

# Public Health and mahinga kai gathered from water

**Water containing micro-organisms, chemicals, phytoplankton or cyanobacteria can pose a risk to health through recreational contact, drinking and gathering Mahinga kai.**

## How does water become polluted?

**Faecal contamination** of water can occur in many ways. Run-off from rural land, stormwater, discharges, leaking sewerage pipes, septic tanks, wastewater treatment discharges and resident populations of ducks or other bird-life can all contaminate water with faeces. This type of contamination will contain many micro-organisms such as bacteria, viruses and protozoa; some may be pathogens (disease causing).



**Chemical spills** are a potential hazard in the urban industrial and rural agricultural environments. Stormwater can contain contaminants from roofs, paved and grassed areas as well as roads. Most stormwater flows into nearby streams and rivers.

**Cyanobacteria and Phytoplankton** naturally occur in our environment. Cyanobacteria (blue green algae) can multiply when conditions are favourable and can produce toxins. In a river cyanobacteria can result in large areas of the riverbed covered in brown/black mats. In a lake cyanobacteria can bloom causing the lake to look green. Blooms of toxic phytoplankton (plant plankton) can also occur in the sea and estuarine areas where they can contaminate shellfish.

## What is mahinga kai?

The Mahinga kai species that are associated with water are fish (including tuna and inanga), kanakana shellfish (such as mussels, oysters, scallops, tuangi and tuatua) as well as seaweed and watercress.

## Monitoring of collection sites

Environment Canterbury undertakes testing and inspection of marine/estuarine and freshwater sites. The testing takes place at preset locations agreed at pre-season meetings and at times set by Environment Canterbury.



The Ministry for Primary Industries tests water for toxic phytoplankton and tests shellfish when toxic phytoplankton are found. These water samples are taken weekly at Sumner and Akaroa. Commercial monitoring is undertaken at Pigeon Bay and Port Levy.

## What's the risk with shellfish?

Shellfish with two shells (bivalves) such as mussels, oysters, scallops, tuangi, pipi, tuatua and toheroa filter seawater to get their food. When filtering the water they also filter micro-organisms, chemicals and toxins. These accumulate on the gills, in the gut and sometimes in the flesh of the shellfish. When there are blooms of toxin producing phytoplankton species the shellfish can accumulate high levels of toxins.

## **Pathogens in water, shellfish and plants: What will they do to me?**

Pathogens such as Salmonella, Campylobacter, Cryptosporidium, Giardia, Escherichia coli, Hepatitis A and Norovirus can be present in faecal matter. They can cause diarrhoea and vomiting and other serious health issues. Vulnerable people like the young, the elderly or those who are already sick may be at risk of more severe symptoms.

## **Phytoplankton and Cyanobacteria toxins: What will they do to me?**

There are a number of different phytoplankton species producing different toxins, so the effects on human health depend on the toxin. Cyanobacteria produce toxins which can cause skin rashes, nausea, stomach cramps, tingling/numbness around the mouth and fingertips. Some may also cause serious liver disease and others are suspected to cause cancer.

The toxins produced by cyanobacteria accumulate in the liver, kidneys and intestine of fish and eels. If you choose to collect Mahinga kai from water with a cyanobacterial warning in place - wash the food extremely well and remove the liver, kidneys and intestines.

## **Will contaminated shellfish be ok to eat after cooking?**

Toxic chemicals and other toxins will not be removed during cooking, and may even become concentrated. Light cooking or steaming will not necessarily destroy all pathogens. Boiling for at least three minutes is the only cooking method proven to kill most of the pathogens.

## **How do I know when the shellfish are safe to eat?**

Contaminated shellfish affected by viruses in human sewage can remain infected for a number of weeks after the contamination has ended. When gathering shellfish always check the area to ensure it is clean and clear from contamination and refrigerate or cook your catch as soon as possible.



When contamination is found a public health warning is issued by the Medical Officer of Health based at Community and Public Health, Canterbury District Health Board (CDHB). The warning is to advise people of an area of water contamination which increases the risk of illness through contact with the water or food gathering. A public health warning is not a ban; it is a warning and people can make their own decisions.

When a Canterbury public health warning is issued by the Medical Officer of Health, the local media, rūnanga and other interested parties are notified. You can go to the Community and Public Health website for more information: <https://www.cph.co.nz>

Ministry of Primary Industries (MPI) runs a Marine bio-toxin monitoring programme. Alerts are available on <https://www.mpi.govt.nz/travel-and-recreation/fishing/shellfish-biotxin-alerts/>