



Okeanos Explorer ROV Dive Summary

Dive Information	
General Location Map	
General Area Descriptor	U.S. Caribbean Sea
Site Name	Virgin Islands Trough South Wall
Science Team Leads	Stacey Williams (ISER) Steven Auscavitch (Temple)
Expedition Coordinator	Daniel Wagner (NOAA-OER)
ROV Dive Supervisor	Chris Ritter (GFOE)
Mapping Lead	Derek Sowers (NOAA-OER)
ROV Dive Name	
Cruise	EX1811
Dive Number	DIVE05
Equipment Deployed	
ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>

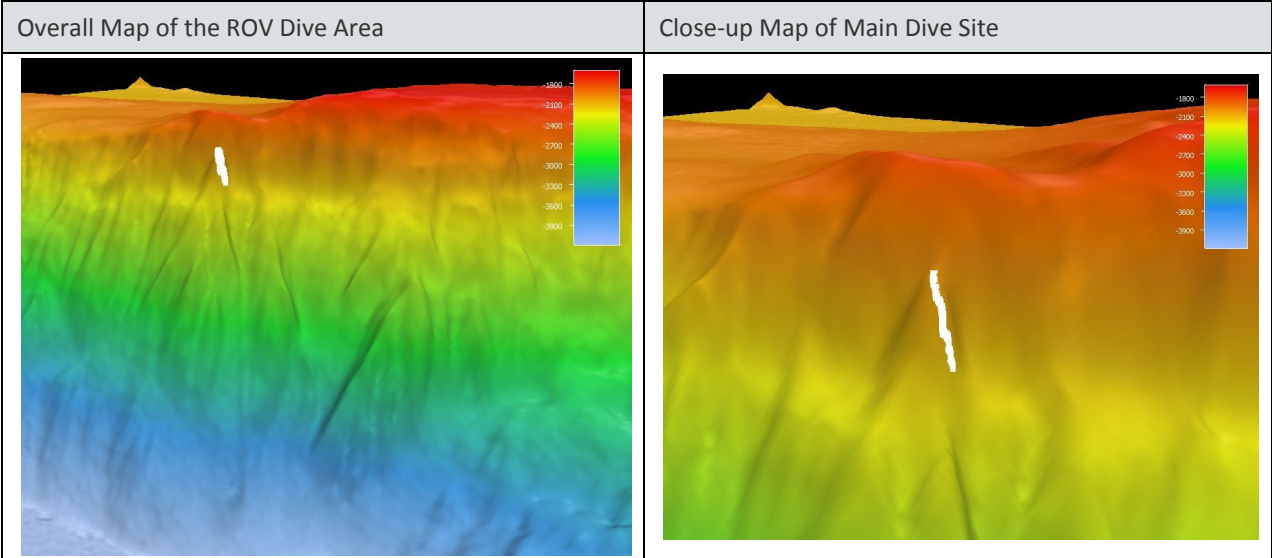
ROV Measurements	✓ CTD	✓ Depth	✓ Altitude
	✓ Scanning Sonar	✓ USBL Position	✓ Heading
	✓ Pitch	✓ Roll	✓ HD Camera 1
	✓ HD Camera 2	✓ Low Res Cam 1	✓ Low Res Cam 2
	✓ Low Res Cam 3	✓ Low Res Cam 4	✓ Low Res Cam 5
Equipment Malfunctions	None		
ROV Dive Summary Data (from processed ROV data)	In Water:	2018-11-05T12:22:15.323685 17°, 46.141' N ; 65°, 25.715' W	
	On Bottom:	2018-11-05T13:42:58.698827 17°, 46.374' N ; 65°, 25.672' W	
	Off Bottom:	2018-11-05T19:26:53.007420 17°, 46.314' N ; 65°, 25.526' W	
	Out Water:	2018-11-05T20:54:47.196295 17°, 46.381' N ; 65°, 24.859' W	
	Dive duration:	8:32:31	
	Bottom Time:	5:43:54	
	Max. depth:	2153.0 m	
Special Notes	During ROV recovery a storm system passed, so the vehicles were held at 50 m until the storm passed, thus delaying recovery by 20 minutes.		
Scientists Involved (provide name, affiliation, email)	Name	Affiliation	Email
	Amanda Demopoulos	US Geological Survey	ademopoulos@usgs.gov
	Andrea Quattrini	Harvey Mudd College	aquattrini@g.hmc.edu
	Asako Matsumoto	Chiba Institute of Technology	amatsu@gorgonian.jp
	Brian Kennedy	Boston University	brian@deepsu.org
	Charles Messing	Nova Southeastern University	messaging@nova.edu
	Chris Taylor	NOAA	chris.taylor@noaa.gov
	Christopher Mah	National Museum of Natural History	brisinga@gmail.com
	Daniel Wagner	NOAA/OER	daniel.wagner@noaa.gov
	Debi Blaney	NOAA/OER	debi.blaney@noaa.gov
	Enrique Salgado	NOAA/CSS	enrique.salgado@noaa.gov
	Graciela Garcia-Moliner	Caribbean Fishery Management Council	graciela_cfm@yahoo.com
	Jason Chaytor	US Geological Survey	jchaytor@usgs.gov
	Kevin Rademacher	NOAA/NMFS	kevin.r.rademacher@noaa.gov
	Mashkoor Malik	NOAA/OER	mashkoor.malik@noaa.gov
	Megan Cromwell	NOAA/NCEI	megan.cromwell@noaa.gov
	Nick Pawlenko	NOAA/OER	nikolai.f.pawlenko@noaa.gov
	Nolan Barrett	Medical University of South Carolina	barrettnh@g.cofc.edu
	Scott France	University of Louisiana at Lafayette	france@louisiana.edu
	Stacey Williams	Institute for Socio-Ecological Research	stcmwilliams@gmail.com
	Steven Auscavitch	Temple University	steven.auscavitch@temple.edu
	Tara Harmer Luke	Stockton University	luket@stockton.edu
Tina Molodtsova	P.P. Shirshov Institute of Oceanology	tina@ocean.ru	
Tom Hourigan	NOAA/NMFS	tom.hourigan@noaa.gov	

