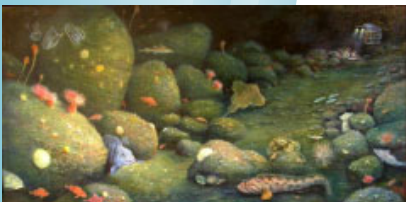


# Remotely Operated Vehicles

## at work in National Marine Sanctuaries



The crew of a NOAA oceanographic ship deploys a Phantom ROV during a research cruise in the Gulf of the Farallones National Marine Sanctuary. Photo credit: Jamie Hall



This drawing demonstrates a ROV hovering over a boulder field in the Stellwagen Bank National Marine Sanctuary off the coast of Massachusetts. Credit: Mary Jane Brush/NURC-UConn

*NOAA National Marine Sanctuary Program serves as a trustee for the national system of marine protected areas to conserve, protect, and enhance their biodiversity, ecological integrity and cultural legacy.*



NOAA Ocean Service



Join NOAA National Marine Sanctuary Program and the Marine Advanced Technology Education (MATE) Center, along with the Marine Technology Society's ROV Committee, for the 2004 National Student ROV Competition that will take you on a mission of sanctuary-related science and exploration. The Straits of Florida near the Florida Keys National Marine Sanctuary is the setting for challenges that include navigating an unknown reef, identifying a shipwreck, measuring depth and temperature, collecting biological and geological samples, and recovering lost scientific equipment. Dive into our national marine sanctuaries and come explore "Mystery Reef" with us!

Today, 13 national marine sanctuaries protect areas of special national significance. These coastal and ocean treasures range from the magnificent kelp forests of the California's Channel Islands and Monterey Bay to the shipwrecks in Lake Huron, and from the coral reefs of the Flower Garden Banks in the Gulf of Mexico, to the humpback whales of Stellwagen Bank off Massachusetts.



The Little Hercules and Argus ROVs explore the Montana shipwreck — a freighter lost in 1914 — in the Thunder Bay National Marine Sanctuary and Underwater Preserve. ROV technology is an important tool for scientific work conducted in national marine sanctuaries. Photo credit: John Brooks

National marine sanctuaries are natural laboratories - places to study and learn ocean currents, biodiversity, marine ecosystems, and maritime heritage. Yet scientists and researchers face numerous challenges in their attempts to study the marine environment. Remotely Operated Vehicles provide a means to access the depths and extend our stays in America's ocean and Great Lakes treasures.



Pilots in the ROV control van "fly" the Innovator vehicle across coral reefs in the Flower Garden Banks National Marine Sanctuary to characterize the site and collect biological and geological samples. Red lighting is used to provide illumination for those working inside the van without dimming the images from the video monitors during dives. Photo credit: NOAA Ocean Explorer

Recently the Stellwagen Bank National Marine Sanctuary conducted a ROV mission to the wreck of the steamship *Portland*, to peer into the vessel's past and plan its future. For mission logs and more information about the mission and technology, visit NOAA Ocean Explorer.

**National Marine Sanctuary Program**  
<http://sanctuaries.noaa.gov>

**MATE Center**  
<http://www.marinetech.org>

**NOAA Ocean Explorer**  
<http://oceanexplorer.noaa.gov>

**National Undersea Research Program**  
<http://www.nurp.noaa.gov>