



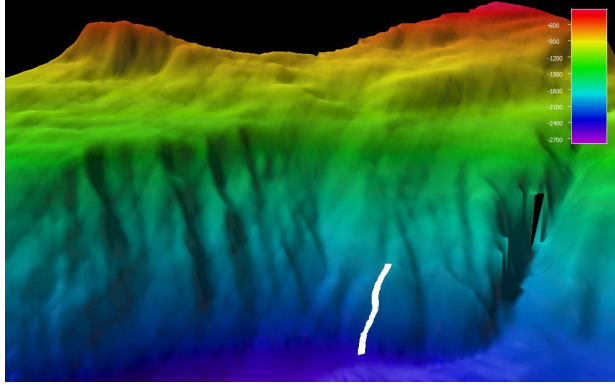
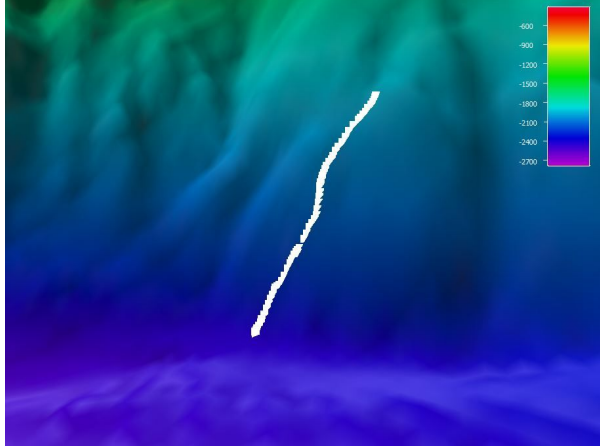
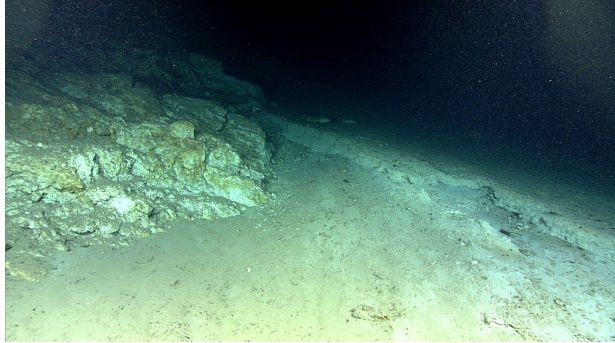
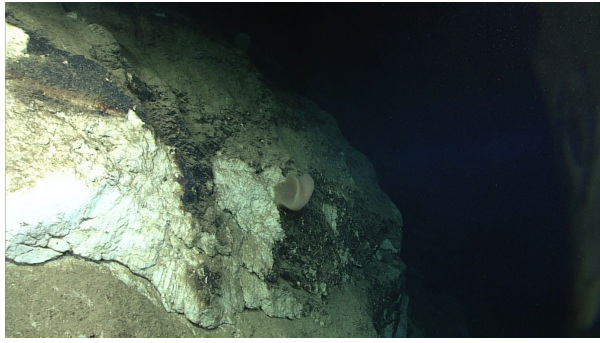
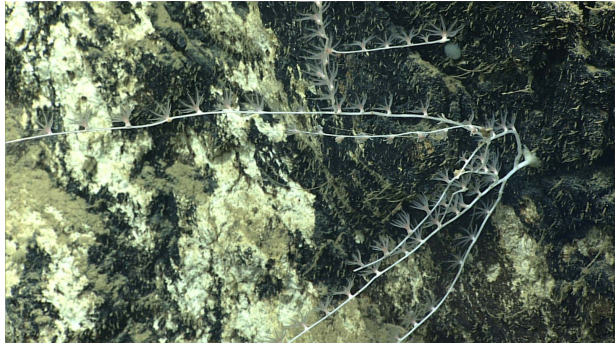
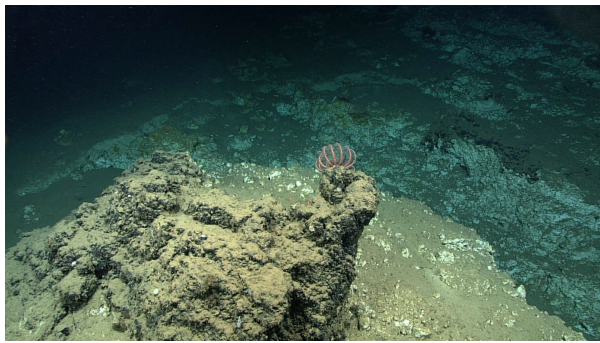
## Okeanos Explorer ROV Dive Summary

