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FIRST SUBSTANTIATED RECORD OF OPAH, *LAMPRIS GUTTATUS* (OSTEICHTHYES: LAMPRIDIDAE), FROM THE TUNISIAN COAST (CENTRAL MEDITERRANEAN SEA)

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ABSTRACT

The authors report on the capture of a specimen of opah, *Lampris guttatus* (Brünnich, 1788), from the northern coast of Tunisia. It measured 1.40 m in total length and weighed 47.65 kg, and is, probably, among the largest and the heaviest *L. guttatus* to date reported from the Mediterranean Sea. The species is endothermic, and thus able to live in cool waters and migrate to warmer regions. This finding represents the first record of the species for Tunisian waters and the central Mediterranean Sea. At the same time, it defines the extension of the southernmost range limit of the species in this sea.

Key words: *Lampris guttatus*, total length, total body weight, distribution, endothermy, extension range

PRIMO RITROVAMENTO DOCUMENTATO DI OPAH, *LAMPRIS GUTTATUS* (OSTEICHTHYES: LAMPRIDIDAE), LUNGO LA COSTA TUNISINA (MEDITERRANEO CENTRALE)

SINTESI

Gli autori riportano la cattura di un esemplare di opah, *Lampris guttatus* (Brünnich, 1788), lungo la costa settentrionale della Tunisia. Il pesce misurava 1,40 m di lunghezza totale e pesava 47,65 kg, ed è, probabilmente, tra i più grandi e più pesanti esemplari di *L. guttatus* fino ad oggi riportati per il Mediterraneo. La specie è endotermica, quindi in grado di vivere in acque fredde e migrare verso regioni più calde. Questa cattura rappresenta il primo ritrovamento della specie per le acque tunisine ed il Mediterraneo centrale. Definisce inoltre l'estensione del limite più meridionale della specie in questo mare.

Parole chiave: *Lampris guttatus*, lunghezza totale, peso corporeo totale, distribuzione, endotermia, range di estensione

INTRODUCTION

The opah, *Lampris guttatus* (Brünnich, 1788), is an oceanic species distributed worldwide in tropical and temperate waters, well-known in the Atlantic and eastern Pacific (Palmer, 1986). It is a mid-water pelagic species, dwelling between 100 and 400 m of depth (Palmer, 1986). *L. guttatus* has also been known in the Mediterranean Sea, where it used to be considered very rare, with less than 25 specimens reported in the literature (Francour et al., 2010). However, an updated review of records from the western Mediterranean Basin now indicates that at least 23 specimens have recently been recorded in the French coast (Francour et al., 2010).

L. guttatus is reported from the Adriatic Sea, where previous and recent captures of single specimens are listed by Dulčić et al. (2005) and Sulić Šprem et al. (2014). Eastward, the species is recorded in the Greek seas (Sinis, 2004) and reported in the checklist of marine fishes from Turkey (Bilecenoglu et al., 2014). However, the first substantiated record of *L. guttatus* from Turkish marine waters was reported by Ergüden et al. (2019). Conversely, the species has not yet been recorded in the Levant Basin (Golani, 2005; Ali, 2018; Bariche & Fricke, 2019).

Lloris & Rocabado (1998) noted the occurrence of *L. guttatus* in the Moroccan shore, but did not furnish any data on the capture area, Atlantic or Mediterranean. Similarly, no record of the species has been

