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ADDITIONAL CAPTURE OF *HALOSAURUS OVENII* (ACTINOPTERYGII: NOTACANTHIFORMES: HALOSAURIDAE) IN ITALIAN WATERS

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ABSTRACT

A single specimen of *Halosaurus ovenii* Johnson, 1864 was collected in 2013 in the Tyrrhenian Sea, western Mediterranean. The finding contributes to the knowledge on the geographical distribution of this rare species in the whole basin. The occurrence of *H. ovenii* is reported for the fifth time in the Mediterranean and for the third in the Italian waters.

Key words: Halosauridae, rare species, deep waters, Mediterranean Sea

NUOVA CATTURA DI *HALOSAURUS OVENII* (ACTINOPTERYGII: NOTACANTHIFORMES: HALOSAURIDAE) IN ACQUE ITALIANE

SINTESI

Viene segnalato il ritrovamento nel 2013 di un esemplare di *Halosaurus ovenii* Johnson, 1864 nelle acque del mar Tirreno, Mediterraneo occidentale, contribuendo alla conoscenza della distribuzione geografica di questa specie rara in tutto il bacino. Si tratta della quinta segnalazione di *H. ovenii* per il Mediterraneo e della terza per le acque italiane.

Parole chiave: Halosauridae, specie rara, acque profonde, mar Mediterraneo

INTRODUCTION

The family Halosauridae contains 16 species worldwide divided in three genera, *Halosaurus* Johnson, 1863; *Halosauropsis* Collett, 1896 and *Aldrovandia* Goode & Bean, 1896 (Bañón et al., 2016; Froese & Pauly, 2020). Four species in the genus *Halosaurus* occur in the eastern Atlantic: *Halosaurus ovenii* Johnson, 1864, *H. johnsonianus* Vaillant, 1888, *H. guentheri* Goode and Bean, 1896 and *H. attenuatus* Garman, 1899 (Sulak, 1990; Smith, 2016).

Oven's Halosaur (*H. ovenii*) is benthopelagic at depths ranging from 200 to 2800 m, but usually less than 800 m (D'Onghia et al., 2004; Pais et al., 2009; Bañón et al., 2016), and feeds on polychaetes, sipunculids, crustaceans and fish (Froese & Pauly, 2020). This fish occurs on both sides of the Atlantic and in the Mediterranean Sea. In the eastern Atlantic it occurs in the south of Ireland,

Gulf of Biscay, Spain, Portugal, Madeira, Azores, and Canary Islands and the western African coast from Morocco to South Africa; in the western Atlantic it is present from New York to Colombia, including the Gulf of Mexico, the Caribbean Sea and the Antilles (Bañón et al., 2016).

The Oven's Halosaur was recorded in the ichthyofauna of the deep Mediterranean waters in 1960, when the first specimen was reported off the Habibas Islands (Algeria) (Dieuzeide, 1963; Tortonese, 1964; Fredj & Maurin, 1987). Successively, other three specimens of *H. ovenii* have been collected, all in the western part of the basin: off Capo Teulada (Sardinia, Italy), in March 1980 (Cau & Deiana, 1979), off the Balearic Islands (Spain), in June 2001 (D'Onghia et al., 2004) and 1.5 miles off the port of Arbatax (Sardinia, Italy), in April 2007 (Pais et al., 2009), in the north Tyrrhenian Sea, following the subdivisions of the Italian seas proposed by Bianchi (2004).

