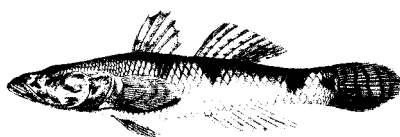
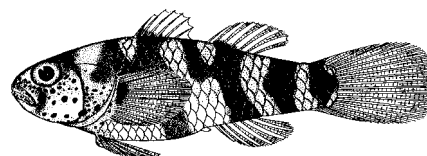


## GOBIES

The gobies (the family Gobiidae) are not a very conspicuous part of the fish fauna in most of the Mekong Basin. Mainly because of the small size of most members of the family – the smallest fishes (and vertebrates) known to science are gobies. The largest Mekong species for instance is the Gangetic tank goby (*Glossogobius giuris*), which reaches a size of 30 cm, but many of the Mekong gobies never grow larger than 3 cm. The smallest of them is the schooling bumblebee goby (*Brachygobius aggregatus*), which only becomes 1.5 cm long as adult.

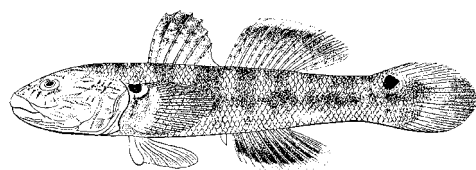


The Gangetic tank goby (*Glossogobius giuris*). With a total length of 30 cm this is the largest goby species in the Mekong.



The schooling bumblebee goby (*Brachygobius aggregatus*), the smallest goby species in the Mekong – adults measure 1.5 cm.

The majority of the 1500 species of gobies that are known to science are marine species, pointing to the fact the gobies are secondary freshwater fish that evolved in the sea and later colonised freshwaters. Gobies however are renowned for their tolerance to variable salt concentrations, and many marine species penetrate rivers far up into the freshwater zone. Other species live in estuaries, where the salinity changes from fresh to seawater according to season. Some species live their adult life in freshwater, but migrate downstream to spawn in the estuary or in the sea (catadromy), and a lesser number of goby species spend their entire life in freshwater – for example *Rhinogobius ocellatus*, which can be found in the

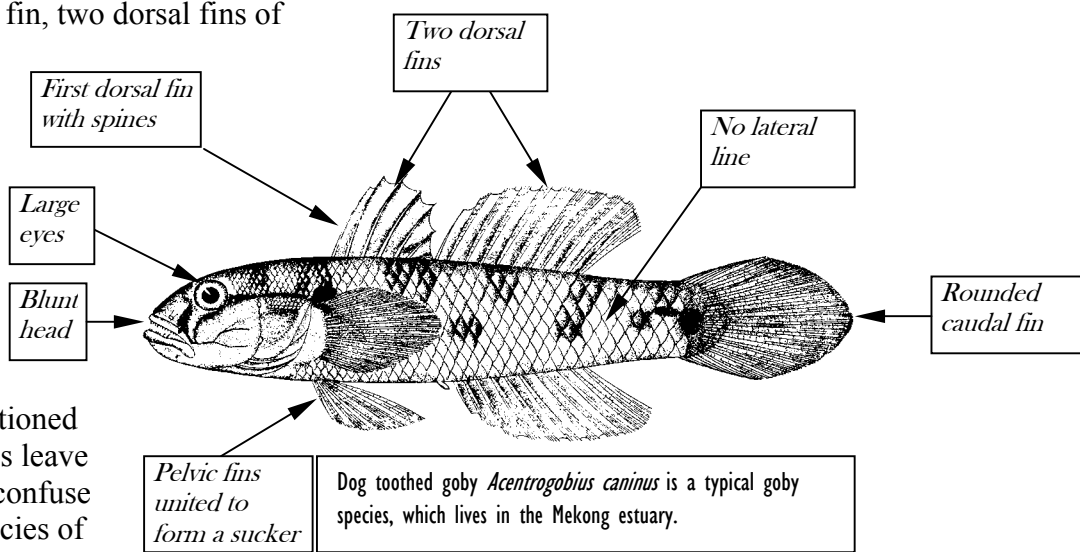


*Rhinogobius ocellatus* lives exclusively in fresh water.

