

GAHO (Hand trap)
OIBO (Scoop net)
POHO (Seine fence)

AIHE
(Seine fence)

OREIA (Hand trap)
EVIRI (Scoop net)
URU (Seine fence)

IVIRI
(= EVIRI) (Scoop net)
OREIA (Hand trap)
POE KEVE (Dip net)
KAKO (Dip net)
WAIA KEVE (Dip net)
KEVE (Dip net)
KARAVAI (Shark fishing line)
AURA'A (Shark fishing line)

A APERI (Seine fence)
ORI (Hand trap)
VEIRI (Scoop net)
ABA (Dip net)

B VIHIRI (Seine bag)
ABA (Dip net)

The regions of the Northern Gulf of Papua where the different types of fishing gear are found

TRADITIONAL FISHING METHODS AND PRACTICES IN THE NORTHERN GULF OF PAPUA

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INTRODUCTION

The Northern Gulf of Papua is made up of two large delta systems. The Aird River delta is fed by the Kikori River and the smaller Era and Pie Rivers. The Purari delta is fed by the Purari River alone. Further to the East, the Vailala River enters the Gulf via one river mouth. The map opposite shows the positions of the rivers and deltas. The vegetation is mostly mangroves nearest to the sea, then nipa palms and finally swamp forests further inland.

The people of the coastal areas of the Northern Gulf of Papua are traditionally subsistence farmers and fishers. They grow sago, sweet potato and cassava as the main source of carbohydrate (energy foods). For their protein needs, they depend mainly on the sea.

Because of this dependence on the sea, various methods of catching fish have developed.

Recently, surveys were carried out in the Northern Gulf of Papua by the Fisheries Research Branch of D.P.I. During these surveys it became clear that not only is traditional fishing gear becoming rare, but also knowledge about its use and function is dying out.

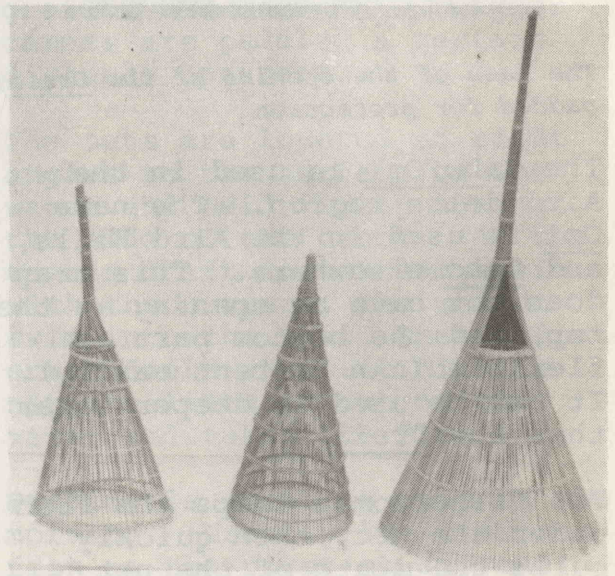
This report describes the different types of traditional fishing gear found in the area, and how they are used.

METHODS OF CATCHING FISH

Hand traps

Two types of hand trap are used - the Oreia and the Gaho/Ori. Both are cone shaped. They are made from the midribs of sago palm leaves. The midribs are closely woven together with bush rope made from the bark of several types of mangrove tree.

Hand traps are always used by women.



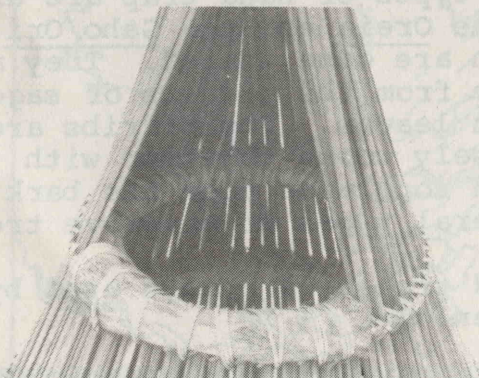
Hand traps: The one on the right is an Oreia, the other two are Gaho/Ori's

The Oreia is used from the mouth of the Vailala River, west to the Pie River. This net has a wide base and a triangular opening near to the top. Women use it to catch young prawns and small fish in shallow water.

When the woman sees a fish or prawn, she quickly places the net over it. The fish is taken out by putting her hand through the opening.

The Oreia is constructed firmly and the base of the opening is padded with fibre to protect the hand and arm from the sharp ends of the sago midribs.

