

## LOACHES, HILL STREAM LOACHES, AND ALGAE EATERS

In this supplement the families Cobitidae, Balitoridae and Gyrrinocheilidae, which all belong to the order Cypriniformes, will be presented.

The fish in the three families are generally small, night active, and secretive species hiding among rocks and boulders during the day. They generally have a preference for running water and many species are well adapted to life in strong currents.

### LOACHES - COBITIDAE

Loaches occur in Europe, North Africa and many parts of Asia. However, they have diversified more in South East Asia than anywhere else, and until now at least 56 species of loaches have been recorded from the Mekong, and more are likely to be encountered in the future.

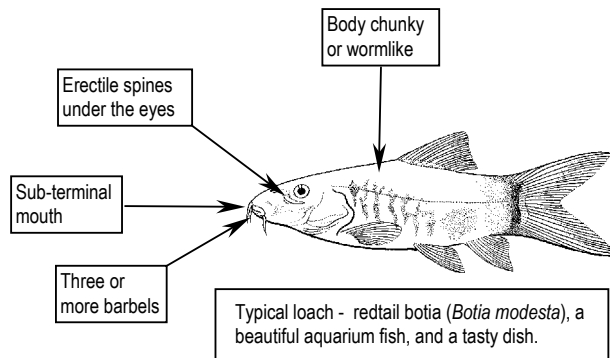
Loaches are intermediate between cyprinids and catfishes in appearance. They are normally small, and either wormlike or chunky with a flattened belly. Their mouth is sub-terminal (pointing downwards) without teeth, they do however, like the cyprinids, have pharyngeal teeth in the throat. The most distinguishing character is the existence of spines under the eyes, which can be erected at will and locked in position. The spines serve the dual purpose of deterring predators and allow the loaches to wedge themselves in hiding places in rock crevices or in drowned tree trunks. The loaches are also capable of burying themselves very quickly in sand or gravel. Three or more pairs of barbels are used as sensory organs in the hunt for small invertebrates and plant matter along the river bottom often at night.

The most important loaches from a fishery perspective are the botias (*Botia* spp.), and most of the section below will focus on this genus. The botias are the largest of the Mekong loaches reaching a size of about 25

cm. They for example caught in bamboo tubes or other specialized traps, but they are also common among other species caught in the lot and dai fisheries in Cambodia.

Other loaches, with some fisheries importance include several species of horsefaced loaches (*Acantopsis* spp.) that have still not been described scientifically and *Acanthopsoides* spp. Along with the botias; these species are often caught in the seine fishery in the Mekong and in many of the large tributaries.

Many consider loaches a delicacy, and although botias often only constitute a small percentage



of the catch, they are always sought out and sold separately, because they fetch a higher price at the market than other species of a similar size.

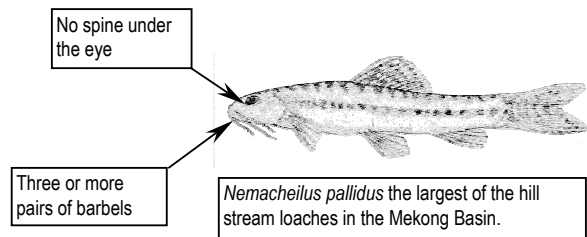
One of the reasons for their popularity as food is that the meat of botias has a very high fat content. The fat is used by the fish as an energy store, which the botia can rely on during the seasonal migrations between spawning and feeding grounds. During the migrations the botias are travelling quickly in huge schools, and, especially in the upper reaches, it is common that fish markets suddenly are flooded with botias for one or two days. The spawning grounds of these fish have not yet been identified, however there are indications that the spawning takes place in tributaries to the Mekong in the beginning of the rainy season in May or June.

Loaches are eminent aquarium fish, and the red-tail botia (*Botia modesta*) for example is one of the most beautiful Mekong fish species with iridescent blue-green body and shining red fins. Artificial breeding of loaches is still at the experimental stage in the Mekong region, so the aquarium trade is largely based on wild captured individuals. The Songkhram River in Thailand is one of the most important areas for catching loaches.

