

RECORD OF NEW LOCALITIES AND A NATURAL SANCTUARY FOR *HORAICHTHYS SETNAI* KULKARNI (PISCES : BELONIFORMES : ADRIANICHTHYIDAE) FROM KERALA

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INTRODUCTION

Horaichthys setnai Kulkarni (subfamily : Horaichthyinae), generally known as Thready Killifish, is the smallest known fish in India. The fish, hardly 3 cm long, is an estuarine form, also living temporarily in freshwater, inhabiting the quiet rocky corners and creeks of backwaters (Talwar and Jhingran, 1991). Kulkarni (1940) described this fish from the backwaters and tanks along the West Coast (type locality : Navalaki, Kathiawar coast), about 160 Km north and south of Bombay, Maharashtra. The fish is very characteristic with its body thin, translucent and elongate; dorsal fin small, near caudal fin; anal fin elongate; right pelvic fin absent in females; maxilla absent *etc.* Unlike all other indigenous fishes in the country, the fish is unique in its distinct sexual dimorphism : in adult male, the anterior part (the first six rays) of anal fin is separated off and modified into an independent gonopodium for transferring spermatophores upto the genital aperture of female during courtship. This fish is the only atherinomorph (the series Atherinomorpha comprising of the orders Beloniformes, Atheriniformes and Cyprinodontiformes) to produce spermatophores or encapsulated sperm bundles (Grier, 1984).

H. setnai, frequently found in the puddles and pools of stagnant brackish waters, swims in swarms near surface of water, mostly in midst of aquatic plants (Jayaram, 1999). Job (1940) reported this species from the shallow inlets, within tidal influence, of the coastal backwaters of Cochin and Trivandrum (localities : Cheranellore and Manummel). As a larvicidal surface feeder, destroying the early instars of mosquitoes and other insects, *H. setnai* is considered to be a 'valuable adjunct' to the other major larvivores like *A. lineatus* and *A. panchax* (Job, *op. cit.*).

Job (*op. cit.*), Hubbs (1941) and Silas (1959) reported the presumable distribution of this fish along the West Coast of India, from near the Gulf of Kutch (Gujarat) to Trivandrum (Kerala) near the southern tip of the west coast. The extension of its range of distribution to Narmada and Tapi Rivers was later confirmed by Karamchandani and Pandit (1971). By collecting the specimens from Narmada river at Jhanor located as far inland as 64 Km from the sea, and from the freshwater

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sites of Tapti River at Kathor and Bodhan, both located far interior from the sea, they also observed the tendency of the fish to ascend the rivers to the freshwater zones, even against the fast current during monsoon-season floods, or feeble current in summer months. Kulkarni (*op. cit.*) while reporting this species from Mahad in Kolaba district (Maharashtra) remarked about this fish as being a hardy species capable of withstanding a wide range of salinity.

As regards the distribution of this species along the Kerala coast, its occurrence is reportedly so far confined to the coastal backwaters of the southern part of the state, notably Cochin, Valiathura and Trivandrum coastal areas (Job, *op. cit.*; Silas, *op. cit.*). The present record deals with the detection of new localities, including a natural sanctuary of *H. setnai*, supported with the collection of a good number of specimens, 14–20 mm TL, from the coastal brackish waters of the west flowing Kuppam and Peruvamba Rivers in the northern part of Kerala, South India.

A sample-collection of ichthyofauna made, during August 2001, from the paddy floodplains of Ezhome village (lat. 12°15' N and long. 75°16' E) in the coastal plains of Kannur District in northern Kerala, was observed to contain the specimens of *H. setnai* (Fig. 1). Subsequent faunal explorations of the mangrove-growing wetlands as well as the paddy-cultivable flood plains in and around the 'Ezhome' village, associated with the Kuppam River in the coastal plains of the district revealed the sporadic occurrence of *H. setnai*.

