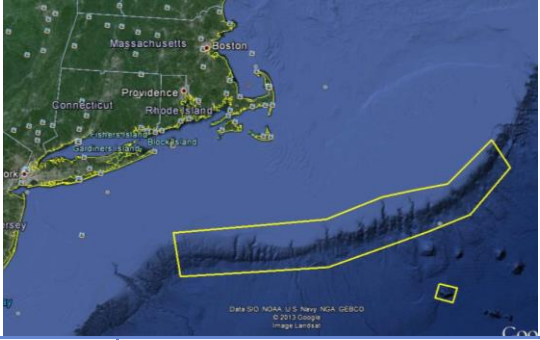


Okeanos Explorer ROV Dive Summary

Site Name	USGS Hazard 4			
ROV Lead/Expedition Coordinator	Brian Bingham/ Kelley Elliott			
Science Team Leads	Tim Shank (shore) Andrea Quattrini (ship)			
General Area Descriptor	Northwest Atlantic Ocean; Northeast U.S. Canyons			
ROV Dive Name	Cruise Season	Leg	Dive Number	
	EX1304	1	DIVE02	
Equipment Deployed	ROV:	Deepwater Discoverer		
	Camera Platform:	Seirios		
ROV Measurements	<input checked="" type="checkbox"/> CTD	<input checked="" type="checkbox"/> Depth	<input checked="" type="checkbox"/> Altitude	
	<input checked="" type="checkbox"/> Scanning Sonar	<input checked="" type="checkbox"/> USBL Position	<input checked="" type="checkbox"/> Heading	
	<input checked="" type="checkbox"/> Pitch	<input checked="" type="checkbox"/> Roll	<input checked="" type="checkbox"/> HD Camera 1	
	<input checked="" type="checkbox"/> HD Camera 2	<input checked="" type="checkbox"/> Low Res Cam 1	<input checked="" type="checkbox"/> Low Res Cam 2	
	<input checked="" type="checkbox"/> Low Res Cam 3	<input checked="" type="checkbox"/> Low Res Cam 4	<input checked="" type="checkbox"/> Low Res Cam 2	
Equipment Malfunctions	Flicker on ROV SD Cameras on Ascent			
ROV Dive Summary (From processed ROV data)	In Water at:	2013-07-10 T12:34:52 39°, 52.541' N ; 069°, 43.917' W		
	Out Water at:	2013-07-10 T20:35:06 39°, 51.979' N ; 069°, 45.243' W		
	Off Bottom at:	2013-07-10 T20:03:01 39°, 52.114' N ; 069°, 45.148' W		
	On Bottom at:	2013-07-10 T13:12:57 39°, 52.331' N ; 069°, 43.990' W		
	Dive duration:	8:01:23		
	Bottom Time:	6:51:50		
	Max. depth:	608 m		
Special Notes				
Scientists Involved <i>(please provide name / location / affiliation / email)</i>	<p style="text-align: center;">Primary</p> <p style="text-align: center;">Tim Shank, Woods Hole (shore-based science team lead), WHOI, tshank@whoi.edu Andrea Quattrini, EX (onboard science team lead), Temple, Andrea.Quattrini@temple.edu Brendan Roark, EX, TAMU, broark@geos.tamu.edu Peter Etnoyer, Charleston, NOAA, Peter.Etnoyer@noaa.gov Taylor Heyl, Woods Hole, MA; WHOI, theyl@whoi.edu Santiago Herrera Woods Hole, MA; WHOI, sherrera@whoi.edu Scott France, Lafayette, LA, U. Louisiana at Lafayette, france@louisiana.edu Bob Carney, Baton Rouge, LA; LSU, rcarne1@lsu.edu Jason Chaytor, Inner Space Center, USGS at Woods Hole, jchaytor@usgs.gov AJ Turner, Charleston, NOAA, aj.turner@noaa.gov Amanda Demopoulos, Gainesville, FL; USGS SE Ecological Science Center, ademopoulos@usgs.gov</p>			

Passive

Cindy Van Dover; Beaufort, NC; Duke, clv3@duke.edu
Brian Kinlan, Silver Spring, MD; NOAA NCCOS, brian.kinlan@noaa.gov
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Kerry McCulloch, Woods Hole, MA; WHOI, williamsk@allegheny.edu
Kelly Williams, Woods Hole, MA; WHOI, mcculloc@uoregon.edu
Mike Vecchione, Washington, DC; SI/NOAA, vecchionem@si.edu
Walter Cho, Boston, MA; Gordon College, waltercho@pointloma.edu