Catching fish with an Oreia takes a long time. The net is more effective when used with fish poison.



The base of the opening of the Oreia, padded for protection

The Gaho/Ori is used in the Aird delta region. The name Ori is used in the Aird Hills, and Gaho elsewhere. This trap does not have an opening at the top, and the bottom part is flexible (can be bent easily). It can be used in deeper water than the Oreia.

The fisherwoman traps the fish under the net, then quickly pulls the mouth of the net closed with one hand, turns it over and takes it out of the water. The fish is trapped at the top of the net.

The trap can also be used to scoop fish which are swimming near the surface of the water.

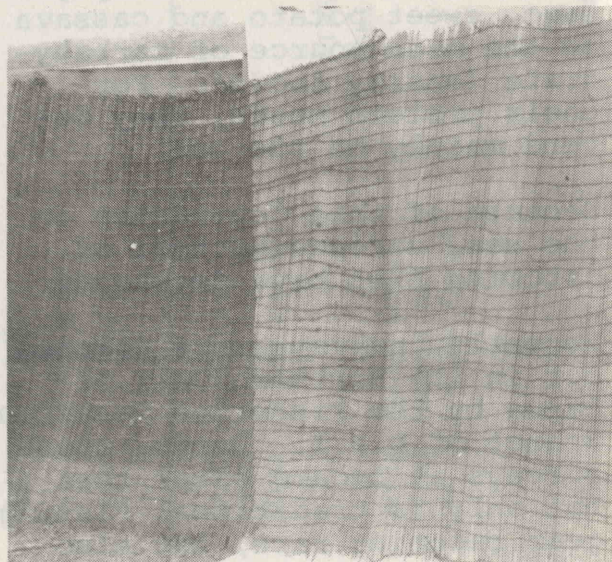
Seine fences

Seine fences are used in small rivers and creeks of the Western Purari and Aird River deltas. For local names, see map.

These fences are made by binding together slats of split bamboo, or split sago frond midrib, with bush rope made from mangrove bark fibres. They are made to stretch across the whole creek - usually 6-10 m. They are held in place by stong sticks driven into the mud 30-60 cm apart. Most seine fences are about 2 m high.

Creeks chosen for seine fence traps are normally almost dry at low tide. The fence is set at high tide, and as the tide goes out, fish and shellfish are trapped behind it. Large fish such as barramundi, threadfin salmon, catfish, sharks and mullet are caught.

Seine fences are never used in the wet season (May to October) when the creeks are often in flood.

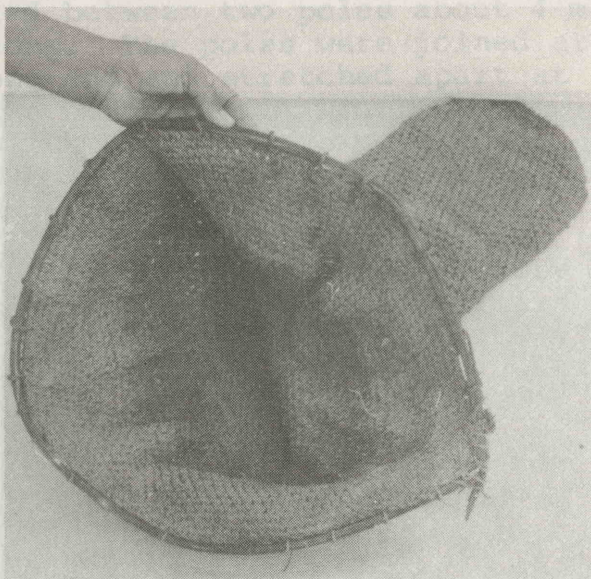


Part of a seine fence. This one is about 2.2 m high.

Seine bags

Seine bags (Vihiri) are used only around Uramu Island. The bags are made from various bush fibres, from the bark of swamp forest trees such as mangrove (*Sonneratia casseolaris*), pandanus and nipa palms (*Nypa fruticans*). The fibres are dried in the sun, then woven by women. The mouth of the bag is held open by binding it to a ring of cane.

The bag is placed (fixed with a hooked stick) either at the sides of larger streams or in the middle of narrow, shallow streams. As the tide goes out, small prawns and fish are caught in the bag. This method is normally used only where it is impractical to use the seine fence.



A seine bag

Scoop nets

Two types of scoop net are used in the Northern Gulf of Papua.

