



Okeanos Explorer ROV Dive Summary

Dive Information

<p>General Location Map</p>	
<p>General Area Descriptor</p>	<p>U.S. Southeast, Northern Blake Plateau</p>
<p>Site Name</p>	<p>Habitat Response 01</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 07</p>

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)	<p>In Water: 2019-11-07T13:33:22.455507 31°, 0.96' N ; 78°, 23.3' W</p> <p>On Bottom: 2019-11-07T14:20:52.609495 31°, 1.007' N ; 78°, 23.203' W</p> <p>Off Bottom: 2019-11-07T21:02:15.576094 31°, 1.515' N ; 78°, 23.155' W</p> <p>Out Water: 2019-11-07T21:39:30.622045 31°, 1.766' N ; 78°, 22.86' W</p> <p>Dive duration: 8:6:8</p> <p>Bottom Time: 6:41:22</p> <p>Max. depth: 807.0 m</p>		
Special Notes			



Scientists Involved (provide name, affiliation, email)

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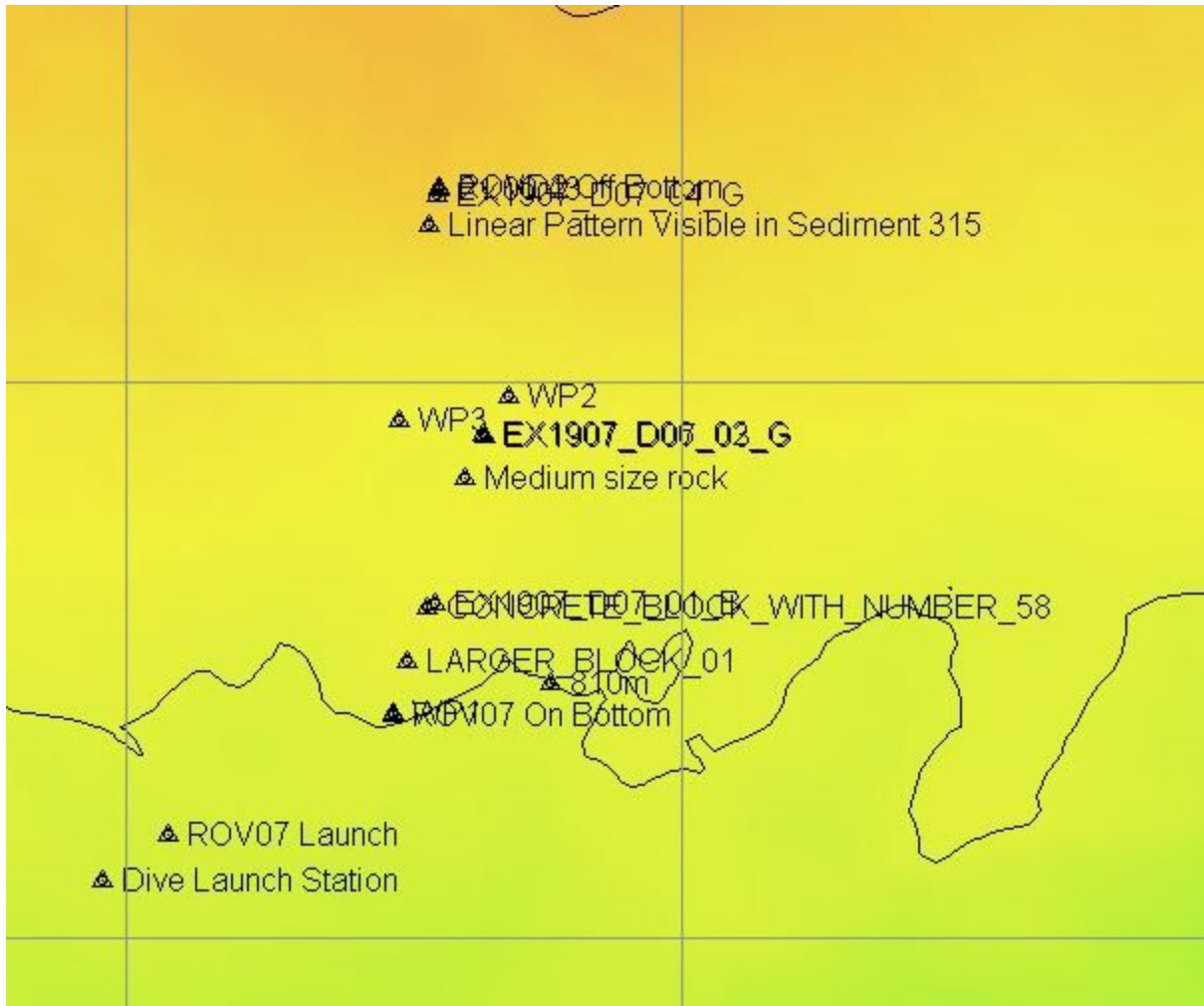
Dive Purpose	The purpose of this mission is to revisit a site that was historically subject to experimental deep sea mining to search for any signs of disturbance that can still be observed long after those activities occurred. We are hoping to gain insight into what impacts can be expected should future mining activities happen at other locations. Dives 7 and 8 are regional priorities for USGS and BOEM. Main objective is to acquire modern data over an area that has historically been subject to bottom disturbances
Dive Description	<p>Target: 810 m to 800 m deep, in the 1970s this was a test of the feasibility of some deep-sea mining techniques. In the 1980s: evaluated any environmental issues that may have occurred and added 100 concrete blocks to define markers at the region. The transect plotted out the previous dredge track and cross into where some mining occurred. This dive was more to observe the environmental response to disturbances over time. This data will be used with the archive data as a control for comparison by land-side scientists.</p> <p>Some of the target questions to answer on this dive: what species are here making use as habitat? What is here that may need to go into an environmental impact statement. What major elements and the coating on the rocks. - Jason Chaytor (USGS).