

First record of six marine fish species caught occasionally in the northern Arabian Sea in Pakistan

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Abstract. The present article presents the results of a recent independent fishery survey conducted in the northern Arabian Sea off the coast of Pakistan in 2016–2018. The survey confirmed the underreported occurrence of six fish species that are now included in the ichthyofauna diversity of Pakistan: *Ambassis natalensis*, *Pomadasys striatus*, *Narcine oculifera*, *Paramonacanthus choirocephalus*, *Paramonacanthus tricuspis*, *Chromis westaustralis*. The fishes were collected with demersal trawls operated at the depth of 165 m (90 fathoms), and the taxonomy, habitat, and distribution range of each of the species were carefully examined and verified with information available in Eschmyer's fish catalog, Fishbase, WoRMS, and FAO. It is necessary to update the marine ichthyofauna record of Pakistan with the detailed taxonomic descriptions of each species and their distribution ranges.

Keywords: New records, distribution range, rare fishes, Pakistan.

Introduction

Pakistan is a subtropical region with a variety of coastal, estuarine, and marine fish species (Peter 1999). This article lists species that are identified

rarely in routine catches at major fish landing sites and are not included in the recent FAO fish species catalog. That the six species of *Ambassis natalensis* Gilchrist and Thompson, *Pomadasys striatus* (Gilchrist and Thompson), *Narcine oculifera* Carvalho, Compagno and Mee, *Paramonacanthus choirocephalus* (Bleeker), *Paramonacanthus tricuspis* (Hollard) and *Chromis westaustralis* Allen were not documented might have been because they occur rarely in commercial catches. This report provides the distribution range of each of them and otolith descriptions for some of them. The purpose of this study was to update the fish species checklist of Pakistan and to report the first information regarding the underreported presence of these six species from five families in Pakistan.

Study area

The specimens were collected from different independent fishery surveys conducted along the coast of the northern Arabian Sea of Pakistan in 2016–2018.

Methodology

The specimens were collected with demersal trawls during four different monsoons seasons.

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Immediately after landing, the fish specimens were placed on ice in boxes and transported to the fisheries laboratory at the Centre of Excellence in Marine Biology, University of Karachi, for analysis. Visual identification was done using fishbase.com (Froese and Pauly 2021), morphological analysis was conducted with FAO survey guides (Bianchi 1985, Psomadakis 2015, Last et al. 2016), and taxonomy was confirmed with the online Eschmeyer catalog of fishes (Fricke et al. 2021) and the World Register of Marine Species (WoRMS Editorial Board 2021). Morphometric measurements and meristic counts were conducted according to standard methods and recorded in centimeters (cm). Fin-ray counts followed the method in Fricke (1983).

Results

Order Perciformes

Family Ambassidae

Slender glassy, *Ambassis natalensis* Gilchrist and Thompson, 1908

Habitat: Marine, freshwater, demersal, benthic, subtropical.

Distribution: New records from Pakistan; native of Western Indian Ocean, East Africa, South Africa (Gilchrist and Thompson 1908).

Description: (N=1), Standard length 7.8 cm; body depth 4 cm; 8 dorsal spines; 10 dorsal soft rays; 8–10 pectoral fin rays; 6 ventral fin rays; 3 anal spines; 10 anal soft rays; caudal fin sharply forked; body completely transparent; first two dorsal spines with slightly black margins; small scales present over entire body; lateral line highlighted in silver (Fig. 1).

IUCN Status: Least Concern.

Remarks: The pre-opercular spine, predorsal scales, and teeth on the vomer and palatines are the key identification characters of this species and further taxonomic details are

seen (Martin and Heemstra 1988). It is widespread throughout the shallow waters of the Indo-Pacific region, while some species of this family ascend estuaries in certain periods, others are known to inhabit only freshwater habitats.

Family Pomacentridae

West Australian chromis, *Chromis westaustralis* Allen, 1976

Distribution: Previously not reported in Pakistan, but native to Asia, Eastern Indian Ocean, Western Australia.

Habitat: Marine, tropical; depth range 2–75 m.

Description: (N=1), Standard length 5.5 cm; body depth 2 cm; 13 dorsal spines; 11–12 dorsal soft rays; 13 pectoral fin rays; 6 ventral fin rays; 2 anal spines; 11 anal soft rays; large, dark brown scales on body; suborbital area covered with scales; teeth biserial; dark blotch at pectoral fin base; forked caudal fin; yellow dorsal soft rays and caudal fins; all other fins dark brown to black (Fig. 2).

