

SUBSISTENCE FISHING METHODS ON NUGURIA , NUKUMANU AND TAKUU ATOLLS

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INTRODUCTION

Nuguria, Nukumanu, and Takuu are groups of coral atoll islands lying northeast of the main New Guinea Islands. They are inhabited by peoples of mainly Polynesian origin.

Until quite recently these islands were a source of trochus and green snail shells, beche-de-mer and clams which were exported for sale.

The Nuguria (or Fead) Islands are made up of two groups of atoll islands and sandbanks surrounded by reefs. The southernmost group, the Akani Islands, is the only one which is inhabited. There are three islands in this group. On the southernmost of them is a village of 150 people, and there are about 50 copra plantation workers living on the middle one. The village population obtains a cash income from collecting copra, occasional export of turtles to Kieta and from money sent by its young men, most of whom now work in Bougainville.

The Nukumanu (or Tasman) Islands and the Takuu (or Mortlock) islands are each made up of only one group of atoll islands, and only one island in each group is inhabited. There are 200 to 250 people in the village on Amotu Island, Nukumanu atoll, while that on Nukatoa, Takuu, has 600 to 700 people. Here, as in Nuguria, cash incomes come from copra and from young men working away from the islands. The Takuu villagers also make artifacts for sale in Bougainville.

The three villages each have a school and an aidpost; Amotu and Nukatoa also have tradestores. The diet consists mainly of rice and locally caught fish, supplemented by other marine animals and by canned fish and corned beef from the tradestores. Coconuts, taro (produced in gardens on Takuu, growing wild on the other islands), some sago, and pig meat (Nuguria only) are also included in the diet. Locally caught fish is either eaten fresh or is preserved by smoking and sun-drying.

FISHING TECHNIQUES

Common fishing methods are the use of baited hooks on hand-lines (hand-lining) and trolling from canoes. Hand-lining is carried out from canoes in the deeper water of the lagoon, and by wading out onto reef flats. For trolling, bird feather lures are used and the lines are sometimes baited with small fish such as garfish.

Dip-nets are used on Nukumanu and Takuu. Nets of this type are



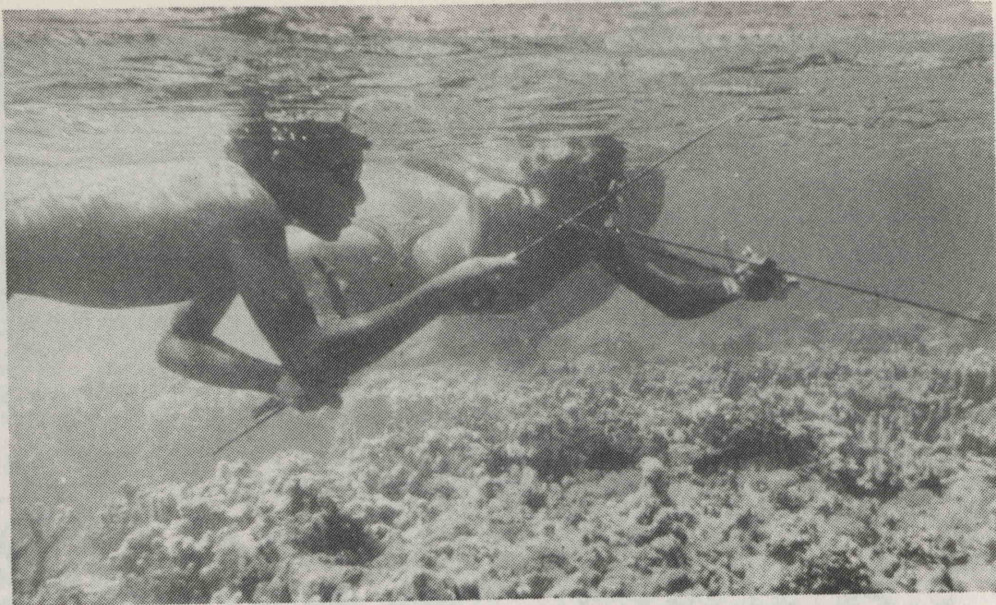
Beche-de-mer on a reef. This one is about 35 cm long. These animals feed by passing sand through their guts and removing detritus and small animals from it

common in Papua New Guinea. They are made up of a fan-shaped piece of netting fitted between two poles which run along the sides of a "V". The net is held at the junction of the two poles (i.e. the base of the "V") and is scooped through the water with the open end of the "V" forward and away from the fisherwoman.



