NOTE

First occurrence of juvenile *Sargocentron rubrum* (Forsskål, 1775) from South-Eastern Mediterranean, Turkey

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ABSTRACT. In the present study, one juvenile specimen of redcoat *Sargocentron rubrum* (Forsskål, 1775) was first reported from the Mediterranean coast of Turkey with a visual record during an underwater survey conducted from the coast of Arsuz (Konacik), Iskenderun Bay, at a depth of 3 m, on September 11, 2018. The Family Holocentridae is currently represented in the Mediterranean by seven species, all exotic, six of them originate in the Red Sea (Lessepsian migrants) and one originates from the Atlantic.

Key words: Holocentridae, visual record, Lessepsian migrant, Iskenderun Bay.

Primer registro de un juvenil de *Sargocentron rubrum* (Forsskål, 1775) del Mediterráneo Sudoriental, Turquía

RESUMEN. En el presente estudio, un espécimen juvenil de candil rojo *Sargocentron rubrum* (Forsskål, 1775) fue reportado por primera vez en la costa mediterránea de Turquía, mediante un registro visual durante un estudio submarino realizado desde la costa de Arsuz (Konacik), bahía de Iskenderun, a una profundidad de 3 m, el 11 de septiembre de 2018. La Familia Holocentridae está representada actualmente en el Mediterráneo por siete especies, todas exóticas, seis de ellas originarias del Mar Rojo (migrantes lessepsianos) y una originaria del Atlántico.

Palabras clave: Holocentridae, registro visual, migrante lessepsiano, bahía de Iskenderun.

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The opening of the Suez Canal in 1869 resulted in the introduction of many Red Sea species to the Mediterranean Sea. This ongoing process is termed 'Lessepsian migration' (Por 1978). Since the penetration of the first Lessepsian migrant *Atherinomorus forsskali* in 1902, at least 115 fish species have been recorded and substantiated as migrants from the Red Sea into the Mediterranean Sea via the Suez Canal (Kovačić et al. 2021).

Redcoat *Sargocentron rubrum* (Forsskål, 1775) (Holocentridae) was first documented from the Mediterranean by Haas and Steinitz (1947) recording an adult specimen from Palestine and then in Greece, Rhodes (Laskaridis 1948), Cyprus (Demetropoulos and Neocleous 1969) and Libya (Stirn 1970). Recently, it has been reported from the southwestern Aegean Sea and Pelo-

ponnose (Zenetos et al. 2013), Tunisia (Amor et al. 2016), Malta (Deidun et al. 2016). *Sargocentron rubrum* was first recorded in Turkish marine waters from the Mediterranean Sea and the Aegean Sea (Kosswig 1950) and later this species was also reported from the Marmara Sea by Artüz and Golani (2018).

S. rubrum is widespread in the West Pacific Ocean (Randall et al. 2003). This species is also known as the spotfin squirrelfish or soldierfish. *S. rubrum* is one of the most commonly encountered species in its genera. It is frequently seen in the Red Sea, southern Japan to New Caledonia, Vanuatu and New South Wales, Australia (Williams and Greenfield 2016; Froese and Pauly 2022). This fish species is nocturnal, inhabiting caves and cracks, crevices during the daytime (Kuiter and Tonozuka 2001).

In the present paper, we reported the first visual record of juvenile *S. rubrum* from Iskenderun Bay, southeastern Mediterranean, Turkey. Besides, we also believe that reporting the existence of this juvenile specimen will help scientists and public authorities working in this field determine the juvenile stage of this species.

A single juvenile specimen of *S. rubrum* was photographed at a depth of 3 m during a SCUBA diving expedition in Konacik/Arsuz (Iskenderun Bay, 36° 21′N-35° 49′E) on September 11, 2018 (Figure 1). The surface water temperature was 29° C. This specimen was photographed on a rocky habitat, partially covered with algae and sea grass (Figure 2). Morphological and colour descriptions used for the identification followed Randall (1998).

Some of the visible features of the specimen of *S. rubrum* observed with a camera in SCUBA diving were as follows. Body compressed and covered with coarsely scales. Head scaly and slightly convex. Mouth terminal and sharp nose.