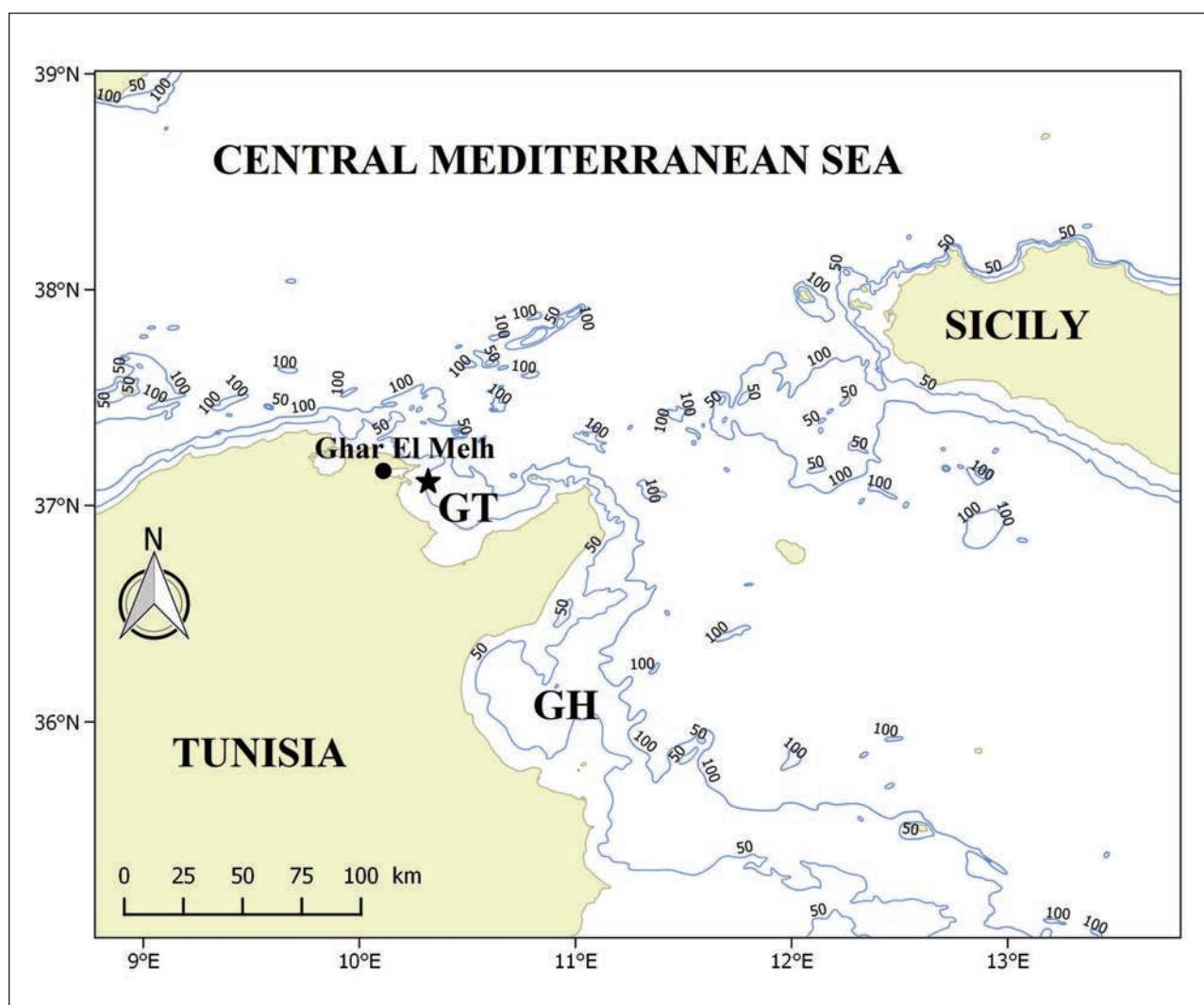


Fig. 1: Map of northern Tunisia with the site where *Lampris guttatus* was caught (black star). GH: Gulf of Hammamet. GT: Gulf of Tunis.

Sl. 1: Zemljevid obravnavnega območja z označeno lokaliteto, kjer je bil ujet primerek svetlice (*Lampris guttatus*) (črna zvezdica). GH: zaliv Hammamet. GT: zaliv Tunis.

