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Indigenous Ornamental Fish Resources of North- Eastern States of India and Their Trade Potential

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Abstract:

The entire northeastern part of India features among the world's hotspots of freshwater fish biodiversity. The variety of aquatic habitats in the alluvial floodplains and highlands of the region abounds in highly potential indigenous ornamental fishes. Of these, the weed infested wetlands (*beels*) in the plains and stony bed torrential streams in the hills offer a variety of microhabitats for many colourful native and endemic ornamental fishes. As many as 93 species of indigenous ornamental fishes belonging to 25 families have been recorded from this part of the country having good trade potential. Endemic and native ornamental species such as *Channa barca*, *C. aurantimaculata*, *Puntius gelius*, *P. manipurensis*, *P. shalynius*, *Botia* spp., *Sisor rhabdophorus*, *Oreichthys* spp., *Erethistes* spp., *Badis assamensis*, *Chaca chaca, Polyacanthus* spp. etc., have already been available to the global market based on wild collection. Fishes of other genera including *Danio, Devario, Esomus, Nandus, Macrognathus, Pseudeutropius, Rasbora, Acanthocobitis* and *Tetraodon* has great export potential as well. Considering their increasing demand in the domestic as well as in the international market in recent times, sustainable exploitation of these resources would provide new avenues of employment besides a source of foreign exchange earnings for the region. The present communication highlights on different aspects of indigenous ornamental fishes available in the northeastern states of India including their market potentiality.

Key words: ***Indigenous ornamental fishes, northeastern states, trade potential***.

1. INTRODUCTION

The northeastern part of India, comprising of eight states viz., Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura and spreading over a territorial area of 2, 55,000 sq. km (lying between 21°50/ N and 29°50/ N latitude and 85°50/ E and 97°50/ E longitude) is gifted with a variety of freshwater habitats. The entire region is mainly drained by the twin river systems- the Brahmaputra - Barak and the Irrawati-Chindwin. Besides the rivers, wetlands in the floodplains (locally called as *beels*) and the stony bed hill streams in the uplands are the other major aquatic habitats unique to this region. All these habitats exist in a variety of biotopes (so do their biotic and abiotic components) and are found to sustain a very rich and diverse aquatic gene pool and forms a part of North Eastern Himalayan global hotspot of freshwater fish biodiversity [1]. Recent ichthyological exploration and documentation of this part of the country showed 296 species of fishes belonging to 110 genera under 35 families [2], which accounts for about 33.2% of total Indian freshwater fishes. Most of the indigenous and endemic fish species available in this region is highly potential for the purpose of aquarium rearing for one or the other quality they possess. Although this region has rich natural endowments and vast potentiality, very few reports are available [3],

[4], [5], [6], [7], [8], [9], [10] pertaining to different aspects of indigenous ornamental fishes which are vital inputs for better scientific management and utilization of the said resources. Moreover, several workers pointed severe depletion in the natural fish population of the region due to wanton destruction of habitat, unsustainable mode of exploitation and other stresses [11], [12], [13]. Through the present communication, an attempt has been made to give an overview of ornamental fisheries of the northeastern states of India and their trade potential.

2: MATERIALS AND METHODS

2.1: Study area

The present investigation was carried out in the eight northeastern states viz., Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. The entire region under study is highly variable as far as the topographic and climatic conditions are concerned and give rise to diverse geo-ecological zones at different altitudes. Physiographically, 2/3rd of the region is mainly represented by hilly terrain while the remaining valley area is dominated by floodplains of the Brahmaputra, Barak and their tributaries. The region enjoys a tropical monsoonal climate, receiving an annual range of rainfall from 1637 to 6317 mm, around 80% occurs during monsoon (May-October). The average monthly temperature of the region ranged between 12ºC and 32°C, which varies from sub-zero in the upper Arunachal Pradesh to 38°C in the plains of Assam and Tripura. Relative humidity found to be remained more than 85% for most part of the year.

2.2: Selection criteria of 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 collected to assess their potentiality for ornamental purpose. Basic parameters considered for the assessment were- a) Adult size and hardiness, b) attractiveness (colouration pattern, body morphology, etc.), c) ability to thriving in confined environment with supplementary food, d) endemicity, e) behavioural and environmental compatibility with other species.

2.3: Collection and identification of ornamental fishes

All the major lentic and lotic habitats of the study area were surveyed for 3 consecutive years (January 2013 - December 2015) for species inventorization. Fishing nets of various mesh sizes and indigenous fishing gears were employed for collection of fishes from different states of area under study.

