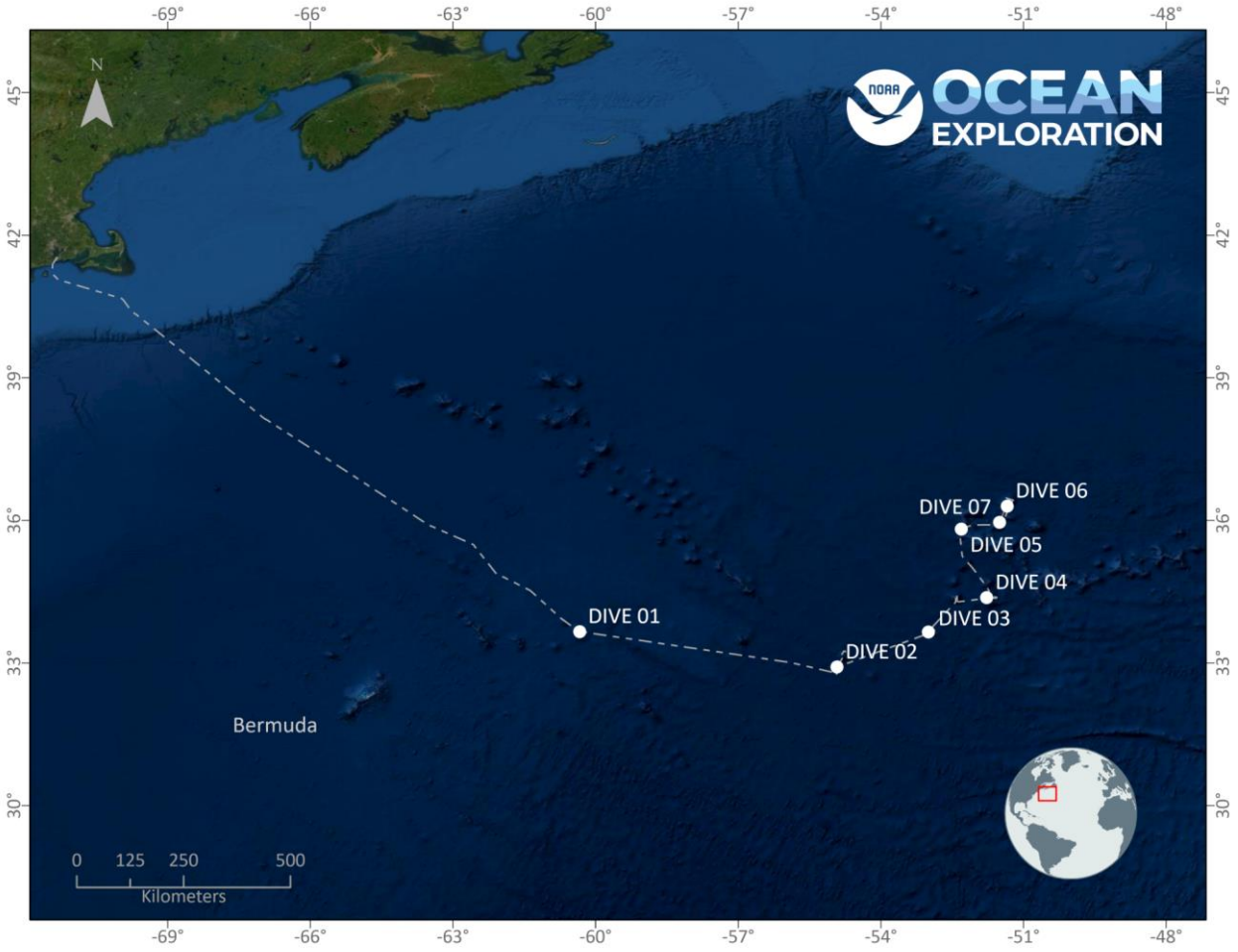
ROV Dive Summary, EX-21-04, Dive 07, July 10, 2021

General Location Map



Dive Information

Site Name	"Corner Rise 1"
General Area Descriptor	Unnamed seamount within the North-West quadrant of the Corner Rise Seamount Complex
Science Team Leads	Rhian Waller, Jason Chaytor
Expedition Coordinator	Kasey Cantwell, Kimberly Galvez (Expedition Coordinator in Training)

