OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Alvin Canyon - Mid 2		
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	DIVE10
Equipment Deployed	ROV:	Deepwater Discoverer	
	Camera Platform:	Seirios	
ROV Measurements	☒ CTD	☒ Depth	☒ Altitude
	☒ Scanning Sonar	☒ USBL Position	☒ Heading
	☒ Pitch	☒ Roll	☒ HD Camera 1
	☒ HD Camera 2	☒ Low Res Cam 1	☒ Low Res Cam 2
	☒ Low Res Cam 3	☒ Low Res Cam 4	☒ Low Res Cam 2
Equipment Malfunctions			
ROV Dive Summary (From processed ROV data)	In Water at:	2013-07-18T12:38:40.815000 39°, 50.477' N ; 070°, 27.515' W	
	Out Water at:	2013-07-18T20:15:14.770000 N/A ; N/A	
	Off Bottom at:	2013-07-18T20:03:28.232000 39°, 50.544' N ; 070°, 28.111' W	
	On Bottom at:	2013-07-18T13:25:44.062000 39°, 50.323' N ; 070°, 28.026' W	
	Dive duration:	7:36:33	
	Bottom Time:	6:37:44	
	Max. depth:	1109.6 m	
Special Notes			
Scientists Involved *(please provide name / location / affiliation / email)*	**Primary** 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 Scott France, Lafayette, LA, U. Louisiana at Lafayette, france@louisiana.edu Mike Vecchione, Washington, DC; SI/NOAA, vecchionem@si.edu Jason Chaytor, Woods Hole, MA; USGS, jchaytor@usgs.gov 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, mcculloc@uoregon.edu		

Bob Carney, Baton Rouge, LA; LSU, rcarne1@lsu.edu

Passive
Inge Van Den Beld, Brest, France; IFREMER, inge.van.den.beld@ifremer.fr
Cheryl Morrison, Kearneysville, WV, USGS, cmorrison@usgs.gov
Brian Kinlan, Silver Spring, MD; NOAA NCCOS, brian.kinlan@noaa.gov
Walter Cho, San Diego, CA; Point Loma Nazarene, waltercho@pointloma.edu
Sandra Brooke, Tallahassee, FL; FSU, sbrooke@fsu.edu

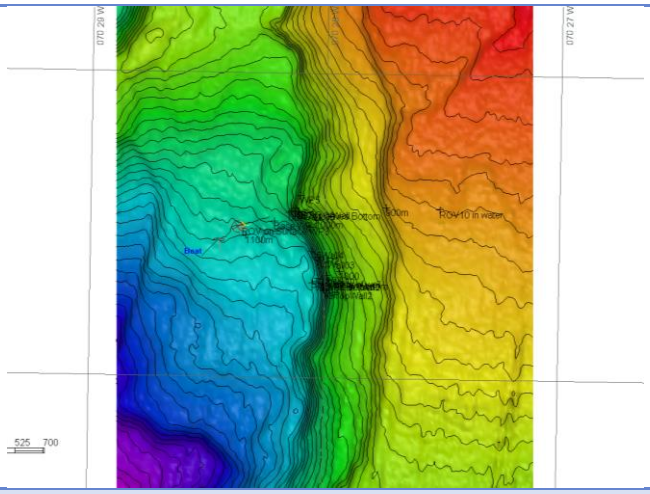
Purpose of the Dive

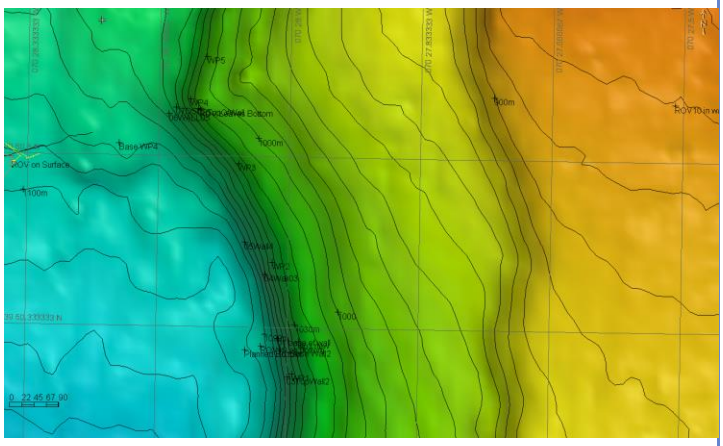
The purpose of the dive was to characterize 1) the submarine canyon geomorphology and benthic habitats, including possible coral and sponge communities at a depth of ~1100 m on the east wall of Alvin Canyon and 2) groundtruth a model of predicted deep-sea coral occurrence.