Dive Information	
General Location Map	
General Area Descriptor	U.S. Caribbean Sea
Site Name	Mona Canyon East 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)
<b>ROV Dive Name</b>	
Cruise	EX1811
Dive Number	DIVE12
<b>Equipment Deployed</b>	
ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>


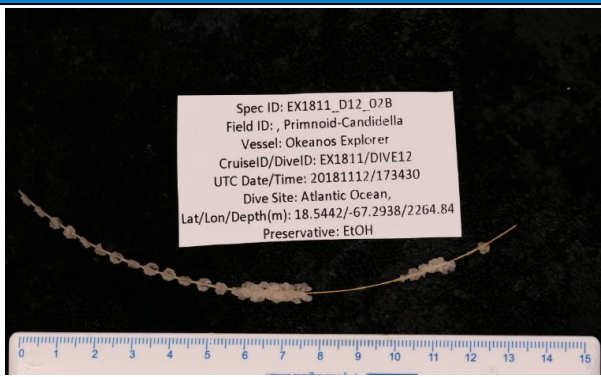

ROV Measurements	✓ CTD	✓ Depth	✓ Altitude																																																																					
	✓ Scanning Sonar	✓ USBL Position	✓ Heading																																																																					
	✓ Pitch	✓ Roll	✓ HD Camera 1																																																																					
	✓ 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	The salinity measurements by the CTD sensors on D2 showed erroneous values throughout the dive. After the dive, the faulty salinity measurements from the D2 sensors were replaced with correct values from the <i>Seirios</i> sensors in SeaTubeV2.																																																																							
ROV Dive Summary Data (from processed ROV data)	<p>In Water: 2018-11-12T13:56:05.729674 18°, 32.442' N ; 67°, 17.683' W</p> <p>On Bottom: 2018-11-12T15:19:44.891228 18°, 32.611' N ; 67°, 17.706' W</p> <p>Off Bottom: 2018-11-12T21:22:35.165507 18°, 32.672' N ; 67°, 17.424' W</p> <p>Out Water: 2018-11-12T22:35:55.208154 18°, 32.864' N ; 67°, 16.993' W</p> <p>Dive duration: 8:39:49</p> <p>Bottom Time: 6:2:50</p> <p>Max. depth: 2415.0 m</p>																																																																							
Special Notes	The deployment of the ROV was delayed by ~1.5 hours due to a winch issue. However, the ROV recovery time was extended to recover dive time that would have otherwise been lost.																																																																							
Scientists Involved (provide name, affiliation, email)	<table border="1"> <thead> <tr> <th>Name</th> <th>Affiliation</th> <th>Email</th> </tr> </thead> <tbody> <tr> <td>Asako Matsumoto</td> <td>Chiba Institute of Technology</td> <td>amatsu@gorgonian.jp</td> </tr> <tr> <td>Ashley Perez</td> <td>Tenenbaum Puerto Rico Trench Expedition Team</td> <td>ashley.perez@bahiapr.com</td> </tr> <tr> <td>Christopher Mah</td> <td>National Museum of Natural History</td> <td>brisinga@gmail.com</td> </tr> <tr> <td>Daniel Wagner</td> <td>NOAA/OER</td> <td>daniel.wagner@noaa.gov</td> </tr> <tr> <td>Debi Blaney</td> <td>NOAA/OER</td> <td>debi.blaney@noaa.gov</td> </tr> <tr> <td>Frank Tamara</td> <td>Nova Southeastern University</td> <td>tfrank1@nova.edu</td> </tr> <tr> <td>Graciela Garcia-Moliner</td> <td>Caribbean Fishery Management Council</td> <td>graciela_cfmc@yahoo.com</td> </tr> <tr> <td>Íris Costa</td> <td>Senckenberg am Meer, Germany</td> <td>irisfs@gmail.com</td> </tr> <tr> <td>Kenneth Sulak</td> <td>US Geological Survey</td> <td>jumpingsturgeon@yahoo.com</td> </tr> <tr> <td>Lauren Walling</td> <td>University of Louisiana at Lafayette</td> <td>lauren.walling1@louisiana.edu</td> </tr> <tr> <td>Marcela Cañon</td> <td>Interamerican University</td> <td>marcela.canon@bahiapr.com</td> </tr> <tr> <td>Mashkoor Malik</td> <td>NOAA/OER</td> <td>mashkoor.malik@noaa.gov</td> </tr> <tr> <td>Megan Cromwell</td> <td>NOAA/NCEI</td> <td>megan.cromwell@noaa.gov</td> </tr> <tr> <td>Megan McCuller</td> <td>North Carolina Museum of Natural Sciences</td> <td>megan.mcculler@naturalsciences.org</td> </tr> <tr> <td>Michelle Schärer</td> <td>HJR Reefscaping</td> <td>michelle.scharer@upr.edu</td> </tr> <tr> <td>Ricardo Lugo</td> <td>Boqueron Fishermen Association</td> <td>ricardo.juan.lugo@gmail.com</td> </tr> <tr> <td>Robert Stern</td> <td>University of Texas at Dallas</td> <td>rjstern@utdallas.edu</td> </tr> <tr> <td>Scott France</td> <td>University of Louisiana at Lafayette</td> <td>france@louisiana.edu</td> </tr> <tr> <td>Stacey