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## SHORT COMMUNICATION

### FIRST REPORT ON THE OCCURRENCE OF SARGASSUM WEED FISH *HISTRIO HISTRIO* (LOPHILIFORMES: ANTENNARIIDAE) IN NIGERIA DEEP WATER, GULF OF GUINEA

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collaborative work on this subject in future.

## MATERIALS AND METHOD

### The Study Area

The Bonga oil field is located in Oil Mining License (OML) 118 ( $4^{\circ}35'47''\text{N}$ ,  $4^{\circ}37'27''\text{E}$ ), Offshore-Nigeria, with the license area lying about 120 km off the Nigeria coastline (Figure 1). The water depth of the block range from 1,000 m to 1,150 m and the Bonga field is located in approximately 1,030 m of water. The field was discovered in 1995 and began first production in November 2005.

The field is characterised by heavy precipitation and high solar radiation. The North and South Atlantic subtropical highs and equatorial low-pressure system control its climate. Rainy season is between February and November, while dry season is between December and January. During the dry season, there may be haze and thick fog at dawn due to the dust carried by the prevailing Harmattan winds. The dominant waves are large swell waves generated by the prevailing south-south west winds offshore Nigeria. A secondary set of short wavelength waves generated by episodic surges in the southeast winds just off the Namibian coast manifest

in the Bonga field area from  $214^{\circ}$  direction. The two dominant wind systems are the South West Trade Wind (or Tropical Marine Air Mass) and North East Trade Wind (or Tropical Continental Air Mass). The South West Trade Wind originates from the Southern Hemisphere around St. Helens from where it initially moves as the South Easterly Wind and then veers eastwards to become the South Westerly Wind as it crosses the equator (SNEPCo 2014).

### Sampling

We sampled for aquatic weed (*Sargassum* seaweed) in February 2014 while conducting a major environmental study. A 55-micron mesh size plankton net was lowered onto the sea onboard an environmental vessel while cruising at a low speed of 4 knots amidst high tide. The sampler held the net against the direction of the water current (the bow heading) while securing himself with harness by the portside. The collected weeds were introduced into a small bowl and examined. Our interest was to preserve the weeds for a museum, fortunately we harvested an adult *Sargassum* weed fish which was immediately preserved in 10 % formalin solution for 24

