

The confirmed occurrence of juvenile specimens of *Polyprion americanus* (Bloch & Schneider, 1801) from Iskenderun and Mersin Bays (Eastern Mediterranean, Turkey)

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ABSTRACT

One individual of *Polyprion americanus* (Bloch & Schneider, 1801) was captured by a bottom longline from Arsu coast, Iskenderun Bay at a depth of 22 m on 14 June 2015 and another individual was caught by trammel net from Yeşilovacık coast, Mersin Bay at a depth of about 30 m on 01 June 2017. Reporting two juvenile specimens, this paper confirms the occurrence of this species in Iskenderun and Mersin Bays (Eastern Mediterranean coast of Turkey) in addition to previous reports from the Mediterranean Sea. Besides, this report is the first observation for these locations and fills a gap in the distribution range of species. All measurements and counts, as well as morphological and color descriptions of juvenile individuals of *P. americanus* are given.

KEY WORDS: Polyprionidae, Wreckfish, Record, Young specimen, Mediterranean Sea

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1. Introduction

The wreckfish, *P. americanus* (Bloch & Schneider, 1801) is the member of the family Polyprionidae, and the genus *Polyprion* is represented by only single species in the Mediterranean Sea (Golani et al., 2006).

P. americanus is an oceanodromous, a large demersal fish species and inhabits continental and oceanic islands slopes of temperate and sub-tropical waters (Riede, 2004). It occurs in the Western Atlantic and Eastern Atlantic, Western Indian Ocean, and Southwest Pacific (Ball et al. 2000; Golani et al., 2006; Froese and Pauly, 2020).

P. americanus prefers to inhabit caves and shipwrecks, and young specimens usually live in a rocky area near artificial reefs and floating objects (Golani et al., 2006). The species is generally found in deep marine waters between depths of 40-600 m (Robins and Ray, 1986). Although they are more frequently found in waters deeper than 300 m (Tortonese, 1975; Fischer et al., 1987). Sedberry et al. (1999) also reported the maximum depth as 1000 m from the North Atlantic coast.

To date, the rare record of the species in the eastern Mediterranean was the first report of an observation made in 1969 from the Levantine coast of Turkey (Geldiay, 1969). After that, a few reports of the occurrence of the species in western and eastern Mediterranean Sea was made from Mallorca, Spain (Deudero and Morales-Nin, 2000), Crete, Greece and off Sicily, Italy (Machias et al., 2003) and Turkey (Basusta and Erdem, 2000; Akyol and Ceyhan, 2017; Gönülal, 2016).

Although the occurrence of *P. americanus* has been reported from Turkish marine waters in the eastern Mediterranean Sea in previous years (Basusta & Erdem, 2000), this species is extremely rare in the northeastern part of the Mediterranean Sea, Turkey. However, until now, the presence of juvenile individuals of *P. americanus* has not been confirmed from the Iskenderun and Mersin Bays.

2. Materials and Methods

One juvenile specimen of the *P. americanus* was caught with a bottom longline at a depth of 22 m in the Arsuz (Konacık) (36° 21' N, 35° 48' E),

Iskenderun Bay on 14 June 2015 (Figure 1) and other one specimen were captured by trammel net at a depth of 30 m on Yeşilovacık coast of Mersin Bay (36° 09' N, 33° 35' E) on 01 June 2017 (Figure 2). Sampling points of the species in the Eastern Mediterranean Sea coast of Turkey is presented in the map (Figure 3). These specimens were immediately transported to the laboratory for a more detailed examination. Morphometric measurements of the specimens were made to the nearest 0.1 mm using a digital caliper and weighed to the nearest gram (g). All measurements, counts, and morphological characters agree with those of Sedberry et al. (1999). These specimens were preserved in 4% formaldehyde and deposited in the Museum of the Systematic, Faculty of Fisheries, Mersin University, (catalog number: MEUFC-17-11-028).



Figure 1. A juvenile specimen of *P. americanus* 9.5 cm TL, in Konacık, Iskenderun Bay (Photo: Deniz Ergüden)



Figure 2. A juvenile specimen of *P. americanus* 20.0 cm TL, in Yeşilovacık, Mersin Bay (Photo: Deniz Ayas)

