

## Occurrence of the serpent eel, *Ophisurus serpens* (Linnaeus, 1758) (Osteichthyes: Ophichthidae), close to the Bay of İzmir (Aegean Sea, Turkey)

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**Abstract:** A specimen of the serpent eel, *Ophisurus serpens*, with a total length of 1917 mm was caught on 2 March 2014 by an angler on a boat off the coast of Karaburun, in front of the Sarpıncık lighthouse. This specimen is the second record for the central Aegean Sea since that of Aliğa, Çandarlı Bay, in August 1966.

**Key words:** Serpent eel, *Ophisurus serpens*, new record, İzmir Bay, Aegean Sea

The family Ophichthidae (snake eels) has over 250 species worldwide; 8 of them occur in the Mediterranean Sea (Golani et al., 2006). *Ophisurus serpens* (Linnaeus, 1758) is benthic on the shelf or on the upper slope to 300 m, burrowing in sand or mud with only its head exposed, and is also found in estuaries (Bauchot, 1986; Froese and Pauly, 2014). It feeds mainly on benthic invertebrates and fish, and its average size is between 50 and 150 cm with a maximum of 240 cm (Golani et al., 2006).

*O. serpens* is distributed in the Mediterranean (but is very rare in the eastern part) and the eastern Atlantic northward to the northern coast of the Iberian Peninsula, as well as Madeira; elsewhere, it is distributed southward to South Africa and in the western Pacific Ocean and southern Indian Ocean (Bauchot, 1986; Golani et al., 2006). In the Mediterranean Sea, *O. serpens* has been reported from Greece, western Aegean Sea (Stergiou et al., 1997); the Tuscan and Latium coasts of Italy, western Mediterranean (Biagi et al., 2002); the Adriatic Sea (Dulcic et al., 2005); the Alboran Sea, western Mediterranean (Abad et al., 2007); the Ligurian Sea, western Mediterranean (Relini et al., 2007); the Tunis Southern Lagoon, central Mediterranean (Ben Amor et al., 2009); and the northwestern Ionian Sea, central Mediterranean (Maiorano et al., 2010). Additionally, Borges et al. (2003) recorded 6 specimens of *O. serpens* from the Algarve coast (southern Portugal), near the Gibraltar Strait (Atlantic).

In Turkish waters, *O. serpens* was recorded for the first time from off Aliğa (Çandarlı Bay) by Geldiay and Mater (1968). Other successive records are indicated in Table 1.

On 2 March 2014, an accidental catch of an *O. serpens* specimen (Figure 1) was provided by an angler on a boat,

using sardine flesh as bait. The capture location (Figure 2) was off the coast of Karaburun (38°39'N, 26°22'E) near the Bay of İzmir, at a depth of 32 m on a sandy bottom. The specimen was fixed in 10% formaldehyde solution and deposited in the fish collection of the Ege University Faculty of Fisheries (ESFM-PIS/2014-001). Diagnostic characters were counted and recorded.

In Table 2, some selected morphometric and meristic data of the serpent eel specimen are presented. All measurements, counts, and color patterns determined were in accordance with Bauchot (1986), Ben Amor et al. (2009), and Froese and Pauly (2014).

Occurrence of the *O. serpens* at Karaburun near İzmir Bay is not unexpected due to its rare presence in the northern and western Aegean Sea. However, this ichthyological note represents a clear indication of a new rare occurrence of *O. serpens* in the eastern part of the Mediterranean Sea. Owing to the scarceness of *O. serpens*, the study about the length–weight relationship of *O. serpens* with 41 specimens given for the Turkish eastern Mediterranean (Sangun et al., 2007) was astonishing. Some previous studies (Gücü and Bingel, 1994; Başusta and Erdem, 2000; Beğburs and Kebapçioğlu, 2007) in the same area indicated that *O. serpens* was absent among the fishes of the Antalya, Mersin, and İskenderun bays (NE Mediterranean). This phenomenon needs to be confirmed.

