

## Okeanos Explorer ROV Dive Summary

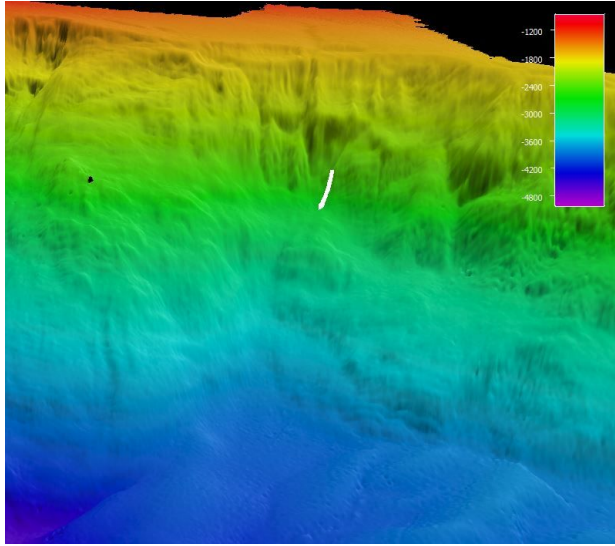
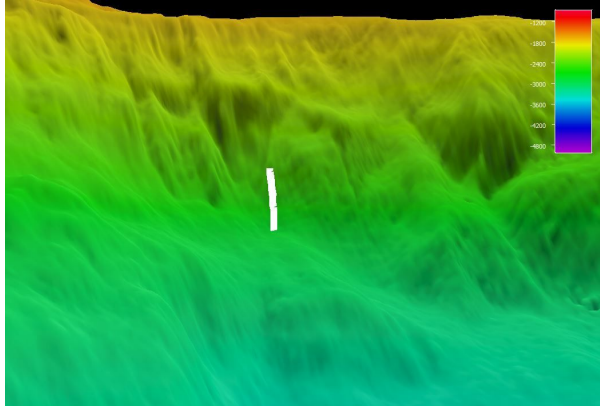
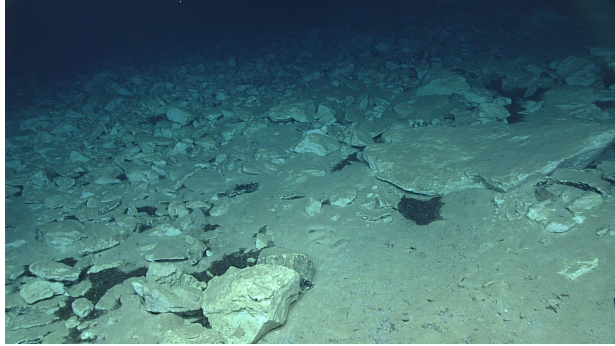
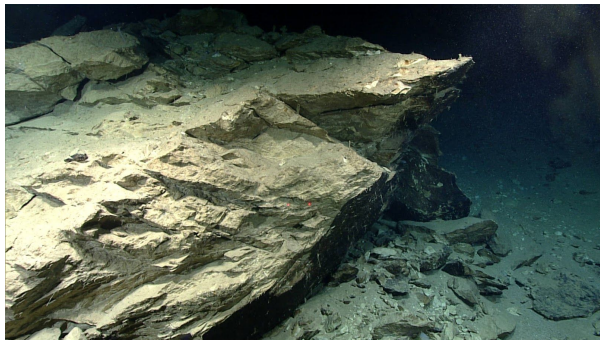
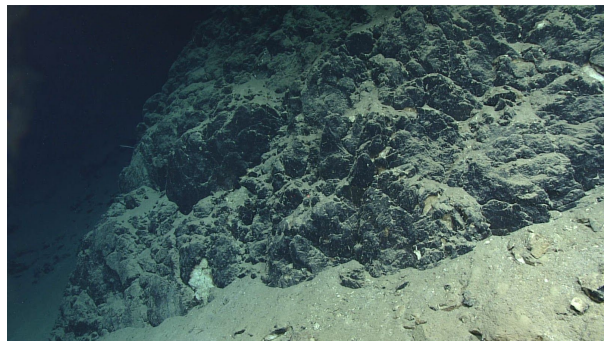
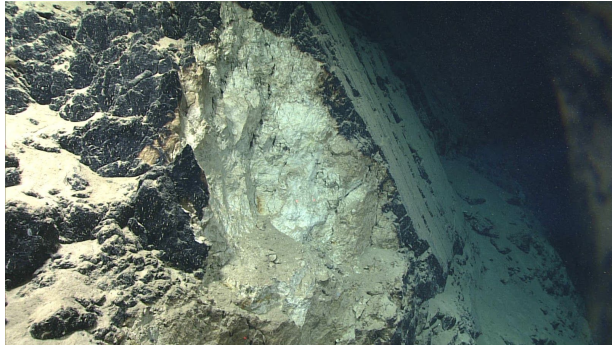
Dive Information	
General Location Map	
General Area Descriptor	U.S. Caribbean Sea
Site Name	Mona Canyon West Wall
Science Team Leads	Stacey Williams (ISER) Steven Auscavitch (Temple)
Expedition Coordinator	Daniel Wagner (NOAA-OER)
ROV Dive Supervisor	Chris Ritter (GFOE)
Mapping Lead	Derek Sowers (NOAA-OER)
<b>ROV Dive Name</b>	
Cruise	EX1811
Dive Number	DIVE10
<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 seafloor portion of the dive ended ~30 min earlier than initially planned due to an issue with the winch motor. Midwater transects were conducted thereafter.																																																																	
ROV Dive Summary Data (from processed ROV data)	<p>In Water: 2018-11-10T12:25:32.904509 18°, 44.945' N ; 67°, 35.461' W</p> <p>On Bottom: 2018-11-10T13:58:09.099646 18°, 45.074' N ; 67°, 35.218' W</p> <p>Off Bottom: 2018-11-10T17:34:52.671357 18°, 45.129' N ; 67°, 35.332' W</p> <p>Out Water: 2018-11-10T22:31:59.134203 18°, 45.176' N ; 67°, 35.268' W</p> <p>Dive duration: 10:6:26</p> <p>Bottom Time: 3:36:43</p> <p>Max. depth: 2766.0 m</p>																																																																	
Special Notes	N/A																																																																	
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>Allen Collins</td> <td>NOAA/NSL</td> <td>collinsa@si.edu</td> </tr> <tr> <td>Ashley Perez</td> <td>Tenenbaum Puerto Rico Trench Expedition Team</td> <td>ashley.perez@bahiapr.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>Dhugal Lindsay</td> <td>JAMSTEC</td> <td>dhugal@jamstec.go.jp</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>Marcela Cañon</td> <td>Interamerican University</td> <td>marcela.canon@bahiapr.com</td> </tr> <tr> <td>Mashkooor Malik</td> <td>NOAA/OER</td> <td>mashkooor.malik@noaa.gov</td> </tr> <tr> <td>Megan