

See discussions, stats, and author profiles for this publication at: <http://www.researchgate.net/publication/259983066>

A new record of pearl fish *Onuxodon margaritiferae* (Rendahl, 1921) from Andaman Islands

ARTICLE *in* INDIAN JOURNAL OF FISHERIES · APRIL 2011

Impact Factor: 0.2

READS

24

5 AUTHORS, INCLUDING:



[A.K. Abdul Nazar](#)

Central Marine Fisheries Research Institute

28 PUBLICATIONS 39 CITATIONS

[SEE PROFILE](#)



[Dharani g](#)

National Institute of Ocean Technology

50 PUBLICATIONS 95 CITATIONS

[SEE PROFILE](#)



[N. Saravanane](#)

Centre For Marine Living Resources and Ecology

12 PUBLICATIONS 12 CITATIONS

[SEE PROFILE](#)

Note

A new record of pearl fish *Onuxodon margaritiferae* (Rendahl, 1921) from Andaman Islands

A. K. ABDUL NAZAR, G. DHARANI¹, D. V. RAO², J. SANTHANAKUMAR¹
AND N. SARAVANANE³

Mandapam Regional Center of Central Marine Fisheries Research Institute,
Mandapam Camp - 623 520, Ramanathapuram, Tamil Nadu, India

¹National Institute of Ocean Technology, Minnie Bay, Port Blair - 744 103, Andamans, India

²Zoological Survey of India, A & N Regional Station, Haddo, Port Blair - 744 102, Andamans, India

³Centre for Marine Living Resources and Ecology, Kakkanad, Kochi - 682 037, Kerala, India
e-mail: dhara@niot.res.in

ABSTRACT

This study reports the occurrence of the pearl fish *Onuxodon margaritiferae* (Rendahl, 1921) for the first time from Andaman waters, inhabiting the mantle cavity of the oyster *Pteria penguin*. This species is known so far from Western Australia and Philippines. The present report extends the distributional range of *O. margaritiferae* beyond Australian waters to Andaman waters.

Keywords: Andamans, Carapidae, Commensal, New record, Pearl fish

The Pearl fishes of the family Carapidae are shallow, benthic fishes inhabiting coastal waters. Most of the species are commensals in the body cavity of a variety of invertebrate hosts particularly sea stars, bivalves, ascidians and holothurians. So far, 35 species are identified under seven genera around the world (Nielsen *et al.*, 1999). Studies on the carapid fishes of Indian waters are very scanty. Only one species namely *Carapus margaritiferae* has been reported from Indian coasts including Andman and Nicobar Islands (Rendahl, 1921; Smith, 1955; Arnold, 1956; Trott and Trott, 1972; Markle and Olney, 1990).

During the SCUBA diving exercises conducted during February - March 2007, three live shells of *Pteria penguin* were collected from each site, namely Havelock Island, (12° 03' 172 N; 92° 58' 289 E and North Bay (11° 42' 01.9" N; 92° 44' 50.1"E), at depths of 19 and 23 m respectively. Closer examination of the collected bivalves revealed the presence of four pearl fishes sheltering in the mantle cavity of each shell (Fig. 1, 2) and which were identified *Onuxodon margaritiferae* Order: Ophidiiformes, Family: Carapidae (Rendahl, 1921) (Nielsen *et al.*, 1999). The eight identified specimens were deposited in the museum of the Zoological Survey of India, Port Blair.

The details of the deposited specimens are: ZSI/PB 3851, 4 ex. 52 -71 mm TL; ZSI/PB 3852, 4 ex. 69 – 82 mm TL, collected by A. K. A. Nazar and G. Dharani on February 18, and March 3, 2007 at a depth of 23 and 19 m in North Bay and Havelock Island, South Andaman.

The body of *O. margaritiferae* is eel-like, slightly compressed and deep; head length 14.37 – 17.69% body depth 8.40 - 12.39% in total length, eyes fairly large, 16.97 – 19.61% in head length (Table 1, Fig. 1). Mouth oblique, maxillary not hidden by skin and reaching far behind hind border of eyes; caudal dusky to black lateralis papillae present on head and anterior lateral line; precaudal vertebrae 19-20; large symphyseal fangs on premaxilla and dentary; median rocker bone present at anterior end of swim bladder. Dorsal fin origin slightly ahead of anal fin origin, dorsal fin much lower than anal fin, anal fin origin behind base of pectoral; dorsal and anal fins confluent with caudal; pectoral fins long, 27.17 - 48.57% in head length, rays supported by small distal radials; ventral fins absent; Body translucent in life.



Fig. 1. *Onuxodon margaritiferae*

Rendahl (1921) first described the species under the name *Fierasfer margaritiferae* collected from north-west Australia but subsequently it was shifted to the genus

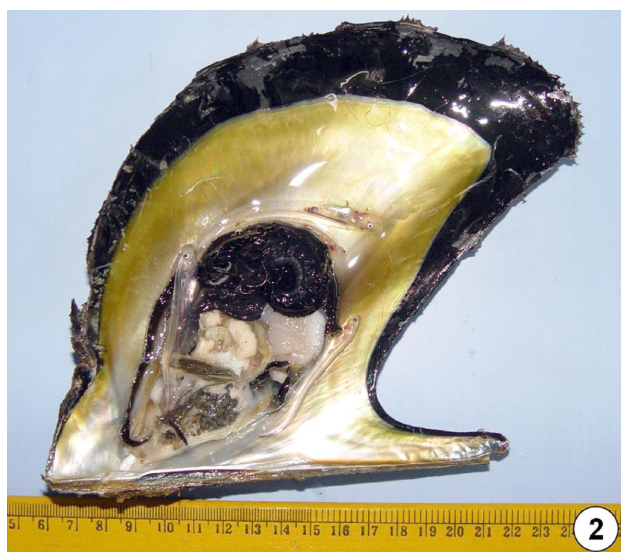


Fig. 2. Pearl fish *Onuxodon margaritiferae* in the mantle cavity of oyster *Pteria penguin*

