

First Record of the Red Sea Bannerfish *Heniochus intermedius* Steindachner, 1893, (Chaetodontidae) in the Syrian Marine Waters (Eastern Mediterranean)

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ABSTRACT

Climate changes play an important role in the Mediterranean environment, making it a destination for tropical migrants, which include the whole spectrum of marine organisms, such as fish. Chaetodontidae family is represented by three lessepsian species in the Mediterranean Sea; none of which is recorded in the Syrian coast before. This paper reveals that *Heniochus intermedius* has been recorded for the first time in the Syria coast after seven years from the last record in other parts of the Mediterranean.

Keywords: Red Sea, Mediterranean, *Heniochus intermedius*, Biodiversity, Syrian coast

1. INTRODUCTION

Climate changes still play an important role in the Mediterranean environment (UNEP-MAP-RAC/SPA, 2008, Lelieveld et al., 2012, Turan and Gürlek, 2016); through raising water temperature and making it a destination for tropical migrants (Mannino et al., 2017, Ibrahim et al., 2019). These migrants include the whole spectrum of marine organisms, such as fish (Alshawy et al., 2019a, Ibrahim et al., 2020b) and cetaceans (Ibrahim et al., 2020c). Human activities have accelerated these changes through overfishing, destruction of marine environment and discharging pollutants into the marine environment (Alshawy et al., 2019a, Giovos et al., 2019). These factors have led to an increase in the number of new species recorded in the Mediterranean during the last decade; such increase is estimated in 2022 to be about 40% comparing to 2010 (Zenetos et al., 2022).

Chaetodontidae family is presented by three lessepsian species in the Mediterranean Sea (Froese and Pauly, 2019); it has small individuals with bright colors that make them favorable for aquariums (Carpenter et al., 1997). *Heniochus intermedius* Steindachner, 1893 (of Chaetodontidae) has been recorded for the first time at Antalya coast (Gokoglu et al., 2003), then at Al Bellan Islet (Bariche, 2012) and at Sdot Yam (Tsadok et al., 2015). It has not been recorded in the Syrian coast before. This paper reveals that *Heniochus intermedius* has been recorded for the first time in the Syrian coast after seven years from last record in other parts of the Mediterranean.

2. MATERIAL AND METHODS

On 21/5/2022, a local fisherman was able, with his hook, to catch an individual of *Heniochus intermedius* in the marine waters facing Banyas city, Syria (N: 35°14'35.11", E: 35°55'12"; Fig.1). This fish specimen was identified according to Carpenter et al. (1997). The morphometric measurements (length to the nearest mm, weight to the nearest g), and meristic counts were recorded. It was then photographed, preserved in 7% formaldehyde, and placed at the fisheries Laboratory of the High Institute of Marine Research (Tishreen University - Lattakia, Syria) as a reference sample (HIMR-2022-A).

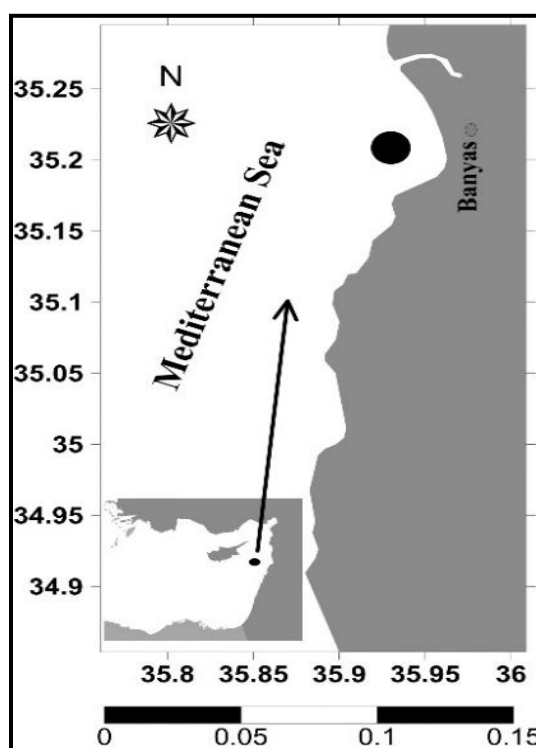


Fig. (1): Fishing location of *H. intermedius* in the Syrian coast

3. RESULT

A specimen of *Heniochus intermedius* Steindachner, 1893 (Fig2) was caught at 10-15m water depth. It had the following identical morphological characteristics: Very compressed and deep body, pointed snout, large eye with narrow interorbit and small mouth with sharp tight teeth. The top of the head is clearly concave, while the front side is highly curved, and the dorsal fin is slightly pushed back with the fourth dorsal spine very elongated. The body has a triangular shape and colored black in the front of the head, followed by a yellow longitudinal line over the entire body, then by a blackish-brown line followed by a yellow line, and the caudal fin is colored yellow. The meristic formula was: D,XI+25;A,III+17;P,15;V,I+8;C,17. These features of *H. intermedius* are in full agreement with Carpenter et al. (1997). The morphometric measurements of *H. intermedius* are presented in Table (1).



Fig. (2): *H. intermedius* caught from the Syrian coast

Table 1. Morphometric measurements (mm or g) of *H. intermedius*, caught from Banyas coast-Syria.

Characteristics	Morphometric measurement (mm or g)	(% SL)
Total length	110	
Standard length (SL)	92	
Body depth	78	84.78
Head length	35	38.04
Eye diameter	10	10.87
Snout length	9	9.78
Dorsal fin length	71	77.17
Pectoral fin length	22	23.91
Pelvic fin length	27	29.35
Caudal fin length	20	21.74
Anal fin length	48	52.17
Total weight	7.93	

4. DISCUSSION

Heniochus intermedius has been reported to be present along the eastern Mediterranean coasts except in the Syrian coast (Ali, 2018, Ammar et al., 2020). This record confirms the occurrence of this species in the Syrian coast, and fills the gap with its distribution in the east part of the Mediterranean Sea. This species did not appear in the Syrian coast before, which may be due to the unfavourable previous environmental conditions or to the fact that individuals of this species have small sizes which prevent their appearance in the fishermen's nets.

The continuous and high frequencies of new fish records encountered along the Syrian coast (such as *H. intermedius* and others) calls for the necessity of applying survey programs to identify foreign species, probably using some effective methods such as eDNA meta-barcoding (Miya, 2015, Liu et al., 2019), and applying the required management plan to reduce the negative impact of such species on native biota (Alshawy et al., 2019b, Ibrahim et al., 2020a).

5. CONCLUSION

This paper confirms, for the first time, that *Heniochus intermedius* exists in the marine waters of Syria. This new record fills the gap of its distribution along the eastern coast of the Mediterranean Sea.

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Ethical approval

Heniochus intermedius Steindachner, 1893, (Chaetodontidae) from the Syrian Marine Waters (Eastern Mediterranean) was observed in the study. The Animal ethical guidelines are followed in the study for species observation & identification.

Funding

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Conflicts of interests

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are present in the paper.

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