

## Women's fishing activities on Aniwa Island, Tafea Province, South Vanuatu

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### Introduction

The Republic of Vanuatu, formerly the Anglo-French condominium of the New Hebrides, consists of 83 main inhabited islands arranged in a 'Y' shape. It is situated between 13 and 21°S and 166 and 171°E in the western Pacific Ocean. Aniwa Island is situated in the southern part of the island group known as Tafea Province, (Fig. 1). Aniwa is a raised volcanic island about 42 meters high with a reef about 500 meters wide.

In 1989, Aniwa Island had a population of 361 people, of whom 179 were female. The majority of the indigenous population are subsistence farmers and fishers. Seafood is a major source of protein for the islanders, and both men and women are active fishers, contributing to the household fish consumption by providing fish and other marine organisms.

We carried out interviews with the women on the island of Aniwa during the months of December to January 1999. In recent years, we have collected follow-up data on their fishing activities to validate the data collected in 1999. Since the island of Aniwa is fringed by reefs, the women's fishing activities are restricted to fringing reefs and to the lagoon areas.

The fishing gear used is all constructed by women. Initially they used local material only, but as technology advances man-made materials (nylon lines and metal hooks) are being incorporated into the construction to improve fishing gear. The targeted species include shellfish and invertebrates on the reef flat and fish species on the reef crest and in the lagoon.

The majority of fish and other marine organisms caught are used for family consumption; however, there are times when the catch is exchanged for other goods or sold.

### Women's fishing activities

Women are the main fishers of the reefs and lagoon areas. Using traditional gear and methods, they

catch fish and other marine organisms to feed their families. Their fishing activities range from collecting shellfish on the reef area to catching fish at the reef crest and in lagoons.

Women's fishing helps bridge the gap in seafood supply when the active male fishers are sick or busy with other activities. The main targeted fish species



**Figure 1.** Map of Vanuatu showing Tafea Province.

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are those in the intertidal reef areas such as *Ourutuki* and *Nanue*. The size of their catch varies according to the natural weather conditions of the area and the length and state of the tides. On the reef they glean a variety of shellfish such as *Riri* and *Karikao*.

The majority of the women interviewed stated that much of their time is spent at home doing household work and weeding in their gardens, leaving very little time for fishing. Strong traditional beliefs relating to sea gods and the division of fishing grounds restrict the women's fishing activities. Women also play a vital role in supporting the fishing activities of men.

### Reef gleaning 'fangota ia fongoma'

The women on Aniwa collect shellfish, clams and trochus mainly for their own family consumption. Reef gleaning, the most common method of fishing, is employed by 90 per cent of the women on the island. At low tide during the day, women visit the intertidal area, where they collect mainly the gastropod molluscs, such as trochus and other edible marine organisms. Older women mentor the younger women and teach them while gleaning. The older women share their traditional knowledge of the reef habitats and their knowledge of the different marine organisms that live in those unique habitats. Since a large number of edible marine species exist in the reef areas, women use different methods to catch them depending on the species abundance and distribution, and the fishing knowledge of the women.

### Collection of shellfish 'faki riri'

The simplest method of fishing used by the woman of Aniwa is the technique employed to collect shellfish such as trochus. When the reef flat area is just about to emerge from the descending tide, the

women cease their gardening and make their way to the reef to collect shellfish. They start the process by weaving fishing baskets from green coconut leaves.

When the reef top is exposed at low tide, they walk out into the reef area very slowly, examining every hole and crevice for the presence of the targeted shellfish species. A species commonly targeted by women on Aniwa is the rough turban snail (*Turbo setosus*). It is sometimes quite difficult to spot them because the outside colour of their hard shell seems to be camouflaged by the surrounding reef substratum. But the older women have no difficulty differentiating them.

Women use their bare hands to pick shellfish attached to the surface of the reef or even in holes. They sometimes use sticks to loosen shellfish and then pick them up with their bare hands and place them in a basket. Women of Ikaukau village, in the southern part of Aniwa, stated that large numbers of shellfish are found at the reef crest. It is very difficult to reach these areas at high tide because large waves break at the reef crest. The period of collection is thus restricted to low tide and also depends on the weather conditions affecting the area. The extreme low tide in the afternoon is especially suitable for collecting shellfish.

### Cephalopod (octopus) fishing 'sara feke'

Fishing for octopus (Cephalopod) is not an easy task and involves only a small number of specialised women. It is a seasonal fishing practice occurring between the months of April and August each year during the period when yams are harvested. Octopus fishing is banned after August when the planting season begins. This enables the women to focus their activities on land to provide food security for their families.

At low tide, the fisher carries her small basket woven from dried banana leaves, a sharpened stick of variable length not more than a meter long and two husked coconuts. She pushes a finger into holes at the reef crest to look for octopuses.