Fish specimens were identified following standard literature [14], [15], [16], [17], [18].

Similarly, trade potential of a particular ornamental fish species made on the basis of attributes such as attractiveness, adult size, compatibility (behavioural as well as environmental) and specific requirements in confinement (i.e. cost effective rearing with minimum supervision). The ornamental fishes have been divided into four categories as excellent, high, moderate and poor.

3: RESULT AND DISCUSSION

During the present investigation, altogether 93 species of indigenous ornamental fishes belonging to 56 genera and 25 families have been recorded from this part of the country (Table-1). Among the families, Cyprinids as a group was the most dominant with 32 species followed by Bagridae and Cobitidae (8 spp. each), Channidae (6 spp.), Belontiidae (4 spp.), Siluridae, Sisoridae, Erethistidae, Mastacembelidae and Nandidae (3 spp. each). The rest of the families contribute one or two species each. Similarly, *Puntius* is found to be the most dominant genera with 8 species. Other important genera were *Channa* (6 spp.), *Mystus* (5 spp.), *Barilius* and *Polyacanthus* (4 spp. each), *Botia*, *Ompok* and *Erethistes* (3 spp. each) whereas other genera were represented by 1 or 2 species each.

State-wise distribution of the recorded ornamental fish fauna is given in Table-1. It showed that the state of Assam is represented by highest number of species (87 spp.) followed by Arunachal Pradesh (77 spp.), Meghalaya and Manipur (69 spp.), Tripura (67 spp.), Nagaland (28 spp.), Mizoram (23 spp.) and Sikkim with 13 species.

Species such as *Chitala, Notopterus*, *Gudusia, Esomus, Botia rostrata, Canthophrys, Rita, Hemibagrus, Chaca, Nandus, Rhinomugil, Sicamugil, Channa barca, etc.* were mainly encountered in the floodplains of the mighty Brahmaputra and its tributaries. They were not recorded from other states surveyed which are

mostly dominated by hilly areas. Again, *Garra, Amblyceps, Olyra*, etc. were found to inhabit the hill streams of Arunachal Pradesh, Manipur, Meghalaya and Nagaland.

Ostreobrama belangeri, *Puntius manipurensis* and *Synchrossus berdmorei* are endemic to Manipur whereas *Mystus dibrugarensis*, *Badis assamensis* and *Channa aurentimaculata* available in upper Assam only. Similarly, *Amblyceps apangi* and *A. arunachalensis* are found to be endemic to another northeastern state of Arunachal Pradesh [19]. Other species such as *Aspidoparia, Barilius*, *Danio, Acanthocobitis, Lepidocephalichthys, Gagata, Mastacembelus, Pseudambassis*, etc. are found to be more or less widely distributed in the region.

The potentiality of the recorded fish fauna as ornamental one is also given in Table-1. *Notopterus, Amblypharyngodon, Danio, Devario, Esomus, Oreichthys, Parluciosoma, Rasbora, Botia, Lepidocephalichthys, Chaca, Macrognathus, Mastacembelus, Chanda, Pseudambassis, Badis, Polyacanthus, Channa, Tetraodon* are categorized as the excellent category of ornamental fishes available in this region. On the other hand, *Gudusia, Barilius, Chela, Ostreobrama, Puntius, Salmophasia, Acanthocobitis, Mystus, Ompok, Ailia, Pseudeutropius, Gagata, Sisor, Erethistes, Xenentedon, Nandus, Rhinomugil, Sicamugil, Glossogobius, Anabas*, etc. are rated to have high ornamental values. Species with moderate ornamental value include the genera such as *Chitala, Cirrhinus, Aspidoparia, Garra, Megarasbora, Psilorhynchus, Balitora, Batasio, Hemibagrus, Rita, Glyptothorax, Olyra* and *Microphis* whereas the genera *Amblyceps* are found to be poor as far as their ornamental value is concerned.

