



'If everyone used traditional fishing methods today, we would still have plenty of seafood' is a statement that is often made by older people. So, is this true? Like many general statements it is partly true, or perhaps even mostly true. But in the old days there were fewer people fishing. And, contrary to popular belief, some of the fishing methods used were damaging to marine species and their environment.

Traditional fishing methods used by our ancestors ranged from gleaning (or collecting by hand) on reefs for seafood to fishing offshore using sailing canoes to catch tuna and deeper water fish.

1. Gleaning

Sea snails, octopuses, crabs and other invertebrates are collected or 'gleaned', often by women, from mudflats and intertidal reefs. Sometimes sharpened sticks are used to dig these organisms out from holes and crevices on reefs. Fishers use a Y-shaped stick and light from burning coconut leaves to catch lobsters on the reef at night.

Gleaning may involve damage to corals, either directly when coral is deliberately broken to catch sheltering fish, or indirectly through the effects of people moving over the reef.

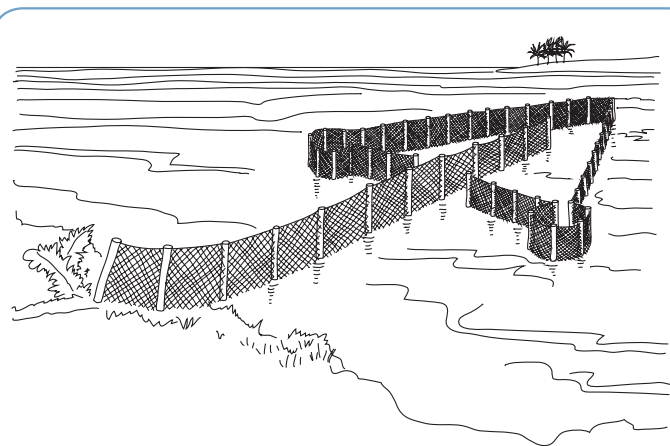
Target: Sea snails, octopuses, crabs and other invertebrates

2. Spears, bows and arrows

Men use bows and arrows or spears to catch fish from canoes or the reef edge. Sometimes coconut fronds were used to drive fish into the shallower water of a lagoon where they could be more easily speared.

Target: Various types of fish

3. Weirs, fish fences and traps



A fish fence trap built from modern steel mesh used to catch migrating coastal fish.

From: King M. 2007. Fisheries biology, assessment and management. UK: Wiley Blackwell. 400 p.

The simplest traditional traps are based on v-shaped or semi-circular walls of stone or coral inside which fish are stranded by the falling tide.

Fence traps are built at right-angles from shore-lines and reefs to guide migrating coastal fish such as mullet into a large retaining area. Although originally built from stone or coral blocks over many

months, such traps are now made from modern materials such as wire-mesh netting in just a few days.

Target: Migrating coastal fish such as mullet

4. Fish drives

Fish drives usually involve dragging a net to either surround fish or drive them into a small area. Traditionally, the dragnet is made from coconut fronds weaved on vines and may be over 100 m long. Many men, often over 30, are needed to drag the net either in a semi-circle facing the shoreline or a full circle about 20 m in diameter.

Fish that are trapped inside the coconut frond enclosure are removed by hand or speared. Occasionally, other marine animals are caught, including turtles and dugong.

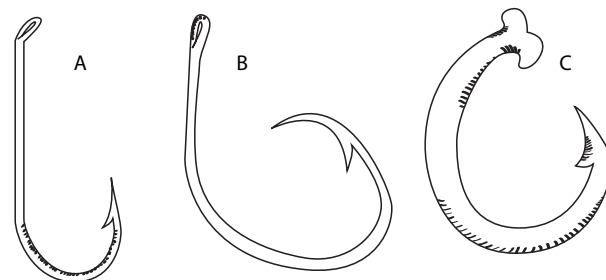
Fish drives usually involve many people moving across the reef, and this is likely to damage corals and the habitats of marine organisms.

Target: Various types of fish and occasionally other marine animals including turtles and dugong

5. Hooks and lines

Traditionally, hook-and-line gear consisted of bone or shell hooks attached to lines made of plant fibres. The line was cast into the water with either a baited hook or a lure made of shell or feathers that was pulled through the water.

Nowadays, manufactured steel J-shaped hooks are used. However, in many commercial fisheries, circular steel hooks are used and these are similar in design to the bone or shell hooks that have been used since prehistoric times. When a fish strikes a circle hook, the point rotates around the jawbone, ensuring that the fish remains caught without the fisher having to maintain pressure on the line.

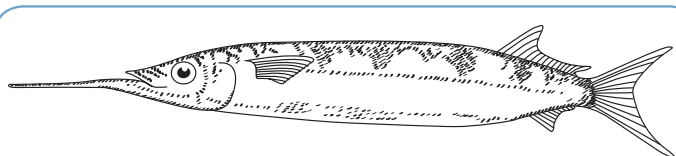


Fish hooks. A) a common J-shaped hook, B) a modern circle hook, and C) a traditional bone hook.