Laotian/Thai part of the Mekong. It is therefore not unexpected that both the number of species and the importance of the gobies in the fisheries increase in the downstream direction. The highest number of goby species in the Mekong, are found in the estuarine areas in VietNam, where the gobies are targeted with special gears and sold in large quantities in the markets. Gobies, in contrast, are relatively

unimportant by-catches in Thailand and Lao PDR, where they only rarely appear in the markets.

A goby can be recognised based on the following characters: a blunt head with large eyes, a rounded caudal fin, two dorsal fins of which the first contain a number of spines, the lack of a lateral line and most importantly the fusion of the pelvic fins into a sucker.



The above mentioned external features leave few options to confuse gobies with species of other families. The only

*Pelvic fins united to form a sucker*  
Dog toothed goby *Acentrogobius caninus* is a typical goby species, which lives in the Mekong estuary.

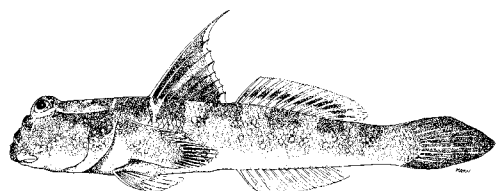
group of similar looking fish is the sleepers (Eleotridae), but the sleepers have separate pelvic fins, and thus do not possess a sucker.

Although the gobies are easy to identify as a family this is not true at the species level. Goby-species are amongst the most difficult of all Mekong species to identify. The characters that are used include scale counts, number and position of pores on the head, dentition, number of vertebrae, and the form of certain bones.

Because of the difficulties identifying them nobody really knows how many goby species there are. Dr. Walter Rainboth estimates that more than 200 species of gobies are found in the Mekong, many of them not yet described. This makes it one of the two most species rich fish families in the basin, rivalled only by the cyprinids in terms of number of species.

Gobies are bottom-orientated species, which normally do not possess a swimbladder. They are generally found in very shallow water where the sucker is used to stick to stones or other substrates. In rivers, they are often found in sections with very strong current, where they cling to stones and rocks in order to maintain their position.

Some goby species, like the mudskippers (*Periophthalmus* spp. and *Periophthalmodon* spp.), are so well adapted to the life in the littoral zone that they have become semi-terrestrial. The mudskippers leave the water to feed on the mudflats that emerges at low tide in the lowermost part of the Mekong.



Giant mudskipper *Periophthalmodon schlosseri* is capable of breathing atmospheric air.

These fish are able to survive out of the water for very long time because they breathe atmospheric air by their modified gill cavities. They are also able to store water in the gill cavity so the sensitive gill membranes do not dry out. When out of the water they “walk” around on their pectoral fins sometimes

leaping by using the tail.

Most gobies have a very general diet composed of algae, detritus (decaying organic material), and small invertebrates. But some species are predatory and feed mainly on fish.

Many gobies have a very peculiar way of reproduction. Some species, for instance, are nest spawners, and there are examples of species using empty snail shells for placing their eggs. Nest spawning gobies are highly territorial, and the nest is defended vigorously against intruders.

Gobies are mainly caught in seines, trawls, castnets, and traps. In the delta region however special gears have been developed to catch gobies hiding in burrows in the sand. The opening of the trap is placed over the hole where the goby is hiding and the fish is chased into the trap by stamping the feet near the hide out.

Gobies are very tasty, and because of their small size they are normally eaten whole, including the bones, thus increasing the nutritional value significantly. The attractive colours, interesting behaviour and small adult size make many gobies suitable aquarium fish.

It is obvious from the above that very little is known about the Mekong gobies. In 1945 H. M. Smith wrote, in his book “The Fishes of Siam, or Thailand”: ...” In no other [group] of fishes exist such an opportunity to add knowledge of the fish fauna of Thailand as in the gobies” ... Now fifty-five years later this is still true, not only for Thailand, but also for the other Mekong countries. Many species remain to be described, and very little is known about the ecology of the individual species.