

NOAA Deep Sea Sponges and Corals

Segments extracted from:

http://www.coris.noaa.gov/activities/deepsea_coral/dsc_strategicplan.pdf

Overview of Deep-Sea Coral and Sponge Ecosystem

Complex seafloor habitats created by large sessile organisms are known to play an important role in marine ecosystems. In deep or cold oceanic waters, complex habitats are most often formed by species of corals and/or sponges that are adapted to these unique environmental conditions. Deep-sea corals and sponges form remarkably complex and fragile ecosystems throughout the world's oceans, both within and beyond areas of national jurisdiction.

In U.S. waters, deep-sea coral ecosystems are found in the Atlantic Ocean, the Gulf of Mexico, and the Pacific Ocean and occur primarily on hard substrate on continental shelves and slopes, in offshore canyons, and on oceanic island slopes and seamounts. Deep-sea sponge ecosystems have not been well mapped, but are often found on similar substrates and may be collocated with deep-sea corals. Beyond U.S. waters, deep-sea coral and sponge ecosystems have attracted interest as vulnerable marine ecosystems (VME) and have been the focus of international efforts to address the impacts of fishing on them, especially in areas beyond national jurisdiction. The biology and importance of structure-forming deep-sea corals, the threats they face, and their distribution and conservation status in U.S. waters are reviewed in *The State of Deep Coral Ecosystems of the United States: 2007*.

Deep-sea sponges provide important three-dimensional structure to benthic habitats, and are thought to play ecological roles similar to deep-sea corals. In some areas, sponge-dominated habitats may be more widespread than coral-dominated habitats. For example, in the northeast Pacific Ocean, glass sponges (Class: Hexactinellida) form unique sponge reefs up to 19 m high and many kilometers long. Although much less is known about deep-sea sponges, they have been identified as habitat for managed fish stocks in certain regions and face many of the same threats as deep-sea corals. A large variety of chemical compounds, many with significant biological activity, have been isolated from sponges, and a number are currently undergoing pharmaceutical clinical trials.

The Importance of Deep-Sea Coral and Sponge Ecosystems

Humankind benefits from many resources and processes generated by marine ecosystems. These ecosystem services include the production of food and safeguards against uncertainty through the maintenance of diversity. The ecosystem services provided by deep-sea corals and sponges, although indirect, are important to humans. Deep-sea corals and sponges provide direct services to deep-sea biota by

providing substrate for attachment, refuge for juveniles, aggregating places for spawning and feeding, and dissipation of water flow. Humans derive benefits from these ecosystems in the fish we extract and the bio-compounds we derive from both deep-sea corals and sponges