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Short Communication

Occurrence of a rare lambridiform fish, *Desmodema polystictum* (Ogilby, 1898) from Andaman coast of India

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The present study reveals the first documented distribution record of *Desmodema polystictum* (Ogilby, 1898) from the Andaman coast, eastern Indian Ocean. The species is rare in nature and the knowledge regarding the taxonomy, ecology and distribution is still limited. Only few records have been come from the Indian Ocean. The study is based on a single specimen (34 cm total length) collected from the northeastern region of Andaman Islands, India. The present record of *D. polystictum* from Andaman waters provides greater latitude and depth distribution than previously acknowledged from the Indian Exclusive Economic zone. Along with the comparative morphometric and meristic data from previous reports, description of present specimen as well as distributional information are also provided and discussed.

[**Keywords**: Andaman coast, *Desmodema polystictum*, Eastern Indian Ocean, Occurrence, Trachipteridae]

Introduction

Lampriform fishes (Teleostei: Lampriformes) are characterized by the long compressed ribbon shaped body, short head, narrow mouth, and small pectoral fin[1]. The species of *Desmodema* have a unique pre-juvenile phase characterized by polka dots on the sides, relatively short tail, elongation of the first six dorsal rays and long fan like pelvic fins[2]. Upon metamorphosis polka dots, pelvic fins, elongated dorsal rays would disappear and noticeably lengthening of tail occurs. Seven families and twenty species are distributed within the order lambridiformes[3]. Recently, Martin & Hilton[4] provided a detailed taxonomic review of family Trachipteridae including information regarding taxonomy and biogeography. Based on their work, family Trachipteridae consists of three genus, *Desmodema* Walters & Fitch, 1960; *Trachipterus* Goüan, 1770 and *Zu* Walters & Fitch, 1960 and ten valid species. The genus *Desmodema* contains only 2 species[4-5], *Desmodema polystictum* (Ogilby, 1897) and *Desmodema lorum* Rosenblatt & Butler, 1977. Trachipterid fishes have a worldwide distribution in temperate and tropical waters[6]. Most of them are oceanic, ranging from the epipelagic realm to the abyssal depths[6-7]. Except some regional information (South African waters)[4] regarding the morphology and distribution of trachipterids, there is still large knowledge gap exists with the taxonomy and biogeography the family especially from the Indian Ocean. The aim of the present work is the documentation of poorly known trachipterid fish *D. polystictum* from the Andaman coast of Indian Exclusive Economic Zone.

Materials and Methods

The specimen was collected by the exploratory deep-sea fishery surveys of FORV *Sagar Sampada*, conducted by the Centre for Marine Living Resources and Ecology (CMLRE), Ministry of Earth Sciences, India, along the continental slope of the Andaman Sea (Fig. 1). The specimen was collected using High Speed Demersal Trawl crustacean version (HSDT-CV), operated at a speed of 2.5 knots. The specimen was identified as *Desmodema polystictum* following Rosenblatt & Butler[2]. Data were taken following Masuda[8] and compared with previous records. Specimen was preserved in 5 % formaldehyde and deposited in CMLRE Referral Center under the accession no. IO/SS/FIS/00527. Morphometric measurements and meristic counts are presented in Table 1.

Results

Systematic account

Order: Lampridiformes Goodrich, 1909

Family: Trachipteridae Swainson, 1839

Genus: *Desmodema* Walters & Fitch, 1960

Desmodema polystictum (Ogilby, 1898) (Fig. 2, Table 1)

