

**First distributional record of the giraffe seahorse, *Hippocampus camelopardalis* Bianconi 1854 (Family: Syngnathidae) from Gulf of Kachchh waters, North west coast of India.**

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*Hippocampus camelopardalis* was described based on the occurrence of a single specimen obtained from Mithapur reef region from the Gulf of Kachchh Marine National Park region, Gujarat. The discovery of this seahorse is considered as new record based on the review of earlier literature from Indian waters. The observed species is currently reported to occur from South African waters and present study infers its distributional range to Arabian Sea (Indian west coast). The observed specimen shows similarity to other seahorse species like *H.trimaculatus* and *H.whitei* based on the occurrence of three spots on its body and snout length respectively.

[ **Key words** : seahorse, seadragons, species, reef, Gulf of Kachchh, fishes]

## **Introduction**

Seahorses are bony fishes (Teleosts) belonging to the family Syngnathidae<sup>1</sup>, which includes fishes like pipefishes, pipehorses and seadragons<sup>2</sup>. Systematic of the family syngnathidae has been a difficult task because of paucity of specimens and legal issues related to collection of these fishes. Primary taxonomic groupings within this family were made with reference to the location and development of the male brood pouch, head/body axis, development of the caudal fin, and prehensile ability of the tail<sup>3-5</sup>. Historically, names of around 110–120 seahorse species exists in literature and museum collections, but many of these appeared to be compromised by misidentify, synonymy, and even misspelling on labels<sup>6-7</sup>. Recent taxonomic revisions of seahorses have seen dwindling in the number of species described<sup>8</sup>. It has been reported that around 70 seahorse species exists world wide<sup>5</sup>, whilst recent publication recognizes

around 48 seahorse species once synonyms have been reconciled<sup>8</sup> at this point, it is very difficult to arrive at a conclusion pertinent to global scenario on seahorse diversity since research on seahorse is only in nascent stage, so it has to go a long way in assessing the status of the same despite the efforts taken by project seahorse focusing mainly on south Asian countries (hub point for seahorse collection)<sup>8</sup>.

Survey undertaken in Indian waters revealed high seahorse diversity with eight described species viz., *Hippocampus trimaculatus*, *H. kelloggi*, *H. kuda*, *H. spinosissimus*, *H. mohnikei*, *H. histrix*, *H. fuscus* and *H. borboniensis*<sup>9-13</sup>. In recent years the occurrence of new seahorse species under the so called name “pigmy seahorses”<sup>6</sup> has been reported by various reseachers<sup>1,5,7</sup>. Presently described species takes the species tally from eight to nine with regard to Indian context and efforts to identify the actual diversity of seahorses need to be strengthened. Constrain with regard to identification of seahorse is mainly due to the lack of morphological characters that fish taxonomists traditionally relay to distinguish species<sup>6</sup>.

These unusual fishes are affected by overexploitation, incidental capture by non-selective fishing methods and degradation of their habitats<sup>14-16</sup>. They make their home as habitat like corals, seagrasses, macroalgae, mangroves, estuaries, lagoons and open bottom habitats<sup>17-18</sup>, which is mainly to avoid predators by exhibiting the camouflage behavior, to exhibit the ambush mode of feeding behavior and breeding<sup>1</sup>. Syngnathid fishes are important in ecological, economical, medicinal and cultural terms, whereas its existence has been a question due to its biology and its mode of utilization in Traditional Chinese Medicine (TCM)<sup>8</sup>. In Indian context seahorses are made use for curing asthma and skin ailments, aquarium trade as well in curios<sup>12</sup>.

In Indian scenario, studies on the taxonomy, distribution and monitoring of incidental catch of this group are very limited. However, syngnathid fishes are placed in Wildlife Protection Act, 1972 under Schedule – I from 2001 without knowing its fishery, biology and population structure<sup>11-12</sup>. In the wake of this, the first research project (Biology of Seahorses) was sanctioned by Government of India (Ministry of Earth Science) during 2000 to 2003, subsequently another project titled “captive breeding and searanching of seahorses” was sanctioned by Ministry of Environment and Forest during 2002 to 2005<sup>12,19</sup>. It is clear that listing of this species under schedule – I of the Wildlife Protection Act was mainly done without any scientific inputs and it might have been enforced based on the export data from Marine Product Export Development Authority (MPEDA), Ministry of Commerce, Govt. of India<sup>12-14</sup>. At present researchers who are

involved in this line especially biodiversity of by – catch fishes and underwater divers who engaged in coral reef and seagrass monitoring report on the distribution and taxonomy of seahorses.