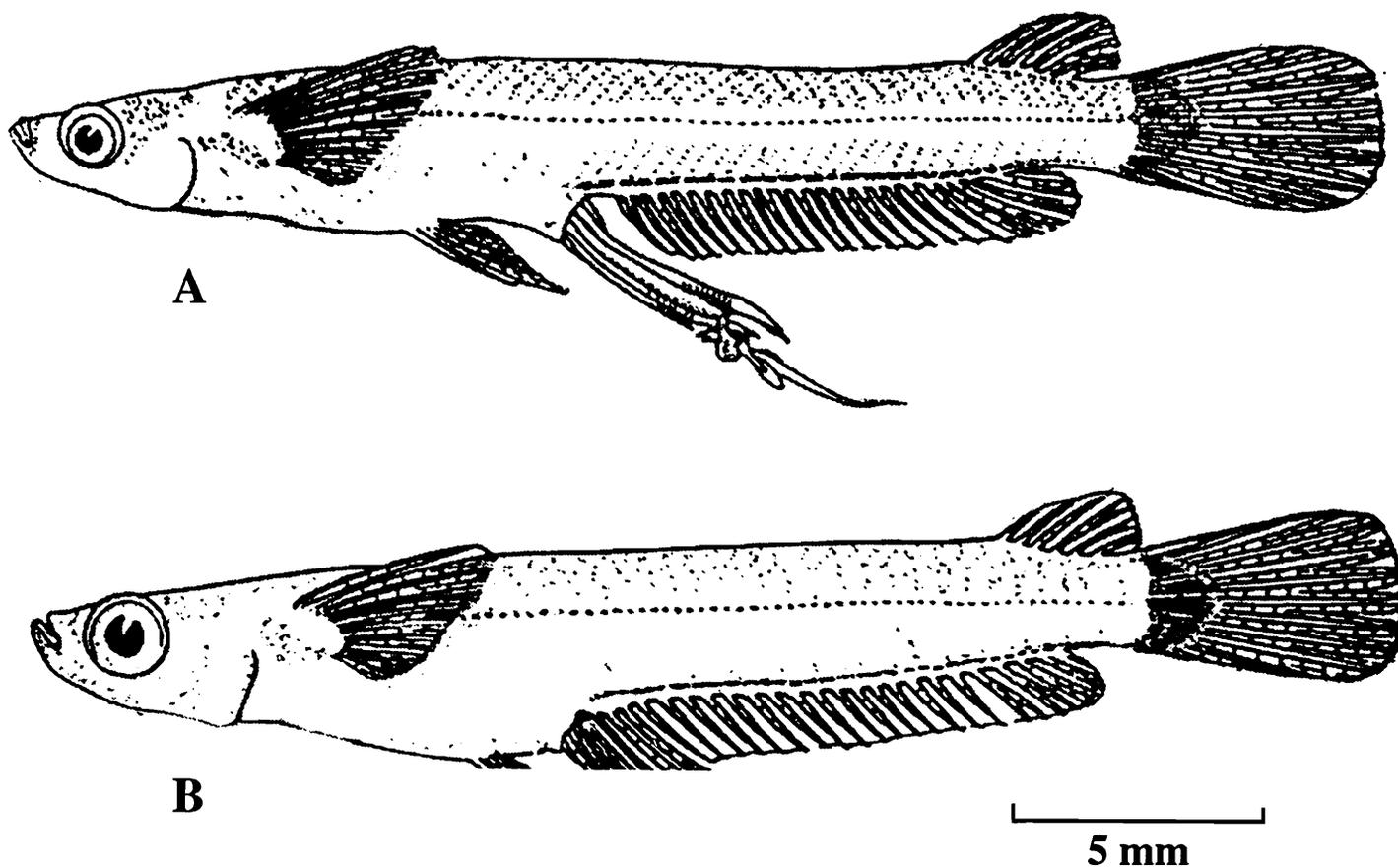


Fig. 1. *Horaichthys setnai* Kulkarni. A. Male; B. Female.

The floodplains which remains almost in close proximity to the broad channel of Kuppam River is a fertile ground for the so-called 'pokkali' or wet season paddy cultivation in the plains during the period from June to September. The floodplains during this period also becomes an ideal breeding ground for a variety of aquatic faunal communities, since the area is lying close to the highly productive, mangrove-rich marsh-wetland zone associated with the river channel. The season-based collection-surveys in the areas revealed the occurrence of the species in abundance during the monsoon months, June–August, when maximum inflow of freshwater reached the floodplains. Periodic collections also corroborated the salinity tolerance of the species, with the salinity levels recorded ranging from as low as nearly 1‰ of the floodplain waters during June–July of peak monsoon period, to as high as 33‰ of the estuarine waters, during April–May of summer.

A notable observation made during the wetland-cum-mangrove survey was the detection of a habitat site, serving as a natural sanctuary, of this fish species in a small island namely 'Thekkumbad' (lat. 11°57' N and long. 75°20' E) located in the estuarine waters of Kuppam River. A small patch of mangroves, predominated with the species like *Aegiceras corniculatum*, *Bruguiera cylindrica*, etc., forming an integral part of a sacred grove of this small island was explored, during December, 2002, for the collection of aquatic faunal samples. This mangrove patch growing on a mudflat extension of the island which remains continually inundated with shallow brackish waters in the tidal influence, was found to be an ideal habitat wherein the population of *H. setnai* could easily thrive camouflaging themselves in the reclusive shades, amidst the mangroves. While using plankton nets in the shallow waters, amidst the mangroves, a good number of specimens of *H. setnai* could be collected. Further, this mangrove cum sacred grove falls in the precinct of a religious deity of the island inhabiting people and, therefore, remains protected without any human interference.

A small stretch of paddy cultivable land separates the protected mangrove-cum-sacred-grove patch and the homestead dwelling area of the islanders. The paddy field becomes flood plains during the wet-season period during which the ground is prepared for the one-time cultivation of the paddy crop. The islanders mistakenly considering the Thready Killifish as fish fry revealed that the population of *H. setnani* perpetually thrived in the shallow waters amidst the sacred mangrove patch, and also added that during the seasonal flooding of the areas during monsoon period, the population of this tiny fish used to be ubiquitously present in the adjoining paddy floodplains too. Once the season is over, they again recede to the reclusive aquatic habitat areas, especially the mangrove growing brackish waters. As revealed by them, the survey party could not detect the fish in the stagnant water pools in the crop-harvested paddy field at the time of survey, whereas small populations of this fish species were observed in the shallow waters amidst the mangroves forming the sacred grove.

Sporadic occurrence of small populations of this species was also observed on the surface of calm brackish waters in the creeks and corners of the mangrove-system associated with the Peruvamba River, at the locality Kunhimangalam, in the coastal plains of the Kannur District, northern Kerala, South India.

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