Williams</td> <td>Institute for Socio-Ecological Research</td> <td>stcmwilliams@gmail.com</td> </tr> <tr> <td>Steven Auscavitch</td> <td>Temple University</td> <td>steven.auscavitch@temple.edu</td> </tr> <tr> <td>Tara Harmer Luke</td> <td>Stockton University</td> <td>luket@stockton.edu</td> </tr> <tr> <td>Zach Proux</td> <td>NOAA/CSS</td> <td>prouxzs@g.cofc.edu</td> </tr> </tbody> </table>			Name	Affiliation	Email	Asako Matsumoto	Chiba Institute of Technology	amatsu@gorgonian.jp	Ashley Perez	Tenenbaum Puerto Rico Trench Expedition Team	ashley.perez@bahiapr.com	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	Frank Tamara	Nova Southeastern University	tfrank1@nova.edu	Graciela Garcia-Moliner	Caribbean Fishery Management Council	graciela_cfmc@yahoo.com	Íris Costa	Senckenberg am Meer, Germany	irisfs@gmail.com	Kenneth Sulak	US Geological Survey	jumpingsturgeon@yahoo.com	Lauren Walling	University of Louisiana at Lafayette	lauren.walling1@louisiana.edu	Marcela Cañon	Interamerican University	marcela.canon@bahiapr.com	Mashkoor Malik	NOAA/OER	mashkoor.malik@noaa.gov	Megan Cromwell	NOAA/NCEI	megan.cromwell@noaa.gov	Megan McCuller	North Carolina Museum of Natural Sciences	megan.mcculler@naturalsciences.org	Michelle Schärer	HJR Reefscaping	michelle.scharer@upr.edu	Ricardo Lugo	Boqueron Fishermen Association	ricardo.juan.lugo@gmail.com	Robert Stern	University of Texas at Dallas	rjstern@utdallas.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	Zach Proux	NOAA/CSS	prouxzs@g.cofc.edu
Name	Affiliation	Email																																																																						
Asako Matsumoto	Chiba Institute of Technology	amatsu@gorgonian.jp																																																																						
Ashley Perez	Tenenbaum Puerto Rico Trench Expedition Team	ashley.perez@bahiapr.com																																																																						
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																																																																						
Frank Tamara	Nova Southeastern University	tfrank1@nova.edu																																																																						
Graciela Garcia-Moliner	Caribbean Fishery Management Council	graciela_cfmc@yahoo.com																																																																						
Íris Costa	Senckenberg am Meer, Germany	irisfs@gmail.com																																																																						
Kenneth Sulak	US Geological Survey	jumpingsturgeon@yahoo.com																																																																						
Lauren Walling	University of Louisiana at Lafayette	lauren.walling1@louisiana.edu																																																																						
Marcela Cañon	Interamerican University	marcela.canon@bahiapr.com																																																																						
Mashkoor Malik	NOAA/OER	mashkoor.malik@noaa.gov																																																																						
Megan Cromwell	NOAA/NCEI	megan.cromwell@noaa.gov																																																																						
Megan McCuller	North Carolina Museum of Natural Sciences	megan.mcculler@naturalsciences.org																																																																						
Michelle Schärer	HJR Reefscaping	michelle.scharer@upr.edu																																																																						
Ricardo Lugo	Boqueron Fishermen Association	ricardo.juan.lugo@gmail.com																																																																						
Robert Stern	University of Texas at Dallas	rjstern@utdallas.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																																																																						
Zach Proux	NOAA/CSS	prouxzs@g.cofc.edu																																																																						

