



Okeanos Explorer ROV Dive Summary

Dive Information

<p>General Location Map</p>	
<p>General Area Descriptor</p>	<p>Blake Plateau, east of Millions Mounds area</p>
<p>Site Name</p>	<p>Stetson Mesa East</p>
<p>Science Team Leads</p>	<p>Kimberly Galvez, University of Miami, Rosenstiel School of Marine and Atmospheric Science Stephanie Farrington, Florida Atlantic University. Harbor Branch Oceanographic Institute</p>
<p>Expedition Coordinator</p>	<p>Michael P. White, NOAA OER</p>
<p>ROV Dive Supervisor</p>	<p>Christopher Ritter, Global Foundation for Ocean Exploration</p>
<p>Mapping Lead</p>	<p>Shannon Hoy, NOAA OER</p>

ROV Dive Name

<p>Cruise</p>	<p>2019 Southeast U.S. Deep-sea Exploration</p>
<p>Dive Number</p>	<p>Dive 02</p>

Equipment Deployed

<p>ROV</p>	<p><i>Deep Discoverer</i></p>		
<p>Camera Platform</p>	<p><i>Seirios</i></p>		
<p>ROV</p>	<p>✓CTD</p>	<p>✓Depth</p>	<p>✓Altitude</p>
	<p>✓Scanning Sonar</p>	<p>✓USBL Position</p>	<p>✓Heading</p>

Scientists Involved (provide name, affiliation, email)

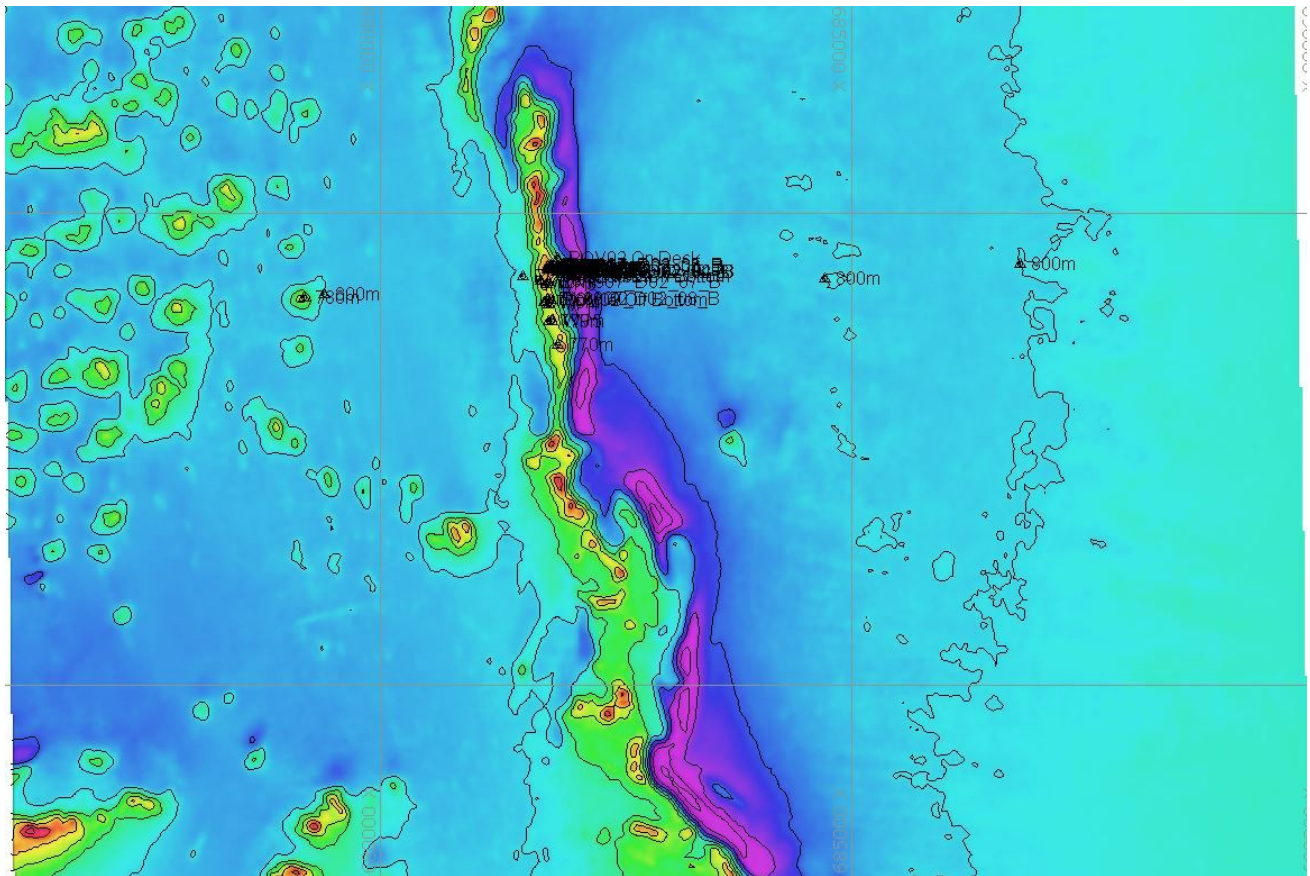
Name	Affiliation	Email
Kimberly Galvez	University of Miami, Rosenstiel School of Marine and Atmospheric Science	kgalvez@rsmas.miami.edu
Stephanie Farrington	Florida Atlantic University. Harbor Branch Oceanographic Institute	sfarrington@fau.edu
Madalyn Newman	NOAA National Centers for Environmental Information	Madalyn.Newman@noaa.gov
Shannon Hoy	NOAA Office of Ocean Exploration and Research	shannon.hoy@noaa.gov
Tara Luke	Stockton University, School of Natural Sciences and Mathematics	tara.luke@stockton.edu
Maria Cristina Diaz	Florida Atlantic University. Harbor Branch Oceanographic Institute	taxochica@gmail.com
Scott France	University of Louisiana at Lafayette Department of Biology	france@louisiana.edu
Charles Messing	Nova Southeastern University, Halmos College of Natural Sciences and Oceanography	messagingc@nova.edu
Asako Matsumoto	Chiba Institute of Technology	amatsu@gorgonian.jp
Kenneth Sulak	United States Geologic Survey	ksulak@usgs.gov
Amanda Demopoulos	United States Geologic Survey	ademopoulos@usgs.gov
Shirley Pomponi	Florida Atlantic University. Harbor Branch Oceanographic Institute	spomponi@fau.edu
John Reed	Florida Atlantic University. Harbor Branch Oceanographic Institute	jreed12@fau.edu