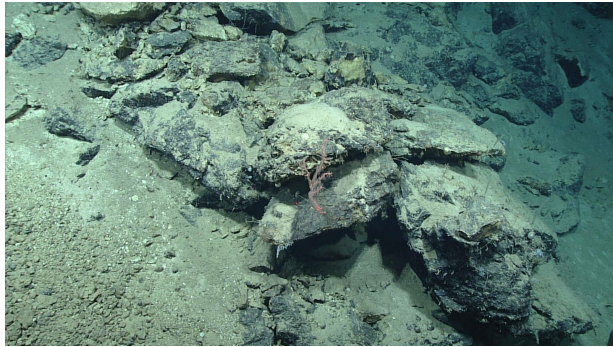
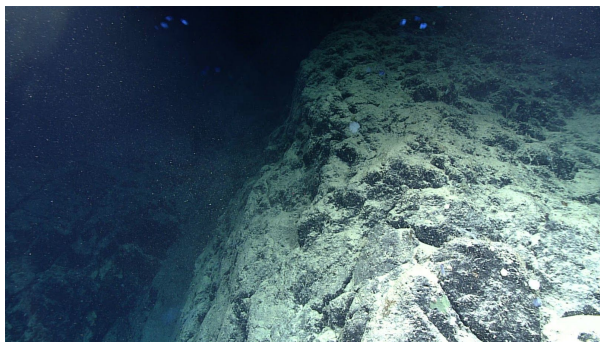