</p> <p>The seafloor was covered in skeletal coarse carbonate sands (~250 µm) as we have seen in previous dives, except it is unlikely many coral fragments are among the sediments. On the sand, the seafloor was covered in unconsolidated Fe-Mn encrusted nodules ranging in sizes from 4-8 cm. During the dive, some areas showed the cobble-sized nodules in distinctive rows parallel to each other. Some sections contained exposed substrate with boulders of the Fe-Mn encrusted carbonate or phosphorite. Some areas appeared to have sediment drifts burying the exposed nodules with ripples showing current direction. There were 2 distinctive sites that appeared to have thick striations of cobbles and sands, as if something was dragged across the seafloor.</p> <p>The biota was sparse through the whole dive. Common species observed:</p> <p>Porifera: Pachastrella, Euplectellidae, oddly shaped euplectella, Lithistida (rock sponges: Leiodermatium and Coralostes type), Suberitida (golfball on a tee sponge or lollipop sponge), Pachastrellididae-Astrophorid, Haplosclerida (Potential for new species collected, EX1907_D07_01B) Hyalonema, volcano sponge: Petrosiidae (rare), <i>Oceanapea</i> tube, <i>Ferrea</i>, <i>Leiodermatium</i>.</p> <p>Cnidaria: Pink and yellow cup corals, hydroids, mephitidae, unbranched white octocoral c.f. <i>Eunicella</i>, Stylasters- common, jellyfish, <i>Chrisogorgia</i>, small cup corals (two closely related species were observed), <i>Bathypsammia</i> and <i>Thecopsammia</i>, primnoids, and corallimorphs.</p> <p>Echinodermata: Stalked and comatulid crinoids, <i>Ariosoma</i>- common, long white legged brittle star, <i>Stylocidaris</i>, tiny white star- 6 legs, 5 armed star, pudgy 5 leg star, goniaster, small gastropods.</p> <p>Fish: <i>Benthodesmus</i> or <i>Lepidopus</i> (related to cutlassfish but with caudal fin), Tongue fishes 7-8 cm (c.f. Cynoglossidae), Ogcocephalidae (batfishes), Sawbellies (<i>Hoplostetetus</i>), torpedo ray- c.f. <i>Benthobatis</i>, Ergasilid copepod parasite on 2 different cutthroat eels.</p> <p>Arthropoda:</p>