Dive Purpose	Dive location was a placeholder for EX1906 data. This ridge seems to mark the eastern extent of the Million Mounds area. Dive will help characterize EX1906 mapping data. Based on bathymetry data, this ridge seems to be topped with mound features. This area is part of a Habitat Area of Particular Concern (HAPC) and is a priority for regional managers. This dive is planned in an area that was recently mapped and contains interesting seafloor features that warrant further exploration and characterization.
Dive Description	<p>On the multibeam there is a series of large mounds in a North-South row.</p> <p>Landing base of mound 1 on the eastern side, the bottom is covered in <i>L. pertusa</i> rubble. As we travel up the eastern slope corals and associated inverts start to increase.</p> <p>Sediments are coarse-grained and highly associated with those of the previous dive composed of foraminifera, pteropod shells, and coral and other skeletal fragments. Coral rubble was abundantly coated with phosphorite crusts. Scaling upslope, we began to see more karstified features and carbonate slabs (also phosphorite encrusted) take precedence, where there started to be more corals and larger corals present. Some carbonate slabs appeared almost sheet-like draping over one another with pores the size of small caverns with various deep-sea critters (e.g. <i>Zenometra columnaris</i> (ECH), bamboo corals (abundant), stalked and comatulid crinoids, <i>Heterotella</i> (POR), <i>Oceanapia</i> (POR sample 1)) inhabiting them. It is likely these features are highly porous within and are highly permeable, with some containing sediments.</p> <p>Throughout the dive there were a few abundant species including many species of bamboo corals, <i>Leiopathes</i> (ASPIRE Target, small sample of large specimen- sample 2), <i>Heterotella</i> (wedding sponge), <i>Hyalonema</i> (POR), 2 specimen of <i>Bathypathes alternata</i> (Antipatharia-sample 2 -ASPIRE target), a few sharks were seen, 1 at the surface, 1 blotched catshark- <i>Scyliorhinus meadi</i>, 1 dogfish shark- Squalidae and 2 <i>Chimaera monstrosa</i>. There was a large diversity of macrosponges including <i>Geodia</i>/Petrosiidae, <i>Vazella pourtalesii</i> (ASPIRE Target, Sample 5). Large colonies of <i>Lophelia pertusa</i> were rare despite the large abundance of <i>L. pertusa</i> coral rubble covering most/all of the site.</p> <p><i>Endoxocrinus "minus"</i> (stalked crinoid) was spotted a few times. C. Messing (NSUOC) stated that the species was abundant south of us but there was no DNA sample, so we collected this sample (6) specifically for DNA and identification. The dive ended on a sighting of a sponge never before seen by either the Bio-Science Lead or Cris Diaz (HBOI-FAU). It was a brown sponge with very large spicules at the base. When it was recovered at the surface the entire sponge was penetrated with very fine spicules throughout (sample 8). After the dive, Cris Diaz suggested the specimen may be <i>Anoxycalyx (Scolymastra) joubini</i> which has only been found in the Antarctic.*</p> <p>*Systema Porifera: A Guide to the Classification of Sponges, Edited by John N.A. Hooper and Rob W.M. Van Soest © Kluwer Academic/Plenum Publishers, New York, 2002. pg 1457.</p>

