

Selective study on the availability of indigenous fish species having ornamental value in some districts of West Bengal

Panigrahi, A.K.¹, Dutta, S.¹ and Ghosh, I.²

Fisheries and Aquaculture Extension. Laboratory, Department of Zoology, University of Kalyani, Kalyani 741235, Nadia, West Bengal, India, email sarbanidutta8@gmail.com; 2. Department of Aquaculture, West Bengal University of Animal and Fishery Science, Kolkata, West Bengal, India, email wbuafs@gmail.com.

The term ornamental fish needs no introduction. The global trade of the ornamental fish industry is increasing rapidly, at around 6% annually¹. In the aquaculture sector, ornamental fish breeding, culture and trade provide excellent opportunities as a non–food fishery activity for employment and income generation. It is environmental friendly, socially acceptable and involves low investment for adopting as a small scale enterprise with high return. The attractive coloration and quiet disposition of ornamental fish provide a source of joy and peace for people irrespective of age group. Increasingly, ornamental fish is becoming a fashionable activity with new fish varieties entering the market from time to time. By concentrating on such fish only, we may lose our indigenous fish biodiversity, some of which are edging towards extinction. Many indigenous ornamental fishes are very much useful for developing new strains to compete in world market. They are also used as a tool in biotechnological research in all over the world².

The history of culturing ornamental fishes in West Bengal is age old. A rich aquatic biodiversity, favourable condition, cheap labour and easy distribution make West Bengal as a pre-eminent hub for this promising industry³. Most of the indigenous and endemic fish species available in this state have significant potential for the purpose of ornamental

fish culture. However, severe depletion in the natural fish population of the state has largely been driven due by destruction of habitat, unsustainable modes of exploitation and other stresses. So with the present investigation, an attempt has been made to ascertain an overview of the availability of indigenous ornamental fishes in some districts of West Bengal.

A survey was carried out for 60 days (September-October, 2008) in four districts of West Bengal namely Howrah, Hooghly, and North and South 24 Parganas, because these districts are rich in different types of indigenous fish species which have got tremendous ornamental status in the international market. A considerable number of fish culture units have been concentrated in these four districts¹ (Table 1). The entire region under study is highly variable as far as topographic and climatic conditions are concerned. This region enjoys a tropical monsoonal climate, receiving an annual medium range of rainfall with high temperature in summer (30-39°C) and a sharp fall of temperature in winter(15-25°C).

Table 1. Selected areas of the districts where survey has been conducted

Districts	Name of the areas
Howrah	Pakuria, Domjur, Kadamtala, Amta, Ramrajatala
Hoogly	Dankuni, Chuchura, Srerampur, Mogra, Bandel, Saorafulli
North 24 pgs	Naihati, Amdanga, Barasat, Barrackpore, Khardah, Baranagar, Bonhooghly
South 24 pgs	Amtala, Mahestala, Falta, Bazbaz, Baruipur, Canning south, Dimond Harbour

Selection criteria for ornamental fishes

For the present study, small to medium (<20 cm) sized fish specimens (ideal for aquarium rearing) available in the aquatic habitats of the region were taken into consideration to assess their potentiality for aquarium purpose. Basic parameters considered for the assessment were i) adult size and hardness ii) attractiveness (coloration pattern, body morphology etc), iii) ability to thrive in a confined environment with supplementary food, iv) endemicity, v) behavioral and environmental compatibility with other species.

Identification of the indigenous fishes

The indigenous fish fauna having high potentiality as ornamental fishes that are available throughout the study areas of the selected districts were identified according to Nelson⁴ and Talwar and Jhingran⁵.

Result and Discussion

During the present investigation 30 species of indigenous fishes with potentiality as aquarium fishes belonging to 22 genera and 13 families have been recorded from the selected areas of the four districts (Table 2). Cyprinids were the most dominant family followed by Bagridae, Siluridae, Ambassidae, Notopteridae, Belontiidae, Belonidae, Chacidae, Mastacembelidae, Cobitidae, Nandidae, Anabantidae and Channidae.

Observation during the investigation

Throughout the survey we observed that the natural resources of the indigenous fish fauna are in declining trend. The condition may be due to increasing trend of aquatic pollution mainly by agricultural pesticides followed by discharge of pollutants along with industrial effluents from various sources.