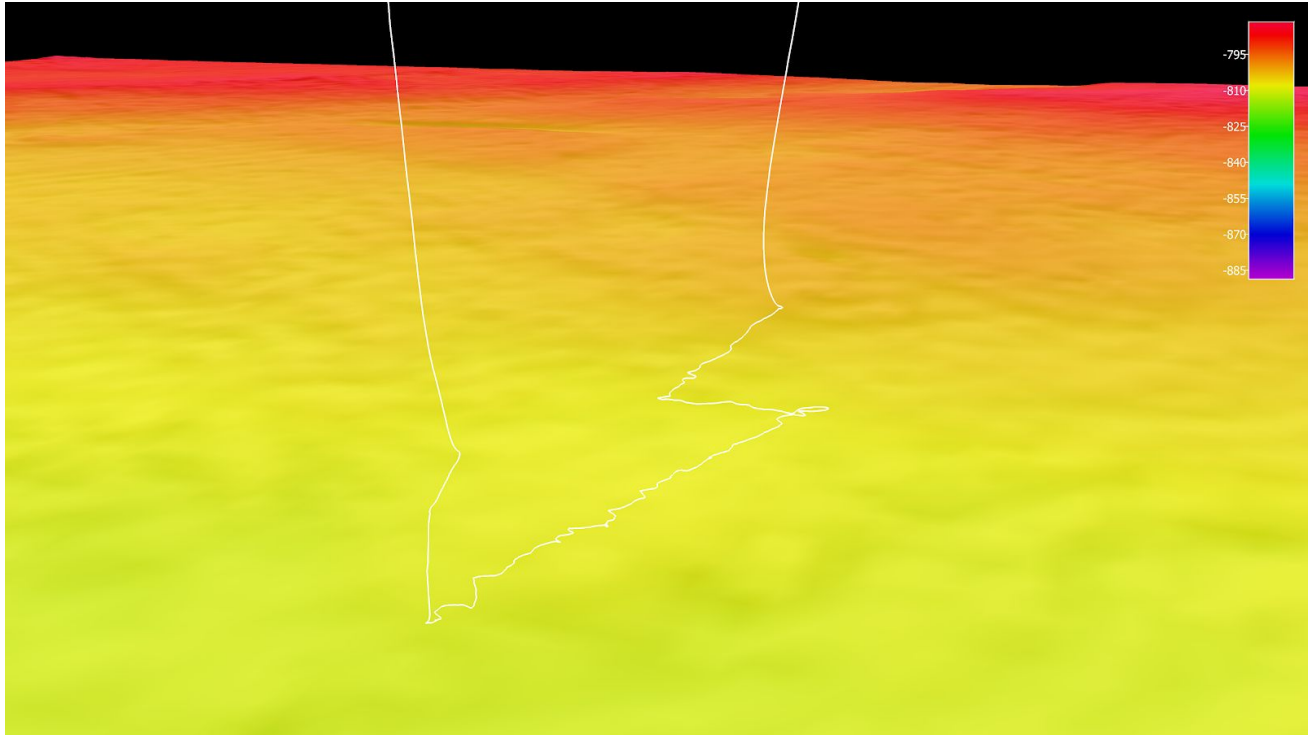
	Portunidae (swimming crabs), small shrimps, squat lobsters, munnopsid isopods, and a decorator crab Several bird squid: <i>Ornithoteuthis antillarum</i>
Notable Observations	Fe-Mn encrusted Nodules
Community Presence/Absence (community is defined as more than two species)	X Corals and Sponges <ul style="list-style-type: none"> ✓ Chemosynthetic Community ✓ High biodiversity Community ✓ Active Seep or Vent ✓ Extinct Seep or Vent ✓ Hydrates
CMECS Feature Type	Flat
SeaTube Link (science annotation system)	https://data.oceannetworks.ca/SeaTubeV2?resourceTypeId=1000&resourceId=23621&divId=3810