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A clever way of fishing for needlefish or garfish (family Belontiidae), which have mouths too small to take bone hooks, involves the use of spider webs. A rod is used to flick a lure of balled-up spider webs across the sea's surface. When a fish attacks the lure, its teeth become tangled in the spider web.

Target: Various types of fish



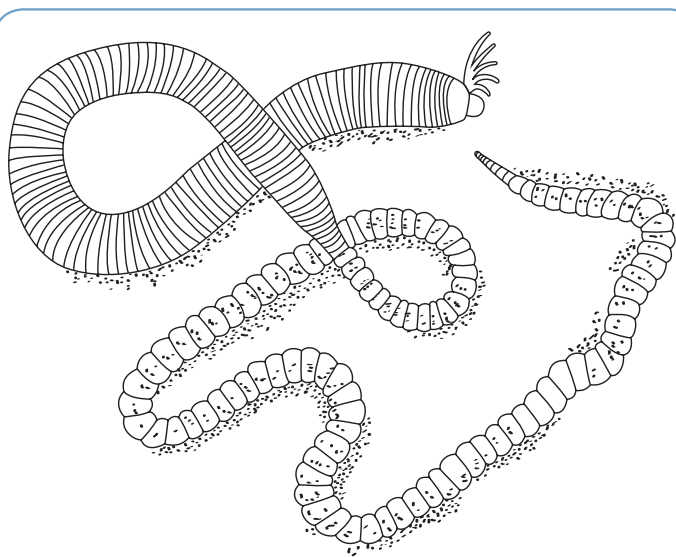
The needlefish or garfish.

5. Palolo fishing



The *palolo* worm, *Eunice viridis*, lives burrowed in coral, and during a short period each year, releases its reproductive tail segments, often in writhing masses that cover the sea surface. In Vanuatu, *palolo* worms are traditionally gathered from October to December by people using burning coconut torches. Some people believe that a pregnant woman holding the torch will attract more *palolo* worms. The worms are often cooked inside a length of bamboo with vegetable leaves and coconut milk.

Target: *Palolo* worms



The palolo worm (*Eunice viridis*).

6. Poisons

The fruit of the poison fish tree or *futu* (*Barringtonia asiatica*) and the roots of a certain vine (*Derris* sp.) are traditionally used to poison and stun fish, which then float to the surface where they can be easily collected. The use of poisons has been banned because they not only kill the target fish, but also other creatures, including corals in the area.

The plant material is pounded before being wrapped in a cloth and squeezed into rivers or tidal pools. The freshwater eel (*Anguilla*), which grows to 3 m in length, is often caught for village feasts using this method.

It has been claimed that fish could also be stunned by scraping the skin of the sea cucumber, lollyfish or *lolifis* (*Holothuria atra*), into water.

Target: Various types of fish



The fact that Futuna, the easternmost island of Vanuatu, takes its name from futu, the local name for the fish poison tree, suggests that the use of this plant poison has a long history.

6. Tabus

In Vanuatu, *tabu* areas, in which the harvesting of fish and shellfish from the reef is banned or restricted, have long been part of traditional fisheries management. A *tabu* area is declared when a traditional leader places a *namele* leaf on a stick that is placed vertically into the sand.

Tabu areas may provide places where fish and other species can breed and produce young that move to nearby areas (see Teachers' Resource Sheet 2: No-take areas).

Tabus have also been imposed to protect individual species, including bans on taking trochus and turtles as well as on night spearfishing, to protect vulnerable fish such as parrotfish (see Community Information Sheet 4: Parrotfish).



A well-known travelling theatre group in Vanuatu, Wan Smolbag, has convinced many communities to ban or restrict the harvesting of turtles and to use other conservation measures, including *tabus*.

Over time, traditional fishing methods have mostly given way to more modern ones in order to make fishing more effective and increase fish catches.

- The Hawaiian hand sling (a sharpened steel rod propelled by a rubber band) has replaced the traditional bow and arrow.
- Monofilament fishing line – with plastic lures or steel hooks – has replaced fibre lines with bone hooks.
- Monofilament gill nets have replaced traditional ones made from coconut leaves and vines, and are used for fish drives.
- Modern vessels with outboard engines have replaced sailing canoes and decreased the time and effort required for fishing.

But many modern methods and gear are too efficient, and many stocks of fish have been reduced to low levels. This makes some traditional conservation methods, such as the declaration of *tabus*, even more important to maintain stocks of seafood species.

Some traditional fishing practices have only become overly destructive as a result of increasing population sizes; in the past, the marine environment was able to sustain occasional, localised damage because the frequency of the activity was low and fewer people were involved.