

Gorgonia ventalina (Purple Sea Fan)

Order: Alcyonacea (Sea Fans)

Class: Anthozoa (Corals and Sea Anemones)

Phylum: Cnidaria (Corals, Sea Anemones and Jellyfish)

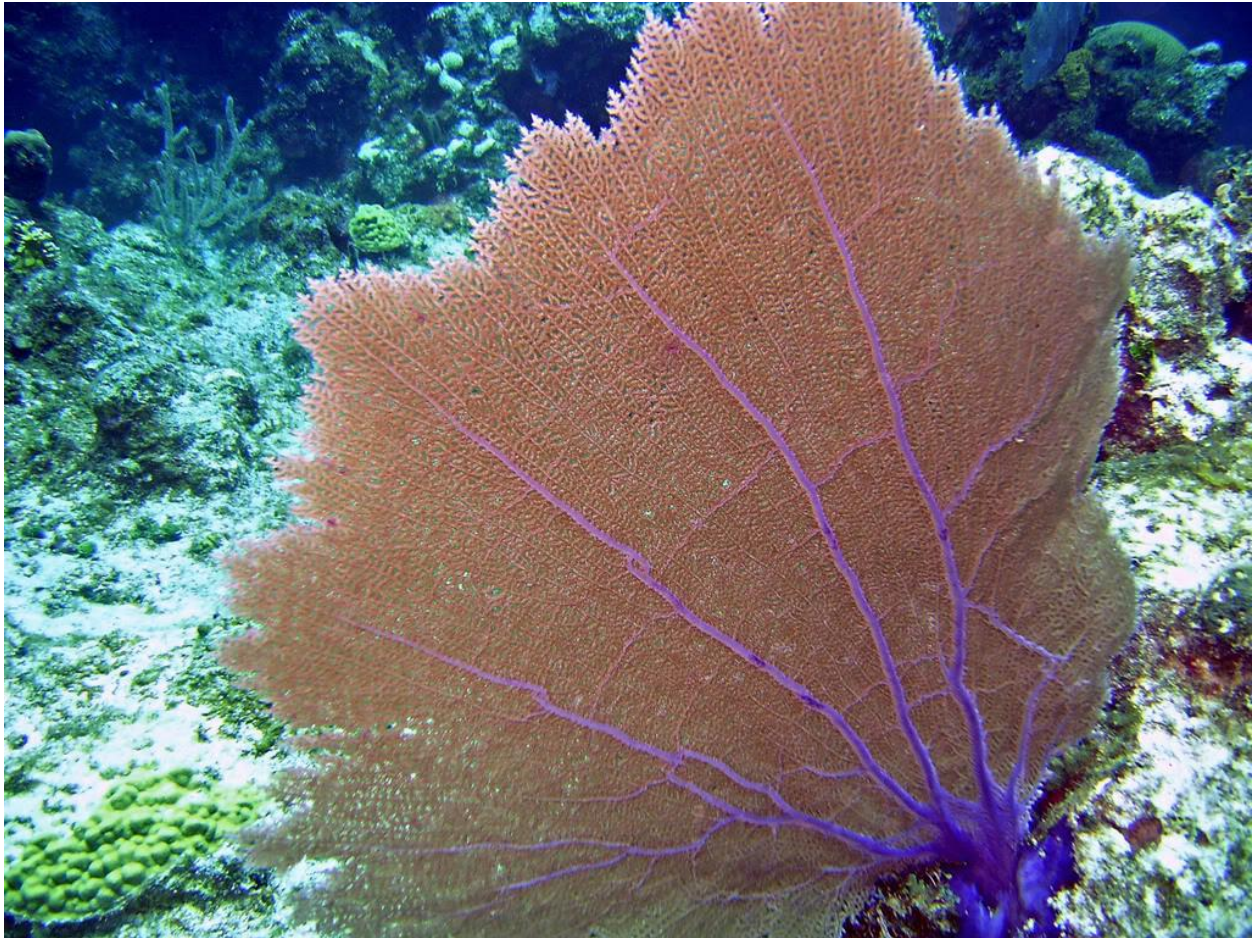


Fig. 1. Purple sea fan, *Gorgonia ventalina*.

[<http://s289.photobucket.com/user/zfodor/media/Grand%20Cayman%202008/grandcaymanreefpic20-2.jpg.html>, downloaded 28April 2016]

TRAITS. *Gorgonia ventalina* or the purple sea fan is a salt water invertebrate. The body is a colony made from a collagen-like compound, known as gorgonin, and calcite. It forms a fan-like structure (Fig. 1) which supports the individuals in the colony, or polyps (Fig. 2). As the name suggests it is usually purple unless chemicals in the immediate environment have a strong effect causing it to become either brown or pink. The pigmentation is produced in the branches which extend and grow up to 180cm tall and 150cm wide (Borneman, 2001).

DISTRIBUTION. Found in the Caribbean Sea and tropical western Atlantic, including southern Florida, Cuba, the Belizean coast, Tobago's reefs, and Venezuela.

