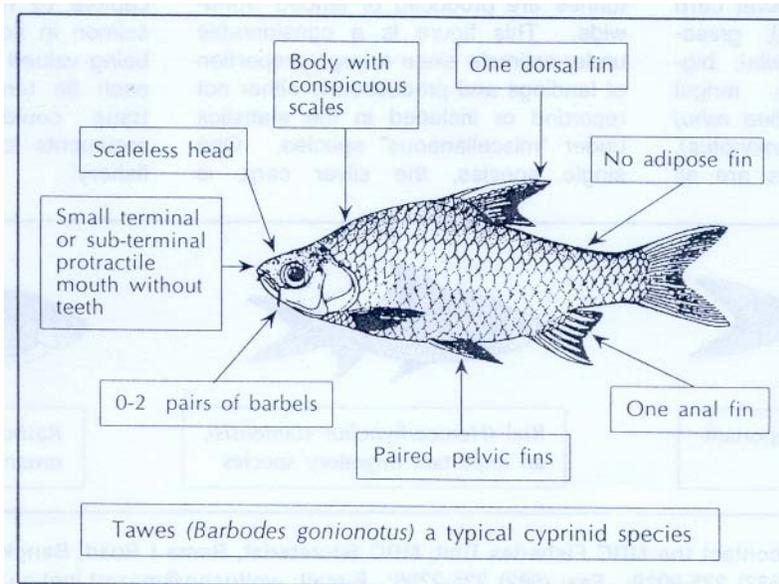




THE FAMILY CYPRINIDAE (CARPS)

The family Cyprinidae is the largest of all fish families. More than 2,000 members of the family have already been described, representing about 10% of all fish species in the world, or about 25% of freshwater fish species. It is also the largest family of freshwater fish in the Mekong and, according to taxonomist Dr. Walther Rainboth, includes at least 200 species or about 20% of the described fish fauna. However, there is much confusion over common terminology in the family. Members of the family are often referred to as "carp" although usually the term is applied only to larger species. The "carp", on the other hand, often means the common, or European, carp (*Cyprinus carpio*). The "Indian" or "Chinese" carps refer to genera prominent in those countries, although they are not necessarily restricted to these. The term "Indian major carps" has no taxonomic significance and refers to the larger species that are prominent in the fisheries in the Indian sub-continent. Outside that region, the term is not helpful since elsewhere they may not be "major" at all. All members of the family are more accurately termed cyprinids.



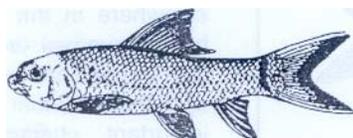
So, why are certain fish classified as cyprinids? Contrary to popular belief, taxonomy is far from being a precise science. Cyprinids possess no single feature that distinguishes them from other families; instead, it is the absence of certain features that is a prerequisite for membership. Cyprinid fishes range from small "aquarium sized species" to huge fish like the giant barb *Catlocarpio siamensis*, which reputedly reaches three metres in length. Despite their size, cyprinids vary surprisingly little in their appearance. Most gross differences are due only to their relative dimensions (proportions). Almost all species look like "typical fish". "Unspecialised" is perhaps the most obvious feature. This may also account for their evolutionary success as a group. They usually have large eyes and a body with conspicuous scales, but no scales on the head. They have only one dorsal and anal fin, typical pectoral fins and a pair of separated pelvic fins on the abdomen, but never an adipose fin. The mouth is usually small and terminal (pointing forwards) or sub-terminal (downwards), and is often protractile (can be extended and withdrawn – i.e. for "sucking"). There are never any teeth on the jaws or elsewhere in the mouth but pharyngeal teeth (in the throat) are present and their number is an important characteristic in distinguishing species. Some species have up to two pairs of short barbells ("whiskers") while others may have none.

