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Asarcenchelys longimanus (Ophichthidae, Myrophinae), two additional specimens and range extension in the south-western Atlantic

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The rare ophichthid eel Asarcenchelys longimanus is reported for the first time from Bahia State, north-eastern Brazil. To date, only two specimens of A. longimanus, the holotype and a paratype, were known. The new finding extends its distribution to about 2400 km southwards along the Brazilian coastline and provides a new maximum size for the species. Comparisons of the morphometric and meristic data between our specimens and those used in the original description are provided.

Keywords: range extension, new data, deep-sea fish, Brazil

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INTRODUCTION

The world-wide eel family Ophichthidae includes more than 300 species, 54 of which inhabit the western Atlantic and at least 31 are found in Brazilian waters (Ramos & Vasconcelos, 1987; Leiby, 1989; McCosker *et al.*, 1989; Haimovici & Klippel, 1999; McCosker, 2002, 2010; Menezes, 2003; Castro & Bonecker, 2006). Due to the cryptic and fossorial habits of these eels, several species are poorly known, particularly those from deeper waters.

Deep-sea research off Brazil has been sparse, but recent exploratory fishing has resulted in a number of new records and new species for the south-western Atlantic and Brazil (e.g. Bernardes *et al.*, 2005; Mincarone *et al.*, 2008; Melo *et al.*, 2009; Carvalho-Filho *et al.*, 2010). In this paper we report the capture of the rare ophichthid *Asarcenchelys longimanus* McCosker, 1985, in the deep waters off Bahia State, eastern Brazil, extending its previous known range to about 2400 km south. McCosker's (1985) original description of this deep-water eel was based on two somewhat damaged specimens, collected near Belém, Pará, northern Brazil in 1966 by P. Fourmanoir. A comparison of the now known four specimens is presented below, broadening the knowledge about the species.

MATERIALS AND METHODS

Measurements were taken with a digital caliper to tenths of millimetres (mm); measurements between 150 and 300 mm were taken with a manual caliper to the nearest tenth of a mm and over 300 mm with a ruler to the nearest tenth of a mm. Length of specimens are given in standard length (SL).

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Digital pictures were taken of the specimens and computerized X-rays were taken at the Hospital Veterinário da Faculdade de Medicina Veterinária e Zootecnia da Universidade de São Paulo, with Raytech 500 equipment and processed through Fuji Film TCR Capula X. For details about the collection see Carvalho-Filho *et al.* (2009). Institutional abbreviations follow Sabaj Pérez, 2010.

RESULTS AND DISCUSSION

Family OPHICHTHIDAE

Asarcenchelys longimanus McCosker, 1985
(Figures 1–4)

Enguia Lombriga (Brazilian Portuguese).

MATERIAL EXAMINED

TAMAR 007 (1, sex undetermined: 374.3 mm total length (TL)), Brazil, Bahia, Mata de São João, Praia do Forte, from the stomach content of *Eumegistus brevoorti* (Bramidae), coll. G. Marcovaldi, depth 400 m, December 2006; MZUSP 108422 (1, sex undetermined: 222.5 TL), same data as above.

On December, 2006, a large adult tropical pomfret, *Eumegistus brevoorti* (Poey, 1861) was caught some ten miles off Praia do Forte (12°36'96"S 37°53'78"W), Mata de São João, Bahia, Brazil, about 400 m depth, with electric reel and sardines as bait (Carvalho-Filho *et al.*, 2009). In its stomach, examined *in situ*, there were two eels among several other small fish and crustaceans. The eels were immediately fixed in formalin 10% and, after a week, preserved in ethanol 70%. They were identified as *Asarcenchelys longimanus*: the extremely elongate body, large pectoral fins, dentition, and cephalic pores, are diagnostic for this species.