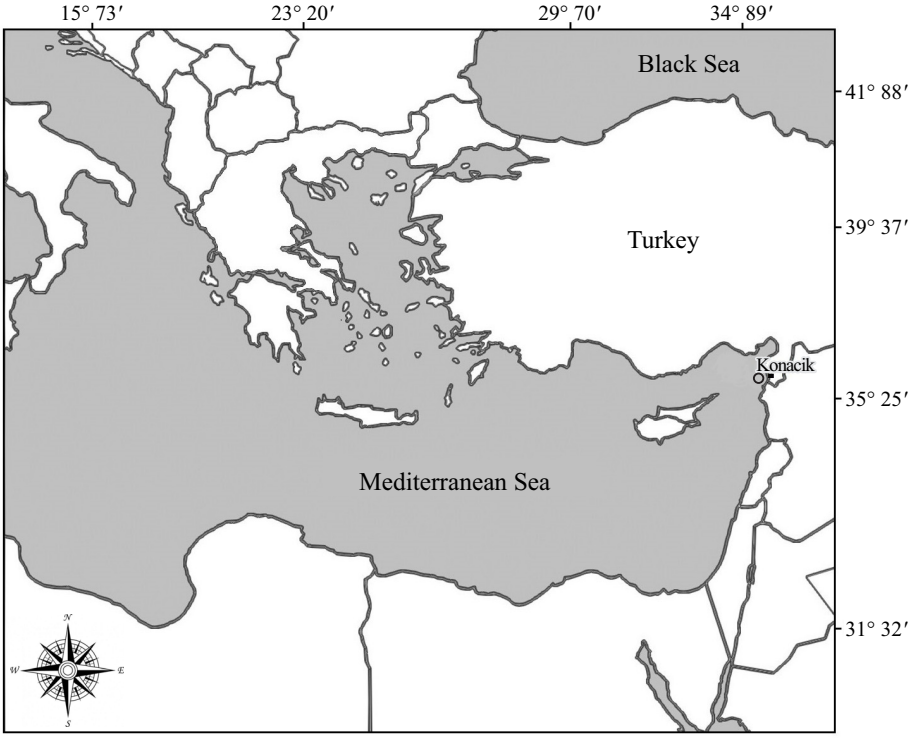

Figure 1. Map showing the capture site (○) of juvenile *Sargocentron rubrum* in the Mediterranean Sea.

Figure 2. A) Underwater observation of *Sargocenton rubrum* (Forsskål, 1775) in Konacik (Arsuz), Iskenderun Bay. B) Dark patch on the anterior dorsal fin of juvenile specimen of *S. rubrum* (photo: Necdet Uygur).

Very large eye (Allen and Swainston 1988; Golani et al. 2021). The colour of the juvenile specimen was silvery with bluish upper parts, silvery flanks and dark large black spots on dorsal rays. Tip of membranes of spinous dorsal fin translucent. Caudal lobes and anterior soft rays of anal fins whitish. Pectoral fins and pelvic fins light white.

The Family Holocentridae includes 83 species all inhabiting tropical and subtropical seas (Nelson et al. 2016). Seven species of Holocentridae have been recorded in the Mediterranean Sea (Vella et al. 2016; Mehanna and Osman 2022; Deef 2021; Ghanem et al. 2022). All of them non-indigenous. Six originating from the Red Sea (Lessepsian migrants): *Neoniphon sammara*, *Sargocentron caudimaculatum* (Rüppell, 1838), *Sargocentron rubrum* (Forsskål, 1775), *Sargocentron spiniferum* (Forsskål, 1775), *Sargocentron spinosissimum* (Temminck and Schlegel, 1843), and *Sargocentron tiereoides* (Bleeker, 1853); and one of Atlantic origin: *Holocentrus adscensionis* (Osbeck, 1765) (Woods and Greenfield 1978; Greenfield 2002).

Another species, *Sargocentron praslin* (Lacepède, 1802), was mentioned in the literature as occurring in the Mediterranean, but this is evidently a misidentification of *S. rubrum* (Golani et al. 2021). However, Bariche et al. (2015) claimed that molecular evidence highlighted that more than one species of *Sargocentron* could occur in the Mediterranean Sea.

Sargocentorn rubrum is a benthopelagic species, usually seen alone or in small groups. It feeds on benthic crabs, small fishes and shrimps at night (Golani et al. 1983; Randall et al. 1990; Göthel 1992). The recorded maximum total length was 32 cm (TL) for this species (Fischer et al. 1990). This species commonly inhabits seagrass beds and hard-bottomed habitats from the reef flats and on lagoons, bays, and seaward reefs, sometimes sheltering in branching corals (Lieske and Myers 1994; Randall and Greenfield 1999).

In the present study, the redcoat *S. rubrum* was observed at 3 m depth in the Arsuz coast (Turkey). The determined juvenile specimen was discovered while diving between crevices on the rock. Holocentrids in their pelagic stage are typically silver-blue (Lies and Carson-Ewart 2000), thus matching the coloration of the photographed specimen. Upon settlement, they change to adult coloration. The black blotch on the anterior dorsal fin distinguishes juvenile *S. rubrum* from other Mediterranean holocentridae (Golani and Ben-Tuvia 1985). It naturally occurs at depths of 1-84 m (Randall 1998). The depth range of the discovered juvenile (3 m) specimen was also in accordance with the literature (Froese and Pauly 2022).

Sargocentron rubrum is a venomous species. It has a strong venomous spine at the corner of its preopercle (Randall and Greenfield 1999). It is a common species in the aquarium trade in India (Gopakumar 2008). This species is also used as a baitfish in tuna fisheries (Blaber et al. 1993).

Our finding in Iskenderun Bay was the first occurrence, and hence the first evidence of the juvenile specimen of redcoat on the southeastern Mediterranean coast of Turkey. Data presented here are important in terms of the current status of the species and the biodiversity in the region. Additionally, this study can be useful in the field of fisheries and can contribute to both fisheries management and the knowledge of the juvenile stage of *Sargocentron* spp.

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