The survey revealed that the habitats and breeding grounds of these valuable fishes are under threat due to the application of toxicants to prepare the water bodies for the sake of scientific composite fish culture or poly culture after eradicating the weed fishes, some of which are also potential indigenous ornamental fishes. The study further revealed that if such conditions are allowed to continue then a time will come when these valuable indigenous fish species will not be available to us. So now, the time has come to restore all such indigenous fishes and their captive culture is to be popularised. We urge the government departments, private agencies, other non government organisations to boost the culture of such fish species to save the progeny. In this respect it is essential to take immediate attention to popularise the captive culture as well as breeding of these indigenous fish species of Bengal.

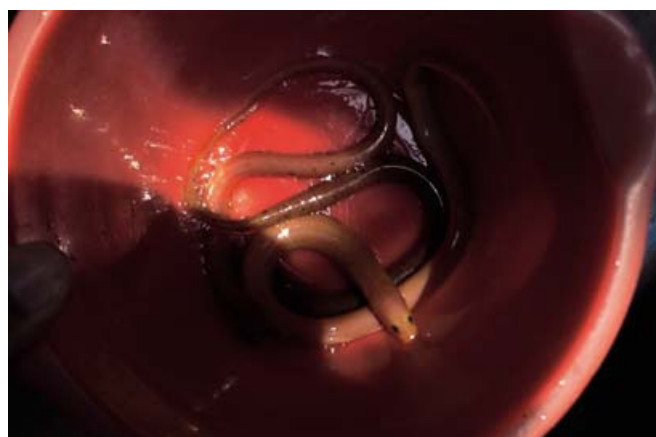
According to our study these resources are presently exploited in an unorganised way by some unscrupulous traders who operate this trade from outside the region. Their trade usually based on collection of certain target species which have high market value. This mode of exploitation would no doubt contribute largely to the depletion of natural stock of the said resources in the near future. A number of rural people, both men and women, are engaged in the wild collection and culture of the potential fish resources. But the fact is that the indigenous fishes produced in these areas or wildly collected are mostly to meet the demand of local markets and consumers. A lack of awareness and ignorance among rural masses, deficiencies of infrastructure and inadequate policies of the concerned authorities have been identified as major hurdles in the way of development of this highly promising sector of commercial fisheries.

Conclusions

Considering the tremendous prospects of these areas it is the prime time to make an integrated effort to promote this sector of fisheries in a sustainable way. Eradication of the ignorance and the enlightenment or awakening of awareness among the rural masses is the essential criteria to restore those valuable fishes.

The following measures are suggested for the sustainable utilisation of these potential aquatic resources to enhance the fisheries sector to earn more foreign exchange:

- Abundant and systematic development of a comprehensive database including feeding, breeding and environmental requirements of each potential indigenous fishes.
- To evolve sustainable farming technologies for commercially important native ornamental fishes.
- Provision of better extension support in the form of technology, finance and marketing to needy fishermen, particularly with regards to the unemployed to motivate them to adopt ornamental fish production as a business.



Albino eel.

