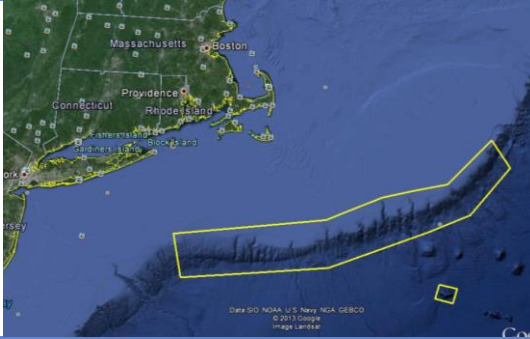


OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Alvin Canyon – Shallow 1			
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	DIVE09	
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				
ROV Dive Summary (From processed ROV data)	In Water at:	2013-07-17T13:15:20.561000 39°, 53.210' N ; 070°, 31.381' W		
	Out Water at:	2013-07-17T20:15:12.720000 39°, 53.210' N ; 070°, 31.381' W		
	Off Bottom at:	2013-07-17T19:39:36.808000 39°, 53.104' N ; 070°, 31.400' W		
	On Bottom at:	2013-07-17T13:52:09.381000 39°, 52.993' N ; 070°, 31.299' W		
	Dive duration:	6:59:52		
	Bottom Time:	5:47:27		
	Max. depth:	926.9 m		
Special Notes				
Scientists Involved <i>(please provide name / location / affiliation / email)</i>	Primary			
	<p>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 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 AJ Turner, Charleston, NOAA, aj.turner@noaa.gov Amanda Demopoulos, Gainesville, FL; USGS SE Ecological Science Center, ademopoulos@usgs.gov Les Watling, Darling Marine Center, Maine, watling@maine.edu Kerry McCulloch, Woods Hole, MA; WHOI, williamsk@allegheny.edu Kelly Williams, Woods Hole, MA; WHOI, mccullocc@uoregon.edu</p>			

Passive

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Holly Fowle, Philadelphia, PA; Temple, holly.a.fowle@noaa.gov
Jason Chaytor, Woods Hole, MA; USGS, jchaytor@usgs.gov
Mike Vecchione, Washington, DC; SI/NOAA, vecchionem@si.edu
Jay Lunden, Philadelphia, PA; Temple, jlunden@temple.edu

Purpose of the Dive

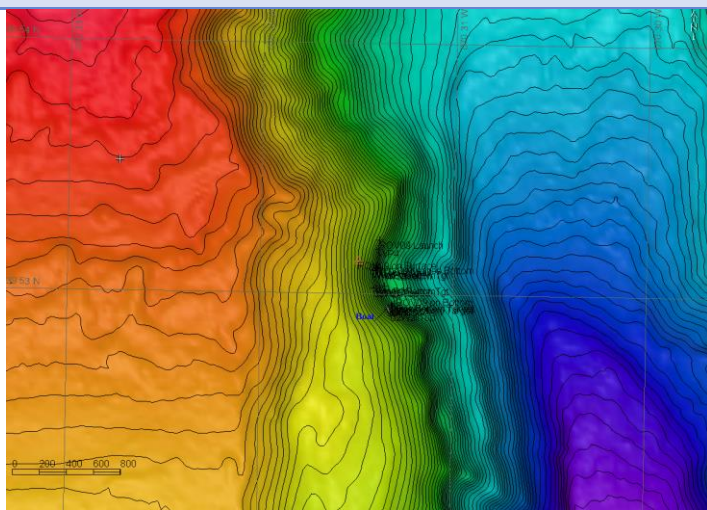
The purpose of the dive was to characterize 1) the submarine canyon geomorphology and benthic habitats, including possible coral and sponge communities at a depth of ~900 m on the west wall of Alvin Canyon and 2) groundtruth a model of predicted deep-sea coral occurrence.

Description of the Dive:

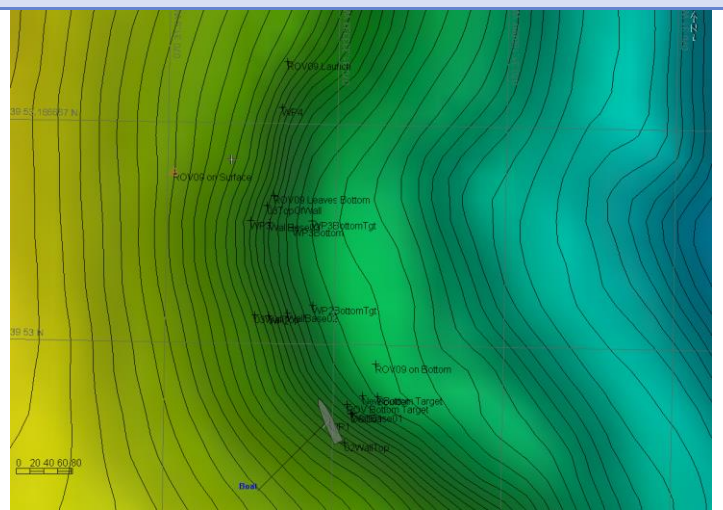
The ROV reached the seafloor covered in soft sediment at a time of 13:53 UTC and a depth of 926 m (4.7 deg C). Numerous red crabs (*Chaceon quinquedens*), squat lobsters (Galatheoids), witch flounder (*Glyptocephalus cynoglossus*), cutthroat eels (Synaphobranchidae), dogfish (*Centroscyllium fabricii*), and midwater organisms including fishes (Myctophidae, Phosichthyidae) were evident. It appeared that we were in a nepheloid layer with poorer visibility than previous dives. A strong current was not evident. At 14:14, we began moving over this soft substrate bottom, and the ROV traversed large sediment scars. Downslope of the scars were boulders, suggesting that these boulders recently rolled down slope. The boulders appeared to be carbonate cemented sediment, silt/mudstone and clay rich; similar to the geology in Atlantis canyon. Two different species of *Apristurus* catsharks were noted here. At 14:40, the ROV reached the base of a vertical wall, where fishes were abundant and sessile fauna were evident. The wall was heavily bored with anemones and polychaetes tubeworms projecting from the holes. Attached to the wall included several species of sponges, cup corals (*Desmophyllum* and *Javania*), and a few bamboo corals (Isididae). A DVL target was dropped (wallbase01). Several "white lines" were running down the wall, and it was noted that they were associated with fissures/fractures of various depths. A small fragment of *Lophelia pertusa* was observed at 15:11 at a depth of 893 m, but it was unclear whether any live tissue was associated with this branch. The ROV began to move upslope towards waypoint 1 at 15:19, transiting up a very steep vertical wall. At 15:28, mudstone blocks covered in bamboo corals and sponges with a thin veneer of sediment was apparent. The ROV continued up slope covered in a fairly thin layer of fine, silty sediment. At 15:54, the ROV moved off the slope to the base of feature, below waypoint 2. Numerous ctenophores were seen in the water column. ROV approached the bottom again at 16:30 and began moving up slope towards waypoint 2. The rock wall again had numerous "white lines" running down the face. A noteworthy observation of an oreo, *Neocyttus helgae*, was documented at a depth of 866 m at a time of 16:51. In addition, numerous skates were prevalent in the area. As the ROV moved up a very steep slope, it was noted that overall there was a lack of conspicuous attached fauna, and a low diversity of corals here. However, cup corals, bamboo corals, anemones, and bivalves were fairly abundant at a depth of 860 m growing under a small overhang. Fishing line was observed on the bottom at 17:29. Also, numerous ophiuroid brittle stars with their discs buried in the sediments and their arms sticking out in the water column were noted. At 17:42 UTC and a depth of 827 m, the ROV reached the top of the feature and then entered the water column to move to the base of the feature below waypoint 3. In the water column, numerous ctenophores, salp chains, and *Phronima* were noted. The ROV reached the bottom again at 18:26 UTC and a depth of 906 m over a soft sediment bottom, noting numerous red crabs and squat lobsters. The ROV made its way upslope to waypoint 3, again approaching a large vertical wall that appeared to be white, cemented carbonate with a light sediment cover. Cup corals and *Solenosmilia variabilis* colonies were growing under ledges. ROV left bottom at 20:00 at a depth of 863 m. Overall, minimal, conspicuous attached fauna was evident on the rock faces, with the exception of corals and sponges growing under overhangs. Also, it was noted that the ledges sticking out might have more carbonate cement or different grain size preventing the cement from being attacked, while the eroded layers may have only minor amounts of cement or none at all. This is normally termed an

interbedded sequence. Also on this dive, it was noted that numerous skates were prevalent in the area.

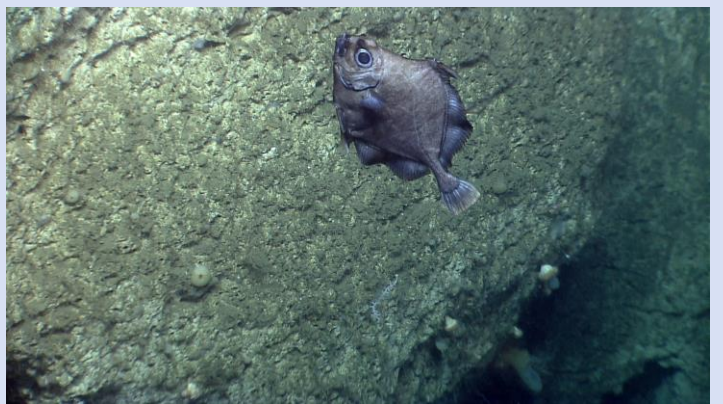
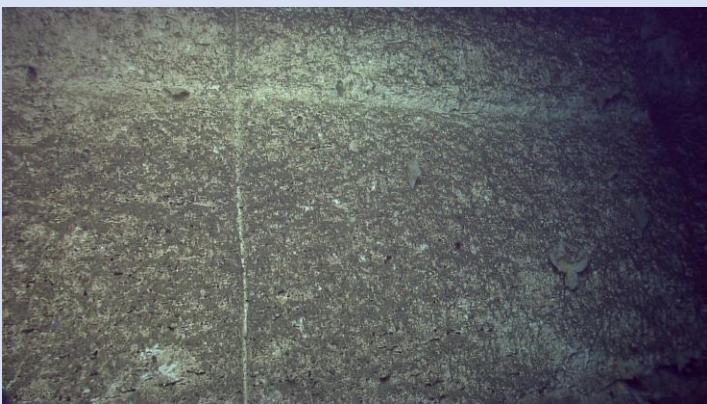
Overall Map of ROV Dive Area



Close-up Map of Main Dive Site



Representative Photos of the Dive



The face of a vertical wall with a "white line" or fissure that was seen numerous times in this area. Time 19:21. Depth 852 m.

An oreo, *Neocyttus helgae*, swimming along a rock face, with attached sponges and cup corals. Time 16:50. Depth of 866 m.

Please direct inquiries to:

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