The women involved in octopus fishing cannot tell which holes are occupied by octopuses in the tide pools. If they cannot see the bottom topography well because wave action, they chew coconut flesh and spit it out on the water surface; this improves the clarity of the water. Normally the women do not have goggles.

**Table 1.** Selected shellfish and other marine organisms collected by women on Aniwa Island

English name	Vernacular name	Scientific name
Rough turban snail	<i>Riri</i>	<i>Turbo setosus</i>
Trochus	<i>Karikao</i>	<i>Trochus niloticus</i>
Rugose giant clam	<i>Vasua</i>	<i>Tridacna maxima</i>
Large Pacific jewel-box shell	<i>Visoviso</i>	<i>Chama pacifica</i>
Holder pack lobster	<i>Oura</i>	<i>Panulirus penicillatus</i>
Spotted pebble crab	<i>Noa</i>	<i>Carpilius Maculatus</i>
Butcher land crab	<i>Tupa</i>	<i>Cardisoma carnifex</i>
Octopus	<i>Veke</i>	<i>Octopus</i> sp.

When an octopus is found the sharpened stick is used to immobilise it before it is lifted into the basket. Since octopuses camouflage themselves to blend into the surrounding substrate, they can lie on the surface of the reef unnoticed by the fishers. In a successful fishing trip, a woman can catch up to six octopuses, but this depends on the prevailing weather conditions. Some women believe that it is better to fish for octopus on rainy days because the octopuses are thought to spend more time feeding on reef surfaces instead of hiding in their holes.

### **Tide pool fishing – ‘lama ia fongoma’**

This fishing technique is similar to reef gleaning except that it is done at night using lit dry coconut leaves (*lama*) as lights. The targeted species are spiny lobsters (*Panulirus penicillatus*), fishes and crabs (*Carpilius maculatus*). They are found in shallow reef channels and in tide pools. Lobsters and crabs are collected using bare hands; the women pick them up in special ways to avoid hurting their hands. Fishers use bush knives for many purposes (Paul and Linda, 1994). Women who are skilled in this fishing practice know exactly which months of the year have the best nights to go out fishing; for instance the women of Ikaukau village usually go out to the reef between April and June. The time spent fishing depends on the number of dry coconut leaves taken as a source of light and also the length of the low tide and the local weather conditions.

### **Pole-and-line fishing – ‘teriaki’**

Pole-and-line gear (*koune*) is used by women. A small flexible piece of bamboo about 2.5 meters in length is used as a pole. One end of a nylon string the same length as the pole is fastened to the most flexible end of the pole, and a metal hook is tied to the other end of the string. The string can be longer if needed. The size of the metal hook used depends on the size of the mouth of the target species. If needed, small metal weights or rocks are attached to the line 7 centimeters above the hook.



**Figure 2.** Hand-line fishing.

The women create all of the fishing gear. The most common bait used is the soft part of the abdomen of hermit crabs. These are either found in the bush under leaves and branches of trees, or under rocks on the coast. The best time for fishing is during extreme low tides or high tides early in the morning and late in the afternoon, because most of the target fish species feed at that time.

During the day at very low tide, the women of the different villages can be seen sitting on their respective reefs with their lines in the water at a reef channel and the pole held parallel above the water surface. Each time a fish is caught, the fish is lifted out of the water and transferred into the fishing basket woven from green coconut leaves. The best places to fish are reef channels with a lot of coral growing on the sides and even on the bottom. During pole-and-line fishing women move from one reef channel to the next looking for more fish. At low tide they target reef species such as *ourutuki*, *marari*, *api* and *sumu*.

**Table 2.** Selected fish species caught by the women of Aniwa.

English name	Vernacular name	Scientific name
Topsail drummer	<i>Nanue</i>	<i>Kyphosus cinerascens</i>
Brown cod	<i>Fongomeje</i>	<i>Epinephelus tauvina</i>
Peacock cod	<i>Gnatara maru</i>	<i>Cephalopholis argus</i>
Squirrel fish	<i>Marau</i>	<i>Myripristis berndti</i>
Green trigger fish	<i>Pakau sumu</i>	<i>Pseudobalistes flavimarginatus</i>

Not all the women are very skilled in this fishing practice. Only a few who have more knowledge on how to select fishing sites and know better times to go out fishing can catch a lot of fish. The average weight of fish caught by the women using this method of fishing is about 2.5 to 3.0 kg and this fish is used mainly for family consumption. During high tide,

the activity is the same except that the women sit high up on the rocks close to the high tide mark. Again they move from site to site to try to catch as much as possible. The targeted species are mainly *mutu*, *nanue*, and *api*, with other minor species also caught, such as goatfish (*aso*).

