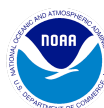


Okeanos Explorer ROV Dive Summary

Dive Information	
General Location Map	
General Area Descriptor	U.S. Caribbean Sea
Site Name	Mona Island Escarpment
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	DIVE13
Equipment Deployed	
ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>

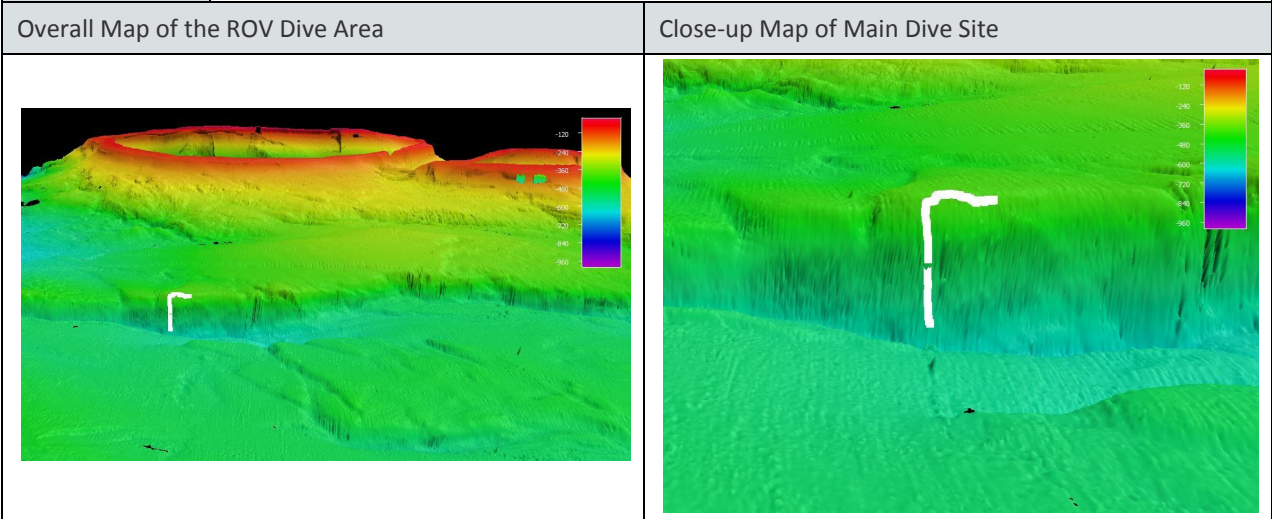
ROV Measurements	✓ CTD	✓ Depth	✓ Altitude																																																																					
	✓ Scanning Sonar	✓ USBL Position	✓ Heading																																																																					
	✓ Pitch	✓ Roll	✓ HD Camera 1																																																																					
	✓ 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:	2018-11-13T12:30:00.602661 18°, 12.5' N ; 67°, 48.19' W																																																																						
	On Bottom:	2018-11-13T13:13:08.507289 18°, 12.531' N ; 67°, 48.096' W																																																																						
	Off Bottom:	2018-11-13T20:08:17.027967 18°, 12.457' N ; 67°, 48.325' W																																																																						
	Out Water:	2018-11-13T20:32:09.392948 18°, 12.572' N ; 67°, 48.157' W																																																																						
	Dive duration:	8:2:8																																																																						
	Bottom Time:	6:55:8																																																																						
	Max. depth:	566.0 m																																																																						
Special Notes	The CTD sensor values from <i>D2</i> , which showed erroneous readings on the last two dives, produced good data throughout the dive. As a precaution, the data team swapped the CTD values in the science chatroom from <i>D2</i> to <i>Seirios</i> prior to the dive.																																																																							
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>Cheryl Morrison</td> <td>U.S. Geological Survey</td> <td>cmorrison@usgs.gov</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>Graciela Garcia-Moliner</td> <td>Caribbean Fishery Management Council</td> <td>graciela_cfm@yahoo.com</td> </tr> <tr> <td>Íris Costa</td> <td>Senckenberg am Meer, Germany</td> <td>irisfs@gmail.com</td> </tr> <tr> <td>Jason Chaytor</td> <td>US Geological Survey</td> <td>jchaytor@usgs.gov</td> </tr> <tr> <td>Jaymes Awbrey</td> <td>University of Louisiana at Lafayette</td> <td>jawbrey@louisiana.edu</td> </tr> <tr> <td>Kate Overly</td> <td>NOAA/NMFS</td> <td>katherine.overly@noaa.gov</td> </tr> <tr> <td>Kenneth Sulak</td> <td>US Geological Survey</td> <td>jumpingsturgeon@yahoo.com</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>Rachel Bassett</td> <td>NOAA/NCCOS</td> <td>rachel.bassett@noaa.gov</td> </tr> <tr> <td>Ricardo Lugo</td> <td>Boqueron Fishermen Association</td> <td>ricardo.juan.lugo@gmail.com</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> </tbody> </table>			Name	Affiliation	Email	Asako Matsumoto	Chiba Institute of Technology	amatsu@gorgonian.jp	Cheryl Morrison	U.S. Geological Survey	cmorrison@usgs.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	Graciela Garcia-Moliner	Caribbean Fishery Management Council	graciela_cfm@yahoo.com	Íris Costa	Senckenberg am Meer, Germany	irisfs@gmail.com	Jason Chaytor	US Geological Survey	jchaytor@usgs.gov	Jaymes Awbrey	University of Louisiana at Lafayette	jawbrey@louisiana.edu	Kate Overly	NOAA/NMFS	katherine.overly@noaa.gov	Kenneth Sulak	US Geological Survey	jumpingsturgeon@yahoo.com	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	Rachel Bassett	NOAA/NCCOS	rachel.bassett@noaa.gov	Ricardo Lugo	Boqueron Fishermen Association	ricardo.juan.lugo@gmail.com	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
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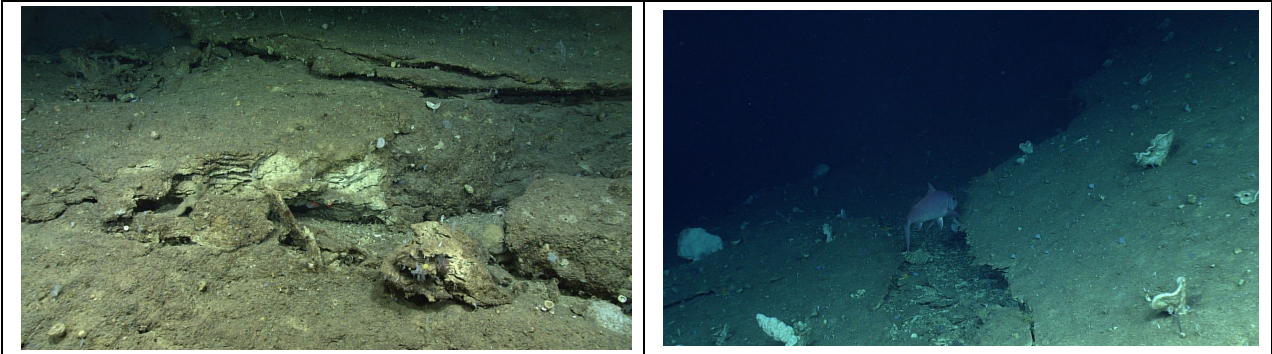
Dive Purpose	<p>This dive targeted potential habitats of commercially valuable deepwater fishes, including snappers and groupers. The depth profile and topography both fell in the habitat preferences of the commercially important deepwater fishes as reported by the local fishing community in the region. The dive also sought to characterize the habitats of deep-sea corals, sponges and other demersal fish communities.</p>
