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ON THE OCCURRENCE OF *LUTJANUS ARGENTIMACULATUS* (FORSSKÅL, 1775) IN THE SOUTH-EASTERN MEDITERRANEAN, TURKEY

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ABSTRACT

A single large specimen of mangrove red snapper Lutjanus argentimaculatus (Forsskål, 1775) with a total length of 59.5 cm and weight of 3386 g was caught with a spear gun on 30 November 2022 in the coastal waters of the Iskenderun Bay (Konacik), Turkey at a depth of 12 m. The present paper is the first report of the occurrence of L. argentimaculatus in Turkey's south-eastern Mediterranean marine waters. The species is believed to be spreading rapidly in the Mediterranean waters of Turkey.

Key words: Mangrove Red Snapper, Lutjanidae, Extension, Mediterranean Sea

PRESENZA DI *LUTJANUS ARGENTIMACULATUS* (FORSSKÅL, 1775) NEL MEDITERRANEO SUD-ORIENTALE, TURCHIA

SINTESI

Un unico grande esemplare di Lutjanus argentimaculatus (Forsskål, 1775), con una lunghezza totale di 59,5 cm e un peso di 3386 g, è stato catturato con un fucile subacqueo il 30 novembre 2022 nelle acque costiere della baia di Iskenderun (Konacik), in Turchia, a una profondità di 12 m. Il presente lavoro rappresenta la prima segnalazione della presenza di L. argentimaculatus nelle acque marine del Mediterraneo sud-orientale della Turchia. Si ritiene che la specie si stia diffondendo rapidamente nelle acque mediterranee della Turchia.

Parole chiave: Lutjanidae, estensione, mare Mediterraneo

INTRODUCTION

Since its opening in August 1869, the Suez Canal has enabled numerous marine organisms originating from the Indian Ocean and the Red Sea to enter the Mediterranean Sea. This phenomenon was designated as ‘Lessepsian migration’ by Por (1978).

The mangrove red snapper *Lutjanus argentimaculatus* (Forsskal, 1775) belongs to the Lutjanidae family, which consists of 112 species distributed worldwide (Nelson *et al.*, 2016; Akyol *et al.*, 2019; Froese & Pauly, 2022). *L. argentimaculatus* is a benthic fish species with a preference for sandy and rocky substrates, inhabiting depths between 1 and 120 m (Lieske & Myers, 1994).

The mangrove red snapper *L. argentimaculatus* is widespread in the Indo-Pacific region, from the Red Sea to eastern Africa, including Madagascar, to the Ryukyu Islands, northern Australia and Samoa (Golani *et al.*, 2021; Froese & Pauly, 2022). Adult specimens are often found in groups around coral reefs (Lieske & Myers, 1994), sometimes penetrating deeper reef areas exceeding 100 m (Froese & Pauly, 2022). Young specimens are found in shallow sandy shores, often entering estuaries. This species is mainly nocturnal and commonly feeds on fishes and crustaceans (Allen *et al.*, 2002; Golani *et al.*, 2021; Froese & Pauly, 2022).

While non-commercial in the Mediterranean Sea, *L. argentimaculatus* is an important commercial and recreational fish and one of the most appreciated food fish species in the Indo-Pacific region. It is caught mainly with handlines, bottom longlines, and bottom trawls, and is commonly sold in fish markets throughout the region (Anderson & Allen, 2001).

L. argentimaculatus is an oceanodromous, reef-associated species of large fish. The females are larger than the males of the same age group (Russell *et al.*, 2003) and can reach a maximum total length of 150 cm, the common size (TL) being 40–80 cm (Golani *et al.*, 2021; Froese & Pauly, 2022). This species differs from other Mediterranean *Lutjanus* species in having scale rows mostly parallel to lateral line with some ascending obliquely above the lateral line.

In the Mediterranean, the Lutjanidae family is represented by four species (Vella *et al.*, 2015; Zenetos *et al.*, 2016; Deidun & Piriano, 2017; Golani *et al.*, 2021). These are *Lutjanus argentimaculatus* (Forsskal, 1775), *Lutjanus fulviflamma* (Forsskal, 1775), and *Lutjanus sebae* (Cuvier, 1816), which are all found in the Red Sea as well (Golani & Fricke, 2018), and *Lutjanus jaco* (Bloch & Schneider, 1801), which has Atlantic origins (Golani *et al.*, 2021) and occurs in the Mediterranean only rarely (Vachi *et al.*, 2010).

The first record of mangrove red snapper *L. argentimaculatus* for the Mediterranean Sea was reported from Lebanon by Mouneimne (1979). Crocetta and Bariche (2016) collected the second sample from the Lebanese coast. Later, it was recorded in the Turkish waters (Akyol, 2019), Israel (Sonin *et al.*, 2019) and Greece (Tiralongo *et al.*, 2019). Recently this species has been reported from Maltese waters (Central Mediterranean) (Deidun *et al.*, 2022).