Traditional dip-net fishing. When fishing for baitfish, the netting is replaced with cloth

Spears and bush spear-guns are used by children, both for sport and for serious fishing. Turtles, clams and crayfish are caught by hand. Turtles are run down by outboard powered canoes and then captured by someone who leaps onto them. Clams are collected off reef flats and, in Takuu, are brought alive to the reef surrounding the village where they are kept in clam gardens until needed. Crayfish are collected off reef flats during nights when there is little moonlight, using coconut frond flares to light up the area.

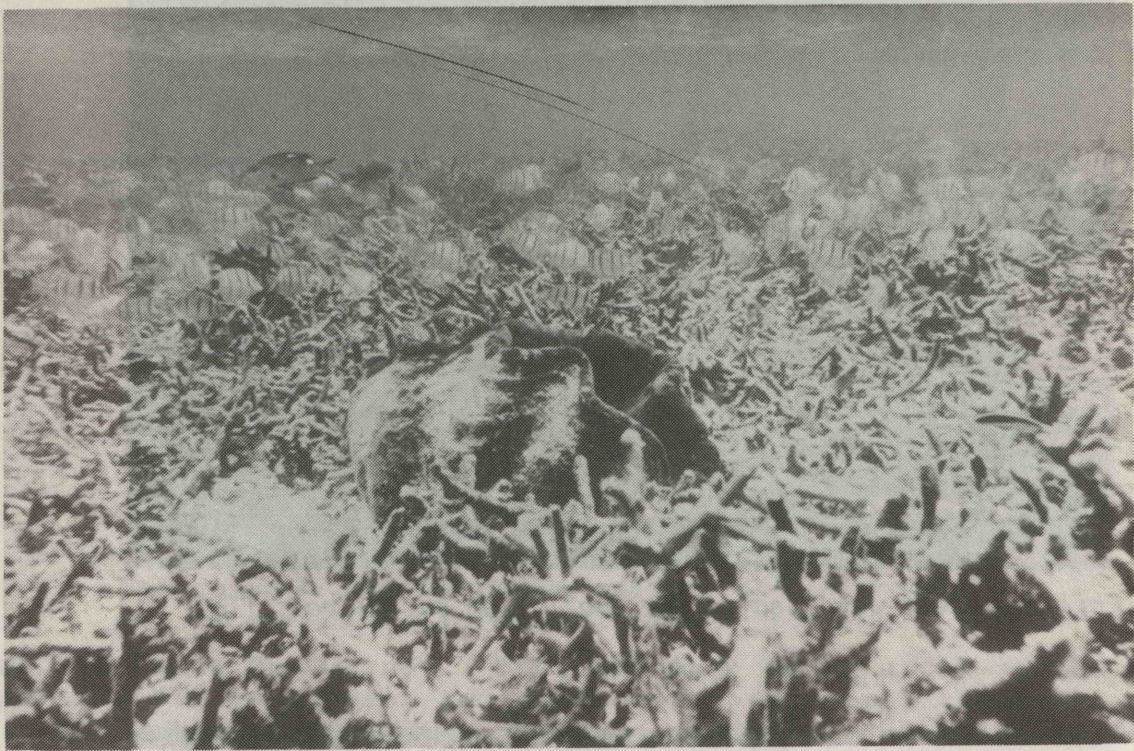


Children spear-gun fishing for small fish on the reef flat



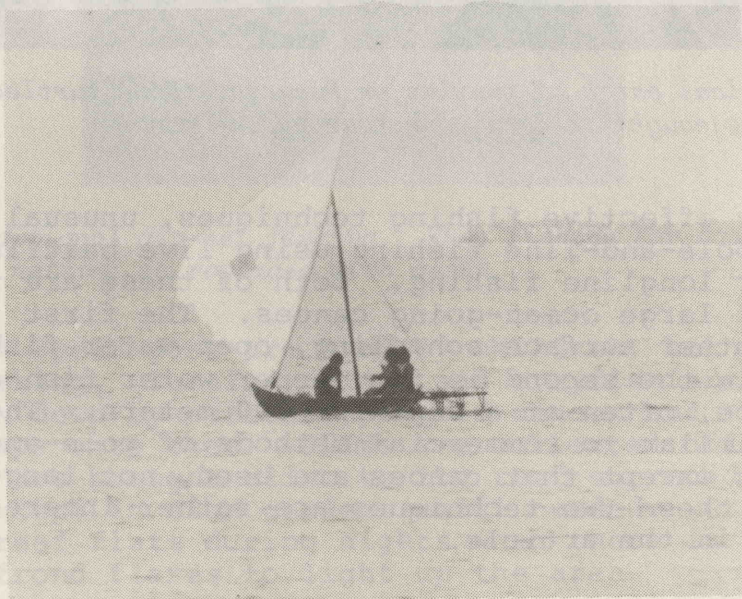
Typical catch of turtles on Nugaria. Nine turtles were caught in about one hour by one canoe

Two particularly effective fishing techniques, unusual in subsistence fisheries, are pole-and-line fishing using live baitfish as "chum" and deeper-water longline fishing. Both of these are traditional methods used off large ocean-going canoes. The first is used to catch tuna and other surface schooling, open