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First Record of the Blacktip Cardinalfish *Apogon atradorsatus* Heller & Snodgrass, 1903 from Syrian Marine Waters (Eastern Mediterranean)

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ABSTRACT: Human activities continue to make changes in the marine environments, which facilitates introduction of marine organisms in various ways**.** The species Blacktip Cardinalfish *Apogon atradorsatus* is one of the unnoticed passenger, came from south-east pacific to the marine waters of Syria**.**On 20-1-2019, Field trips to collect fish samples were performed along Banyas coast, Syria. Bottom longline was used with assistance of 9.5 m and 19 horsepower fishing boat. two specimens of Blacktip Cardinalfish *A.atradorsatus* , were caught from a depth of 17m of the marine water facing Banyas city. This species was recorded for the first time in Syrian marine waters (eastern Mediterranean). The ballast water is thought to be the main factor that helped this specimen to reach this area of the Mediterranean.

KEY WORDS: Apogon atradorsatus, Blacktip Cardinalfish, ballast water, Pacific, Mediterranean, Syrian marine waters.

I.INTRODUCTION

Human activities continue to make changes in the marine environments, by the movement of ships carrying goods, people and aquatic organisms as well. Ballast water is one way that unnoticed marine organisms may travel across the world's oceans into new environments [1]. The climatic changes play an auxiliary role that makes the new marine environment suitable for fish survival [2, 3]. Some fish genera, such as *Apogon*, have small body sizes, and their lengths do not exceed few centimetres [4], which permit them to be transported by ballast water [5]. The Blacktip Cardinalfish *Apogon atradorsatus*has never been recorded before either in Syrian marine water of the eastern Mediterranean [6] or in other parts of the Mediterranean [7-9, 5]. It may be an unnoticed passenger, coming from south-east pacific [10] perhaps through ballast waters. The present study reports the first record of the Blacktip Cardinalfish *A. atradorsatus* in Syrian marine waters.

II.MATERIALS AND METHODS

Samples were collected by bottom longline during a field trip performed on 20/1/2019 in the marine waters (17m depth) facing Banyas city, Syria (N: 35°14'35.11", E: 35°55'12.56") (Fig. 1). Fish individuals were identified according to [11], and their morphometric measurements (length to the nearest mm, weight to the nearest gram), and meristic counts were recorded. They were then photographed, preserved in 4% formaldehyde and placed at the Biological Laboratory of High Institute of Marine Research -HIMR (Tishreen University - Lattakia, Syria) as a reference.

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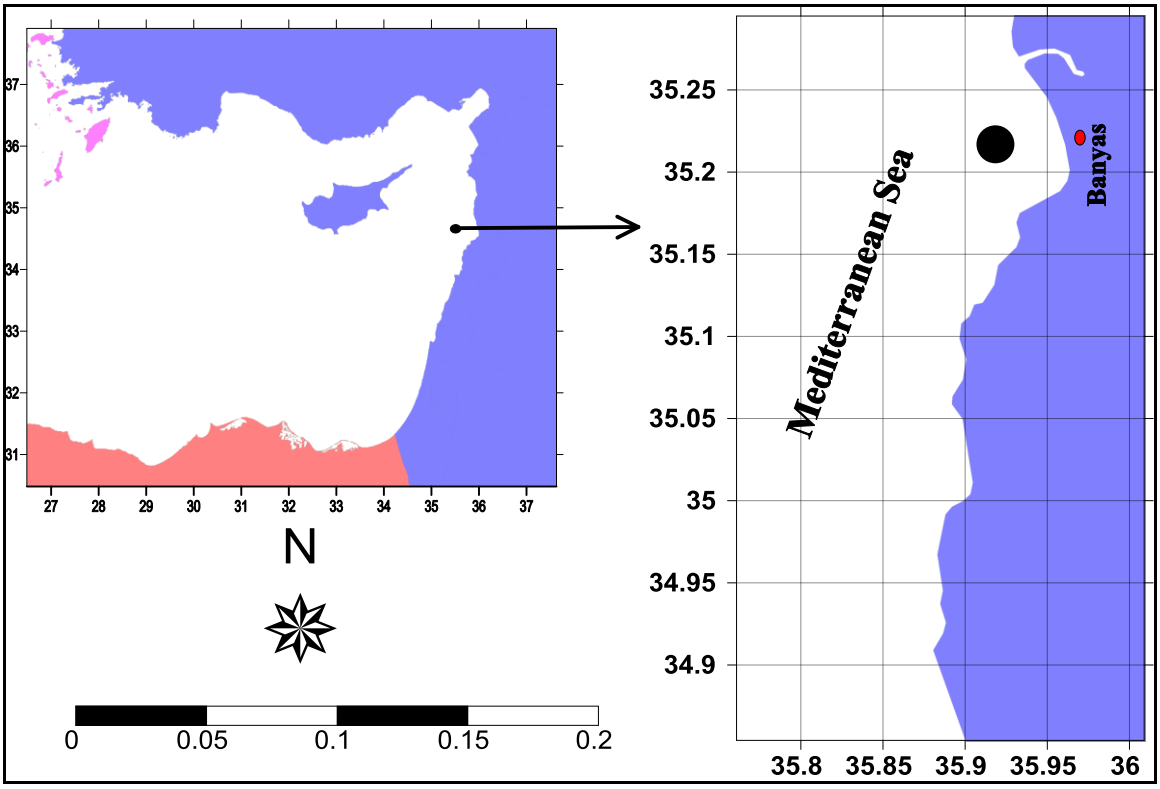