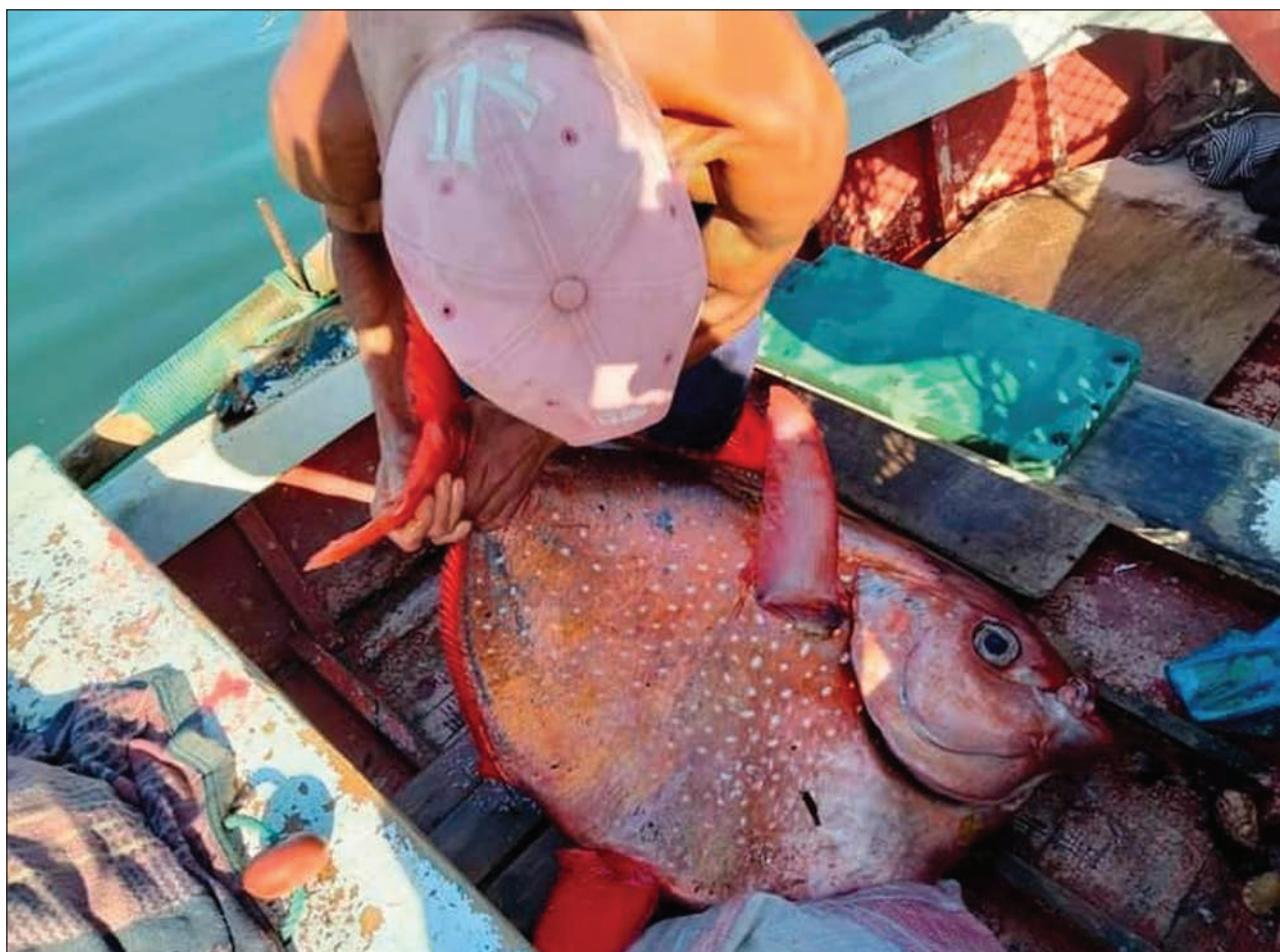


Fig. 2: *Lampris guttatus* captured off Coco Beach, close to Ghar El Melh, aboard the small vessel.
Sl. 2: Primerek svetlice (*Lampris guttatus*) na krovu manjšega plovila, ujet pri plaži Coco Beach, blizu Ghar El Melh.

provided from the Tunisian coast (Bradai et al., 2004; Rafrati-Nouira et al., 2015; Rafarafati-Nouira, 2016; Ounifi-Ben Amor et al., 2016). To date, only one substantiated capture has been reported from the Maghreb shore. The capture occurred in the central Algerian coast (Francour et al., 2010). Regular routine monitoring conducted throughout the Tunisian coast with the assistance of experienced fishermen allowed us to collect the specimen described in the present paper.

MATERIAL AND METHODS

On 18 May 2021, a specimen of *L. guttatus* was captured in the fishing area of Ghar El Melh, in Coco Beach (Fig. 1), located in northern Tunisia ($37^{\circ}08'58.66''$ N, $10^{\circ}16'37.03''$ E), at a depth of 20 metres, on sandy bottom, together with several blotched picarel, *Spicara maena* (Linnaeus, 1758). It was caught by a fisherman using a small vessel and an 80 m long commercial gill with 20 mm stretched

mesh size (Fig. 2). The specimen was delivered to the fish market of Ghar El Melh (Fig. 3) and rapidly sold, therefore it was only possible for us to record its total length (TL) and total body weight (TBW).

RESULTS AND DISCUSSION

The present specimen was identified as *L. guttatus* via a combination of main morphological characters: body oval, large and compressed, dorsal and anal fins long and simple, both retractable into deep grooves, first dorsal fin rays forming anterior falcate lobe; pelvic fins and dorsal fins long and falcate; anal fin long-based, without anterior lobe; caudal fin broadly lunate; back blue shading to green, belly silvery with whitish spots, fins reddish.

