Synodus foetens (Inshore Lizardfish)

Family: Synodontidae (Lizardfish)
Order: Aulopiformes (Lizardfish and Grinners)
Class: Actinopterygii (Ray-finned Fish)

Fig. 1. Inshore lizardfish, *Synodus foetens.*

[https://classconnection.s3.amazonaws.com/402/flashcards/3554402/jpg/syint_u1-14525881D5C0A0E9447.jpg, downloaded 8 March 2016]

TRAITS. The inshore lizardfish has a very elongated body, cylindrical or cigar-shaped, which grows to a length of approximately 40cm, maximum length 50cm, and weighs about 1kg (Boyd, 2015). Females are about 15% larger than males at maturity. The mouth is large and wide with a pointed snout (Fig. 1). The top jaw extends beyond the eye with a lot of slender teeth present in the jaws and roof of the mouth. The lateral line has 60 scales along its length. The colour of the upper side of the inshore lizardfish ranges from shades of brown to olive, and the belly ranges from yellow to white. The sides of young fish have dark spots, however in older fish these spots fade. The sides have diamond-shaped patches, and the dorsal fin is at approximately the centre of the back (Bowling, 2015). There is an adipose fin (small rayless second dorsal fin) which shows a darker spot (Fig. 2). The head of the inshore lizardfish is depressed and broad and the snout is triangular and reaches beyond the tip of the jaw. There are 6-7 slanted rows of scales on the cheek with the top of the head being bare. These scales are usually small with the exception of scales below the chest and above the pelvic area. The anal fin is either longer or equal in length to the dorsal fin, and the pelvic fin is close to the vent. Lastly, the gill rakers (internal extensions of the gills) are simple (Valdestamon, n.d.).

DISTRIBUTION. The inshore lizardfish begins its range from the south of Massachusetts to Brazil, the Gulf of Mexico, Bermuda and West Indies (Fig. 3). It is also found at the mouth of the Amazon River (Ichthyol, 2005).

HABITAT AND ACTIVITY. This is a bottom dwelling fish found near the shore to a depth of about 30m. They are located in a number of habitats which include inshore waters over sand or mud, saltwater creeks, rivers, along beaches, among seagrasses, estuaries, inlets, bays and lagoons (Russell et al., 2015). Small (8-10cm) fish are found in sandy, shallow beach areas (Boyd, 2015). Adults can be found in both shallow areas and in deep sandy areas, saltwater and non-saltwater bays, rivers and in very deep waterways in lagoons. They are abundant in areas that have mud bottoms, and may even be found in the open sea above continental shelves (Pablico, 2008). In sandy areas, they dig themselves into the sand by vibrations from their body and would not be found in rough surf (Boyd, 2015). This fish is a predator that hides in shallow bays and inshore waters, and buries itself in the sediments in order to catch its prey. The larvae are pelagic and are found in the open sea close to the land or where there are shallow waters (Pablico, 2008). It mainly feeds on small mobile invertebrates and fish (Russell et al., 2015).

FOOD AND FEEDING. These predators obtain their food by a lie-in-wait process (Fig. 4). When the prey approaches they dart out quickly to capture it. Although this species mostly feeds on fish, other organisms such as shrimp, crabs and cephalopods are included in their diet (Murdy and Musick, 2013). *Synodus foetens* in Florida changed their food from newly-hatched fish and grass shrimp to small and mature fish, squid and other species of shrimp. With changes in their food to larger prey, the relative size of the mouth gape and diameter increases (Ichthyol, 2005).

POPULATION ECOLOGY. This species is mainly caught as bycatch from trawling fisheries, representing 1.4-1.8 % of the total catch from the Gulf of Mexico and North Carolina. As a result of this the species has a high mortality rate (Russell et al., 2015). These fish are among the top ten most frequently encountered benthic fish caught while trawling. The abundance of the species is greater in the summer, with majority being small individuals. This is due to these fish coming from estuaries, where they avoid complex habitats because of predators or high competition for food. These fish are known for travelling many kilometres as they look for adult habitats (Jeffers, n.d.).

REPRODUCTION. *Synodus foetens* are dioecious (separate males and females), fertilization is external, eggs are spherical shaped, and spawning occurs throughout the year but peaks once. This species is a substratum egg scatterer and non-guarder. This means that they do not protect their eggs, and the eggs are simply scattered in the water and then fall into plants, rocks, etc.

APPLIED ECOLOGY. There is a significant amount of deaths of this species in the Gulf of Mexico because of shrimp trawls. In the northern Gulf of Mexico, the penaeid shrimp trawl fishery has been operational since the 1950s and during that period over 1 billion pounds of bycatch has been caught each year. As a result the shrimp trawling levels in this area have been significantly reduced since 2005 (Russell et al., 2015).

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Fig. 2. Dorsal and adipose (second dorsal) fins of *Synodus foetens*.

[http://www.fishbase.se/images/species/Syfoe_u3.jpg, downloaded 2 March 2016]

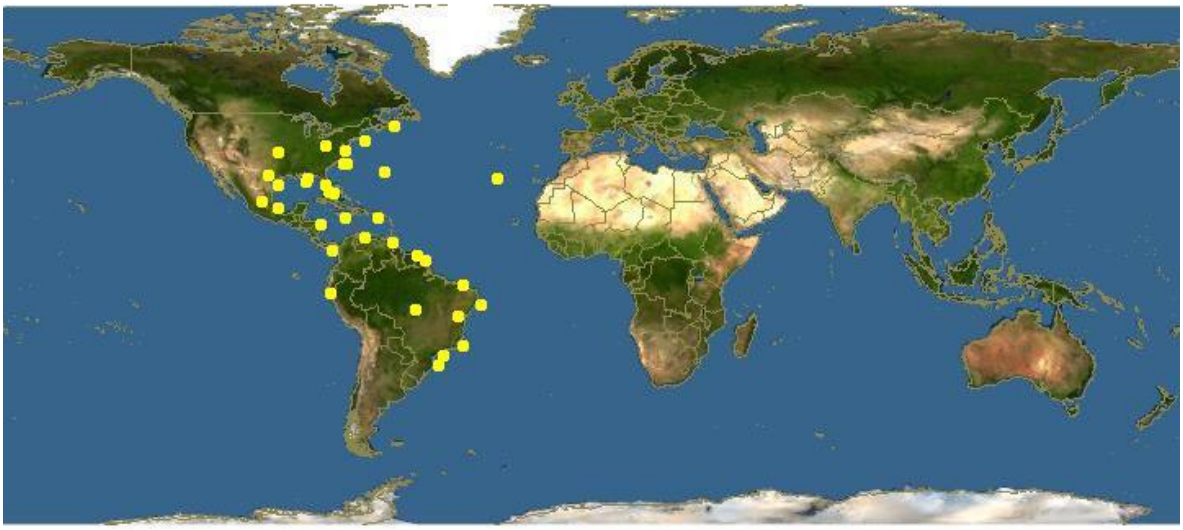

Fig. 3. Inshore lizardfish geographic distribution.

[http://www.discoverlife.org/nh/maps/Vertebrata/Fish/Synodontidae/Synodus/map_of_Synodus_foetens.jpg, downloaded 8 March 2016]

Fig. 4. Inshore lizardfish in the lie-in-wait position.

[http://cdn.c.photoshelter.com/img-get/I0000.JRgREA0ujc/s/650/650/Synodus-foetens-Inshore-lizardfish-Blue-Heron-Bridge-Florida-CJE-26872.jpg, downloaded 10 March 2016]