



## Description of the freckled tilefish *Branchiostegus sawakinensis* (Family Latilidae) in the coastal waters of the Egyptian Red Sea

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### ABSTRACT

In this study, it has been recorded one species of family Latilidae (the Freckled tilefish *Branchiostegus sawakinensis*) in the coastal waters of the Egyptian Red Sea for the first time. It was found within the *Nempiterus* one sample that was caught by the line from Hurghada, Red Sea. It is the first documented record of this demersal species in the Red Sea, Egypt. This species is easily distinguished from *Nempiterus* samples by rectangular black blocks on the base of the dorsal membrane between fin rays and by prominent two horizontal yellow stripes observed on the caudal fin, and a noticeable dark spot on the operculum. Also, the morphometric and meristic characteristics were given together with some biological features.

### INTRODUCTION

The Egyptian Red Sea coast is about 1080 km extending from Suez in the North to Mersa Halayeb in the South. The family Latilidae (Deepwater tilefishes) comprises 3 genera; *Branchiostegus*, *Caulolatilus*, and *Lopholatilus* and 29 species that inhabit coral and deep reef habitats in tropical and warm temperate seas. The genus *Branchiostegus* presently is comprised of 16 species (Froese and Pauly, 2022).

*Branchiostegus sawakinensis* is marine fish, demersal and found in-depth range of 45 - 180 m. It is found over muddy bottoms on the continental shelf (Fischer *et al.*, 1990). *B. sawakinensis* is distributed in the Indo-West Pacific (the Red Sea and off Durban, South Africa) as well as the Arafura Sea (Russell and Houston 1989), northwestern Australia (Gloerfelt-Tarp and Kailola 1984) and the Philippines. *B. sawakinensis* is considered poisonous fish by local fishers in the Red Sea and thus is generally discarded (Dooley and Rau 1982). There is no study on this species in Egypt, so the study aims to shed light on this species for the first time in Egypt.

## MATERIALS AND METHODS

### 1. Sampling

On 14 January 2022, a single specimen of the freckled tilefish *B. sawakinensis* was observed among the threadfin breams (Nemipteridae) sample captured from Hurghada fishing ground using lines (Figure 2).

The specimen was identified according to FAO identification sheets and the FishBase website and was preserved for further investigation. With a digital caliper, morphometric and meristic traits as well as the majority of diagnostic findings were recorded and counted.



Figure 1. A photograph of *Branchiostegus sawakinensis* from the Red Sea.



Figure 2. Map of the Egyptian sector of the Red Sea showing Hurghada fishing ground.

## 2. Morphometrics

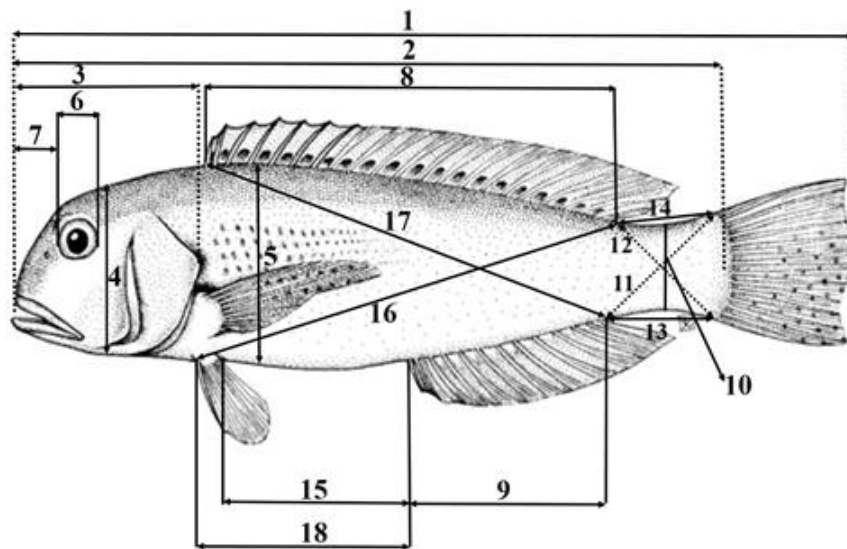
Eighteen morphometric measurements were made on the left side up to the nearest millimeter. They are diagrammatically represented in Figure 3. Measurements include:

- 1- Total length (TL).
- 2- Standard length (SL).
- 3- Head length (HL).
- 4- Head depth (HD).
- 5- Body depth (BD).
- 6- Eye diameter (ED).
- 7- Snout Length (SNL).
- 8- Dorsal fin base length (DFBL).
- 9- Anal fin base length (AFBL).
- 10- Caudal peduncle depth (CD).
- 11- Distance between anal fin insertion and dorsal caudal fin origin (AIDCFL).
- 12- Distance between dorsal fin insertion and ventral caudal fin origin (DIVCL).
- 13- Distance between anal fin insertion and ventral caudal fin origin (AIVCFL).
- 14- Distance between dorsal fin insertion and dorsal caudal fin origin (DIDCFL).
- 15- Distance between ventral fin insertion and anal fin origin (VIAOFL).
- 16- Distance between dorsal fin insertion and ventral fin origin (DIVOFL).
- 17- Distance between dorsal-fin origin and anal fin insertion (DOAIFL).
- 18- Distance between the ventral fin origin and the anal fin origin (VOAOFL).

## 3. Meristics

The following meristic counts were recorded:

1. Number of dorsal fin soft rays and spines (DFS, DFR).
2. Number of the pectoral fin soft rays (PFR).
3. Number of ventral fin soft rays and spines (VFS, VFR).
4. Number of anal fin soft rays and spines (AFS, AFR).
5. Number of the caudal fin soft rays (CFR).



