

Manicina areolata (Rose Coral)

Order: Scleractinia (Stony Corals)

Class: Anthozoa (Corals and Sea Anemones)

Phylum: Cnidaria (Corals, Sea Anemones and Jellyfish)



Fig. 1. Rose coral, *Manicina areolata*.

[<http://www.inaturalist.org/observations/568278>, downloaded 6 March 2016]

TRAITS. The rose coral, *Manicina areolata*, is a stony, colonial coral species of the brain coral family (Faviidae). They are usually yellow to brown (Fig. 1) but green and grey colour variations also occur (Fig. 2) (Marine Species Identification Portal, 2016). Rose coral colonies can grow up to 50cm in height and about 10cm in diameter. Small colonies have an oval shape which contains a deep central valley (Fig. 3). Larger colonies have irregular winding ridges and valleys over a hemispherical shape (EDGE, 2016). Colonies can either be free-living or attached (AIMS, 2013). Free-living are usually smaller colonies with an oval shape and a cone-shaped underside, while the larger colonies are usually attached, with a hemispherical shape and a flattish underside (AIMS, 2013; Marine Species Identification Portal, 2016). Colonies are made up of individuals called polyps (Fig. 4). Each polyp has a single body cavity and mouth that functions in the ingestion of food and release of digested waste, surrounded by tentacles with stinger cells at the end called nematocysts (Bernice Pauahi Bishop Museum, 2016).

DISTRIBUTION. Found in the Caribbean, southern Gulf of Mexico, Florida, the Bahamas, and Bermuda (Fig. 5) (Aronson et al., 2008).

HABITAT AND ACTIVITY. Found in both back reef and fore reef habitats and subtidal seagrass beds, but only in soft-bottom, cobble, rubble, high-sedimentation areas or mixed-sand communities. The species is more common at depths of 1-10m but can also be found at depths up to 65m and it has a tolerance of variation in temperature and salinity (Aronson et al., 2008). No species specific information available for activity of this coral but coral polyps are generally nocturnal feeders (SeaWorld Parks and Entertainment, 2016). Usually the larger colonies become attached (not permanently as they can detach or reattach if necessary) and are found in the shallow reef environments, and the smaller free-living colonies are found by subtidal seagrass beds (AIMS, 2013). Colonies that are free living are capable of moving 20-30cm over a 6 month period (EDGE, 2016).

FOOD AND FEEDING. *Manicina areolata* meets the majority of its food and energy requirements through its mutualistic symbiotic relationship with zooxanthellae which is a photosynthetic algae that reside in the tissues of the coral. Actually about 90% of the photosynthetic organic products of the algae are transferred to the coral (NOAA ocean service education, 2008). However, additional nutrition is acquired by the coral by consuming plankton (EDGE, 2016). The polyps extend their tentacles and use the stingers to stun their prey which poisons or entangles them in the tentacles before consumption (Bernice Pauahi Bishop Museum, 2016).

POPULATION ECOLOGY. *Manicina areolata* corals start solitary as they are released from the parent, then attach to a substrate to grow/mature, then detach (become free-living), then finally form larger attached colonies. They are usually found co-occurring with other free-living corals such as *Cladocora arbuscula*, *Porites divaricata*, and *Oculina* species (IUCN, 2015). *Manicina areolata* are short-lived in comparison to other corals since colonies usually survive no longer than 30 years (EDGE, 2016).

REPRODUCTION. This species is hermaphrodite which means it possesses both male and female reproductive organs in the same organism, and it is a brooder (Nature Serve, 2015). Every year, production of hundreds to thousands of larvae takes place by individual colonies. Only the male gametes (sperm) are released in the water column around the full moon in May or June. Transportation of the sperm occurs by waves and currents; if they encounter the female polyps which contain egg cells then they are taken in by them (NOAA, 2015). Internal fertilisation within the parent occurs which produces larvae that are small and pear-shaped, and these are brooded for 2 weeks within the stomach. These are then released on a new full-moon night and can settle immediately, even though they might be viable for a few weeks. Immediate settlement maintains dense populations in suitable habitats (EOL, 2011). The released larvae attaches to a substrate for a period of time to grow and then detaches and becomes free-living. As the colony size increases it may become attached again, as the ability to right itself decreases with increasing size. Asexual reproduction by fragmentation is extremely rare in this species, usually there is sexual reproduction (EDGE, 2016).

BEHAVIOUR. Colonies can right themselves if overturned by waves, by filling the stomach which is interconnected among all polyps so that it becomes bloated, and alternatively expels

water on one side and then on the other side. This produces a rocking motion until the centre of gravity is exceeded and the colony turns right side up again (EOL, 2011).