water fish outside the atoll reef, while the second is for deeper water fish on the outside of the reef slope, often at a depth of 400 meters. The techniques used are very similar to commercial methods of pole-and-line and longline fishing except that canoes are used, not large fishing vessels. Since these two techniques are rather interesting they are described later in the article.

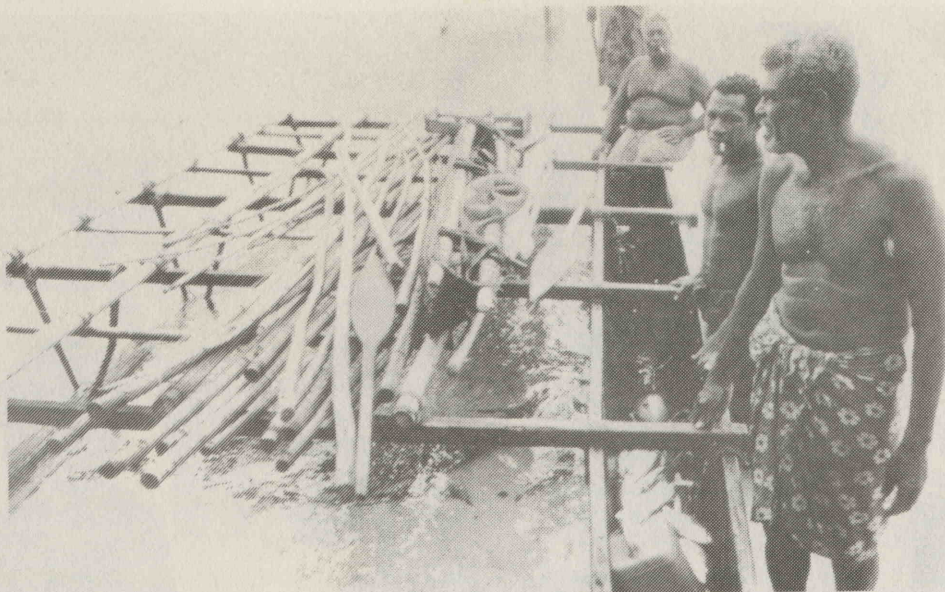


Reef flat showing giant clam about 80 cm long. Giant clams are extremely plentiful on the atoll reefs

Two types of canoe are commonly used in these atolls. Both are of the outrigger type, but one is built with a high, narrow hull for speed, while the other is built for stability with a wide hull. A smaller type of canoe is used only inside the lagoon, where the waters are usually very calm. A much larger canoe is used outside the reef for fishing and for travel between atolls. Since suitable wood does not grow on any of the islands, all canoes are made out of driftwood logs. Although there are outboard motors on the islands, obtaining fuel is a great problem, and the boats are normally powered by paddling and sailing.



