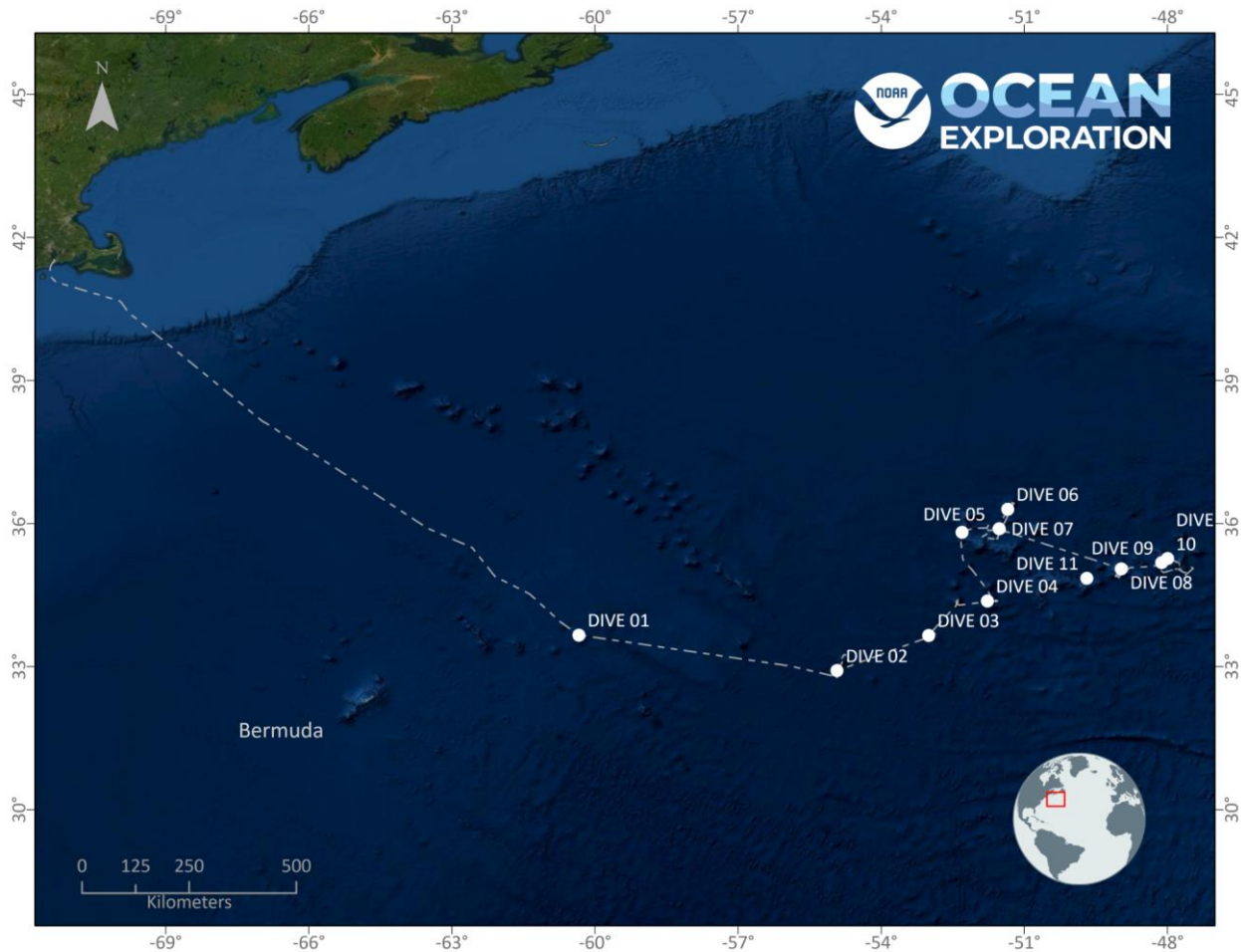


# ROV Dive Summary, EX-21-04, Dive 11, July 14, 2021

## General Location Map



## Dive Information

Site Name	Caloosahatchee Seamount
General Area Descriptor	Large seamount near the center of the Corner Rise Seamount Complex
Science Team Leads	Rhian Waller, Kira Mizell
Expedition Coordinator	Kasey Cantwell, Kimberly Galvez (Expedition Coordinator in Training)