ROV Dive Supervisor	Chris Ritter
Mapping Lead	Shannon Hoy
Dive Purpose	Explore an unexplored and unmapped seamount
Was the dive restricted for Underwater Cultural Heritage?	No
ROV Dive Summary Data	Dive Summary: EX2104_DIVE07 ^^ Dive Type: Normal In Water: 2021-07-10T12:55:57.685306 35.890163490573066 ; -51.52368739294965 On Bottom: 2021-07-10T14:32:39.819761 35.88766063259026 ; -51.52234111250431 Off Bottom: 2021-07-10T19:08:54.560928 35.88902973752314 ; -51.52049179944542 Out Water: 2021-07-10T20:33:50.159548 35.8780885441524 ; -51.51870644541281 Dive Duration: 7:37:52 Bottom Time: 4:36:14 Max Vehicle Depth: 2593.7 m Min Seafloor Depth: 2421.9 m Distance Travelled: 220.6 m

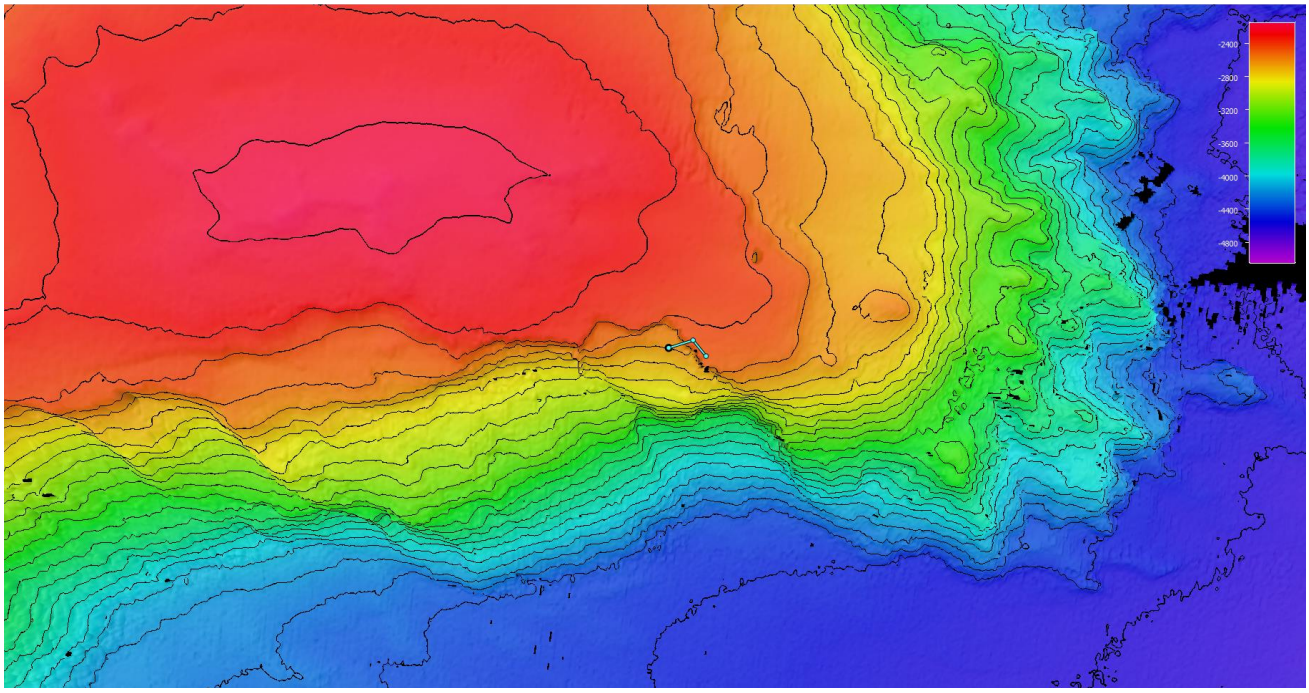
Dive Description	The ROV landed on a smooth, sediment free rock pavement interrupted in places by higher-relief outcrops of what appeared to be volcanic flow materials. The pavement continued upslope for several tens of meters and had the appearance of a surface eroded by a submarine landslide (landslide scar). As the dive progressed the higher-relief outcrops and interstitial sediment became more common. Attempted rock sample collection early in the dive broke the sample into several pieces, and as such, the rock was thought to be mostly FeMn crust. While investigating another set of rocks for collection nearby, the internal color of the broken sample became clear (sediment settled out) and it appeared to be white in color, with a chalky texture, suggesting carbonate constituents. The broken sample was collected for further analysis. A little further upslope, a solitary tan-colored 'table' outcrop without any FeMn crust was encountered, also appearing to be composed of carbonate components. Prior to reaching the steepest section of the dive, a large, seemingly intact block of the seamount flank was traversed. Behind the block, accumulations of sediment and rock debris were present, and a further rock sample was collected (possibly volcanic with FeMn crust). For the remainder of the dive, a sheer rock wall covered with an abundance of benthic biota (fossilized Desmophyllum sp.) was traversed that in places was (underlying FeMn encrusted rock of unknown type, likely volcanic). In places, this wall created broad overhangs with little apparent structural support. At the top of this wall, pillow and lobate flow textures were present, some of which had interior voids and thick crusts/walls. Prior to leaving the bottom, sediment (biogenic with mixed seamount derived constituents and large/abundant pteropod tests) thickness and distribution increased significantly. Biological observations were sparse and spread out for most of this dive, there was a low abundance in general, but we did see local highs. The black coral Bathypathes was the most abundant coral during this transect, and was observed almost from the beginning through to the end. Bamboo corals (J and S1 clades) were observed and a few sparse Iridiogorgia and Chrysogorgia. A solitary hydroid (Corymorphidae) was observed on a rock outcrop. White Echinoid urchins were observed throughout the dive, including feeding on a bamboo coral, as well a Goniasterid and a paleopatides sea cucumber. Sponges were relatively well represented, but primarily with small squat or encrusting forms, though a few larger Euplectellids were seen. Cusk Eels (Bony Eared Assfish) and synaphobranchids were observed.
Notable Observations	Cirrothauma magna dumbo octopus observed around a wall of fossil corals 100m rise covered in fossil coral deposits (*Desmophyllum dianthus)* Carbonate (limestone) rocks (displaced and deposited on on slope at beginning of dive)
Community and habitat observations	Corals and Sponges - (Present) Chemosynthetic Community - (Absent) High biodiversity Community - (Absent) Active Seep or Vent - (Absent) Extinct Seep or Vent - (Absent) Hydrates - (Absent)
CMECS Feature Type(s)	Rock, Sediment (Fine & coarse unconsolidated)
SeaTube Link (science annotation system)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=2303