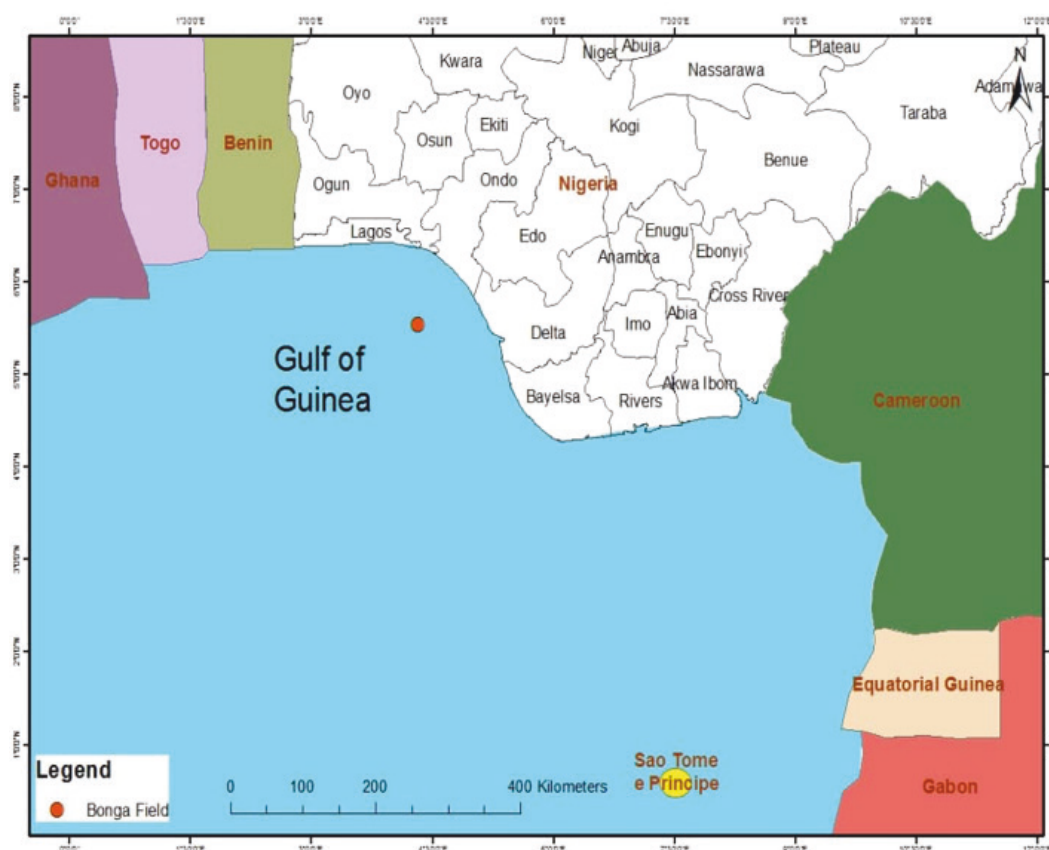


Figure 1. Map of the Bonga Field in the Gulf of Guinea.

h. It was there after removed and washed in sea water, and again introduced into 70 % ethanol for further studies. The specimen was identified online onboard at various websites. Specimen was photographed freshly onboard. We also recorded pH, total dissolved solids, electrical conductivity, turbidity and salinity using HANNA probe and turbidometer for in situ studies. While temperature was measured using mercury in glass thermometer calibrated from 0–100 °C (Krisson model-59). Every other parameters were measured by dipping the calibrated HANNA probe and turbidometer into the sampled sea water immediately after collection, and the corresponding values read from the digital display on the screens were recorded.

## RESULTS AND DISCUSSION

The environmental variables (Table 1) such as water temperature, pH, total dissolved solids, dissolved oxygen, electrical conductivity, turbidity and salinity had their values within tropical seas condition (EGASPIN 2002).

The classification of the specimen *Histrio histrio* and the common name in parenthesis is given thus (Rampersad 2016):

Kingdom: Animalia

Phylum: Chordata

Class: Actinopterygii (Ray-finned Fish)

Order: Lophiliformes (Anglerfish and Frogfish)

Family: Antennariidae (Frogfish)

Genus: *Histrio* G. Fischer, 1813

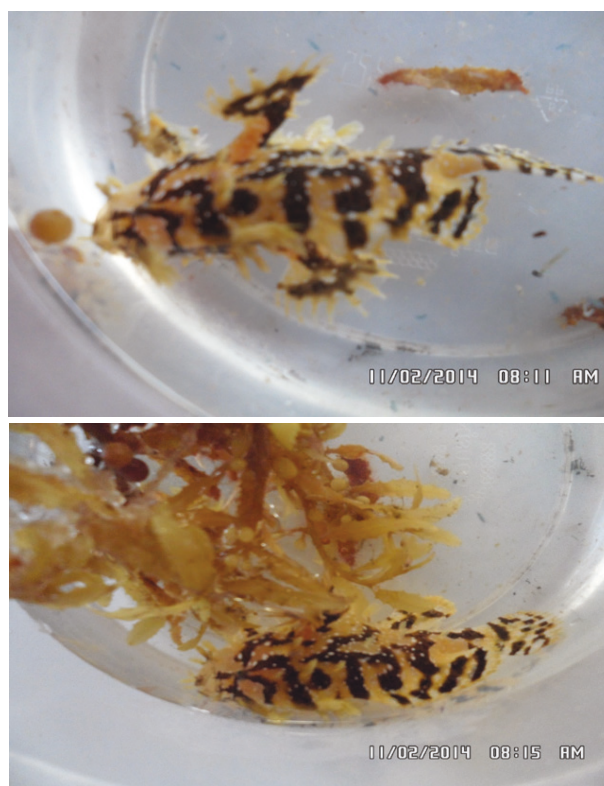
### *H. histrio* Linnaeus, 1758 (Sargassum Weed Fish)

The fish was harvested from Sargassum seaweed *Sargassum fluitans* which also harboured a rich community of plankton. The nature and the occurrence of the Sargassum Weed Fish is in consistency with previous reports (Wells & Rooker 2004; Rogers et al. 2010). The colonization of Sargassum mat by pelagic fishes of which *H. histrio* may not have been an exception was reported by Wells & Rooker (2004) from the Gulf of Mexico and Bray & Thompson (2020) from Australia.