Cromwell</td> <td>NOAA/NCEI</td> <td>megan.cromwell@noaa.gov</td> </tr> <tr> <td>Mike Ford</td> <td>NOAA/NMFS</td> <td>michael.ford@noaa.gov</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>Tracey Sutton</td> <td>Nova Southeastern University</td> <td>tsutton1@nova.edu</td> </tr> <tr> <td>Upasana Ganguly</td> <td>University of Louisiana at Lafayette</td> <td>upasana.ganguly1@gmail.com</td> </tr> <tr> <td>Zach Proux</td> <td>NOAA/CSS</td> <td>prouxzs@g.cofc.edu</td> </tr> </tbody> </table>			Name	Affiliation	Email	Allen Collins	NOAA/NSL	collinsa@si.edu	Ashley Perez	Tenenbaum Puerto Rico Trench Expedition Team	ashley.perez@bahiapr.com	Daniel Wagner	NOAA/OER	daniel.wagner@noaa.gov	Debi Blaney	NOAA/OER	debi.blaney@noaa.gov	Dhugal Lindsay	JAMSTEC	dhugal@jamstec.go.jp	Jason Chaytor	US Geological Survey	jchaytor@usgs.gov	Jaymes Awbrey	University of Louisiana at Lafayette	jawbrey@louisiana.edu	Marcela Cañon	Interamerican University	marcela.canon@bahiapr.com	Mashkooor Malik	NOAA/OER	mashkooor.malik@noaa.gov	Megan Cromwell	NOAA/NCEI	megan.cromwell@noaa.gov	Mike Ford	NOAA/NMFS	michael.ford@noaa.gov	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	Tracey Sutton	Nova Southeastern University	tsutton1@nova.edu	Upasana Ganguly	University of Louisiana at Lafayette	upasana.ganguly1@gmail.com	Zach Proux	NOAA/CSS	prouxzs@g.cofc.edu
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Dive Purpose	This dive was an extended (10 h) dive consisting of two parts. The first part explored the geology of a landslide scarp at Mona Canyon at 2,500-2,800 m depths, which is believed to have caused the major tsunami of 1918. This part of the dive sought to add additional observations on the geology of Mona Canyon to those made during previous dives in the canyon off the E/V <i>Nautilus</i> in 2013 and NOAA Ship <i>Okeanos Explorer</i> in 2015. The second part included a series of midwater transects at depths between 2,000 m and 300 m in order to explore the pelagic fauna of the area.																																																																	