Equipment Deployed

ROV	*Deep Discoverer*

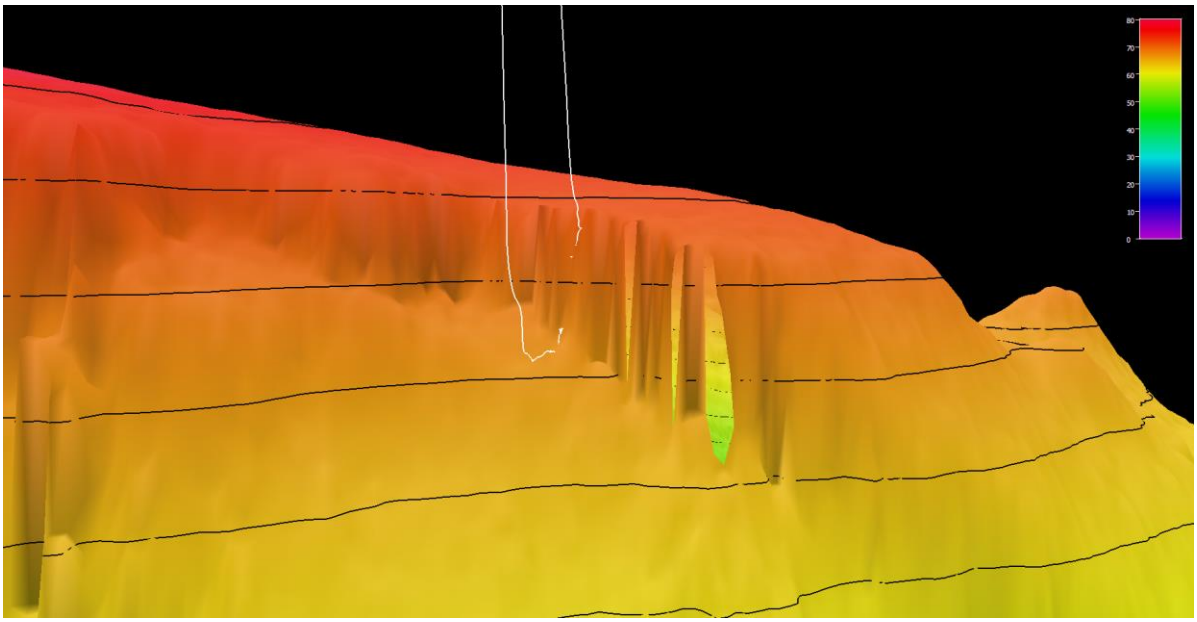
Camera Platform	*Seirios*
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers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