The northeastern states represent a mosaic of varying lotic and lentic habitats. Most of the fish species resident to these habitats possesses high aesthetic values due to their attractive colouration pattern, graceful behaviour, peculiar body morphology and endemicity. All these species are well acclaimed to live in highly variable regime of water current, depth, temperature, and dissolved oxygen besides, adapted to explore all types of substrates. Especially the shallow weed infested *beels* of the Brahmaputra and the Barak valley and low-altitudinal hill streams in the adjoining hilly states offers a variety of microhabitats for many colourful fish species and can be considered as goldmines for indigenous ornamental fishes (Das and Biswas, 2005). The most notable among the wetland ornamental fishes include tiny colourful weed fishes and air-breathing species like gouramies (*Polyacanthus* spp.), murrels (*Channa* spp.), *Rasbora, Esomus, Chaca, Badis, Nandus, Notopterus*, etc. [20]. On the other hand, *Garra, Psilorhynchus, Erethistes, Olyra, Sisor*, etc. are most promising hill stream ornamental fishes. However, except a few, most of the hill stream fishes either very rare in their availability or do not survive in standard aquarium condition. Fishes belonging to the genera such as *Botia, Channa, Polyacanthus, Esomus, Parluciosoma, Danio* and *Devario* are the most important ornamental fishes enjoying fair demand in the industry due to their unique colouration pattern whereas *Sisor, Chaca, Nandus, Tetraodon, Canthophrys*, etc. attract the aquarists for their uncommon body morphology. Similarly, *Puntius manipurensis, P. gelius, P. shalynius, Channa aurantimaculata, C. barca, Badis assamensis, Oreichthys sp., Ostreobrama belangeri, Mystus dibrugarensis, Amblyceps apangi* and *A. arunachalensis* are among the most prominent ornamental fishes endemic to NE India.

Based on trade potentiality, the fish species belonging to the genera *Notopterus, Amblypharyngodon, Danio, Devario, Esomus, Oreichthys, Parluciosoma, Rasbora, Botia, Lepidocephalichthys, Chaca, Macrognathus, Mastacembelus, Chanda, Pseudambassis, Badis, Polyacanthus, Channa, Tetraodon* are included in the excellent category of ornamental fishes available in this region. Except *Notopterus*, all other species are attractive for their beautiful colourations. Moreover, *Amblypharyngodon, Danio, Devario, Esomus, Oreichthys, Parluciosoma, Rasbora, Botia, Lepidocephalichthys, Macrognathus, Mastacembelus, Chanda, Pseudambassis, Badis, Polyacanthus* and *Tetraodon* are very much lively, non-aggressive and compatible in captivity. Further, their ideal size range make them highly suitable for rearing in an average sized home aquaria throughout their life span [10]. However, the ornamental value of the snakeheads (*Channa* spp.) considered to be limited to their early stages of life (up to 12 cm in length) only as the adult one is too large to maintain in aquaria besides, they are highly aggressive and predaceous in nature. On the other hand, *Gudusia, Barilius, Chela, Ostreobrama, Puntius, Salmophasia, Acanthocobitis, Mystus, Ompok, Ailia, Pseudeutropius, Gagata, Sisor, Erethistes, Xenentedon, Nandus, Rhinomugil, Sicamugil, Glossogobius, Anabas*, etc. are rated to have high ornamental values. Being native to typical lentic systems, some of them (such as *Sisor, Erethistes, Ailia* and *Rhinomugil*) demands special attention during aquarium rearing particularly the concentration of dissolved oxygen [9]. In addition to it, most of the species are either carni-omnivores or absolutely carnivorous in their feeding habit and requires live food for captive rearing. Species with moderate ornamental value include the genera such as *Chitala, Cirrhinus, Aspidoparia, Garra, Megarasbora, Psilorhynchus, Balitora, Batasio, Hemibagrus, Rita, Glyptothorax, Olyra* and *Microphis*.

The trade of ornamental fishes has acquired a prominent place in the industrial map, paying rich dividends in several countries for the past several years but it is of comparatively recent to this part of the globe. The

northeastern states of India have immense capacity to develop profitable trade based on its native ornamental fishes. A good number of them are adorning the aquaria world over and keeping in view of the growing demand in overseas market, others can also be promoted for the same. The NE India, particularly the Brahmaputra basin has been recognized as a major centre for wild caught of freshwater ornamental fishes in South East Asia as the species available to the market from this region are basically collected from natural waters. Farm production of the indigenous species would not possible so far primarily due to lack of adequate knowledge on their breeding requirement and behaviour. With a few exceptions, most of the fishes of this category are often termed as "trash fishes" and mostly ignored by the local mass. Moreover, their inclusion in conventional or commercial farming is not encouraged due to one or the other reason.

