

ON THE OCCURRENCE OF THE SMALLSCALE CODLET, *BREGMACEROS NECTABANUS* (BREGMACEROTIDAE), OFF THE URLA COAST IN IZMIR BAY (AEGEAN SEA, EASTERN MEDITERRANEAN)

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ABSTRACT

The paper reports a new record of the smallscale codlet, Bregmaceros nectabanus, previously misidentified as B. atlanticus in the Turkish Aegean Sea. The specimen, measuring 95 mm in TL, was captured off the Urla coast in Izmir Bay and is one of the largest specimens recorded to date in the Mediterranean. It also constitutes the northernmost extension range of this species in the Aegean Sea. Given the rebuttal of the occurrence of B. atlanticus in the Mediterranean, B. nectabanus is evidently a Lessepsian migrant.

Key words: *Bregmaceros nectabanus*, new record, extension range, Izmir Bay, Aegean Sea

PRESENZA DI *BREGMACEROS NECTABANUS* (BREGMACEROTIDAE) AL LARGO DELLA COSTA DI URLA NELLA BAIA DI SMIRNE (MAR EGEO, MEDITERRANEO ORIENTALE)

SINTESI

L'articolo riporta un nuovo ritrovamento di Bregmaceros nectabanus, in precedenza erroneamente identificato come B. atlanticus nel mar Egeo turco. L'esemplare, 95 mm di TL, è stato catturato al largo della costa di Urla nella baia di Smirne, ed è uno dei più grandi avvistati fino ad oggi nel mare Mediterraneo. Si tratta del ritrovamento più settentrionale di questa specie ittica nel mar Egeo. Data la confutazione della presenza di B. atlanticus nel Mediterraneo, B. nectabanus è evidentemente un migrante lessepsiano.

Parole chiave: *Bregmaceros nectabanus*, nuovo record, estensione, baia di Smirne, mar Egeo

INTRODUCTION

It has been suggested that previous reports of *Bregmaceros atlanticus* Goode & Bean, 1886 as a monotypic species in the Mediterranean Sea were likely misidentifications of *Bregmaceros nectabanus* Whitley, 1941 (Harold & Golani, 2016). The authors mentioned three species belonging to the genus *Bregmaceros* (*B. nectabanus*, *B. arabicus* D'Ancona & Cavinato, 1965, and *B. maclellandi* Thompson, 1840) as possibly occurring in the Red Sea. *B. nectabanus* is distinguished from *B. atlanticus* and its congeneric species by a distally fimbriate opercular spine, nearly unpigmented abdomen and the presence of a thin dorsolateral longitudinal stripe below the second dorsal fin (Harold & Golani, 2016).

B. nectabanus is distributed in the eastern Atlantic from Morocco to Namibia and South Africa, including the Mediterranean (as *B. atlanticus*); the western Atlantic and the southeast Caribbean; the Indian Ocean and the tropical western Pacific as far as Fiji (Iwamoto, 2015).

In the Mediterranean Sea, a single specimen of *B. nectabanus* (as *B. atlanticus*) had been mentioned previously from the Strait of Sicily (D'Ancona & Cavinato, 1965), however, Cohen (1986) and Torii *et al.* (2003) implied that this record was questionable. Since then, the occurrence of *B. nectabanus* in the Mediterranean had not been reported until 2002. Yılmaz *et al.* (2004) identified two specimens of *B. nectabanus* in the

stomach of a lizardfish, *Saurida undosquamis*, caught in the Gulf of Antalya, southern Turkey, and Goren & Galil (2006) reported one specimen from off Palmahim near Ashdod, Israel. These records are shown in Table 1 and Figure 2. This paper provides all successive records of *B. nectabanus* in the eastern Mediterranean with an additional record from Izmir Bay, NE Aegean Sea.

MATERIAL AND METHODS

On 9th September 2014, one specimen of *B. nectabanus*, 95 mm TL (Fig. 1) was captured by a commercial trammel net targeting shrimp (40-mm mesh size) near the coastal waters of Urla, Izmir Bay (Coordinates: 38°23'N-26°46'E) at a depth of 20 m (Fig. 2). The specimen was fixed with a 5% formaldehyde solution and deposited in the fish collection of the Fisheries Faculty, Ege University (ESFM-PIS/2014-009).

RESULTS AND DISCUSSION

The specimen was measured to the nearest millimetre and weighed to the nearest decigram (Tab. 2); brief description of the specimen: body fusiform, elongated, the colour is silver-grey on the belly, with dense pigmentation entirely along the dorsum and a distinctive thin brown dorsolateral longitudinal stripe below the second dorsal fin. All the determined measurements and

Tab. 1: Capture records of *Bregmaceros nectabanus* in the Eastern Mediterranean since 2004. *As *Bregmaceros* sp.
Tab. 1: Lokalizacije, mesta so bili ujeti primerki vrste *Bregmaceros nectabanus* v vzhodnem Sredozemskem morju od leta 2004. *Označeno kot *Bregmaceros* sp.

