

What is freshwater aquaculture? Freshwater aquaculture is the farming of fish or prawns in ponds filled with rainwater, spring water or river water.

Fresh fish can be scarce in certain places, particularly in inland areas of high island countries such as Papua New Guinea, Solomon Islands, Vanuatu and Fiji. Fish can also be scarce at certain times of the year when the weather is too rough to go out fishing in the sea. Freshwater aquaculture is a new activity in the Pacific that is becoming a popular way to provide people with fresh fish or prawns for eating at home or for selling to earn money.

What kinds of fish or prawns can be farmed in ponds?

In the Pacific Islands region, the main freshwater fish that is being farmed is tilapia. This fish is fairly easy to breed and can eat many different kinds of food. It is mainly vegetarian, so can be given leaves of cassava or slippery cabbage to eat. Other suitable fish foods are grated coconut, copra meal, white ants, and left-over food from the

kitchen. But tilapia grow fastest when fed on special fish-food pellets, which look like chicken pellets but with extra protein added. The scientific name for tilapia is *Oreochromis niloticus*. A new type of tilapia called GIFT (genetically improved farmed tilapia) has been produced by selectively breeding this fish to grow bigger and live longer.

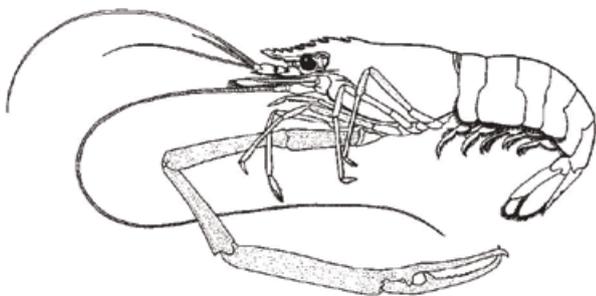


Two kinds of freshwater prawn can be farmed. The Monkey River prawn is indigenous to almost every Pacific Island with a freshwater stream and has the scientific name of *Macrobrachium lar*. The other freshwater prawn is called the Giant River prawn, which has been introduced from Southeast Asia; its scientific name is *Macrobrachium rosenbergii*.

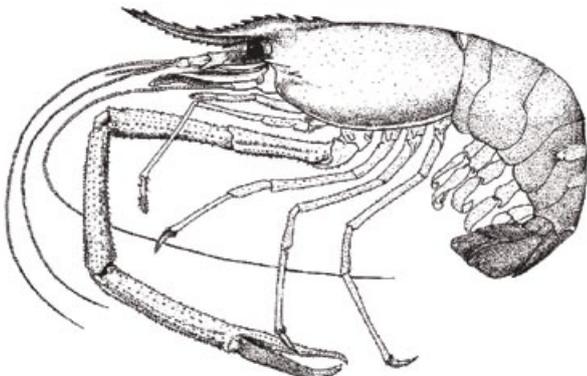
The Monkey River prawn is found in many rivers and streams of high islands with flowing water. It can be collected when it is small and fattened up in small hand-dug ponds of about 5 m x 10 m with fast running water. This type of prawn cannot be bred in a hatchery, so small prawns need to be collected from the wild. These prawns can eat plantation foods such as grated coconut, pawpaw, raw taro or cassava, but they grow fastest when fed with pellet feed made in a factory. This prawn likes to climb (like a monkey!) so a fence of black plastic must be built around the pond to stop them from escaping. This prawn is mainly being farmed in Santo where there are many small streams for catching small prawns.

The Giant River prawn looks similar to the indigenous prawn, but has blue claws. It has two advantages over the indigenous prawn: i) it can be bred in a hatchery, and ii) it does not climb out of ponds. The fisheries departments of Fiji and Vanuatu have built hatcheries to breed this prawn and supply it to small-scale farmers for selling to restaurants. The type of ponds and feeds used are similar to those used for commercial tilapia farming.

Macrobrachium lar



Macrobrachium rosenbergii



Freshwater prawns farmed in Pacific islands.

From: FAO. 1998. FAO species identification guide for fishery purposes. The living marine resources of the western central Pacific. Volume 2. Cephalopods, crustaceans, holothurians and sharks. p. 687–1396.

What is needed to farm freshwater fish or prawns?

1. **A pond** is the biggest item needed for freshwater fish or prawn farming. New farmers will need advice from local fisheries authorities who will check the site for suitability before the farmer starts to dig the pond. A water source must be available that can be piped to flow into the pond by gravity from a spring, stream or dam. The pond soil must be some sort of clay that does not leak water out underground. It takes a lot of work to dig the pond by hand with a spade. Digging with a machine digger is easier but will cost money. Once the digging of the pond is finished, fish or prawn farming only needs one or two hours of work each day. Tilapia can also be farmed in floating cages in lakes or big rivers, such as Lake Sirinumu or Lake Yonki in Papua New Guinea.
2. **Juvenile fish and prawns** need to be supplied from a hatchery for stocking into the farmer's pond. Some government fisheries authorities have hatcheries to breed both tilapia and prawns, and increasingly there will be private hatcheries producing juveniles to sell to freshwater fish or prawn farmers. Some advanced farmers can breed their own tilapia fish on their farm, after receiving extra training. But prawns need to be bred in a special hatchery.
3. **Feed** is needed if the fish or prawns are to grow well. Cheap plantation feeds can be given in the case of a small household fish pond. If the farmer wants to have several ponds and grow the fish quickly for selling, then the farmer should buy commercial fish or prawn pellet feed. The amount of feed given each day needs to be carefully managed so that the fish get enough, but not so much that feed is wasted.
4. **Skills** are needed by the farmer to keep the fish or prawns well-fed so that they grow and do not get sick or die in the pond. Fish farming is fairly simple, but it is a new activity in many Pacific Island countries so not many people know how to do it properly yet. Some training will be needed by new farmers on how to take care of their fish or prawns properly.

What happens to fish or prawns after they are harvested?

Fresh fish or prawns can be harvested gradually and eaten by the household that owns the pond and so contribute towards food security. Fresh fish is more nutritious and delicious than tinned fish.

Fish or prawns can also be sold to earn money, and contribute to livelihoods. Fish or prawns can be sold within the farmer's own community or sold to restaurants, hotels or supermarkets. Freshness is very important if prawns are being sold. Ideally, these fish and prawns should be packed in ice as soon as they are harvested, and delivered to buyers on the same day as they are harvested.