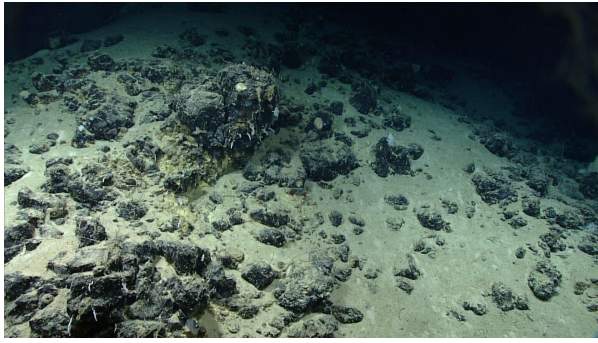
Dive Purpose	<p>The purpose of the dive was to characterize the deep-sea coral and sponge communities in a relatively unexplored ridge feature west of St. Croix. The dive also sought to identify occurrences of deepwater demersal fish species, as well as their habitat preferences along the dive track. The dive track was designed to begin near the top of the south wall of the Virgin Islands Trough and then traversed southward up a steep nose feature in the wall from a depth of 1737 to 2138 m. Slopes expected along this dive track averaged between 30-40° incline. This depth range was selected to better understand deepwater community transitions between steep topography and ridge crests.</p>
Dive Description	<p>The dive started in a habitat dominated by soft sediment and scattered large boulders. Sediment and detritus was draped over the boulders. The current was mild throughout the dive and direction was west-northwest at the beginning of the dive. While the first half of the dive consisted of soft bottom habitats with scattered big boulders, the second part consisted of a steeper terrain with consolidated hardground.</p> <p>Sponges were the dominant organism at this site, across all depths and habitats. However, sponges were less common at the end of the dive, which traversed a narrower ridge feature with rocky ledges and overhangs that was heavily sedimented. Glass sponges contributed the most to the overall sponge composition. The diversity in morphology and species was high. The stalked glass sponges were possibly Hyalonematidae (<i>Heterorete</i> sp.) and encrusting glass sponges (<i>Sceptrulophora</i> sp.). We saw a lot of euptectillid sponges throughout the dive. The size of these euptectillids was smaller (diameter of osculum) than those that occurred in Dive 04. There was a stalked glass sponge (<i>Amphidiscella</i> sp.) and another type of glass sponge (<i>Tretopleura</i> sp.).</p> <p>There was a branching glass sponge (planular and bilateral branching) that was common but could not be identified. Demosponges were common, both big and small. There were large lobate, cream to white color demosponges (<i>Polymastia</i> sp.) and yellow fan-shaped demosponges, both were common. There were also small ball-like demosponges scattered along the rock faces, as well as an unidentified sponge that was fan-shaped and white. We collected a carnivorous sponge, <i>Chondrocladia</i> sp. at the end of the dive (19:16 UTC).</p> <p>Only two species of fish were identified on the dive, halosaurs (<i>Aldrovandia</i> sp.) and tripod fish (<i>Ipnops murrayi</i>). Halosaurs seemed to be more common than tripod fish. At the beginning of the dive we saw a small larval fish of unknown species. We saw even smaller larval fish later (15:09 UTC), bringing the total to 6 larval fishes.</p> <p>For other invertebrates, we observed a possible pancake sea urchin, dark red to black in color. Sea cucumbers were scattered at all depths. Two species of holothurians were observed. There were many small crinoids attached to hard substrate (<i>Democrinus</i> sp.). We collected one of these crinoids on a rock. There was a 10-arm crinoid (Septocrinoidae or Bathycrinoidae). This might be the deepest distribution for this species known to date (17:47 UTC). We saw a couple species of sea stars, and collected one unidentified sea star (Gonasteridae) predated on a bamboo coral. There was a slime star (Pterastridae), and another white sea star, <i>Pythanaster atlantitidus</i>. We also observed a brisingid star at 18:00 UTC.</p> <p>Deep-sea corals were well represented with representatives from the Chrysogorgiidae, Isididae, Paragorgiidae, Primnoidae, and Antipatharia. Two chrysogorgiid octocorals were observed, one early in the dive that displayed sparse branching and another at the end of the dive with a bottlebrush morphology. One branched (cf. <i>Cladarisis</i> sp.) and one unbranched species (?<i>Lepidisis</i> sp.) of bamboo coral were observed, both on steep hard bottom. One species of paragorgiid, <i>Sibogorgia</i> cf. <i>cauliflora</i>, was repeatedly observed throughout the dive. One occurrence of primnoid whip was documented, likely <i>Candidella gigantea</i>, only recently reported from the Atlantic Ocean in the Bahamas. One occurrence of <i>Heteropathes</i> sp.</p>



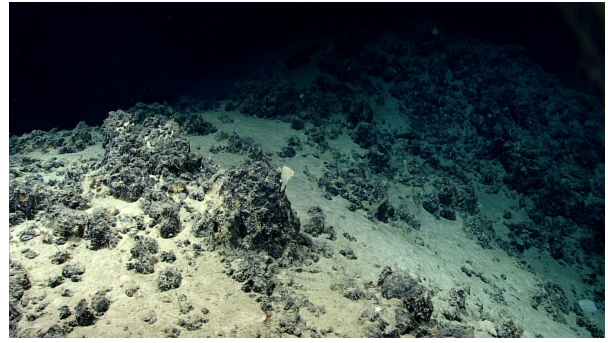
	(possibly <i>H. americana</i>) was also documented. The steepness of the wall at this site did not permit rapid climbing with <i>D2</i> .
Notable Observations	We collected a colonial stalked tunicate that appeared to be abundant through the dive. Also, multiple morphologies of bryozoans were encountered at this site. On max zoom, we could see many tiny organisms colonizing the rocks, like foraminifera, crinoids and bryozoans. We also observed one Euritidae sponge (<i>Pleurochorium</i> sp.).
Community Presence/Absence (community is defined as more than two species)	<input checked="" type="checkbox"/> Corals and Sponges <input type="checkbox"/> Chemosynthetic Community <input type="checkbox"/> High biodiversity Community <input type="checkbox"/> Active Seep or Vent <input type="checkbox"/> Extinct Seep or Vent <input type="checkbox"/> Hydrates



