

**Record and distribution of puffer fish, *Takifugu oblongus* (Bloch, 1786)
(Actinopterygii: Tetraodontidae) from Tapi River, Gujarat.**

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ABSTRACT

Takifugu oblongus (Bloch, 1786) (Actinopterygii: Tetraodontidae), is a puffer fish found in shallow coastal waters has a native distribution in entire Indo-West Pacific region (Froese and Pauly, 2014). This species is observed in shallow coastal ecosystems such as estuaries, mangroves, coral reefs and sand and gravel sediments, including the soft bottom areas of inshore and offshore regions. *Takifugu oblongus* is one of the widely distributed species among the genus *Takifugu* but no report or publication has been made so far from the western coast of India. This paper reports the record of the fish from Magdalla along the course of Tapi River, Surat, Gujarat.

INTRODUCTION

Puffer fishes are oval shaped and possess spines all around their bodies with toxic glands beneath. They have the ability to inflate or expand their bodies with air or water when they feel threatened and are most commonly found in marine or brackish water habitats (Nelson, 1994; Shipp, 2003). This species is observed in shallow coastal ecosystems such as estuaries, mangroves, coral reefs and sand and gravel sediments, including the soft bottom areas of inshore and offshore regions. It invades areas from the shallow regions to deeper regions, with depths in the range of 10–100 m (Leis, 1984; Froese and Pauly, 2014). The family Tetraodontidae consists of 189 species in 28 genera (Oliveira *et al.*, 2006) comprising of one of the largest families of puffer fishes. The identification of the Tetraodontiformes is very difficult owing to their same characteristics nature and their biological study is still in the preliminary stages. Distributional data record at Southeast coast of India (Veeruraj, 2011) and toxicological profile at Bay of Bengal (Indumathi and Khora, 2017; Ghosh, 2004), and studies of heavy metal content and proximate analysis on puffer fishes (Karunanidhi, 2017) and from Gujarat studies has been conducted on marine carnivore feeding on *Takifugu oblongus* (Gadhavi *et al.*, 2013).

The, Lattice blaasop, *Takifugu oblongus* (Bloch, 1786) belongs to the family of Tetraodontinae (puffers) and has a wide distribution in the Indo and Western Pacific Ocean extending from South Africa to Indonesia, to the north to Japan and also south of Australia. The present study details the first record and description of *Takifugu oblongus* from Tapi River, Gujarat.

MATERIALS AND METHODS

Takifugu oblongus (Bloch, 1786), commonly called as puffer fish, a species belonging to the family Tetraodontinae was caught and recorded from Tapi River for the first time (21°08'43.42"N and 72°44'51.14"E) on 04.11.2017. Three samples were collected from a fisherman during regular surveys using a cast net of 10 mm from a place name Magdalla (Fig. 1), in Surat district which is situated at an elevation of 15 metres from the sea.

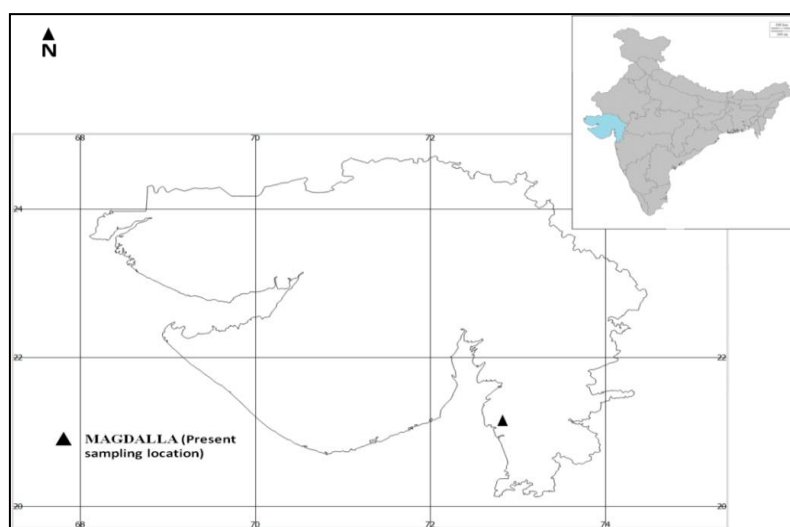


Fig 1. Map showing the area of catch of the *Takifugu oblongus* (Bloch, 1786)

The morphological and meristic characters of the specimen were recorded using Vernier Calliper and the identification of the species was confirmed using standard available keys like Day's Volume I and II (Day, 1888), Fishes of the World (Nelson, 1994) and also was verified using FAO and Leibniz Institute of Marine Science in Kiel, Germany managed website www.fishbase.org, a global species database of fishes (Froese and Pauly, 2017). On site photographic documentation was done for the specimen to record the actual colour and body patterns. The specimen has been well preserved in 10% formalin and deposited in the museum of division of Freshwater and Marine Biology, Department of Zoology, Faculty of Science, The Maharaja Sayajirao University of Baroda, Vadodara with the voucher number ZL-CH-OSH-027 for future reference.

RESULTS

The characters of the specimen are very identical with the general description of the species. Consisting of a cylindrical body, small and oval eyes head gently arched towards the short caudal peduncle, straight abdomen, maximum body width at the pectoral fins, it is having brownish in colour above with yellowish white below and narrow dark bars on sides. The small and terminal mouth is thick lipped,

protruding upper jaw, beak like teeth on the both the jaws. Nostrils are plate-like with two openings. The pelvic fins are absent and caudal fin is truncated. Like most of the puffer fishes, small spinules are present from nares to insertion of dorsal fin beginning from the lower jaw to the anus and also around the base of pectoral fin. Three darker transverse bands are present between pectoral fins and at dorsal fin base. White bands of irregular shape extend from lateral midline toward dorsum. The pectoral and caudal fins are yellowish in colour.



Fig. 2: *Takifugu oblongus*, 105 mm total length, caught from Tapi River, Gujarat

The morphological features of the studied specimen (Fig. 2) are as follows: Dorsal fin rays (D) – 12, Anal fin rays – 10, Caudal fin rays – 09, Pectoral fin rays – 12, Total length (TL) – 105 mm, Standard length (SL) – 85 mm, Head length (HL) – 25mm, Snout length (SNL) – 10 mm, Head width (HW) – 20 mm, Pectoral fin length (PFL) – 8mm. SL was 80.95% of TL, HL was 29.40% of SL, SNL was 11.76% of SL, PFL was 9.41% of SL and 32% of HL, HW was 23.53% of SL and 80% of HL.

DISCUSSION

In the present study, *Takifugu oblongus* was recorded from estuarine waters of Tapi River and its occurrence has been reported from the freshwater or tidal influenced zone of Gujarat for first time indicating a significant range extension of previously known distribution like Eastern and Southeast coast in the Indian subcontinent. *Takifugu oblongus* is one of the widely distributed species among the genus *Takifugu* but no report or publication has been made so far from the western coast of India. This species is exclusively a marine fish but the current distribution of the species in Magdalla, 7 kms inside from the mouth of Tapi River can be extrapolated to the fact of less outflow of fresh water in the rivers because of less rainfall and construction of artificial weirs or dams and larger inflow of brackish waters into the rivers might have brought on such a kind of distribution. It is very early to consider whether only extra limited individuals exploring a new area represent the present catch or whether there is a well-established population which might have remain undetected due to lack of ichthyological surveys and fishery expeditions. Further work is very much essential to determine the frequency of occurrence of the species and also to establish characteristics in order to resolve whether it has established a sustainable population in its new surroundings.

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Declaration of interest

There is no actual or potential conflict of interest including any financial, personal or other relationships with other people or organizations.

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