

OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Atlantis Canyon – Mid 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	DIVE07	
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:	2013-07-15T12:30:41.195000 39°, 51.063' N ; 070°, 15.151' W		
	Out Water at:	2013-07-15T20:36:18.387000 39°, 51.310' N ; 070°, 15.831' W		
	Off Bottom at:	2013-07-15T20:02:28.966000 39°, 51.199' N ; 070°, 15.678' W		
	On Bottom at:	2013-07-15T13:07:56.017000 39°, 51.167' N ; 070°, 15.370' W		
	Dive duration:	8:5:37		
	Bottom Time:	6:54:32		
	Max. depth:	1105.6 m		
Special Notes				
Scientists Involved <i>(please provide name / location / affiliation / email)</i>	Primary			
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	Passive			
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Purpose of the Dive

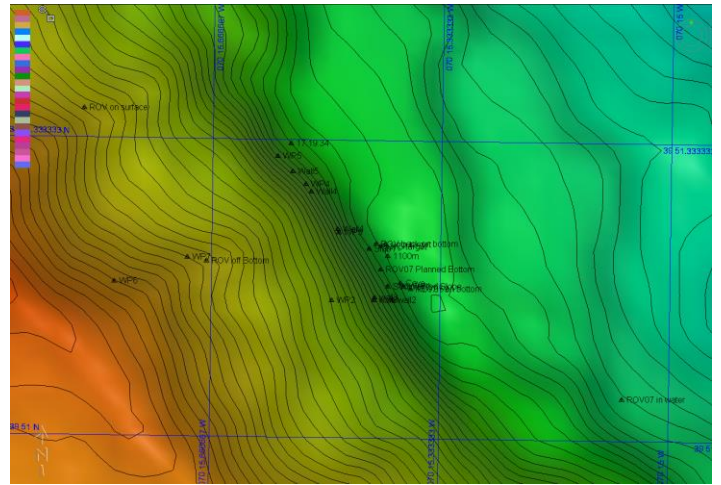
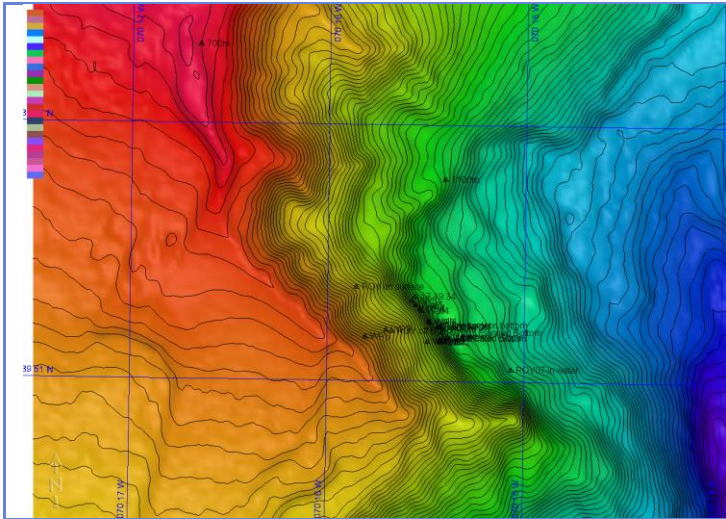
The purpose of the dive was to characterize submarine canyon geomorphology and characterize benthic habitats in Atlantis Canyon, possibly including deep-sea coral and sponges. This was considered a mid-depth dive (~1100-900 m). An additional goal of this dive was to groundtruth a model that predicted the occurrence of deep-sea corals associated with slopes >36 degrees.

Description of the Dive:

ROV and Seirios were launched at approximately 12:18 UTC. Upon entering the water, a manta ray (*Manta birostris*) with a remora attached was observed hovering around the ship. The ROV reached bottom at 13:09 UTC at a depth of 1101 m (4.4 degrees C). The surrounding soft sediment was fine grain silt/mud. Grenadiers (Macrouridae), cutthroat eels (Synphobranchidae) and red crab (*Chaceon quinquedens*) were prevalent. Numerous burrows were in the soft sediment. A *Mastigoteuthis* squid was observed. The ROV began moving over soft sediment, and approached the base of a vertical wall with cup coral rubble scattered around the base. The tall, vertical wall was stratified and heavily bored but not many overhangs and no large detachments were observed. Sessile fauna were prevalent under one ledge, including *Desmophyllum* cup corals, bivalves (?*Acesta* sp.), a branching scleractinian (?*Solenosmilia variabilis*), and a brisingid seastar *Novodinia* sp. Numerous squat lobsters (*Munidopsis* sp.) were seen inhabiting the branches of both soft and hard corals. Squid eggs were also seen in a glass sponge, and the camera captured one hatching. Up the wall, three large, deep burrows were noted. These were likely very deep as one fish, *Gadiropsaurus* sp., disappeared into the burrow. The ROV continued to move up slope, noting another large vertical wall, however, fewer sessile invertebrates colonized this wall, although the bivalve ?*Acesta* sp, *Acanthogorgia* colonies, the black coral *Bathypathes* sp. and a scleractinian branching coral (?*Solenosmilia* sp.) were noted. At 14:53 UTC and a depth of 1033 m, the ROV left the face of the vertical wall to move back down slope, and on the way back down great video of another *Mastigoteuthis* squid was captured. The ROV was back on the bottom at 15:20, at a depth of 1100 m and traversed again over soft sediment with scattered rock outcrops with a fair amount of sessile fauna colonization. The ROV began moving laterally along a vertical wall, moving towards the next waypoint at 15:57 and this wall had few sessile fauna. A solid white line extending up the vertical wall in a very straight fashion was observed. At a depth of 1033 m and a time of ~16:25, attached fauna were noted growing under a ledge, including *Desmophyllum*, ?*Acesta*, and sponges. The first *Thouarella grasshoffi* was observed at 16:32, along with bamboo coral, *Swiftia* sp., and other species of cup corals. A lithodid king crab was also observed at 17:44. As the ROV moved towards waypoint 4, a large rajiid skate was observed at ~16:47 lying on the face of the vertical wall. The ROV continued to move along the slope, noting similar species attached to various patches of the rock wall, often with cup coral rubble on the seafloor below. At 18:32, the ROV began a move upslope at a depth of 1010 m. For the remainder of the dive, the ROV transited over soft sediment, likely at least 1 m thick, on a steep slope (~60 deg). No notable sessile fauna were anchored in the sediment, but there were several burrows with red crabs and often squat lobsters. Cutthroat eels, hake and grenadiers were observed again over soft sediments, and a few octopi (*G. verrucosa*) were observed. The ROV left bottom at 20:00 at a bottom depth of 885 m (temperature 4.7 degrees C). In general, hard substrata in this area of Atlantis canyon consisted of calcareous siltstone/mudstone, and a weak current and little water column, particulate matter was noted in this area.

Overall Map of ROV Dive Area

Close-up Map of Main Dive Site



Representative Photos of the Dive



Deep burrows carved into the siltstone/mudstone wall at a depth of 1100 m. Cup corals were abundant, and all attached with their polyps facing downwards. Time 13:40 UTC



A wall encountered toward the end of the dive at a time of 18:31 UTC, and depth of 1010 m. Numerous species colonized this area, including cup corals, *Acesta* bivalves, *Novodinia* seastars, and the octocorals *Acanthogorgia* sp. (yellow colonies) and *Clavularia* sp. (purple soft coral).

Please direct inquiries to:

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