Overview of Dive Site



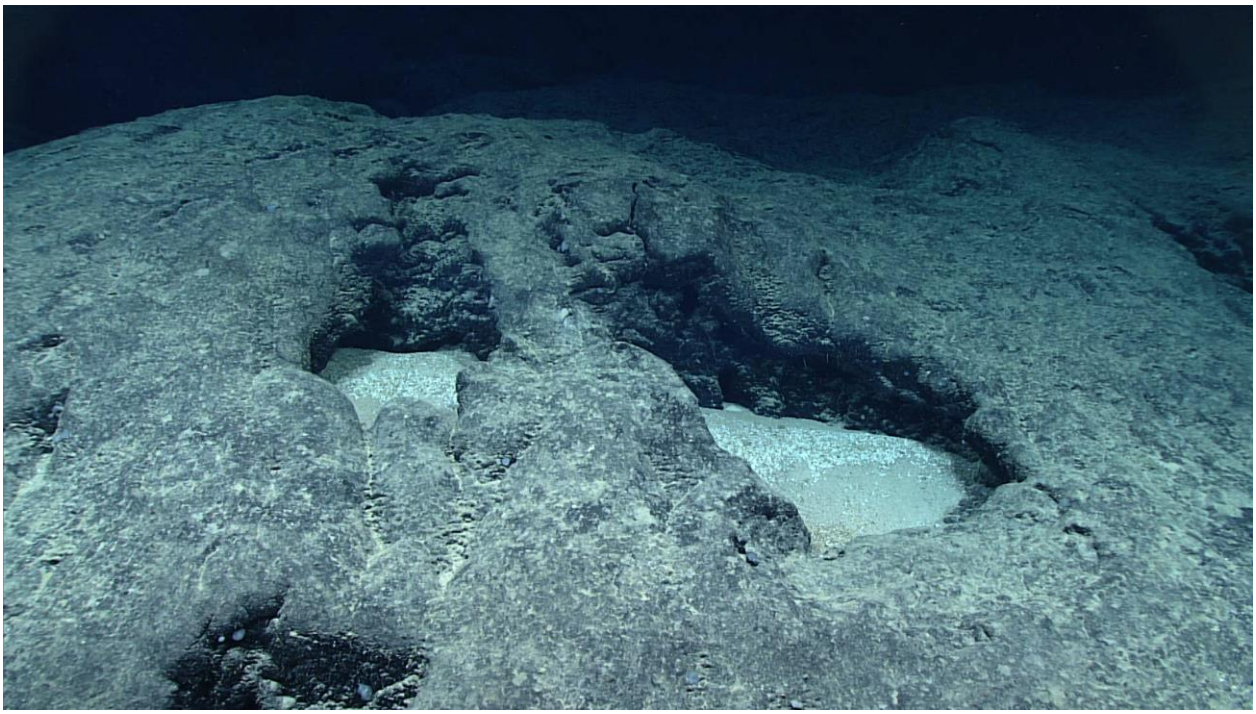
Smoothed ROV dive track (blue) on an overview bathymetry of the seamount, 3x vertical exaggeration.

