



A New Confirmation Record of the Introduced Sailfin Catfish *Pterygoplichthys disjunctivus* (Weber, 1991) in the Inland Waters of Syria (Orontes River)

Hamwi NI*, Altajer H and Ali-Basha N

Department of Animal Production, Tishreen University, Syria

*Corresponding author: Nader Iskandar Hamwi, Department of Animal Production, Faculty of Agriculture Engineering, Tishreen University, Latakia, Syria, Email: nader836@gmail.com

Research Article

Volume 8 Issue 4

Received Date: September 18, 2024

Published Date: October 07, 2024

DOI: 10.23880/ijoac-16000335

Abstract

A new occurrence of the sailfin catfish, *Pterygoplichthys disjunctivus*, has been documented in the inland waters of Syria, specifically in the Orontes River. The specimens measured between 23.5 and 27 cm in total length and weighed between 100 and 150 g. They were captured by artisanal fishermen using a trammel net at a depth of approximately 2-3 meters and recorded the surface temperature at 20°C. The reappearance of *Pterygoplichthys disjunctivus* indicates potential changes in freshwater biodiversity. Monitoring these developments is crucial for understanding the regional ecosystem. These findings underscore the necessity for further research to achieve a more comprehensive understanding of these emerging phenomena.

Keywords: Orontes River; *Pterygoplichthys disjunctivus*; Sailfin Catfish

Abbreviations

TL: Total Length; TW: Total Weight; SL: Standard Length.

Introduction

The Loricariidae family is the largest within the Siluriformes order, consisting of approximately 1,228 species distributed among 164 genera [1]. These catfish are native to South America, except Chile and Panama, and are known for their large bony plates and ventral mouths. Species of the genus *Pterygoplichthys* with at least ten dorsal fin rays are often called Sailfin Catfish, according to Armbruster JW, et al. [2].

The species *Pterygoplichthys disjunctivus* [3] has been successful in colonizing new habitats. This success is attributed not to specific biological traits but to the species' popularity in the aquarium trade [4]. The release of species from the

genus *Pterygoplichthys* has caused significant environmental harm, leading to habitat damage and ecosystem disruption. These species can successfully establish themselves in new environments, negatively impacting local species. One of the most significant consequences is the modification of food web dynamics, as projected by Nico LG, et al. [5] in Florida.

Species of *Pterygoplichthys* have found their way into various countries outside their native habitats, including Hawaii, Mexico, Puerto Rico, and the United States [6-8], where they are considered potential pests [9]. The species is documented in Southeast Asia by Nico LG, et al. [5] and Wakida-Kusunoki AT, et al. [10].

Furthermore, reports indicate its presence in the United Kingdom [11]. In the Middle East, Golani D, et al. [12] documented the presence of *P. disjunctivus*. Earlier records were noted by Özdilek SY [13] in Turkey, particularly along the Orontes River. Hamwi N, et al. [14] provided the first

documentation of the species in Syria, also on the Orontes River.

The family Loricariidae inhabited the inland waters of the Orontes River basin in Syria, specifically represented by the genus *Hypostomus*, which includes one species, *Hypostomus punctatus* [15]. This situation changed with the reporting of *Pterygoplichthys disjunctivus* in Syrian inland waters, particularly in the Orontes River basin, by Hamwi N, et al. [14]. This study provides a new documented record of *P. disjunctivus* in the Orontes River basin of Syria.

Methods and Materials

During a traditional longline fishery at a depth of 25 m from the Orontes River, north of Hama, five specimens of *Pterygoplichthys disjunctivus* were captured on 25 May, 2024, at a sea surface temperature of 20°C (Figure 1). The specimens measured in centimeters for length and grams for weight, and various morphometric measurements recorded as percentages of total length (TL). The *Pterygoplichthys disjunctivus* identification key was based on the work of Armbruster JW, et al. [2] and Wanjari RN, et al. [16].