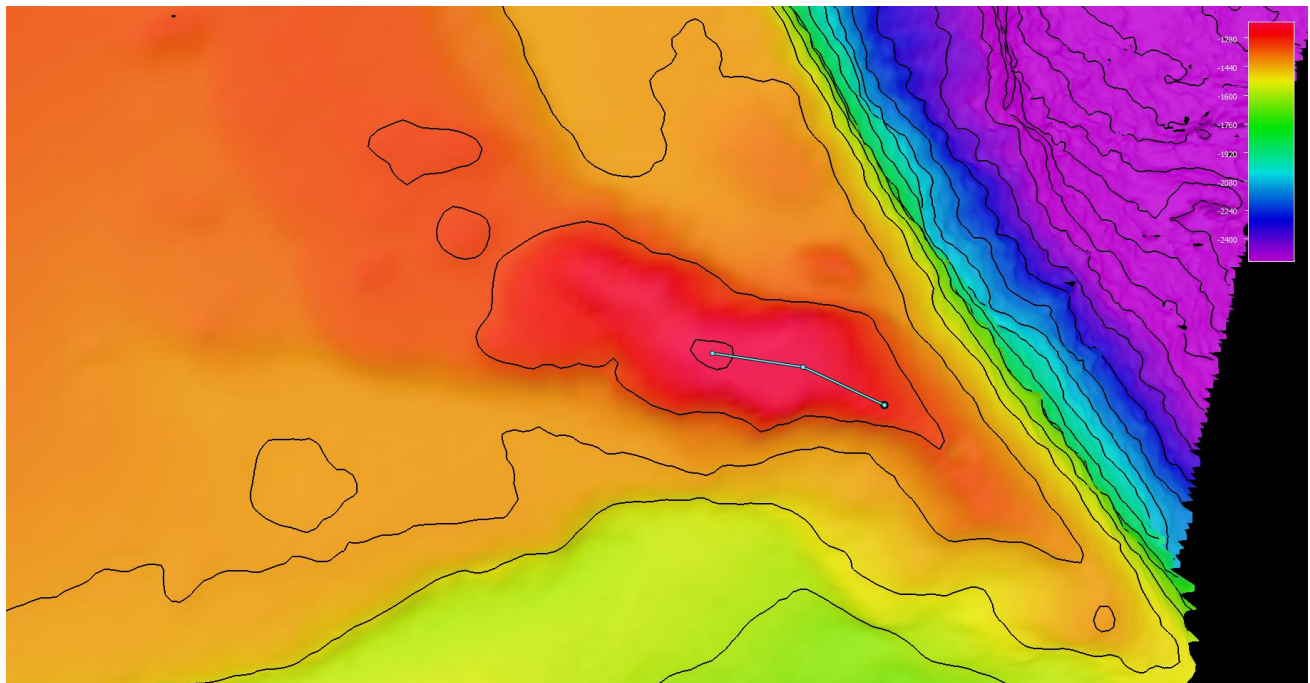


Dive Description	<p>This dive explored a ridge feature at the top of Verrill Peak on the eastern portion of Caloosahatchee Seamount in the central portion of Corner Rise Seamounts, going from a water depth of ~1250 to ~1200 m. As the ROV reached the seafloor, large sediment ripples were observed where Fe-Mn stained coral rubble was built up on the leeward side of the strong current flow direction with white carbonate sediments in between the ripples, creating a dark and light striped pattern. The geology for the majority of the dive as the ROV climbed the ridge was dominated by coarse biogenic sediments often topped with a layer of coral rubble, as well as regions with smooth carbonate pavement. Near the end of the dive, in shallower depths, the carbonate substrate was variably eroded, creating some interesting ledges, fractures, and small platforms. Glacial dropstones of various sizes were also observed sporadically throughout the dive. Three rock samples were collected, one of dropstone and one chunk of consolidated coral rubble, both with biological associates, as well as one thin ferromanganese crust fragment broken for an overhanging ledge.</p> <p>There was surprising diversity and density amongst the sediment ripples, suggesting that the heavier paleo-coral fraction is not mobile. By the OSPAR definition of coral garden (single species &gt;50 colonies/100m<sup>2</sup>; multispecies &gt;100 colonies/100m<sup>2</sup>) we discovered a multispecies coral garden area during this dive, dominated by <i>Calyptophora clinata</i>, and dotted with <i>Bathypathes spp</i>, <i>Thouraella sp.</i>, <i>Acanella sp.</i>, <i>Chrysogorgia sp.</i>, and <i>Parantipathes spp.</i>. Though these species were present on ripples, where we saw areas of pavement and platforms, even higher densities of these corals were present. Interspersed in harder bottom areas we observed <i>Enallopsammia rostrata</i>, and collected a specimen of <i>Desmophyllum dianthus</i> as part of the ASPIRE program, <i>Iridigorgia sp.