Close-up Map of Main Dive Site

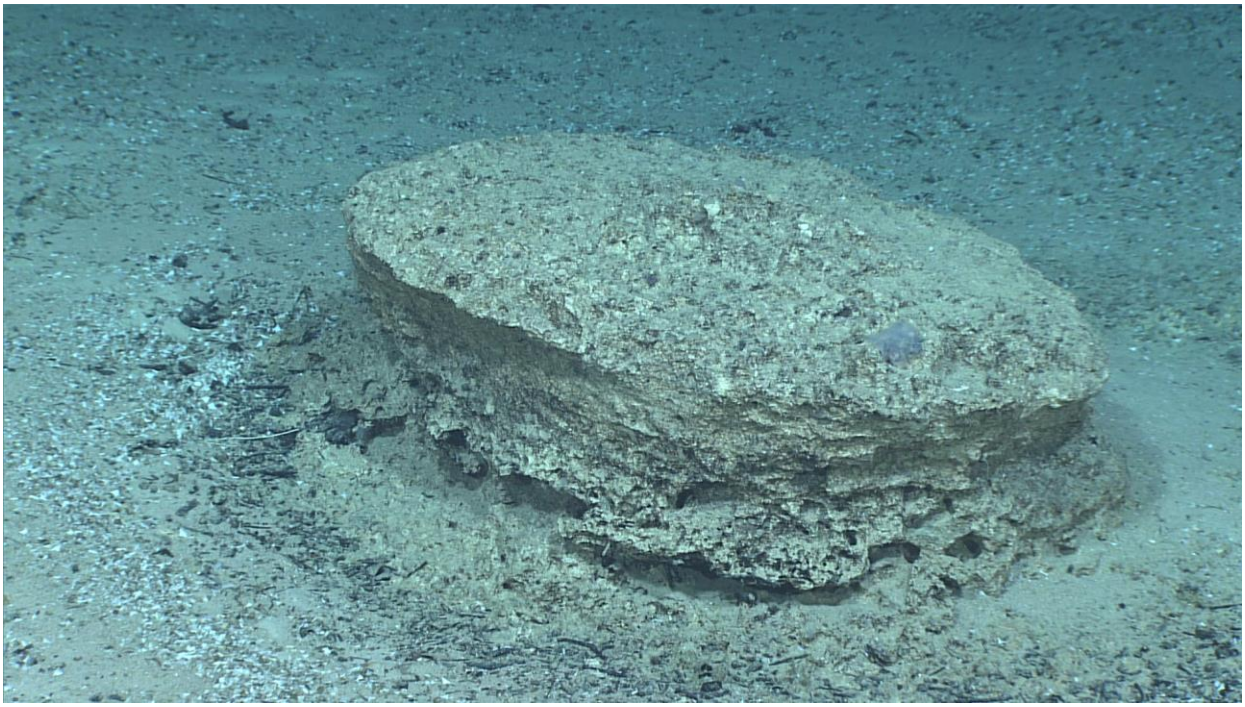


Smoothed ROV dive track in white on 25x25 cell size bathymetry, 3x vertical exaggeration, depth in meters.

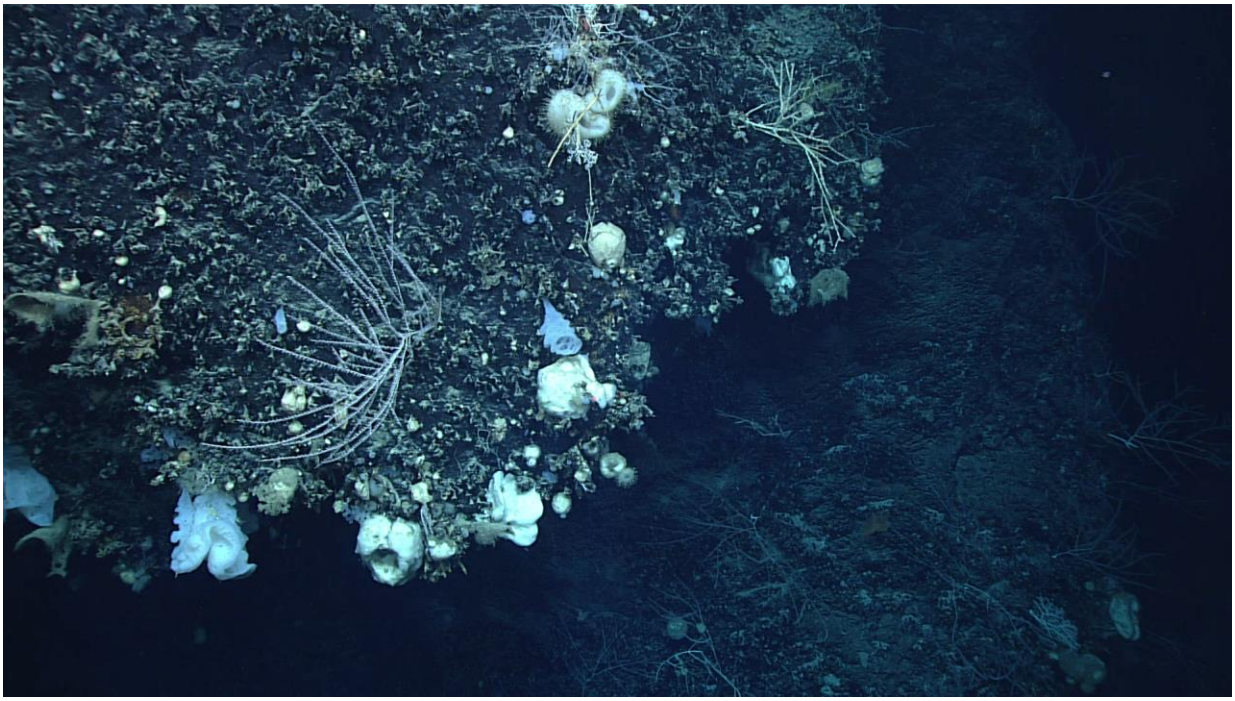
Representative Photos of the Dive



[ROV landing site showed basalt pavement, devoid of any large macrofauna]



