Ministry for Primary Industries
Manatū Ahu Matua

Food safety for **seafood gatherers**

Growing and Protecting New Zealand

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Collecting kaimoana from the sea is a much-loved tradition for many New Zealanders and their families. However, there are some risks you should be aware of before you head out to the coast.

Shellfish

Shellfish are a high-risk food because they can happily live in contaminated water and pick up and store any bacteria, viruses, biotoxins or pollution that are present.

Shellfish are often eaten raw or lightly cooked and therefore bacteria and viruses won't be killed. Cooking also won't destroy biotoxins or other contaminants that may be present. The most effective way to ensure you don't get sick from eating shellfish is to collect them from areas where the seawater is clean and not contaminated in any way. Proper handling, storage and cooking can further lower the risk of illness.

Types of shellfish

There are two types of shellfish, bivalve and grazing.

Bivalve shellfish (with two shells) such as mussels, tuatua, toheroa, oysters, cockles, pipi and scallops are filter feeders. Bivalve shellfish pose a greater risk than other seafood as they filter food particles from the seawater. They also pick up and store biotoxins, bacteria, viruses, contaminants and pollution.

Grazing shellfish, such as paua, kina and pupu (catseyes), pose a lower risk because they are not filter feeders. Discarding the gut (hua) from these types of shellfish before eating them further reduces the risk.

How can I get sick from eating shellfish?

Shellfish may become unsafe to eat from biotoxins, bacteria, viruses, and chemicals.

Your risk of becoming ill from shellfish depends on a number of factors, including:

- the type of shellfish you eat;
- any contamination in the water they grew in;
- whether they were contaminated after harvest;
- your own immunity.

People with low immunity (young children, the frail elderly, pregnant women – and their unborn babies – or anyone who has a chronic illness) are more likely to suffer serious effects.

If you or any member of your family becomes ill after eating shellfish, see your doctor immediately.

Biotoxins

Several different biotoxins have been found in New Zealand shellfish. These range from toxins that can give you diarrhoea, through to those that can be fatal. Shellfish and seawater samples around New Zealand are tested each week to check if they are contaminated with biotoxins from toxic algal blooms.

If the toxin levels are found to be unsafe your local Public Health Unit will issue a warning against collecting and eating shellfish from the affected area.

Bacteria and viruses

Most bacteria and viruses that cause us to become sick are found in human and animal faecal material. This can get into the water through sewage and storm water outlets or via rivers and streams, especially after rain. Bivalve shellfish become infected with bacteria when they feed in the contaminated water.

Shellfish contaminated with sewage may contain pathogens such as norovirus, hepatitis A, *Shigella*, and *Salmonella*. These can cause diarrhoea and vomiting or more serious illnesses.

Chemicals

Dangerous levels of contamination from heavy metals are very rare in New Zealand shellfish. The areas most likely to be contaminated are harbours near slipways and marinas where heavy metals, fuel, paints and solvents may be used, and near discharge outlets for sewage.

How can I tell if the collection area is clean?

Marine biotoxin alerts

The Ministry for Primary Industries (MPI) runs a marine biotoxin monitoring programme around the coastline of New Zealand. If an area has unsafe levels of biotoxins the local Public Health Unit will put up warning signs. Warnings may also be issued through local newspapers, television and radio stations.

You can also check the status of an area by visiting the Marine Biotoxin Alerts page on MPI's website: www.foodsmart.govt.nz/food-safety/hunting-collecting-fishing/seafood-gatherers.

Warnings will be removed once the area is deemed safe to collect shellfish from. Some shelfish such as tuatua hold on to toxins long after a toxic algal bloom has gone away. Warnings can stay in place for several months or longer when this happens.

Sewage and stormwater

Areas near sewer outfalls usually have permanent signage warning against collecting shellfish. Permanent warning signs may also be placed around storm water outlets advising that it is not safe to collect and eat shellfish from the area. Temporary warning signs may be put up when sewage spills occur.

If you see warnings signs do not collect shellfish from the area.

What about areas that don't have warning signs?