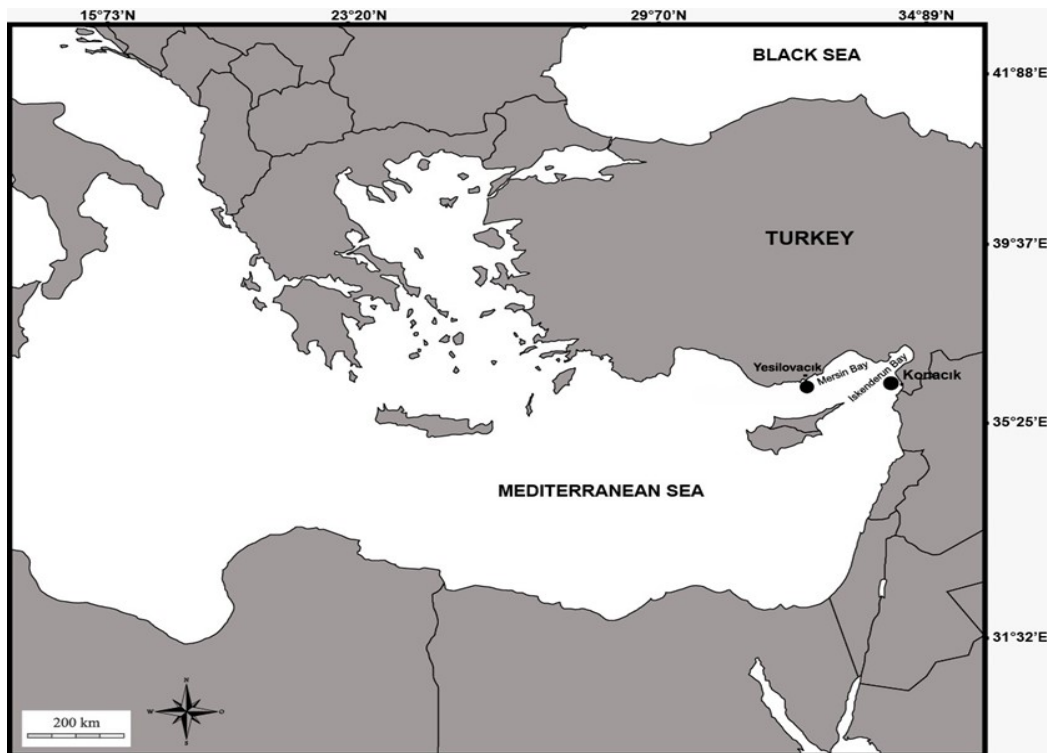


Figure 3. Map showing the capture sites (●) of *Polyprion americanus* in Mediterranean Sea coast of Turkey

3. Results

The body of *P. americanus* is oblong, moderately compressed. Head scaly and spiny is between the eyes and on the nape. Mouth terminal, with a big head and a rough bony ridge are across the upper part of the gill cover (Muus and Nielsen, 1999). Opercle with a distinctive horizontal ridge is ending in a short spine. A small spine is below at the edge of the opercle. The previous records of the *P. americanus* from the Atlantic and Mediterranean coast are given in Table 1, together with the findings of the present study. The reports indicated that the size range of the

species is usually between 9.5 cm and 119.4 cm in TL (Table 1 and Table 2).

The color of the juvenile specimens was brownish, mottled with irregular pale white to yellow markings, caudal with transparent white margin (Brady, 2018).

The main diagnostic characters and morphometric measurements of captured specimens of *P. americanus* are given in centimeters: the specimens were 9.5 cm and 20.0 cm in total length and 87.22 g and 211.10 g in total weight (Table 2). Morphometric and meristic characters of juvenile specimens are given in Table 2 and compared to the previous report from the North Atlantic (Shipp and Sedberry 2008).

Table 1. Records of *Polyprion americanus* from the Mediterranean Sea covering the period 1994-2017

References	Number of Samples	Record Date	Location	Sampling Gear	Depth	Length, TL (cm)
Basusta and Erdem (2000)	1	1994	Karataş, Turkey (Southern Mediterranean)	Angling	30-40	13.4
Machias et al. (2003)	297	Sept. 1999	Cretan waters (Eastern Mediterranean)	Longline	-	56
	88	Mar. 2001	Northwestern Ionian Sea, off Sicily, Italy (central Mediterranean)	Longline	-	65
			Bay of Biscay, France (Atlantic coast)			
Deudero and Morales-Nin (2000)	50			Drift net	-	-
	1	04.08.1995	Mallorca, Spain (Western Mediterranean)	Purse Seine	-	25.8-
	1	22.08.1995				34.2
	1	11.07.1996				
	4	28.07.1996				
	2	30.07.1996				
Gönülal (2016)	2	2015	North of Gökçeada (Northern Aegean Sea), Turkey	Longline	500-600	-
					600-800	
Akyol and Ceyhan (2017)	2	2014-2015	Finike-Olimpos, Turkey (W. Medierraenan)	Trammel Net	-	-
Present study	1	14.06.2015	Konacık (Arsuz), Iskenderun Bay, Turkey (Southeastern Mediterranean)	Longline	22	9.5
Present study	1	01.06.2017	Yeşiovacık Bay, Mersin Turkey (Northeastern Mediterranean)	Trammel net	30	20.0

Table 2. Measurements and counts of *P. americanus* compared with the previous records