Overall Map of the ROV Dive Area



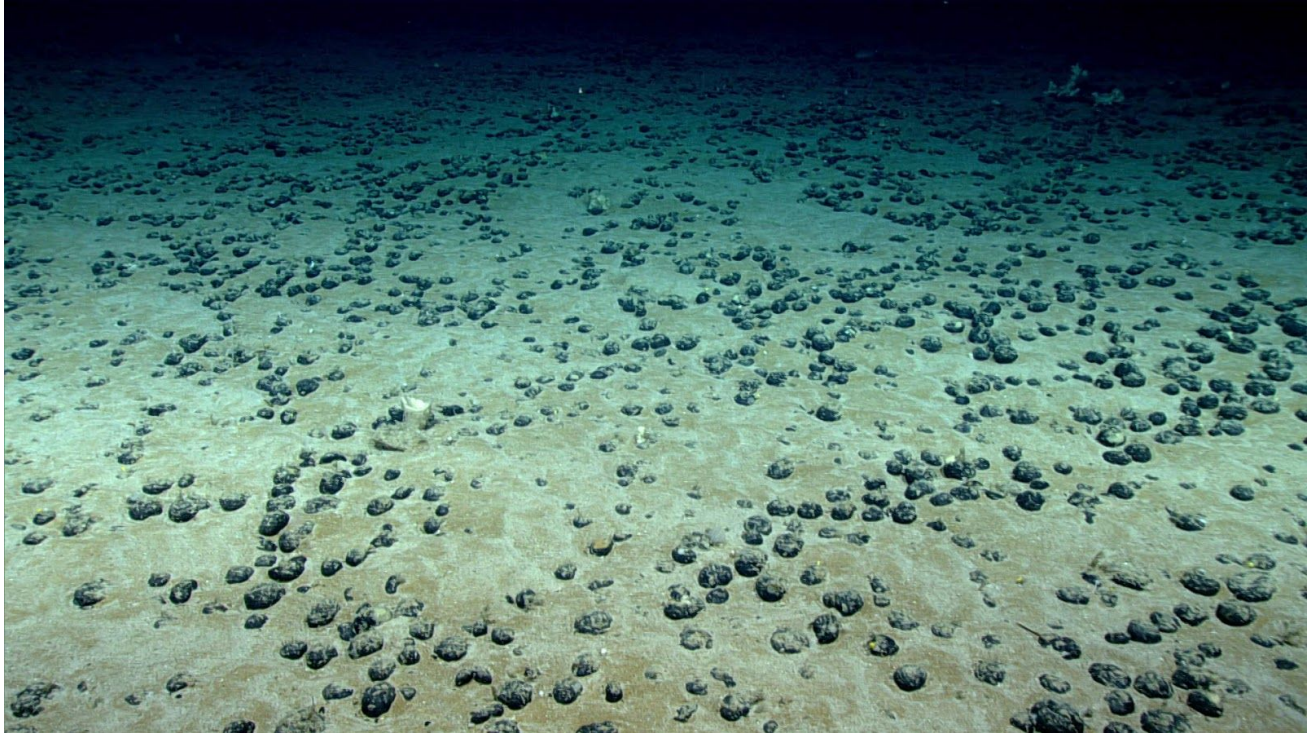
Close-up Map of Main Dive Site



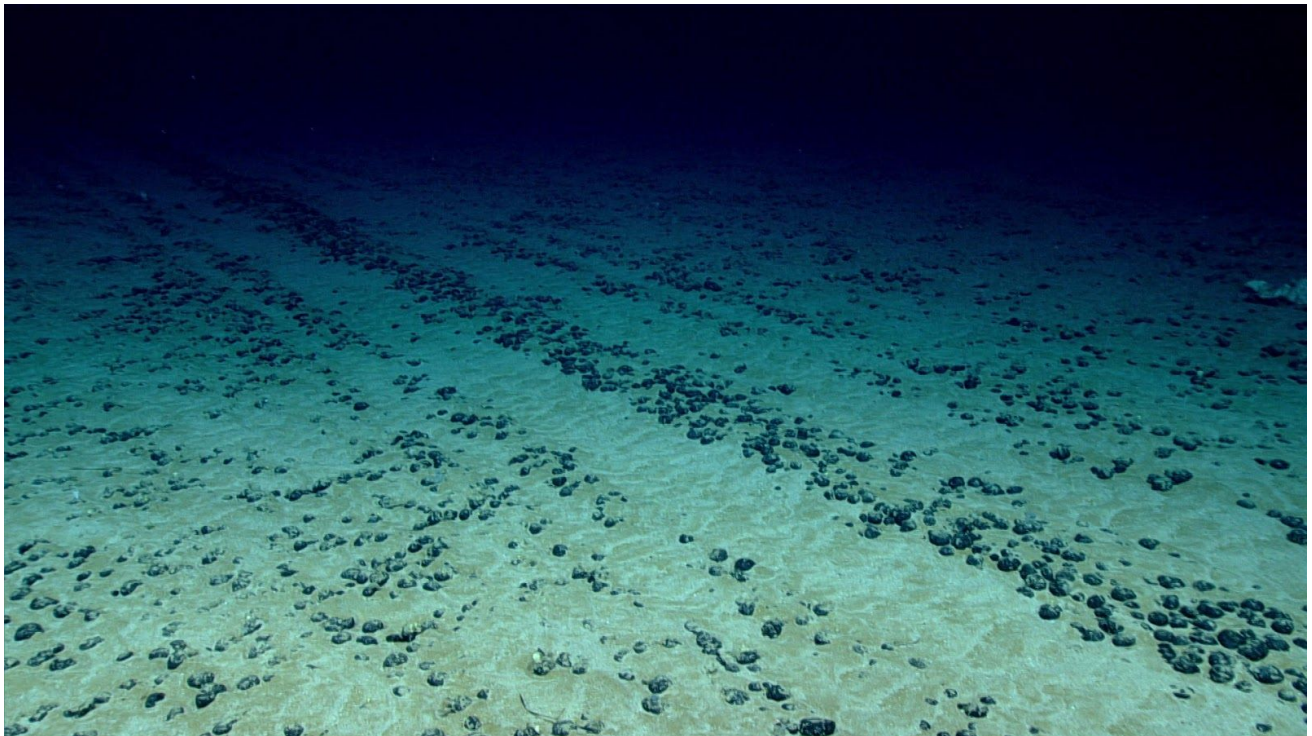
Smoothed ROV dice track in white on 25x25 cell size bathymetry, 3x vertical exaggeration, depth in meters, 10 meter contours