</i> and the unknown purple plexaurid. Sponges were less dominant during this dive, though as we reached the end of the dive larger <i>Hertwigia</i>, barrel and white amphitheater type sponges were present. This dive was particularly abundant for fish species with multiple <i>Oreo</i> (including a juvenile), black dogfish (including one with a large isopod parasite), Codling, mictophids, snubnose spiny eel and at the very end of the dive a midwater viper fish.</p> <p>The biological environment changed drastically towards the end of the dive - where we moved from stable ripples and pavement to softer sediments with smaller fractions of broken paleo reef. Within this area we saw minimal large colonies of corals and sponges, but high densities of biological turnover of sediments. This whole area was pockmarked with circular patches of turned over sediments, and on closer inspection small worm tubes were observed, though no major players were identified. We also observed larger scar marks that were likely feeding holds for Chaceon crabs (two observed) and/or fish in the region.</p>
Notable Observations	<p>large sediment ridges High density <i>Calyptophora clinata</i> whip coral garden, with other coral species also present mid-water viper fish</p>
Community and habitat observations	<p>Corals and Sponges - (Present) Chemosynthetic Community - (Absent) High biodiversity Community - (Present - high density garden community) Active Seep or Vent - (Absent) Extinct Seep or Vent - (Absent) Hydrates - (Absent)</p>
CMECS Feature Type(s)	<p>Rock, Sediment (coarse unconsolidated)</p>
SeaTube Link (science annotation system)	<p><a href="https://data.oceannetworks.ca/SeaTubeV3?resourceTypeid=600&amp;resourceid=2343">https://data.oceannetworks.ca/SeaTubeV3?resourceTypeid=600&amp;resourceid=2343</a></p>

## Equipment Deployed

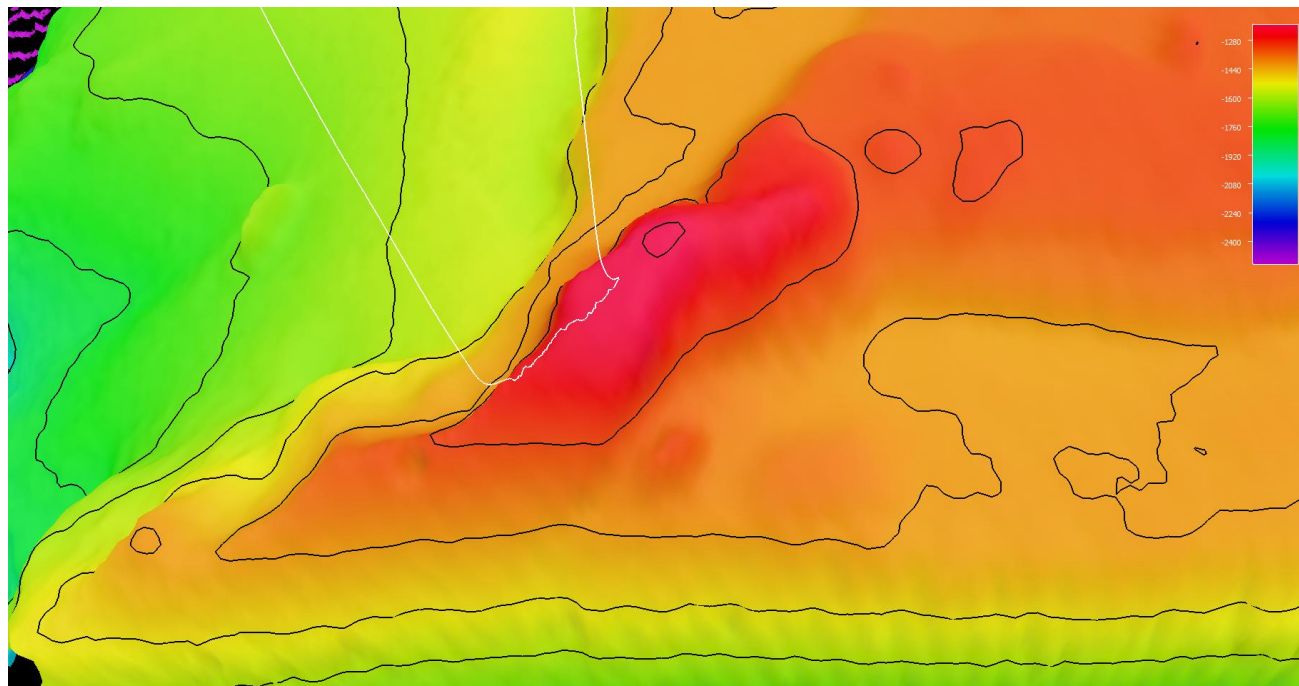
ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The section below notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	none

