

<http://dx.doi.org/10.14798/73.1.792>

CODEN RIBAEG ISSN 1330-061X (print),  
1848-0586 (online)

## THREATENED FISHES OF THE WORLD: *Mystus gulio* (Hamilton, 1822) (Siluriformes: Bagridae)

Md. Yeamin Hossain<sup>1\*</sup>, Rafiqul Islam<sup>1</sup>, Md. Alomgir Hossen<sup>1</sup>, Obaidur Rahman<sup>1</sup>, Md. Akhtar Hossain<sup>1</sup>, Md. Ariful Islam<sup>2</sup>, Md. Jahangir Alam<sup>3</sup>

<sup>1</sup>Department of Fisheries, Faculty of Agriculture, University of Rajshahi, Rajshahi 6205, Bangladesh

<sup>2</sup>Bangladesh Fisheries Research Institute, Brackish Water station, Bagerhat 9300, Bangladesh

<sup>3</sup>Faculty of Fisheries, Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur 1760, Bangladesh

\* Corresponding Author, E-mail: yeamin.fish@ru.ac.bd

### ARTICLE INFO

Received: 24 August 2014

Received in revised form: 3 February 2015

Accepted: 4 February 2015

Available online: 9 February 2015

### ABSTRACT

Long whiskers catfish *Mystus gulio* is a commercially important food fish in Asian countries. But natural population is decreasing due to over-exploitation and various ecological changes in its natural habitats. This paper suggests the steps for the conservation of the remnant isolated population of *M. gulio* in Asian countries.

### Keywords:

*Mystus gulio*

Long whiskers catfish

Threatened

Food fish

Asia

### How to Cite

Hossain, M. Y., Islam, R., Hossen, M. A., Rahman, O., Hossain, M. A., Islam, M. A., Alam, M. J. (2015): Threatened fishes of the world: *Mystus gulio* (Hamilton, 1822) (Siluriformes: Bagridae). Croatian Journal of Fisheries, 73, 43-45. DOI: 10.14798/73.1.792

### COMMON NAME

Nuna-tengra in Bangladesh (Rahman, 1989), Kala-tengra in India (Daniels, 2002), Long-whiskered catfish in Sri Lanka (Pethiyagoda, 1991) and Nga-zin in Myanmar (Khin, 1948).

### CONSERVATION STATUS

Data deficient in Bangladesh (IUCN Bangladesh, 2000) and low risk in the Western Ghats, India (Dahanukar et al., 2004).

### IMPORTANCE

*M. gulio* (Fig. 1) is commonly used as a food fish and has occasionally been caught and exported as an ornamental fish (Ng, 2010). It is an important target species for small-

scale fishermen and artisanal fisheries who use a variety of traditional fishing gears (Begum et al., 2008; Ravindra and Thilina, 2010; Ng, 2010). This small indigenous fish (SIS) contains high nutritional value in terms of protein, micronutrients, vitamins and minerals which are not usually found in other foods making it a very favorable candidate for aquaculture in southeast Asia (Ross et al., 2003).



**Fig 1.** *Mystus gulio* sample and photo were taken by the author (Md. Ariful Islam) from the Bhoirab River, Bagerhat, southern Bangladesh, on 15 August 2014.

## IDENTIFICATION

Body is elongated and compressed with a rough and granulated upper surface. Head is depressed. There are four pairs of barbels and maxillary one extends to the end of pelvic fin. Adipose fin is small and caudal fin is forked. D. 1/7; P1. 1/8-9; P2. 6; A.12-15 (Rahman, 1989).

## DISTRIBUTION

*M. gulio* is found in south and southeast Asian countries including Bangladesh, India, Myanmar, Pakistan, Sri Lanka, Indonesia, Malaysia, Singapore, Thailand and Viet Nam (Ng, 2010).

