

Diploria labyrinthiformis (Grooved Brain Coral)

Order: Scleractinia (Stony Corals)

Class: Anthozoa (Corals and Sea Anemones)

Phylum: Cnidaria (Corals, Sea Anemones and Jellyfish)



Fig. 1. Grooved brain coral, *Diploria labyrinthiformis*.

[<http://oceana.org/marine-life/corals-and-other-invertebrates/grooved-brain-coral>, downloaded 24 September 2016]

TRAITS. *Diploria labyrinthiformis* is a circular coral that can be in various colours including yellow, tans and greys. They resemble the human brain with deep grooves beneath the ridges and channels (Fig. 1). These channels contain polyps and they run between 5-10mm in width and 6mm deep (Logan et al., 1994). These animals are hermaphroditic which means they produce both male and female reproductive structures. Reproduction occurs when the sperm is secreted in the water and then fertilises the eggs within the colony. These colonies can be 1-2m in diameter (Derk, 2016).

DISTRIBUTION. Widespread over the Caribbean, Bermuda, Bahamas and Southern Florida (Jones, 1977). They are native to all the Caribbean countries including Trinidad and Tobago and also countries outside of the Caribbean for example United States of America (Fig. 2).

HABITAT AND ECOLOGY. *Diploria labyrinthiformis* is found only in habitats where light can penetrate the water (Fig. 3). Therefore, it is limited to shallow areas of approximately 50m and low nutrient levels. In order for *Diploria labyrinthiformis* to keep nourished it relies heavily on a feeding method referred to as suspension feeding. Zooplankton are the main organisms that *Diploria labyrinthiformis* prey upon. They use their tentacles to catch food (Sterrer, 1986). The polyps have nematocysts (stinging cells) that are triggered when a prey comes into contact with them. Symbiosis also occurs in *D. labyrinthiformis*. It supplies nutrients to *D. labyrinthiformis* from zooxanthellae or dinoflagellate algae. The waste products that zooxanthellae receives from corals is what it uses for nutrients (Sterrer, 1986). In return it then repays all of the corals by assisting in the completion of growth, reproduction and calcification by providing the coral with photosynthate for energy (Savage et al., 2002). *Diploria labyrinthiformis* can still be preyed on by predators even though the polyps have nematocysts. Fish such as parrotfish, gastropods (snails) and echinoids (sea urchins) are a few of the likely predators (Sterrer, 1986).

REPRODUCTION. Grooved brain coral possesses both male and female sex organs (hermaphrodite). Male and female reproductive gametes enter the water from *Diploria labyrinthiformis* during the months of May to June (Fig. 4). Various cues cause the release of the gametes for example velocity of water, temperature (Alvarado and Garcia, 2003).

BEHAVIOUR. *Diploria labyrinthiformis* is a coral that is immobile. The coral's polyps extend its tentacles at night and retracts them during the day for protection. The tentacles are wrapped around the grooves of the coral so it can be protected against predators (Rossi-Snook, 2011).

APPLIED BIOLOGY. *D. labyrinthiformis* is recorded as of least concern according to IUCN Red List (Aronson et al., 2008). A vast decrease in coral reef habitat causes the most threat to *Diploria labyrinthiformis* populations. Climate change and acidification of the ocean are also threats against *Diploria labyrinthiformis*.

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Posted online: 2016



Fig. 2. Grooved brain coral, *Diploria labyrinthiformis* geographic distribution.

[<http://maps.iucnredlist.org/map.html?id=133257>, downloaded 24 September 2016]



Fig. 3. Grooved brain coral, *Diploria labyrinthiformis* in its typical habitat.

[<http://www.arkive.org/grooved-brain-coral/diploria-labyrinthiformis/image-G85255.html>, downloaded 24 October 2016]

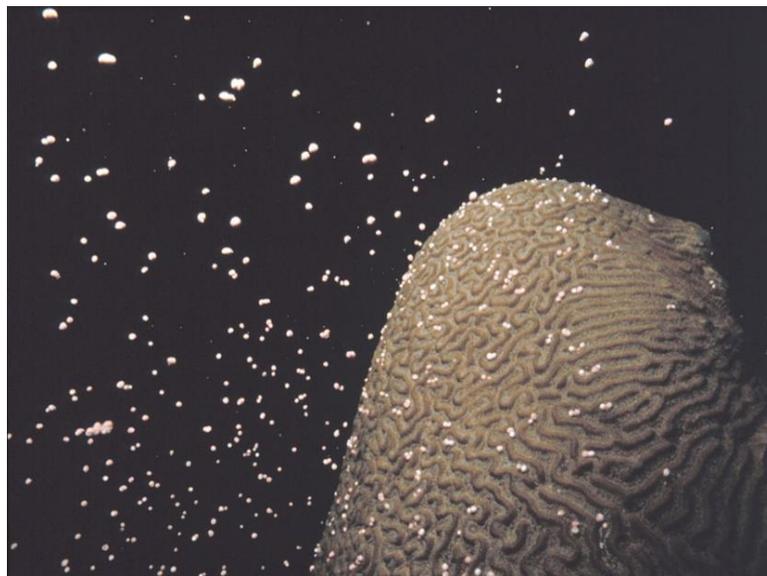


Fig. 4. Grooved brain coral, *Diploria labyrinthiformis* spawning.

[<http://flowergarden.noaa.gov/science/coralspawning13.html>, downloaded 18 October 2016]