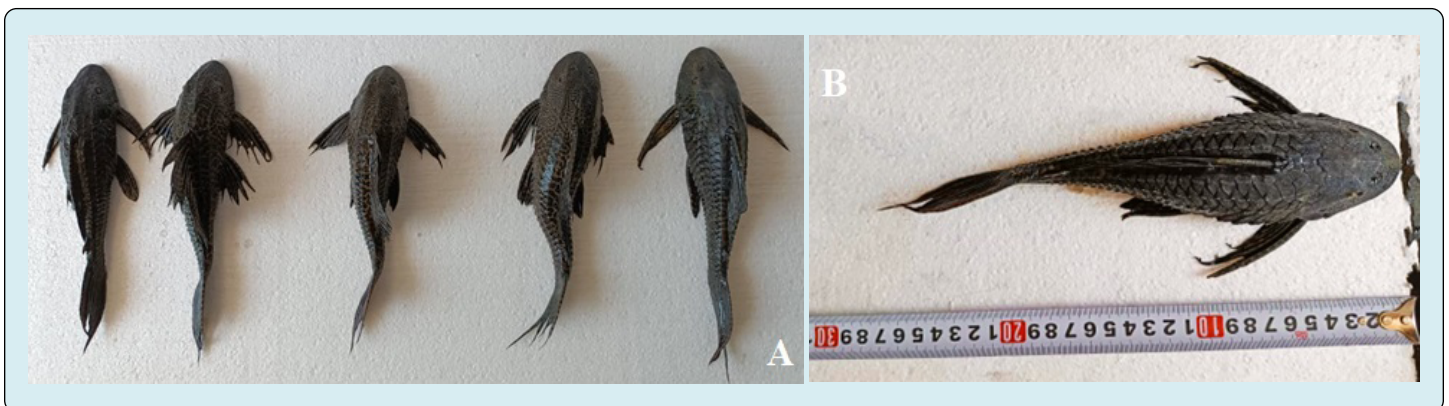


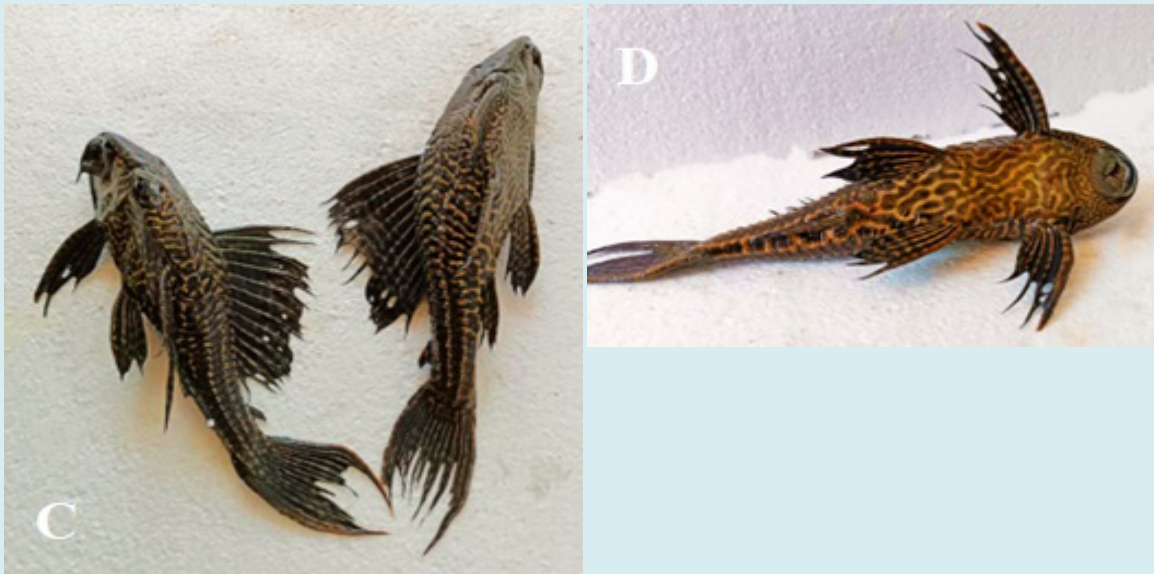
Figure 1: A map indicating the capture site of *Pterygoplichthys disjunctivus* in the Orontes River close to Hama City.

Results

The specimens of *Pterygoplichthys disjunctivus* exhibited several diagnostic features. They had a large dorsal fin, and their abdomens displayed a colour pattern characterized by

light and dark vermiculation due to the merging of spots. The ventral surface showed dark ventrolateral vermiculation that was either broader than or matched the width of the light vermiculation. In addition, the specimens did not have a prominent supra-occipital process (Figures 2A-2D).