Dive Description	<p>This dive started at a depth of 550 m and reached as shallow as 399 m to explore deepwater fish and coral communities in the Mona Passage. The substrate consisted of broken off carbonate veneers on a rather steep slope. These veneers created relief and small crevices for many organisms to hide in. The substrate turned to a smoother carbonate pavement when we reached close to the plateau at the top of the escarpment.</p> <p>Fish diversity was relatively low compared to that of the attached and encrusting benthic megafauna. In total, we observed seven species of fish. The most common fish was the orange roughy (<i>Gephyroberyx</i> sp.). We saw three queen snapper (<i>Etelis oculatus</i>), at 454 m, 419 m and 409 m, respectively. They passed the camera and swam away quite fast. The other species noted were toadfish (<i>Chaunax</i> sp.), snake eels (<i>Aoterichtus distocopera</i>), shortnose greeneye (<i>Chlorophthalmus agassizi</i>), <i>Polylepion</i> sp. and Scorpanids. Roughys utilized the seafloor relief and topography as habitat and rarely strayed off the bottom. Also, some of the <i>Polylepion</i> sp. had 8 white stripes down their body and no dark blotch on the caudal fin. These color markings are different from what has been reported for this species in this region.</p> <p>This site was among the most diverse for deep-sea corals throughout the entire expedition. Black corals were the most diverse group with six species represented (<i>Leiopathes</i> cf. <i>glaberrima</i>, <i>Stylopathes</i> sp., <i>Stichopathes</i> spp. in both grey and orange morphotypes, <i>Antipathes atlantica</i>, and <i>Chrysopathes</i> sp.). This was followed by the Primnoidae with five species (<i>Callogorgia</i> spp.; possibly 2 different species, <i>Plumarella</i> sp., <i>Acanthoprímnoa</i> cf. <i>goesi</i>, <i>Narella</i> cf. <i>bellissima</i>) that were regularly observed throughout the dive. <i>Callogorgia</i> spp. were most common on the steeper, current swept slope than on top of the ridge crest. One <i>Chrysogorgia</i> sp. was observed. Toward the end of the dive we encountered thin Ellisellid whip corals with yellow polyps and white coenenchyma. Plexaurids and Acanthogorgiids dominated the coral fauna at the top of the ridge crest with one recurring deep purple <i>Paramuricea</i> sp. that was more common on vertical surfaces (one was collected) and <i>Acanthogorgia aspera</i> (collected and identified at the surface), which was more common on flat or gentle sloping surfaces. We also observed one colony of the structure-forming <i>Solenosmilia variabilis</i> on a steep overhang early in the dive, but only small cup corals thereafter. Stylasterids were represented by the three most common genera observed on this expedition at this depth, <i>Crypthelia</i> sp., <i>Stylaster</i> sp., and <i>Distichopora</i> sp. in orange coloration.</p> <p>Sponge diversity and abundance was impressive at this site, but sizes of individuals remained small. Demosponges contributed most to the overall sponge composition. There were a lot of unidentified blue, red and yellow encrusting sponges. The sponges increased in size toward shallower depths. The most common sponges were large lobate morphologies with white to cream coloration (possibly Pachastrellidae or Corallistidae). We also observed <i>Geodia</i> sp. and Haplosclerids (volcano-shaped sponges), and some suspected Euplectillids.</p> <p>Among the echinodermata, sea urchins, especially cidarids, were the most abundant. There were two species of cidarids, <i>Histocidarid</i> sp. and <i>Cidarid mirandus</i>. We witnessed <i>Histocidarid nuttingi</i> grazing on a black coral colony (<i>Chrysopathes</i> sp.). We also saw a couple of <i>Araeosoma</i> sp. urchins at shallower depths. Crinoids, both stalked and unstalked forms, were very abundant and at all depths on this dive. We also observed several <i>Holopus rangii</i> on vertical surfaces and overhangs. Most brittle stars were associated with octocorals and black corals. At least a couple of these brittle stars were euryalids, <i>Hemieuryale pustulata</i>. We did not observe any sea cucumbers at this site.</p>