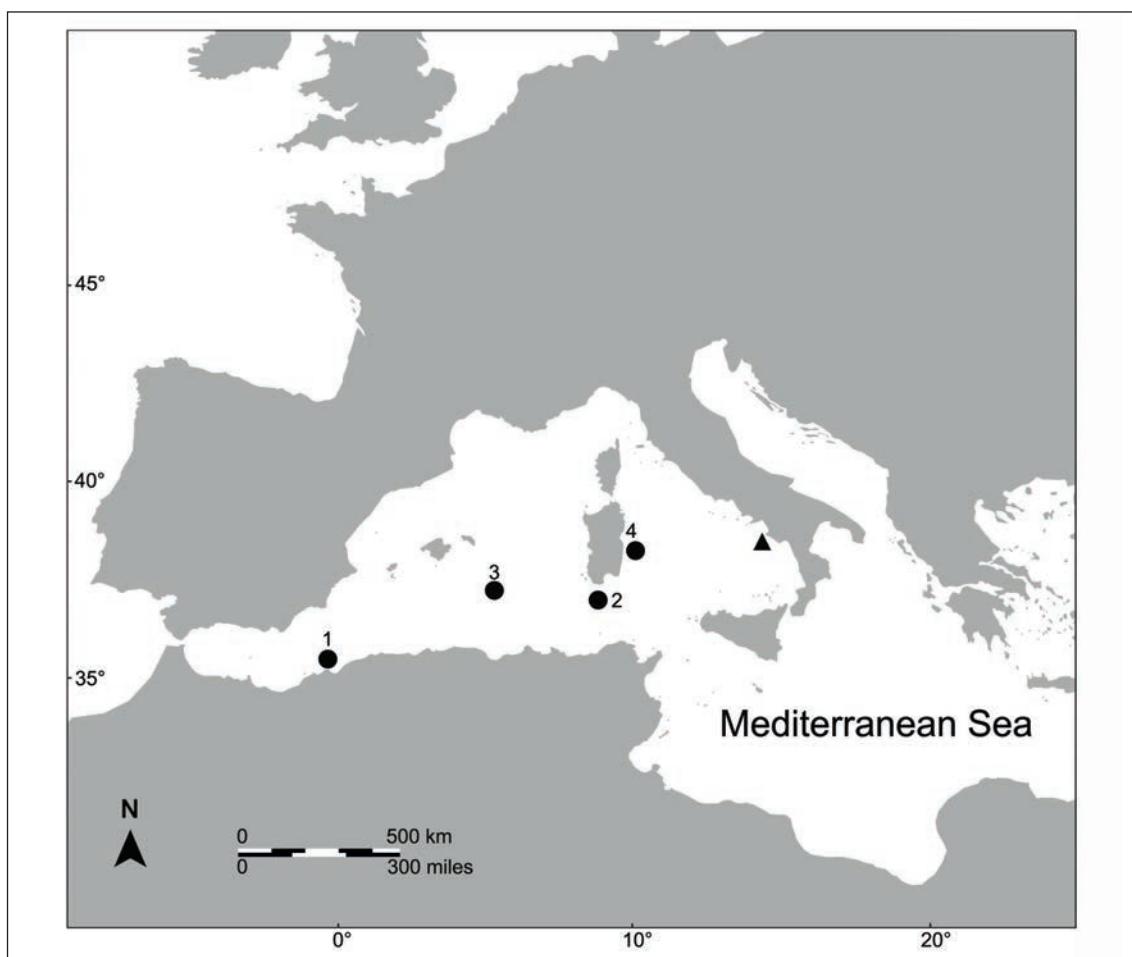


Fig. 1: Records of *Halosaurus ovenii* in the Mediterranean Sea (● Previous records. 1: Dieuzeide (1963); 2: Cau & Deiana (1979); 3: D'Onghia et al. (2004); 4: Pais et al. (2009); ▲ Present study).
Sl. 1: Zapisi o pojavljanju vrste *Halosaurus ovenii* v Sredozemskem morju (● prejšnji zapisi. 1: Dieuzeide (1963); 2: Cau & Deiana (1979); 3: D'Onghia et al. (2004); 4: Pais et al. (2009); ▲ Pričujoča raziskava).



Fig. 2: *Holosaurus ovenii* from Punta Licosa, Castellabate (Salerno, Italy), 475 mm total length (A), and detail of head (B: lateral view, C: ventral view). (Photo: Aniello Amato).

Sl. 2: Primerek vrste *Halosaurus ovenii* iz lokalitete Punta Licosa, Castellabate (Salerno, Italija), 475 mm celotne dolžine (A), in detalj glave (B: pogled z boka, C: spodnja stran). (Foto: Aniello Amato).

Tab. 1: Measurements (mm), main proportions (as % of gnathoproctal length, GPL), meristics and weight (g) of the *Halosaurus ovenii* specimen from the south Tyrrhenian Sea.**Tab. 1: Meritve (mm), glavna razmerja (kot % gnathoprotalne dolžine, GPL), meristika in teža (g) primerka vrste *Halosaurus ovenii* iz južnega Tirenskega morja.**

Morphometric measurements	mm	% GPL
Total length	475	
Gnathoprotal length	234.3	
Body height	37.7	16.1
Head length	63.9	27.3
Snout length	23.7	10.1
Predorsal length	156	66.6
Preanal length	245.8	
Eye diameter length	10.1	4.3
Eye diameter height	7.1-7.5	
Interorbital width	5.7	2.4
Meristic counts		
Dorsal fin rays	I+10	
Anal fin rays	>140	
Pectoral fin rays	I+12	
Ventral fin rays	I+8	
Scales above lateral line	14	
Gill rakers 1st arch	12 (9+3)	
Total weight (g)	142	

In the present study, the finding of a specimen from the south Tyrrhenian Sea is described, contributing to improve knowledge on the geographical distribution of this deepwater fish rarely captured in the Mediterranean.

MATERIAL AND METHODS

A specimen of *H. ovenii* was caught on 7 June 2013 with a bottom trawler off Punta Licosa, Castellabate (Salerno, Italy), southeast Tyrrhenian Sea ($40^{\circ}13'54.04''N$, $14^{\circ}32'40.15''E$), at 600 m of depth (Fig. 1). It is preserved in liquid at the Museo Civico di Storia Naturale di Comiso, Ragusa (Italy) with the Catalogue number MSNC 4874.

