

HUMPNOSE UNICORNFISH (*NASO TUBEROSUS* LACEPEDE, 1801) AND BLACKFRINGE BIGEYE (*PRISTIGENYS REFULGENS* VALENCIENNES, 1862): NEW RECORDS OF FISHES (TELEOST) FROM PAKISTAN

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ABSTRACT

Two perciform fishes humpnose unicornfish (*Naso tuberosus* Lacepede 1801) and blackfringe bigeye (*Pristigenys refulgens* Valenciennes 1862) were reported for the first time from the coast of Pakistan. Globally genus *Naso* Lacepede 1801 is represented by 20 species whereas in Pakistan 8 species were previously recorded and with the addition of this species, a total of 9 species of this genus is now known from the area. Bigeyes (Family: Priacanthidae) was represented by 8 species and with the addition of *P. refulgens* now 9 species are known from Pakistan. The paper also discusses the increase in the frequency of occurrence and abundance of some species of marine fish in Pakistan which can be attributed to ecosystem adjustment that has happened due to the over-exploitation of shrimp and some other coastal species.

Key-words: Family Acanthuridae, humpnose unicornfish, *Naso tuberosus*, and blackfringe bigeye, *Pristigenys refulgens*, ecosystem adjustment.

INTRODUCTION

Members of the family Acanthuridae from Pakistan were reviewed by Moazzam and Osmany (2018) and Moazzam *et al.* (2017). They reported 8 species of the genus *Naso* Lacepede, 1801 from Pakistan. No detailed study of bigeyes (Family Priacanthidae) has been undertaken so far, however, 8 species are known to occur in Pakistan.

During a recent survey, one specimen each of *Naso tuberosus* Lacepede 1801 and *Pristigenys refulgens* was collected from commercial catch at Karachi Fish Harbour which was not previously known from Pakistan. The present paper reports the occurrence of these two new records from Pakistan.

MATERIALS AND METHODS

A specimen of humpnose unicornfish and blackfringe bigeye were collected from Karachi Fish Harbour in October and November 2023 respectively. Humpnose unicornfish has a total length of 50.3 cm whereas blackfringe bigeye has a total length of 22.7 cm. The specimen was photographed and salient features and measurements were recorded, before, its preservation in 5 % neutralized formalin.

RESULTS AND DISCUSSION

The specimen of surgeonfish collected from Karachi Fish Harbour on October 29, 2023, was identified as *Naso tuberosus* based on its morphological characteristics. This species was originally described from Mauritius, Mascarenes, South-Western Indian Ocean by Lacepède (1801). Its holotype (MNHN A-7764) is housed in the Museum National d'Histoire Naturelle, Paris, France (Frickle *et al.*, 2024).

Naso tuberosus Lacepede 1801
(Fig. 1)

This species is commonly known as humpnose unicornfish which is reported for the first time from Pakistan. The dorsal profile of the body of adults is broadly curved, with poorly defined convexity beneath the spinous portion of the dorsal fin. It has a large bulbous protuberance at the front of the snout on the head, which does not extend beyond the mouth. The dorsal profile of the body is weakly convex underneath the spiny part of the dorsal fin. There are 2 plates on each side of the peduncle, each with a large keel and forward projecting point. The caudal fin is slightly emarginate in adults. Its head and body are dull light blue-grey with numerous dusky, brown or dark blue spots scattered over the rear of the head, upper body, pectoral, dorsal and caudal fins. Dorsal fin with a broad bluish-

white margin; pectoral fins greyish with broad pale translucent margin and scattered black spots slightly larger than those on the body, spots most distinct on the underside of the fin. Caudal fin with bluish-white margin broad dusky submarginal zone and numerous dusky spots similar in diameter to those on the body. The specimen collected from Pakistan has a length of 50.3 cm, however, specimens from the South-western Indian Ocean and other parts of the Indo-Pacific area can achieve a length of 60 cm.



Fig. 1. *Naso tuberosus* collected from Karachi Fish Harbour.

This species is known to be widely distributed in the Western Indian Ocean including from Mozambique to South Africa (Sodwana Bay), and East Africa to Seychelles, Madagascar, Saint Brandon's Shoals (Cargados Carajos), Mascarenes (La Réunion, Mauritius, Rodrigues) and extending east to the Maldives (Froese and Pauly, 2024; Frickle *et al.*, 2024; Heemstra, 2022; Randall, 2010). It was also reported from Guam (Kami, 1975) and Australia (Randall *et al.* 1990). The present paper extends its distribution to further north in the Arabian Sea to the coast of Pakistan.

Specimen Examined:

1 specimen collected from Karachi Fish Harbour on October 29, 2023 (50.3 cm TL).

The specimen of bigeye was collected from Karachi Fish Harbour on November 23, 2023, and was identified as *Pristigenys refulgens* (Valenciennes, 1862) based on its morphological characteristics. This species was originally described as *Myripristis refulgens* from the Réunion Island, western Mascarenes, southwestern Indian Ocean by Valenciennes (1862). Its holotype (MNHN 0000-2590) is housed in the Museum National d'Histoire Naturelle, Paris, France (Frickle *et al.*, 2024).

