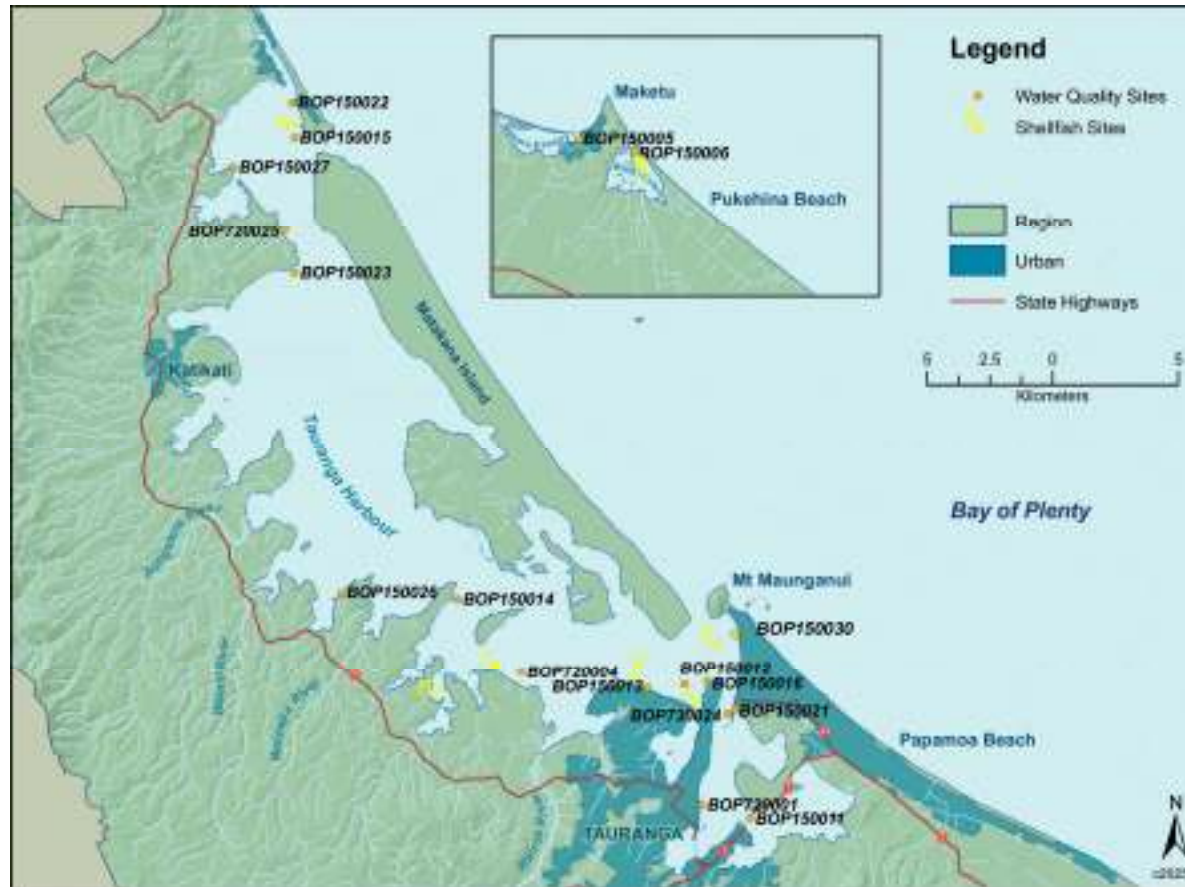
To limit illness from eating shellfish gathered in Tauranga Harbour and Waihi Estuary

Project objectives

Information gaps at the onset of the project

- were shellfish safe to eat before the overflow
 - exactly what area was affected
 - how long shellfish quality would be affected
 - when can the Medical Officer of Health lift the warning not to eat shellfish
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- we know shellfish accumulate viruses and bacteria but current national guidelines are based on water quality not the shellfish
 - determine feasibility of desk-based assessment of catchment pollution sources rather than costly ongoing sampling

Sampling site locations



- Tauranga Harbour & Waihi Estuary
- 6 shellfish sites (cockles, horse mussel & pipi)
- 13 water sites
- Viral & bacterial analysis
- Comprehensive response to a rainfall and sewage overflow event

What is Norovirus infection?