English name: Polka-dot ribbonfish

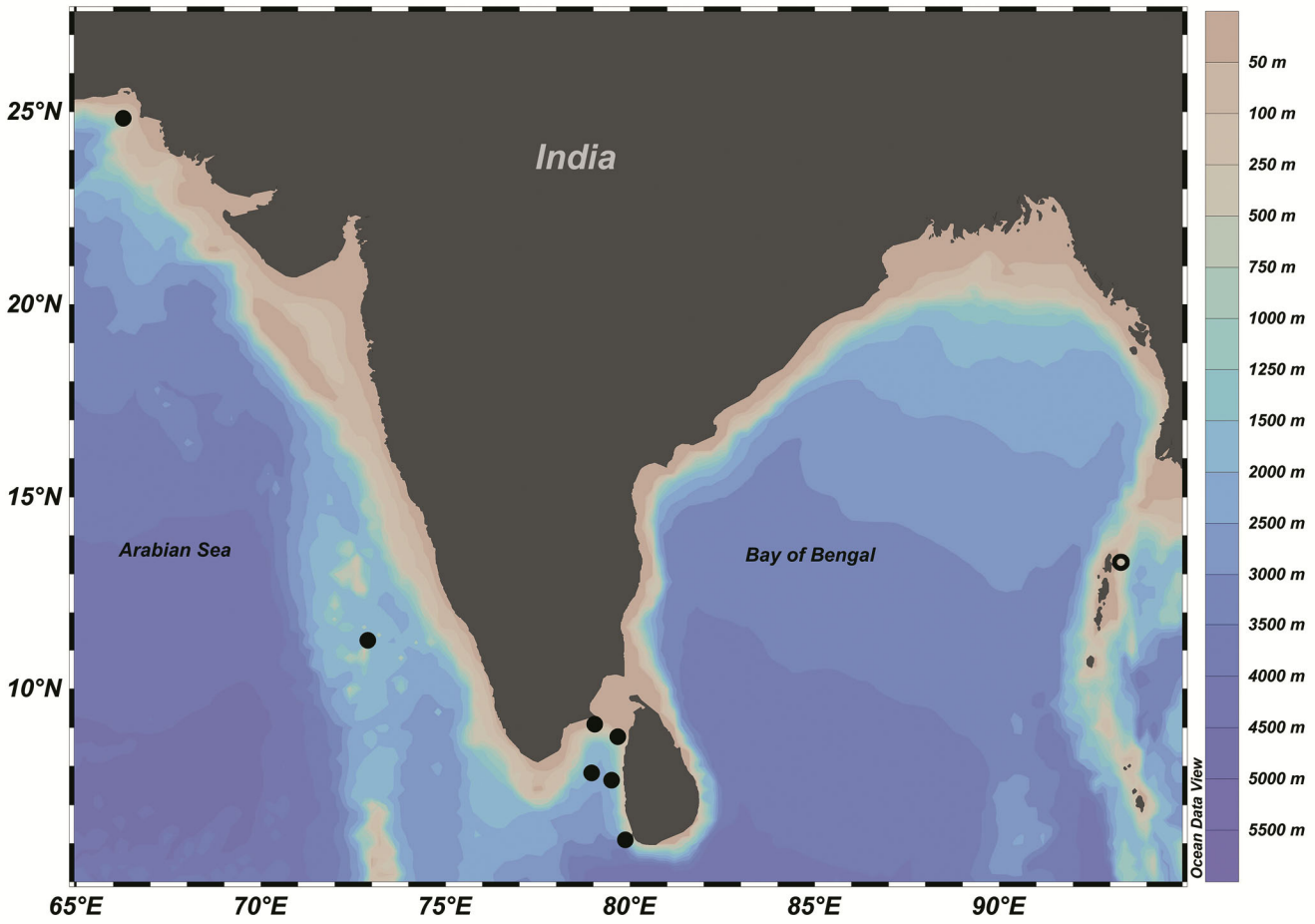

Fig. 1 — Map showing present sampling location (open circle) and previous distributional records (closed circle)

Table 1 — Morphometric and meristic data for *Desmodema polystictum* compared with previous records

Morphometric measurements	IO/SS/FIS/00527	Zacharia & Kannan 2012	Deshmukh *et al.* 2017	Rathnasuriya *et al.* 2019
Total length (TL) cm	34	107	14.8	90.7
% of TL				
Head length (HL)	12.9	9.1	11.5	7.1
Body depth	12.6	10.7	16.8	8.6
Pre-dorsal length	10.0	7	-	-
Pre-pectoral length	10.9	6.9	6.7	7.5
% of HL				
Eye diameter	38.6	38.8	41.2	46.9
Snout length	34.1	33.7	29.4	-
Pre-orbital length	32.7	30.6	35.3	39.1
Pre-dorsal fin length	-	-	76.5	-
Meristic counts				
Pectoral fin rays	14	14	14	14
Dorsal fin rays	112	121	121	121
Caudal fin ray	8	8	8	-
Gill rakers (total)	12	12	11	12

Fig. 2 — IO/SS/FIS/00527, *Desmodema polystictum*, 34 cm TL

Holotype: Trachypterus deltoideus Clark 1938: 180; Rurutu Island, "Australs" (Tubuai Islands); holotype, California Academy of Sciences (CAS 5532). Current status, synonym of *Desmodema polystictum* (Ogilby, 1898).