Otolith description: Elliptical otolith with convex medial and slightly concave lateral faces; dorsal margins slightly sinuate with a notch at one end and deep central groove; ventral margins strongly serrate.

IUCN Status: Not Evaluated.

Remarks: There are no previous reports of this species in Pakistan; however, details of its otolith shape and an image of it are available.



Figure 1. *Ambassis natalensis*.

Order Torpediniformes

Family Narcinidae

Big eye numb fish, *Narcine oculifera* Carvalho, Compagno and Mee, 2002

Habitat: Marine, demersal, benthic; depth range to 25 m.

Distribution: New record in Pakistan outside the Western Indian Ocean, Gulf of Oman, Gulf of Aden (rarely caught species).

Description: (N=10); average length 20 cm; heart shaped disc overlapping pelvic fin; disc length shorter than tail length; reticulation clearly visible on disc; head not swollen above disc; bulging eyes adjacent to spiracles; nostrils divided into two separate openings by stiff integument at mid length; teeth with small lateral cusplets totally hidden within mouth; snout rounded; pelvic fins usually short, united, forming apron on posterior side; first dorsal fin vertically straight with round apex; second dorsal fin tilted with narrow apex usually shorter than first dorsal fin; caudal fin with marginal slope at tip; color uniformly brown or dusky brown dorsally; ventral side, margins of dorsal, pelvic, and caudal fins creamy whitish (Fig. 3a, 3b).

IUCN Status: Data deficient.

Remarks: This species inhabits deeper waters below continental shelves (Carvalho et al. 2002); therefore, it is rarely caught by active fishing gears. This is the first record of this species in Pakistan.

Order Tetraodontiforme

Family Monacanthidae

Pig faced leather jacket, *Paramonacanthus choirocephalus* (Bleeker, 1851)

Distribution: Not reported in Pakistan, native to Asia (Thailand, UAE, India, Malaysia, Saudi Arabia,

Philippines, Indonesia) and Oceania (Australia, New Guinea).

Habitat: Tropical, marine, demersal; known depth range 3–25 m; inhabits coastal reefs, found in muddy and sandy substrates (Kuiter and Tonzuka 2001, Allen and Erdmann 2012).



Figure 2. *Chromis westaustralis*.

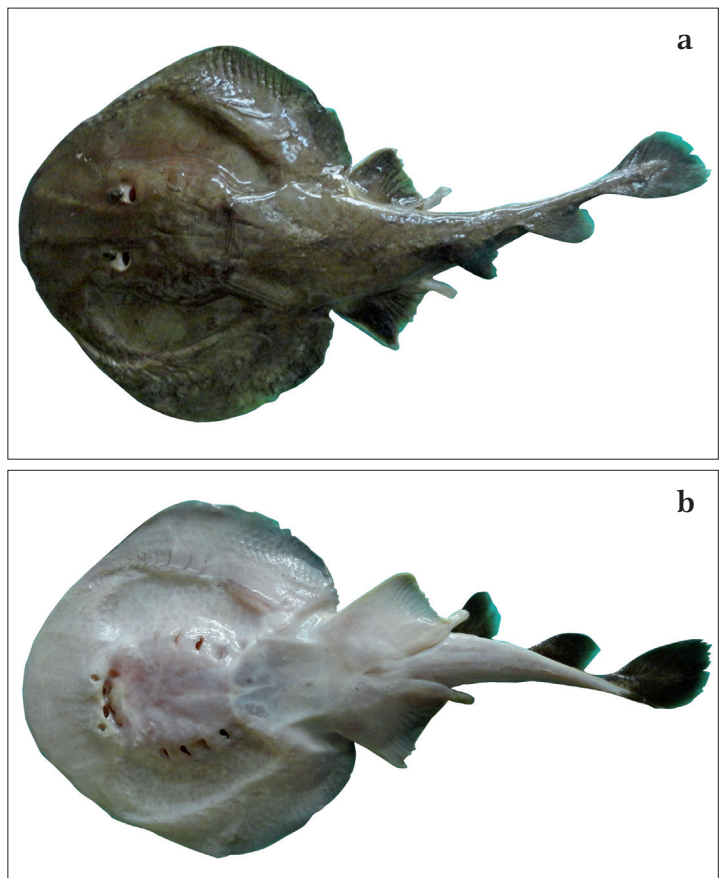


Figure 3. *Narcine oculifera*, a - dorsal view, b - ventral view.