The Eviri is circular and used in the Orokolo and Vailala River regions. Oibo (Purari delta) or Veiri (Aird River delta) are 'teardrop' shaped. The mesh of

the nets is bound to burnt cane loops. The cane is burnt because burning cane bends to the required shape more easily. The burning may also prevent rotting.

These nets are used by women to catch prawns and small fish. They are most often seen being used along the banks of creeks and rivers where the women wade into the water and push the net through the plants at the sides of the creek and around sunken logs.

Dip nets

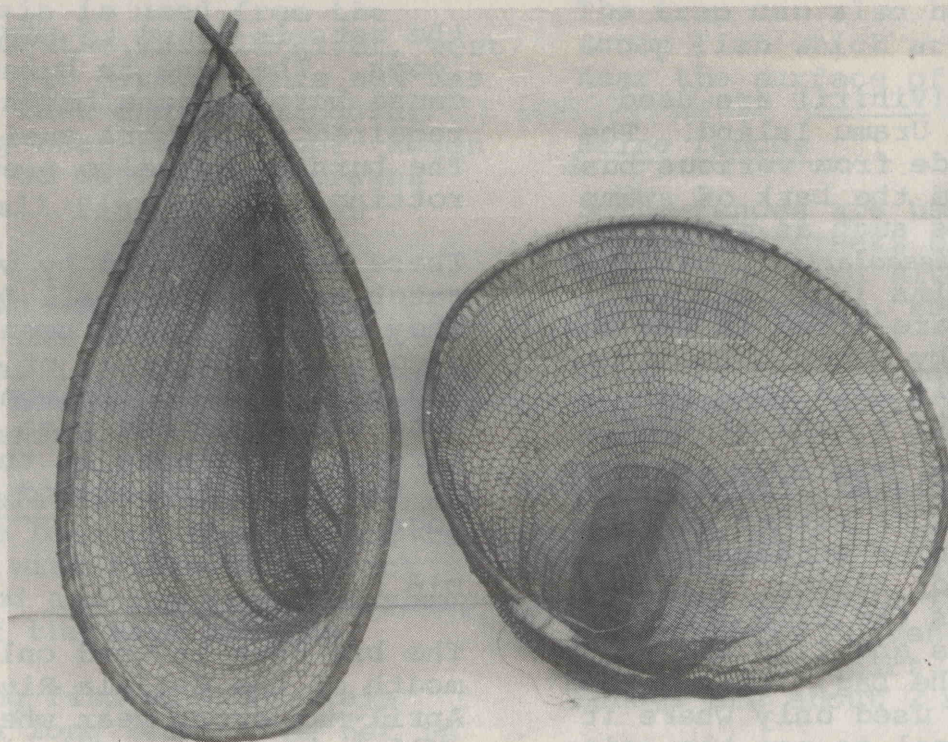
The big Keve is used only at the mouth of the Vailala River in April-May every year when the mullet (*Cestraeus goldiei*) migrate downstream for spawning.

The mesh of a Keve is suspended from a thick oval cane loop, up to 2.5 m long and 1.5 m wide. Where the ends of the cane meet, a thick hard timber handle is braced onto the net.

When the first foam and debris come down the river at the beginning of the wet season, the villagers know that the migration has begun. Outrigger canoes are paddled a certain distance upstream.

The nets are lowered at right angles to the surface of the water and held firmly against the side of the canoe. As the canoes drift downstream again with the current, the mullet swim into the net. When a fisherman feels a mullet hit his net, he lifts it out of the water and takes the fish out.

Fishing is normally only in the morning. Usually 20-30 canoes fish on the river at any one time. Each canoe can catch an average of 10 mullet per day, weighing 1-2 kg.



Scoop nets - Oibo/Veiri (left) and Eviri (right)



Dip nets - the Waia Keve (left hand picture) is about 1 m long; the Poe Keve (right hand picture) is about 2.5 m long



Fishing using a Keve dip net

The Kako is no longer in use. It consisted of a mesh suspended between two poles about 4 m long. The poles were joined at one end and stretched apart at the other. A smaller forked stick at the narrow end kept the poles apart and the net spread while in use.

The Poe Keve and Waia Keve are still in use. They are similar to the Kako, but smaller. The poles of the Poe Keve are 2.5-3 m long and those of the Waia Keve are 70 cm long.

The Kako was used in Orokolo Bay to catch a certain fish locally known as 'Maria'. It was probably a species of salmon or mullet, and it was fished during October-December. The fishing time was indicated by the flowering of the mangrove *Sonneratia caseolaris*.