HABITAT AND ACTIVITY. It grows near to the shore, in areas with strong wave currents which provide it with food, in depths of up to 30m, in rare cases deeper (Colin, 1978). The purple sea fan is distributed in a non-random pattern, attaching itself onto the sea bed or flat-topped surfaces. They are found in tropical marine climates as they (and corals in general) cannot endure sea temperature changes of more than 1-2°C (Hoegh-Guldberg, 1999). The organism remains sessile (fixed in place) throughout its adult lifetime.

FOOD AND FEEDING. Although a sessile animal, the sea fan is a nocturnal, carnivorous, passive feeder which develops around strong water currents. The tentacles of the polyps extend outward which allows the zooplankton to be collected and eaten (Hoegh-Guldberg, 1999). Zooxanthellae (symbiotic single-celled algae) also present the coral with additional feeding methods by colonizing the structure, mainly the epidermis and gastrodermal layer, and providing nourishment through their photosynthesis (University of Michigan Museum of Zoology, 2002).

REPRODUCTION. These corals have two methods of reproduction. Asexual reproduction is where they can either bud or fragment. When the coral buds, polyps develop or “bud” from their parents, while during fragmentation an entire branch may separate from the main colony and form its own colony. The second method of reproduction is sexual reproduction. The organism will release sperm and ova (eggs) into the water, which may travel great distances due to water currents. When they fuse and fertilization occurs, the larvae produced settle onto the ocean floor, attach onto a solid surface and begin growth. The larva spends several days as plankton before it can start a new colony.

BEHAVIOUR. The adult form of organism will place itself in such a way that the fan is perpendicular to the water currents, this is to assist in feeding, maximizing exposure to the water that would bring food. The young sea fans, however will grow in any direction, only orienting themselves with the currents when they reach maturity (Grigg, 1972).

APPLIED ECOLOGY. The organism has been used in medical research as compounds were extracted to make antibiotics, though its most common use is in aquariums. Apart from their value, there is concern for its life expectancy with the prevalence of tumour growths that are developing in response to many pollutants (Morse, 1977). These tumours form mostly at the base of the colony and cause necrosis and erosion of the coral. Another cause of death has been attributed to detachment of the colony either by wave action or human activity, or the overgrowth of the organism by others such as a bryozoan which will cause lack of food and oxygen.

REFERENCES

- Borneman, E. (2001). *Aquarium Corals: Selection, Husbandry and Natural History*. Neptune City NJ: 2001.
- Colin, P. L. (1978). *Caribbean Reef Invertebrates and Plants of Reef*. Neptune City NJ: TFH Publications.
- Grigg, M. R. (1972). Orientation and growth form of Sea Fans. *Limnology and Oceanography*, 185-192.
- Hoegh-Guldberg, O. (1999). Climate Change, coral bleaching and the future of the world's coral reefs. *Marine and Freshwater Research*, 50(8), 839-866.
- Morse, D. M. (1977). Algal Tumors in the Caribbean sea fan *G. ventalina*. *International Coral Reef Symposium Proceedings*.
- University of Michigan Museum of Zoology. (2002). *Gorgonia ventalina*. Retrieved from Animal Diversity Web: http://animaldiversity.org/accounts/Gorgonia_ventalina/

Author: Naajah Phillips

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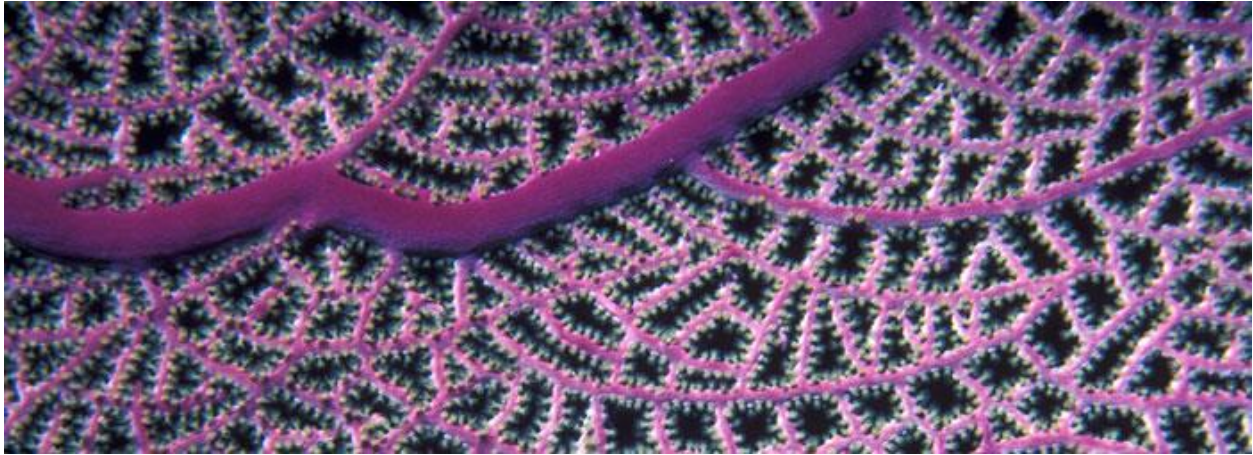


Fig. 2. Part of a purple sea fan showing the polyps.

[<http://www.marinebio.net/marinescience/04benthon/crimg/cr0650.jpg>, downloaded 28 April 2016]

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