Species

23(71), 2022

First description of Hardyhead silverside *Atherinomorus lacunosus* (Forster in Bloch an Schneider, 1801) from Syrian marine waters-Eastern Mediterranean

Ranim Othman[1*], Mohamad Galiya[2], Zouher Almajid[3]

To Cite:
Othman R, Galiya M, Almajid Z. First description of Hardyhead silverside *Atherinomorus lacunosus* (Forster in Bloch an Schneider, 1801) from Syrian marine waters-Eastern Mediterranean. *Species*, 2022, 23(71), 173-177

Author Affiliation:
[1]Department of Zoology, College of Sciences, Tishreen University, Lattakia, Syria; E-mail: ranimmohammadothman@tishreen.edu.sy
[2]Department of Zoology, College of Sciences, Tishreen University, Lattakia, Syria; E-mail: galiyamo@scs-net.org
[3]Department of Zoology, College of Sciences, Tishreen University, Lattakia, Syria; E-mail: zouher.almajid@gmail.com

[*]**Corresponding Author:**
Ranim Mohammad Othman
E.mail: ranimmohammadothman@tishreen.edu.sy
Tel.: +00-96388909175

Peer-Review History
Received: 14 February 2022
Reviewed & Revised: 18/February/2022 to 06/April/2022
Accepted: 09 April 2022
Published: 12 April 2022

Peer-Review Model
External peer-review was done through double-blind method.

ABSTRACT

The arrival of alien species to the Mediterranean through the Suez Canal, will affect the biodiversity of marine organisms in general and fisheries in particular. In this study, the caught individuals of the species *Atherinomorus lacunosus* in the Syrian marine waters are described, for the first time in 2022. Eleven individuals of *Atherinomorus lacunosus* caught in purse seine nets in Ras Albasit – Syrian marine waters in November 2021, were studied and compared with the available references. This species was identified as a *Atherinomorus lacunosus*.

Key words: Hardyhead Silverside; *Atherinomorus lacunosus;* Syrian marine waters.

1. INTRODUCTION

The phenomenon of fish migration from the red sea to the Mediterranean sea through the Suez Canal, which began in 1902, from the western basin of the Mediterranean to its eastern basin, is clear evidence of the environmental changes that took place in the global and local environment after the construction of dams on major rivers flowing into the Mediterranean, such as the High Dam (Egypt) and others and the opening of the Suez Canal in 1809, which had its impact on changing the structure of fish fauna in the Mediterranean (the emergence of new species and disappearance of others) (Galiya, 2003).

The family, *Atherinidae* consists of 57 genera and 165 species which are distributed in the tropical, subtropical and temperate seas (Berg, 1948; whitehead *et al*., 1986; Sokolov, 1989). In the Eastern Mediterranean basin three species were recorded (Golani *et al*., 2006, Ali, 2018).

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ISSN 2319–5746 EISSN 2319–5754 | OPEN ACCESS

An *Atherinomorus* fowler, 1903, is characterized by a short blunt premaxillary ascending process, a low and wide lateral process on the premaxilla, and a notched anterior preopercular ridge.

This silverside is widely distributed in the Indo-pacific from the red sea, Eastern Africa to Japan and central Pacific (Golani *et al*., 2002; Nelson *et al*., 2016).

Body of *A. lacunosus* rather stout, deep, but not so compressed, dorsal profile of body slightly convex or almost straight from the top of head to origin of the second dorsal fin, head large, snout somewhat pointed, short, mouth inclined obliquely upward, scales large, covering the head (deciduous) and body (Kimura *et al*., 2006).

Diagnosis

A species of *A. lacunosus* with the following combination of characters: lateral process of the premaxilla very low and wide, teeth on endopterygoids small, not forming obvious ridges, anus located near and behind the posterior tip of the pelvic fin, mid-lateral scale count 40-44, lower margin of mid-lateral band reaching below ventral end of the mid-lateral (third) scale row and reaching to almost the center of the fourth scale row at the level of the anal fin origin, by Kimura *et al*., (2006).