C) Lateral view D) Ventral view.

Figure 2: (A-B) Specimens of *Pterygoplichthys disjunctivus* with total lengths ranging from 23.5 to 27 cm were collected from the Orontes River, Hama, 10 September 2024.

Meristics	
Dorsal fin	II, 10
Pectoral fin	I, 5
Pelvic fin	I, 5
Anal fin	I, 4
Lateral line bony plates	29

Table 1: The meristic characteristics of the *Pterygoplichthys disjunctivus* specimens collected from the Orontes River (Hama City).

The body was elongated and flattened, characterized by a robust, armoured head. The dorsal fin consists of two spines, the first relatively small and the second substantial and more robust. Additionally, the dorsal fin contained ten

soft rays. The adipose fin was comparatively short, while the anal fin featured one spine and four soft rays. The pectoral fin had one spine and five soft rays, with the first ray being the largest. The caudal fin was distinctive, exhibiting an elongated and pointed lower lobe. The body features 29 rows of lateral line plates (Table 1).

In terms of colouration, the body exhibited patches of black and yellow, accompanied by dark vermiculation on the dorsal surface of the head. The fins presented a brown-grey colour with light grey spots, while the abdominal region displayed a reticulated pattern of white and brown elements.

The total lengths of the specimens varied from 23.5 to 27 centimetres, with standard lengths ranging from 17 to 19.5 centimetres and weights between 100 and 150 grams (Table 2).

Morphometric measurements	cm	%SL
Total length (TL)	23.5 - 27	
Standard length (SL)	17 - 19.5	100
Head length	3.5 - 4.5	20.6 - 23.1
Body depth	4 - 5	23.5 - 25.6
Pre-dorsal fin length	6 - 8.7	35.3 - 44.6
Post-dorsal fin length	8-Jun	35.3 - 41
Pre-pectoral fin length	4 - 5	23.5 - 25.6
Post-pectoral fin length	1.8 - 2.5	10.6 - 12.8

Pre-pelvic fin length	7 – 9.5	41.2 – 48.7
Post-pelvic fin length	1 – 4	5.9 – 20.5
Pre-anal fin length	11.5 – 14	67.7 – 71.8
Post-anal fin length	0.5 – 2.7	2.9 – 13.9
Caudal peduncle depth	2 – 7	11.8 – 35.9
Dorsal fin base length	2.5 - 3.5	14.7 – 18
Pectoral fin base length	1 – 2.7	5.9 – 13.9
Anal fin base length	0.5 – 1.8	2.9 – 9.2
Adipose fin base length	0.5 – 0.8	2.9 – 4.1
Dorsal fin Height	5 – 6.5	29.4 – 33.3
Pectoral fin Height	5.9 - 7	34.7 – 35.9
Pelvic fin Height	5 - 5.8	29.4 – 29.7
Anal fin Height	2.5 – 4.5	14.7 – 23.1
Adipose fin Height	0.8 – 1	4.7 – 5.1
HL%		
Eye diameter	0.7 - 0.8	17.8 – 20
Snout length	2 – 3.7	57.1 – 82.2
Total Weight (TW, g)	100 - 150	

Table 2: The morphometric measurements, documented in centimetres and as a percentage of standard length (%SL), along with the weight in grams, were recorded for the *Pterygoplichthys disjunctivus* specimens collected from the Orontes River in Hama City.

Discussion

This manuscript documents the second recorded occurrence of the sailfin catfish, *Pterygoplichthys disjunctivus*, in Syrian inland waters, specifically within the Orontes River. We offer a detailed description of the morphometric and key body characteristics of the specimens examined.

Previous research by Hamwi N, et al. [14] identified the inaugural record of *P. disjunctivus* in these waters, suggesting that its introduction to the Syrian ecosystem may be attributed to the aquarium trade, as this species is considered desirable for its ornamental appeal. This recent finding offers compelling evidence of the species' establishment in the Orontes River, indicating successful adaptation and reproduction within the local environment.

Given its invasive nature [17], there is a notable potential for *P. disjunctivus* to expand its range along the river and potentially colonize new habitats over time. The situation underscores the importance of monitoring and managing this species to mitigate any ecological impacts it may pose in the region.