Meristic characters were counted and the main biometric measurements were taken according to McDowell (1973) and Paulin & Moreland (1979), using a caliper (accuracy 0.1 mm).

RESULTS AND DISCUSSION

The specimen was identified as *H. ovenii* following McDowell (1973), Sulak (1986), Smith (2016) and Bañón et al. (2016). The specimen which measured 475 mm in total length and weighed 142 g, presented the following features (Fig. 2): body elongate and attenuated to the caudal peduncle; tail slender and attenuate, anus slightly before mid length. Cycloid scales covering all the body, including top and sides of head anterior to tip of lower jaw and opercle (Fig. 2A, B). Lateral line well developed, runs along lower side of body. Snout extending in front of mouth, over the lower jaw, and provided by a large and thin rostrum-like (Fig. 2). Snout contained 2.7 times in head length. Head elongate, its length contained 3.8 times in preanal length. Mouth inferior, overhung by snout; teeth small (Fig. 2C). Dorsal fin short-based, on midtrunk, slightly closer to anus than to tip of snout, all rays segmented, anal-fin base long, extending from just behind anus to tip of tail; pectoral fin above lateral midline; pelvic fins located abdominally just in front of dorsal fin; caudal fin absent. Color: silvery rose, darker dorsally; mouth dark on the roof and in front of the tongue, pale in the remaining areas; gill cavity dark (Fig. 2C); lateral line scales unpigmented. The proportions of main measurements and meristic counts (Tab. 1) were in agreement with Pais et al. (2009) and Bañón et al. (2016).

The species *H. ovenii* reaches 600 mm in total length and 260 mm in preanal length (Froese & Pauly, 2020). Our sample from the southeastern Tyrrhenian Sea was an adult similarly to the specimens collected in the southern and the eastern Sardinian waters (Cau & Deiana, 1979; Pais et al., 2009). It was caught at a depth included in the range reported for the species (Froese & Pauly, 2020) and similar to the depth of 550 m observed for the capture in Algerian waters (Dieuzeide, 1963) and of 620 m reported from the south of Sardinia, Italy (Cau & Deiana, 1979), while the shallowest and deepest records for this fish were respectively 200 m from the Sardinian waters (Pais et al., 2009) and 2800 m from off the Balearic Islands (D’Onghia et al., 2004). Up to date, the finding described in the present study represents the easternmost record of the species in the Mediterranean Sea (Fig. 1).

The Oven’s Halosaur *H. ovenii* has been previously considered by some authors a non-indigenous species of Atlantic origin that reached the Mediterranean basin via the Gibraltar Strait (Relini & Lantieri,

2010; Zenetos *et al.*, 2010; Occhipinti-Ambrogi *et al.*, 2011; Psomadakis *et al.*, 2012; Golani *et al.*, 2013; Grimes *et al.*, 2018). Nevertheless, a number of species having displayed a natural range expansion from the Atlantic toward the Mediterranean through the Strait of Gibraltar were removed by many authors from the inventories of non-indigenous species, including *H. ovenii* (Zenetos *et al.*, 2012; Servello *et al.*, 2019). Taking into account that it is a species widely distributed in the eastern Atlantic, it has been recently suggested to consider *H. ovenii* as a cryptogenic species for the Mediterranean (Evans *et al.*, 2020). Undoubtedly, being a deepwater fish recorded few times in the basin, it could be defined a “very rare” species, following Bello *et al.* (2014).

Probably, a fraction of the deep-sea Mediterranean biodiversity is still unknown, although intensification of research investigations and the use of new

technologies are enriching its knowledge (Danovaro *et al.* 2010; IUCN, 2019; Lombarte *et al.*, 2021). The finding of *H. ovenii* here reported is the second for the Tyrrhenian Sea after the record described by Pais *et al.* (2009), and the first for its southern sector, a basin that revealed a high fish diversity of 447 species, 65.4 % of the whole Mediterranean ichthyofauna (Psomadakis *et al.*, 2012).

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NOVI ULOV VRSTE *HALOSAURUS OVENII* (ACTINOPTERYGII: NOTACANTHIFORMES: HALOSAURIDAE) V ITALIJANSKIH VODAH

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POVZETEK

V Tirenskem morju (zahodno Sredozemsko morje) so leta 2013 ujeli primerek vrste Halosaurus oovenii Johnson, 1864. Najdba je obogatila poznavanje razširjenosti te redke vrste v celotnem bazenu. To je peti primer pojavljanja vrste H. oovenii v Sredozemskem morju in tretji za italijanske vode.

Ključne besede: Halosauridae, redke vrste, globoko morje, Sredozemsko morje

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