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First Record of Orange Spotted Grouper *Epinephelus coioides* (Hamilton, 1822) from the Iskenderun Bay, the northeastern Mediterranean

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Abstract

A single specimen of orange spotted grouper *Epinephelus coioides* (Hamilton, 1822) was captured by a fisherman with a fishing line from the Iskenderun Bay (Konacık, Turkey) at 52 m depth. The morphological and color descriptions of *E. coioides* agree with previous descriptions. This record indicates that the eastward migration of this species in the Mediterranean coast of Turkey and fills the gap in the distribution range of the serranid species.

Keywords:

Grouper, Extension, Serranidae, Mediterranean Sea

Article history:

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Introduction

The orange spotted grouper *Epinephelus coioides* (Hamilton, 1822) belonging to the family Serranidae is distributed from the Red Sea, southwards to Durban, South Africa and eastward to Palau and Fiji and also to Australia, including Mediterranean Sea (Heemstra & Randall, 1993; Lieske & Myers, 1994). The orange spotted grouper *E. coioides* is a commercial and commonly abundant fish species in the Persian Gulf, India, Singapore, Hong Kong and Taiwan and Arabian Gulf (Heemstra & Randall 1993).

In the Mediterranean Sea, orange spotted grouper *E. coioides* was misidentified as *E. tauvina* in previous years (Ben-Tuvia & Lourie, 1969; Randall et al., 1997). Heemstra & Golani (1993) reported that the misidentified species was *E. coioides*. Besides, Heemstra & Randall (1993) indicated that this Indo-Pacific origin fish species have entered the Mediterranean via the Suez Canal.

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Epinephelus coioides is solitar species mainly found turbid coastal reefs at depths between 1 and 100 m (Smith & Heemstra, 1986). Juvenile specimens are common in shallow waters of especially estuaries over sandy, muddy and gravel habitats. *E. coioides* feeds commonly on small fishes, shrimps, and crabs. This species reaches maximum 120 cm total length (Assadi & Dehghani, 1997) and 15.0 kg weight (Heemstra, 1995.). The maximum age reported to date is 22 years. (Mathews & Samuel, 1991).

First record of orange spotted grouper *E. coioides* in the Mediterranean from Israel coast was reported by Ben-Tuvia & Lourie (1969) and then this species was second time recorded from Haifa, Israel by Heemstra (1991). Later *E. coioides* was noted third record from Adriatic waters by Parenti & Bressi (2001). *E. coioides* was first reported from Antalya Bay from Turkish marine coasts by Gökoğlu & Özvarol (2014) and included in the alien check list of Turkish marine fish fauna (Turan et al., 2018).

This study report occurrence of *Epinephelus coioides* for the first time from the Iskenderun Bay, northeastern Mediterranean.

Materials and Method

A single specimen of *E. coioides* was caught by a fishing line at a depth of 52 m in 14 November 2021 from Konacık (Coordinates: 36° 21'138'' N, 36° 48'422'' E), Iskenderun Bay (Figure 1). The description of the present specimen agrees with the previous description given by Heemstra & Randall (1993) and Heemstra & Randall (1999). Morphometric measurements were carried out to the nearest 0.1 mm by a caliper. The specimen preserved in deep-freezer and was deposited in the Faculty of Marine Sciences and Technology, Iskenderun Technical University (Figure 2).