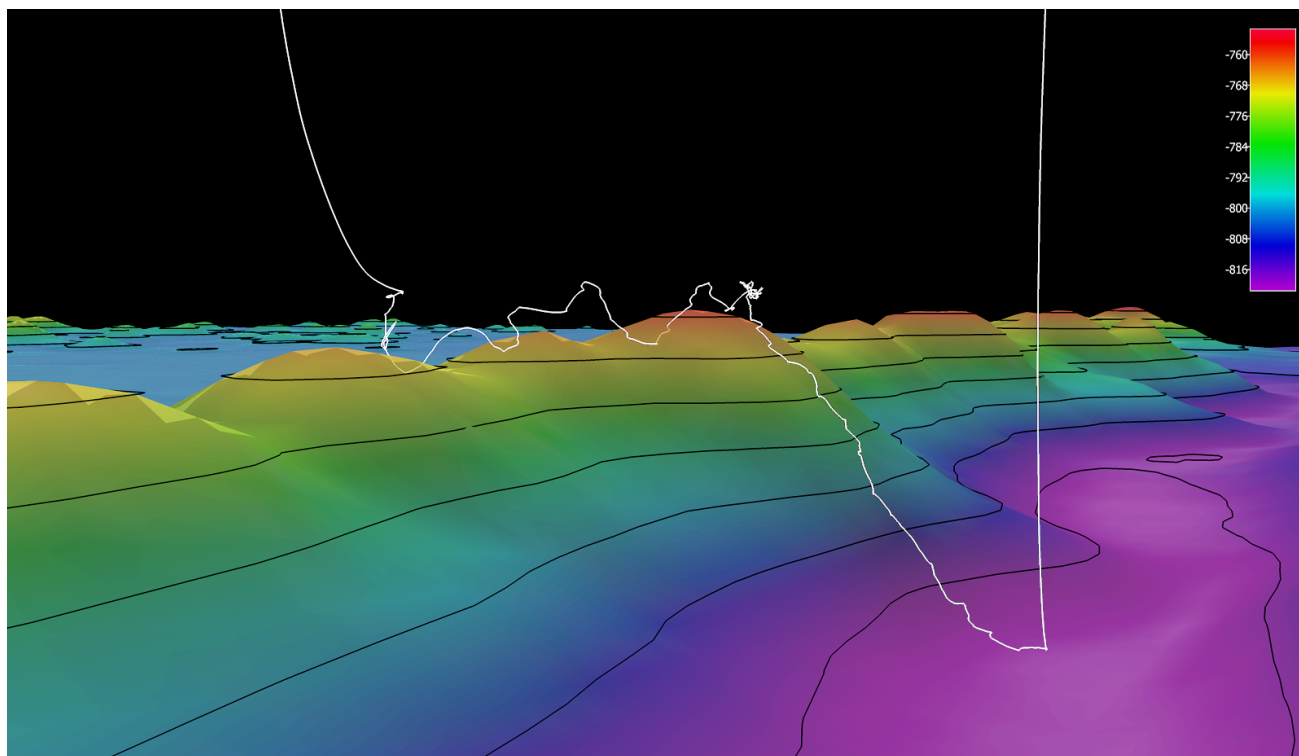


Notable Observations	
Community Presence/Absence (community is defined as more than two species)	<ul style="list-style-type: none"> X Corals and Sponges ✓ Chemosynthetic Community X High biodiversity Community ✓ Active Seep or Vent ✓ Extinct Seep or Vent ✓ Hydrates
CMECS Feature Type	Slope, ridges
SeaTube Link (science annotation system)	https://data.oceannetworks.ca/SeaTubeV2?resourceTypeId=1000&resourceId=23621&divId=1443