## Overview of Dive Site



Smoothed ROV dive track (blue) on an overview bathymetry of the seamount, 3x vertical exaggeration.

## Close-up Map of Main Dive Site



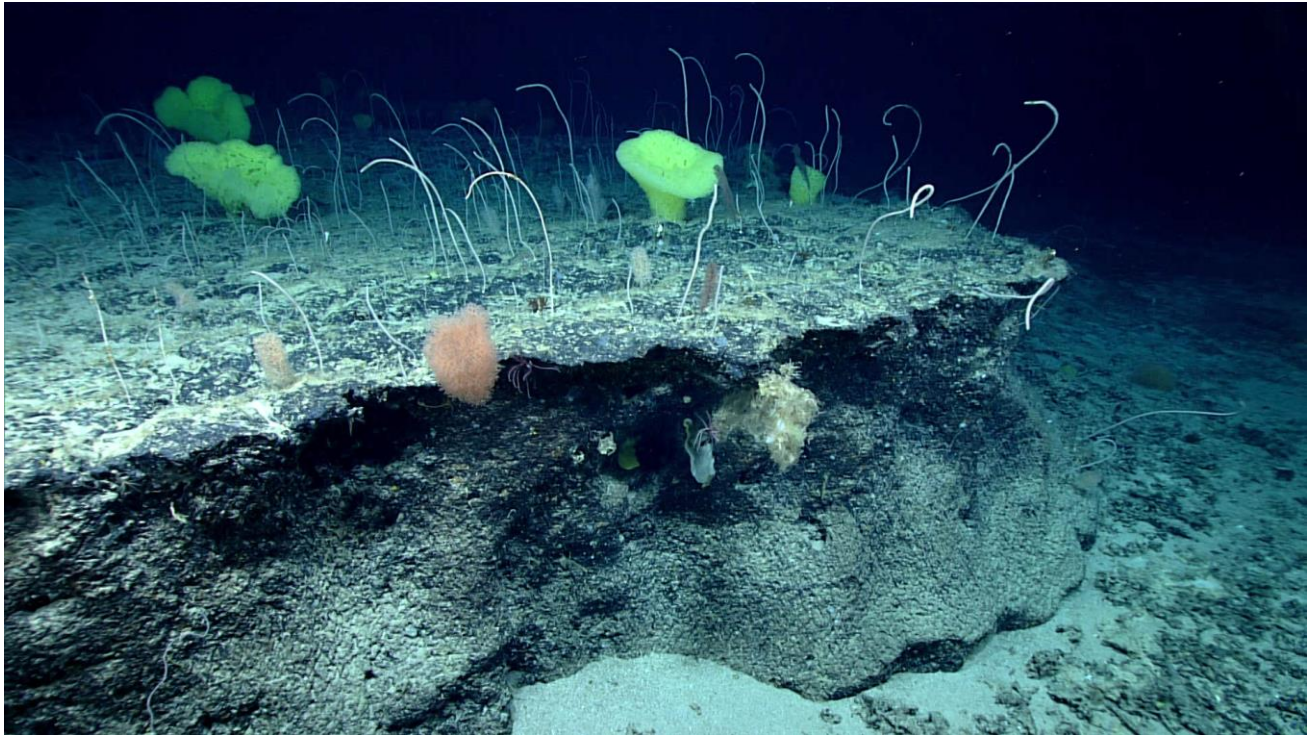
Smoothed ROV dive track in white on 25x25 cell size bathymetry, 3x vertical exaggeration, depth in meters, 100 meter contours

