

MARINE RECORD

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First record of Goldlined seabream *Rhabdosargus sarba* (Forsskål 1775), Sparidae, in the Mediterranean Sea (Syrian waters)

Nader Hamwi^{1*} and Nour Ali-Basha²

Abstract

This paper presents the first record of *Rhabdosargus sarba* (Forsskål 1775) in the Mediterranean Sea and the Syrian marine waters. One specimen (163 mm TL, 66.45 g TW) was caught by trammel nets at a depth range between 50 and 60 m, from Lattakia coast, on 31 January 2021. This record represents the first sighting of this immigrant species that entered the Mediterranean Sea to Syrian waters from the Red Sea. The key to the species of *Rhabdosargus* is provided.

Keywords: *Rhabdosargus sarba*, Goldlined seabream, Sparidae, Syrian waters

Introduction

The sparid genus *Rhabdosargus* (Fowler 1933) are all characterized by large molariform teeth on both jaws and a stumpnose head (Smith and Smith 1986; Carpenter and Niem 2001), in addition to a silvery-black body with golden longitudinal lines, and often yellow pelvic and anal fins. The body often has black vertical bands (Smith 1979). The genus *Rhabdosargus* includes six species have been recognized as valid species (Tanaka and Iwatsuki 2013): *Rhabdosargus sarba* (Forsskål 1775), *Rhabdosargus haffara* (Forsskål 1775), *Rhabdosargus globiceps* (Valenciennes in Cuvier and Valenciennes 1830), *Rhabdosargus holubi* (Steindachner 1881), *Rhabdosargus thorpei* (Smith 1979), and *Rhabdosargus niger* (Tanaka and Iwatsuki 2013). The genus *Rhabdosargus* is represented in the Syrian marine waters by one species: *Rhabdosargus haffara* (Saad 2005).

The Goldlined Seabream *Rhabdosargus sarba* (Forsskål 1775), is a sparid fish commonly found in subtropical inshore waters of the Indo-West Pacific including the Red Sea, East

Africa, South Africa, Mozambique Channel, Seychelles, Madagascar and Mascarenes, east to Philippines, north to southern Japan, south to northern Australia. This species can presumably be found in a wider range in Oman, Iran, India and Bangladesh and has been reported from Pakistan (Bianchi 1985; Siddiqui et al. 2014).

R. sarba inhabits coastal waters, usually entering estuaries. It feeds on benthic invertebrates, mainly mollusks and aquatic macrophytes. Sexes are separate but some individuals are protandrous. (Froese and Pauly 2020).

This species has not been reported before in the Mediterranean Sea (Froese and Pauly 2020), so we present here the first occurrence of *R. sarba* from Syrian waters, and also from the Mediterranean Sea.

Materials and methods

One specimen of *R. sarba* was caught on 31 January 2021, with a surface seawater temperature of 19.7 °C, it was caught during artisanal fishing operation, using trammel nets at a depth range between 50 and 60 m, from south of Lattakia city (Fig. 1).

The specimen was measured to the nearest (mm), weighted to the nearest (g) and morphometric

* Correspondence: nader836@gmail.com

¹Ichthyology Laboratory, Faculty of Veterinary medicine, Hama University, Hama, Syria