Overall Map of the ROV Dive Area



Close-up Map of Main Dive Site



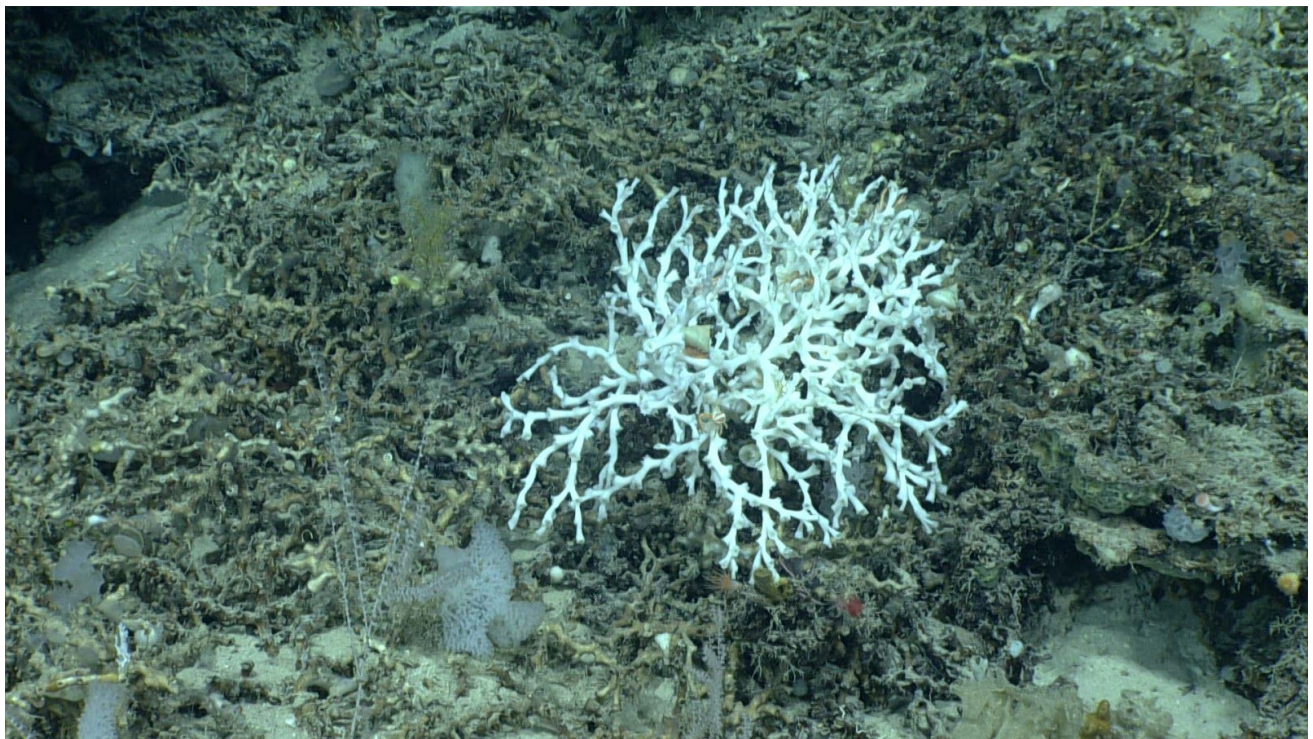
Smoothed ROV dice track in white on 25x25 cell size bathymetry, 3x vertical exaggeration, depth in meters, 10 meter contours



