BIOGEOGRAPHY

NCCOS NATIONAL CENTERS FOR COASTAL AND OCEAN SCIENCE

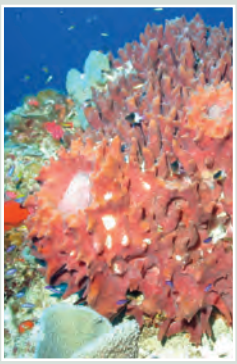
CCMA

BIOGEOGRAPHY BRANCH

CENTER FOR COASTAL MONITORING AND ASSESSMENT

MISSION

To determine the conditions under which Autonomous Underwater Vehicles are successful at detecting derelict fishing gear



Colorful sponges, fish, corals, and algae on the seafloor in the U.S. Virgin Islands.

July 2010

DETECTING DERELICT FISHING GEAR WITH AUTONOMOUS UNDERWATER VEHICLES

PROJECT BACKGROUND

Fish traps are commonly used by fishing communities in both Florida and the U.S. Caribbean to catch resident reef fishes and lobsters. Although each trap can be set on its own, they are frequently fished in lines or strings of multiple traps. The impacts of lost, damaged and abandoned traps is uncertain, but it is thought that derelict traps may cause damage to sensitive habitats (e.g., corals and seagrass beds) during storm conditions or cause mortality to fish.

A study jointly conducted by NOAA's Biogeography Branch, the Department of the Navy, and the St. Thomas Fishermen's Association aims to investigate the effectiveness of the Naval Surface Warfare Center's (NSWC) Autonomous Underwater Vehicles, or AUVs, for the detection and quantification of derelict fishing gear. Normally the NSWC uses these devices to conduct mine counter measures. However, their object detection abilities appear perfectly suited for derelict fishing gear detection. The partnering organizations hope to highlight a new use for AUV technology and demonstrate its value to marine resource management science.

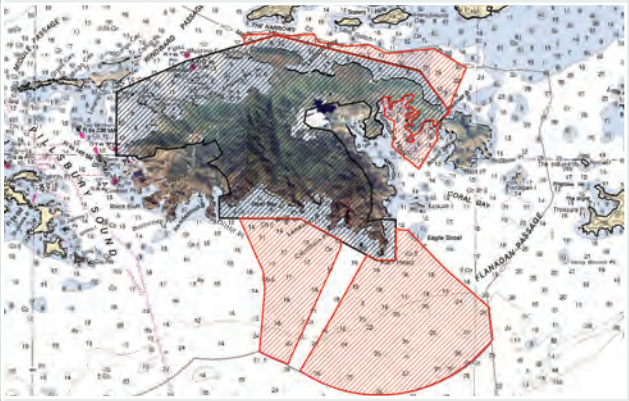
Fish traps, like this one found off the coast of St. John, are commonly used by commercial fishermen in the U.S. Caribbean. Estimates indicate there are 10,000-11,000 active fish and lobster traps in use throughout the U.S. Virgin Islands. The number of lost or abandoned traps is unknown.

http://ccma.nos.noaa.gov/about/biogeography

GOALS

NOAA and U.S. Navy researchers aim to advance methods used to quantify derelict fish gear by using state-of-the-art AUVs. The results of this study will give marine resource scientists and managers a new tool to protect marine habitats and fish. Specific goals include:

— Detect and quantify derelict fishing gear
— Demonstrate the applicability of AUV technologies to marine resource management science
— Enable local managers to take appropriate action, if warranted, to mitigate threats posed by derelict fishing gear
— Advance ocean exploration science

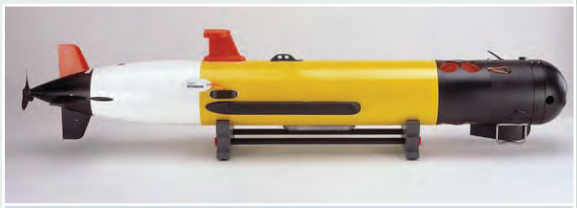


STUDY AREA

This work will initially focus on the islands of St. Thomas and St. John, USVI with the idea that the approach taken and products developed will be readily transferrable to St. Croix and Puerto Rico.

METHODS AND TECHNOLOGY

Scientists will use two AUVs to gather sonar data and imagery to locate derelict fishing gear in the study area. The AUVs will conduct broad area surveys to collect information using sonars mounted to the bottom of the vehicle. The information will be analyzed to detect the location of objects on the seafloor, which will be revisited by the AUVs to take underwater photos to verify the presence of derelict fishing gear.



U.S. Navy AUVs, like the REMUS 100, are well suited to detect derelict fishing gear. NOAA and the U.S. Navy will demonstrate new uses of this technology and its value to marine scientists, fishermen and managers. Image: www.hydroid.com

PARTNERS

— Office of Naval Research, Naval Surface Warfare Center
— NOAA Marine Debris Program
— National Park Service
— National Marine Fisheries Service
— St. Thomas Fishermen's Association
— VI-DPNR Division of Fish and Wildlife
— University of the Virgin Islands

ONLINE RESOURCES

Project page . . . http://ccma.nos.noaa.gov/ecosystems/coastalocean/derelictfishtraps.html
Naval Surface Warfare Center . . . www.navsea.navy.mil/nswc/panamacity
NOAA Marine Debris Program . . . http://marinedebris.noaa.gov/

MORE INFORMATION

The mission of the NOAA Biogeography Branch is to develop information and analytical capabilities through research, monitoring, and assessment on the distribution and ecology of living marine resources and their associated habitats for improved ecosystem-based management. For more information on this project and others like it, contact:

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