



Ministry of Marine Resources  
TU'ANGA O TE PAE MOANA  
COOK ISLANDS

# Ciguatera in the Cook Islands

## Know what you can eat!

The number of reported cases of ciguatera in the Cook Islands was high during the early 1990s. Today, we all need to know which seafood species are known to cause ciguatera.



Lower picture © Minty







## Harmful food poisoning

Ciguatera is a type of food poisoning that affects humans and other animals and occurs throughout the Pacific. It is also the buildup of toxin (called ciguatoxins) produced by microalgae growing on coral reefs.

### Natural uptake of ciguatoxin

Herbivorous fish such as the striated surgeonfish (maito), feed on the microalgae and are therefore the first to pick up the ciguatoxin. Predatory fish such as bluefin trevally (titi`ara) and peacock grouper (pātuki roi) can collect higher levels by eating many herbivorous fish containing the ciguatoxin. Incidences of fish poisoning tend to coincide with outbreaks of algae that produce ciguatoxins.

### Some fish that have been implicated in ciguatera poisonings

In the Cook Islands, the production and accumulation of ciguatoxins is limited to coral reef ecosystems. Some reef fish that have been reported to cause fish poisoning include:

#### Herbivores



Surgeonfish (maito)



Parrotfish (pākati, avarau, u`u)



Mullet (kanae)

#### Carnivores



Snappers (angamea, tangau, kiriva)



Barracuda (ono)



Dogtooth tuna (varu)



Emperors (`Iroa)



Jobfish (paru)



Trevallies (titi`ara, urua)



Groupers (pātuki roi, tonu roi, `oka)



Maori wrasse (maratea)



Goatfish (vete)



A'a pata (moray eel)

Pelagic fish, like tuna (a`ai), albacore (to`evere), dolphinfish (ma`ima`i), marlin (akurā) or flying fish (māroro) for example, are not prone to ciguatera. Although dogtooth tuna (varu) and barracuda (ono) are caught in the ocean, they are non-pelagic fish that are common predators in coastal reef environments.



## Some points that could help you avoid ciguatera

To minimise your chances of getting ciguatera poisoning:



- Using the list provided in this brochure, be mindful of which fish species to eat as well as the size of predatory fish.
- As soon as you catch a reef fish, remove the guts and internal organs as this is where the ciguatoxin is most concentrated.



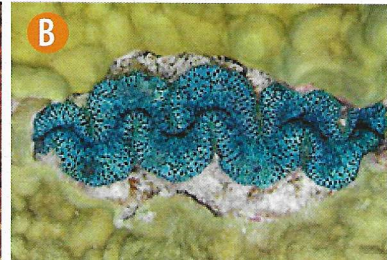
If you get ciguatera, don't eat any kind of fish for at least one month and avoid alcohol for a while. Once you've recovered, eat very small pieces of fish, noting that the more fish you eat, the more likely you are to get ciguatera and at more severe levels. If you start to feel the symptoms again, go and see the doctor.

The only way to completely avoid ciguatera poisoning is to not eat any seafood associated with reef ecosystems.



### Ciguatera is not only in fish!

There are also reports in the Cook Islands and French Polynesia of invertebrate consumption causing ciguatera. These species include **A** trochus (torökati), **B** giant clams (pā'ua) and urchins (avake). Recent research has confirmed this as the same ciguatoxin that has been found in fish species.



### Ciguatera symptoms

Symptoms of poisoning usually start anywhere between 2 and 12 hours after consuming seafood contaminated with the ciguatoxin. Symptoms include nausea, vomiting, abdominal pain, diarrhoea, headaches, fever, numbness, tingling and itching sensations in the lips and skin, pain in the muscles and joints and a reversed sense of temperature (hot water feels cold and cold water feels hot). Symptoms can last anywhere from weeks to months. There is no remedy for poisoning, however doctors may recommend certain drugs for temporary relief.



### Ciguatera has been around for a long time

Fish poisoning was reported as early as the 1600s in several captains' logs, including James Cook's. He reported his crew as well as the pigs getting sick from eating reef fish. Although ciguatera has been studied since the 1970s, it is still very difficult for a fisher or general public to test fish tissue for the presence of ciguatoxin prior to eating the fish.

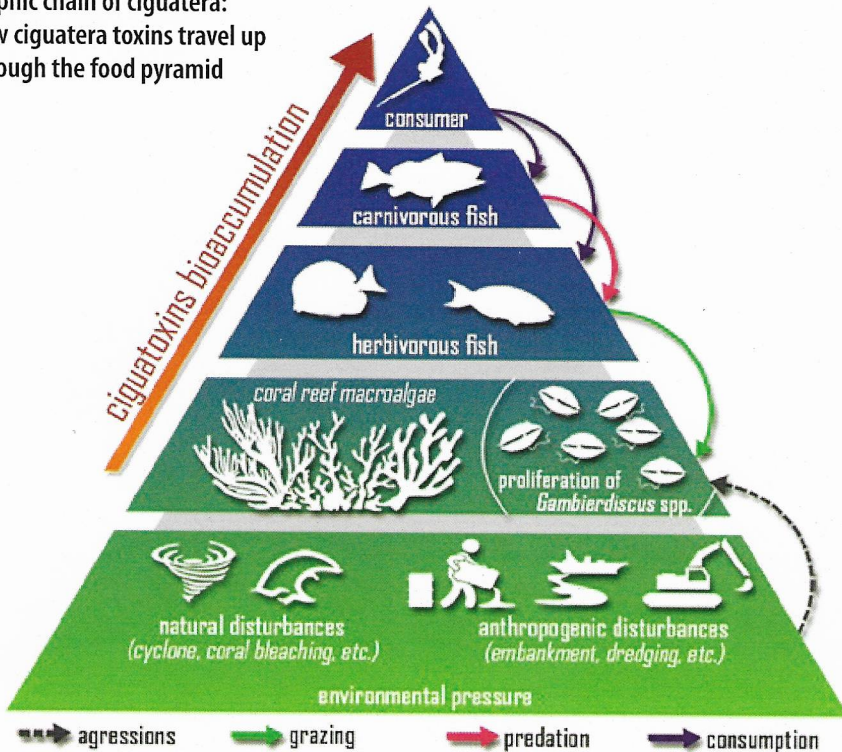


## Ecological causes for ciguatera outbreaks

The ecological causes of ciguatera outbreaks are still being investigated, although they occur following major disturbances to the reef. These could be natural or human induced disturbances, and in areas where coral are dead, algae are among the first colonisers to the disrupted area. As a result, the dense algae provide suitable habitat for ciguatoxins increasing the chances of a ciguatera outbreak.

- Natural large-scale reef destruction, such as cyclones
- Construction of piers or wharves and blasting of reef passages
- Increases in water temperature
- Sediment runoff from land activities
- Increased nutrients in the water (e.g. from treated or untreated sewage, and fertilisers)
- Rubbish dumping and other activities that damage the reef

**Trophic chain of ciguatera:  
how ciguatera toxins travel up  
through the food pyramid**



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