Representative Photos of the Dive

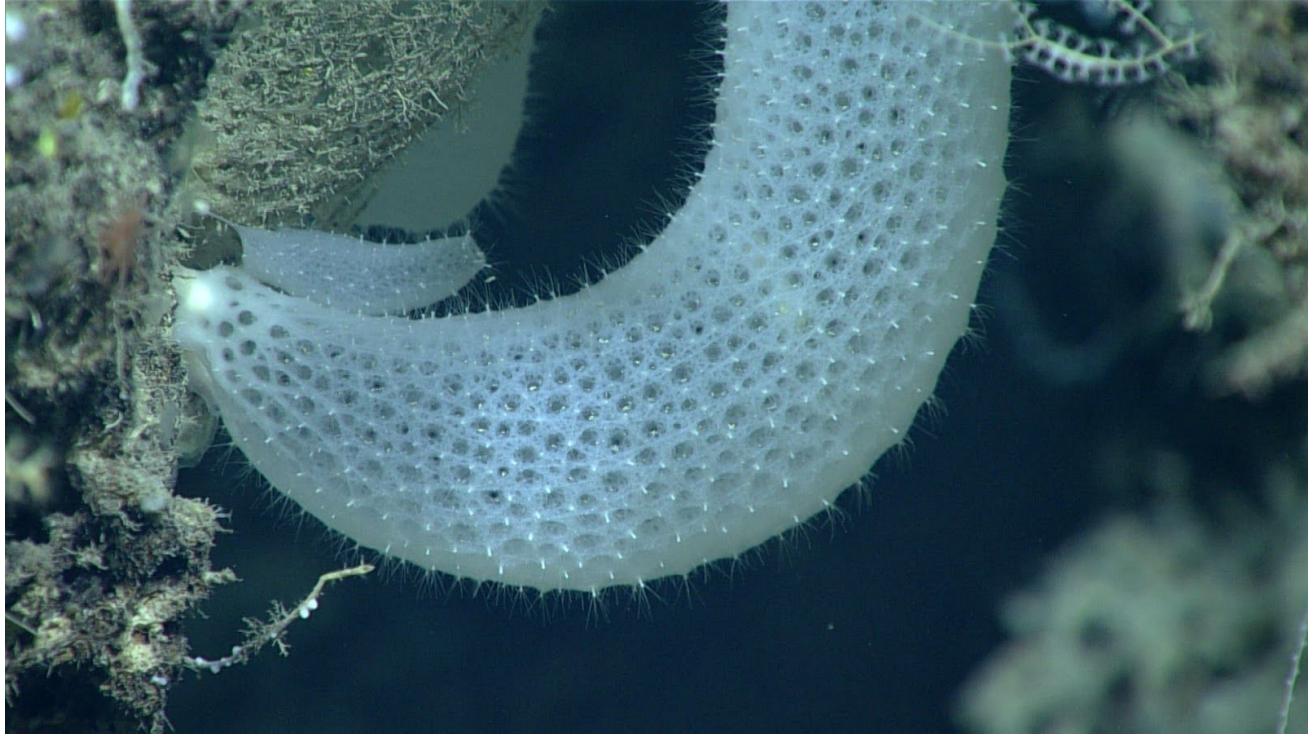


The top of the ledge was covered in *L. pertusa* coral rubble and large bamboo and *Leiopathes* corals.