Smaller type of canoe under sail inside the lagoon



Larger type of canoe used for fishing outside the reef and for travel between atolls. This one has just come in with a catch of fish taken by pole-and-line fishing and hand-lining. Note bait basket on top of the outrigger bars. The basket normally hangs below these bars

LIVE BAIT POLE-AND-LINE FISHING

A similar design to the dip-net is used to capture baitfish. However in this case, the netting in the "V", is replaced with cloth, so that water stays in the net once the fish are caught, keeping them alive.

A rope of loosely-wound coconut leaves is used to surround a section of reef flat. The rope is submerged and shaken so that the loose leaves frighten the fish into the centre. The dip-net is placed inside the circle, its open end resting on the bottom and held down with rocks. The area surrounded by the net is made smaller and smaller until the fish are driven into the dip-net. The dip-net is lifted and the catch is transferred into the bait-baskets.

Bait baskets are long troughs (up to 7 metres long in some cases) made from woven coconut leaves and suspended in the water between the canoe outrigger and the dugout proper. Most of the basket is below water level and so the live baitfish remain under water at all times. Bait consists of an assortment of young reef fish.

The pole-and-line fishing itself takes place outside the reef. Bamboo poles (up to 4 metres long) and monofilament (single strand) fishing lines carrying a pair of barbless hooks are used. Two types of hook are common. The first, made out of a bent nail or piece of wire, usually has a live baitfish on it when fishing. The second type is made of trochus shells and is wide and flat, often up to 10 cms in length. This type of hook does not need to be baited to attract the fish but it appears to be becoming less popular. Live bait (chum) is thrown into a school of fish and the baited or unbaited hooks are pulled through the chum. The fish snap at the hooks, and are hauled on board the canoe.



Pole-and-line fishing gear. Note pole, monofilament line and pair of hooks

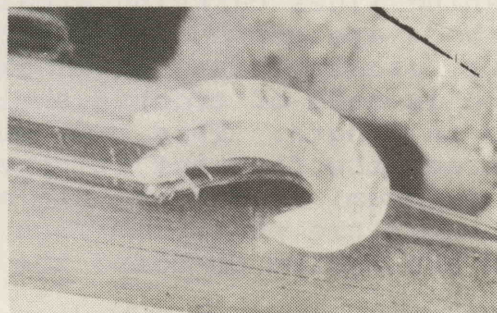
DEEP-WATER LONGLINING

The Nukumanu and Takuu Islanders use this method to catch deep-water fish. The major types of fish caught are sharks and oilfish.

The gear consists of a barbed hook 20 to 35 cm in length tied, by means of a coconut fibre rope, to one end of a wooden stick about 50 cm in length. A stone weight is attached halfway along the stick. The main line is tied to the stick at the opposite end to the hook. In use, the stick lies horizontally with the hook hanging vertically down at the outer end.

The hooks are a deep U-shape, the barb at the hook end extending almost completely across the open end of the 'U'. They are made either of hard wood (traditional) or steel rod, and are baited by tying fish along the bottom of the 'U'. The complete hook/stick/weight assembly is used singly or in groups of four or five. The gear is set at a depth of 400 m, close to the outer edge of the reef.

Trochus shell barbless fishing hooks





*Deep water longlining hook, stick and stone weight.
This is the position it would hang in when in use.
A fish is tied to the bottom of the metal hook.
Sometimes wooden hooks are used*