Océano Profundo 2015: *Exploring Puerto Rico's Seamounts, Trenches and Troughs*
EX1502 Expedition Framework
February 17, 2015

Overview

NOAA Ship *Okeanos Explorer* will be conducting a telepresence-enabled ROV cruise from April 9-30, 2015 to investigate unknown and poorly known areas in the vicinity of Puerto Rico and the US Virgin Islands. These areas include the Puerto Rico Trench, the Muertos Trough, the Mona Channel, the Virgin Island Tough and local seamounts and canyons. During this expedition we anticipate conducting ROV operations throughout this region between 500 m and 6,000 m as well as our standard sonar operations (multibeam, water column backscatter, and subbottom profiling). This expedition will feature some of the deepest ROV dives ever conducted in the regions and will collect critical deep-water environmental intelligence that will improve ecosystem understanding and inform federal and local resource managers.

As with most *Okeanos Explorer* expeditions, the science team for this expedition will participate from Exploration Command Centers (ECCs) and their home institutions around the country. Science team participants will use Okeanos Explorer's cutting–edge technology and custom-built collaboration tools to stay in constant contact with the ship and guide operations from shore. Over the coming months we will host science planning meetings, collaboration tools training sessions, and request dive target submissions.

Schedule

- **EX1502 Leg1 (February 23- March 11):** North Kingstown, RI to San Juan, PR. Transit to Puerto Rico and telepresence enabled mapping expedition collecting mapping data around St Croix.

- **EX11502 Leg2 (March 16- April 3):** San Juan, PR RI to San Juan, PR. Telepresence enabled mapping expedition collecting mapping data North of Puerto Rico. This cruise will also support a survey of opportunity to conduct the first deep water test of untethered free vehicles developed by a team from UPR Mayaguez.

- **EX1502 Leg 3 (April 9-30):** San Juan, PR RI to San Juan, PR. Telepresence-enabled expedition conducting daily daytime ROV dives and night-time mapping and CTD operations in and around Puerto Rico and the US Virgin Island. Full shore-based science participation is expected.

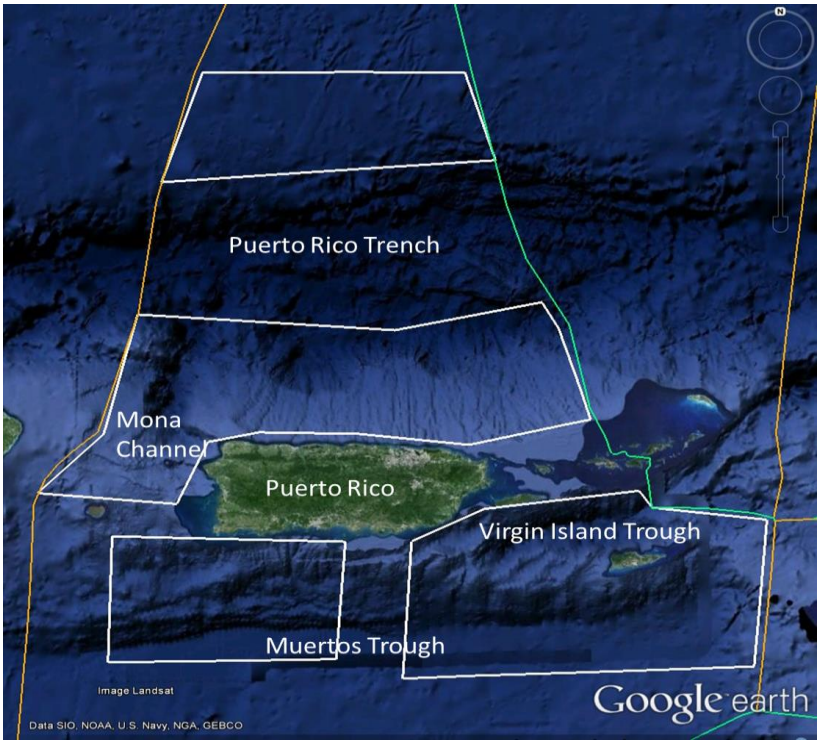

Figure 1: Approximate operating area of *Okeanos Explorer* for EX-15-02 Leg III. The white polygons denote the approximate operating areas during the ROV cruise. Figure produced in Google Earth Pro.

Leg 3 will depart San Juan, PR and will conduct ROV dives on a variety of habitat in the vicinity of the Puerto Rico Trench, Muertos Trough, Mona Channel, Virgin Island Trough and local seamounts and canyons within the US EEZ. Operations will focus on areas of high potential for discovery and of interest to the management community. Daytime twelve-hour ROV operations are expected to be conducted throughout the cruise, but will be weather and feasibility contingent. We anticipate engaging a full shore-based science team, and welcome individuals who have participated in Okeanos missions in the past, as well as those new to telepresence-enabled expeditions, to join the mission from an ECC or their home institution.

HOW TO GET INVOLVED –

NOAA is currently identifying scientists interested in actively participating during the expedition. These scientists will work on a volunteer basis at shore-side ECC or their home institutions as full members of the science team participating in daily ROV dives, reviewing the latest data and information coming off the ship, providing input into a standard suite of products and the day-to-day operations of the ship. This team is expected to: 1) represent the broad interests of the science community; and 2) help identify and engage a community of shore-based scientist to contribute their expertise and observations in real-time. Anyone with an internet2 connection can view and record the live high-definition video with their own systems as it is streamed to shore. Lower resolution (and higher latency) video is available with a standard internet connection. Scientists can join the ongoing ship-to-shore science conversation by dialing into a teleconference and using instant messaging. Anyone interested in viewing the internet2 video feed will likely need assistance from their institution's IT network engineer. Additional information about *Okeanos Explorer* Program collaboration tools – including how to access the real-time video - is available at:
http://oceanexplorer.noaa.gov/okeanos/collaboration-tools/welcome.html

FOR MORE INFORMATION –

If you are interested in getting involved with the this expedition, please participate in the introductory webinar on February 23rd and/or please contact Brian Kennedy at Brian.Kennedy@noaa.gov or 401-874-6150 and the cruise science leads Dr. Andrea Quattrini at aquattrini@usgs.gov and/or Dr. Mike Cheadle at cheadle@uwyo.edu

Ocean Exploration Trust 2012 Caribbean Regional Workshop
http://www.oceanexplorationtrust.org/#!2012-caribbean-workshop/cg3o

Full May 2011 Atlantic Basin Workshop Report available at:
http://oceanexplorer.noaa.gov/about/what-we-do/work-areas/atl-basin-workshop-2011-summary.pdf

Online website coverage of past telepresence-enabled *Okeanos* Explorer cruises:
- *Okeanos Explorer's* 2014 Our Deepwater Backyard Expedition
http://oceanexplorer.noaa.gov/okeanos/explorations/ex1404/welcome.html
- 2014 Northern Gulf of Mexico Expedition:
http://oceanexplorer.noaa.gov/okeanos/explorations/ex1402/welcome.html