Full list of author information is available at the end of the article



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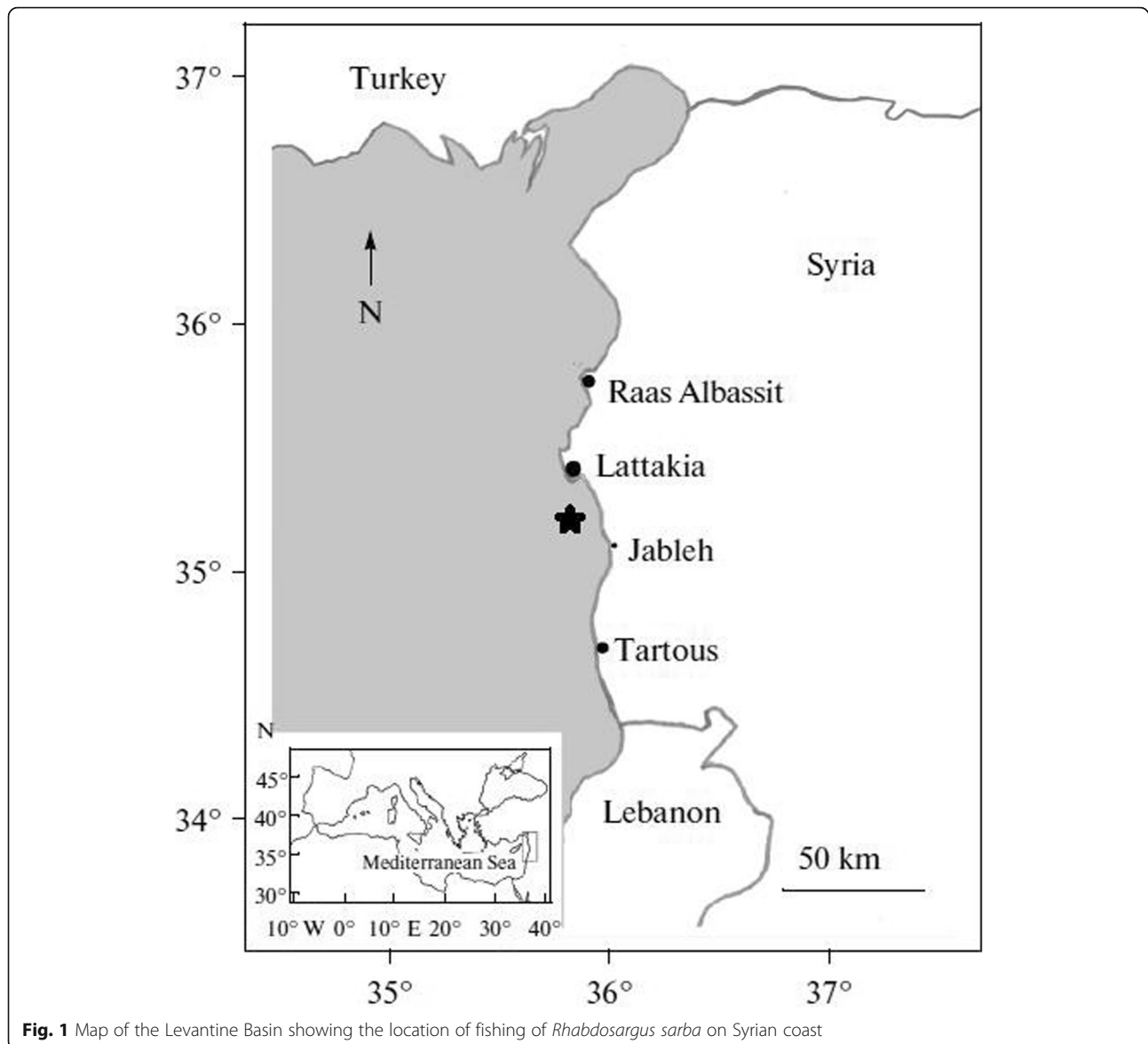


Fig. 1 Map of the Levantine Basin showing the location of fishing of *Rhabdosargus sarba* on Syrian coast

measurements with percentages of standard length (SL). The specimen was preserved in 10% buffered formalin and deposited in the Ichthyological collection of the laboratory (Fig. 2).

