



*Although there are very few freshwater fish and invertebrates\* in many Pacific Islands, several species\* are important food items. Sometimes the production from freshwater fisheries is surprising — in Fiji, for example, the largest fishery\* on a single species is based on the freshwater clam, *Batissa violacea* or kai, which women collect from rivers.*

## Where are freshwater species distributed?

The greatest number of freshwater fish are found in the west of the Pacific Ocean where the high islands of Melanesia, such as Papua New Guinea, Solomon Islands, Vanuatu, New Caledonia and Fiji, have many rivers and lakes suitable for freshwater species.

## Where did freshwater species come from?

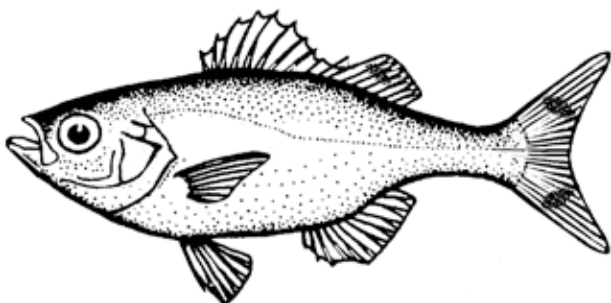
Many freshwater fish are believed to have originated from seawater species that have become adapted, perhaps over many thousands of years, for living in fresh water. A less likely possibility is that their ancestors managed to cross the sea from areas in the west. Perhaps larval stages crossed the sea in pockets of fresh water trapped in rafts of trees blown over during cyclones.

Here we discuss four widely distributed freshwater species — one fish, one prawn, an eel that spends part of its life in fresh water and one introduced species of fish.

## Flagtails

Several species of fish called flagtails are found in fresh water across the Pacific. These silvery fish have dark stripes on their tails and belong to the family Kuhlidae. They are variously called *aholehole*, *sesele*, *sakelo*, *ika droka*, *mahore*, *umatari*, mountain trout and flagtail perch.

One particularly large species is the jungle perch, *Kuhlia rupestris*, which grows to 45 cm in total length and 3 kg in weight, and is an important subsistence food, particularly in the interior of the large islands.



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### A hotspot of biodiversity\* — the Coral Triangle

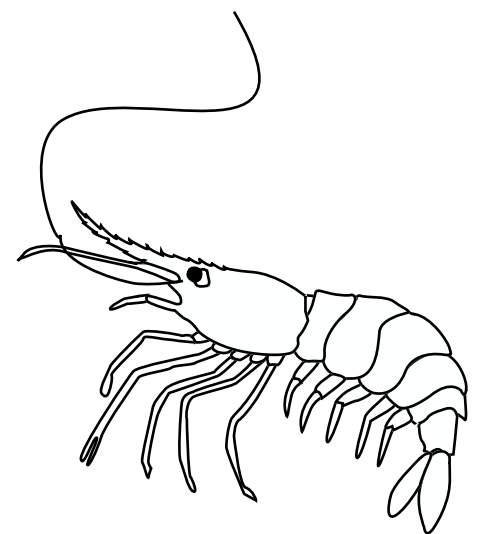
*The Coral Triangle (a region comprised of the Philippines, Malaysia, Indonesia, East Timor, Papua New Guinea and Solomon Islands) contains a larger number of different species than most places in the world (it is said to have a large biodiversity).*

*Many species, including corals and mangroves, appear to have spread out from this area to Pacific Islands. And, because of the difficulty of larval stages reaching far away islands, the number of species decreases across the Pacific from west to east.*

## Freshwater prawns

Freshwater prawns (*Macrobrachium lar*) are distributed from Africa across the Pacific as far as the Marquesas. Their common names include Tahitian prawn, monkey river prawn, ghost shrimp and glass shrimp.

The prawns are collected as food and there has been some interest in farming them; however, there has been a preference for farming the giant freshwater prawn, *Macrobrachium rosenbergii*.

