



# My tryst with the mahseer

Text and photographs by Vidyadhar Atkore

The monsoon was receding slowly, leaving in its wake occasional weekly showers and a utopian vista of green grass, gushing streams and waterfalls. The Bhadra river was muddy – an indication of the soil erosion along the banks upstream. It has been more than five years since the Supreme Court imposed a ban on mining by the Kudremukh Iron Ore Company Limited (KIOCL), somewhat mitigating the risk to river biodiversity and to locals living downstream of the Bhadra river system. Still, my study of the fish diversity in the two river systems of the Kudremukh National Park was in the initial stage: it had been more than two months since a big catch had been reported.

One morning, during my fieldwork in the Bhadra river, I was thrilled to catch a Deccan mahseer *Tor khudree* – a large sport fish endemic to peninsular India that can weigh up to 50 kg. But this individual, of course, weighed just about 300 gm. Yet, the genus was unmistakable from the bluish tinge of its upper body, thick lips with relatively longer barbels (sensory hair-like organs in front of the mouth) and large scales, more akin to the golden mahseer *Tor putitora* of the Himalaya. After examining the fish, I quickly released it into the current to cause it the least amount of stress possible.

## A fish unlike any other

The golden mahseer was once well known in Himalayan waters as a large sport fish, but the recorded 54 kg. catches of old have vanished in the last few decades. Their rarity is attested to by local fishers and a few well-known anglers who opine that this loss is a direct result of human activities, including dynamiting and sand-boulder mining, which destroy mahseer breeding habitats. During a previous study on the fish communities of Himalayan rivers, I caught around 2,000 individuals of golden mahseer alone in the post-monsoon

**FACING PAGE** The moisture retentive capacity of and heavy rainfall in the Kudremukh mountain range in Karnataka has led to the formation of thousands of perennial streams in the region, converging to form three major rivers, the Tunga, Bhadra and Nethravathi, which constitute important riverine habitat for the mahseer and other fish species.





season, but most of them were under 15 cm. in length. In my view it is the absence of anthropogenic threats in the Ramganga tributaries (Corbett National Park) that account for the abundance of this smaller version of the once glorious golden fish. Travelling huge distances upstream, the golden mahseer seeks out undisturbed upstream waters that are relatively cold and have a high amount of dissolved oxygen, vital for fish breeding. Like most fishes, mahseer prefer to spawn during the onset of the monsoon, making it difficult to study them. Still, I was keen to observe their habitat

utilisation patterns in the three tributaries of the Ramganga river in the Corbett National Park, which is where I headed soon after the monsoon. During the period of my study, most golden mahseer individuals we observed were juveniles, sized between six and 15 cm., with larger adults (up to 30-40 cm.) located in the deeper pools, where catching them with cast nets presented a challenge.

#### Freshwater aquatic life

River ecosystems and their aquatic biodiversity have always fascinated me.

After a brief stint studying Himalayan river ecosystems, I turned my attention to the threatened rivers of the Western Ghats. As a part of my PhD. research, I concentrated my efforts on understanding fish ecology in two rivers found in the Dakshin Karnataka district of Karnataka. The Deccan mahseer eluded me for the two months I spent on my fieldwork, but I was confident they would turn up in the few remaining pristine stretches of the Bhadra or Tunga rivers. My patience finally paid off when, while sampling the Kunya stream – a small tributary of the Bhadra in Kudremukh Wildlife Range, I saw three or four large fish, which turned out to be the ones I longed to see! Colloquially termed the *Haralu meen*, these fish are frequently seen by local fishers. However, my initial euphoria was dampened by the realisation that none of the usual methods I employed (gillnets and dragnets) were a match for the wily Deccan mahseer. My assistant and I set up a gillnet before turning our attention to other stream parameters. In the process, we caught some common fish including the Malabar baril *Barilius bakeri*, Malabar danio *Danio malabaricus*, and stone sucker *Garra mullya*. And, eventually our gillnet also landed three large fish – two Deccan mahseer and, for the first time, *Labeo dussumieri*. Fishes were immediately removed and then carefully placed in a bucket of water. The interaction between the two species was fascinating. While the *Labeo* was calm, the mahseer was desperate to return to its aquatic habitat. It took quite an effort to take measurements amidst its tireless attempts to escape. When the moment came to free this beautiful giant, I released it into a relatively deeper pool and within a fraction of a second it disappeared forever into its realm. This experience was more than enough to satiate me for the rest of the sampling months to come!

**TOP AND ABOVE** Colloquially called *Haralu meen*, the Deccan mahseer is well known as a massive freshwater game fish, but can no longer be found in the large sizes reported in the past. The thick lips and elongated maxillary barbels, as well as the bluish tinge of its iridescent scales make it easy to recognise.

#### Effects of hydrological barriers

River studies around the world have shown that any sort of hydrological barrier has serious effects on the migratory patterns of freshwater fish. Those such as mahseer cannot overcome a barrier even a few metres high, as a result of which their movement may become restricted to deeper pools downstream. This lack of good breeding habitats might delay their spawning since the species is unlikely to spawn in deeper waterbodies. Fish fry, or fingerlings, will not survive in such environments simply because of the lack of oxygen and suitable streambeds to serve as nurseries, full of boulders, pebbles and gravel where adult mahseer can lay their eggs. Eggs adhere to these boulders, where a constant flow of fresh oxygen is essential for the initial development of young ones.

Moreover, barriers to connectivity create new river habitats (deeper pools upstream) and deplete food resources (benthic flora and fauna). Consequently, this has the impact of segregating fish populations across the river. Other than mahseer, there are a few endemic fish that prefer shallow upstream areas with gentle water velocity and suitable temperature ranges. This includes species like *Homaloptera*, *Bhavana sp.*, which may disappear entirely due to habitat loss. Some of these fishes cannot live for more than an hour without fresh oxygen, perishing easily. This group is of great interest to fish ecologists simply because little is known about their cryptic behaviour and breeding. It is entirely likely that some of these isolated stretches of streams or rivers at higher altitudes (more than 800 m.) may contain species thus far unknown to science!

Dams may appear to provide many benefits to society, yet they have profound negative impacts on aquatic ecosystems. Dams and hydropower projects are constructed in hilly ar-

**ABOVE** Using a field kit such as this one, the author has been able to study the riverine ecologies in various parts of India over the years. Fish are caught using gillnets or dragnets, and then placed in a bucket of water to measure and test prior to being released.

**TOP** Freshwater river systems are rich habitats for a wide range of species, not just limited to aquatic creatures. This dragonfly *Cratilla lineate*, recognisable by its metallic blue hue and dark wing tips, is a natural exterminator of aerial insects; and its larvae, which are aquatic, serve as food for fishes and other predators.



eas, but their impacts on downstream habitats are rarely considered. Many projects, unfortunately, manage to gather approval by ignoring the impact of such alterations, which, among other things, physically deplete the resources of fish-dependent communities.

To date, most laws in India applicable to terrestrial habitats are considered suitable for freshwater habitats as well. However, freshwater systems are very sensitive and their distribution is reducing rapidly. Currently, there is not a single management plan available to provide comprehensive guidelines to monitor freshwater river systems.

In the wake of the current environmental crisis, the impact of 'development' projects is much greater than is currently estimable. It's high time to reconsider the mindless pace at which riverine development projects are being planned in the freshwater ecosystems we have limited knowledge about. The need of the hour is focussed scientific research to foster better conservation of these fragile habitats.

*The author is a PhD. student and Dr. Ravi Sankaran Fellow at the Ashoka Trust for Research in Ecology and the Environment (ATREE), Bangalore.*