## Materials and Methods

Methods for counts and measurements follow the standard protocol<sup>1</sup>. Specimen for this study was collected from the Gill net from Mithapur reef waters (Fig. 1) on 15-05-2011. Length of the specimen is given as Standard Length (Tip of the snout to tip of the tail)<sup>1</sup>. Measurements were made to the nearest 0.1 mm using dial calipers. Comparison of morphometric and meristic characters was made based on the earlier literature.

## Results and Discussion

The description of the seahorse was made based on the observation of a single specimen which was caught in a demersal gill net (mesh size: 20mm) at Mithapur reef (22°55'859" N; 69°59'892" E) at a depth of 2.2m. Morphometric and meristic characters were examined and the same was compared with earlier observations (Table 1 and 2). As per the earlier description, this species shares characters similar to *H. trimaculatus* with presence of 3 dark spots on the 1<sup>st</sup>, 3<sup>rd</sup> and 7<sup>th</sup> trunk ring, while in the present species which was caught in the net, had no spots on the trunk ring as well as on the coronet, instead small black rounded spots were observed all along the trunk region.

From Indian waters, description of species like *H. mohinikei* and *H. hystrix* were made based on the occurrence of single specimen that to from incidental catch in a demersal gill net and bottom trawl nets. No pilot studies have been undertaken to assess the diversity of seahorses on a long term basis hitherto from Indian waters, however only sporadic studies have been made<sup>19-23</sup>, whereas researchers evinced interest on captive breeding and rearing trials for this unique creature<sup>24-33</sup>.

The giraffe seahorse, *H. camelopardalis* is a new distributional record to Indian waters, whereas it's occurrence was reported earlier along the Red sea and Western Indian Ocean viz., South Africa (False Bay), Mozambique (Inhaca and Delagoa Bay) and Tanzania (Zanzibar)<sup>1</sup>. The present species was caught from the Western Indian Ocean (Gujarat waters); this species might have drifted along with the current pattern which is high in the west coast (Arabian sea) when

compared to east coast (Bay of Bengal) of India<sup>34-35</sup>. Therefore, to confirm the nativity of the described species underwater studies and repeated survey in fishing gears are needed to know the mystery behind the distribution of this seahorse.

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Figure

Fig.1: Map of Mithapur showing the coastal areas in which the seahorse was caught

Fig.2: Photograph of *Hippocampus camelopardalis* collected from Mithapur reef region

**Table. 1: Morphometric character of the observed specimen (*H. camelopardalis*)**

<b>Morphometric Character</b>	<b>Length (in mm)</b>
Standard Length (SL)	99
Height (HT)	87
Tail Length (TaL)	55
Trunk Length (TrL)	26
Coronet Height (CH)	8
Head Length (HL)	16
Snout Length (SnL)	8
Head Depth (HD)	7
Snout Depth (SnD)	3
Trunk Depth at 9 <sup>th</sup> and 10 <sup>th</sup> ring (TD9)	8
Trunk Depth at 4 <sup>th</sup> and 5 <sup>th</sup> ring (TD4)	6
Spine Width (SpW)	5
Trunk Width (TW)	4
Dorsal Fin Base Length (DL)	10
Pectoral Fin Base length (PL)	4
Dorsal Fin Height (DH)	4
Pectoral Fin Height(PH)	3

**Table. 2: Comparison of meristic character between the previous and present work on *H. camelopardalis***

<b>Meristic characters</b>	<b>Lourie <i>et al.</i> ( 1999)</b>	<b>Present study</b>
No. of Trunk rings	11	11
No. of Tail rings	38	38
Pectoral fin rays	17-18	17
Dorsal fin rays	19-22	20