Pole-and-line fishing by women is also very common at night time. They go out onto the reef at low tide on moonlit nights accompanied by members of their families and friends. They fish on the same reef channels but they mainly target squirrelfish species (*marau*). Other species such as *feita* and *papatongo* are also caught. About 90 per cent of the fishers of Ikaukau village said that they prefer fishing at night when the moon is full because the water is well lit and hence there is a high potential for a good catch. The time spent fishing depends on the hours of low tide and also on the local weather conditions. This is also a seasonal fishing method, banned from the month of April to August.

#### **Butcher land crab (*Cardisoma carnifex*) collection – ‘sara tupa’**

This type of fishing is done by young girls and some women and involves walking through muddy mangrove swamps and dense bushes. It can be done either at night or during the day. During the day, it is done early in the morning.

The women go in groups of three or four to the only mangrove forest on the island, which is on the coast of the Icharo lagoon in the northern part of the island. They walk through the mangrove swamps very slowly, looking between the mangrove roots, under dead leaves and in the muddy substrate for the mud crabs. The crabs leave tracks on the soft substrate, so the fishers can follow the tracks. Once a crab is found it is caught with bare hands and placed into a bucket. If the women do not find enough crabs in the mangrove swamps, they use their bush knives to dig up the crabs from their burrow in the sandy substrate close to the mangrove forest.

The majority of women are very skilful in this technique; during a day each can fill up a basket woven from green coconut leaves, which may hold 40 to 50 crabs. All the mature male and female crabs are taken except the smaller ones and the egg carrying females.

At night the same activity is done but it requires a bit more preparation. In the afternoon when the sun is about to set, a group of women go into the plantation close to the mangrove swamp area and split open dry coconut fruit, leaving them out in certain places around the coconut plantation.

At about 9:00 p.m., they go back with their baskets and collect crabs that have come out to feed on the coconut flesh. Coconut crabs are also caught. Crabbing at night usually brings bigger catches than crabbing during daytime. The crabs collected are used for family consumption and are sent to relatives and friends on other islands such as Tanna.

#### **Gill net fishing – ‘fangota ia koupienga’**

Because of the high cost of gill nets, this technique is less commonly used by women. Only 4 per cent of the women own gill nets or any kind of fishing gear. The women usually set their nets in the Icharo lagoon and trap fish such as mullets and goatfish. This may be done during high or low tide either during the day or at night. But it seems to be more common at night as most fish feed at night and more can be caught while they are feeding.



**Figure 3.** Gillnets in a traditional canoe.

#### **Traditional fishing rights**

On the island of Aniwa, the reef areas are owned by landowners whose land boundaries include reef areas, which are the extension of their land seaward into the lagoon and beyond the reef crest. Therefore all fishing rights are under the ownership of the landowners. Members of each family are allowed to fish only in their own reef areas. Women who wish to go fishing in someone else's fishing area must seek permission to go fishing alone or must be accompanied by a female member of the reef owner's family. Anyone who does not seek permission is considered to be fishing illegally in another family's fishing area and is liable to pay a customary fine.

There are also areas that come under the communal ownership of all Aniwa Islanders, for example the Icharo lagoon, where men and women are allowed to fish in the communal fishing ground provided they do not use destructive fishing methods.



The seasonal fishing activities of women must be within the periods agreed to by the chiefs and the leaders of the different clans in the village. Anyone caught fishing outside the allowable period is given a heavy customary fine. The women closely follow these customary laws. They have no opportunity to speak out against these rules set by the male village leaders.

Destructive fishing methods, such as the use of poison fruits and leaves to kill fish and other marine organisms, are not allowed.

### **Utilisation of catch**

The women's catch is mainly for the consumption of their own families and not to be sold. Sometimes the women feed their own family with their catch and share the surplus with the neighbouring families. Occasionally women sell their catch to pay for children's school fees and other family obligations. When fish is sold, it is often cooked and sold within the village. Visitors from other villages may also buy the fish.

Mud crabs they are often sent to relatives and friends on Tanna, where it is considered a delicacy.

Bartering is a common practice in Ikaikau village. The women exchange their catch with other families for goods such as local materials for their houses and in exchange for help with chores. This exchange also strengthens blood ties and personal relationships.

During times of food shortage, women play a very important role in exchanging their catch for agricultural products (taro and cassava) from Tanna. The land crab (*Cardisoma carnifex*) is commonly exchanged for root crops from Tanna as they can survive well during long periods of drought.

### **Role of women in supporting men's fisheries activities**

On Aniwa, the males are the most active traditional fishers but they depend on the women's help. Women play an active role in searching for bait to support men's fishing activities. They also collect rocks to sink lines for bottom fishing. Women pack lunches for men to take during their fishing trips and they also clean their men's catches when they return.

