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BLACKSPOTTED CROAKER, *Protonibea diacanthus* (Lacepède, 1802): A NEW DIMENSION TO THE FISHING PATTERN IN WEST BENGAL, INDIA

Sachinandan Dutta[1*], Sandip Giri[1], Joystu Dutta[2], Sugata Hazra[1]

[1] School of Oceanographic Studies, Jadavpur University, 188, Raja S. C. Mullick Road, Kolkata 700 032, West Bengal, India
[2] Reliance Foundation, Navi Mumbai, Maharashtra 400701
* Corresponding Author: Sachinandan Dutta; E-mail: duttasachi@gmail.com

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ABSTRACT

Blackspotted Croaker (*Protonibea diacanthus*) is one of the most commercially important croakers which migrate along West Bengal coast during winter season. This paper deals with the importance of the species along with its market value and the cause of its popularity in West Bengal. This species is gaining prime importance among the fishermen due to the high market price of its swim bladder. The dried swim bladders are sold in local markets for Rs. 40,000-50,000 per kg. There is a risk factor involved as the fishermen do not get the catch at a time and, moreover, they often lose common pelagic fishes due to the usage of larger mesh nets. In spite of this risk, a shift from pelagic to demersal fishing across the northern Bay of Bengal marks an important emerging trend of winter fishing in this area.

INTRODUCTION

The fishes of the family Sciaenidae occupy a significant position among demersal fishery resources of India. There are 32 species belonging to 12 genera of the family Sciaenidae available in Indian waters (Manojkumar, 2007). Blackspotted Croaker (*Protonibea diacanthus*) is one of the most important species of the family Sciaenidae found in the Indo-West Pacific: west coast of the Persian Gulf and along the coasts of India and Sri Lanka. It is also found in the northern sea lying adjacent to Japan. Towards the south, it is found in the Philippines, Borneo, New Guinea and northern Australia (FishBase, 2013). Earlier, fishing of this species was not so popular in West Bengal (WB). However, Blackspotted Croaker has recently gained importance as a fishing species in WB. Jakhar et al. (2012) worked on extraction of fish gelatin from the skin of *P. diacanthus*. It was found that the extraction procedure for producing good quality gelatin was very efficient. Gelatin has good thermal denaturation values, color and proximate analysis. Mok et al. (2009) studied the sound characteristic of this species for the identification of its spawning sites. Phelan et al. (2008) performed a detailed survey of its management from a biological viewpoint in Northern Cape York Peninsula waters of Australia. *P. diacanthus* is an 'opportunistic predator'; it mainly feeds on a variety of teleosts and invertebrates (Phelan et al. 2008). Rao (1963) explained the details of Ghol (*P. diacanthus*) biology in his article.

The objective of this paper was to know more about Blackspotted Croaker and identify the causes of its popularity in West Bengal, along with its catch structure and market. The present study analyzes the economic significance of this species with its market values and uses.

MATERIALS AND METHODS

Study area

In West Bengal, *P. diacanthus* is usually landed at Fraserganj Fishing Harbour (21^0 34' 46.2" N, 88^0 15' 03.0" E), Kakdwip Fishing Harbour (21° 51' 56.80" N and 88° 10' 25.65" E), Namkhana (21^0 45' 39.32" N, 88^0 14' 15.37" E) (Fig 1.) of Sundarban and Digha (21° 37' 47.78" N and 87° 32' 35.19" E). The fishing in this estuarine region is carried out in the shallow waters of the Bay of Bengal up to 70 km from the coast. This area receives the perennial flow of nutrient rich freshwater from the Ganga-Meghna-Brahmaputra (GMB) basin which significantly lowers salinity of the coastal waters.