The present state of ornamental fisheries in this region is considered to be very poor considering its rich natural endowments and vast potentiality. Till now much headway has not been made in this sector of commercial fishery. Presently, these resources are exploited in an unorganized way by some unscrupulous traders operating from outside the region. Few private commercial farms, mainly confined to certain pockets of urban localities have been operating in the region for sometime now. Their trade usually based on collection of certain target species like *Botia* spp., *Polyacanthus* spp., *Channa* spp, etc. from wild waters and exported to the Far East and European countries. This mode of exploitation would no doubt contribute largely to the depletion of natural stock of the aforesaid resources in the long run. Lack of awareness and ignorance among rural masses, deficiency of infrastructure, apathy and inadequate policies of the concerned authority have been identified as major hurdles in the way of development of this highly promising sector of commercial fisheries.

Both the natural fish population and their habitats throughout the northeastern states under constant threat mainly due to steady increase in human interventions on aquatic resources in recent times. Wanton destruction of natural habitat and unsustainable mode of exploitation have been recognized as the root causes of depletion [20], [21]. Many of the riverine and colourful wetland species once been common and widespread is rarely encountered at present. *Ostreobrama belangeri*, an endemic species to Manipur, is declared to be extinct in the wild. Similarly, *Botia berdmorei, Ompok pabda, O. bimaculatus, Pseudeutropius atherinoides, Sisor rhabdophorus*, etc. have been listed in endangered category [22] whereas *Puntius conchonius*, *Garra gotyla*, *Mystus vittatus, M. bleekeri, Ailia coila, Channa orientalis*, etc. have been placed in vulnerable category.

4. CONCLUSION

Considering the tremendous prospects that this region have, it is the high time to make an integrated effort involving all stakeholders starting from fisher folk to top-level policy makers/planners for the promotion of this sector of fisheries in a sustainable way. Following measures have been suggested for sustainable utilization of these potential and untapped resources to boost development of the economically backward region of the country-

- Launching of mass awareness programme among rural masses and other stake holders pertaining to sustainable use of the highly potential and untapped resources.
- Development of a comprehensive database including feeding, breeding and environmental requirements of each potential species on a priority basis.
- To evolve suitable farming technologies (including controlled breeding and seed production, mass production of live food and artificial feed) for commercial important native ornamental species.
- Provision for better extension support in terms of technology, finance and marketing to the needy fisher folks by the concerned authority, particularly for the unemployed youth and women in order motivate them to taking up this lucrative venture.
- Strict enforcement of relevant Fisheries and Environmental laws and Acts in order to augmentation of resource sustainability and to check unauthorized wild collection of targeted species.
- Development of culture-based fisheries in the *beels* in co-operative basis through pen culture or cage culture.
- Establishment of surveillance system at the earliest for regular monitoring of the health of aquatic systems of the region, more especially in relation to pesticide pollution in the valley region.

