Freshwater fishing, fisheries management and the roles of men and women in Tonia Village, Viti Levu, Fiji

M.R. Dakuidreketi and V. Vuki

Introduction

There is limited information on freshwater fishing in Fiji. In this paper we describe the freshwater fishing methods, fisheries management, and the respective roles of men and women in Tonia Village, Viti Levu Island, Fiji. The traditional fishing methods of qolua, nimanima, duva, bubura, cina, and pole-and-line and net fishing methods are described here.

Traditional fishing methods

Qolua

This fishing method uses hollow bamboo stalks with either one or both ends open to allow fish to enter. The stalk is usually placed in a deep section (60 cm) of the river and is left long enough (1–2 hours) to allow fish to enter one of the ends of the bamboo stalk. After fish have entered the bamboo stalk, both ends are blocked with non-hollow bamboo stalks so that when the fisherman or fisherwoman retrieves the stalk the fish caught inside do not escape. This method is selective because it catches mainly eels.

Nimanima

This fishing method is used in creeks where there are large depressions in the rocks. These depressions, called diro, can be as deep as 30 cm and are formed by water scouring the rocks. Fish often become trapped in diros after a flood or heavy rain.

When the water recedes after a flood and returns to its usual level, a diro still holds water inside it even though there is no new freshwater input from the stream. With this method, a fisherman scoops water out of the diro using a small container. Water is removed until the fish can be easily caught. The name nimanima literally means scooping out water from a diro.

Nimanima is practiced in creeks rather than in rivers and ponds because creeks typically have the characteristic depressions in the rock. This method is commonly used during the dry season when no additional water enters the diro while scooping water out. Different varieties of fish are caught using this method but prawns and eels are the main species. This method is practiced by both men and women.

A disadvantage of this fishing method is that it is labour intensive and can take about 30 minutes to an hour to remove water from the diro. This is especially true if the diro is large, which then requires considerable effort to remove the water. This is also a destructive fishing method because small fish are killed once the water is removed from the diro and then the diro completely dries out if there is no more water to fill it again.

Duva

The roots of duva (Derris spp.), although officially banned by the Fiji government’s Department of Fisheries, are commonly used by men and women to catch fish. The roots of the duva plant are pounded and wrapped in a cloth and soaked in the selected area of the stream or river where the fisher wishes to stupefy fish. Once the toxin stupefies the fish, it floats to the surface. This method is not selective and stupefies both adult and juvenile fish. The toxins from the pounded roots can stupefy fish but do not harm humans.

Bubura

This method is usually done by men individually or in a group and requires the fishers to walk on muddy and swampy ground with very little water. The fishers continuously strike the ground with long multi-pronged iron spears. The spears are about two metres long and have three to four iron prongs at the end. The striking continues until the fisherman has struck an eel or fish with his spear. This fishing method is used to catch eels, which inhabit swampy areas in Tonia. It is an easy method to use but the catch rate is usually low. This method specifically targets eels, but is destructive to vegetation growing in swampy areas and along the creeks.

1 School of Education, Faculty of Arts, Law and Education, Laucala Campus, Private Mail Bag, Suva, Fiji. Email: rawaikela_m@usp.ac.fj
2 Oceania Environment Consultants, PO Box 5214, UOG Station, Mangilao, Guam 96913. Email: vuki61@yahoo.co.uk
Cina

*Cina* means “light” in Fijian. This fishing method requires the use of light. Traditionally, leaves were tied together in a bundle and lighted as a torch, but now fishers use kerosene lamps and flashlights or torches that are powered by batteries. The torches are used at night to catch fish while they are sleeping. In addition to the use of light, bush knives and spears are also used. Fishers hold the light above the water as they walk along the creek or the river. Sometimes they dive if there is someone else to hold the light. Usually this method is done by a group of two or three people.

This method is commonly used during the dry season when there is no rain. The water level is also low and very clear and not murky during the dry season because of the lack of rainfall and runoff into the river. The water needs to be clear so that the fishers can see the fish underwater. Both men and women practice *cina* and are often seen fishing together. A variety of fish are caught using this method.

**Pole-and-line**

This method uses a pole and a line that has a cork and hook at the end of it. The cork is tied between the pole and the hook. When a fish is caught, the floating cork moves up and down in the water and the fisher pulls in the fish.

Pole-and-line fishing requires the use of live bait, in particular earthworms. All types of freshwater fish are caught, depending on the type of bait used. The method is very efficient.

**Nets**

Women use nets in rivers and streams. Nets are usually made of monofilament and have two wooden handles for moving the net through the water. The handle also serves to hold the net down on the bottom of the river or stream while the women beat the surface of the water with a stick. Usually more than one woman is involved so that one beats the water with the stick while the other holds the net in place. The one that beats the water with the stick may also help remove any grass or wood or whatever else the fish may use as a hiding place.