Fig (1):A map showing the collection site of *A.atradorsatus* specimen from Syrian marine waters.

III. RESULTS

Two individuals of the Blacktip Cardinalfish *A. atradorsatus* were caught (Fig 2). They have the following properties: The body is ovate to elongate with two separated dorsal fins; the second has a black blotch. The body is covered with scales and coloured brownish red but the belly and the lower jaw are light reddish orange. The caudal fin is emarginated with black tip on the lobes. The morphometric measurements are shown in Table1. The fin formula is: D,VI+I,9:P,12;V,I,5;A,II,8;C,17. These features of the *A.atradorsatus* individuals are in full agreement with [11].

Fig (2): *A. atradorsatus* specimen, caught on 20-1-2019 from the marine water of Syria.

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Table (1): Morphometric and biometric characteristics of *A.atradorsatus* caught from the marine water of Syria.

Characteristics	Mean (n=2, mm or gr)	Proportional measurements (% SL)
Standard length	68	
Total length	83	
Body depth	24	35.29
Head length	22	31.61
Eye diameter	8	11.91
Jaw length	13	18.82
1st dorsal fin length	9	12.5
2nd dorsal fin length	10	14.70
Pectoral fin length	16	22.8
Pelvic fin length	17	24.26
Caudal fin length	14	19.85
Caudal peduncle length	21	30.88
Pre-dorsal length	25	36.76
Pre-pectoral length	25	36.76
Pre-pelvic length	25	36.47
Pre-anal length	41	60.29
Total weight	7	

IV.DISCUSSION

The Blacktip Cardinalfish, *A.atradorsatus*, is known only from south-east Pacific [11, 12]. This species had not been recorded in the area before [13, 6, 5], and the present record confirms its existence in the marine waters of Syria (the eastern Mediterranean). The small size of this species may have had helped it to be transported through the ship ballast waters, and the environmental changes in the Mediterranean sea[14-17] may have made it possible for this species to survive in the area. In general, newly introduced species is expected to have bad ecological consequences, and threats to the native species through food and habitat competitions. In any case, effective measures should be taken to effectively minimize the means of species introduction to the Mediterranean. Due to the long distance separating the species' area of origin and the Syrian coast, ballast water is thought to be the main way of *A.atradorsatus* introduction [18, 19]. However, the mean of introduction has to be verified and the species establishment in the area has to be confirmed.

V.CONCLUSION

This study reveals that the Blacktip Cardinalfish *A. atradorsatus* exists in the marine water of Syria, where it is recorded in the area for the first time. Ballast water is thought to be the mean of introduction.

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