5: REFERENCES

1. Kottelat, M. & Whitten, T. (1996). Freshwater biodiversity in Asia with special reference to fish. World Bank Technical Paper No. 343, The World Bank, Washington, DC, 17-22.
2. Vishwanath, W., Lakra, W.S. & Sarkar, U.K. (2007). *Fishes of North East India-An Atlas*. NBFGR publication, NBFGR, Lucknow, 295 pp.
3. Pandey, A.K., Boruah, A. & Biswas, S.P. (1998). On the ornamental fish fauna in the Brahmaputra drainage system. *India J. Fish.* 45(1): 95-97.
4. Dutta, O.K. (2000). Ornamental ichthyofauna of Assam. In: A. G. Ponniah and U. K. Sharma (Editors), Fish Biodiversity of North East India, NBFGR, NATP Publ.2, 115-117.
5. Sen, N. (2000). Occurrence, distribution and status of diversified fish fauna of northeastern India. NBFGR-NATP Publication No. 2: 31-38.
6. Mahapatra, B.K., Vinod, K. & Mandal, B.K. (2004). Ornamental Fish of North Eastern India-Its Distribution and Conservation Status. *Environment & Ecology*, 22 (3): 674-683.
7. Mahapatra, B.K., Vinod, K. & Mandal, B.K (2005). Export Potentiality of Native ornamental Fish from North Eastern Hill States of India with a Note for Development of such Fisheries. *Environment & Ecology*, 23 (4): 780-786.
8. Sharma, S., Bhattacharjya, B.K., Zaidi, S.G.S. & Landge, A.T. (2004). Indigenous ornamental fish biodiversity of central Brahmaputra valley zone, Assam. *J. Inland Fish. Soc. India*, 36 (1): 29-35.
9. Biswas, S.P., Das, J.N., Sarkar, U.K. & Lakra, W.S. (2007). *Ornamental Fishes of North East India: An Atlas*. NBFGR publication, NBFGR, Lucknow, 111pp.
10. Das, J.N. (2007). Current Status, Distribution and Ecology of Ornamental Fish diversity of Upper Brahmaputra Basin. *Ph. D. Thesis* (unpublished), Dibrugarh University, Assam, India, 238 pp.
11. Biswas, S.P., Boruah, A. & Boruah, S. (2000-01). Conservation status of Fish resources in the Brahmaputra Basin. *Tropical Zoology*, Vol. 2 & 3: 125-131.
12. Sarkar, U.K. & Ponniah, A.G. (2000). Evaluation of North East Indian fishes for Their Potential as Cultivable, Sport and Ornamental Fishes along with Their Conservation and Endemic Status. In: *Fish biodiversity of North East India* (Eds A.G. Ponniah and U.K. Sarkar), NBFGR-NATP Publ. 2, 11-30.
13. Das, J.N., Biswas, S.P. and Saikia, T. (2006). Degradation of riverine and wetland habitats in Upper Assam and their restoration. *Sustain Fish* (Eds B.M. Kurup and K. Ravindran), School of Industrial Fisheries, Cochin University of Science and Technology, Cochin, 528-535 pp.
14. Nelson, J. S. (1994): *Fishes of the World*. John Wiley & Sons Inc., New York, 600 pp.
15. Talwar, P.K. & Jhingran, A.G., (1991). Inland Fishes of India and adjacent countries. Oxford-IBH Publ. Ltd., New Delhi, Vol. I & II, 1158 pp.
16. Vishwanath, W. (2007). *Fishes of North East India-A Field Guide to Species Identification*. NATP-NBFGR publication, Lucknow, 195 pp.
17. Kullander, S.O. & Britz, R. (2002). Revision of the family Badidae (Teleostei: Perciformes), with description of a new genus and ten new species. *Ichthyological Exploration Freshwaters*, 3 (4): 295-372.
18. Thomson, A.W. & Page, L.M. (2006). Genera of the Asian Catfish families of Sisoridae and Erethistidae (Teleostei: Siluriformes). *Zootaxa* 1345:1-96.
19. Nath, P. & Dey, S.C. (1997). *Fish and Fisheries of North East India*, Vol. I (Arunachal Pradesh). Narendra Publishing House, New Delhi, 140 pp.
20. Das, J.N. & Biswas, S.P. (2005). Present status, Diversity and Habitat Ecology of Ornamental Fishes in the Floodplain Lakes Of upper Assam. *Bull. Life Sci.*, 11: 32-40.
21. Das, J.N. & Biswas, S.P. (2006). Diversity of Indigenous Ornamental Fishes in the Rivers of Upper Assam. In: *Proc. Nat. Sem. on Biodiversity Conservation and Future Concern*. NEBA, Gauhati University, Guwahati, 76-83.
22. CAMP (1998). Report on the workshop on Conservation Assessment and Management Plans (CAMP) for Freshwater Fishes of India, organized by Zoo outreach and NBFGR, 21-26 September, 1997, 156pp.

Table-1: A checklist of ornamental fish species of NE India showing state-wise distribution and trade potentiality