A. lacunosus a common species in the Eastern Mediterranean Sea as reported by Golani *et al*., (2002). Ben Souissi *et al*., (2006) documented the occurrence of exotic silverside in Southern Tunisia, and 2016, *A. lacunosus* was mentioned among the exotic fish species collected from different sites in Derna, Coast-Eastern, Libya by Ezalnaser. *A. lacunosus* found in the stomaches of Little tunny *Euthynnus alleteratus* fish is considered one of the food spectrums which *E. alleteratus* feeds on (current research), therefore in the paper, we give a brief description of *A. lacunosus* in the Ras Albasit - Syrian marine waters.

2. MATERIALS AND METHODS

A sample of *Atherinomorus lacunosus* (Fig.1 A) was appeared in caught by purse seine in Ras Albasit (35º51'46 "N, 35º48'12 "E.) in November 2021 and brought for further identification studies. Collected sample was measured, weighted. The species was identified using the taxonomical keys of Whitehead *et al*., (1986) and Golani *et al*., (2006) and Nelson *et al*., (2016). Fish sample was preserved in 7% formaldehyde and deposited at the Laboratory of Hydrobiology, Faculty of Sciences, Tishreen University, Lattakia-Syria.

3. RESULTS AND DISCUSSION

The morphometric and meristic characteristics of the sample are shown in (Table 1). Our results: a lateral process of the premaxilla very low and wide (fig:2), teeth on endopterygoids small, not forming obvious ridges (fig:3), anus located near and behind the posterior tip of the pelvic fin (fig:4), mid-lateral scale count 40-44, lower margin of mid-lateral band reaching below ventral end of the mid-lateral (third) scale row and reaching to almost the center of the fourth scale row at level of the anal fin origin (fig:5), the mandibular symphysis reaches the border of the mediastinal vertical axis of the eye (fig:6) greed with Kimura *et al*.,2007 Diagnosis and the number of gill rakers from 26 to 28 on the first gill arch (fig:7).

This is the first description of *A.lacunosus* from Syrian marine waters.

Table 1: Morphometric measurements and meristic of *A. lacunosus* captured in the Syrian marine waters (2021).

Morphometric measurements	**Value**
Total weight (g)	4.45 ± 1.44
Total length (cm)	7.67 ± 0.63
Standard length (cm)	6.5 ± 0.52
Maximum body height	1.26 ± 0.14
Head length	1.74 ± 0.21
Snout length	1.13 ± 0.08
Eye length	0.65 ± 0.10

Meristic measurements	**value**
First Dorsal fin spines (D_1)	V- VI
Second Dorsal fin spines (D_2)	I + 9-10

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Anal fin spines (A)	1
Anal fin soft rays (A)	11
Pectoral fin rays (P)	15
Ventral fin spines (V)	1
Ventral fin soft rays (V)	5
Scales in longitudinal series (LL)	40 – 42
Gill rakers	26 -28