Results

R. sarba specimen has a total length (TL) 163 mm, with total weight (TW) 66.45 g. Morphometric and Meristic data of the specimen is summarized in (Table 1). The specimen of this species presents the following characteristics: Body deep (depth about 2 times in standard length), compressed. Head large; upper profile steep, most strongly arched from snout to origin of dorsal fin; eye moderate to small in large specimens; mouth almost horizontal, low. At front of jaws, 4 to 6 upper, and 6 to 8 lower, enlarged, compressed teeth, becoming subconical

in large adults, followed by 4 or 5 rows of molar teeth in posterior part of upper jaw and, 2 to 4 rows in lower jaw, the last molar in each jaw largest (Fig. 3, a, b). Gill rakers short, few, 7 to 9 on lower limb of first gill arch. Dorsal fin single, with XI or XII slender spines and 13 (rarely 12) to 15 soft rays, third and fourth spines longest. Anal fin with III spines and 11 soft rays, second and third spines subequal; pectoral fins long. Pelvic fins not reaching anus. Caudal fin forked. Scales cycloid (smooth), more than 50 in lateral line; $5\frac{1}{2}$ or $6\frac{1}{2}$ scale rows between lateral line and fourth dorsal-fin spine; preopercle flange naked; dorsal and anal fins with a low scaly sheath; a long axillary pelvic process. Color of fresh specimens: Head and body silvery-yellowish black; body with yellow or golden longitudinal lines; eye yellow with dark area; operculum silvery; yellow or yellowish



Fig. 2 *Rhabdosargus sarba* with 163 mm TL, caught off south of Lattakia city

Table 1 Morphometric measurements in mm and as a percentage of standard length (%SL), counts and weight in grams recorded in the specimen of *Rhabdosargus sarba* caught off the Syrian coast

Morphometric measurements	mm	SL%
Total length (TL)	163	124.4%
Fork length (FL)	146	111.5%
Standard length (SL)	131	100%
Body depth (BD)	60	45.80%
Head length	36	27.5%
Eye diameter	10	7.63%
Pre-orbital length	10	7.63%
Post-orbital length	14	10.7%
Pre-dorsal length	42	32.06%
Dorsal fin base length	69	52.7%
Pectoral length	45	34.4%
Pre-anal length	82	62.6%
Anal fin base length	25	19.08%
Counts		
Dorsal fin rays	XI + 13	
Anal fin rays	III + 11	
Pectoral fin rays	14	
Pored lateral- line scales	60	
Scale rows above / below lateral line	6½ - 14½	
Gill rakers	5 + 8 = 13	
Standard length/ body depth	2.18	
Total weight (TW) g	66.45	

coloration of pectoral, pelvic and anal fins; edges of dorsal and caudal fins are grayish, sometimes golden shade on caudal fin just after the caudal peduncle; pectoral-fins hyaline with light yellowish shade; chin and belly silvery-white; Body and head Silvery with yellowish or gold sheen (Fig. 4).

Discussion

All measurements, counts, and colour patterns determined the morphological analyses in previous other records of this species in Western Indian Ocean (Bauchot and Smith 1984), South Africa (Smith and Smith 1986), Western central Pacific (Carpenter and Niemi 2001) and Australia (Dianne 2021).

R. sarba distinguish from *R. haffara* that has been recorded previous in our waters, they can be confused in terms of general appearance, but *R. sarba* differs from *R. haffara* in having 12–14 dorsal-fin soft rays and 10–11 anal-fin soft rays vs. 12–13 dorsal-fin soft rays and 10 anal-fin soft rays in *R. haffara* (Table 2) (Smith and Smith 1986; Heemstra and Heemstra 2004; Tanaka and Iwatsuki 2013). *R. sarba* discernible from *R. haffara* in having higher counts of pored lateral-line scales and scales rows above/ below lateral line (56–64 and 6½–8½ / 12½–14½ in *R. sarba* vs. 57–59 and 5½–6½ / 12½–13½ in *R. haffara*, respectively) (Table 2). In addition, *R. sarba* has a silvery body and head with yellowish or gold sheen, while *R. haffara* possesses a silvery body and head (Table 2).