On well moonlit nights after this tree had flowered, 6-15 men, each carrying his Kako, would enter the water and stand in a circle with the Kakos suspended in the water. A school of Maria would be seen as a

long dark shape travelling towards the circle. A man would step aside allowing the fish to swim inside the circle, then he would step back to form the circle again. The fish were then surrounded by Kakos. One man was chosen to catch the fish and he would wait until the fish swam into his Kako. Then he would raise his net and wade ashore helped by some of the other men. This operation involved all the men in the village, and the fish caught would be distributed within the village.

The villagers say that 'Maria' no longer come along the shore. They believe that trawlers may have affected the movements of this fish.

The Poe Keve is used by women in the Orokolo and Vailala River area. It is usually pushed along the bottom of the creek and lifted out of the water every now and again to check the contents. Small fish and prawns are usually caught. Sometimes 20 or 30 women may be fishing across a creek.

The Waia Keve is used only in the Orokolo and Vailala River areas, by young boys who go with their mothers on fishing trips. It is also used by men and boys to catch small fish for bait after derris poisoning.

The Aba is the only type of dip net used in the Aird delta region. It is a rectangular bag woven onto two sticks. It is used in the same way as the scoop nets.

Bows, arrows and spears

Bows, arrows and spears are used by men and boys, mainly along the mid- to upper reaches of rivers where the water is clearer. Fish and freshwater prawns are caught. The method is often used at night when a firestick or kerosene lantern is used to light up the eyes of the prawns.

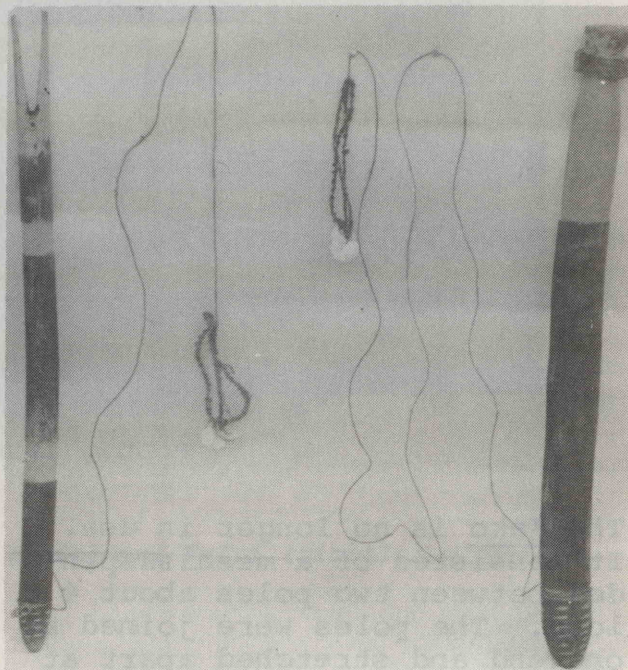
The bows are made from a split section of the trunk of the black palm. A thin length of cane fastened to each end of the bow forms the string. The arrow shafts are pit pit, and the heads are made from a variety of materials - for example the split midrib of the sago palm frond, split black palm, split bamboo, or mangrove timber. The split pieces are bound in groups of four or five heads per shaft.

Shark fishing lines

Shark fishing lines are not often used today. They were used only in the Orokolo region and the mouth of the Vailala River, in October, November and December.

The lines were woven from various types of bark, and were 4-6 m long. Two loops, about 15 cm in diameter were tied to the end of the lines. Two or three bleached cockle shells were attached between the

loops. Bait was also sometimes tied between the loops. The other end of the string was attached to a float of mangrove timber 70-100 cm long and 5 cm in diameter.



Shark fishing lines. Both of these floats are about 1 m long.

Village fisherman say that the best results were obtained when a slight swell caused the cockle shells to 'clang' together. The fisherman would paddle out in an outrigger and set the line at 300-800 m from the shore. Sharks of 70-100 cm long would rush at the shells and bait, and their gill would become caught in the loops. On seeing his float bobbing in the surface of the water, the fisherman would paddle his canoe to the float and pull in the shark.

Crab sticks

Crab sticks are used throughout the Gulf of Papua to capture the mangrove crab (*Scylla serrata*). The sticks can be made of any hard wood, and have either a fork at one end (Pereia) or a hook (Aio).

The Pereia is used at high tide to capture crabs as they move along the bottom feeding. The two prongs of the stick are use to hold the crab down. The crab is then lifted out and wrapped in the young shoot of a nipa palm.