L. argentimaculatus was first reported from the Turkish Aegean Sea in 2018 by Akyol (2019), the specimen reported in the present paper represents the second record of the mangrove red snapper in Turkish waters and the first from Turkey's south-eastern Mediterranean region (Iskenderun Bay).

MATERIAL AND METHODS

A specimen of *L. argentimaculatus* was caught with a spear gun at a depth of 12 m in Konacik, Iskenderun Bay (36°21'N, 35°48'E), on 30 November 2022 (Fig. 1). The distribution of *L. argentimaculatus* in the Mediterranean coast of Turkey is presented based on previous capture records and the present report from Iskenderun Bay (Fig. 1).

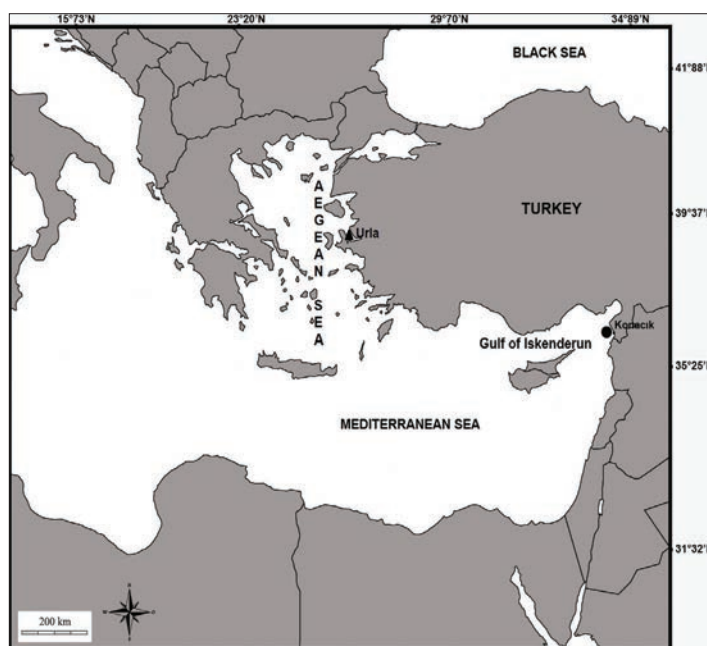


Fig. 1: Map showing the capture site (●) of *Lutjanus argentimaculatus* in Iskenderun Bay (north-eastern Mediterranean) and previous record (▲) from the Urla coast (Akyol, 2019).

Sl. 1: Zemljevid obravnavanega območja z označeno lokaliteto ulova (●) primerka vrste *Lutjanus argentimaculatus* v zalivu Iskenderun (severovzhodno Sredozemsko morje) in lokaliteta (▲) ob obali Urla, kjer je bil primerek te vrste predhodno ujet (Akyol, 2019).



Fig. 2: The specimen of *Lutjanus argentimaculatus* (Forsskal, 1775), 59.5 cm TL, captured from Iskenderun Bay (Konacik), north-eastern Mediterranean, Turkey.

Sl. 2: Primerek vrste *Lutjanus argentimaculatus* (Forsskal, 1775) z 59,5 cm telesne dolžine, ki so ga ulovili v zalivu Iskenderun Bay (Konacik) v severovzhodnem Sredozemskem morju (Turčija).

The fresh specimen was photographed and measured and later deposited at the Museum of Marine Life, Mersin University under catalogue number MEUFC-22-11-144. The morphometric measurements of the sample to the nearest 0.01 mm were taken using a digital caliper, and the total body was weighed to the nearest 0.1 g (Fig. 2). All measurements and counts, as well as the morphological description and colour agree with the descriptions of Allen (1985) and Golani *et al.* (2006).

RESULTS AND DISCUSSION

The captured specimen of *L. argentimaculatus* measured 59.5 cm in total length (48.0 cm in standard length), and 3386 g in total weight. Its main diagnostic characters and morphometric measurements are given in millimetres in Table 1. A comparison to previous Mediterranean reports from Turkey (Akyol, 2019) and Israel (Sonin *et al.*, 2019) is presented in Table 2.

The characteristics of this Mediterranean record are as follows: body moderately elongated, somewhat compressed, and covered with large ctenoid scales, longitudinal scale rows above the lateral line primarily horizontal, with some rows ascending obliquely below posterior dorsal fin spines; snout somewhat pointed, mouth large and terminal; dorsal fin continuous, with third to fifth spines the longest; posterior edge of dorsal fin round; pelvic fin origin slightly behind pectoral base, caudal fin truncated; maxilla slips under pre-orbital bone when mouth is closed, a few rows of sharp conical teeth with several distinct large canines, operculum edge serrated; dorsal fin with X, 14 rays, pectoral fin rays 16, anal fin rays III, 18, caudal fin rays 17. Colour (fresh specimen): body reddish-bronze, darker on the back, with a silvery-grey patch on scales.