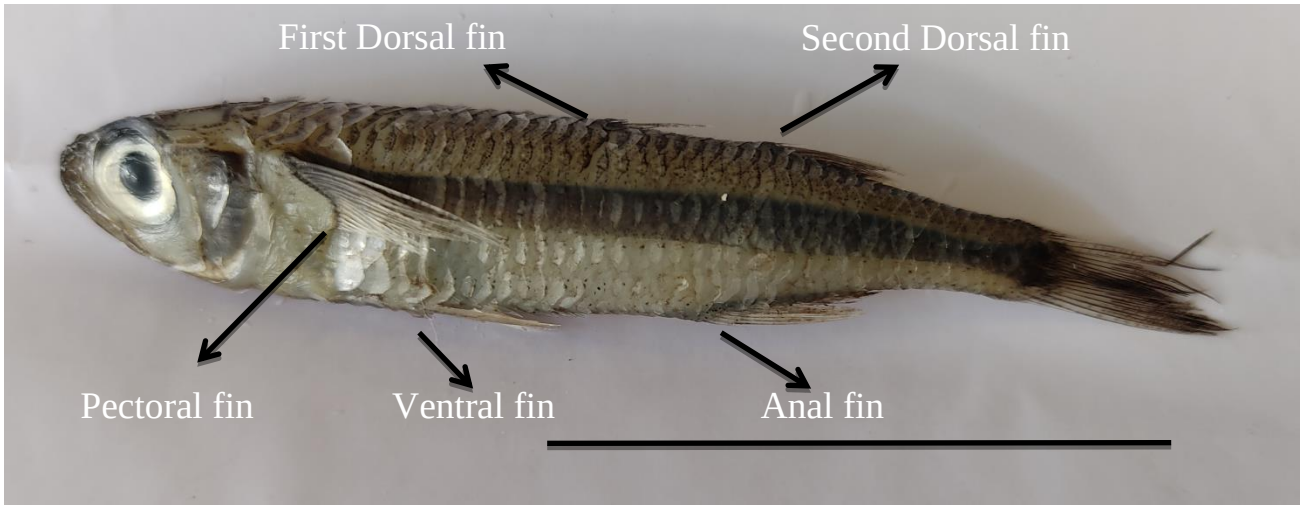

Fig 1: General view of *Atherinomorus lacunosus* (Total Length: 7.7cm) from Syrian marine waters.

Fig 2: Premaxilla

Fig 3: Teeth on endopterygoid

Fig 4: The anus places in posterior of pelvic fins rays.

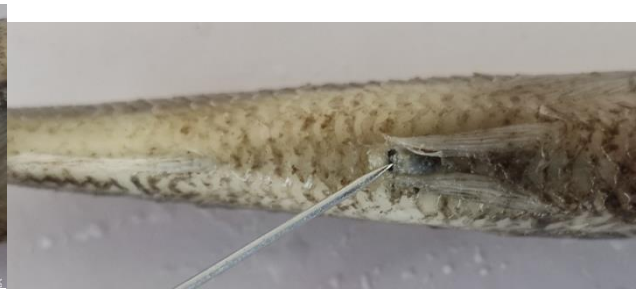

Fig 5: Width of midlateral band

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Fig 6: Mandibular symphysis.

Fig 7: First gill arch (26-28) rakers (1×10X)

Authors'' contributions:

Ranim Othman:

Ph.D student, Department of Zoology, Faculty of Sciences, Tishreen University, Lattakia, Syria.

Mohamad Galiya:

Ph.D Biology from Moscow, USSR, 1991, He is currently working as Professor in Department of Zoology, Faculty of Sciences, Tishreen University, Lattakia, Syria. He Published several articles are available online. *E-mail: galiyamo@scs-net.org*.

Zouher Almajid:

Associate Professor, Department of Zoology, Faculty of Sciences, Tishreen University, Lattakia, Syria. He Published several articles are available online.

E-mail: zouher.almajid@gmail.com

As for the contributions of Dr. Mohamad Galiya and Dr. Zouher Almajid regarding this article:

The supervisors helped to characterize this fish species and confirm its type, in addition to reviewing and correcting the article.

Acknowledgment

The authors would like to thank Faculty of Sciences, Tishreen University, Lattakia, Syria for providing the financial and logistic supports to this work.

Ethical approval

Atherinomorus lacunosus (Forster in Bloch an Schneider, 1801) from Syrian marine waters-Eastern Mediterranean was reported in the study. Fish sample was preserved and deposited at the Laboratory of Hydrobiology, Faculty of Sciences, Tishreen University, Lattakia- Syria. The ANIMAL ethical guidelines are followed in the study for the collection and identification of Samples.

Funding

This study has not received any external funding.

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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