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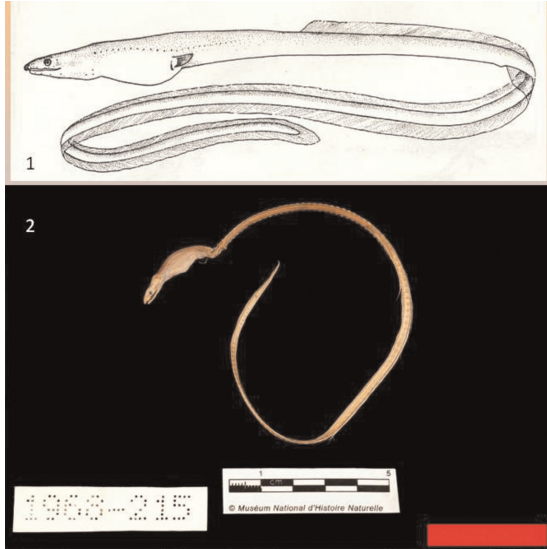


Fig. 1. *Asarcenchelys longimanus*. (1) Reconstructed appearance, after McCosker, 1985; (2) holotype, MNHN 1968-215, 277 mm TL. Claude Ferrara.

DESCRIPTION

Based on our specimens and McCosker's (1985) (Tables 1 & 2). Our data increase the range of several teeth counts and body proportions, and the description below follows that of McCosker, except for proportions that are presented as % of TL.

Body very elongate, its depth 1.3–1.5 in TL, laterally somewhat compressed behind head. Head and trunk 28.0–43.9, and head 8.6–12.6 in TL. Snout subconical, bulbous; lower jaw included, its tip reaching the front of anterior nostril bases, leaving several intermaxillary teeth exposed. Anterior nostrils tubular, directed ventrally; posterior nostril at outer edge of lip, covered by a flap whose posterior edge is incised. Eye large, anterior edge of orbit above middle of upper jaw. Gill openings mid-lateral, not as constricted as those of most myrophines, about equal in length to isthmus. Dorsal fin low, its origin at anterior trunk region. Anal fin elevated. Median fins expanded in posterior tail region, extended beyond caudal tip. Pectoral fin lanceolate, broad based, its length 1.4–2.2 in TL. Head pores developed, much more apparent than those of lateral line, which are

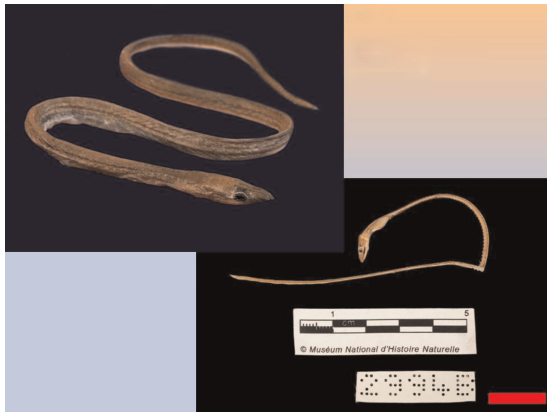


Fig. 2. *Asarcenchelys longimanus*. Top: TAMAR 07-01, 222.4 mm TL. Equipe TAMAR; bottom: paratype, MNHN B. 2994, 147 mm TL. Claude Ferrara.

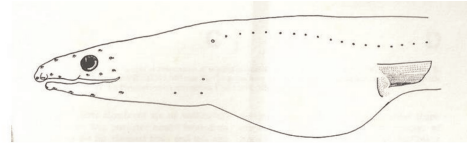


Fig. 3. *Asarcenchelys longimanus*. Top: head of holotype, MNHN 1968-215, after McCosker, 1985; bottom: head of TAMAR 07-02, 374.3 mm TL. Alfredo Carvalho-Filho.

difficult to see. Single temporal and interorbital pores. Five pores along mandible, widely spaced posteriorly. Two pores between anterior and posterior nostrils. Four supraorbital pores. Three preopercular pores. Lateral line pores 14 above branchial basket. Teeth conical, fairly large, not close set, nearly uniform in size and recurved. An intermaxillary chevron of 6–8 teeth, visible when mouth is closed, followed by closely abutting vomerine dentition consisting of 3–6 pairs of teeth and a uniserial row of 10–15 teeth. Maxillary teeth biserial anteriorly, with an inner row of 6–8 teeth and an outer row of 21–24 smaller teeth. Lower jaw biserial anteriorly, with an inner row of 4–5 teeth and an outer row of 23–25 smaller teeth. The vertebral counts (the two additional specimens given in parentheses) are: total 142–148 (142 and 145); predorsal 26–27 (26 and 27); and preanal 53–55 (54 and 55).