Small colony of *Lophelia pertusa* surrounded by typical coral rubble bottom



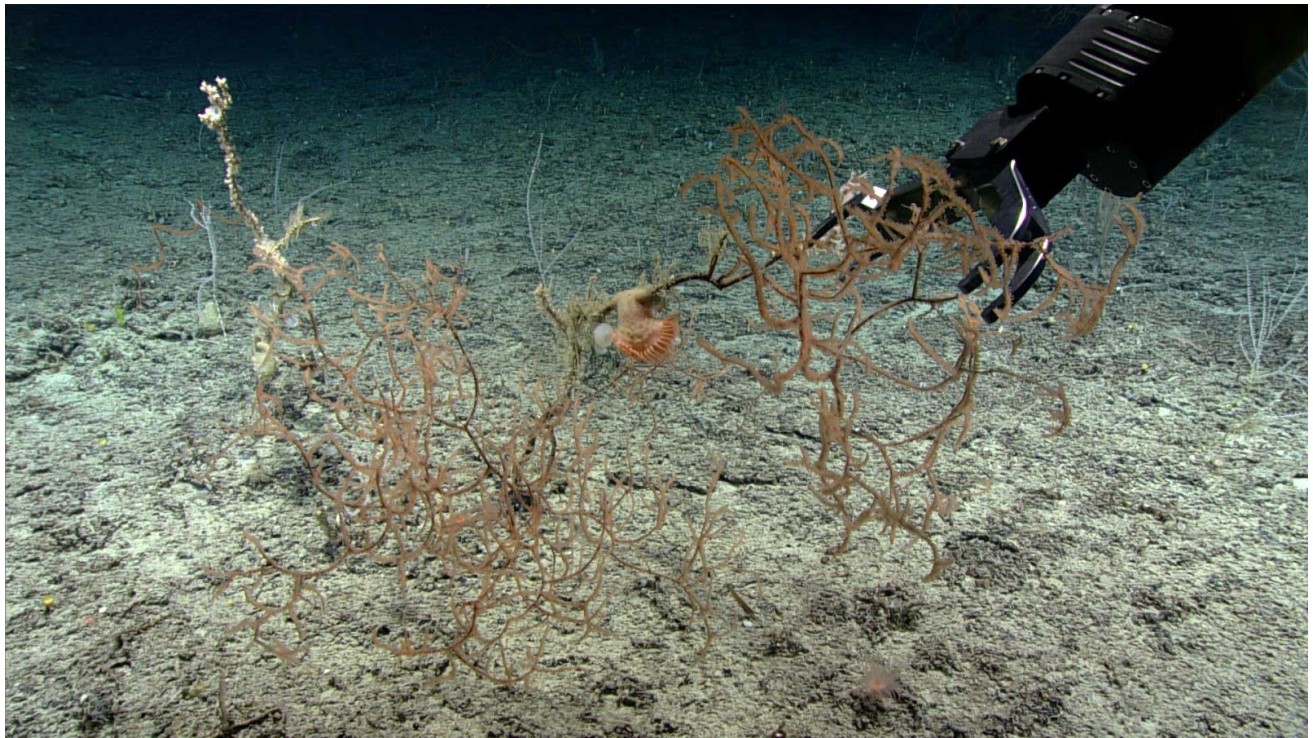


Heterotella sp. (Hexactinellid “wedding” or “Venus’ flower basket” sponge) with associated spongicolid shrimp in the tube.

Samples Collected -



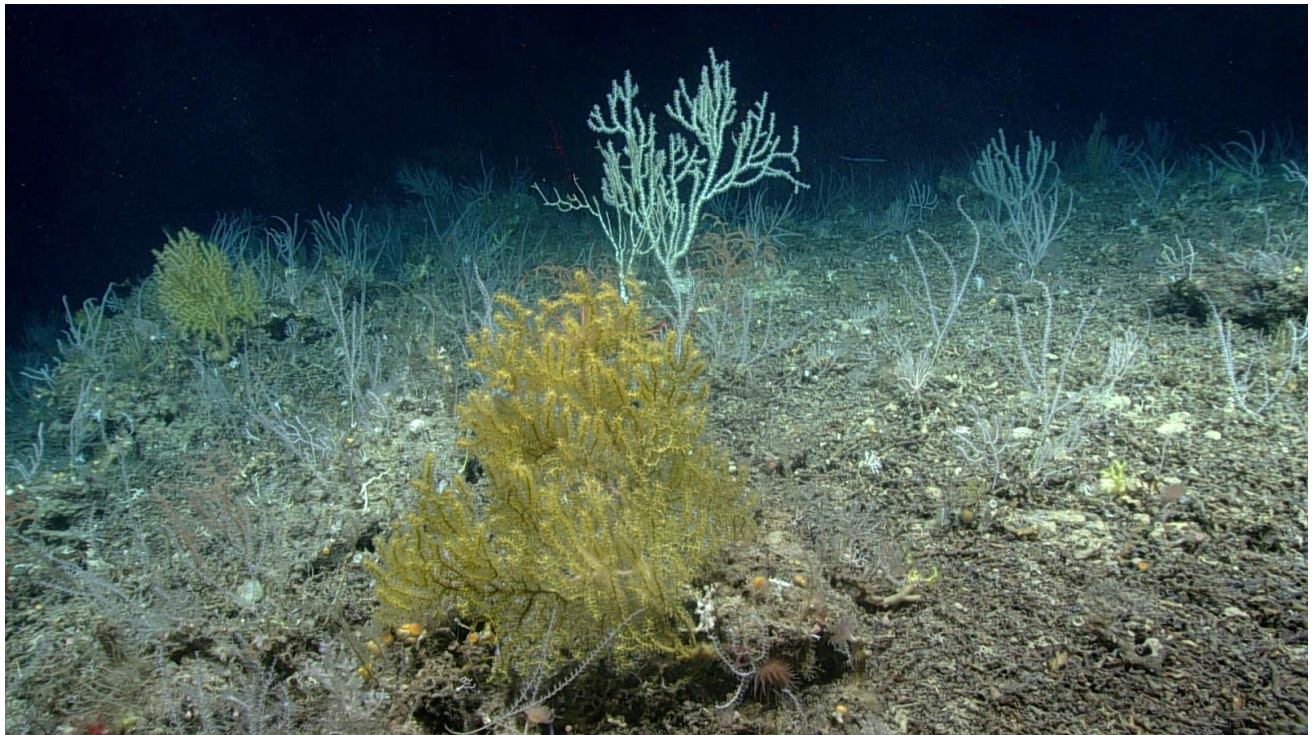
Sample ID	EX1907_D02_01B		
Date (UTC)	November 02, 2019		
Time (UTC)	14:26		
Depth (m)	800		
Temp. (°C)	8.2°C		
Field ID(s)	<i>Oceanapia</i> sp.		
Associates	Associates Sample ID	Field Identification	Count
	N/A		
Comments	2 large erect tubes from the top with bulbous finger like projections around the base. Possible New species.		