This identification is in complete agreement with previous descriptions of *L. guttatus* by, among others, Palmer (1986), Dulčić et al. (2005), Francour et al. (2010), Underkofler et al. (2018), and Ergüden et al. (2019). Therefore, the present findings constitute the



Fig. 3: *Lampris guttatus* captured off Coco Beach, at the fish market of Ghar El Melh, scale bar = 300 mm.
Sl. 3: Primerek svetlice (*Lampris guttatus*), ujet pri plaži Coco Beach, na ribji tržnici v Ghar El Melh, merilo = 300 mm.

first substantiated record of *L. guttatus* from Tunisian waters. The species can be included in the list of Tunisian ichthyofauna, enlarging the number of fish species to date reported from the area (Bradai et al., 2004; Ounifi-Ben Amor et al., 2016; Raftai-Nouira et al., 2016). Additionally, the present constitutes the second record of the species from the southern Mediterranean Sea. The first record was made off Gouraya, from the central Algerian coast, and concerned a small specimen of 385 mm TL and 1.281 kg TBW (Francour et al., 2010). The specimen discussed in the present study measured 1.40 m TL and 47.65 kg in TBW (Fig. 4), ranking among the largest and heaviest *L. guttatus* known to date in the Mediterranean Sea. However, a maximum length of 2 m and a maximum weight of 270 kg have been reported by Gon (1990, in Ergüden, 2019).

Tortonese (1970) noted that the species was rare in the Mediterranean Sea and only sporadically caught in Italian waters. Such observation is in congruence with the fact that *L. guttatus* is a rather solitary spe-

cies (Palmer, 1986). Conversely, Dulčić et al. (2005) noted an increase of captures in the Adriatic Sea, and Francour et al. (2010) along the French Mediterranean coast, probably due to the warming of Mediterranean marine waters (Francour et al., 1994). The relative abundance of captures in some areas of the western Mediterranean basin suggests possible establishments of viable populations. However further records are needed for more accurate evaluations of the real status of the species in the Mediterranean Sea.

L. guttatus also inhabits the cold waters of the eastern Atlantic Ocean (Palmer, 1986); such occurrence is probably made possible by the fact that the species displays a whole-body form of endothermy (Wegner et al., 2015). Unlike other fish, in *L. guttatus* the warm blood is distributed throughout the body, including the heart, enhancing the animal's physiological performance during foraging in cold areas (Wegner et al., 2015). Therefore, migrations from northern to southern Atlantic areas are feasible, and since these are followed by further advancement to



Fig. 4: Lampris guttatus captured off Coco Beach, at the fish market of Ghar El Melh, white arrow indicating the total body weight of the specimen, scale bar = 150 mm.
Sl. 4: Primerek svetlice (Lampris guttatus), ujet pri plaži Coco Beach, na ribji tržnici v Ghar El Melh. Bela puščica označuje celokupno maso primerka, merilo = 150 mm.

the Mediterranean Sea through the Strait of Gibraltar, we may consider *L. guttatus* a Herculean migrant (*sensu* Quignard & Tomasini, 200). It is an unusual case of migration, as generally such migrants come from the warmer waters of south-eastern Atlantic.

The Tunisian coast is a transition area between the eastern and western Mediterranean Basins, and migration of alien species has frequently been reported from the same area (Rafrafai-Nouira *et al.*, 2015, 2016; Ounifi-Ben Amor *et al.*, 2016). The present record confirms similar previous observations; interestingly, it

also constitutes the first record for the central Mediterranean Sea and, concomitantly, defines the extension of the southernmost range limit of *L. guttatus* in the wider sea.

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PRVI DOKUMENTIRAN ZAPIS O POJAVLJANJU SVETLICE, *LAMPRIS GUTTATUS*
(OSTEICHTHYES: LAMPRIDIDAE), IZ TUNIZIJSKE OBALE
(OSREDNJE SREDOZEMSKO MORJE)

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POVZETEK

Avtorji poročajo o ulovu primerka svetlice, *Lampris guttatus* (Brünnich, 1788), iz severne tunizijske obale. Meril je 1,40 m v dolžino in tehtal 47,65 kg. Verjetno gre za enega izmed največjih in najtežjih primerkov dosedaj opaženih v Sredozemskem morju. Gre za endotermno vrsto, ki lahko naseljuje hladne vode in se seli v toplejše predele. Ta primer predstavlja prvi podatek o pojavljanju te vrste v tunizijskih vodah in v osrednjem Sredozemskem morju, obenem pa kaže na razširjanje areala v smeri skrajne južne meje razširjenosti.

Ključne besede: *Lampris guttatus*, celotna dolžina, celokupna masa, razširjenost, endotermija, širjenje areala

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