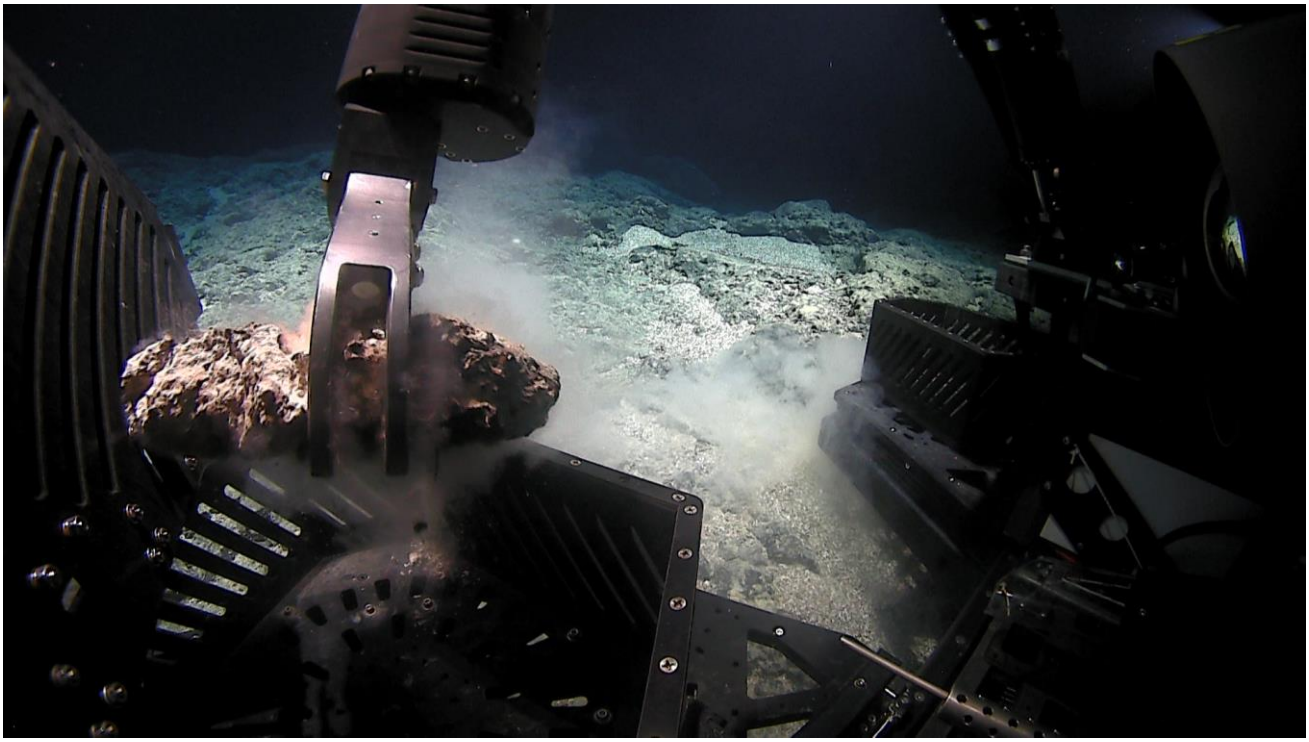
[Possible displaced carbonate rock adjacent to rock pavement traversed during beginning of the dive. Note the lack of ferromanganese crust, suggesting relatively recent exposure]