The Aio is used to pull crabs out of their holes at low tide.

Poison

The roots of the derris plant contain a white poisonous liquid. The poison is a common method of catching fish throughout the Gulf area. It is normally used in swamps, lagoons or creeks which can be fenced off so that the fish are trapped. Poisoned fish rise to the surface and are caught with dip nets, scoop nets, bows and arrows and seine bags.

TRADITIONAL FISHING PRACTICES

Because so few people live in the Northern Gulf of Papua, there have been few disputes over traditional fishing rights.

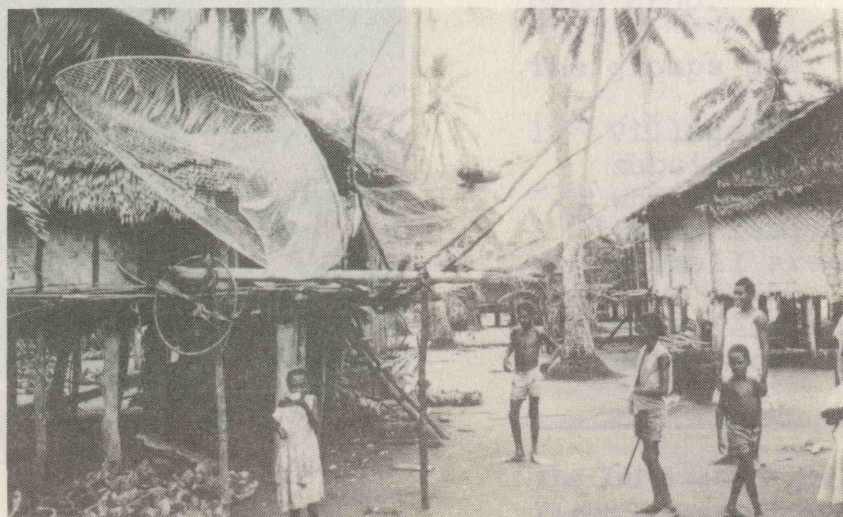
Villages are usually at the centre of their traditional fishing area, and boundaries are marked by large posts, or trees such as coconuts, sago, or mangroves.

The villages themselves make up the laws for the use of their fishing grounds.

Only one village seemed to have practiced conservation in the past. This involved taking only the larger fish and crabs, and returning the smaller ones to the water.

Traditional stories regarding fishing activities were common in all the coastal villages. Usually these told of a snake, a crocodile, a large shark or a barramundi, which prevented people from fishing in certain areas because they were afraid of being eaten.

Many villages had two or three master fishermen. These people knew the best times to fish by observing various flowers and fruits. They were also told by 'spirits' the best fishing times and areas. During the



Fishing nets drying out in a village

surveys, master fishermen were found in only four villages.

Traditionally, fish was preserved by smoking. Above the fire in the houses were two or three shelves about 12-15 cm apart. The first shelf was about 1 m off the ground. Fish which was to be eaten quickly was placed on the first shelf. The two upper shelves were for fish which was to be stored for longer periods. The villagers said that fish could be kept for 5-6 months.

Most of the smoked fish was eaten, and some exchanged with other villagers for vegetables. Now, with the introduction of local markets, the people take some of their fish to markets for a cash return.

THE CHANGE TO MODERN METHODS

Although in several areas, the traditional fishing methods and gear are still commonly used, a

fairly rapid change to modern gill nets is taking place. The change is being helped by the building of a fish processing factory at Baimuru, on the Pie River.

Modern mesh is being used to replace the bush material mesh in dip and scoop nets. All the Keves seen had modern mesh; only two Poe Keves had traditional mesh, and neither was in use.

As most traditional fishing methods are aimed at small fish and young prawns which are of little commercial value, the modern methods will not replace these. However, increased catches of commercial species both for food and for a cash income are resulting from the use of modern nets. So the need to use traditional methods for subsistence living has been much reduced. It is expected that, like the Kako, they will soon be spoken of only in legends of the past.

Shark fishing

Shark fishing is not often used today. It was used only in the past, and the mouth of the Pie River, in October, November and December.

The lines were of various types. They were 4-5 m long. The mesh was 15 cm in diameter. At the end of the line, there were three bleached cockle shells. They were attached between the

throughout the capture of any fish. The fish was then taken out of the water, and the shark was killed. The fish was then taken out of the water, and the shark was killed. The fish was then taken out of the water, and the shark was killed.