Fish species (state of occurrence)	Ornamental potentiality
Family: Notopteridae	
Chitala chitala (Hamilton- Buchanan) (1, 2, 8)	Moderate*
Notopterus notopterus (Pallas) (1, 2, 3, 4, 8)	Excellent
Family: Clupeidae	
Gudusia chapra (Hamilton-Buchanan) (1, 2, 3, 4, 8)	High
Family: Cyprinidae	
Amblypharyngodon mola (Hamilton-Buchanan) (1, 2, 3, 4, 8)	Excellent
Aspidoparia jaya (Hamilton-Buchanan) (1, 2, 4, 5, 8)	Moderate
A. morar (Hamilton-Buchanan) (1, 2, 4, 5, 8)	Moderate
Barilius barila (Hamilton-Buchanan) (1, 2, 3, 4, 6, 8)	High
B. barna (Hamilton-Buchanan) (1, 2, 3, 4, 5, 7, 8)	Moderate
B. bendelisis (Hamilton-Buchanan) (1, 2, 3, 4, 5, 6, 7, 8)	High
B. tileo (Hamilton-Buchanan) (1, 2, 3, 4, 8)	Moderate
Chela cachius (Hamilton-Buchanan) (1, 2, 3, 4, 8)	High
Chela laubuca (Hamilton-Buchanan) (1, 2, 3, 4, 8)	High
Cirrhinus reba (Hamilton-Buchanan) (1, 2, 3, 4, 5, 8)	Moderate
Danio dangila (Hamilton-Buchanan) (1, 2, 3, 4, 5, 6, 8)	Excellent
D. rerio (Hamilton-Buchanan) (1, 2, 5, 7 8)	Excellent
Devario aequipinnatus (McClelland) (1, 2, 3, 4, 6)	Excellent
D. devario (Hamilton-Buchanan) (1, 2, 3, 4, 8)	Excellent
Esomus danricus (Hamilton-Buchanan) (1, 2, 3, 4, 8)	Excellent
Garra gotyla gotyla (Gray) (1, 2, 3, 4, 5, 6, 7, 8)	Moderate
Megarasbora (Bengana) elanga (Hamilton-Buchanan) (1, 2, 3, 8)	Moderate
Oreichthys cosuatis (Hamilton-Buchanan) (1, 2, 3)	High
Oreichthys sp (2)	Excellent
Osteobrama belangeri (Valenciennes) (4)	High
O. cotio cotio (Hamilton-Buchanan) (1, 2, 3, 4, 8)	High
Parluciosoma daniconius (Hamilton-Buchanan) (1, 2, 3, 4, 8)	Excellent
Puntius chola (Hamilton-Buchanan) (1, 2, 3, 4, 8)	High
P. conchonius (Hamilton-Buchanan) (1, 2, 3, 4, 5, 6, 8)	High
P. gelius (Hamilton- Buchanan) (2, 4, 8)	Moderate
P. manipurensis Menon, Rema & Vishwanath (4)	Moderate
P. shalynius Yazdani & Talukdar (1, 2, 3, 4)	Moderate
P. sophore (Hamilton-Buchanan) (1, 2, 3, 4, 5, 8)	High
P. ticto (Hamilton-Buchanan) (1, 2, 3, 4, 5, 6, 8)	High
Raiamas bola (Hamilton-Buchanan) (1, 2)	High
Rasbora rasbora Hamilton (1, 2, 3, 4, 6, 8)	Excellent
Salmophasia bacaila (Hamilton-Buchanan) (1, 2, 3, 4, 8)	High
Family: Psilorhynchidae	
Psilorhynchus balitora (Hamilton) ((1, 2, 3, 4, 5, 6, 8)	Moderate
Family: Cobitidae	
Acanthocobitis botia (Hamilton-Buchanan) (1, 2, 3, 4, 6, 8)	High
Botia dario (Hamilton) (1, 2, 3, 4, 5, 6, 8)	Excellent
B. histrionica Blyth (3, 4)	Excellent
B. rostrata (Gunther) (1, 2, 4, 8)	Excellent
Canthophrys (Somileptes) gongota (Hamilton) (1, 2, 3, 8)	High
Lepidocephalichthys berdmorei (Blyth) (1, 2, 3, 4, 6)	Excellent
L. guntea (Hamilton) (1, 2, 3, 4, 5, 6, 7, 8)	Excellent
Syncrossus berdmorei Blyth (4)	Moderate
Family: Balitoridae	
Balitora brucei (Gray) (1, 2, 3, 4)	Moderate