Description: (N=2); standard length 8.5–10 cm; body depth 4 cm; 1 dorsal spine starting just behind the eye; 25 second dorsal soft rays; 10 pectoral fin rays; ventral fin small, rudimentary but mobile and concave; pelvic flap moderately extendable; 12 truncated caudal fins with 2–3 black stripes and long filament originating at first ray; 28 soft anal rays; eyes with dusky brown blotches; body with some brown patches throughout dorsal to pectoral fins, brown patch from caudal to ventral fins; body profile elongated and compressed with straight snout (Fig. 4).



Figure 4. *Paramonacanthus choirocephalus*.

IUCN Status: Not evaluated.

Remarks: This fish inhabits shallow waters. It is capable of camouflage, and its body shape permits it to move vertically. This species was previously unknown in Pakistan.

Estuary filefish, *Paramonacanthus tricuspis* (Hollard, 1854)



Figure 5. *Paramonacanthus tricuspis*.

Distribution: New record in Pakistan outside Asia (Thailand, Maldives, Philippines, India).

Habitat: Tropical, marine, demersal; inhabits depth range 10–50 m. (Allen and Erdmann 2012).

Description: (N=1); standard length 6.5 cm; body profile deep and compressed with straight snout;

body depth 4 cm; 2 dorsal spines (one minute) originating just behind eye; 27 second dorsal soft rays; 12 pectoral fin rays; ventral fin small and rudimentary but mobile; pelvic flap moderately extendable; 27 anal soft rays; two dusky, truncated bands on caudal fins; incomplete stripes throughout body (Fig. 5).

IUCN Status: Least Concern.

Remarks: Various counts and measurements of this specimen confirm its identification as *Paramonacanthus tricuspis*, which was previously not recorded in Pakistan.

Family Haemulidae

Striped grunter, *Pomadasys striatus* (Gilchrist and Thompson, 1908)

Distribution: New record in Pakistan; native to Southwestern Indian Ocean (Mozambique and South Africa; Red Sea), and Gulf of Suez.

Habitat: Marine benthopelagic; known depth range < 30 m (Smith and McKay 1986).

Description: (N=15); standard length 16–8cm; body depth 9–13 cm; 12 spines at first dorsal fin; 13–14 soft second dorsal rays; 18 pectoral fin rays; 5 ventral fin rays; 3 Anal spines; 7 soft anal rays; 54 scales on lateral line; all fins, except anal, dusky grey; body silvery grey with three dark longitudinal stripes originating from head to caudal fin in middle of body; prominent lips with small mouth (Fig. 6).



Figure 6. *Pomadasys striatus*.

Otolith description: Otolith shape oblong with moderately medially convex and moderately concave lateral faces; otolith margins thin and center thick; dorsal margin sinuate in middle; ventral margin irregular; superior and inferior crista well developed at sulcus; ostium elongated broadly on posterior side and narrower on anterior side; ostium notch absent; caudal flexion near posterior margin.

IUCN Status: Least Concern.

Remarks: This species is erroneously recorded in Pakistan in fishbase.com. However, details about its otolith and a clear image of this species are included here. The lateral line scale count is a distinguishing character of *Pomadasys stridens*.

Discussion

In this study we report six species inhabiting coastal and deep water areas from different geographical regions of Pakistan. Of the six species - *Ambassis natalensis*, *Pomadasys striatus*, *Chromis westaustralis*, *Narcine oculifera*, *Paramonacanthus choirocephalus*, *Paramonacanthus tricuspis* - five were not previously reported in Pakistan (Psomadakis 2015). *Ambassis natalensis* and *Chromis westaustralis* are valued as ornamental species and have high market value because of their pigmentation. *Narcine oculifera* prefers restricted, deep waters because of its slow swimming habits, which is why they are only caught by offshore trawlers. There are no valid previous reports of this species in

Pakistan. However, they might be of limited fishery concern since the exploitation of these rays is ambiguous. Although they can give a strong shock when disturbed, they are otherwise harmless to people. Nevertheless, some of these species are exploited commercially, whereas *Paramonacanthus choirocephalus* and *Paramonacanthus tricuspis* are of very low commercial value in Pakistan, while in other countries, like Korea, they are consumed as a snack. *Pomadasys striatus*, which is reported on fishbase.com in Pakistan with limited information, is of high commercial value and is in demand at fish markets and is often marketed as fresh, frozen, or dried salted.


Conclusion

For the first time, these six fish species from five families are reported and can be included in the ichthyofauna of Pakistan. This report also contributes to the latest knowledge of fisheries biology and the distribution ranges of these species.

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Authors contribution. W.S. identified the fish species and drafted the manuscript; S.K.P. helped conduct the fishery surveys, supervised the research, and finalized the manuscript.

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