## Representative Photos of the Dive



[Sediment and paleo-reef waves as seen from the Seirios camera at the beginning of this dive]





[Part of a large area of coral garden habitat on top of a ledge outcrop. High density *Calyptophora clinata* (whip coral) alongside other species such as *Acanella arbuscula* and *Hertwigia* sponges as shown in this image]



[At the end of the dive the bottom habitat was dominated by bioturbation, though the species responsible could not be identified. Also seen here, two barrel type sponges laying on their sides.]



## Samples Collected -



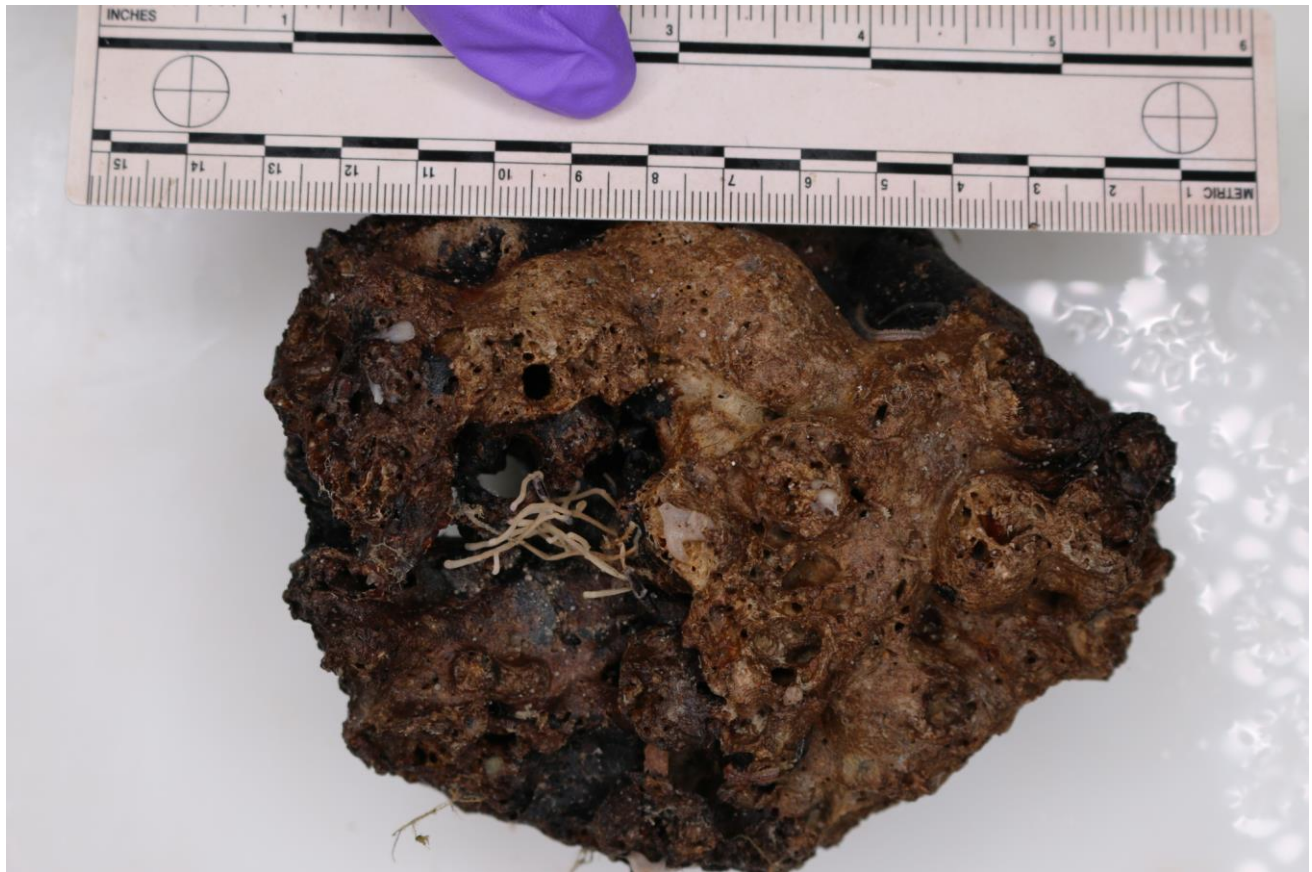
Sample ID	EX2104_D11_01B
Date (UTC)	20210714
Time (UTC)	165452