Metric (cm)	This study (Iskenderun Bay, Southeastern Mediterranean)	This study (Mersin Bay, Northeastern Mediterranean)	Shipp and Sedberry (2008) (Gulf of Mexico, North Atlantic)
Number of Sample	n=1	n=1	n=1
Total length (TL)	9.5	20.0	119.4
Standard length (SL)	7.8	16.7	101.6
Head length (HL)	3.2	3.5	38.1
Body depth	6.8	8.1	-
Pre-dorsal fin length	5.1	6.2	-
Pre-pectoral fin length	3.1	7.2	-
Pre-pelvic length	4.2	7.9	-
Pre-anal fin length	5.3	13.4	-
Caudal fin length	2.0	3.2	-
Caudal peduncle length	1.8	2.9	-
Upper Jaw	0.9	1.9	-
Eye diameter	0.8	1.2	7
Pre-orbital length	1.7	2.3	-
Dorsal fin ray	4.7	9.8	-
Anal fin ray	2.2	6.1	-
Pectoral fin ray	2.5	3.3	-
Meristic			
Dorsal fin ray	XI + 11	XI + 12	XI + 12
Anal fin ray	III + 9	III + 9	III + 9
Pectoral fin ray	15	15	15
Pelvic fin ray	I + 5	I + 5	I + 5
Caudal fin ray	17	17	-
Weight (g)	87.22	211.10	-

4. Discussion

Polyprion americanus is a long-lived, deep-water demersal species, characterized by an extended pelagic juvenile phase associated with floating debris (Ball et al., 2000). The maximum age was observed in the southwestern Atlantic as 62 years for females and 76 years for males (Peres and Haimöovici, 2004). Besides, this species is characterized by a massive head and a stocky body with a slightly concave upper profile.

In this study, the first specimen reported in this study was captured at 22 m depth in its natural habitat in Konacık (Arsuz) on rocky bottoms, The second specimen was caught at a depth of 30 m from Yeşilovacık (Mersin Bay) by a trammel net (mesh size 22 mm). These indicated depth ranges are not in accordance with the literature (Froese and Pauly, 2020). These difference depth ranges could depend on the behavioral character of young samples, sampling gear, habitat, or environmental changes. Golani et al. (2006) reported the young specimens commonly live in rocky areas near artificial reefs and wrecks. Besides, the juveniles (<60 cm) occur at the surface, and also they are associated with floating seaweeds and wreckage (Sedberry et al. 1999) and tend to be attracted to the floating objects (Roberts, 1989; Sedberry et al., 1998).

In general, adult wreckfishes feed on fishes, crustaceans, cephalopod, and mollusks (Bianchi et al., 1999; Golani et al., 2006), pelagic juveniles feed on teleost fishes, particularly *Trachurus* species and other items (Deudero and Morales-Nin, 2000).

Although this species may reach a maximum length of 210 cm (Robins and Ray, 1986), and maximum weight up to 100 kg (Muus and Nielsen, 1999), commonly to 80 cm in length and 15 kg in weight, they usually occur between 45-55 cm in lengths (Bauchot, 1987; Froese and Pauly, 2020). Roberts (1977) reports a maximum total length of 65 cm for the pelagic phase and a minimum total length of 45.7 cm for the demersal phase.

The present study reported two wreckfish smaller than 25 cm total length (TL). Basusta and Erdem (2000) similarly reported as 13.4 cm, TL for the southern Mediterranean coast of Turkey. However, different sizes were reported as 25.8-34.2 cm from the western Mediterranean (Deudero and Morales-

Nin, 2000), as 56-65 cm from the central Mediterranean and Adriatic coast (Machias et al., 2003) and as 119.4 cm from the Gulf of Mexico, North Atlantic (Shipp and Sedberry, 2008) for this species. Although Ship and Sedberry (2008) reported that wreckfish bigger than 65 cm total length in their study, they stated in the fishery areas of the Gulf of Mexico have recorded these large specimens.

The wreckfish spreads widely, primarily in both sides of Atlantic (Western and Eastern Atlantic) including the Mediterranean (Heemstra, 1986), this species is found rarely in the Mediterranean Sea, up to now there has been no detailed information available for this region. It is still considered in the category of “Data Deficient (DD)” by the International Union for Conservation of Nature (IUCN) since 2003 (Sadovy, 2003; IUCN 2020). Thus, further research is required to reveal details about if the habitats of this species exist in the area or not. Besides, further collaboration between researchers and local fishers in the future should be provided for the early detection of juvenile specimens in the Mediterranean marine waters.

In the present paper, the occurrences of juvenile specimens of *P. americanus* are reported for the first time from Iskenderun and Mersin Bays. Besides, this report is the first confirmation for two locations and fills a gap in the distribution range of the species.

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