Representative Photos of the Dive

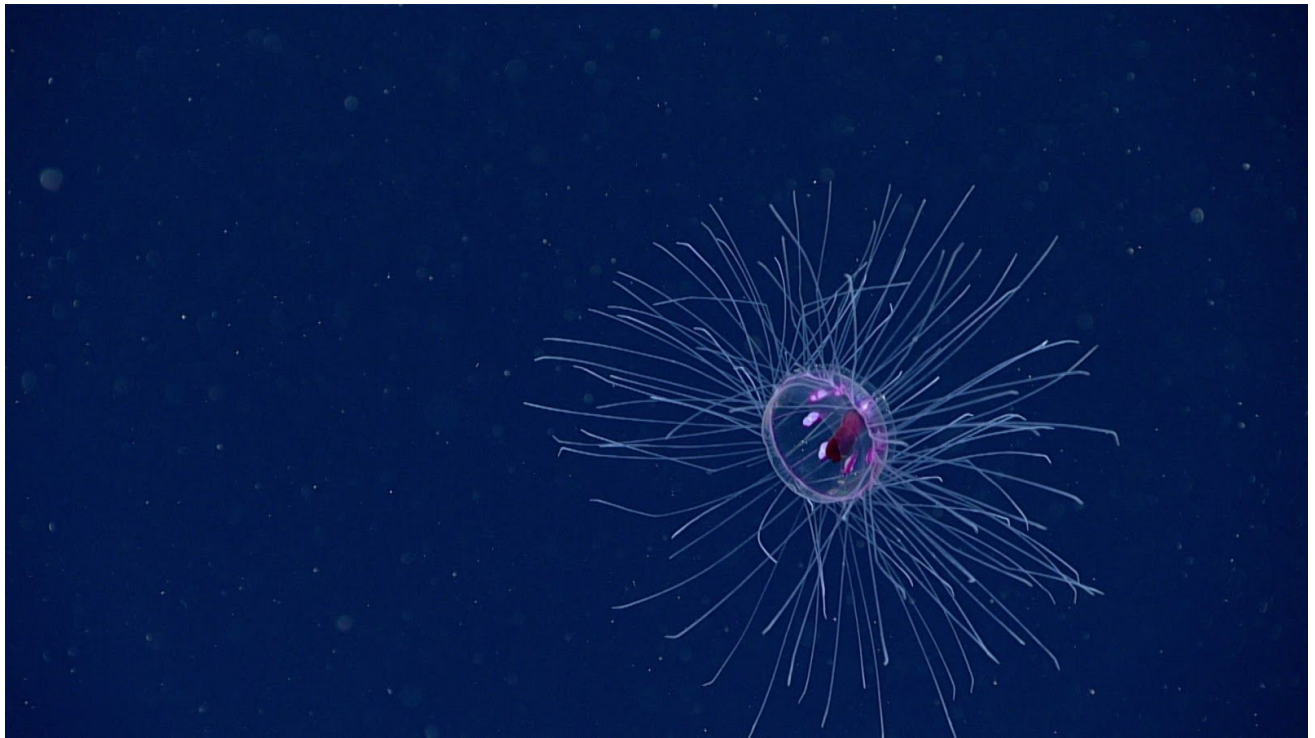


Typical sandy bottom with 5-15 cm cobble size nodules.