Location	Coordinates Lat. N - Lon. E	Depth (m)	Record Date	Number collected	Size (mm)	References
Gulf of Antalya, Turkey	?	30	12 Oct. 2002	2	30-34 TL	Yılmaz <i>et al.</i> (2004)
Off Palmahim, Israel	31°05' - 34°03'	35	20 Sept. 2004	1	46.5 SL	Goren & Galil (2008)
Kuşadası Bay, Turkey	?	150	04 Feb. 2005	1	39 TL	Filiz <i>et al.</i> (2007)
Off Palmahim, Israel	31°05' - 34°03'	35	26 May 2006	3	47-62 SL	Goren & Galil (2008)
Off Iskenderun, Turkey	35°57' - 35°59'	120	15 Dec. 2010	5	70.7- 102 TL	Turan <i>et al.</i> (2011)
Izmir Bay, Turkey	38°28' - 26°47'	50	01 Dec. 2011	1	66 TL	Aydın & Akyol (2013)
Gulf of Seronikos, Greece	37°50' - 23°29'	90	31 July 2014	1	53 TL	Dogrammatzi & Karachle (2015)
Gulf of Seronikos, Greece	37°50' - 23°20'	98	02 Aug. 2014	7	54-64 TL	Dogrammatzi & Karachle (2015)
Rashid, Egyptian Med.	?	29	? Sept. 2014	1*	76 TL	Rizkalla & Akel (2015)
Izmir Bay, Turkey	38°23' - 26°46'	20	09 Sept. 2014	1	95 TL	This study



Fig. 1: *Bregmaceros nectabanus* captured in the Izmir Bay, NE Aegean Sea in September 2014 (ref. ES-FM-PIS/2014-009) (Photo: O. Akyol)

Sl. 1: Primerek vrste *Bregmaceros nectabanus* ujet v izmirskem zalivu, v severovzhodnem Egejskem morju v septembru 2014 (ref. ESFM-PIS/2014-009) (Foto: O. Akyol)

colour patterns are in accordance with the descriptions by Harold & Golani (2016), and Froese & Pauly (2016).

Although there existed fossil records of the genus *Bregmaceros* (Agiadi & Karakitsios, 2012) with no mention of *B. nectabanus*, Goren & Galil (2008) hypothesized on three probabilities of *B. nectabanus* (as *B. atlanticus*) presence in the Mediterranean: (a) they were part of a small native population, (b) they were introduced via the Suez Canal from the Red Sea, (c) they were transported with ballast water of ships as larvae or post larvae. The authors assumed that the presence of the Israeli specimens 25 km from the port of Ashdod in the direction of the prevailing coastal current suggested a possible introduction to the area through a frequent discharge of ballast water. Goren *et al.* (2009) also noted that they could have been carried as vectors into the Mediterranean in early life cycle stages via ship ballast water as they were not native to the Red Sea either. Eventually, the most recent study proved that *B. nectabanus* is a Lessepsian migrant and had been previously misidentified as *B. atlanticus* (Harold & Golani, 2016). These latest findings notwithstanding, a review of captures of *B. nectabanus* (see Fig. 2) during the past decade and more has shown that the species is also likely to have been introduced in the Eastern Mediterranean via ship ballast water, as it occurs near large ship harbours.