- Symptoms are vomiting & diarrhoea, fever, stomach cramps
- Incubation period is 24 - 48 hr but may be 10 - 50 hr
- Usual duration of illness is 12-60 hr
- Norovirus cannot be easily grown in culture so was not recognised for many years
- The disease was previously known as **acute non-bacterial gastroenteritis**
- Molecular diagnostic methods are used to identify norovirus outbreaks

Norovirus Disease Characteristics

- NZ viral gastroenteritis outbreaks are common
- Primary and secondary spread occurs
- Main transmission routes are :
 - poor food-handling (contaminated foods)
 - contaminated shellfish & water
 - fomites: carpet, handles, surfaces etc.
 - secondary spread (aerosol / personal contact)
- Occurs in 'institutions' such as rest homes, hospitals, resorts, school camps, cruise ships, restaurants
- Contaminated foods include shellfish, salads, ice, water, fresh fruit, bakery goods, cold meats
- Norovirus outbreaks are a huge economic cost to the health system and to the country

Study results:

1. Background shellfish quality

- Viral contamination of shellfish occurs often
- Shellfish from Tilby Point and Pilot Bay were found to be regularly contaminated with viruses

Study results cont:

2. Shellfish quality following sewage overflow event

- Norovirus levels were generally low in shellfish except following the significant sewage spill
- Norovirus remained detectable in shellfish 50 metres from sewage spill for up to three months

Study results cont:

3. Shellfish quality following heavy rainfall

- Low levels of norovirus found in shellfish from 3 of the 6 sites in Tauranga Harbour after heavy rain
- High levels of bacteria found after heavy rain
- Bacterial levels decreased after 7 days after rainfall

Key conclusions

1. Viral contamination in Tauranga Harbour supports NZFSA's advice not to collect shellfish near urban areas.
2. Shellfish may not be safe to eat even when the bacterial quality is within the accepted guideline limits.
3. Significant risk associated with consuming shellfish from Tauranga Harbour and Waihi Estuary exist, especially after pollution events

Recommendations

- The advisory against the collection of shellfish from Waihi Estuary be maintained. A similar permanent warning be implemented advising against the collection of shellfish from beds adjacent to Tilby Point in Tauranga Harbour.
- Warnings issued after significant sewage spills should be kept in place until testing of shellfish confirms the absence of virus, or for 3 months if no testing is done.
- National guideline bacteria and virus limits should be developed for shellfish gathered for personal consumption.
- Further study be done to determine the relative contribution of different sources of pollution.

Key messages

- Shellfish are a high risk food because they pick up and store harmful bacteria and viruses
- Areas without warning signs are not always safe for gathering shellfish
- Only collect shellfish from areas where the seawater is visibly clean, not visibly contaminated, and there are no obvious sources of contamination such as farm animals or nearby homes.

Key messages cont.

Avoid collecting and eating shellfish from areas where:

- Warning signs are erected
- Pipes or culverts run down to the beach
- Sewage or stormwater is discharged, or there are lots of houses nearby (especially if they are on septic tanks)
- Heavy rainfall has occurred in the past 7 days
- Farm animals are grazing nearby
- There may be industrial pollution
- Boats may discharge sewage e.g. near wharves or marinas

Next step

We need to inform those who need to know...

How do you suggest we do this?

Further information

(from Tuesday next week)

Full report: www.bopdhb.govt.nz

Food safety for seafood gatherers
pamphlet and DVD:

[www.nzfsa.govt.nz/consumers/hunting-
collecting-fishing/seafood-
gatherers/index.htm](http://www.nzfsa.govt.nz/consumers/hunting-collecting-fishing/seafood-gatherers/index.htm)