Distinct lines in the sediment seen toward the end of the dive.



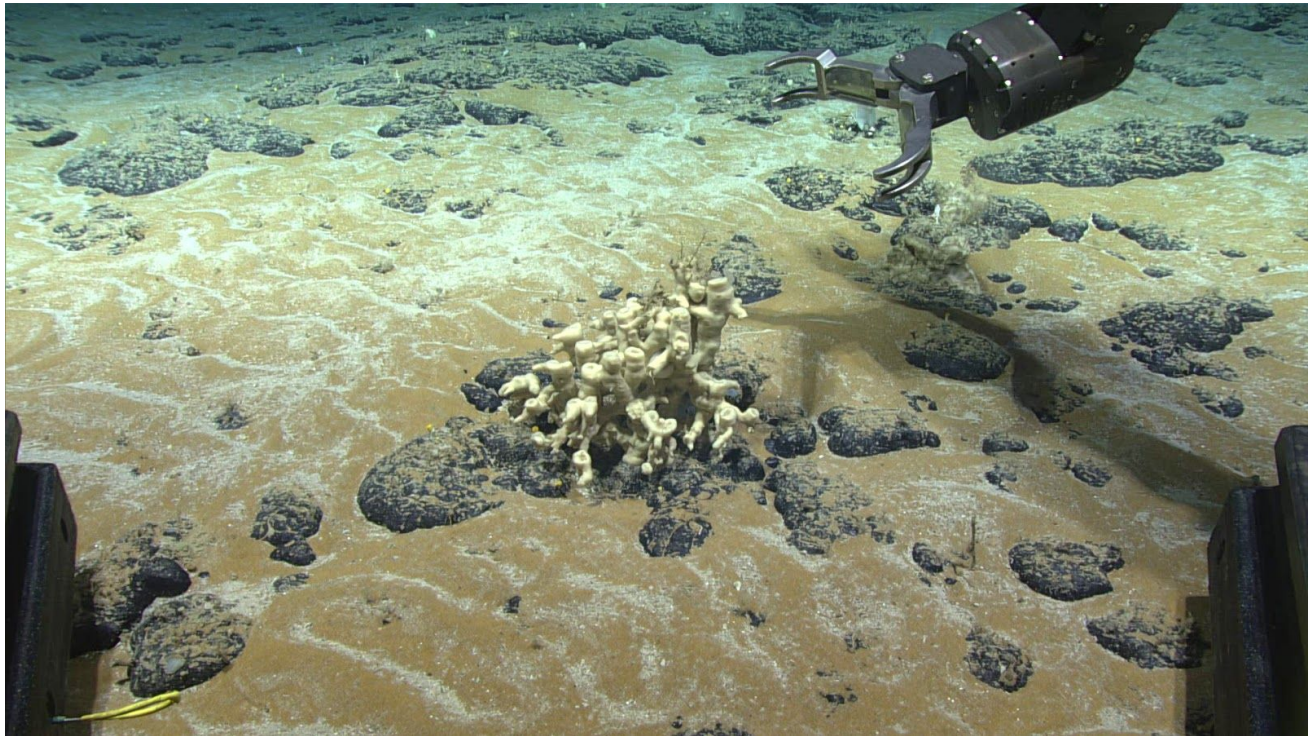


An amazing jelly - *Crossota millsae* feeding in the water column above the substrate.



Haplosclerida sponges were the most common species in the area.

