

**NEW RECORD AND OCCURRENCE OF THE RED SEA BANNERFISH,
HENIOCHUS INTERMEDIUS (ACTINOPTERYGII: PERCIFORMES: CHAETODONTIDAE),
IN THE MEDITERRANEAN**

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Tsadok R., Shemesh E., Popovich Y., Sabag Y., Golani D., Tchernov D. 2015. New record and occurrence of the Red Sea bannerfish, *Heniochus intermedius* (Actinopterygii: Perciformes: Chaetodontidae), in the Mediterranean. *Acta Ichthyol. Piscat.* 45 (3): 331–333.

Abstract. In the present paper we document the first record of a Red Sea (Lessepsian migrant) species—the Red Sea bannerfish, *Heniochus intermedius* Steindachner, 1893, from Israel which constitutes the third record of this fish from the Mediterranean. The presently reported three specimens of this species from the Levant, in addition to several observations, indicate that this species has established a small population in this region.

Keywords: fish, new record, Lessepsian migration, exotic

The phenomenon of Red Sea species invading the Mediterranean, often called Lessepsian migration, is well documented. Among fish, the number of Lessepsian migrant species has already exceeded 90 (Golani 2010, Golani et al. 2015, Anonymous 2014). It is clear that the first record of a Red Sea species in the Mediterranean is published immediately upon discovery and is of great interest. However, in order to follow the spread, population dynamics, and establishment of such migrant species in their new region, it is imperative to document subsequent records. In the present paper we document the third record of the Red Sea bannerfish, *Heniochus intermedius* Steindachner, 1893, in the Mediterranean and the first from Israel. On 12 July 2014, a 84.1 mm SL (98.5 mm TL) specimen of *Heniochus intermedius* weighing 27.9 g (Fig. 1) was speared at the depth of 6 m at Sdot Yam, Israel (32°29'34.54"N 34°53'14.40"E). The specimen was deposited at the Fish Collection of the National Natural Collection of the Hebrew University and received the catalogue number HUI 20346.

Family CHAETODONTIDAE Rafinesque, 1815
Genus *Heniochus* Forsskål, 1775
Heniochus intermedius Steindachner, 1893
Heniochus intermedius Steindachner, 1893: 150
Anz. Akad. Wiss. 30 (14) (Suez, Red Sea)

Description of the Mediterranean specimen from Israel (HUI 20346). Body deep and very compressed; its depth (from origin of dorsal fin to origin of anal fin ray portion) 1.04 times in SL. Small head (3.16 in SL) with pointed snout; 2.58 in Head length (HL). Large eye (3.24 in HL) and narrow interorbital (4.09 in HL). Small mouth with small and sharp tightly-packed brush-like teeth. Head upper profile concave. Dorsal fin with 11 spines, fourth spine very elongated (sub-equal to SL), ray portion round; Anal fin triangular with three spines and 17 rays. Caudal fin truncated. Pectoral fin with 16 rays reaching back behind anus. Pelvic fin with one spine and five rays. Colour of fresh specimen: Body: greyish becoming yellow-brown on lower posterior part with two broad black vertical bands. First band from dorsal fin origin running through eye to pelvic fin. Second band from spine portion of dorsal fin to rear part of anal fin. Ray portion of dorsal fin, caudal and pectoral fins yellow. Anal fin dark grey with black margin. Pelvic fin black.

Molecular comparison. A molecular comparison between the Mediterranean specimen and a specimen of *H. intermedius* from the Red Sea (HUI 20393) was carried out. Partial sequence (540 bp) of the mitochondrial cytochrome c oxidase I (CO I) gene was amplified using

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Fig. 1. *Heniochus intermedius* (HUI 20346), 84.1 mm SL, 12 July 2014, Sdot Yam, Israel (photograph: D. Golani)

the FishBCL and Fish BCH primers and revealed that the two specimens were identical.

Remarks. All counts, measurements, and colour pattern agree with descriptions of *Heniochus intermedius* provided by other authors (Randall 1983, Golani and Darom 1997, Allen et al., 1998). The lack of bony tubercles between the eyes is due to the fact that the Mediterranean specimen (HUI 20346) was sub-adult before these tubercles developed (Randall 1983). We examined a similar sized (65.9 mm SL) specimen from the Red Sea (HUI 20345) which also lacked these tubercles.

The family Chaetodontidae is represented in the Red Sea by 17 species (Golani and Bogorodsky 2010) of which three have invaded the Mediterranean. *Heniochus intermedius* was first recorded in the Mediterranean by Gökoğlu et al. (2003) from the Gulf of Antalya, Turkey. Later, Bariche (2011) reported another specimen from Lebanon. Salameh et al. (2011) reported a single specimen of *Chaetodon larvatus* Cuvier, 1831 from the southern edge of Haifa Bay, Israel. In the same year, Goren et al. (2011) recorded *Chaetodon austriacus* Rüppell, 1836 from the Port of Ashdod, Israel. In subsequent years, this species was observed and photographed several times along the Israeli coast (unpublished data).

Species of the genus *Heniochus* Cuvier, 1816 are distinguished from other chaetodontids by the elongated fourth dorsal spine. Two species of the genus *Heniochus*, namely *Heniochus intermedius* Steindachner, 1893 and *Heniochus diphreutes* Jordan, 1903, inhabit the Red Sea (Golani and Bogorodsky 2010). The former can be distinguished from the latter by having 11 dorsal spines (vs. 12–13 in *H. diphreutes*), the adults having bony tubercles (“horns”) in the upper edge of the eyes and the anterior edge of the first vertical band reaching or even covering the eye (vs. not reaching the eye in *H. diphreutes*).

The original distribution of *Heniochus intermedius* was restricted to the Red Sea and the Gulf of Aden. Usually, this species lives in pairs but often forms small aggregations near rocky or coral substrate. Its diet is primarily composed of zooplankton and small benthic invertebrates. The presently reported record and several observations of *Heniochus intermedius*, by the senior author (RT) and other observers in localities some distance from each other, were reported to the authors (see Table 1). Other observations of additional specimens of *Heniochus intermedius* along the Israeli coast indicate that this species has established a small population in the eastern Mediterranean.

Table 1

List of underwater observations of *Heniochus intermedius* along the Mediterranean coast of Israel

Locality	Coordinates	Date	Depth [m]	Observer
Sdot Yam	32°29'28.09"N, 34°53'8.43"E	2 May 2014	6	Rami Tsadok
Achziv	33°03'20.81"N, 35°06'7.57"E	8 July 2014	7	Yaniv Aluma
Ma'agan Michael	32°33'18.81"N, 34°54'7.39"E	10 July 2014	5	Hagai Nativ
Nachsholim	32°36'27.45"N, 34°54'52.61"E	11 July 2014	5	Hagai Nativ
Michmoret	32°24'6.55"N, 34°51'53.16"E	12 July 2014	5	Rami Tsadok

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Received: 13 February 2015

Accepted: 6 June 2015

Published electronically: 30 September 2015