R. sarba has not already been mentioned in the Mediterranean Sea, so our research represents the first record in the Mediterranean Sea and Syrian waters. It is probably an immigrant species from the Red Sea into Levantine Basin. The observed specimen was found mixing



Fig. 3 a Upper jaw b Lower jaw

within populations of one other Sparid species *Diplodus sargus* (Linnaeus 1758) and two Siganid species *Siganus luridus* (Rüppell 1829) and *Siganus rivulatus* (Forsskål and Niebuhr 1775).

Conclusion

A specimen of *R. sarba* was captured from Syrian waters, mixed with populations of *Diplodus sargus*, *Siganus rivulatus* and *Siganus luridus*. The record in the Syrian waters represents the first report of this species in the Mediterranean Sea. We suppose that is an immigrant species from the Red Sea. The single specimen does not necessarily indicate a settled population at this area.

Key to the species of Rhabdosargus from the Indo-West Pacific: (Tanaka and Iwatsuki 2013)

- 1a. Body with six or seven narrow vertical dark cross-bars; dorsal-fin soft rays 11 (rarely 12).....*R. globiceps*
- 1b. Body lacking vertical cross-bars or at most very faint on body; dorsal-fin soft rays 12–132
- 2a. Golden mid-lateral stripe along body; 2–8 embedded scales on preopercular flange; black spot on upper end of pectoral-fin base *R. holubi*

Table 2 Selected characters of *R. sarba* and *R. haffara*

characters	<i>R. sarba</i>	<i>R. haffara</i>
Dorsal-fin rays	XI, 12–14 (usually 13)	XI, 12–13
Anal-fin rays	III, 10–11 (rarely 10)	III, 10
Pectoral-fin rays	14–16 (usually, 15)	15–16
Pored lateral-line scales	56–64	57–59
Scale rows above/below lateral-line	6½-8½ / 12½-14½	5½-6½ / 12½-13½
Scale rows between the fifth dorsal-fin spine base and lateral line	6½ -7½	5½ - 6½
Gill rakers	5–6 + 7–9 = 12–15	6–7 + 8–9 = 14–16
Standard length/ body depth	2.0–2.2	2.4–2.6
Scales on preopercular flange	Absent	Absent
14 or 15 golden longitudinal lines on body	Present	Present
Dorsal head profile	Steep	Convex
Coloration of ventral area from breast to above end of anal fin	Silvery-white	Silvery-white
Body and head in color	Silvery with yellowish or gold sheen	Silvery



Fig. 4 Head coloration of *Rhabdosargus sarba*

2b. No golden mid-lateral stripe along body; preopercular flange entirely naked; no distinct black spot on upper end of pectoral-fin base3

3a. Body slender, SL/body depth more than 2.4 *R. haffara*

3b. Body deeper, SL/body depth less than 2.3 4

4a. Lower gill rakers 10–12; anal-fin soft rays 11–12; ventral area from breast to above end of anal fin yellow *R. thorpei*

4b. Lower gill rakers 7–9; anal-fin soft rays 10–11; ventral area from breast to above end of anal fin silvery-white or light dusky 5

5a. Scale rows between the fifth dorsal-fin spine base and lateral line $5\frac{1}{2}$; pelvic and anal fins dusky gray..... *R. niger*

5b. Scale rows between the fifth dorsal-fin spine base and lateral line $6\frac{1}{2}$ – $7\frac{1}{2}$; pelvic and anal fins more or less yellow or brownish-yellow *R. sarba*

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Authors' contributions

NA-B and HN examined specimen and drafted the manuscript. Both authors gave the final approval for publication.

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Availability of data and materials

The specimen is available at Ichthyology Laboratory- Hama university- Hama-Syria.

Declarations

Ethics approval and consent to participate

No ethical approval or consent to participate was required.

Consent for publication

Not applicable.

Competing interests

The authors declare that they have no competing interests.

Author details

¹Ichthyology Laboratory, Faculty of Veterinary medicine, Hama University, Hama, Syria. ²Marine Sciences Laboratory, Faculty of Agriculture, Tishreen University, Lattakia, Syria.

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