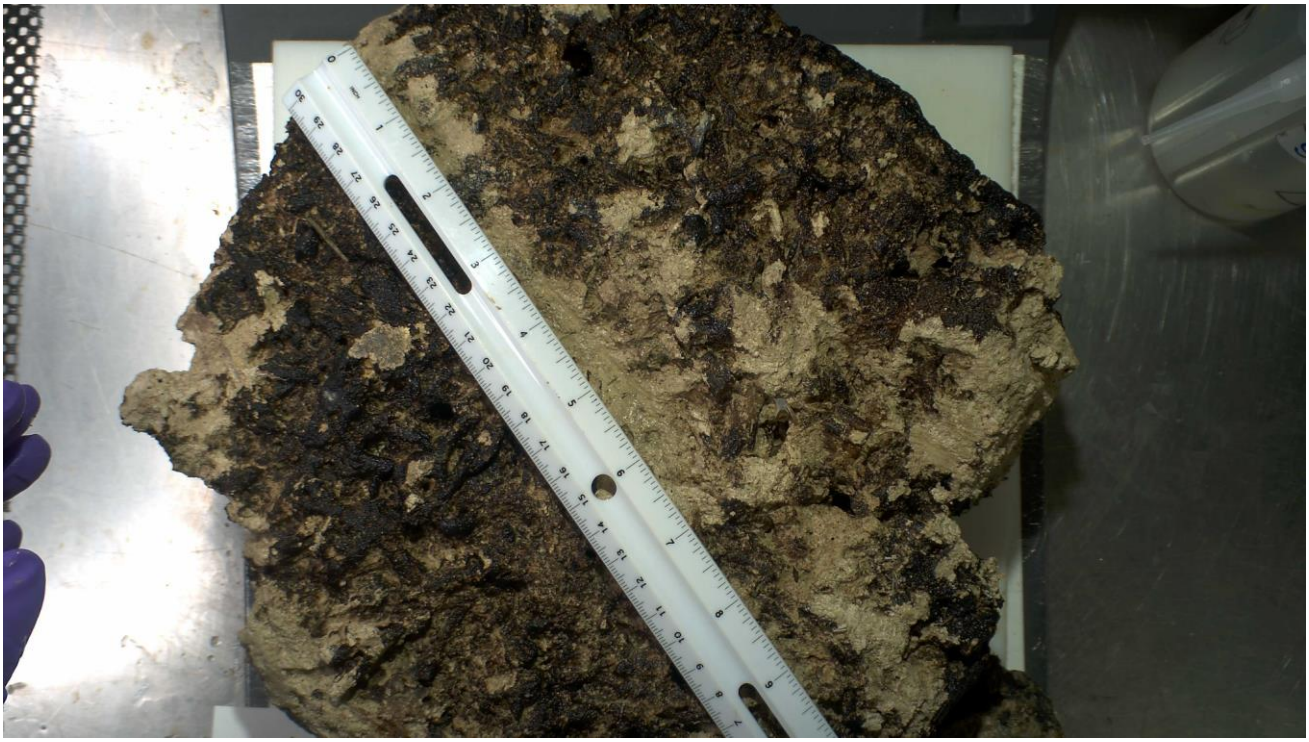


[A large outcrop of *Desmophyllum dianthus* fossils was seen during this dive, covered in live sponges and bamboo corals]

[A rare *Cirrothauma magna* dumbo octopus was observed on today's dive]