Family: Bagridae		
Batasio tengana (Hamilton-Buchanan) (1, 2, 3, 4)		Moderate
Hemibagrus menoda (Hamilton-Buchanan)	(2)	Moderate*
Mystus bleekeri (Day) (1, 2, 3, 4, 6, 7, 8)		High
M. cavasius (Hamilton-Buchanan) (1, 2, 3, 4, 8)		High
M. dibrugarensis (Chaudhuri) (2)		High
M. tengara (Hamilton-Buchanan) (2)		High
M. vittatus (Bloch)	((1, 2, 3, 4, 8)	High
Rita rita (Hamilton-Buchanan) ((1, 2, 4, 8)		Moderate*
Family: Siluridae		
Ompok bimaculatus (Bloch)	(1, 2, 3, 4, 6, 8)	High
O. pabda (Hamilton) (1, 2, 3, 4, 8)		High
O. pabo (Hamilton)	(1, 2, 3, 4)	Moderate
Family: Schilbeidae		
Ailia coila (Hamilton) (1, 2, 3, 8)		High
Pseudeutropius atherinoides (Bloch) (1, 2, 3, 8)		High
Family: Amblycipitidae		
Amblyceps apangi Nath & Day (1)		Poor
A. arunachalensis Nath & Day (1)		Poor
Family: Sisoridae		
Gagata cenia (Hamilton-Buchanan)	(1, 2, 3, 4, 5, 6, 8)	High
Glyptothorax telchitta (Hamilton)	(1, 2, 3, 5, 8)	Moderate
Sisor rhabdophorus Hamilton-Buchanan (1, 2, 4)		High
Family: Erethistidae		
Erethistes hara (Hamilton-Buchanan) ((1, 2, 3, 4, 6, 8)		High
E. jerdoni (Day) (1, 2)		High
E. pussilus Muller & Troschel (1, 2, 4, 6, 8)		High
Family: Chacidae		
Chaca chaca (Hamilton-Buchanan)	(2, 3, 8)	Excellent
Family: Olyridae		
Olyra longicaudata McClelland (1, 2, 3, 6)		Moderate
Family: Belonidae		
Xenentedon cancila (Hamilton-Buchanan) (	(1, 2, 3, 4, 5, 8)	High
Family: Mastacembelidae		
Macrognathus aral (Bloch) (1, 2, 3, 4, 6, 8)		Excellent
M. pancalus (Hamilton-Buchanan)	(1, 2, 3, 4, 6, 8)	Excellent
Mastacembelus armatus (Lacepede)	(1, 2, 3, 4, 5, 6, 8)	Excellent*
Family: Syngnathitidae		
Microphis deocata (Hamilton-Buchanan) (1,2)		Moderate
Family: Ambassidae		
Chanda nama Hamilton-Buchanan	((1, 2, 3, 4, 8)	Excellent
Pseudambassis baculis (Hamilton-Buchanan) (1, 2, 3, 4, 5, 8)		Excellent
Family: Nandidae		
Badis assamensis Ahl (2)		Excellent
B. badis (Hamilton-Buchanan) (1, 2, 3, 4, 5, 6, 8)		Excellent
Nandus nandus (Hamilton-Buchanan) (1, 2, 3, 4, 8)		High
Family: Mugilidae		
Rhinomugil corsula (Hamilton-Buchanan)	(2, 3, 8)	High
Sicamugil cascasia (Hamilton-Buchanan)	(2, 3, 4, 8)	High
Family: Gobiidae		
Glossogobius giuris (Hamilton-Buchanan)	((1, 2, 3, 4, 5, 8)	High
Family: Anabantidae		
Anabas testudineus (Bloch)	(1, 2, 3, 4, 8)	High
Family: Belontiidae		
Polyacanthus fasciatus (Schneider)	(1, 2, 3, 4, 8)	Excellent
P. labiosus (Hamilton-Buchanan)	(1, 2, 4)	Excellent
P. lalia (Hamilton-Buchanan) (1, 2, 5, 6)		Excellent

P. sota (Hamilton-Buchanan) ((1, 2, 3, 4, 6, 8)		Excellent
Family: Channidae		
Channa aurentimaculata Musikasinthorn (2)		Excellent*
C. barca (Hamilton-Buchanan) (2, 3, 8)		Excellent*
C. gachua Bloch & Schneider ((1, 2, 3, 4, 5, 6, 8)		Excellent
C. marulius (Hamilton-Buchanan)	(1, 2, 3, 4, 8)	Excellent*
C. puncatata (Bloch) (1, 2, 3, 4, 6, 8)		Excellent
C. striata (Bloch)	(1, 2, 3, 4, 6, 8)	Excellent*
Family: Tetraodontidae		
Tetraodon cutcutia (Hamilton-Buchanan)	(1, 2, 3, 4, 8)	Excellent

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*- Only the fingerling stage should be considered for aquarium rearing. The adult size of these species is too large to maintain in home aquarium. Moreover, in adult stage, most of them are highly carnivorous and predaceous.

State:

1- Arunachal Pradesh	2- Assam	3- Meghalaya	4- Manipur
5- Mizoram	6- Nagaland	7- Sikkim	8- Tripura