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ABUNDANT RECORDS OF RED-EYE ROUND HERRING *ETRUMEUS GOLANII* (OSTEICHTHYES: CLUPEIDAE) FROM THE TUNISIAN COAST (CENTRAL MEDITERRANEAN)

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ABSTRACT

*This paper reports an additional record of red-eye round herring *Etrumeus golanii* DiBattista, Randall & Bowen, 2012 from the Tunisian coast. The studied specimen was singled out from a 640 kg haul of *E. golanii* caught off the northern Tunisian coast. The abundant catch suggests that an important and viable population has successfully established in this region. Nevertheless, further studies are needed to demonstrate that such an ichthyological event was not fortuitous.*

Key words: *Etrumeus golanii*, morphometric measurements, meristic counts, Lessepsian migration, central Mediterranean, Tunisia

NUMEROSI RITROVAMENTI DI *ETRUMEUS GOLANII* (OSTEICHTHYES: CLUPEIDAE) LUNGO LA COSTA TUNISINA (MEDITERRANEO CENTRALE)

SINTESI

*L'articolo riporta un ritrovamento aggiuntivo dell'aringa rotonda dagli occhi rossi, *Etrumeus golanii* DiBattista, Randall & Bowen, 2012, catturata lungo la costa tunisina. Il campione studiato è stato prelevato da una retata di 640 kg di *E. golanii*, prelevata al largo della costa tunisina settentrionale. Le recenti abbondanti catture di questa specie suggeriscono che una popolazione vitale si sia stabilita con successo in questa regione. Tuttavia, ulteriori studi sono necessari per dimostrare che tale evento ittologico non sia stato solamente fortuito.*

Parole chiave: *Etrumeus golanii*, misure morfometriche, conteggi meristici, migrazione lessepsiana, Mediterraneo centrale, Tunisia

INTRODUCTION

The red-eye round herring *Etrumeus golanii* DiBattista, Randall & Bowen, 2012 is a Lessepsian migrant (*sensu* Por, 1978), common in the Red Sea (Golani, 2005), which passed through the Suez Canal into the Mediterranean, where it was first recorded in Haifa Bay (Whitehead, 1963). The species has invaded the eastern Mediterranean, where it appears to be successfully established (Golani *et al.*, 2002). Furthermore, it has migrated towards western areas and has been recorded in the central Mediterranean, off the Island of Lampedusa (Falautano *et al.*, 2006), and southwards in the Gulf of Gabès, Tunisia (Boussellaa *et al.*, 2016).

In March 2017, in the course of routine monitoring of Tunisian waters, now a decade long practice, and

concomitantly, in the wake of a collaboration with experienced fishermen familiar with these fishing grounds, we were informed of a haul of fish caught during a trawling survey that took place off the northern Tunisian coast. The present paper offers a short description of a specimen from this catch, its morphometric and meristic measurements, and some comments about the real status of the species in the area.

MATERIAL AND METHODS

On 31st March 2017, a school of *Etrumeus golanii* was captured by pelagic trawl at an approximate depth of 60-70 m, off the city of Ras Jebel in northern Tunisia (37°13'22.89" N and 10°22'20.68" E) (Fig. 1), and a specimen was singled out for examination. Its total weight was recorded to the nearest gram and its morphometric measurements to the nearest millimetre, with percentages of standard length (% SL) and meristic counts (Tab. 1). The specimen was preserved in 10%

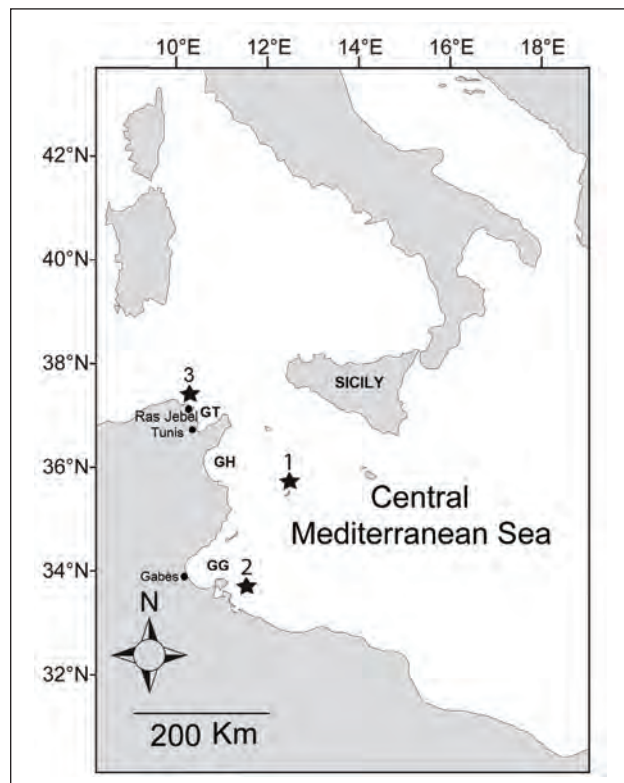


Fig. 1: Map of the central Mediterranean Sea, indicating (black stars) the capture sites of *Etrumeus golanii*. 1. Island of Lampedusa (Falautano *et al.*, 2006). 2. Gulf of Gabès (Boussellaa *et al.*, 2016). 3. Northern Tunisia, off Ras Jebel. GT: Gulf of Tunis, GH: Gulf of Hammamet. GG: Gulf of Gabès.

Sl. 1: Zemljevid osrednjega Sredozemskega morja z oznako lokalitete (črna zvezdica), kjer so ujeli vrsto *Etrumeus golanii*. 1. otok Lampedusa (Falautano *et al.*, 2006). 2. Gabeški zaliv (Boussellaa *et al.*, 2016). 3. severna Tunizija, blizu Ras Jebel. GT: tuniški zaliv, GH: Zaliv Hammamet. GG: Gabeški zaliv.