The size of the fish caught depends on the size of the net’s mesh. A variety of fish such as *ika droka*, *vo* and tilapia are caught using this method. In the past, nets were made from finely woven lines but today monofilament netting is used.

**Subsistence fisheries and the roles of men and women**

Fishing in Tonia is mainly done for leisure and/or to feed the family household. Each fisher chooses a suitable fishing method to catch fish for his or her own family.

Women dominate fishing activities with their fishing net and catch fish to feed their family. In contrast, men work in the gardens, tending crops and livestock, but take part in traditional fishing methods such as *burabura*, *nimanima* and *cina* whenever they are able.

Women and men from Tonia do not fish in the sea because they live inland and do not have access to reefs and coastal areas. All of their fishing is done in rivers, streams and freshwater pools. Women prefer catching fish in creeks and small ponds because it is easier for them to catch fish there than in deeper rivers.

Each fishing method is used during a specific season, time of day, and weather conditions to ensure maximum efficiency of the given fishing method. For example, *nimanima* cannot be used during the rainy season and *cina* is used only at night when the water is clear. *Burabura*, on the other hand, is used only on a fine day (blue sky, no rainfall and sun is shining brightly) with very little water in swampy areas.

The types of fish caught for subsistence purposes vary and depend on the fishing method used. For example, eels or *duna* (*Anguilla marmorata*) are caught using the *burabura* and *qolua* methods, while prawns or *ura* (*Macrobrachium* spp.) are caught using the *nimanima* method. Different freshwater fish species are caught using *cina* and net fishing methods; for example, jungle perch or *ika droka* (*Kuhlia ripestris*), a native fish species in most Fijian rivers and the introduced grass carp (*Cyprinus* spp.).

**Traditional fisheries management**

Managing the freshwater fisheries resources of Tonia Village is important for subsistence fisheries and for the conservation of resources in the long term. Very few traditional fisheries management measures are in place and these include closed areas or tabu areas, and enforcement through traditional village-based controls (e.g. a ban on destructive fishing methods).

Closed areas or tabu areas are mainly enforced when there is a death of a chief or clan elder. A specific pond, stream or a section of the river will be closed for fishing until the 100th night after the burial. The reason for closing the area is to allow the fish stock to increase during the three months of mourning, or 100 nights.

Once the ban is lifted, villagers are able to fish in the area using different methods with no restrictions on the size of fish caught. Juvenile and undersized fish are also taken during a fish trip. Because of the Fiji Department of Fisheries’ awareness programmes,
villagers are beginning to realise the need not to
catch juvenile and undersized fish and leave them
in the river for the future.

Fish caught from the tabu areas are used for the
100th night feast after the burial or vakabogidrau (the
name of the feast).

Although closed areas are only declared in order to
prepare for the 100th night feast after the death of a
chief or clan elder, this method could also be used
effectively for conserving fish stocks in streams,
ponds and specific sections of a river.

Recently, Tonia villagers have realised that
destructive fishing methods such as the use of duva
(Derris spp.) is not good. Now, a ban on the use of
duva is in place and the village chief can impose
penalties if a fisher is caught using it. In addition, the
use of chemicals and dynamite are now prohibited.

Roles of men and women

Men’s roles in the village are clearly distinct from
those of women, and the division of labour is clearly
understood by both. Men’s roles are entwined in
leadership, farming, house building and repairing,
and keeping the village compound clean. Men also
collect firewood and are involved in any physical
activity that is required for the smooth running of
their household or the village community as a whole.

Nearly all men’s activities are done in groups,
which makes men’s work much easier than
working individually and independently. The
village organiser, or turaga ni koro, divides the men
into groups and each group has a leader to guide
activities, such as planting and weeding of a new
plantation area. Each individual in the group takes
a turn in the planting of their crops.

After each person plants their crops, the group
leader then decides whether to continue with
planting or to shift to another activity. There may be
only a few days in a week dedicated to group work
but other days may be devoted to family activities
such as firewood gathering.

Men’s role in fishing in Tonia Village is limited,
and fishing methods used during their leisure
time include nimanima, burabura and cina. One
of the main roles of women is to fish to provide
protein for their household. Both men and women
also fish for recreation. Other women’s activities
include cooking, washing, looking after children,
and household cleaning. Women also work in
organised teams or groups, especially mat weaving
and sewing. Women in the church or clan organise
groups of women to sew and weave mats from
pandanus leaves. These work sessions provide
opportunities for women to support the church and
the clan and also to learn from each other.

Women use their fishing nets by themselves or go
out in groups to fish in streams, ponds and sections
of the river near the village. They usually go out in
the morning after cleaning the house and return in
the afternoon before the sun goes down. The catch
is cooked for dinner and women typically fish on a
daily basis. Almost all of the women catch enough
for their own household’s daily consumption, and
fish are never sold because urban markets are quite
a distance from the village.