The studied species was caught by the gill net of 12 cm mesh size. The month wise total market and price data were collected from the markets of Sundarbans. The high catch zone is established from the catch data of fisherman and the geo-

Fig 1. Landing of *P. diacanthus* at Frasergunje Fishing Harbour

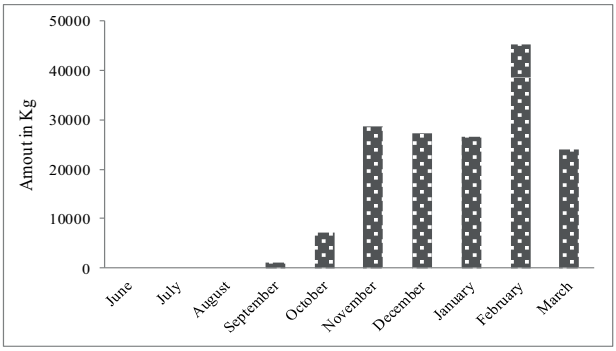

Fig 2. Market sale of *P. diacanthus* from Diamond Harbour fish market in the year 2011-12

graphical positions. Geographical positions of the high catch were recorded by using a Garmin GPS 152 receiver present in the fishing boat and plotted by using ERDAS IMAGINE 9.1 and ArcGIS 9. Identification of the species was done using the keys provided by Talwar and Kacker (1984).

RESULTS AND DISCUSSION

The average length of the caught fishes generally varies between 80-100 cm and the weight ranges up to 20-30 kg. Rao (1963) estimated the length of this species: males 30.0—102.5 cm, females 28.5—108.0 cm and juveniles 5.0—29.5 cm. The peak landing of *P. diacanthus* is noticed in February (Fig 2.) and the high catch zones are found to be restricted between 10-20 m bathymetry (Fig 3.) of the Sundarban estuary in the northern Bay of Bengal, where the mean salinity of the estuary to the offshore transition zone was 21.938±7.12 SD parts per thousand (ppt).

Recently, this fish has gained prime attention with the fishermen in Bengal. The air bladders of these fishes fetch a high market price owing to their excellent quality. Fishes with air bladders are sold in local markets for Rs 2000-3000/kg, depending upon the size. The air bladders are also sold separately. The dried air bladders are sold in local markets for Rs 40,000–50,000 per kg (Ghosh et al., 2009; Mohammed et al., 2009). The price of the air bladder from the male fish is higher than that of the female. However, the maximum price is fetched for the air bladders taken from the hermaphrodite fishes. These air bladders are then exported to the countries of north-east Asia, such as Hong Kong and Singapore, where they are used to prepare isinglass, a form of collagen used mainly for the clarification of wine and beer in beverage industry, traditional medicines and cosmetics for women. Blackspotted Croaker skin gelatin can be used in food applications to extend the gelatin market to religious groups which do not accept the porcine and bovine gelatin (Jakhar et al. 2012).

Owing to the high market price of *Tele Bhola* (*P. diacanthus*), the fishermen are getting more inclined to catch this particular species. The rate of this species is so high compared to others that even a single catch can turn out to be cost-effective. This fishing is becoming a profitable avenue as there can be one time sky-high return of investment. However, there are some associated risks. Though these fishes are found available in this zone, they are landed rarely and are not uniformly caught by fishermen at a time. Due to larger meshes, common pelagic fishes of winter escape the net and the fishermen may lose the gamble from both ends. Obviously, this fishing pattern may fail fishermen. However, a shift from entirely pelagic to demersal fishing in this Hooghly estuary, northern Bay of Bengal, continues marking an important emerging trend for the winter fishery of this area.