Tab. 1: Absolute and relative biometric and meristic data recorded in the specimen of *Etrumeus golanii*, specimen FSB-Etr-gol-01, caught in northern Tunisia, off Ras Jebel.

Tab. 1: Absolutni in relativni biometrični in meristični podatki pri primerku vrste *Etrumeus golanii*, FSB-Etr-gol-01, ujetem v vodah blizu Ras Jebel v severni Tuniziji.

Reference	FSB-Etr-gol-01	
Morphometric measurements	mm	%SL
Total length	222.0	118.0
Fork length	200.0	106.3
Standard length (SL)	188.0	100.0
Body depth	41.2	21.9
Head length	44.3	23.5
Eye diameter	13.0	6.9
Dorsal fin base length	31.6	16.8
Anal fin base length	11.0	5.8
Predorsal length	82.5	43.8
Pelvic fin length	14.0	7.4
Meristic counts		
Dorsal finrays	19	
Anal finrays	9	
Pectoral finrays	16	
Pelvic finrays	9	
Masses (g)		
Total body weight	109.3	



Fig. 2: *Etrumeus golanii*, specimen FSB-Etr-gol-01, captured in northern Tunisia, off Ras Jebel, with scale bar = 40 mm.

Sl. 2: *Primerek vrste Etrumeus golanii*, FSB-Etr-gol-01, ujet ob severni obali Tunizije, blizu lokalitete Ras Jebel, z merilom = 40 mm.

buffered formalin and deposited in the Ichthyological Collection of the Faculté des Sciences of Bizerte (Tunisia) under the catalogue number FSB-Etr-gol-01 (Fig. 2).

RESULTS AND DISCUSSION

Further to information provided by fishermen, the present specimen was singled out from a catch of several *Etrumeus golanii* (Fig. 3). Previously, the fishermen used to identify and sell this species in some Tunisian fish markets as European anchovy *Engraulis encrasicolus* (Linnaeus, 1758), but they noticed some morphological differences between the two species and requested our help in identifying the catch. The specimen singled out was identified as *E. golanii* based on a set of morphological characteristics: body elongated and cylindrical in its anterior part, large head, eye covered with adipose eyelid, dorsal fin origin before midpoint, pelvic fin behind dorsal fin base, a single W-shaped pelvic scute at the base of the pelvic fins, lack of a series of scutes along the belly, scales very deciduous, easily detached, colour dark blue, silver on the flanks and belly.

The description, colour, morphometric measurements, meristic counts and %SL are in complete agreement with previous findings by Golani et al. (2002), Falautano et al. (2006), DiBattista et al. (2012) and Boussellaa et al. (2016). They confirm the presence of *E. golanii* in the Tunisian waters and this record marks the northernmost extension of the species off the Tunisian coast, and its westernmost extension in the Mediterranean Sea. The studied specimen measured 222 mm in total length (TL) and weighed 109.3 g; it was a medium-sized *E. golanii*; for instance, Golani et al. (2002) reported



Fig. 3: Haul of *Etrumeus golanii* in tanks testifying to the abundance of the catch of this species in the northern Tunisian coast.

Sl. 3: Ulov vrste *Etrumeus golanii* v prostorih za skladiščenje, ki potrjuje masiven ulov vrste ob severni tunizijski obali.

that the species' TL, based on the specimens observed, generally ranges between 150 and 280 mm TL.

Falautano et al. (2006) recorded a single specimen in the waters around the Island of Lampedusa, and Boussellaa et al. (2016) reported a capture of 7 specimens from the Gulf of Gabès. The catch made in northern Tunisia was quantitatively more important, and according to the statistical landing quantities of the National Tunisian Fisheries, 640 kg of *E. golanii* were collected by different pelagic trawls over a period of several days (Azzouz, personal communication, 2017). This is the first time for such a large quantity of this species to be reported in the Mediterranean. It is an important ichthyological event indicating that the living conditions in this part of the Mediterranean Sea are favourable to the development of this species, thus allowing and accounting for the rapid spread of its population throughout the area since its first record (Whitehead, 1963). *E. golanii* is a pelagic fish prone to large migrations, which is why such an abundant catch could be considered fortuitous, especially since Falautano et al. (2006) and Boussellaa et al. (2016) stated that the species was not frequent in this area. However, such an important school of fish could also indicate that the species was more abundant in the area even at the time of previous studies, but overlooked, or that its population has grown since. Or was this, nevertheless, just a fortuitous catch? Such a hypothesis cannot be totally ruled out even if a successful establishment of *E. golanii* in some areas of the Mediterranean region seems definite and permanent (Golani et al., 2002).

ŠTEVILNE NAJDBE VRSTE *ETRUMEUS GOLANII* (OSTEICHTHYES: CLUPEIDAE) OB TUNIZIJSKI OBALI (OSREDNJE SREDOZEMLJE)

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POVZETEK

Avtorji poročajo o novih podatkih o pojavljanju vrste *Etrumeus golanii* DiBattista, Randall & Bowen, 2012 ob obali Tunizije. Raziskani primerek izvira iz 640 kg težkega ulova rib *E. golanii* iz voda ob severni tunizijski obali. Zajeten ulov nakazuje, da se je v danem okolju vrsta ustalila. Vseeno pa so potrebne nadaljnje raziskave, ki bodo potrdile, da ne gre za osamljen pojav.

Ključne besede: *Etrumeus golanii*, morfometrične meritve, meristična štetja, lesepske selivke, osrednje Sredozemlje, Tunizija

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