### HILLSTREAM LOACHES or RIVER LOACHES - BALITORIDAE

The fishes in this family have a preference for water with strong current, and many species only occur in torrential mountain streams so hill stream loaches is the most appropriate of the two suggested names.

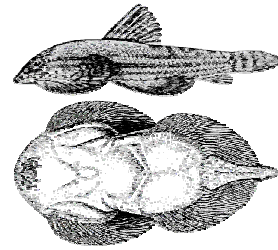
With 115 species already registered, this is one of the



largest fish families in the Mekong Basin, and many more species are likely to be added to the list when taxonomists visit more mountain areas with difficult access. Kottelat (1998) for instance described 12 new species of hill stream loaches after surveying Nam Theun and Xe Bang Fai Basins in Lao PDR.

Hillstream loaches are quite similar to loaches the main difference between the two families is that the former do not have a spine under the eye. Three or more barbel pairs, as opposed to less than two, distinguish hillstream loaches from the cyprinid family.

The pectoral and pelvic fins in some species, for example *Sewellia lineolata*, are enlarged and modified into a ventral sucking disc, which the fish use to stick to rocks and stones, thereby allowing them to live in faster flowing water than any other kind of fish.



*Sewellia lineolata* with belly, pectoral and pelvic fins modified into a sucker is well adapted to life in torrential rapids.

Hillstream loaches do not constitute a very conspicuous part of the fauna, because they are small (the largest species, *Nemacheilus pallidus*, grows to a maximum size of 14 cm) and they hide away among stones and organic debris most of the time. Hillstream loaches are not targeted specifically in any fishery, but are occasionally caught together with other small fish species, and are sometimes sold on the markets together with these. Some species are potentially excellent aquarium fish.

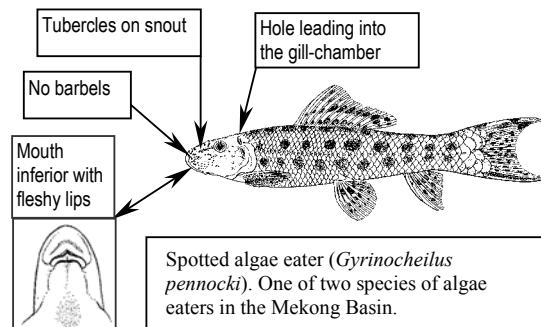
#### GYRINOCHEILIDAE –ALGAE EATERS

With only two species (*Gyrinocheilus aymonieri* and *Gyrinocheilus pennocki*) recorded, the algae eater family is one of the smallest fish families in the Mekong Basin. However since only three or four species are known all over the world the family is well represented in the Mekong.

The algae eaters differ from the two previous families and the cyprinids in not having pharyngeal teeth or barbels. Another character particular to the algae eaters is the presence of tubercles on the snout and the sides of the head. The swim bladder is very small and does not work as a hydrostatic organ; the fish therefore has to swim to keep itself off the bottom.

The mouth is inferior (under the head) with fleshy lips, like other cypriniform fish they do not have teeth, but the lips are provided with rasp-like ridges, which the fish uses to scrape algae of stones, rocks etc. The algae eaters attach themselves to solid objects by using the mouth as a sucker, thereby preventing normal respiration through the mouth. Instead, they possess a small hole above the gill opening, leading into the gill chamber, through which they can inhale water for respiration (similar to the spiracle of sharks and rays).

Algae eaters are fairly popular food fish and are not uncommonly seen on markets especially in the upland basin – for instance in the Se San, Se Kong, Srepok system in North Eastern Cambodia. They are also seen in the aquarium trade from time to time.



#### Reference:

Kottelat, M. 1998.

Fishes of the Nam Theun and Xe Bangfai basins, Laos, with diagnoses of twenty-two new species (Teleostei: Cyprinidae, Balitoridae, Cobitidae, Coiidae and Odontobutidae). *Ichthyological Exploration of Freshwaters* 9 (1), 1-128.