Sample ID	EX1907_D02_02B														
Date (UTC)	November 02, 2019														
Time (UTC)	14:49														
Depth (m)	790 m														
Temp. (°C)	8.2°C														
Field ID(s)	<i>Leiopathes</i> sp.														
Associates	<table border="1"> <thead> <tr> <th>Associates Sample ID</th> <th>Field Identification</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Associates Sample ID	Field Identification	Count	N/A								
	Associates Sample ID	Field Identification	Count												
	N/A														
Comments	ASPIRE Collection 60-70 cm wide, sparsely branched. Orange polyps, black stalk.														



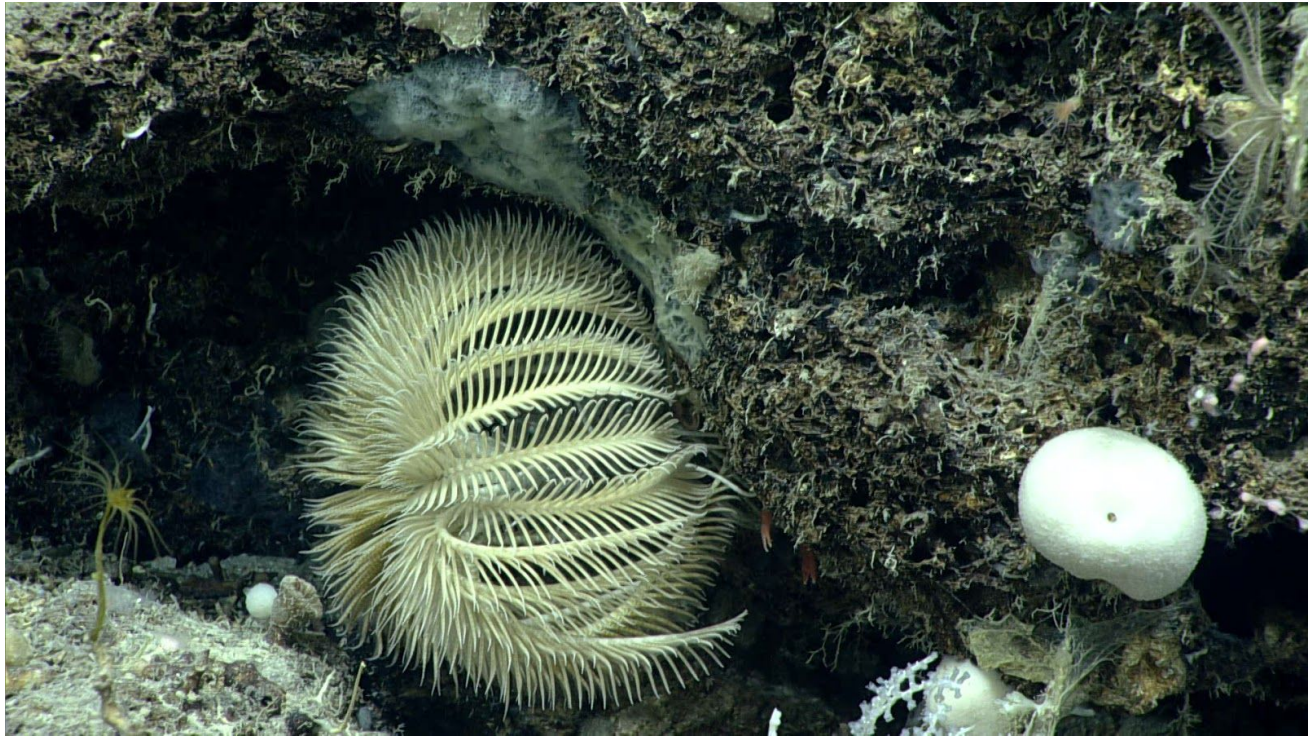
Sample ID	EX1907_D02_03B		
Date (UTC)	November 02, 2019		
Time (UTC)	15:41		
Depth (m)	769 m		
Temp. (°C)	8.2°C		
Field ID(s)	<i>Bathypathes alternata</i>		
Associates	Associates Sample ID	Field Identification	Count
	N/A		
Comments	ASPIRE Collection branches grows alternates across the axis, 20-30 cm wide, red polyps		