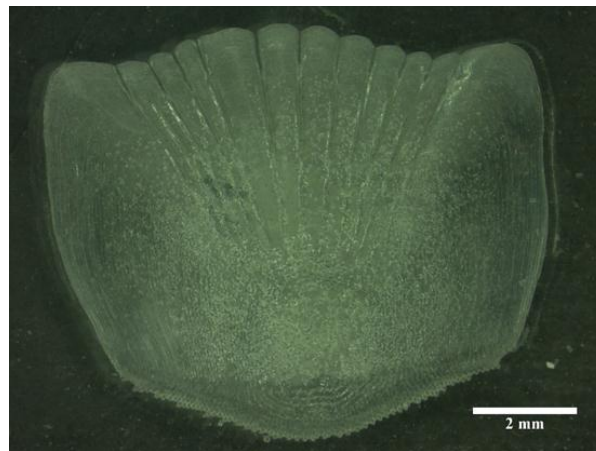
**Figure 3.** Schematic illustration of measurements taken on the body of *Branchiostegus sawakinensis* from the Red Sea.

## RESULTS AND DISCUSSION

Although *Branchiostegus sawakinensis* is endemic in the Red Sea, no previous records of its presence in the Egyptian Red Sea coast. This may be due to no one studied it before or no one focusing on the species belonging to family Latilidae in Egypt. Despite being known from the West and East coasts of Africa, Red Sea, Gulf of Aqaba, Queensland in Australia, Phillipine, Hong Kong and Japan, this genus appears to be uncommon in all of these places, except Japan where it is economically advantageous (Amirthalingam, 1969; Marino and Dooley, 1982; Dooley and Rau, 1982; Gloerfelt-Tarp and Kailola, 1984; Russell and Houston, 1989; Baranes and Golani, 1993).

*B. sawakinensis* have generally pinkish background color (pink on the back to almost white ventrally) with yellowish parts at the bottom of the dorsal fin and behind the head. The pelvic and anal fins are whitish whereas the pectoral is pinkish. In the field, *B. sawakinensis* can be recognized by rectangular black blocks on the base of the dorsal membrane between fin rays and by prominent two horizontal yellow stripes observed on the caudal fin, and a noticeable dark spot on the operculum. Also, the absence of vertical bars on the upper part of the body.

The body is elongated, flattened laterally, thickened anteriorly, and covered by small or moderate ctenoid scales (Figure 4). The head is large, thicker than the body, and almost flat above. The mouth is medium-sized, terminal oblique with bands of small fine pointed teeth and a few strong caniniform ones. Nostrils are rounded and the posterior ones are larger, eyes are medium-sized and dorsolateral. The hind margin of the preoperculum is strongly serrated and six branchiostegal rays are present. The dorsal fin is single with feeble spines and originates distinctly behind the head and above the pectoral base. This description agrees with Amirthalingam (1969), Baranes and Golani (1993) and Fishbase (2022).



**Figure 4.** Ctenoid scale of *Branchiostegus sawakinensis*

Morphometric measurements, morphometric indices (relative to total length, TL), and meristic characters of the freckled tilefish *B. sawakinensis* (29.8 cm TL; 24.8 cm SL; weight: 297 g) are given in Table 1.

Meristic counts agree with data reported by Heemstra (1986) and Amirthalingam (1969) except for the Anal fin soft rays (AFS) where they recorded it as 12 rays.

The coronavirus pandemic has significantly affected the environment and climate in several aspects; The sharp reduction in tourism, travel, movement of individuals, and social and commercial activities has led to a decrease in the level of Red Sea pollution in Egypt. So, many fishes were recorded for the first time in this period as three *Gymnocranius* species: *Gymnocranius. satoi*, *G. elongatus* & *G. oblongus* (Mehanna et al., 2022).

**Table 1.** Morphometric measurements, morphometric indices (relative to total length, TL), and meristic characters of the freckled tilefish *Branchiostegus sawakinensis*.

Morphometric Character	Measurement (Indices)	Meristic character	Count
Total length (TL)	29.8 cm	Dorsal fin spines (DFS)	7
Standard length (SL)	24.8 cm (83.22 %TL)	Dorsal fin soft rays (DFR)	15
Head length (HL)	7 cm (23.49 %TL)	Pectoral fin soft rays (PFR)	19
Head depth (HD)	5.4 cm (18.12 %TL)	Ventral fin soft rays (VFR)	5
Body depth (BD)	6.5 cm (21.81 %TL)	Anal fin spines (AFS)	2
Eye diameter (ED)	1.4 cm (4.70 %TL)	Anal fin soft rays (AFS)	11
Snout Length (SNL)	3 cm (10.07 %TL)		
Dorsal fin base length (DFBL)	15.3 cm (51.34 %TL)		
Anal fin base length (AFBL)	7.6 cm (25.50 %TL)		
Caudal peduncle depth (CD)	2.7 cm (9.06 %TL)		
(AIDCFL)	4.7 cm (15.77 %TL)		
(DIVCL)	4.5 cm (15.10 %TL)		
(AIVCFL)	3.7 cm (12.42 %TL)		
(DIDCFL)	3.6 cm (12.08 %TL)		
(DOAIFL)	6.4 cm (21.48 %TL)		
(VOAOFL)	15.2 cm (51.01 %TL)		
(VIAOFL)	16.4 cm (55.03 %TL)		
(DIVOFL)	7 cm (23.49 %TL)		

## CONCLUSION

Investigations on the ecology and life cycle strategies of marine species should be conducted to identify the ecological changes that result in the emergence of new species in the area. Also, detailed studies on the species identification and the species diversity should be conducted.

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