Conclusion

This discovery highlights the importance of monitoring and managing invasive species, as their establishment in new ecosystems can have significant ecological and economic ramifications. Additional research and monitoring are necessary to assess the presence of *Pterygoplichthys disjunctivus* in Syrian freshwater bodies.

Acknowledgment

The authors would like to express their gratitude to Mr. Imad Al-Khabouri for providing us this specimen.

Conflicts of Interest

The authors declare that there are no conflicts of interests.

References

1. Fricke R, Eschmeyer WN, Van der Laan R (2024) Eschmeyer's catalog of fishes: genera, species, references. The California Academy of Sciences.

2. Armbruster JW, Page LM (2006) Redescription of *Pterygoplichthys punctatus* and description of a new species of *Pterygoplichthys* (Siluriformes: Loricariidae). *Neotrop Ichthyol* 4(4): 401-409.
3. Weber C (1991) Nouveaux taxa dans *Pterygoplichthys sensu lato* (Pisces, Siluriformes, Loricariidae). *Revue Suisse de Zoologie* 98: 637-643.
4. Orfinger AB, Goodding DD (2018) The global invasion of the suckermouth armored catfish genus *Pterygoplichthys* (Siluriformes: Loricariidae): Annotated list of species, distributional summary, and assessment of impacts. *ZOOL STUD* 57: e7.
5. Nico LG, Martin RT (2001) A population of the South American armored catfish *Pterygoplichthys anisitsi* (Pisces: Loricariidae) in Texas, with comments on foreign fish introductions in the American southwest. *SOUTHWEST NAT* 46: 98-104.
6. Bunkley-Williams L, Williams EH, Lilystrom CG (1994) The South American sailfin armored catfish *Liposarcus multiradiatus* (Hancock), a new exotic established in Puerto Rican fresh waters. *CARIBB J SCI* 30(1-2): 90-94.
7. Fuller PL, Nico LG and Williams JD (1999) Nonindigenous Fishes Introduced into Inland Waters of the United States. *American Fisheries Society, USA*, 27: 622.
8. Edwards RJ (2001) New additions and persistence of the introduced fishes of the upper San Antonio River, Bexar County, Texas. *TEX J SCI* 53: 3-12.
9. Froese R, Pauly D (2014) FishBase. World Wide Web electronic publication.
10. Wakida-Kusunoki AT, Ruiz-Carus R, Amador Del Angel R (2007) Amazon sailfin catfish, *Pterygoplichthys pardalis* (Castelnau 1855), another exotic catfish established in Southern Mexico. *The Southwest Nat* 52(1): 141-144.
11. Munson A, Bifi AG, Campos D (2024) First records of the introduced sailfin catfish *Pterygoplichthys* in the United Kingdom. *BIR* 13(1): 241-250.
12. Golani D, Snovsky G (2013) Occurrence of Suckermouth Armored Catfish (Siluriformes, Loricariidae, *Pterygoplichthys*) in inland waters of Israel. *BioInvasions Records* 2(3): 253-256.
13. Özdilek SY (2007) Possible threat for middle-east inland water: an exotic and invasive species, *Pterygoplichthys disjunctivus* (Weber, 1991) in Asi River, Turkey. *JFAS* 24(3): 303-306.
14. Hamwi N, Ali-Basha N, Al-tajer H (2024) First documented occurrence of the introduced Sailfin catfish *Pterygoplichthys disjunctivus* (Weber, 1991) in the inland waters of Syria (Orontes River). *Species* 25(75): e29s1679.
15. Al-Saloum M (2009) An illustrated atlas of the fish of the Orontes River Basin within Syrian territory, Publications of the Ministry of Agriculture and Agrarian Reform, General Authority for Scientific Agricultural Research. Hama, Syria, pp: 168.
16. Wanjari RN, Shah TH, Telvekar Pb (2024) A new record of the invasive vermiculated sailfin catfish *Pterygoplichthys disjunctivus* in the Wainganga River, Eastern Maharashtra, India. *J ASIA-PAC BIO* 17(3): 484-489.
17. Weber C (1992) Revision du genre *Pterygoplichthys sensu lato* (Pisces, Siluriformes, Loricariidae). *Revue Francaise d Aquariologie Herpetologie* 19: 1-36.