Sample ID	EX1907_D02_04B											
Date (UTC)	November 02, 2019											
Time (UTC)	16:49											
Depth (m)	749 m											
Temp. (°C)	8.2°C											
Field ID(s)	Plexauridae											
Associates	<table border="1"> <thead> <tr> <th>Associates Sample ID</th> <th>Field Identification</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Associates Sample ID	Field Identification	Count	N/A					
	Associates Sample ID	Field Identification	Count									
	N/A											
Comments	50 cm wide, planar, erect branching, yellow polyps, Small piece for DNA Unknown Species - common in this area,											



Sample ID	EX1907_D02_05B														
Date (UTC)	November 02, 2019														
Time (UTC)	18:11														
Depth (m)	753 m														
Temp. (°C)	8.2°C														
Field ID(s)	<i>Vazella pourtalesii</i>														
Associates	<table border="1"> <thead> <tr> <th>Associates Sample ID</th> <th>Field Identification</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>N/A</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Associates Sample ID	Field Identification	Count	N/A								
	Associates Sample ID	Field Identification	Count												
	N/A														
Comments	10 -15 cm wide white porous, with spicules. ASPIRE Target, DNA Sample needed Suction Jar 2														



Sample ID	EX1907_D02_06B		
Date (UTC)	November 02, 2019		
Time (UTC)	18:24		
Depth (m)	751 m		
Temp. (°C)	8.2°C		
Field ID(s)	<i>Endoxocrinus "minimus"</i>		
Associates	Associates Sample ID	Field Identification	Count
	EX1907_D02_06B_A01	Coral rubble	N/A
	EX1907_D02_06B_A02	Hydrozoa	1
Comments	5 cm white >10 arms DNA Sample needed undescribed species C. Messing (NSUOC): "We've called it <i>E. "minimus"</i> . Abundant on the lithohermes to the south, but no specimens for DNA."		



Sample ID	EX1907_D02_07B (or G?)		
Date (UTC)	November 02, 2019		
Time (UTC)	20:00		
Depth (m)	752 m		
Temp. (°C)	8.2°C		
Field ID(s)	<i>Unknown</i>		
Associates	Associates Sample ID	Field Identification	Count
	N/A		
Comments	brown and yellow, crumbling, DNA, Rock? or dead sponge? Lost sample in transit to surface.		





Sample ID	EX1907_D02_08B		
Date (UTC)	November 02, 2019		
Time (UTC)	21:08		
Depth (m)	764m		
Temp. (°C)	8.2°C		
Field ID(s)	<i>Hexactinellida</i> - Possibly <i>Anoxycalyx (Scolymastra) joubini</i> as suggested by MC. Diaz after the dive		
Associates	Associates Sample ID	Field Identification	Count
	EX1907_D02_08B_A01	Coral rubble	N/A
Comments	<p>New Species? If confirmed as <i>Anoxycalyx (Scolymastra) joubini</i> then it will be a species expansion, currently this species is only found around the Antarctic*.</p> <p>Brown Bulbous Sponge with a ring of large spicules at the base. DNA and Type Specimen?</p> <p>*Systema Porifera: A Guide to the Classification of Sponges, Edited by John N.A. Hooper and Rob W.M. Van Soest © Kluwer Academic/Plenum Publishers, New York, 2002. pg 1457.</p>		

Please direct inquiries to:

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



**Ocean Exploration
and Research**