The Sargassum Weed Fish is also known as Frogfish. Amongst its other names across the world are: Marbled Angler, Mouse Fish, Sargassum Anglerfish, Sargassum Frogfish, Sargassumfish, and Sargassum-fish (Bray & Thompson 2020). It is the only pelagic member of the frogfish family Antennariidae, which is considered an obligate associate of floating mats of the brown algae *Sargassum natans* and *S. fluitans* (Adams 1960; Dooley 1972; Pietsch & Grobecker 1987; Wells & Rooker 2004; Rogers et al. 2010). Only one adult form and two gelatinous fingerlings were harvested from the

**Table 1.** Measured values of some abiotic conditions/sea state in Bonga field.

| Environmental variables                       | Value/ state |
|---|--------------|
| Water Temperature (°C)                        | 27.9         |
| pH  | 8.18         |
| Total Dissolved Solids (mgL <sup>-1</sup> )   | 25060        |
| Dissolved Oxygen (mgL <sup>-1</sup> )         | 3.29         |
| Electrical Conductivity (μScm <sup>-1</sup> ) | 50120        |
| Turbidity (NTU)                               | 0.87         |
| Salinity (PSU)                                | 32.74        |
| Swell (m)                                     | Medium (2–4) |
| Visibility (km)                               | Good (>5)    |



**Image 1.** Sargassum Seaweed Fish *Histrio histrio* 6.1cm with Sargassum seaweed. © MV African Vision by ARD at Bonga field.

weed colonies. Before now, there was no report on the occurrence of this fish in the Gulf of Guinea.

A detailed description of its reproduction, habitats and biology was published earlier (Rogers et al. 2010; McEachran et al. 2015; Rampersad 2016) based on the study from the USA, Trinidad & Tobago, the Pacific, and Nigeria most recently. The specimens (Image 1) are in conformity to the body size, colourations and habitat types by the works of the aforementioned authors.



The standard measurement (i.e., total length, TL) of the adult specimen from Bonga field, offshore Nigeria in the Gulf of Guinea was 61mm (Image 1) but could be up to 100 mm (Rogers et al. 2010). Meanwhile, the gelatinous juvenile forms were 0.8 and 0.9 cm, of which their pictures were not good enough for documentation purpose due to their denaturation upon preservation.

Its distribution cut across both the temperate and tropical regions of the world, such as, the Caribbean Basin, Sargasso Sea, western Pacific, and Indian Oceans (McEachran et al. 2015) and currently in the Gulf of Guinea. Its reproduction involves courtship between the male which closely follows the female, rushing to the epipelagic region to spawn. Spawning is frequent and regular for more than a two week period. They produce eggs on the surface and have an appearance of being blunt at both ends with a slightly larger middle. After the female releases her eggs the male externally fertilises them as it is in other fishes. The Juveniles then move to depths exceeding 200m, where they feed and become adults, and thereafter return to the Sargassum weeds above. The juveniles feed on other fish eggs and small crustaceans, amphipods, decapods, euphausiids and shrimps, whereas adults feed on other fish and shrimps among the seaweed at the surface (Rampersad 2016). On its biology, Rampersad (2016) reported again that the sargassum fish can hold the ciguatera poison, accumulated from its food, and can cause ciguatera poisoning in humans. This could be one of the reasons while the species is of Least Concern on the IUCN Red List (McEachran et al. 2015) and importantly, its population thrives since it is not consumable by humans. The habitat and ecology correspond to what we observed and documented at Bonga field in the Gulf of Guinea. Whereby they usually find refuge in the floating Sargassum seaweed mats which can cover a depth of 0–5 m. In these Sargassum mats, adults and eggs can be found but, the larvae of the species usually develop in water columns between 50–600 m (McEachran et al. 2015; Rampersad 2016).

In conclusion, we strongly believe that there could be more to learn from *Histrio histrio* if given the opportunity to carry out a major study regarding species diversity, community structure, its seasonal preference and occurrences in the Gulf of Guinea member states. Since, the species is not documented in FAO book of fishes of economic importance and it is of Least Concern

on the IUCN Red List, it is therefore crucial to understand its biology and tropical ecology as well as population in addition to existing documentations. This will further tell whether it is threatened in this region owing to increasing deep sea anthropogenic activities or not.

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