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ORIGINAL RESEARCH ARTICLE

New Report of the Species, *Hyporhamphus xanthopterus* (Val.) in Udupi District of Karnataka, India

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ABSTRACT

Hyporhamphus xanthopterus (Valenciennes) a half beak hitherto belonging to the family Belonidae has so far been reported in the Vembanad Lake, Vellayani Lake, Ashtamudi estuary in southern Kerala. This species is considered endemic to the Kerala region, has been reported from rivers Sita and Swarna of Udupi district of Karnataka, India. This paper extends the geographical range of this species farther south of Kerala to the western parts of Karnataka. The study was conducted in rivers Sita, Swarna and Varahi of the Udupi District of Karnataka. Specimens of this species were found in upstream, downstream as well as midstream reaches of the rivers Sita and Swarna. Due to the importance of *Hyporhamphus xanthopterus* as a food and ornamental fish, it embodies the problems that must be resolved for sustainable management.

Key Words: *Hyporhamphus xanthopterus*, Belonidae, Sita, Swarna, Udupi.

INTRODUCTION

The red tipped half beak hitherto *Hyporhamphus xanthopterus* belonging to the family Belonidae, has so far been reported in the Vembanad lake (Collette 1981) and Vellayani lake, Ashtamudi estuary in southern Kerala of the Western Ghats (Nair *et al.*,1983). *Hyporhamphus xanthopterus* was originally described by Valenciennes in 1847 from freshwaters of Alleppey (now Alappuzha), southeastern India. It was rediscovered by Kurup and Samuel (1980) and Collette (1981) from Vembanad Lake in Kerala. *Hyporhamphus xanthopterus* is restricted to 1-3 lakes in Kerala, depending on the season. Its estimated area of occupancy is no more than 5 km^2 and its extent of occurrence is 15km^2. *Hyporhamphus xanthopterus* is endemic to the lakes of southern Kerala, Western Ghats of India. Collette (1981) has suggested that the records of this species outside of Kerala are based on wrong identification. The species is known from Vembanad lake (Kurup and Samuel (1980), Ashtamudi lake (Nair *et al.*, 1983) and Vellayani lake ((Nair *et al.*, 1983) from southern India. (Nair *et al.*, 1983) have mentioned that the lakes on the coast of Kerala are seasonally flooded and joined to each other. Thus it is possible that the species is present in other lakes and estuaries of Kerala coast as well.

Fig 2: ***Hyporhamphus xanthopterus***

MATERIALS AND METHODS

Fish sampling was conducted in the 7 study sites of each Sita, Swarna and Varahi rivers of the Western Ghats, Udupi district during the period of September 2007 to September 2012. Udupi district is lies between 13° 04' to 15° 59' N and 74° 35' to 75° 12' E. Fish collections have been

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made using methods that employ gill nets, cast nets and drag nets with the help of local fisherman. The fish species status was determined as follows. Percentage was calculated based on abundance, distribution/ area of occurrence and threat scores. Ranking was calculated for all the categories. In case of ranking, species abundance and distribution/ area of occurrence were considered and the maximum ranking was given for minimum percentage and minimum ranking was given for maximum percentage. For threat categories, the maximum ranking was given for maximum threats and the minimum ranking was given for minimum threats. A sum was made for all the ranking scores and this was arranged in descending order. Based on the total score, current species status is determined (maximum score maximum threats and the minimum score least threats).

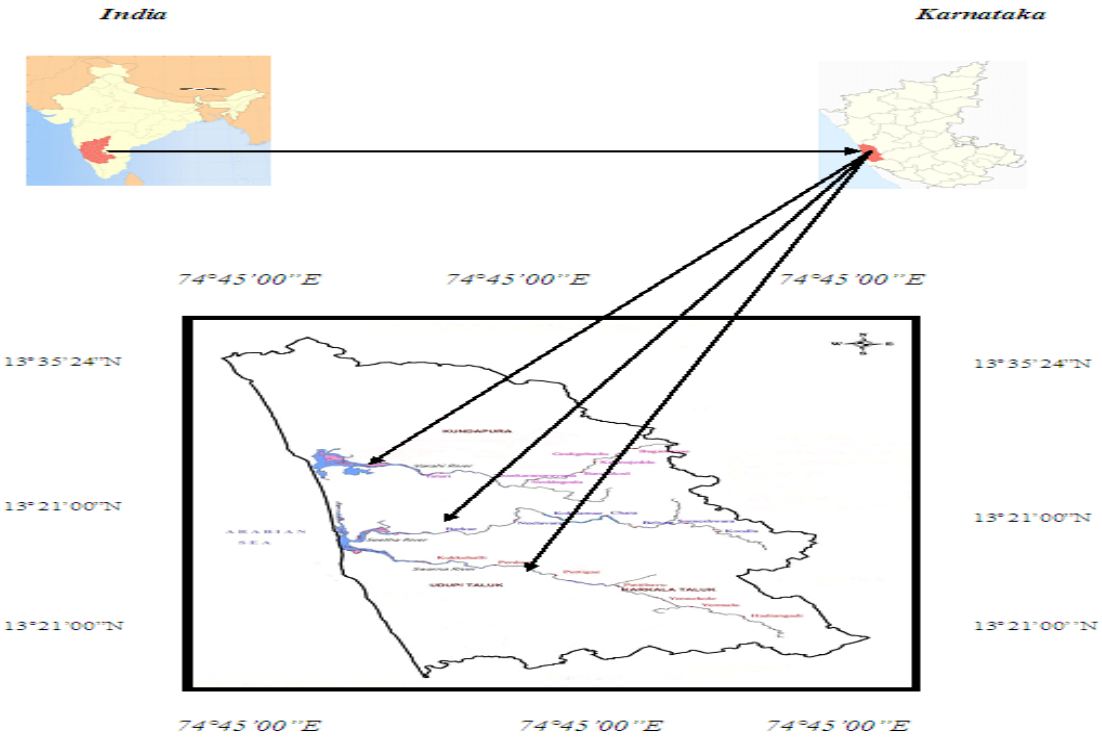

Figure 1. Location of the study area, Udupi District, Karnataka.