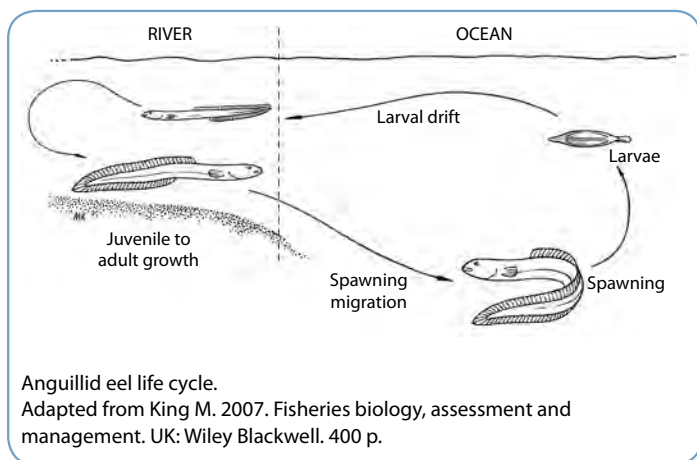
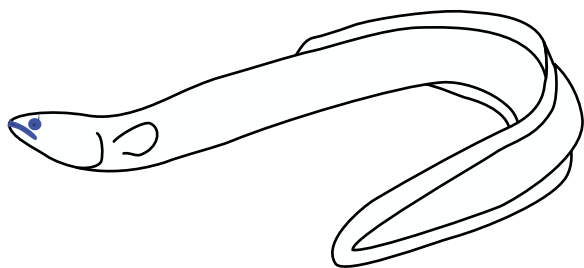


## Eels

Eels belonging to the genus\* *Anguilla* have a fascinating life-cycle.

The mature adults migrate from the relative safety of freshwater rivers over huge distances to breed in the deep dark sea. Here at the place where they were born, they breed and are then believed to die thousands of kilometres from the rivers where they lived for most of their lives.

The eel larvae\* drift with sea currents and change into the colourless small eels known as glass eels as they reach land. After they adjust to fresh water, the eels migrate well into the upper reaches of river systems where they may gain weights of 20 kg.



### Eel confusion?

The eels described here should not be confused with moray eels of which there are many species living in sea water on coral reefs.



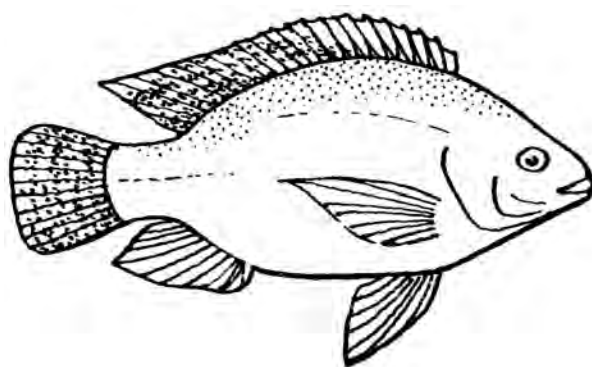
### Snake-like eels?

In damp conditions, eels can move around dams and waterfalls by wriggling across land with a movement like snakes.

## Tilapia

Tilapia were introduced into several Pacific Island countries from Africa beginning in the 1950s. As the species is easy to breed and eats low-cost foods, the fish was introduced for freshwater fish farming. Tilapia have been farmed in Fiji, Vanuatu, Papua New Guinea and the Cook Islands for many years.

However, the species of tilapia originally introduced to the Pacific was the slow-growing Mozambique tilapia (*Oreochromis mossambicus*) whereas 90% of the tilapia farmed globally today is Nile tilapia (*Oreochromis niloticus*).



### Friend or foe?

The introduction of exotic\* species is not without risk. On one hand, tilapia farming can provide food for local people. On the other hand, introduced tilapia may compete and displace indigenous\* freshwater fish.