Areas without warning signs are not always safe for gathering shellfish. You should avoid collecting and eating shellfish from areas where:

- pipes or culverts run down to the beach;
- sewage or storm water is discharged, or there are lots of houses nearby (especially if they are on septic tanks);
- farm animals are grazing nearby;
- there may be industrial pollution;
- boats may discharge sewage, e.g. near wharves or marinas, or the water may be contaminated from antifouling paint or diesel.

Do not collect shellfish after heavy rain as storms may flush sewage overflow or farm run-off downstream which contaminates the water. After the water has run clear for a few days shellfish should be safer to collect again.

Are the shellfish for sale in shops safe to eat?

Yes – all the commercial shellfish growing areas have in place a strict monitoring programme for shellfish toxins and bacteria.

Keeping cool

While collecting your shellfish keep them cool in a bucket of fresh seawater. When it's time to take them home, place the shellfish in a chilly bin with ice which has been wrapped in a towel to protect them from getting too cold (freezing will kill your catch).

Fish

Fresh is best! Fish spoils easily, especially if handled poorly. Always gut your fish as soon as it's caught, and keep it on ice so your catch stays as fresh as possible.

Histamine and ammonia

Some species of fish produce histamine when they spoil. This can cause serious allergic reactions in people who eat it. Fish such as kahawai, trevalley, mackerel, tuna and kingfish are most likely to have problems with histamine contamination. It may not be obvious that fish have spoiled and are contaminated with histamine as they may not smell or look "off".

To reduce the risk of histamine poisoning, gut your fish and place it in an ice slurry as soon as it is caught.

Some fish species, including most sharks, can produce ammonia when they spoil. It is easy to tell if this has happened to your catch as the fish will smell like ammonia (a similar smell to some household floor cleaners). If your fish smells of ammonia throw it out!

Freshly caught and killed fish should be immediately refrigerated or kept in an ice slurry and is best eaten the same day.

Freezing, cooking or smoking your fish will not remove histamine or ammonia.

How to keep your catch fresh and safe to eat:

- Kill the fish and gut it as soon as possible.
- Keep your catch cold. Use ice (especially sea ice), ice packs or bottles of frozen water in your fish bin or chilly bin. The quickest way to chill fish is to submerge them in an ice slurry.
- Cover your fish with wet sacks to help keep them cool if you are fishing from the shore.
- Keep your catch in a cool spot, out of the sun.
- Wash your hands and clean your chopping boards and knives before filleting fish.

Parasites

Most fish have parasites. Some are visible, but many can't be seen with the naked eye. Parasites are easily killed by cooking or freezing your catch. The main risk is when fish are eaten raw, such as sashimi.

If you are going to eat fish raw it is best to freeze the fish for a few days before using it, to avoid risks from parasites that cannot be seen. Some countries require any fish sold for eating raw to be pre-frozen for this reason.

If you choose not to freeze your fish before eating it raw the risk can be reduced, but not eliminated, by slicing the flesh very thinly and carefully inspecting the flesh to be eaten. If you see parasites or abnormalities in the flesh don't eat it raw. It is safest if fish is thoroughly cooked, or has been frozen, before you eat it. Remember, even if you can't see any parasites in the flesh it doesn't mean they aren't there!

Fish containing parasites

If you catch a fish which appears skinny or in poor condition it may be due to disease or parasites. The best thing to do is throw it back.