Table 2. List of fishes frequently available in the selected areas

Local name	Common name	Scientific name	Family
Pholui	Black knife fish	<i>Notopterus notopterus</i> (Hamilton-Buchanan)	Notopteridae
Chital	Humped feather back	<i>Notopterus chitala</i> (Hamilton-Buchanan)	Notopteridae
Kalbasu	All black shark	<i>Labeo kalbasu</i> (Hamilton-Buchanan)	Cyprinidae
Kanchan pungti	Rosy barb	<i>Puntius conchoni</i> (Hamilton-Buchanan)	Cyprinidae
Gilli pungti	Golden barb	<i>Puntius gelius</i> (Hamilton-Buchanan)	Cyprinidae
Pothia pungti	Two spot barb	<i>Puntius ticto</i> (Hamilton-Buchanan)	Cyprinidae
Sophore pungti	Spot fin swamp barb	<i>Puntius sophore</i> (Hamilton-Buchanan)	Cyprinidae
Maurala	Mola carplet	<i>Amblypharyngodon mola</i> (Hamilton-Buchanan)	Cyprinidae
Anju	Zebra danio	<i>Brachydanio rerio</i> (Hamilton-Buchanan)	Cyprinidae
Dangila danio	Dangila danio	<i>Danio dangila</i> (Hamilton-Buchanan)	Cyprinidae
Bashpata	Devario danio	<i>Danio devario</i> (Hamilton-Buchanan)	Cyprinidae
Rasbora	Gangetic scissor tail	<i>Rasbora rasbora</i> (Hamilton-Buchanan)	Cyprinidae
Gunte	Guntea loach	<i>Lepidocephalus guntea</i> (Hamilton)	Cobitidae
Tengara	Golden cat fish	<i>Mystus tengara</i> (Hamilton-Buchanan)	Bagridae
Tengara	Striped dwarf cat fish	<i>Mystus vittatus</i> (Bloch)	Bagridae
Aar	Long whiskered cat fish	<i>Aorichthys aor</i> (Hamilton-Buchanan)	Bagridae
Ritha	Rita	<i>Rita rita</i> (Hamilton-Buchanan)	Bagridae
Pabdah	Gulper cat fish	<i>Ompok pabda</i> (Hamilton)	Siluridae
Pungas	Indian tiger shark	<i>Pungasius pungasius</i> (Hamilton-Buchanan)	Siluridae
Chacca	Indian chaca	<i>Chaca chaca</i> (Hamilton-Buchanan)	Chacidae
Kankley	Long nosed Needle fish	<i>Xenontodon cancila</i> (Hamilton-Buchanan)	Belontiidae
Nama chanda	Elongated glass perchlet	<i>Chanda nama</i> (Hamilton-Buchanan)	Ambassidae
Ranga chanda	Indian glass fish	<i>Pseudoambassis ranga</i> (Hamilton-Buchanan)	Ambassidae
Nadosh	Leaf fish	<i>Nandus nandus</i> (Hamilton-Buchanan)	Nandidae
Koi	Climbing perch	<i>Anabus testudineus</i> (Bloch)	Anabantidae
Khalisa	Stripped gourami	<i>Colisa fasciata</i> (Schneider)	Belontiidae
Khalisa	Dwarf gourami	<i>Colisa lalia</i> (Hamilton-Buchanan)	Belontiidae
Chuna khalisa	Sunset gourami	<i>Colisa sota</i> (Hamilton-Buchanan)	Belontiidae
Pankal	Spiny Green eel	<i>Mastacembalus punctatus</i> (Hamilton-Buchanan)	Mastacembelidae
Lata	Spotted snake head	<i>Channa punctatus</i> (Bloch)	Channidae

- Development of captive culture fisheries in 'beels', reservoirs and wetlands on a co-operative basis with some other culture.
- Establishment of periodic monitoring of the health of the aquatic fauna as well as water quality parameters.
- Enforcement of fisheries and environmental laws and acts in the maintenance of resource sustainability and to check unauthorised wild collection of targeted species.

References

1. Ghosh, I. 2005. Breeding and larval rearing of ornamental fishes under captive condition with special reference to West Bengal. Course Manual, Regional Training -cum-Workshop on Ornamental Fish (sponsored by MPEDA Ministry of Commerce, Govt. of India), organized by College of Fisheries, Assam Agricultural University, Raha, Assam, India, Feb. 22-25, pp. 19-23.
2. Swain, S.K, Mallik, D., Mishra, S., Sarkar, B. and Routray, P. 2007. Ornamental fish as model animals for biotechnological research. In Environmental Biotechnology (Ed. Mishra and Juwarkar) APH publ.corp. Delhi, pp.293-328.
3. Ghosh, I. 2006. The Ornamental Fish Sector in India and the West Bengal Scenario. INFOFISH International, No. 4 (July/August), pp. 28-31.
4. Nelson, J.S. 2006. Fishes of the World. John Wiley & Sons, Inc.
5. Tawar, P.K and Jingran, A.G. 1991. Inland fishes of India and Adjacent Countries. Mohan Pramlani for Oxford and IBH Pub. Co. Pvt. Ltd., New Delhi-110001, India.



Peacock eel.

Join online
Farmers and Scientists
community

at

www.enaca.org