<p style="text-align: center;">Dive Description</p>	<p>The dive began at a flat landing site at a depth of 2,761 m. Immediately after landing on bottom, rocky carbonate talus material was observed extended in a dense field upslope toward the west. Material ranged in size from cobble to boulder. One angular rock, white to tan in coloration, was collected from this rockslide. Moving westward the slope gradually increased to slopes estimated to be 35-40 degrees in incline. Large blocky material was observed below an area suspected to be a large rock failure at 16:00 UTC. Fresh surfaces (within Fe-Mn crusts) were seen where rocks were suspected to have cracked and fell downslope. Several of these smaller failures were several meters in height. After 16:00 UTC, rock surfaces appeared to be dominated more by Fe-Mn crusts.</p> <p>Biology was remarkably sparse throughout the dive. A majority of the life at these depths and on this terrain was small and consisted of encrusting species. Only two coral colonies were observed during the entire time on the bottom, one <i>Umbrella</i> sp. sea pen and an unbranched bamboo coral with thick tissue, column-shaped polyps, and yellowish node coloration. Sponges were slightly more diverse with at least four morphotypes observed, one <i>Euplectella</i> sp. vase sponge, a stalked tulip-shaped sponge, at least two different morphologies of cladorhizids, and several encrusting sponges. Mobile benthic invertebrates generally were dominated by echinoderms including <i>Benthoodytes</i> sp. holothurians, <i>Hymenaster</i> sp. sea stars, and one 10-armed crinoid. Only three species of fish were observed, one large <i>Bathysaurus</i> sp. (1 m in length), an <i>Ipnops murrayi</i> tripod fish, and an ophidiiform.</p> <p>A winch failure contributed to our need to come off the bottom at 17:00 UTC to make necessary repairs. Repairs were completed by 17:34 UTC. Time was not available to reacquire bottom, and we therefore moved directly into the midwater portion of the dive after the winch issue was resolved.</p> <p>The midwater portion of the dive began at 17:59 UTC at 2,000 m depth, and ended at 21:13 UTC at a depth of 300 m. Midwater transects were conducted at 2,000 m, 900 m, 700 m, 500 m and 300 m. Each transect lasted 25 minutes followed by a brief ascent to the above-lying transect. Using EK60 data a deep scattering layer was found around 500 m depth. Fauna at each midwater transect consisted of midwater fishes, euphausiids, salps, medusae, ctenophores, larvaceans, and siphonophores.</p>
<p style="text-align: center;">Notable Observations</p>	<p>Large vertical rock surfaces and failures on the seafloor. Many groups of midwater planktonic animals were imaged.</p>
<p style="text-align: center;">Community Presence/ Absence (community is defined as more than two species)</p>	<ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Corals and Sponges</li> <li><input type="checkbox"/> Chemosynthetic Community</li> <li><input type="checkbox"/> High biodiversity Community</li> <li><input type="checkbox"/> Active Seep or Vent</li> <li><input type="checkbox"/> Extinct Seep or Vent</li> <li><input type="checkbox"/> Hydrates</li> </ul>



Overall Map of the ROV Dive Area	Close-up Map of Main Dive Site
	
Representative Photos of the Dive	
	
<p>Upon landing on the seafloor, we encountered an extensive field of light colored cobble and boulder carbonate talus material thought to have fallen from the slope above.</p>	<p>Closer to the vertical slope we encountered larger blocky material that assumed a two-tone coloration, part FeMn crusted and part newly exposed carbonate rock.</p>
	
<p>During the steepest portion of the dive a majority of the rock surface had a rough texture with FeMn crust. Most attached biology was found on this substrate type.</p>	<p>Occasional failures were observed in the slope which appeared to have a lighter coloration indicating more recent exposure to seawater. We attempted to sample a rock from these failures but were unsuccessful.</p>

Samples Collected	
Sample ID	EX1811_D10_S01G
Date (UTC)	20181110
Time (UTC)	141253
Depth (m)	2763.866
Temp. (°C)	2.855
Field ID(s)	Rock
Commensals	No commensals
Comments	



**Please direct inquiries to:**

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