Table. 1. Morphometric and meristics of *Onuxodon margaritiferae*

Measurement (mm)	Port Blair Group				Havelock Group			
	Sp.1	Sp.2	Sp.3	Sp.4	Sp.1	Sp.2	Sp.3	Sp.4
Total length	70.5	59.5	71.0	52.0	82.0	80.5	80.0	69.0
Head length	10.5	9.5	10.2	9.2	11.8	12.0	12.0	10.5
Body depth	8.5	7.2	8.8	6.3	10.0	9.3	9.5	8.2
Eye diameter	2.0	1.8	2.0	1.6	2.2	2.0	2.0	2.0
Pre-orbital length	2.0	1.8	2.0	1.5	2.2	2.0	2.5	2.0
Pre-dorsal length	13.0	8.5	14.0	8.5	15.0	14.0	14.0	14.0
Pre-pectoral length	8.0	6.5	9.2	7.0	10.9	10.8	10.3	10.0
Pre-anal length	11.5	7.5	12.0	7.0	13.5	13.5	13.5	13.0
Pectoral fin length	3.2	2.6	3.2	2.5	5.2	5.5	5.4	5.1
Pectoral fin rays	16	16	16	16	17	17	17	17
Pre-caudal vertebrae	19	19	19	20	20	20	20	19
Anal fin rays	137	136	139	135	137	139	139	138
Dorsal fin rays	130	132	130	130	130	130	129	129

Onuxodon (Smith, 1955). So far three species of the genus viz., *O. parvibrachium*, *O. margaritiferae* and *O. fowleri* have been identified from the Indo-West Pacific (www. Fish base.org). *O. parvibrachium* can be easily differentiated by the presence of short pectoral fin about 16-29% in head length whereas about 28-54% the pectoral fin is long in the other two species. Further *O. margaritiferae* is distinguished from *O. fowleri* by the presence of relatively short and deep body with a depth of 11 to 16% in total length compared to 6 to 10% for the latter. Based on the detailed study of various other meristic and morphometric characters, the present specimens collected from North Bay and Havelock Island, South Andaman, have been identified as *O. margaritiferae*.

The commensal carapids (*Onuxodon*, *Carapus*, and *Encheliophis*) dwell in shallow coastal waters within the body cavity of invertebrate hosts such as pearl oysters, giant clams, tunicates, sea stars, and sea cucumbers. Some species are obligatory commensals and they never leave their hosts. They feed on a wide variety of invertebrates such as crustaceans and polychaetes and some, even feed on a host's internal organs (<http://animals.jrank.org>). Almost all the species of *Onuxodon* live inside the shells of bivalves such as clam shells (Smith, 1955), *Pteria* sp. and *Pycnodonta hyotis* (Trott and Trott, 1972) and some species of Holothurians (De Beaufort and Chapman, 1951). The specimens were recorded in pairs, suggesting a strong trend towards sexual paring inside the host.

Hence our report on the occurrence of *O. margaritiferae* in the pearl oyster *Pteria penguin* in the coastal waters of South Andaman is noteworthy and a new record. Therefore, the distributional record of this species is now being extended from Western Australia to Indian waters (Andaman Islands).

Acknowledgements

The authors are grateful to the Director, NIOT for providing necessary facilities.

References

- Arnold, D. C. 1956. A systematic revision of the fishes of the teleost family Carapidae (Percomorphi, Blennioidea), with descriptions of two new species. *Bull. British Mus. (Nat. Hist.)*, 4(6): 245-307.
- De Beaufort, L. F. and Chapman, W. M. 1951. *Fishes of Indo-Australian Archipelago*, 9: 452-453.
- Markle, D. F. and Olney, J. E., 1990. Systematics of the Pearlfishes (Pisces: Carapidae), *Bull. Mar. Sci.*, 47:269- 410.

- Mahadevan, S. 1961. The pearl fish *Carapus margaritiferae* (Rendahl), a new record for the Indian waters. *J. Mar. Biol. Ass. India.*, 3(1 & 2): 204-208
- Nielsen, J.G., Cohen, D. M., Markle, D. F. and Robins, C. R., 1999. Ophidiiform fishes of the world (Order Ophidiiformes). An annotated and illustrated catalogue of pearlfishes, cusk-eels, brotulas and other ophidiiform fishes known to date. *FAO Fisheries Synopsis* No. 125, Vol. 18. Rome, FAO.
- Rendahl, H. 1921. Results of Dr. E. Mjöberg's Swedish scientific expeditions to Australia, 1910-13. XXVIII. Fische. *K. Sven. Vetenskapsakad. Handl.*, 1-24.
- Smith, J. L. B. 1955. The fishes of the family Carapidae in the western Indian Ocean. *Ann. Mag. Nat. Hist.*, 12: 401-416.
- Trott, L. B. and Trott, E. E. 1972. Pearlfishes (Carapida), Gadiformes) collected from Puerto Galera, Midoro, Philippines. *Copeia*, 1972: (4): 839-843.