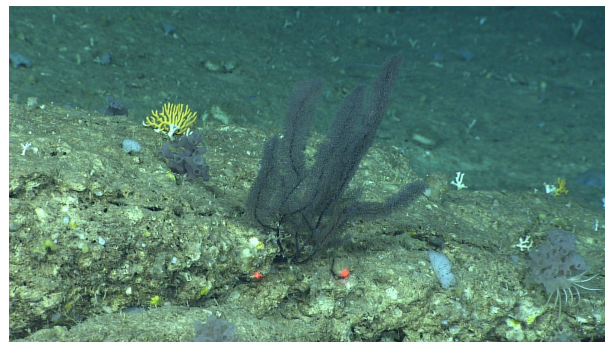
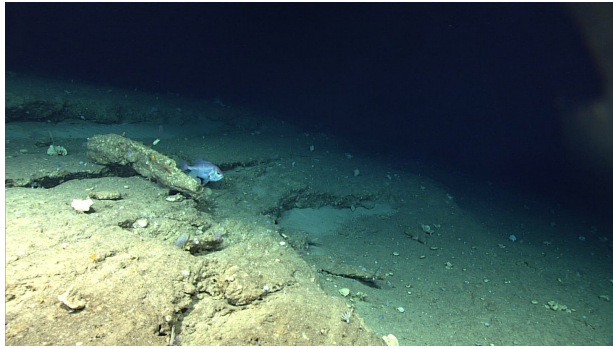
	Other invertebrate fauna were also locally abundant. We observed a lot of shrimp hiding in crevices or behind sponges. Some of these shrimp included <i>Heterocarpus ensifer</i> . These were noteworthy because they may be prey items of the queen snapper. We also saw a slitshell gastropod and a catshark egg case on an octocoral fan. Fishing line laid across the seafloor was common and we found a rebar and hooks that fishers use for weights on vertical long lines.
Notable Observations	Sea urchin predation on Antipatharians. High diversity of fishes and deep-sea corals.
Community Presence/Absence (community is defined as more than two species)	<input checked="" type="checkbox"/> Corals and Sponges <input type="checkbox"/> Chemosynthetic Community <input checked="" 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