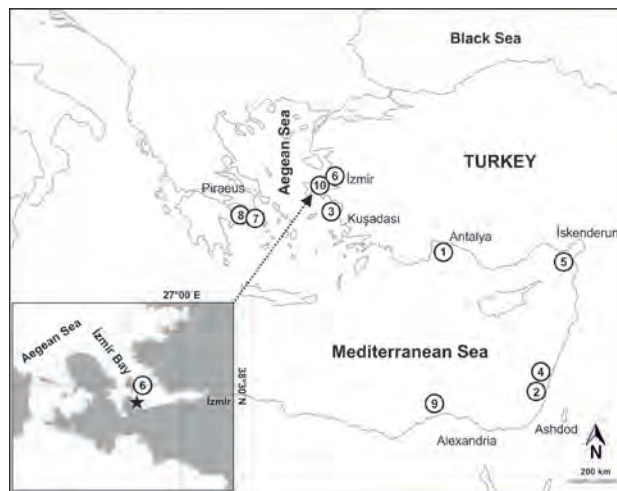


Fig. 2: Capture sites of *Bregmaceros nectabanus* specimens in the eastern Mediterranean between 2004 and 2015: 1. Gulf of Antalya (Yılmaz *et al.*, 2004), 2. Off Palmahim (Goren & Galil, 2008), 3. Kuşadası Bay, SE Aegean Sea (Filiz *et al.*, 2007), 4. Off Palmahim (Goren & Galil, 2008), 5. Off Iskenderun (Turan *et al.*, 2011), 6. Izmir Bay, NE Aegean Sea (Aydın & Akyol, 2013), 7-8. Gulf of Seranikos (Dogrammatzi & Karachle, 2015), 9. Off Rashid (Rizkalla & Akel, 2015), 10. Izmir Bay, NE Aegean Sea (this study).

Sl. 2: Lokalitete, na katerih so bili ujeti primerki vrste *Bregmaceros nectabanus* v vzhodnem Sredozemskem morju, med leti 2004 in 2015: 1. Antalijski zaliv (Yılmaz *et al.*, 2004), 2. pri Palmahimu (Goren & Galil, 2008), 3. zaliv Kuşadası Bay, JV Egejsko morje (Filiz *et al.*, 2007), 4. pri Palmahimu (Goren & Galil, 2008), 5. pri Iskenderunu (Turan *et al.*, 2011), 6. izmirski zaliv, SV Egejsko morje (Aydın & Akyol, 2013), 7-8. Zaliv Seranikos (Dogrammatzi & Karachle, 2015), 9. pri Rashidu (Rizkalla & Akel, 2015), 10. izmirski zaliv, SV Egejsko morje (pričujoče delo).

Tab. 2. Morphometric measurements in mm and as percentages of total length (%TL), and counts recorded in *Bregmaceros nectabanus* (for both ref. ESFM-PIS/2014-009 and ref. ESFM-PIS/2011-006), captured from the Urla coast, Izmir Bay. *This study, **Aydın & Akyol (2013), *SL is converted to TL.**

Tab. 2: Morfometrične meritve v mm in v deležu celotne dolžine (%TL) ter meristični podatki pri primerkih vrste *Bregmaceros nectabanus* (za primerke z ref. ESFM-PIS/2014-009 in ref. ESFM-PIS/2011-006), ujetih na obalah Urle, izmirski zaliv. *Pričujoče delo, **Aydın & Akyol (2013), *SL je bila preračunana v TL.**

Reference	ESFM-PIS/2014-009*		ESFM-PIS/2011-006**	
Measurements	Size (mm)	Proportion %	Size (mm)	Proportion %
Total length (TL)	95.0		66.0	
Standard length (SL)	83.0	87.4 TL	60.0	90.9 TL***
Maximum body depth	15.0	15.8 TL	10.0	15.2 TL
Predorsal fin length	34.0	35.8 TL	23.0	34.8 TL
Prepectoral fin length	15.0	15.8 TL	10.0	15.2 TL
Pre-anal fin length	34.0	35.8 TL	23.0	34.8 TL
Pre-ventral length	10.0	10.5 TL	-	-
Head length (HL)	14.0	14.7 TL	10.4	15.8 TL
Eye diameter	4.4	31.4 HL	3.0	28.8 HL
Preorbital length	3.0	21.4 HL	2.0	19.2 HL
Interorbital length	5.0	35.7 HL	-	-
Counts				
Dorsal fin rays	48		48	
Anal fin rays	49		49	
Pectoral fin rays	16		16	
Caudal fin rays	13		-	
Total body weight (gr)	5.6		-	

POJAVLJANJE VRSTE *BREGMACEROS NECTABANUS* (BREGMACEROTIDAE), V VODAH BLIZU URLI V IZMIRSKEMU ZALIVU (EGEJSKO MORJE, VZHODNO SREDOZEMLJE)

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POVZETEK

Avtorja poročata o novem zapisu o pojavljanju ribje vrste, *Bregmaceros nectabanus*, ki so jo predhodno pogosto napačno določevali kot vrsto *B. atlanticus* v turškem delu Egejskega morja. Petindevetdeset mm dolg primerek je bil ujet pri Urli v Izmirskemu zalivu in je eden izmed največjih do sedaj ujetih sredozemskih primerkov. Ta zapis tudi potrjuje širjenje areala te vrste v najbolj severne predele Egejskega morja. Glede na dejstvo, da se vrsta *B. atlanticus* v Sredozemskem morju ne pojavlja, je *B. nectabanus* očitno lesepska selivka.

Ključne besede: *Bregmaceros nectabanus*, nova najdba, širjenje areala, izmirski zaliv, Egejsko morje

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