Depth (m)	1242.642944
Latitude (decimal degrees)	34.65039063
Longitude (decimal degrees)	-49.65135193
Temp. ( °C)	4.679999828
Field ID(s)	Scleractinia
Comments	Desmophylum dianthus, pink and white. Less than 3 cm. On coral rubble.

Associates Sample ID	Field Identification	Count
N/A	N/A	N/A

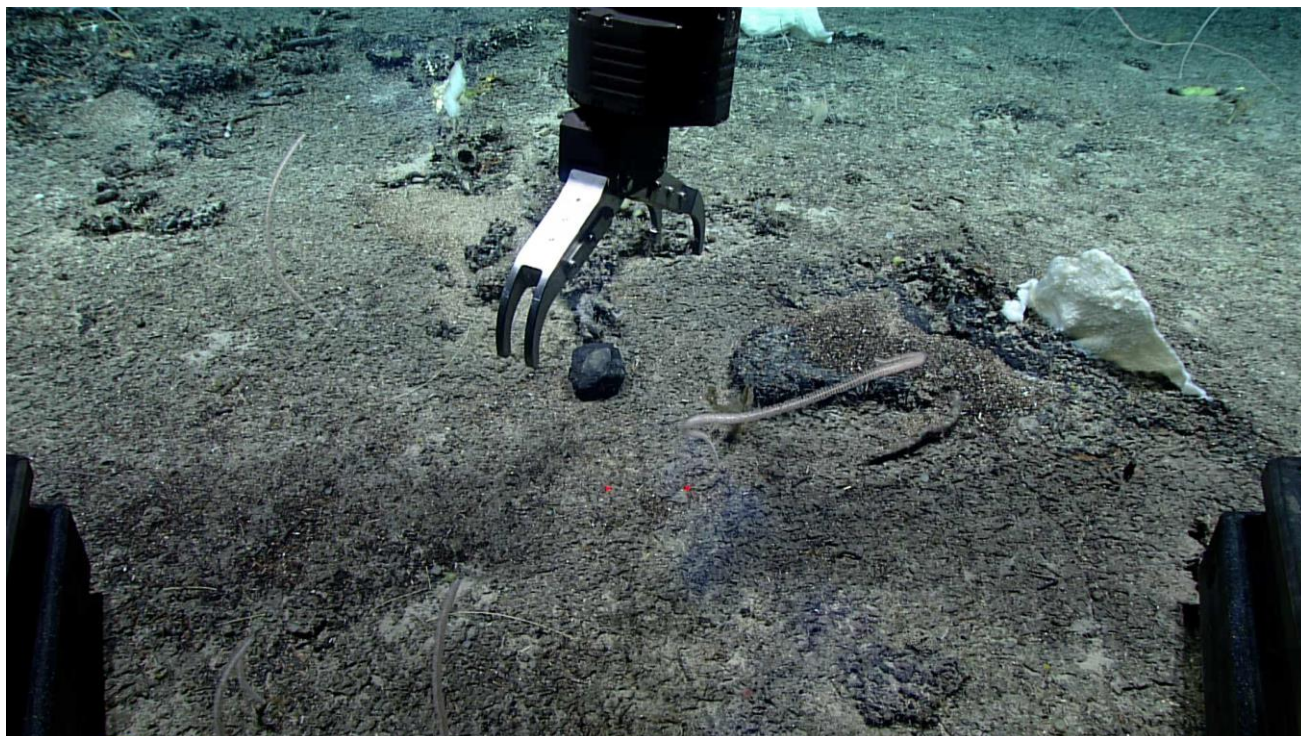






Sample ID	EX2104_D11_02G
Date (UTC)	20210714
Time (UTC)	172404
Depth (m)	1233.677979
Latitude (decimal degrees)	34.65068817
Longitude (decimal degrees)	-49.65182877
Temp. (°C)	4.717000008
Field ID(s)	Carbonate Conglomerate
Comments	coral rubble with FeMn patina and many associates. 13cm long x 11.5cm wide x 6.5cm tall. Very orange which looks to be iron staining.