Purpose of the Dive

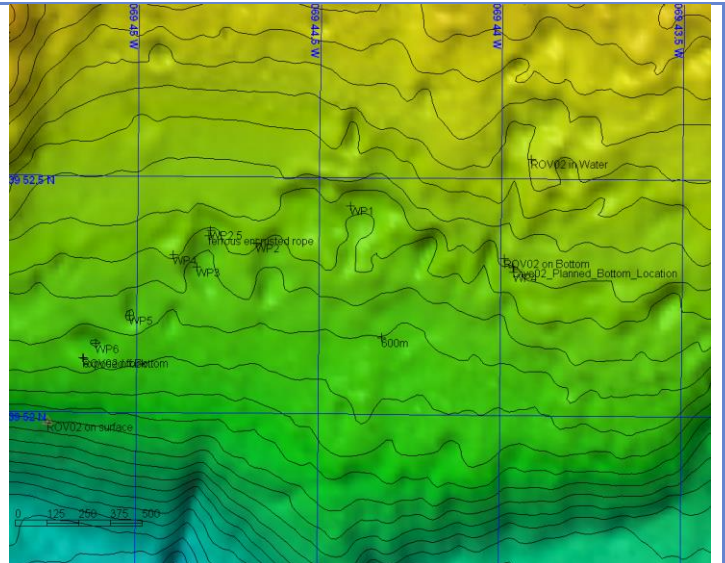
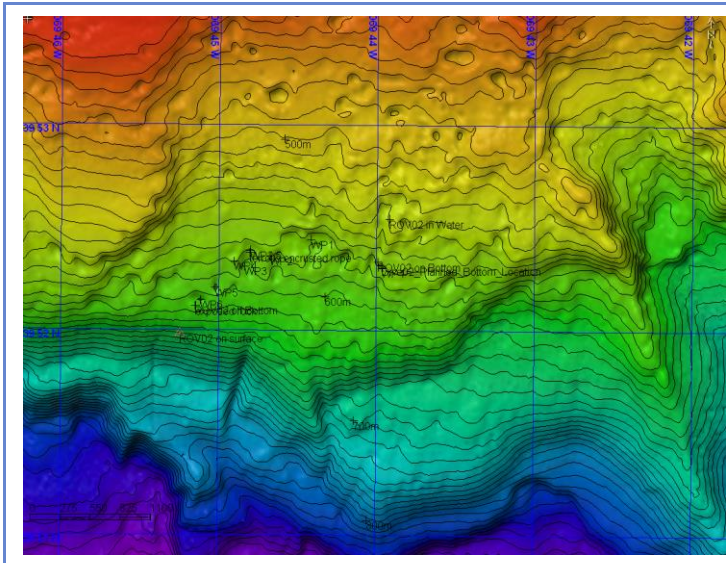
The purpose of this proposed dive is to investigate pockmarks on the upper continental slope between 500 and 650 m water depth directly above the headwall scarp of a landslide. The scientific rationale for this site is to: 1) investigate the potential for these feature to be created by ephemeral or long-lived fluid flow (gas, water, etc.); 2) characterize the pockmark morphology, sediment infilling, and linkages to nearby landslides; 3) evaluate the long term stability of landslide scars and test hypotheses about their evolution, 3) attempt to develop a means of using biologic activity on the scarps and deposits as a means of determining relative ages of the features and the response of bottom communities to catastrophic events.

Description of the Dive:

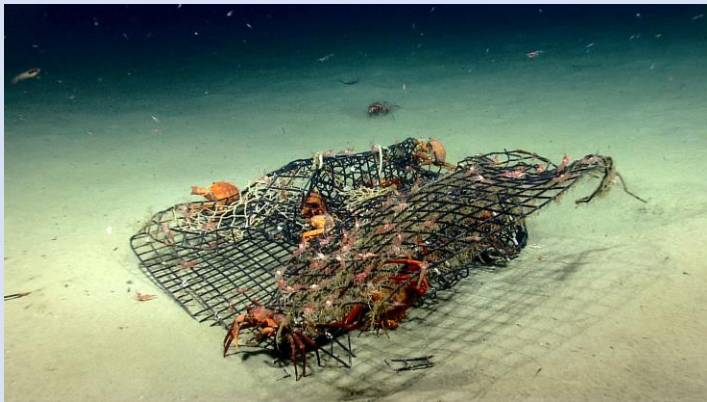
ROV D2 landed on bottom at 13:12 UTC at a depth of 563 m. Before hitting bottom, the ROV encountered an enormous aggregation of krill (likely euphausiids and amphipods) that remained with the ROV through the entire dive. As a result, the ROV often had to keep moving as to avoid the cameras from being swarmed with krill. There were several midwater fishes actively preying upon this aggregation, including barracudinas (Paralepididae) and snipe eels (Nemichthyidae). The seafloor at the beginning of the dive was covered in silty, soft sediment, which persisted throughout the entire dive. There was no observable difference in the sediment inside or outside the pockmark features. We moved west across the seafloor through several waypoints, and we encountered igneous (granite/granodiorite/unidentified mafic) dropstones/glacial erratics and possible clinkers on occasion throughout the dive. The first hard substrate was encountered at 14:19:51 UTC, and then clumps of hard substrates were observed at 14:31-15:01 UTC at a depth of ~575 m and at ~19:53 at 605 m. There was strong scouring surrounding most of these dropstones, likely from strong currents and/or biological activity sweeping the sediment away from the rocks. Algal debris, garbage (plastic bags, glass bottles), and ghost fishing gear was often observed on the seafloor. The fishing gear included non-recovered crab traps (~1-2) signifying that fishing is evident in this area. This is likely an important fishing area; we observed 1000s of red crabs (*Chaceon quinque-dens*) during the entire dive. Noteworthy behaviors of these crabs included mating (several pairs), preying on midwater fishes, and preying on what appeared to be eggs lying on the seafloor. We also observed Jonah crab (*Cancer borealis*) in the area, as well as numerous hermit crabs and occasional squat lobsters (*Munida* sp.). Demersal fishes were also diverse throughout this dive, and included several species of rattail (Macrouridae), witch flounder (*Glyptocephalus cynoglossus*), longfin hake (*Phycis chesteri*), one roughy (*Hoplostethus* sp.), offshore hake (*Merluccius albidus*), and blackbelly rosefish (*Helicolenus dactylopterus*).

Overall Map of ROV Dive Area

Close-up Map of Main Dive Site



Representative Photos of the Dive



Discarded crab trap on the seafloor with numerous red crabs (*Chaceon quinque-dens*).

A dropstone of igneous origin with a red crab (*Chaceon quinque-dens*) on the left.

Please direct inquiries to:

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