

Synodus intermedius (Sand Diver)

Family: Synodontidae (Lizardfish)

Order: Aulopiformes (Lizardfish and Grinners)

Class: Actinopterygii (Ray-finned Fish)



Fig. 1. Sand diver, *Synodus intermedius*.

[<http://www.gooddive.com/diving-photos/show.php?start=15&id=1123>, downloaded 21 January 2016]

TRAITS. Sand divers are in the lizardfish family and possess long cylindrical bodies with a size ranging between 10-35cm. They are often compared to a lizard due to the resemblance in facial features (Fig. 1) such as a wide mouth and bulging eyes which are small and laterally (sideways) directed. Teeth are small in size with no distinct canines and both sexes have a lower jaw that extends past the upper jaw (Anderson et al., 1966). Male sand divers have elongated anterior rays in their dorsal fin along with the possession of a long pelvic fin filament when compared to females (Michael, 2015). Colour varies between brown, reddish or silver with red, yellow or blue markings and 5-11 spots on either side of the midventral line (Anderson et al., 1966). They possess the ability to camouflage based on their surroundings, changing from bright to dull sandy grey to match the background.

DISTRIBUTION. Widespread across the western Atlantic (Fig. 2), extending from Bermuda, North Carolina and the Gulf of Mexico to the Caribbean and the east coast of South America (Bailly, 2015; STRI, 2015). The sand diver is the most common lizardfish found in the West Indies (Robins and Ray, 1986).

HABITAT AND ACTIVITY. Sand divers are demersal or benthic fish meaning that they live close to the sea bed. They bury themselves in the sand at a water depth ranging from 3m to as deep as 320m, or can use habitats on shallow coral and reefs with mainly rock structures (Key West Dive Center, 2016). Sand divers are always in a position for feeding as they tend to support themselves on the pectoral fins in the sand near rocks and stay still until smaller organisms pass (Fig. 3). They are carnivores and their diet consists mainly of small fish and invertebrates. However studies now show that in some ecosystems they are positioned as apex predators as they occupy a high trophic position as hunters that feed on predatory fishes (Boyd, 2015).

FOOD AND FEEDING. Sand divers spend most of their time searching for prey using their ability to dig their bodies under the seabed. They consume a variety of small reef fishes including bar jacks, wrasses, small grunts, shrimp, squid and silversides. At the time of feeding, sand divers with their full mouth of needle-shaped teeth go into feeding mode where they lie in the sand and wait with only their eyes exposed. They are considered ambush predators meaning that they hunt their prey by surprise, waiting for the prey to approach in close proximity before they snap up the prey in a matter of seconds (Fig. 4).

POPULATION ECOLOGY. The population dynamics of sand divers were investigated in a study to determine the spatial and temporal larval distribution patterns among five Caribbean lizardfish, including *S. intermedius*, in the San Blas Archipelago, Panama (Lemberget, 2009). Fish were collected from reef structures including back-reef, exposed reef and lagoon over an 18 month period. Results showed that sand divers had the greatest abundance during the dry season with larval density highest in the exposed reef habitat in comparison to the back-reef and lagoon. Environmental conditions influenced larval catches. Low temperatures contributed to a small larval catch while strong onshore winds caused spawning activity, fertilization success, and larval feeding and transport (Robinson, 1993).

REPRODUCTION. Little information is provided for the reproductive characteristics of sand divers. Mating periods usually take place during summer and fall and they show no parental care. Eggs are left on their own until they hatch. Fertilization is external as females are responsible for leaving eggs along the reef while males trail behind, fertilizing the eggs. Sand divers can occur in shoals with fewer males than females.

BEHAVIOUR. Antipredator behaviour: Sandy and silty structures are preferred as it offers protection from predators because they tend to snuggle themselves under the sand with only their head being visible for protection. They have the ability to camouflage against rocks and this is also used as a defensive mechanism (Fig. 5). Movements are so fast that they become invisible in motion (Boyd, 2015).

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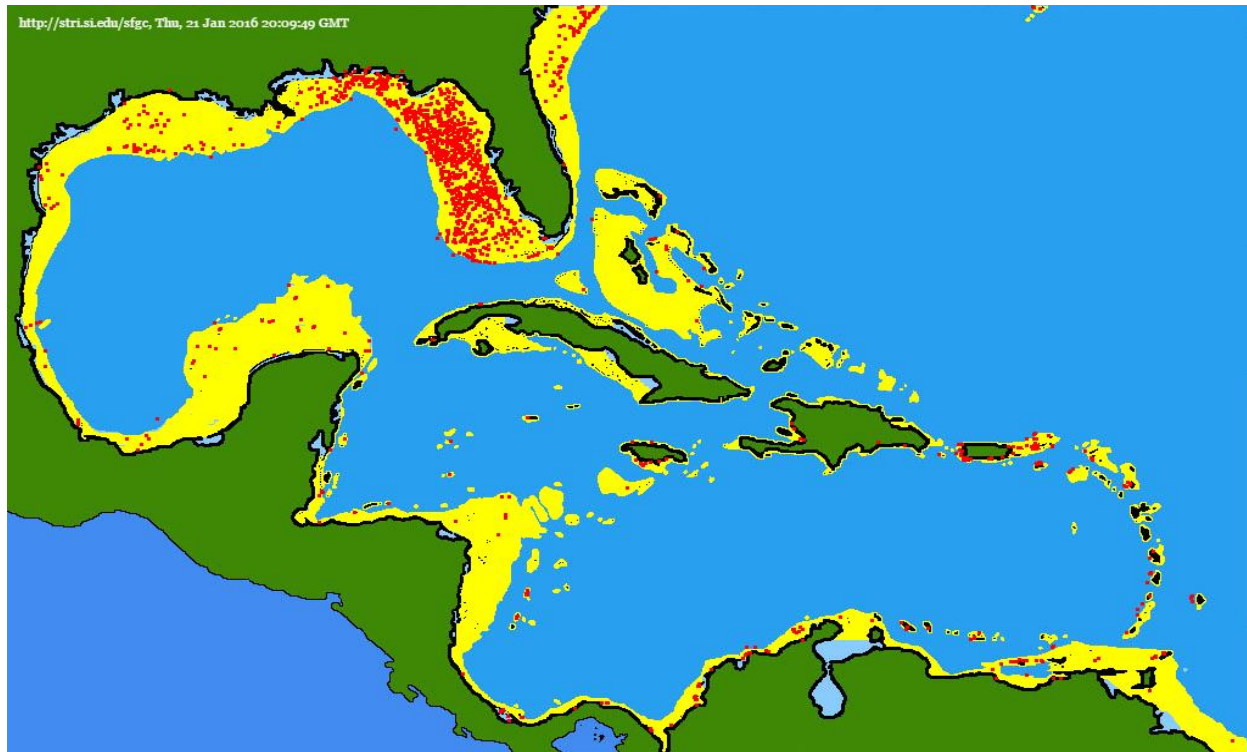


Fig. 2. Sand diver geographic distribution.

[<http://biogeodb.stri.si.edu/caribbean/en/thefishes/species/3030>, downloaded 21 January 2016]



Fig. 3. Sand diver in feeding position.

[http://seestjohn.com/st_john_life/life-on-st-john/st-john-sea-creatures-sand-diver/, downloaded 8 March 2016]



Fig. 4. Sand divers feeding.

[http://seestjohn.com/st_john_life/life-on-st-john/st-john-sea-creatures-sand-diver/, downloaded 8 March 2016]



Fig. 5. Sand diver in defensive position.

[<http://www.whatsthatfish.com/fish/sand-diver/1529>, downloaded 5 March 2016]

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