APPLIED ECOLOGY. Listed by IUCN as Least Concern. Population stable even though evidence suggests that coral reef habitats have declined overall. Threats to the coral are climate change (particularly temperature extremes that cause bleaching and increase risk of disease and natural hazards), ocean acidification, diseases, human development (industry and settlement near shore areas) and recreational activities (harvesting coral as souvenirs in tourism), invasive species, change in native species, dynamite fishing, and pollution. Conservation actions include many marine protected areas in the US, also harvesting of corals for commercial use is not legal (IUCN, 2015).

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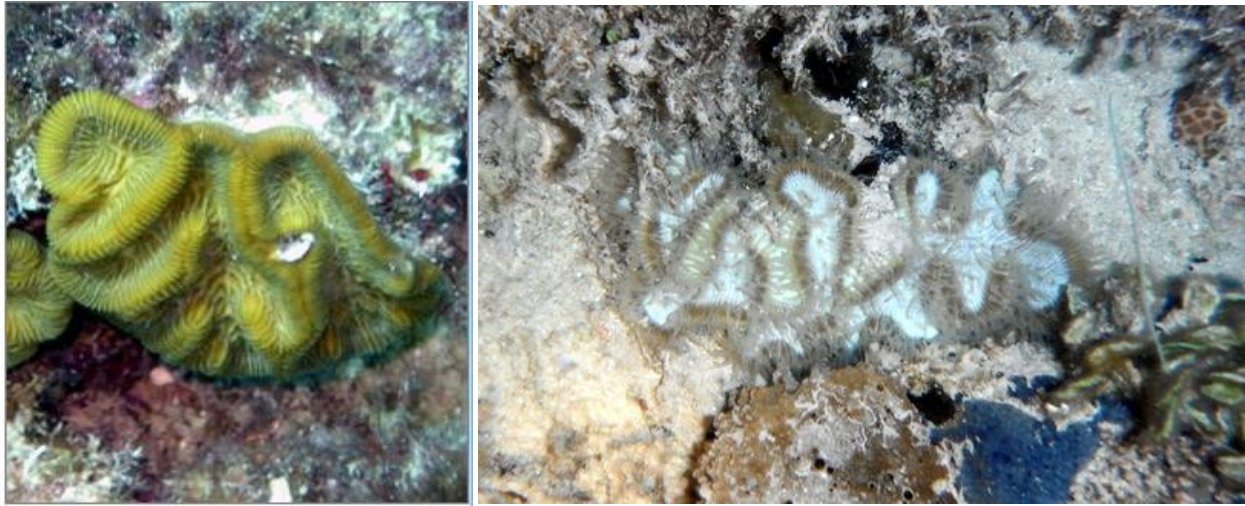


Fig. 2. Green and grey rose corals.

[http://species-identification.org/species.php?species_group=caribbean_diving_guide&menuentry=soorten&id=319&tab=beschrijving and <http://www.inaturalist.org/observations/96634>, downloaded 6 March 2016]



Fig. 3. Small colony with oval shape.

[<http://coral.aims.gov.au/factsheet.jsp?speciesCode=0585> downloaded 6 March 2016]

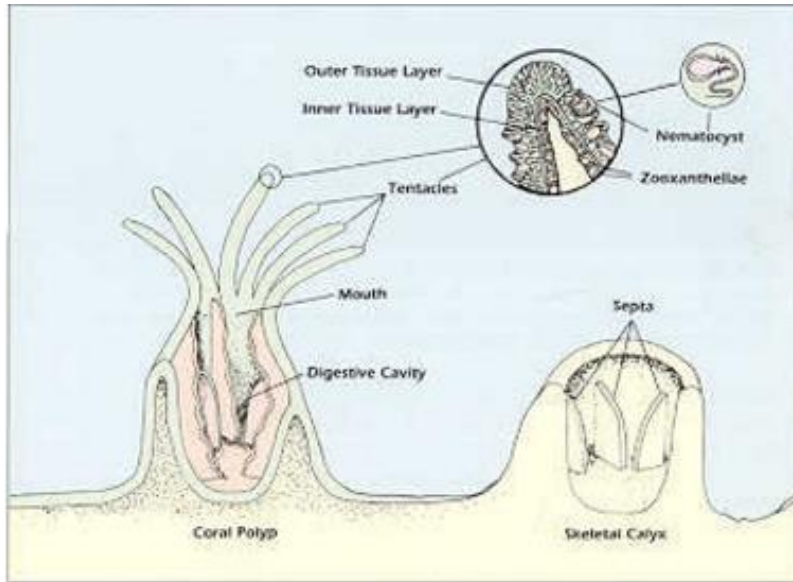


Fig. 4. Structure of a coral polyp showing cavity and tentacles.

[<http://pbs.bishopmuseum.org/Oman-coral-book/Chap1/CorBkCh1.htm>, downloaded 7 March 2016]



Fig. 5. Rose coral geographic distribution.

[IUCN Red List: Aronson, R., Bruckner, A., Moore, J., Precht, B. and Weil, E. (2008)]

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