Although maximum length for this species has been reported as 2400 mm (Golani et al., 2006), some of the largest specimens—2000 mm TL from Brac Island, 2100 mm TL from Solta Island, and 2130 mm TL from Ciovo Island in the eastern Adriatic (Dulcic et al., 2005)—were

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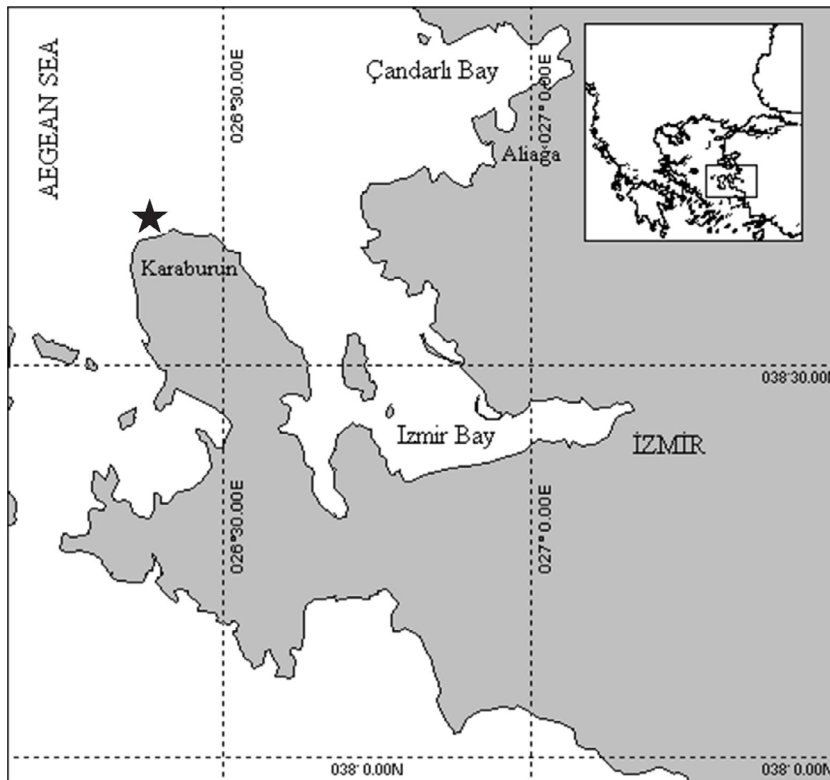
**Table 1.** Records of *Ophisurus serpens* in Turkish waters.

Location	Depth (m)	Fishing gear*	Record date	Number collected	Size (TL, mm)	References
Aliğa Bay, N Aegean Sea	35–40	LN	27 August 1966	1	-	Geldiay and Mater (1968)
NE Mediterranean, Turkey	5–100	T	2001–2003	41	121–501	Sangun et al. (2007)
Gökçeada, N Aegean Sea	<30	GN, TN	2004–2005	2	1580–1692	Karakulak et al. (2006)
Saros Bay, N Aegean Sea	1–500	T	2005–2008	-	-	Cengiz et al. (2011)
Karaburun, N Aegean Sea	32	HL	2 March 2014	1	1917	This study

\*LN: Lift net; T: trawl; GN: gill net; TN: trammel net; HL: hand line.



**Figure 1.** *Ophisurus serpens* (ref. ESFM-PIS/2014-001), captured from Karaburun, close to İzmir Bay, Aegean Sea.



**Figure 2.** Map of İzmir Bay indicating the capture site (star) of *Ophisurus serpens*.

**Table 2.** Some selected morphometric (in mm) and meristic data of *Ophisurus serpens* off the coast of Karaburun, Aegean Sea.

Weight (g)	1880
Morphometric characters (mm)	
Total length (TL)	1917
Predorsal length (LPD)	228 (11.9% TL)
Preanal length (LPA)	735 (38.3% TL)
Body depth (H)	30 (1.6% TL)
Head length (HL)	158 (8.2% TL)
Eye diameter (O)	10 (6.3% HL)
Preorbital length (PO)	47 (29.7% HL)
Meristic characters	
Dorsal fin	443
Anal fin	305
Pectoral fin	14
Number of pores in linea lateralis	191

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- recorded for the Mediterranean Sea. In the present study, we report not only the fourth largest specimen (1917 mm TL) for the Mediterranean, but also the largest specimen for Turkish waters.
- The number of pores in the linea lateralis for the specimen from Karaburun, İzmir, is 191, while Dulcic et al. (2005) and Ben Amor et al. (2009) noted 202 (eastern Adriatic) and 149 (333 mm TL, Tunis Southern Lagoon) pores, respectively. Thus, as the fish grows, the number of pores in the linea lateralis increases.
- Hereafter, the occurrence of this fish in the eastern part of the Mediterranean Sea might be explained by changing trophic and/or ecological conditions; there is a need to research this phenomenon.
- In conclusion, the occurrence of *O. serpens* is very rare in the Aegean Sea (merely 3 specimens recorded from Aliğa, Çandarlı Bay, and Gökçeada Island, northern Aegean Sea, by Geldiay and Mater, 1968; Karakulak et al., 2006); however, this ichthyological note shows that this fish is likely entering the İzmir Bay fish fauna.
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