Pristigenys refulgens (Valenciennes 1862) (Fig. 2)

This species is commonly known as blackfringe bigeye. Its body is considerably deep; depth 1.9 to 2.1 in standard length whereas its head length is 2.4 to 2.6 in standard length and its eye diameter 1.9 to 2.1 in head length. Its dorsal fin has 10 spines and 10-12 rays whereas anal fin has 3 spines and 10 rays. Its pectoral fins have 18 or 19 rays. It has 23-26 gill rakers on the first arch whereas it has 31-37 (33) lateral line scales. Its body is covered with extremely adherent, rough, spiny scales on the body whereas interorbital, maxillary, cheeks, and branchiostegals; spinules on posterior margins of body scales sharply pointed, strong and thick. Its eyes are very large; mouth large, oblique; maxillary expanded posteriorly, reaching to a vertical just behind the anterior margin of the pupil. The teeth on its jaws are villiform and form wide bands, outer series on the upper jaw is somewhat enlarged and slightly long.

Head, body, and fins generally scarlet red to reddish-orange except dusky to black tips of pelvic fins and black margins of soft vertical fins; iris of eye red to silvery; body with 5 narrow pale vertical bars on head and body (5th bar at caudal-fin base). the third bar is around 1/4-2/5 width of the pupil, somewhat expanded dorsally and ventrally, and relatively vertical throughout, including 1/4-2/5 width of the pupil, somewhat expanded dorsally and ventrally, and relatively vertical throughout, including 1/4-2/5 width of the pupil. Its median fins are with a narrow black margin and white submarginal band.



Fig. 2. *Pristigenys refulgens* collected from Karachi Fish Harbour

Pristigenys refulgens is widely distributed in the Indo-Pacific area (Indian Ocean and Western Pacific) including Red Sea, Mozambique (Inhambane) to South Africa (Algoa Bay, Eastern Cape), Madagascar, Comoros, Seychelles, Reunion, Mauritius, Cochin (India), Andaman Sea, Indonesia and South China Sea, Japan (Ryukyu Islands, Miyazaki, Wakayama Prefecture Mie and Honshu Islands) and Australia (Froese and Pauly, 2024, Frickle *et al.*, 2024; Heemstra, 2022; Iwatsuki *et al.*, 2012). According to Heemstra (2022), this species is found on rocky slopes, below 70 m.

Specimen Examined:

1 specimen collected from Karachi Fish Harbour on November 23, 2023 (22.7 cm TL).

This species can be distinguished from its congeners in having soft portions of vertical fins with black margins and five white or pale vertical bands on body narrower and distinct, about 1/4–2/5 width of pupil (Soft portions of vertical fins lacking black margins; five white or pale vertical bands on body somewhat wider, around 1/2–3/5 width of pupil diameter in *P niphonia*), total gill rakers on first arch 23–26 (total gill rakers on first arch 27–31 in *P niphonia*) and caudal fin more rounded (caudal fin somewhat double emarginated in *P niphonia*).

CONCLUSION

Genus *Naso* is generally called unicornfishes because of the "rostral protuberance", a hornlike extension of the forehead present in some species which are primarily live around coral reefs. This genus is distributed across the Indo-Pacific area from Africa to Hawaii (Borden, 1998). According to Froese and Pauly (2024) 20 species are categorized into two subgenera *Naso* Lacepède, 1801, and *Axinurus* Cuvier 1829; most of which live around coral reefs. Similarly members of Family Prichthidae are also known to be found near the bottom, typically in rocky areas or on coral reefs (Heemstra, 2022). Although, there are no coral reefs in Pakistan except for a few coral patches in shallow coastal waters (Khan and Shariff, 2021), still, 8 species of the genus *Naso* were reported from Pakistan (Moazzam *et al.*, 2017; Moazzam and Osmany, 2018). The species reported from Pakistan include *Naso annulatu*, *N. brevirostris*, *N. brachycentron* (, *N. elegans*, *N. hexacanthus*, *N. reticulatus*, *N. unicornis* and *N. vlamingii*. It is interesting that these species of genus *Naso* along with the present record (*N. tuberosus*) and *Pristigenys refulgens* were caught from continental shelf areas far from the areas known for coral patches.

It is also interesting that all the records of genus *Naso* made by Moazzam *et al.* (2017) and Moazzam and Osmany (2018) were collected during the last 15 years. During this period many species of fishes of other families which were previously not common or of rare occurrence were observed to be found of frequent occurrence or are now occurring in substantially large numbers. An unusual increase in landings of unicorn leather jackets (*Aluterus monoceros*) belonging to the family Monacanthidae was noticed in Pakistan (Moazzam and Osmany, 2016). Similar

Moazzam and Osmany (2022) noticed an unprecedented increase in the landings of *Canthidermis maculata*, *Odonus niger* and *Sufflamen fraenatum*. In addition, Moazzam and Osmany (2023) observed an increase in the frequency of occurrence of bluelined hind (*Cephalopholis formosa*) in recent years. The increase in the frequency of occurrence cannot be attributed to any factors, however, it is generally believed that the increase in frequency of occurrence and abundance of some species of fish may be on account of ecosystem adjustment that has happened due to over-exploitation of shrimp and some other coastal species as reported by Fanning *et al.* (2016). Further studies are required to ascertain the cause of such changes in species composition and abundance.

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