The cyprinids are primary freshwater fishes -i.e. they evolved in freshwater (as opposed to the sea). They cannot tolerate high salinity. Although a very small number of these species can survive in brackish water, they cannot reproduce in it. They are prominent members of the fish fauna in Asia, Europe and North America but are not naturally found in South America and Australasia. However, a number of these species have now been introduced to all regions. The common carp, for example, is the most widely distributed of all exotic fish species with records of it dating from over 5,000 years ago. Cyprinids are encountered in all kinds of freshwater habitats: Since they are toothless, and most species are relatively small, only a few species are predators. In fact, many are important forage fish for predators. The majority of these species are omnivorous, feeding on a mixture of invertebrates, organic debris and plants.

Feeding low in the food chain in part accounts for their popularity in aquaculture. Besides, many species can tolerate high temperatures and low oxygen levels; consequently, they are often capable of proliferating in harsh environments where other species might perish. This further enhances their appeal in aquaculture where cyprinids dominate world production. Examples of widely cultured species are: common carp, silver carp (*Hypophthalmichthys molitrix*), grass-carp (*Ctenopharyngodon idella*), big-head (*Aristichthys nobilis*), mrigal (*Cirrhinus mrigala*), rohu (*Labea rohu*) and tawes (*Barbodes gonionotus*). Except for tawes, the others are all introduced species to the Mekong Basin. There is, however, no reason to assume that local species are inferior. The MAC Fisheries Programme is already promoting efforts to encourage indigenous species such as: *Cirrhinus microlepis*, the seven-line barb (*Probarbus ju1/ieni*), *Hypsibarbus suvattii* and others.

Cyprinids are generally social species and often form schools at some stage of their life cycle. Many Mekong cyprinids also undertake extensive migrations, especially during the dry season. For example, enormous numbers of fish move upstream from Cambodia through the Khone Falls in the Southern Lao PDR around December and January. Some species, e.g. the seven-line barb, travel several hundreds of kilometres further into northern Thailand and the Lao PDR and possibly beyond. Cyprinids generally have small eggs and, therefore, they are normally highly fecund. Substrate spawning is the norm, usually on rocks or amongst plants to which the eggs often stick. Eggs are normally all released at one single spawning. Parental care of the eggs or young is unheard of.

Cyprinids are of major economic importance in world fisheries. According to official FAG statistics well over 4 million tonnes are produced or landed world-wide. This figure is a considerable underestimate since a large proportion of landings and production is either not recorded or included in the statistics under "miscellaneous" species. One single species, the silver carp, is ranked seventh in the world in terms of total production, surpassed only by marine species such as anchovy, mackerel and pilchard. Much of the world production of cyprinids ostensibly comes from "aquaculture" but the figures are entirely dominated by China where a large proportion of the production actually arises from culture-enhanced capture fisheries (e.g. stocked reservoir fisheries). In the Mekong, there is little doubt that cyprinids are the most important group. Many of the Mekong species make up an extremely important component in the fishery of the riparian countries. The migratory habits of some species make them an easy target for fishers, and a large part of the fishery is directed towards these species. It is also quite possible that the smaller species are as important, if not more so, than the more prominent larger species. For example, when migrating (December-February), the riel (*Henicorhynchus spp.*) accounts for two-thirds of the dai catch on the Tonle Sap River in Cambodia. The small size, beautiful colouration, omnivorous diet, lack of teeth and hardy nature of many other species make them popular and economically valuable in the aquarium fish industry. The potential of the latter resource has yet to be fully recognised in the Mekong. Some of the larger cyprinids are among the most popular targets for sport fishermen. Several of the species of Tor, for example, are regarded in higher esteem than the salmon for their fighting spirit, endurance and difficulty of capture by hook and line. With wild salmon in some European rivers now being valued in excess of US\$ 25,000 each (in terms of asset value), this issue could well provide further arguments for sustaining the Mekong fishery!



Bangana behri, an important migratory species



Riel (Henicorhynchus siamensis), an important migratory species



Rosbora espei, a popular ornamental species

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