Tab. 1: Measurements of *Lutjanus argentimaculatus* compared to two previous records.

Tab. 1: Meritve primerka vrste *Lutjanus argentimaculatus* in primerjava s primerki iz predhodnih dveh zapisov o pojavljanju.

Measurements (cm)	This Study	Akyol (2019)	Sonin <i>et al.</i> (2019)
Number(s)	(1)	(1)	(1)
Total length	59.5	30.5	66.0
Standard length	48.0	26.0	54.0
Body depth	15.0	-	-
Head length	16.3	9.0	16.8
Eye diameter	2.6	1.6	3.6
Preorbital length	7.0	2.8	-
Interorbital length	4.7	1.6	5.1
Mouth	6.5	-	-
Snout length	5.6	-	8.3
Dorsal fin length	28.0	-	-
Pectoral fin length	14.0	-	-
Anal fin length	10.5	-	-
Pelvic fin length	10.0	-	-
Predorsal fin length	21.5	9.5	-
Prepectoral fin length	17.0	8.5	-
Prepelvic fin length	18.5	-	-
Preanal fin length	33.0	-	-

Tab. 2: Records of *Lutjanus argentimaculatus* from Mediterranean Sea during the period 1979-2022.**Tab. 2: Zapisi o pojavljanju vrste *Lutjanus argentimaculatus* v Sredozemskem morju v obdobju 1979-2022.**

References	Number of samples	Record date	Location/ Country	Sampling gear	Depth (m)	Total Length (mm)	Weight (g)
Mouneimne (1979)	1	1979	Lebanon	-	-	-	-
Crocetta & Bariche (2016)	1	17.01.2014	Tripoli, Lebanon	Scuba observation	45	-	-
Akyol (2019)	1	4.10.2018	Off Urla, Gulf of İzmir, Turkey	Gill net	8	305	473
Sonin <i>et al.</i> (2019)	1	21.01.2019	Tel Aviv, Israel	Hook and Line	50	660	4452
	1	17.11.2018			35	450	-
Tiralongo <i>et al.</i> (2019)	2	21-28.07.2019	Salamina Bay, Megara Gulf, Greece	Spear gun	6-8	Unknown-600	- 2800
	1	14.08.2019	Salamina Bay, Greece	Spear gun	5	400	1500
Deidun <i>et al.</i> (2022)	1	12.01.2021	Sliema, Malta	Spear gun	12	430	1630
Present study	1	30.11.2022	Konacık Iskenderun Bay, Turkey	Spear gun	12	595	3386

Proportions as % TL: body depth 25.21%; head length 27.39%; pre-dorsal length 36.13%; pre-pectoral length 28.57%; pre-pelvic length 31.09%; pre-anal length 55.46%. Eye diameter 15.95% of head length; interorbital length 28.83% of head length.

Although only one specimen of *L. argentimaculatus* is reported in the present study, previous records by many researchers (Crocetta & Bariche, 2016; Deidun, & Piriano, 2017; Akyol, 2019; Sonin *et al.*, 2019; Tiralongo *et al.*, 2019) confirm that *L. argentimaculatus* has been seen many times in the Mediterranean Sea. This study reports the second record of the species in Turkish seas, and the finding of a large specimen strongly suggests an established population of the species in the Mediterranean waters of Turkey. A comparison of previous and present records of capture *L. argentimaculatus* in the Mediterranean Sea is given in Table 2.

CONCLUSIONS

This paper is the first report of the species from Iskenderun Bay (Konacık) and the first evidence of its presence in the south-eastern Mediterranean coast of Turkey. The data presented herein are essential in terms of the species' current status, possible population establishment, and regional biodiversity. Further research is required to obtain details about the habitat requirements for establishing alien fish species in a new area.

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O POJAVLJANJU MANGROVSKEGA RDEČEGA HLASTAČA *LUTJANUS ARGENTIMACULATUS* (FORSSKÅL, 1775) V JUGOVZHODNEM SREDOZEMSKEM MORJU (TURČIJA)

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POVZETEK

Primerek mangrovskega rdečega hlastača Lutjanus argentimaculatus (Forsskål, 1775), dolg 59,5 cm in težak 3386 g, je bil 30 novembra 2022 ujet s podvodno puško na 12 m globine v obrežnih vodah v zalivu Iskenderun (Konacik, Turčija). Gre za prvi primer o pojavljanju vrste L. argentimaculatus v turških vodah jugovzhodnega Sredozemskega morja. Domnevajo, da se bo vrsta hitro razširjala v sredozemskih vodah Turčije.

Ključne besede: mangrovski rdeči hlastač, Lutjanidae, širjenje areala, Sredozemsko morje

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