

## The occurrence of the Lessepsian migrant *Lutjanus argentimaculatus* in the Mediterranean, (Actinopterygii: Perciformes: Lutjanidae) first record from the coast of Israel

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Two specimens of the Lessepsian migrant, the Mangrove red snapper *Lutjanus argentimaculatus* are reported from the Mediterranean coast of Israel. *L. argentimaculatus* was first recorded in the Mediterranean in 1979 by a single specimen. Over three decades later and only in the last two years four specimens, including the two reported herein, were recorded. This pattern strongly suggests that *L. argentimaculatus* has established a sustainable population in the Mediterranean.

**Key words:** Lessepsian migrant, *Lutjanus argentimaculatus*, first record, Israel

### INTRODUCTION

The phenomenon of invasion by Red Sea organisms into the Mediterranean via the Suez Canal is an ongoing process showing no signs of ceasing or slowing. Among these “Lessepsian migrants” are more than 100 fish species (FRICKE *et al.*, 2017).

*Lutjanus argentimaculatus* (Forsskål, 1775) was first recorded in the Mediterranean by MOU-NEIMNÉ (1979) from Lebanon, who provided a drawing. Almost four decades later, CROCETTA & BARICHE (2016) reported the second record, also from Lebanon. Shortly thereafter, AKYOL (in press) reported the first record of this species from the Bay of Izmir, Aegean Sea, Turkey. In the present study we report two additional records from the Mediterranean coast of Israel.

Therefore, the Israeli specimens constitute the fourth and fifth records from the Mediterranean, strongly suggesting that, after an initial lag, this species has recently established a viable population in its new region.

### MATERIAL AND METHODS

On 21 January 2019 a 540 mm SL (660 mm TL), weighing 4,452 g. specimen of *Lutjanus argentimaculatus* was collected by hook-and-line at depths of ca. 50 m in the vicinity of Tel-Aviv, Israel (Fig 1). The specimen was deposited in the Hebrew University Fish Collection and received the catalogue number HUI 20917. Two months earlier, on 17 November 2018, a ca. 450 mm specimen of *Lutjanus argentimaculatus* (Fig.2) was speared at a depth of 30 m, approxi-



Fig. 1 *Lutjanus argentimaculatus*, 540 mm SL from the Mediterranean coast of Israel (HUU 20917)

mately 15 km north of Tel Aviv, Israel (32°17' N 34°41' E). This specimen was photographed but was not saved. All counts and measurements followed HUBBS and LAGLER, 1947.

## RESULTS

### Description of the *Lutjanus argentimaculatus* specimen from the Mediterranean coast of Israel (HUU 20917)

Body moderately elongated and slightly compressed. Large head, 25.4% in SL. Jaws reach back almost to the vertical of anterior of eye. Two canine teeth at the anterior of upper jaw, followed by a series of small sharp teeth. Series of small sharp teeth on each side of the lower jaws. Lower limb of the first gill arch with four rudiments, eight rakers, and five rakers on the upper limb. Pointed snout (55.2%), eye situated on the upper head (21.8%), and wide interorbital (29.6%), all in Head length. Continuous dorsal fin with shallow notch between spinulous portion and the ray portion, with 10 spines and 14 rays, the 3<sup>rd</sup>-5<sup>th</sup> spines are the longest. Anal fin with three spines and seven rays. Caudal fin emarginated. Pectoral fin slightly pointed with 16 rays. Ventral fin with one spine and five rays, its origin slightly behind pectoral fin origin. Lateral line parallel to the dorsal contour of the body, with 48 scales. Scales are present on the operculum, preoperculum and the base of anal fin and the ray portion of the dorsal fin.

Color: Body brownish-bronze, darker on the back, becoming lighter on the ventral surface. Most scales with grey posterior edges.



Fig. 2. Specimen of *Lutjanus argentimaculatus* (on the right) speared in the Mediterranean coast of Israel, together with a specimen of *Epinephelus aeneus*.

## DISCUSSION

The family of Lutjanidae consists of 110 species world-wide (NELSON *et al.*, 2016), of which four occur in the Mediterranean; three are *L. argentimaculatus*, *L. fulviflamma* and *L. saba* which also occur in the Red Sea (GOLANI & FRICKE, 2018) and can be considered as Lessepsian migrants. One species *L. juco* is of Atlantic origin.

*Lutjanus argentimaculatus* lives near rocky substrate and open areas to a depth of 80 m. It feeds mainly on fishes and, to a lesser extent, on cephalopods and crustaceans.

This species can be distinguished from its Indo-Pacific co-generic species by the following characteristics: Body generally uniform in color without stripes, spots or blotches (juveniles with eight dark bars), horizontal longitudinal scale rows above and parallel to the lateral line and emarginated to truncated caudal fin (ALLEN, 1985).

*Lutjanus argentimaculatus* has a wide Indo-Pacific distribution, from the Red Sea and eastern Africa to Australia and Samoa. The collection of four specimens of *Lutjanus argentimaculatus* in the last two years, indicate that this Lessepsian migrant has established a population in its new region. Although no juveniles

have been collected as yet, this is probably due to their small size preventing their capture by standard fishing methods. It is very unlikely that all four recently collected specimens crossed the Suez Canal independently.

The pattern of a long period of time elapsing between the first and second records, followed immediately by a population establishment is known in at least two other Lessepsian fish migrants, *Pterois miles* and *Etrumeus golanii*: the former was first recorded in the Mediterranean in 1991 (GOLANI & SONIN, 1992) and then only in 2012, the next two Mediterranean specimens were reported from Lebanon (BARICHE, *et al.* 2013), and almost immediately afterwards, it became very common throughout the eastern Mediterranean basin (see: AZZURRO & BARICHE, 2017; STERN *et al.*, 2017).

A similar case is *Etrumeus golanii*, which was first recorded from the Mediterranean coast of

Israel by a single specimen (WHITEHEAD, 1963), under the name of *Etrumeus teres*. More than three decades elapsed until it was recorded again in the Mediterranean coast of Egypt (EL-SAYED, 1994). A short time later it became an important commercial species in the region (GOLANI *et al.*, 2002). This pattern of a long lag between first and second records raises the question, whether the first record represents an abortive colonization attempt and the second record followed by rapid population growth represents colonization of a better-adapted morph or, alternatively, whether a small population existed since the first record, but was not detected.

It will be interesting to observe whether *Lutjanus argentimaculatus* will follow this pattern and establish a large population in the Mediterranean.

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## **Pojava lesepsijskog migranta *Lutjanus argentimaculatus* u Sredozemlju, (Actinopterygii: Perciformes: Lutjanidae) prvi zapis s obale Izraela**

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### **SAŽETAK**

*U radu se opisuje prvi nalaz dva primjerka lesepsijskog migranta *Lutjanus argentimaculatus* na Izraelskoj obali. Prvi nalaz jednog primjerka vrste *Lutjanus argentimaculatus* zabilježen je 1979. godine u Sredozemnom moru. Trideset godina nakon tog nalaza i to u posljednje dvije godine zabilježen je nalaz četiri primjerka uključujući dva navedena u ovom radu. Na temelju nalaza izvidno je da je vrsta *Lutjanus argentimaculatus* uspostavila populaciju u Sredozemlju.*

*Ključne riječi: Lesepsijski migrant, *Lutjanus argentimaculatus*, prvi nalaz, Izrael*