

Food safety for seafood gatherers



A scenic photograph of a rocky coastline. The foreground shows dark, jagged rocks partially submerged in shallow, rippling blue water. In the middle ground, more rock formations extend into the sea. The background features a calm blue ocean meeting a clear, light blue sky at a distant horizon. The overall scene is bright and serene.

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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 considered a high-risk food because they can harbour bacteria, viruses, biotoxins and chemicals, that may be present in the water.

Cooking shellfish thoroughly will kill bacteria. However, it won't destroy biotoxins and might not eliminate other contaminants that could be present.

Only collect shellfish from clean water. Do not harvest shellfish from contaminated areas, such as after heavy flooding or sewage overflow or where a marine biotoxin warning is in place.

Proper handling, storage and cooking can further lower the risk of illness.

Types of shellfish

There are two types of shellfish:

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

Grazing shellfish, like paua, kina and pupu (catseyes), generally pose a lower risk compared to filter feeders. Discarding the gut (hua) from these before cooking and eating them further reduces the risk.



How can I get sick from eating shellfish?

Shellfish may become unsafe to eat due to biotoxins or other chemicals, bacteria, and viruses.

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

- the type of shellfish you eat,
- any contamination in the water they grew in,
- whether they deteriorated after harvest, and
- your own immunity.

People with low immunity - such as the young, older people, those who are pregnant or anyone who is immunocompromised - are more likely to suffer serious effects. If any of these conditions apply, do not eat raw or undercooked shellfish.

Marine biotoxins

Bivalve shellfish filter out microscopic algae and other particles as a food source. If these algae are toxic, then toxins can accumulate in the shellfish, making them poisonous if eaten. These toxins cannot be destroyed by cooking.

Several different biotoxins have been found in New Zealand shellfish, causing symptoms ranging from diarrhoea to paralysis. Some biotoxins can be fatal if consumed.

Bivalve shellfish and seawater samples around New Zealand are tested each week to check for contamination. If the toxin levels are found to be unsafe, a warning against collecting and eating shellfish from the affected area will be posted on MPI's biotoxins webpage: www.mpi.govt.nz/shellfish and signs put up in those areas.

If you or any member of your family become ill soon after eating shellfish, especially with breathing difficulties, strange tingling in your limbs or neurological problems, phone Healthline on 0800 61 11 16, or seek medical attention immediately. Any leftover shellfish should also be held and stored for further testing.

Bacteria and viruses

Most foodborne 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 when they feed in the contaminated water.

Shellfish contamination is not always the result of a pollution event. Some bacteria like *Vibrio*, which can make you sick, are naturally present in the marine environment, including in shellfish.

***Vibrio* bacteria**

Vibrio parahaemolyticus (*Vibrio*) is a type of bacteria present in seawater and seafood, and is more prevalent in seawaters warmer than 15°C.

Vibrio can make you sick after eating raw or undercooked shellfish. To reduce the risk, cook shellfish thoroughly until they are at least 65°C for 1 minute (until they open and are firm to touch).

Infection generally causes symptoms such as watery or bloody diarrhoea, abdominal cramps, nausea and vomiting, or fever and headaches. In severe cases, hospitalisation is required but most cases resolve without further medical care.

For more advice on how to lower your risk of getting sick from *Vibrio*, including preparing and cooking shellfish safely, visit: www.mpi.govt.nz/vibrio

Chemicals

Dangerous levels of chemical contamination are very rare in New Zealand shellfish. Areas most likely to be contaminated are harbours near slipways and marinas where fuel, paints and solvents may have been used, and near sewage discharge outlets.



How can I tell if the collection area is clean?

Marine biotoxin alerts

New Zealand Food Safety regularly tests marine biotoxin samples from popular collection areas around New Zealand's coastline. If an area has unsafe biotoxin levels, warning signs are put up. Warnings may also be issued through local newspapers, television, and radio stations.

Updates are also posted on the New Zealand Food Safety website: mpi.govt.nz/shellfish-biotoxin-alerts

Warnings are removed once toxin levels reduce and the area is deemed safe to collect shellfish. Some shellfish, 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 warning signs against collecting shellfish. These may also be placed around stormwater outlets. 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. Avoid collecting and eating shellfish from areas where: 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);
- 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, farm run-off or other contaminants into the sea. After the water has run clear for 5 days, shellfish should be safer to collect again.

Are the shellfish for sale in shops safe to eat?

All commercial shellfish come from growing areas with strict monitoring and controls for toxins and bacteria. It is still recommended that any shellfish bought from retailers is cooked thoroughly before eating to avoid getting sick.

Keeping cool

When collecting shellfish, keep them cool in a bucket of fresh seawater and out of the sun. When it's time to take them home, place shellfish in a chilly bin on ice 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.

How can I get sick from eating fish?

Histamine and ammonia

Some fish species produce histamine when they spoil. This can cause serious allergic reactions in people who eat it. Fish such as kahawai, trevally, 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 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 because it 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.

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 is eaten raw, such as sashimi or sushi.

If you are going to eat fish raw, it is best to freeze the fish at minus 20°C or less for at least 7 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!

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.

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 salty 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 and after filleting fish.



Fish containing parasites

Handling, storing and cooking fish and shellfish

Follow these food safety tips to reduce the risk of getting sick from your catch.

Gathering and transporting

- Only take seafood from areas with clean water.
- Keep seafood chilled and in the shade, using ice packs, or covering with a wet sack or towel.
- Use a chilly bin to store and transport seafood home. Store shellfish on ice if transporting in a chilly bin (wrap the ice in a towel as freezing will kill shellfish).

Storing at home

- Refrigerate your catch as soon as possible, in the lower part of your fridge, below cooked food. Make sure your fridge is operating between 2°C and 4°C.
- Store shellfish in a bowl covered with a cold, clean, wet towel. Store fish in sealed containers.
- To freeze shellfish, shell them as soon as possible and freeze in small amounts in their cooking water or natural juices.
- Thaw frozen shellfish or fish in the fridge before cooking.
- Parasites in fish are easily killed by cooking or freezing your catch.



Preparing and cooking

- Use live shellfish within two days of harvest. Don't eat or cook ones that have died or have broken shells. 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 eat shellfish from unsafe, contaminated areas. Cooking does not remove chemicals or biotoxins.
- Prepare your fish and shellfish carefully. Use clean hands, chopping boards, knives, and utensils. Cooking thoroughly will help kill bacteria, viruses, and parasites.
- Don't eat shellfish raw or undercooked. Cook thoroughly until they are at least 65°C for 1 minute (until they open and are firm to touch).
- Thoroughly reheat leftover seafood to a minimum core temperature of 75°C.
- Use different chopping boards, plates, bowls, and knives for raw and cooked seafood.
- Wash any used kitchen tools in hot, soapy water, and dry well.
- Thoroughly clean any kitchen surfaces used for handling raw seafood.
- Keep raw seafood separated from cooked products or other ready-to-eat products.



Avoid cross-contamination

- Contaminants such as bacteria can spread to different food and surfaces, either from the seafood itself, its liquid or juices, your hands, or cooking equipment. This is called cross-contamination and it increases your risk of getting sick.
- Wash your hands with soap and dry well before handling, cooking, and eating food.

www.mpi.govt.nz/food-safety-home/

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This information does not replace or substitute for advice given by an appropriate professional. If you suspect you have a food allergy, you should see an appropriate health professional.

Te Kāwanatanga o Aotearoa
New Zealand Government