



Deep-Water Corals

In the Gulf of Mexico

A Deep-C Consortium Fact Sheet



Secret Gardens

When we think of corals, we often think of warm, shallow tropical reefs teeming with colorful corals and fish. However, 660-6,600 feet below the surface, where no light can penetrate and the water temperature is as low as 4° C/39° F, there are secret gardens of deep-water corals.

What are Corals?

Corals are tiny animals in the *cnidaria* category, which includes jellyfish and anemones.

One head or branch of coral is in fact part of a colony, made up of hundreds to thousands of individual animals called polyps.

Stony corals create a hard calcium carbonate skeleton, which serves as a base and acts as protection for the colony. This is what most people see as coral.

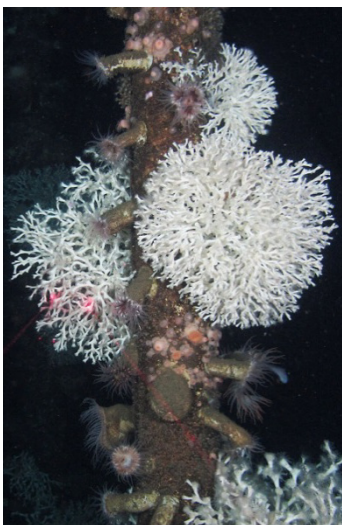
Corals stay in one place and feed by extending their tentacles to catch prey, such as small plankton.

cannot support zooxanthellae, so they are suspension feeders that only capture organic matter and plankton.

Living in the Dark

Without access to sunlight, deep-water corals have different adaptations than their shallow-water counterparts.

While shallow-water corals obtain most of their food from photosynthetic algae (called *zooxanthellae*) that live in their tissues, the deep-sea corals live in the dark and



Spotlight Species: *Lophelia pertusa*

Lophelia pertusa is one of the most important species, not only in the Gulf of Mexico but across the Atlantic Ocean and other parts of the world.

Lophelia pertusa is a stony coral that creates a complex reef framework and provides essential habitats for many animals, including commercially important fish and crustacean species. *Lophelia* corals are also home to some organisms, such as sponges, which produce chemicals that have great potential for biomedical uses.

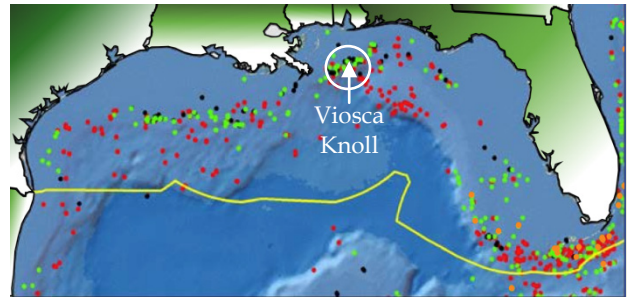
A study carried out in the northeast Atlantic Ocean estimated that there are more than 1,300 different species associated with *Lophelia* ecosystems.

Where are Deep-Water Corals in the Gulf of Mexico?

Much of the deep seabed of the Gulf of Mexico is composed of very fine sediment; however, corals need a hard surface to colonize.

Most of the hard surface that the coral attaches to is formed by the deposition of authigenic carbonate associated with hydrocarbon fluid seepage.

In the map above, there are various species of coral depicted by the colored dots. The most extensive deep-sea corals found in the Gulf are at the Viosca Knoll (which rises 65 feet above the seafloor, on the upper DeSoto Canyon Slope about 65 nautical miles south of the mouth of Mobile Bay, Alabama) and on the west Florida slope at approximately 1,500 feet deep.



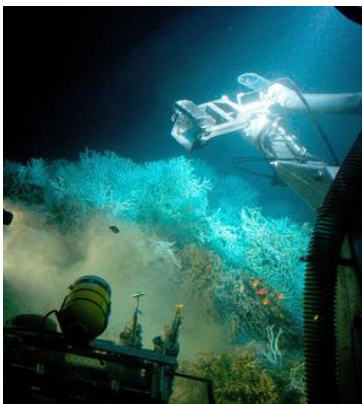
Threats

Deep-water corals can live for hundreds or thousands of years. Unfortunately, this means that, once damaged, the corals and the communities they support may take hundreds of years to recover.

Deep-water corals are threatened by oil spills, such as the 2010 Deepwater Horizon incident, which is currently the largest accidental oil spill in history.

Additionally, some of the increased carbon dioxide in our atmosphere is being absorbed by the ocean and leading to increased ocean acidification, which may affect the ability of corals to grow their skeletons properly and thereby affect the very structure of reefs.

Reefs are also extremely vulnerable to direct damage from fishing trawlers, energy exploration and development, and cable deployment.



Dive Deeper

Unlike with shallow-water reefs, scientists cannot simply throw on a SCUBA tank and grab their masks and fins to study deep-sea reefs.

Research in the deep sea is technically difficult, very expensive, and requires equipment that can withstand the high pressure environment. Manned submersibles allow scientists to visit the deep sea, and remotely operated vehicles (ROVs) are also used to explore great depths.