## ABUNDANCE

This species was previously abundant in its natural water bodies but populations are decreasing (Ng, 2010). In the world's largest mangrove (Sundarbans: Ganges-Brahmaputra estuary), the mean reduction of the catch of this species was found to be 33.6% for the period of 1960-2000 (Patra et al., 2005). In addition, the mean reduction of the catch was reported as 27.8% in the southwestern Bengal during 1960-2000 (Mishra et al., 2009).

## HABITAT AND ECOLOGY

This species inhabits estuaries, tidal rivers and lakes, ascending to freshwater, often entering the sea (Talwar and Jhingran, 1991). Its food mainly consists of crustaceans and insects (Pandian, 1968).

## REPRODUCTION

Spawning season varied from March to November (Sarker et al., 2002). The absolute fecundity varied from 11,436 (10 cm TL fish) to 23,481 (22 cm TL fish) in Bangladesh (Sarker et al., 2002).

## THREATS

The abundance of this fish has been reducing gradually due to the increase of fishing pressure and various ecological changes (Alam, 2006).

## CONSERVATION ACTION

Several studies on the biology and ecology of the species have been performed (Pandean, 1968; Sarker et al., 2002; Haniffa, 2009). Controlled breeding and seed production of *M. gulio* has been successfully developed in the Brackish-water Station of Bangladesh Fisheries Research Institute, Bangladesh (Alam, 2006).

## CONSERVATION RECOMMENDATIONS

Assessment and population surveys of this species are urgently needed to establish the status of the wild stocks in terms of abundance and distribution, as well as ecological requirements for the successful proliferation of the species (Hossain and Alam, 2015). Establishment of suitable sanctuaries in selected areas of rivers, streams, canals, reservoirs, lakes and swampland is recommended. Identification of the causal factors to the decline of the species and necessary measures should be taken to conserve its preferred habitats (Hossain et al., 2008; 2009; 2015a). Fishing practices should be banned during spawning season in India and in the peak spawning season in Bangladesh (Hossain, 2014; 2015b). The conservation status of *M. gulio* should be improved through effective habitat protection and restoration as well as by increasing public awareness.

### Sažetak

## UGROŽENE VRSTE RIBA U SVIJETU: *Mystus gulio* (Hamilton, 1822) (Siluriformes: Bagridae)

Som dugih brkova, *Mystus gulio*, je komercijalno važna riba u azijskim zemljama. Ipak, opadaju prirodne populacije zbog pretjeranog iskorištavanja i raznih ekoloških promjena u njihovim prirodnim staništima. U radu se predlažu koraci za očuvanje ostatka izolirane populacije *M. gulio* u azijskim zemljama.

**Ključne riječi:** *Mystus gulio*, som dugih brkova, ugrožena vrsta, hrana, Azija

## REFERENCES

- Alam M. J. (2006): BFRI Scientists Succeeded to Breed a Brackishwater Catfish, *Mystus gulio* in Captivity. In Fisheries Newsletter, edited by Mazid, M. A. Published by Bangladesh Fisheries Research Institute 14 (1), 1. (June 2006. ISSN 1023-9448).
- Begum, M., Alam, M. J., Islam, M. A., Pal, H. K. (2008): On the food and feeding habit of an estuarine catfish (*Mystus gulio*) in the south-west coast of Bangladesh. Journal of Zoology, Rajshahi University, 27, 91-94.
- Dahanukar, N., Raut, R., Bhat, A. (2004): Distribution, endemism and threat status of freshwater fishes in the Western Ghats of India. Journal of Biogeography, 31, 123-136.
- Daniels, R. J. R. (2002): Freshwater fishes of Peninsular India. Madhav Gadgil (ed) India-A lifescape 2. Universities Press, Hyderabad. 288 p.
- Haniffa, M. A. (2009): Native cat fish culture - a technology package for fish farmers. Aquaculture Asia, 14, 22-24.