Representative Photos of the Dive	
	
Rock pile assumed to be fallen debris with attached coral (<i>Sibogagorgia</i> cf. <i>cauliflora</i>).	Steeper section of the wall with attached sponge fauna.



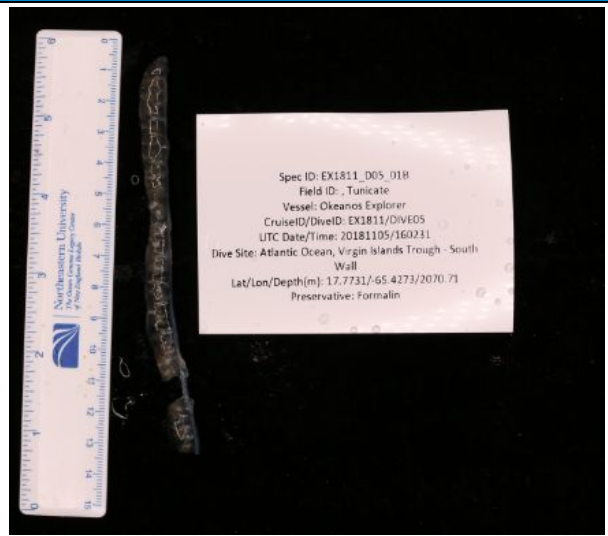
Slope with numerous cobble-sized rocks and attached fauna included sponges and cnidarians.



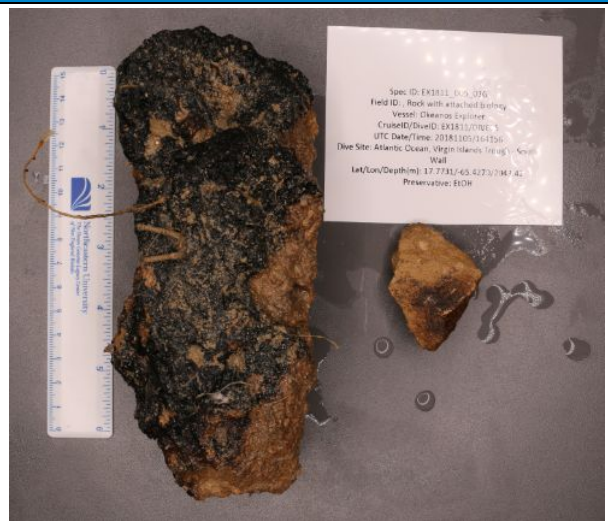
A thin, knife-edge ridge connected the promontory near the second steep climb.

Samples Collected

Sample ID	EX1811_D05_01B
Date (UTC)	20181105
Time (UTC)	160231
Depth (m)	2070.708
Temp. (°C)	3.836
Field ID(s)	Tunicate
Commensals	No commensals
Comments	



Sample ID	EX1811_D05_02G
Date (UTC)	20181105
Time (UTC)	164156
Depth (m)	2043.424
Temp. (°C)	3.832
Field ID(s)	Rock with attached biology



		<i>Sample 2 Photo</i>		
Commensals	Commensal Sample ID	Field Identification	Count	
	EX1811_D05_02G_A01	Crinoidea	1	
	EX1811_D05_02G_A02	Cryptelia	1	
	EX1811_D05_02G_A03	Unknown. Possibly bryozoan	1	
	EX1811_D05_02G_A04	Polychaeta	2	
Comments				
Sample ID	EX1811_D05_03B			
Date (UTC)	20181105			
Time (UTC)	171115			
Depth (m)	2037.533			
Temp. (°C)	3.826			
Field ID(s)	Asteroida			
Commensals	Commensal Sample ID	Field Identification	Count	
	EX1811_D05_03B_A01	Bamboo Coral	1	
Comments				

Please direct inquiries to:

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