OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	USGS Hazards 1		
ROV Lead/Expedition Coordinator	David Lovalvo/ Brian Kennedy		
Science Team Leads	Amanda Demopoulos Martha Nizinski		
General Area Descriptor	Northwest Atlantic Ocean; Northeast U.S. Canyons		
ROV Dive Name	Cruise Season	Leg	Dive Number
	EX1304	2	DIVE01
Equipment Deployed	ROV:	Deep 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:	2013-08-01T12:35:13.393000 39°, 52.456' N ; 070°, 58.723' W	
	Out Water at:	2013-08-01T20:35:43.595000 39°, 53.368' N ; 070°, 58.270' W	
	Off Bottom at:	2013-08-01T20:00:56.651000 39°, 53.373' N ; 070°, 58.191' W	
	On Bottom at:	2013-08-01T12:59:26.765000 39°, 52.560' N ; 070°, 58.729' W	
	Dive duration:	8:0:30	
	Bottom Time:	7:1:29	
	Max. depth:	784.1 m	
Special Notes			
Scientists Involved *(please provide name / location / affiliation / email)*	**Primary**		
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Passive

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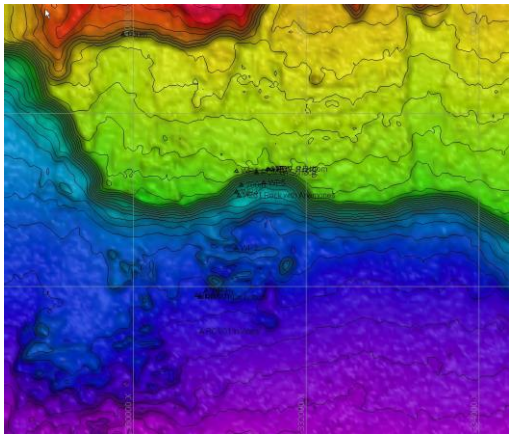
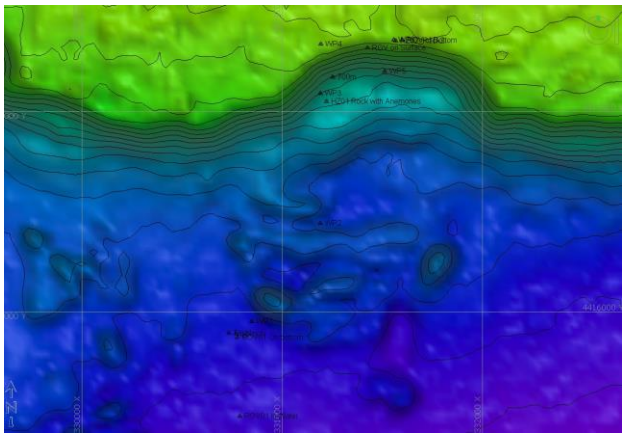
Purpose of the Dive

The purpose of this proposed dive is to investigate small, potentially recent, landslide debris deposits and scarps within a larger landslide scar on the upper continental slope. The scientific rationale for this site is: 1) to determine if these small landslide debris features are relatively young and if they pose a hazard in terms of tsunami generation; 2) 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:

The ROV D2 was deployed at 1230 UTC to a depth of 782 meters between Block and Alvin Canyons. During descent, salp chains were observed at 600-650 m. D2 reached the bottom at 0901am and began moving towards Waypoint 1 along a transect up a small mound. The bottom was heavily sedimented with multiple burrows. Several eels, flatfish, including witch flounder, and red crabs were observed. Salps, squids, and euphausids were suspended in the water column. Burrows, flatfish, eels, red crabs and squid dominated the observations as we continued transiting over soft sediments. Squat lobsters were first observed at 0130 UTC. At approximately 780 m, the bottom type changed to subdued hummocky morphology. The same suite of organisms (red crab, eel, flatfish, squat lobsters) was also associated with this sedimented landscape. Squids and salps continued to rule the water column. As the ROV continued moving over soft sediments, multiple burrows, red crabs, eels, flatfish, and squid were noted; squat lobsters were now more abundant, most of which were associated with burrows. At 43 min into the dive, no hard bottom other than trash was noted. At 779 m, clusters of burrows, flatfish, red crab (several mating pairs) and rat tails were the dominant megafauna observed. The ROV headed up a slight slope and the sediment was punctuated by burrows with semi-consolidated walls. Fly trap anemones were noted, and the abundances of red crab and squat lobsters increased. The ROV reached the top of the feature at 756 m. A small rock, perhaps worn cobble (glacial erratic?), was observed covered with hydroids. Another rock and the commonly observed faunal assemblage of eels, red crabs, shrimps, and squat lobsters were noted. The ROV continued traversing over soft sediments with burrows and small rocks; squids, squat lobsters, and rat tails dominating the observations. As the ROV transited down slope, the bottom landscape and faunal assemblages remained the same. Small clay balls were observed scattered on the seafloor. At 783 m, several burrows composed of semi-consolidated material were present, and squat lobsters, flatfish, red crabs, and eels were noted as the ROV moved over soft sediment. Less than 200 m from WP2, the seafloor consisted of burrows with semi-consolidated mud walls and sediment hummocks. As the ROV began heading up slope at 762 m, flatfish, eels, rat tails, anemones, hermit crabs, squat lobsters and red crabs were observed. Moving toward WP3, in 777 m depth, we continued to traverse over soft sediments with no burrows. Next, more crater-like depressions with semi-consolidated material was observed in addition to a large rock (likely igneous in origin and possibly a dropstone). Moving toward WP4, at 684 m water, dark cobble rocks, were substrates for serpulid worm tubes. Another rock was embedded in the sediment, and post-depositional accumulation around the rock was noted. It appears that all larger rocks seen were restricted to a specific depth interval along the slope. The ROV left the bottom at 2001 UTC.

Other interesting highlights: Salps were extremely abundant and were observed throughout the entire dive. We observed three predation events by eels. Twice an eel was observed feeding on other fishes. An eel also attempted to eat a squid, although the squid was able to escape. Two fishes were observed with a parasitic copepod. Unfortunately, trash was observed throughout the dive and included a plastic cup, fishing line, sheets of plastic, fish hook, Coke can, and a glass bottle.

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

Representative Photos of the Dive

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