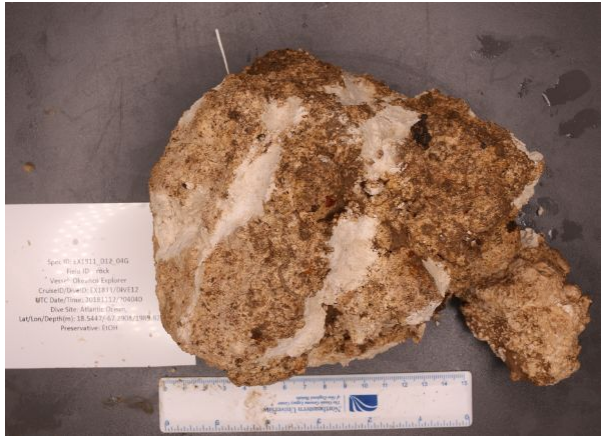


Dive Purpose	The purpose of the dive was to characterize deep-sea coral and sponge communities in an unexplored steep ridge feature located on the eastern side of the Mona Canyon, off the northwestern shore of Puerto Rico. The dive also sought to identify the occurrences of deepwater demersal fish species, as well as their habitat preferences along the dive track.
Dive Description	<p>The dive started in a soft sediment habitat. The current at this site was strong and heading from south to north. There were even ripples in the sand. The substrate changed to more jagged rocky outcrops, which were not coated with iron manganese. The most common and abundant fish at this site was the cusk eel <i>Barathrodenus manatinus</i>. Two other of fish species were halosaurs and <i>Ipnotops murrayi</i>, however, fish were very sparse throughout the dive. Halosaurs and <i>Ipnotops murrayi</i> were located in the shallower parts of the dive. Rock that was sampled at the end of the dive appeared to be more of a conglomeration of soft carbonate sediments and sand, rather than hard consolidated carbonates down below.</p> <p>Sponge diversity was low and glass sponges contributed the most to the overall sponge composition. At the beginning of the dive we observed <i>Poliopogon</i> sp., which was also sighted on a previous dive. Also observed were a <i>Euplectella</i> sp., <i>Farrea</i> sp., and stalked glass sponge. There were some small encrusting demosponges on the manganese-covered rock faces. Carnivorous sponges were also observed at this site, but they were not as common.</p> <p>Deep-sea corals were not well represented at this site with only two species present, one Isidid and one primnoid. The deepest coral was the Isidid (possibly J-clade, internodal-branching) species reminiscent of one collected previously at Jaguey Spur. The other coral, the primnoid <i>Candidella imbricata</i>, was found throughout the dive, but much larger colonies (&gt;20 cm) were found deeper along the dive track. All deep-sea corals were exclusively found with bases attached to rock encrusted with FeMn coating.</p> <p>Echinoderms again were the most abundant and common organism at this site, with sea cucumbers and brittle stars being the most abundant taxa. The majority of the time the brittle stars were out in the open and not hiding under rocks. We saw about five species of sea cucumbers across all explored depths. Three species of sea stars were noted, a slime star, <i>Zoraster fulgens</i>, and brisingid stars, the latter of which were very common throughout the dive. We saw two species of sea urchins, a small <i>Phormosoma</i> sp. and possibly a Diadematiid urchin. There were small five-arm crinoids and we also saw a couple of 10-arm unstalked crinoids.</p>