Colour of recently collected specimens: body reddish-brown, lower sides and belly silvery-white; numerous small dark spots on snout, upper head and behind eyes; fins transparent, peritoneum pale. According to McCosker (1985), coloration in isopropyl alcohol cream to white, with the

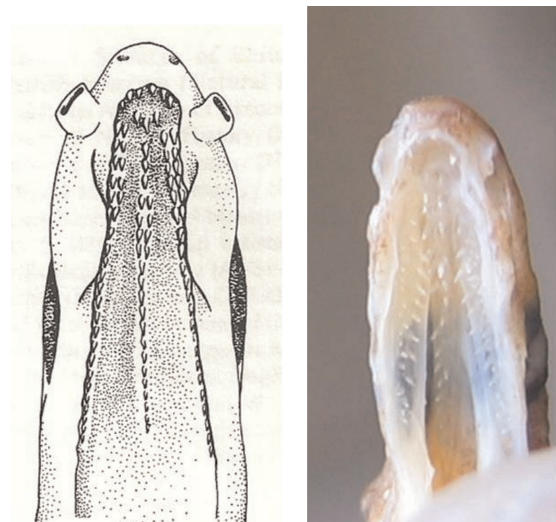


Fig. 4. *Asarcenchelys longimanus*, dentition of upper jaw. Left: MNHN 1968-215, after McCosker, 1985; right: TAMAR 07-02, 374.3 mm TL. Alfredo Carvalho-Filho.

Table 1. *Asarcenchelys longimanus*. Proportional measurements in percentage of TL.

Proportions	McCosker (1985)	Present study	Range
Number of specimens	2	2	
Head length	9.7–12.2	8.6–12.6	8.6–12.6
Snout length	1.4–2.5	1.4–1.8	1.4–2.5
Eye horizontal diameter	0.5–0.9	0.5–0.7	0.5–0.9
Interorbital space	0.6–0.9	0.5–0.7	0.5–0.9
Body depth (dorsal fin or.)	1.4–1.4	1.3–1.5	1.3–1.5
Trunk	28.2–31.3	19.4–22.1	19.4–31.3
Tail	56.5–62.1	62.0–65.3	56.5–65.3
Predorsal length	19.9–23.1	16.3–20.3	16.3–23.1
Pectoral fin length	1.4–2.2	1.5–2.0	1.4–2.2

Table 2. *Asarcenchelys longimanus*. Proportional measurements in percentage of head length.

Proportions	McCosker (1985)	Present study	Range
Number of specimens	2	2	
Snout length	14.1–20.6	16.9–14.6	14.1–20.6
Eye horizontal diameter	5.2–7.2	5.5–5.7	5.2–7.2
Interorbital space	5.9–7.2	6.3–5.4	5.4–7.2
Body depth (dorsal fin or.)	14.1–11.1	15.6–12.1	11.1–15.6
Pectoral fin length	14.8–18.3	17.2–16.1	14.8–18.3

same fine spotted pattern on head and snout. Largest specimen recorded to date is 374.3 mm TL (TAMAR 007).

DISTRIBUTION

South-western Atlantic, Brazil, from Pará in northern Brazil (McCosker, 1985) to Bahia in eastern Brazil (present paper). Our record extends the range of *Asarcenchelys longimanus* by about 1800 km southwards in a straight line and 2400 km southwards along the Brazilian coastline.

PROPOSED BRAZILIAN NAME

‘Enguia-Lombriga’, resembling the popular name of the very elongate nematoid worm *Ascaris lumbricoides* Linnaeus, 1758, which bears a remote resemblance to *Asarcenchelys longimanus*.

DEPTH OF OCCURRENCE

Previously collected from about 50 m depth (McCosker, 1985). According to Carvalho-Filho *et al.* (2009), adult tropical pomfrets occur between 300 and 900 m of depth and prey in the water column as well as at the bottom; thus we suggest that the new records possibly expand the depth range of the species to at least 300 m.

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