Handling, storing and cooking fish and shellfish

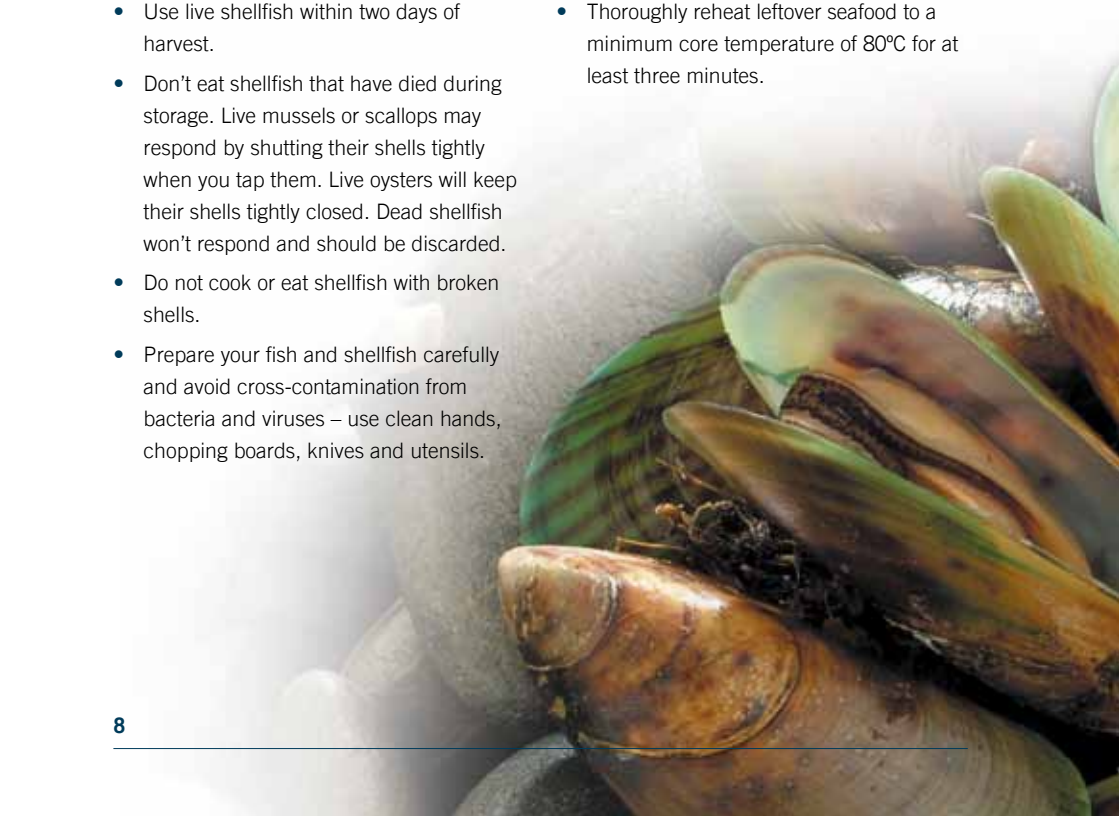
Proper handling, storage and cooking can reduce the risk of getting sick from your catch. Follow the four Cs: Clean, Cook, Cover and Chill.

Clean

- Only take fish and shellfish from areas with clean water.
- Keep shellfish alive and cool to keep them fresh. Keep them in a bucket of fresh seawater while collecting, and use a chilly bin to transport them home.
- Use live shellfish within two days of harvest.
- Don't eat shellfish that have died during storage. Live mussels or scallops may respond by shutting their shells tightly when you tap them. Live oysters will keep their shells tightly closed. Dead shellfish won't respond and should be discarded.
- Do not cook or eat shellfish with broken shells.
- Prepare your fish and shellfish carefully and avoid cross-contamination from bacteria and viruses – use clean hands, chopping boards, knives and utensils.

Cook

- Cooking fish and shellfish thoroughly will help kill bacteria, viruses and parasites.
- Shellfish are often eaten raw or lightly steamed which does not get rid of bacteria and viruses, chemicals or biotoxins.
- Thoroughly reheat leftover seafood to a minimum core temperature of 80ºC for at least three minutes.



Cover

- Keep shellfish in the shade after harvest to keep them moist and cool.
- Keep fish chilled and in the shade, using ice packs, or by covering them with a wet sack. Refrigerate your catch as soon as you get it home.
- In the fridge, cover shellfish with a clean wet towel (not in an airtight bag or container).
- Store fish in sealed containers.

Chill

- Store shellfish on ice if transporting in a chilly bin (wrap the ice in a towel as freezing will kill shellfish).
- Refrigerate shellfish as soon as possible after collection (within four hours).
- Store fish and shellfish in the lower part of your fridge, below cooked food.
- Make sure your fridge is operating between 2 and 4ºC.
- If you are preparing shellfish to freeze, shuck (shell) them as soon as possible and freeze in small amounts.
- Always defrost frozen shellfish or fish in the fridge before you cook them.

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