Notable Observations	We observed peculiar molluscs that looked like a snail at the beginning of the dive in the soft sediment. The foot was extended and had a small white shell. We observed numerous different shrimp throughout the dive, the most common of which were the swimming shrimps in the family Aristeidae. Some trash was also observed on the seafloor near the ROV landing site. Trash consisted of plastic and a glass bottle.
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

Overall Map of the ROV Dive Area	Close-up Map of Main Dive Site
	
Representative Photos of the Dive	
	
<p>Upon reaching the seafloor rocks were observed to be highly fractured forming extensive talus fields. Rocks were often friable and the first few sampling attempts resulted in consolidated mud “rocks” that fell apart. Holothurians and other soft-sediment echinoderms dominated the benthic communities in these environments.</p>	<p>Bright white colored carbonate faces stood in contrast to FeMn-coated rock faces which may indicate recent rock failures. Biology was only found on FeMn crusts.</p>
	
<p>Larger attached megafauna, like this bamboo coral were only observed on FeMn coated rock surfaces and never on white to tan colored carbonate surfaces.</p>	<p>Small pinnacle features dominated the last few meters of bottom distance with occasional attached fauna consisting of <i>Crypthelia</i> sp. hydrocorals and sea stars in the family Brisingidae.</p>

## Samples Collected

Sample ID	EX1811_D12_01G	
Date (UTC)	20181112	
Time (UTC)	163945	
Depth (m)	2348.072	
Temp. (°C)	3.046	
Field ID(s)	Rock	
Commensals	No commensals	
Comments		
Sample ID	EX1811_D12_02B	
Date (UTC)	20181112	
Time (UTC)	173430	
Depth (m)	2264.843	
Temp. (°C)	3.204	
Field ID(s)	<i>Candidella</i> sp.	
Commensals	No commensals	
Comments		
Sample ID	EX1811_D12_03B	
Date (UTC)	20181112	
Time (UTC)	174708	
Depth (m)	2262.614	
Temp. (°C)	3.258	
Field ID(s)	Branching Bryozoan	
Commensals	No commensals	
Comments		

Sample Information								
Sample ID	EX1811_D12_04G							
Date (UTC)	20181112							
Time (UTC)	204040							
Depth (m)	1989.822							
Temp. (°C)	3.621							
Field ID(s)	Rock							
Commensals	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 30%;">Commensal Sample ID</th> <th style="width: 50%;">Field Identification</th> <th style="width: 20%;">Count</th> </tr> </thead> <tbody> <tr> <td>EX1811_D12_04G_A01</td> <td>Polychaeta</td> <td style="text-align: center;">1</td> </tr> </tbody> </table>		Commensal Sample ID	Field Identification	Count	EX1811_D12_04G_A01	Polychaeta	1
	Commensal Sample ID	Field Identification	Count					
EX1811_D12_04G_A01	Polychaeta	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

