



NOAA's DEEP-SEA CORALS RESEARCH



THE MISSION

The **National Oceanic and Atmospheric Administration's (NOAA)** mission is to describe and predict changes in the Earth's environment, and conserve and manage wisely the coastal and marine resources of the United States to ensure sustainable economic development. NOAA monitors the environment, manages fisheries, sustains healthy coasts, makes the U.S. more competitive through safe navigation, provides information regarding timely and precise weather and water and climate forecasts, and examines changes in the oceans. Three of the NOAA line offices, the **National Marine Fisheries Service (NMFS)**, **Office of Oceanic and Atmospheric Research (OAR)**, and the **National Ocean Service (NOS)** are currently pursuing research interests in the field of deep-sea corals.



Shrimp pictured using deep-sea coral as habitat. © Richard Cooper, NURP Center at Univ. of Connecticut.



*A yellow-eye rockfish and a red tree coral (*Primnoa resedaeformis*) at 146m in depth in Whale Bay, Southeast Alaska.
© Victoria O'Connell, Alaska Dept. of Fish and Game.*

THE NEED

Species of both hard and soft corals are inhabitants of the outer U.S. continental shelf and continental slope. Given that the existence of these coral species has been known for over a century, it is striking that almost nothing is known about their biology, population status, the role they play in enhancing local species diversity, or their role as habitat for deep water fishes, including those targeted by fishermen.

Submersible dives off the northeast U.S. suggest that the distribution of these species has significantly declined in the past three decades. Destructive fishing practices have removed acres of old-growth coral forests, leaving behind rubble fields with far less value as fisheries. Slow-growing coral species may live for centuries, yet be destroyed in seconds by human activities such as trawling and dredging. Understanding the dynamics of these corals and their related ecosystems is imperative to their sustainability. Exploration and research of deep-sea corals are key to increasing our understanding and improving the effective management of these unique organisms.

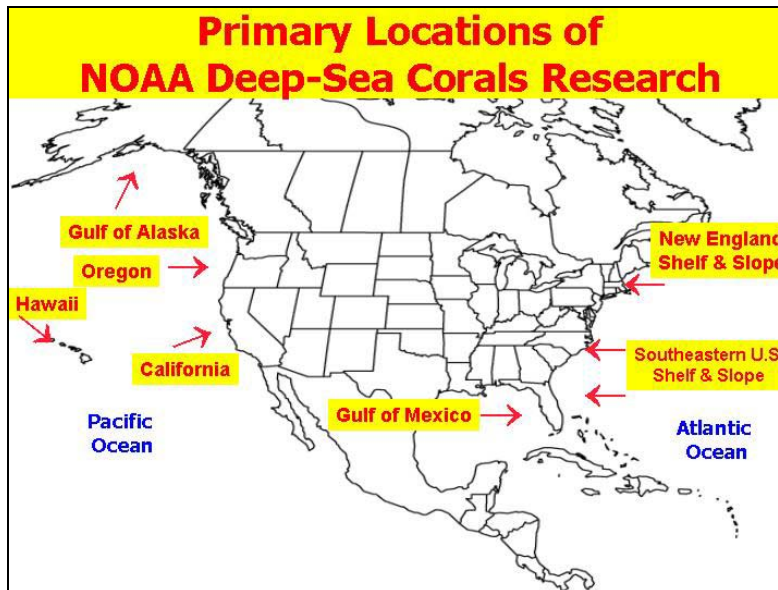
NOAA'S RESPONSE

NOAA conducts a variety of research on deep-sea corals through NMFS, OAR, and NOS.

NMFS conducts research on deep-sea corals and their relationship to fisheries through collaborations between NMFS regional science centers in Alaska, the northeast, southeast, and southwest U.S and OAR.

OAR has two offices that promote the study of deep-sea corals, **NOAA's Office of Ocean Exploration (OE)** and **NOAA's Undersea Research Program (NURP)**. **OE** focuses on mapping resources, new species, and new ecosystems; observing ocean dynamics at new scales; developing new technologies such as, autonomous underwater vehicles (AUVs), remotely operated vehicles (ROVs) and manned submersible sensors; and conducting public education and outreach. **NURP** enables scientists to research environmental issues of regional, national, and global importance by providing advanced underwater technologies and methods, including mixed gas diving, manned submersibles, ROVs, and AUVs for scientists to research, sample, and make observations underwater.

NOS through the **National Marine Sanctuary Program (NMS)** and the **National Centers for Coastal Ocean Science** studies deep-sea corals and hard bottom communities in conjunction with **OE** and **NURP**.



A Sampling of NOAA Funded Deep-sea Coral Projects for 2002:

() = Funding Group

Auster, P. 2002. Assessing patterns of biological diversity at Stellwagen Bank National Marine Sanctuary: landscape linkages to spatial patterns in the diversity of fishes. (NURP)

Auster, P. 2002. Habitat ecology of fishes. (NURP)

Babb, I. 2002. Corals expedition on the NR-1 in the northeastern U.S. (NURP)

Baco-Taylor, A. 2002. Precious corals in the Hawaiian Islands: Management units determined by molecular genetics. (NURP)

Baco-Taylor, A. 2002. Population Genetics and Reproductive Biology of Deep-Sea Corals from the Gulf of Alaska Seamounts. (OE)

Bowlby, E. 2002. Exploration of ancient seafloor communities Olympic Coast National Marine Sanctuary. (NMS)

Earle, S. 2002. Sustainable Seas Expeditions: Investigation of deep water banks northern Gulf of Mexico. (NMS)

Fangman, S. 2002. Baseline characterization of proposed marine reserves in the Channel Islands National Marine Sanctuary. (NMS)

Guilderson, T. 2002. Annual to Centennial Climate Variability Recorded in Gulf of Alaska Deep-Sea Corals and Sclerosponges: A mid-depth view of ocean dynamics and primary productivity. (OE)

Howard, D. 2002. Biologic assessment of the Gulf of the Farallones National Marine Sanctuary and Fanny Bank. (NMS)

Howard, D. 2002. Biologic assessment of the Cordell Bank National Marine Sanctuary and Fanny Bank. (NMS)

Kelley, C. 2002. The impact of bottomfishing on MPAs in the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve: Year 2 Survey. (OE and NURP)

Lindholm, J. 2002. Seafloor Habitat Recovery Program: Stellwagen Bank National Marine Sanctuary. (NURP and OE)

Moffit, R. 2002. Effectiveness of refugia on bottomfish stocks. (NURP)

Parrish, F. 2002. Exploring the habitat and species assemblages of the Northampton Seamounts with specific attention to sites visited by the endangered Hawaiian Monk Seal. (NMFS, NOS, and NURP)

Pomponi, S. 2002. Exploring for new resources with pharmaceutical potential. (OE)

Ross, S. 2002. Exploration of outer shelf and slope habitats off the Carolinas. (OE)

Sedberry, G. 2002. Characterization of deep reef habitat: Florida to South Carolina. (OE)

Stone, R. 2002. Distribution of deep water corals and associated communities in the Aleutian Islands. (NMFS)

Vecchione, Mike. 2002. Biodiversity of Bear Seamount and vicinity. (NMFS)

Watling, L. 2002. Biology of octocorals in the Gulf of Maine and Outer Continental Shelf Waters of the eastern United States. (NURP)

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