- Hossain, M. Y. (2014): Threatened fishes of the world: *Mystus vittatus* (Bloch, 1794) (Siluriformes: Bagridae). Croatian Journal of Fisheries, 72, 183-185.
- Hossain, M. Y., Alam, M. J. (2015): Threatened fishes of the world: *Plotosus canius* (Hamilton, 1822) (Siluriformes: Plotosidae). Croatian Journal of Fisheries, 73, 35-36
- Hossain, M. Y., Ahmed, Z. F., Al-Kady, M. A. H., Ibrahim, A. H. M., Ohtomi, J., Fulanda, B. (2008): Threatened Fishes of the World: *Wallago attu* (Bloch, M. E. and Schneider, J. G. (1801) (Siluriformes: Bagridae). Environmental Biology of Fishes, 82, 277-278.
- Hossain, M. Y., Hossain, M. A., Islam, R., Hossen, M. A., Rahman, O., Rahman, M. M. (2015a): Threatened fishes of the world: *Pethia ticto* (Hamilton, 1822) (Cypriniformes: Cyprinidae). Croatian Journal of Fisheries, 73, 37-39
- Hossain, M. Y., Islam, R., Hossain, M. A., Hossen, M. A., Rahman, M. M., Ohtomi, J. (2015b): Threatened fishes of the world: *Cirrhinus reba* (Hamilton 1822) (Cypriniformes: Cyprinidae). Croatian Journal of Fisheries, 73, 40-42
- Hossain, M. Y., Rahman, M. M. Mollah, M. F. A. (2009): Threatened fishes of the world: *Pangasius pangasius* Hamilton-Buchanan, 1822 (Pangasiidae). Environmental Biology of Fishes, 84, 315-316.
- IUCN Bangladesh. (2000): Red Book of Threatened Fishes of Bangladesh. IUCN-The World Conservation Union, 116 pp.
- Khin, U. (1948): Fisheries in Burma. Gov't. Printing, Rangoon. 180 p.
- Mishra, S. S., Acharjee, S. K., Chakraborty, S. K. (2009): Development of tools for assessing conservation categories of siluroid fishes of fresh water and brackish water wetlands of South West Bengal, India. Environmental Biology of Fishes, 84, 395-407.
- Ng, H. H. (2010): *Mystus gulio*. The IUCN Red List of Threatened Species. Version 2014.2. <www.iucnredlist.org>. Downloaded on 10 June 2014.
- Pandian, T. J. (1968): Feeding habits of the fish *Megalops cyprinoides* in the Cooum backwaters, Madras. Journal of the Bombay Natural History Society, 65, 569-580.
- Patra, M. K., Acharjee, S. K., Chakraborty, S. K. (2005): Conservation categories of siluroid fishes in North-East Sundarbans, India. Biodiversity and Conservation, 14, 1863-1876.
- Pethiyagoda, R. (1991): Freshwater fishes of Sri Lanka. The Wildlife Heritage Trust of Sri Lanka, Colombo. 362 p.
- Rahman, A. K. A. (1989): Freshwater fishes of Bangladesh. Zoological Society of Bangladesh. Department of Zoology, University of Dhaka, Dhaka 1000, 364 p.
- Ravindra, J., Thilina, S. (2010): General ecology and habitat selectivity of fresh water fishes of the Rawan Oya, Kandy, Sri Lanka. Sabaragamuwa University Journal, 9, 11-43.
- Ross, N., Islam, M., Thilsted, S. H. (2003): Small indigenous fish species in Bangladesh: Contribution to vitamin A, calcium and iron intakes. Journal of Nutrition, 133, 4021-4026.
- Sarker, P. K., Pal, H. K., Rahman M. M., Rahman, M. M. (2002): Observation on the Fecundity and Gonado-Somatic Index of *Mystus gulio* in Brackish-waters of Bangladesh. Journal of Biological Sciences, 2, 235-237.
- Talwar, P. K., Jhingran, A. G. (1991): Inland Fishes of India and Adjacent Countries, vol. 2. A. A. Balkema, Rotterdam. 541p.