Material examined: IO/SS/FIS/00527, 34 cm SL, FORV *Sagar Sampada*, northeastern region of Andaman Sea, Lat. 13°15'36" N, Long. 93°16'12" E, HSDT–CV, 635 – 700 m. 26-11-2017, 09:14 am.

Description: Body strongly compressed laterally, dorsal profile almost vertical on head and curved on back and straight along the tail; ventral profile of the body almost straight to anus; post-anal length of the body narrowing into a long, strap like tail; seven pterygophore before first neural spine and one pterygiophore between first and second neural spines; head short, 12.9 % of Total Length (TL); snout length 34.0 % of Head Length (HL); eye large, diameter slightly greater than snout length, 38.6 % of HL; maxilla ends below middle of eye; dorsal-fin origin anterior to middle of the orbit; pectoral fin small; pelvic fin absent (but present in juvenile stage); caudal structure of *D. polystictum* is distinctive in trachipteridae that all of the caudal rays are born on the terminal centrum and the hypural of the first ural centrum is rayless; caudal fin well developed but not divided in two lobes; anus placed ventrally on the midline of the body; maximum body width along the pectoral fin margin; skin without scales but pierced by numerous pores; lateral line ends at caudal base and many pores are present along the lateral line system; base of all the dorsal rays provided with a single laterally directed stout spine on either side of the base; mouth oblique, 4 teeth on premaxilla and two enlarged, fangs on mandible, one on either side of symphysis. D 112 (small portion of dorsal fin was damaged); P 14; C 8; Gi-3+9.

Color: In fresh, not recorded; in preservative, uniform pale with the retention of black color on head region up to opercle; a black streak running along the insertion of dorsal fin base up to the caudal fin base. Tail black.

The water temperature and salinity at collection depth was 9.9 °C and 35 psu, respectively. Dissolved oxygen recorded was 0.85 ml/L.

Discussion

Desmodema polystictum can be easily distinguished from *D. lorum* having snout length shorter than eye diameter (vs. greater than eye diameter in *D. lorum*); scales absent at all sizes (vs. present in juveniles of *D. lorum)*; caudal-fin rays eight (vs. 5 – 7 in *D. lorum*)[2]. *Desmodema polystictum* widely distributed in the Pacific, Atlantic and South African waters[2,9,10] whereas *D. lorum* restricted their distribution in northern Pacific regions. Previous reports from the Indian waters mainly based on a single specimen collected from the northern Arabian Sea (out of Indian territorial waters at a depth of 72 m)[11]; Southeast coast of India (Tharuvaikulam fish landing centre, Tuticorin at a depth range of 150 – 400 m collected through gill net)[12]; and near Minicoy Island, Lakshadweep waters[13]. Few more reports from Indian Ocean represent the occurrences from the Pakistan waters[14]; off Tanzania and recently from Srilankan waters[15]. Significant numbers of specimens were collected from the Sri Lankan waters by the pelagic trawl operated at a depth of 30 meter during the night time[15]. Present specimen was collected during the day time at depths of 635 – 700 m employing bottom trawl. Therefore, current study also substantiates the observation of Rathnasuriya *et al.*,[15] that, the *D. polystictum* also appears to follow the diel (diurnal) vertical migration pattern of other mesopelagic fishes, which performs the vertical migration towards deeper water during day time and oceanic surface during night. Moreover, *Z. elongatus* reported by Shirke *et al.*[16], from the Andaman waters of Indian EEZ still demands taxonomic confirmation[4].

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Conflict of Interest

Authors declare no conflict of interest.

Ethical Statement

The present research is the author's own original work, which has not been previously published elsewhere and is not currently being considered for publication elsewhere.

Author Contributions

RMP: Conceptualization, sample collection, identification and original draft preparation; SKS: Sample collection, identification and formal analysis; RR: Methodology formulation and formal analysis; AKV: Sample collection and formal analysis; HM: Logistics for sample collection and manuscript review and editing; and SN: Manuscript review and supervision.

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