Broken carbonate ledges and cobble to boulder-sized rock was the dominant substrate type along the sloped portion of this dive. Sponges were dominant in this terrain and attached to both horizontal and vertical surfaces.	A queen snapper was briefly imaged coming from upslope and was observed following a ledge away from ROV D2. Small fishes were observed under some of these overhangs.
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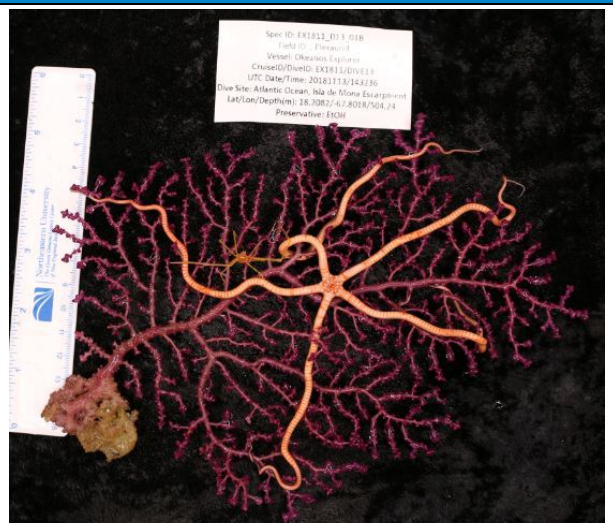


Relief at this site was created by stepwise outcrops and rock falls. Fishes (primarily roughy) were the primary inhabitants of rocky ledges and outcrops.

On the crest above the drop off, unbranched and branched black corals (*Chrysopathes* sp.) and stylasterids (*Distichopora* sp.) pictured here were among the dominant attached megafauna observed throughout this site. Black corals were also subject to grazing by cidarid urchins. Octocoral fans were more sparsely observed in this habitat.

Samples Collected

Sample ID	EX1811_D13_01B
Date (UTC)	20181113
Time (UTC)	143236
Depth (m)	504.236
Temp. (°C)	12.466
Field ID(s)	Plexaurid



Commensals	Commensal Sample ID	Field Identification	Count
	EX1811_D13_01B_A01	Brittle Star	1
EX1811_D13_01B_A02	Squat Lobster	1	

Comments



Sample ID	EX1811_D13_S02B		
Date (UTC)	20181113		
Time (UTC)	160020		
Depth (m)	427.2625		
Temp. (°C)	14.495		
Field ID(s)	Raspailiidae sponge		
Commensals	No commensals		
Comments			
Sample ID	EX1811_D13_03B		
Date (UTC)	20181113		
Time (UTC)	170547		
Depth (m)	411.554		
Temp. (°C)	14.064		
Field ID(s)	Octocoral (<i>Acanthogorgia aspera</i>)		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1811_D13_03B_A01	Brittle Star	1
	EX1811_D13_03B_A02	Shrimp	1
Comments			

Please direct inquiries to:

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