Description of the Dive:

The ROV reached the base of the slope at 13:25 UTC at a depth of 1088 m. The soft sediment was fine grained, consisting of silt and foraminifera ooze. Near bottom in the water column, squid, mesopelagic fishes (Myctophidae, Phosichthyidae), cutthroat eels (*Synaphobranchus* sp. and *Symenchelys* sp.), and lophogastrid mysids were prevalent. The ROV moved over the soft sediment with a few scattered rocks harboring cup corals. The ROV reached the base of the rock wall at 13:55 UTC (DVL target 01 Base Wall) at a depth of 1084 m. The vertical rock wall was composed of cemented carbonate that was horizontally stratified, possibly with a manganese coating in some areas, and it was heavily bored. In particular, there were several encrusting and boring sponges, as well as cerianthid anemones and polychaete tube worms. Coral rubble that included fragments of mostly dead cup corals was noted piled under ledges on the vertical rock walls. Growing under the overhangs *?Solenosmilia, Desmophylum, Anthothela, Anthomastus* and *Acanthogorgia* were noted. Two different asteroid seastars were seen on this dive then on previous dives. It was noted at ~14:20 that there were several size classes of *Desmophyllyum.* As the ROV continued up the top of the wall at 14:32 at a depth of 1074 m, an additional overhang was noted with *Clavularia,* bamboo corals, and *?Solenosmilia.* At 14:52 UTC, the first *Swiftia* were observed. A nice layer of non-bored, courser grain rock, possibly a sandstone layer was interbedded in between two layers of bored sediment. The ROV reach the top of the wall at 15:50 (DVL 03topwall02) at a depth of ~1020 m. Another species of right-eyed flounder was observed. However, in general, there was an overall lack of large fauna colonizing this feature. The ROV then moved down slope, and at ~17:42 UTC, and more bamboo corals were noted at the top of the ledge along with limnid bivalves, and a solitary hydroid. The ROV then began moving across soft sediment with scattered rock along a gentle slope towards waypoint 4 to being another upslope transect. Common soft sediment associated fishes and other fauna were present, and additional trash was noted at 17:48 UTC (paint bucket). The ROV began moving up the vertical wall (same bio-eroded cemented carbonate with horizontal stratification) transect at 18:50 (DVL05). Interestingly at a depth of 1056 m, two juxtaposed walls were noted, with numerous broken slabs at the base, and a sediment chute up the middle. As the ROV moved up the promontory ridge, a higher abundance of corals were noted, including bamboo and primnoid corals, *Thouarella* sp. These were particularly abundant at 19:08. It was suggested hat this feature, that protrudes out further into the axis of the canyon, may be experiencing more currents, thus providing more food for corals to establish and grow. At the end of the dive, one *Acanella* coral was observed. The ROV left bottom at a depth of ~1010 m at 20:00. Of note during this dive, numerous skates were observed as well as skate egg cases. Both a parasitic isopod (on a skate) and a parasitic copepod (on *Antimora)* were imaged. Few faunal associates were observed with corals, with the exception of different species of shrimps associated with both corals and sponges. Other geological observations included slabs of rock sitting on top of wide ledges that were also in places undercut above.

Overall Map of ROV Dive Area	**Close-up Map of Main Dive Site**





Representative Photos of the Dive

Large tabular blocks colonized with numerous corals, including *Thouarella* (lower right) and bamboo corals (Isididae). Time 19:14. Depth 1050 m.

A rare observation of a parasitic isopod associated with a deep-sea rajiid skate. Time 19:54. Depth 1022 m.

Please direct inquiries to:	NOAA Office of Ocean Exploration & Research 1315 East-West Highway (SSMC3 10th Floor) Silver Spring, MD 20910 (301) 734-1014