### **Bait search**

The main baits used in bottom line fishing by men are octopus and hermit crab. Since the women are experts on the reef flat intertidal area, they are responsible for catching octopus for bait. A good

catch requires about four to five octopuses, and if the women fail to catch enough octopuses, the men will not have a good catch. The women also collect hermit crabs for bait. This was not traditionally the women's task but has been taken up by women in recent years.

### **Rock collection**

Before the introduction of metal weights to sink lines to the bottom of the ocean, pieces of rock were used. For example, before a husband went fishing, the wife and daughter would go to the beach to collect pieces of rock and leave them in the wooden canoes. The size of the rocks corresponded to the size of the line used; for example a larger fishing line needs a bigger rock to sink it to the bottom. Dried pandanus leaves were also collected by the women for attaching the rocks to the lines. Recently, the use of metal weights has replaced rocks.

### **Fish cleaning**

As the men are tired when they return after fishing for several hours, the women are responsible for the cleaning the fish. If the catch is to be sold, they have to make sure that the intestine, gills and other internal organs are entirely removed. If the catch is for family consumption, they have to remove the scales. For species such as the green triggerfish, in which the scales are modified into a hard skin cover, the women are responsible for removing it before taking the fish home. The majority of women are very skilful in fish cleaning.

### **Pack lunch preparation**

When fishermen go fishing for a whole day, they usually take a lunch packed by the women. The women wake up early to prepare their husbands a lunch consisting of roasted taro, banana, or cassava. If there is any left over fish from the evening meal then it is also usually included. This lunch is wrapped in *bura*o leaf (*Hibiscus tiliaceus*) and is put into the fisherman's basket woven with dry pandanus leaves.

### **Discussion**

Women's fishing plays an important role in sustaining families on the island of Aniwa. Traditional knowledge is passed from one generation to the next. Information on the best time of day to go fishing, how to use the different phases of the moon to determine different fishing activities and where to go fishing on the reef flat are all forms of traditional knowledge required for women's fishing trips. This traditional knowledge may be described by Western scientists as 'empirical' or 'anecdotal' evidence, but it is vital to women's sustainable fishing on Aniwa.

Women's catches tend to be very small, averaging 2.5 kg. They target different species of fish at low tide. If the conditions are not good they will have a small catch. This is different from gill net fishing, which tends to result in consistently larger catches.

### ***Factors affecting the fishing activities of women***

Several factors affect the fishing activity of women on the island of Aniwa. According to the community's traditions, women are responsible for looking after their homes and nurturing children. This includes preparing meals for their families and weeding the gardens. Men's role is to go fishing, clear bush for new gardens and plant crops. This is one of the major factors that reduces the chances of women to go out fishing to supplement their family's protein and for recreation. Therefore, if the workloads at home are distributed evenly and the pressure on women is reduced, the result may be an improvement of their fishing activities because they have more time for fishing.

Another factor affecting the fishing activities of women on Aniwa Island is strong traditional beliefs. For example according to one belief, when a woman who spends a lot of time fishing becomes pregnant, her baby will be killed by the sea gods and will be born dead. Similar beliefs exist on other islands in Vanuatu. For instance on the island of Maewo in the north of Vanuatu, it is believed that when a mother goes out fishing often, her baby will have a lot of sores after it is born. These traditional beliefs about women being punished by sea gods are likely to affect their fishing activities.



**Figure 4.** Old man in his traditional canoe going out fishing.

Since the island of Aniwa is very small, its fishing grounds on the reef and lagoon areas are very small. The island has only one lagoon and the reef areas are subdivided among the different owners, leaving very little reef area under common ownership on the island. Therefore the women cannot expand their fishing activities because their small fishing grounds support only a minimum number of fishing habitats. In addition, women have no access to the large fishing grounds beyond the reef due to a lack of motorised boats. Therefore, the women's fishing activities are restricted to lagoon and intertidal reef areas and they cannot expand further offshore.

Despite these limitations, the women's fishing activities also help support the fishing activities of the men. For example the knowledge they have on how to find octopus on the reef helps the men by providing bait for fishing. In addition women support men's fishing by preparing all the things that the men need for their fishing trip. For example women collect rocks to sink the lines and also fish for bait-fish.

### **Conclusion**

Women's traditional fishing activities on the island of Aniwa play an important role in maintaining the supply of animal protein for their families. Women's knowledge and fishing activities have been passed from one generation to the next and are still relevant in managing and sustaining fishing on the island of Aniwa.



**Figure 5.** New technologies threaten to upset the balance in sustaining small island fisheries.