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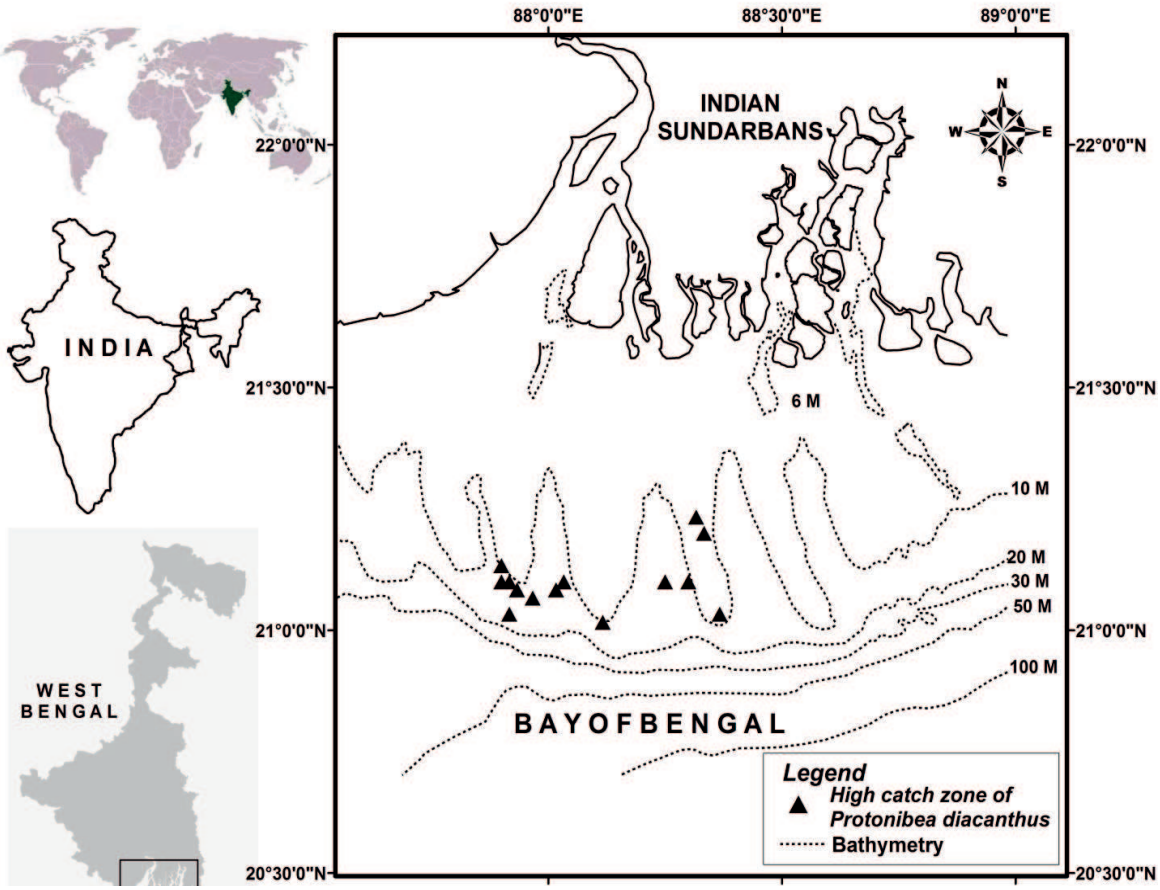

Fig 3. High catch zone of *P. diacanthus* in northern Bay of Bengal

Sažetak

Protonibea diacanthus (Lacepède, 1802): NOVA DIMENZIJA RIBOLOVA U ZAPADNOM BENGALU, INDIJA

Protonibea diacanthus jedna je od gospodarski najvažnijih vrsta ribe na obali zapadnog Bengala u posljednjih nekoliko godina. Provedeno istraživanje u ovom radu bavi se ispitivanjem tržišta i uzrocima popularnosti ove vrste u zapadnom Bengalu. Ova riba jako je važna za ribare zbog visoke tržišne cijene njezinog plivaćeg mjehura. Cijena osušenih plivaćih mjehura na lokalnim tržnicama iznosi 40 000 – 50 000 indijskih rupija po kilogramu. Međutim, postoji velik rizik jer nemaju svi ribari dobar ulov u određenom vremenskom periodu i k tome često gube uobičajene pelagične ribe zbog uporabe prevelikih mreža. Unatoč riziku, postoji pomak od pelagičkog ka pridnenom ribolovu na sjeveru Bengalskog zaljeva, što pridonosi razvitku trenda zimskog ribolova u tim krajevima.

Ključne riječi: Bengalski zaljev, pridneno ribarstvo, *Protonibea diacanthus*, Sundarban

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