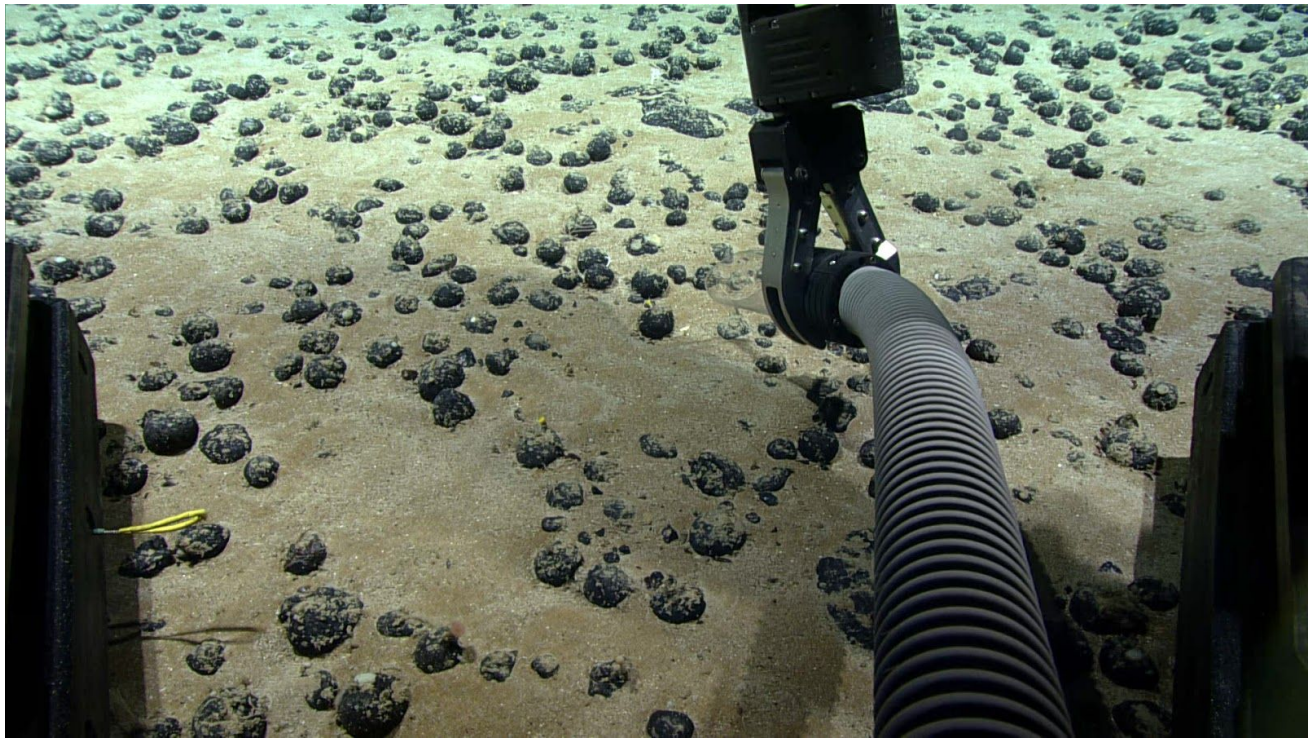
Samples Collected -



Sample ID	EX1907_D07_01B		
Date (UTC)	November 07, 2019		
Time (UTC)	15:48		
Depth (m)	805 m		
Temp. (°C)	8.921		
Field ID(s)	Haplosclerida ID: 131598 [WORM]		
Associates	Associates Sample ID	Field Identification	Count
Comments	Potential for new species. cluster of hollow tubes. tan. 30 cm wide and 20 cm tall. port inner		



Sample ID	EX1907_D07_02G		
Date (UTC)	November 07, 2019		
Time (UTC)	18:02		
Depth (m)	805 m		
Temp. (°C)	8.927		
Field ID(s)	Rock cobble and		
Associates	Associates Sample ID	Field Identification	Count
	EX1907_20191107T180834_D2_DIVE07_SPEC02GEO_A01	cup coral- Scleractinia	1
	EX1907_20191107T180834_D2_DIVE07_SPEC02GEO_A02	Stylaster	1
Comments	10 cm cobble with black crust. 2 small 5 cm rocks		



Sample ID	EX1907_D07_03G		
Date (UTC)	November 07, 2019		
Time (UTC)	18:02		
Depth (m)	805 m		
Temp. (°C)	8.929		
Field ID(s)	Sediment		
Associates	Associates Sample ID	Field Identification	Count
Comments	Stop to sample EX1907_D07_03G Sediment at the same time- Suction bucket 5		



Sample ID	EX1907_D07_04G		
Date (UTC)	November 07, 2019		
Time (UTC)	20:54		
Depth (m)	801		
Temp. (°C)	8.938		
Field ID(s)	Rock Cobbles- 10-15 cm spherical		
Associates	Associates Sample ID	Field Identification	Count
Comments	Stop to collect EX1907_D07_04G Rock Cobble. 15 cm rock - x2 SB inner		

Please direct inquiries to:

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