Associates Sample ID	Field Identification	Count
N/A	N/A	N/A

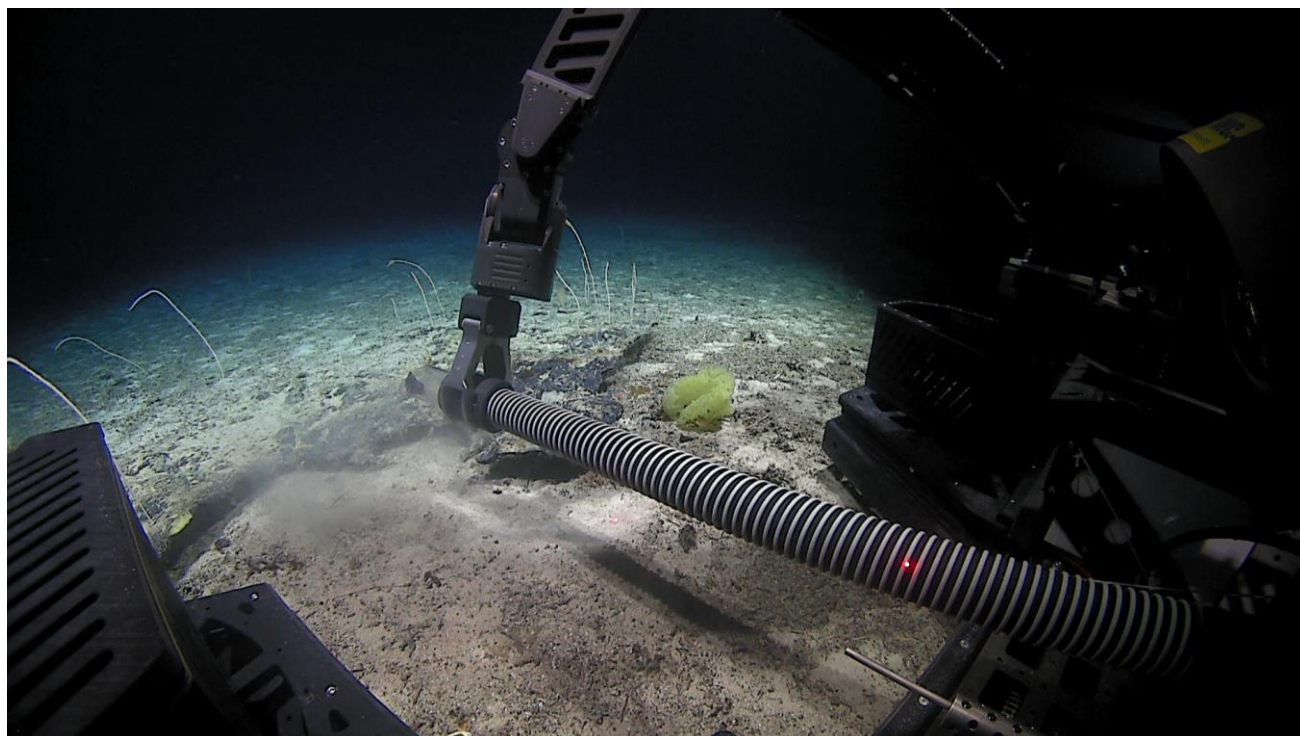


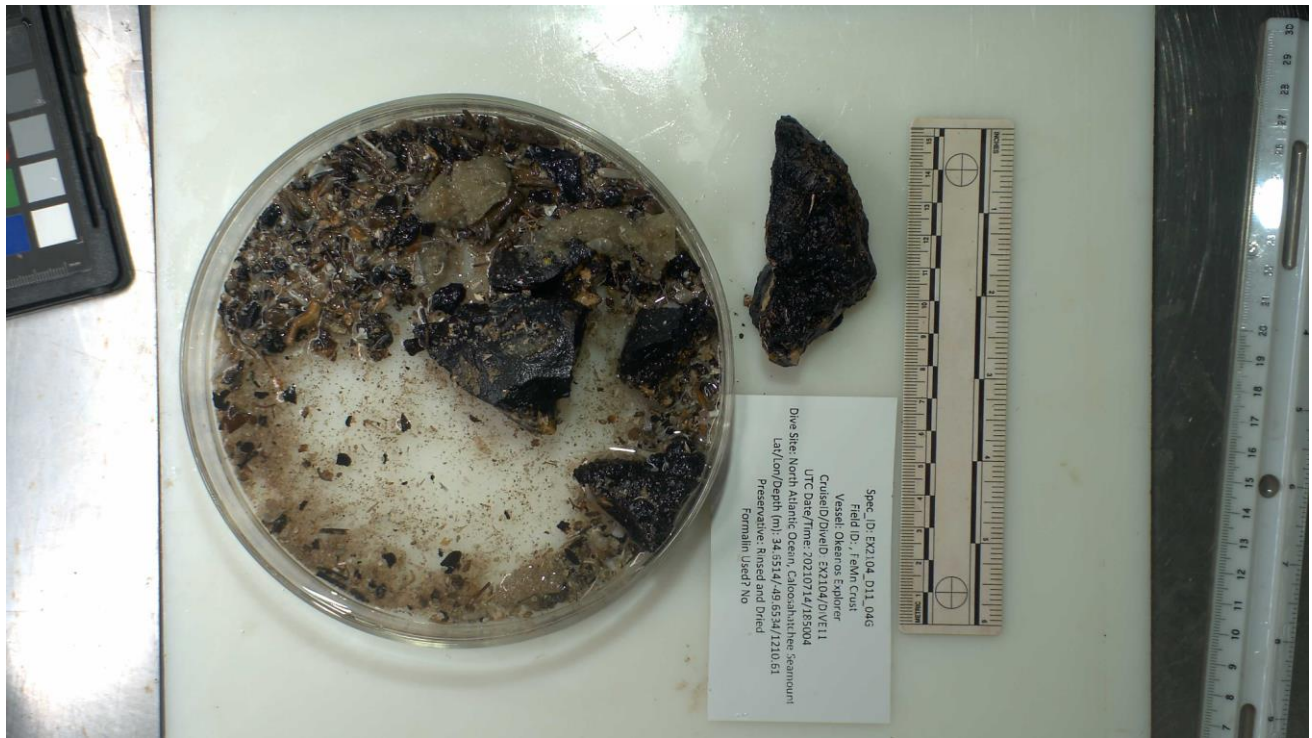
Sample ID	EX2104_D11_03G
Date (UTC)	20210714
Time (UTC)	172948
Depth (m)	1231.519043
Latitude (decimal degrees)	34.65076447
Longitude (decimal degrees)	-49.65185928
Temp. (°C)	4.71600008



Field ID(s)	Rock with carnivorous tunicate
Comments	dropstone coated in FeMn with carnivorous tunicate; 6 cm tall x 7 cm wide x 8 cm long

Associates Sample ID	Field Identification	Count
EX2104_D11_03G_A01	Tunicata	1





Sample ID	EX2104_D11_04G
Date (UTC)	20210714
Time (UTC)	185004
Depth (m)	1210.605957
Latitude (decimal degrees)	34.65143585
Longitude (decimal degrees)	-49.65343857
Temp. ( °C)	5.070000172
Field ID(s)	FeMn Crust
Comments	broken from thin outcropping ledge. FeMn crust that has replaced carbonate and maybe phosphatized. Collected in pieces. Largest piece 7cm long x 3.5cm wide x 2cm tall. Weight is of largest piece. Various organisms attached along with sediment (FeMn crust and carbonate material).

Associates Sample ID	Field Identification	Count
N/A	N/A	N/A

**Scientists Involved (provide name, email, affiliation)**

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