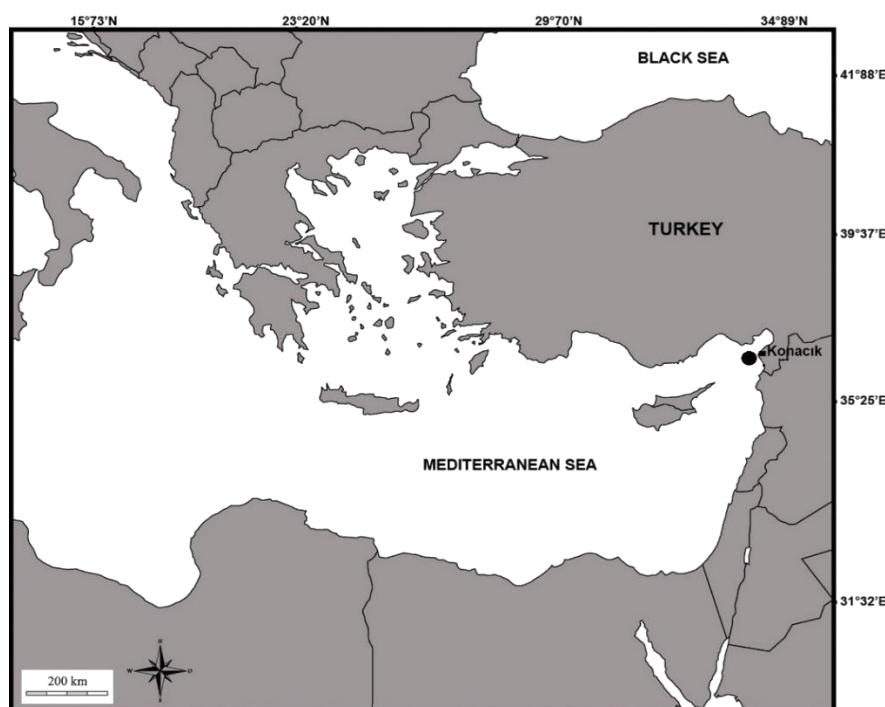


Figure 1. Map showing the capture sites (●) of *Epinephelus coioides* in Iskenderun Bay, southeastern Mediterranean.



Figure 2. Orange spotted grouper *Epinephelus coioides* (Hamilton, 1822) captured from the Iskenderun Bay, Turkey.

Results

The recorded specimen of *E. coioides* was at 15.0 cm total length (TL) and 13.5 cm, standard length. *E. coioides* specimen had the following features: Body elongate with large head, caudal fin rounded; pelvic fins not reaching anus. Abdomen and above anal-fin base with cycloid scales. Dorsal fin rays XI + 13; anal fin rays III + 8; pectoral fin rays 18; lateral-line scales 60; longitudinal scale series 103. Head length (HL) is 32.66% of TL; body depth is 25.33% of TL; eye diameter is 11.22 % of HL; interorbital width is 21.43% of HL; snouth length is 29.59 of HL. Color: Head and body is tan dorsally and shading to whitish ventrally. On the head, body and median fins are many small brownish orange or reddish brown spots as described by Heemstra & Randall (1999).

Discussion

The present study report the second record of *E. coioides* from Turkish marine waters and also fifth successive record from the Mediterranean Sea.

E. coioides has been often confused with *E. malabaricus* and *E. tauvina*. However, *E. tauvina* has never been recorded in the Mediterranean Sea. *E. coioides* is distinguished from the other species, *E. malabaricus*, by presence of orange or reddish brown spots on head and body against dark brown or black spots with irregular white spots or blotches.

Although *E. coioides* is a commercial species in the Persian Gulf and Arabian Gulf and common and sold fresh in market and kept alive at restaurants in Asian countries (Heemstra & Randall, 1999). This species is lessepsian migrant to eastern Mediterranean Sea via Suez Canal and

then spread throughout in the Mediterranean waters. The presence of *E. coioides* in the Mediterranean coast of Turkey is evidently due to migration from the Red Sea via the Suez Canal.

The orange spotted grouper *E. coioides* probably be well adapted to the rocky habitats of the eastern Mediterranean Sea, suggesting the ability of the species to colonize shallow seas with limited sea water temperature. Turan et al. (2016) reported that the adaptation of tropical origin fish species in the Mediterranean conditions are getting easier as a consequence of global warming process of the Mediterranean basin that is also ongoing process for the Black Sea (Turan et al., 2009; Turan et al., 2017; Yağlıoğlu et al., 2014).

In this study, only single juvenile specimen of *E. coioides* was caught from Iskenderun Bay. The captured single specimen of *E. coioides* do not necessarily indicate the existence of an established population in the Iskenderun Bay, but the present record indicate the eastward extension of *E. coioides* in the Mediterranean coastal waters of Turkey. On the other hand, it is not known how *E. coioides* might affect distribution and abundance of native fish species. Therefore, continuous monitoring of these species is necessary and important.

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Author Contributions

All author contributions are equal for the preparation research in the manuscript.

Conflict of Interest

The authors declare that they have no competing interests.

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