RESULTS

During our sampling, 9 fresh specimens of *Hyporhamphus xanthopterus* has been collected at the rivers Sita and Swarna, of which only one specimen is collected from river Sita and remaining 8 from river Swarna and there was no specimens were recorded from the river Varahi. Out of 21 study sites, we recorded *Hyporhamphus xanthopterus* only in 6 sites, of which one site from river Sita and 5 sites from river Swarna. Major number of specimens collected from the upstream and midstream. The collections were made using gill nets and cast nets. The first collections were made in September 2007. We first recorded the presence of the species in the river Sita at Neelavara (13° 27' 38.95" N and 74° 49' 53.04" E and altitude of approx. 75m. above M.S.L.). The habitat at this site consists of smooth flowing runs, pools and the riparian vegetation here is mostly composed of Areca and Coconut plantation, trees like *Mangifera indica* and Cashew. Later, in September 2008 (one specimen), 2009 (2 specimens), 2010(2 specimens), 2011 and 2012 we collected the specimens from river Swarna. We first recorded the presence of the species in the river Swarna at Hadiangadi (13° 12' 35.49" N and 75° 06' 23.10" E and altitude of approx. 68m. above M.S.L.). Riparian vegetation at this site is with thick evergreen forests consisting of species of *Terminalia*, *Eugenia hyneana*, *Callophyllum* spp., etc. Year wise specimen sampling are given in the (**Table 1**) and some of the morphometric details of the specimens are given in the (**Table 2**).

Table 1: Year wise specimen sampling from the rivers Sita, Swarna and Varahi of Udupi District, Karnataka, India

				River Sita			
S. No	**Study Site**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
1	Koodlu	x	x	x	x	x	x
2	Someshwara	x	x	x	x	x	x
3	Belvae	x	x	x	x	x	x
4	Chara	x	x	x	x	x	x
5	Kokkarnae	x	x	x	x	x	x
6	Neelavara	1	x	x	x	x	x
7	Barkur	x	x	x	x	x	x
				River Swarna			
1	Hadiangadi	x	1	x	x	1	x
2	Yermalu	x	x	x	x	x	x
3	Yennehole	x	x	1	1	x	x
4	Pattibavu	x	x	x	x	1	x
5	Puttigae	x	x	1	x	x	1
6	Perdoor	x	x	x	x	x	x
7	Kukkehalli.	x	x	x	1	x	x
				River Varahi			
1	Bagimanae	x	x	x	x	x	x
2	Godigebailu	x	x	x	x	x	x
3	Kalinajeddu	x	x	x	x	x	x
4	Bandukod	x	x	x	x	x	x
5	Neddagodu	x	x	x	x	x	x
6	Shankaranarayana	x	x	x	x	x	x
7	Talari	x	x	x	x	x	x

Table 2: Important Morphometric details of the 9 specimens of *Hyporhamphus xanthopterus* collected from the rivers Sita, Swarna of Udupi District, Karnataka, India

S. No	**SL(cm)**	**Weight(g)**	**UJL(cm)**	**LJL(cm)**	**Gill Raker Counts**	
					First Arch	**Second Arch**
1	13.9	23.57	0.51	3.19	48	50
2	13.5	22.88	0.48	3.09	38	41
3	12.9	21.86	0.46	2.96	49	51
4	13.1	22.20	0.47	3.01	37	40
5	12.8	21.70	0.46	2.93	49	51
6	14.1	23.90	0.50	3.23	38	42
7	13.8	23.39	0.49	3.16	48	51
8	13.6	23.05	0.48	3.12	38	41
9	12.1	20.51	0.43	2.77	45	48

Standard Length (SL) – From the tip of upper jaw to caudal base
Upper Jaw Length (UJL) – From the angle of mouth to tip of upper jaw
Lower Jaw Length (LJL) – From the angle of mouth to tip of beak

DISCUSSION

Hyporhamphus xanthopterus is considered to be vulnerable (Shaji, 2011) species has been collected only in the southern Kerala region. But in our study we considered this species as endangered and are reported only in 6 sites from 21 study sites (**Table 3**). This report on the presence of *Hyporhamphus xanthopterus* in Udupi District is important since it extends the presently known geographical range of the species from Kerala to Udupi District. Though it has not yet been reported from the other districts of Karnataka. Our findings suggest the possible occurrence of the species in all along the hill streams of the Western Ghats part of Dakshina Kannada and Uttara Kannada districts. Our findings also reveal that *Hyporhamphus xanthopterus* is marketed live and supports a local fishery during the rainy season. Our study reveals that overexploitation, habitat alteration and related anthropogenic pressures on their natural habitats have considerably reduced populations of this species by 60-70% during the last few years. Due to the importance of *Hyporhamphus xanthopterus* as a food and ornamental fish, it embodies the problems that must be resolved for sustainable management.

Table 3: Status of *Hyporhamphus xanthopterus* in the Rivers - Sita, Swarna and Varahi based on species abundance, distribution and threat scores

S. No	**Distribution Score**			**Abundance Score**			**% Score of Threat**	**Rank**	**Total Score**	**Current Status**	**IUCN Status**
	Distribution	**Occurrence (%)**	**Rank**	**Abundance**	**Relative Density**	**Rank**					
1	6	28.57	0.5000	9	0.22	0.4688	70.00	0.8484	1.8172	EN	VU

EN- Endangered; VU- Vulnerable

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