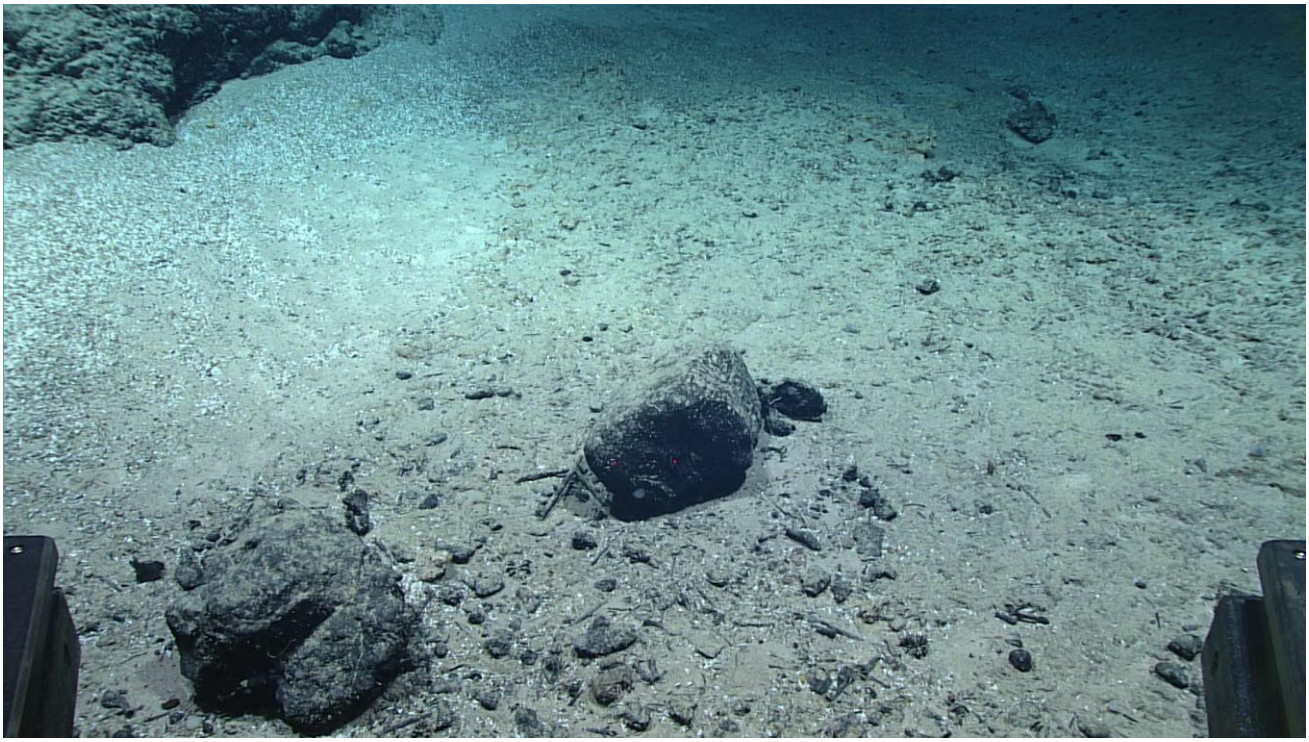
Samples Collected -

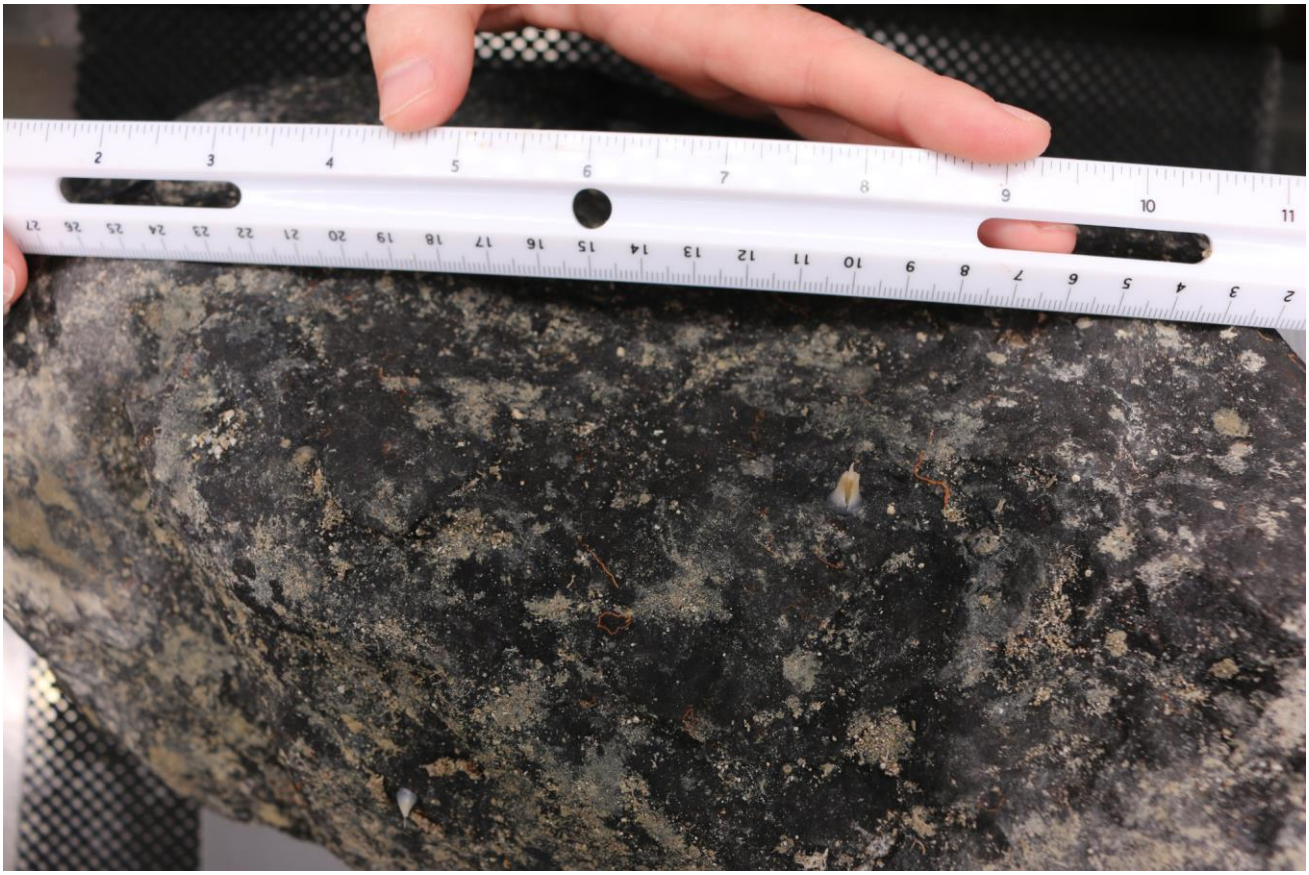




Sample ID	EX2104_D07_01G
Date (UTC)	20210710
Time (UTC)	152035
Depth (m)	2586.728027
Latitude (decimal degrees)	35.88789368
Longitude (decimal degrees)	-51.52141571
Temp. (°C)	3.326
Field ID(s)	Carbonate Sample
Comments	Fine grained carbonate sediment, lightly coated in FeMn crust, contains fossilized coral skeletons, partially cemented, 28cm long, 31cm wide, 8cm tall, small piece broken off

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

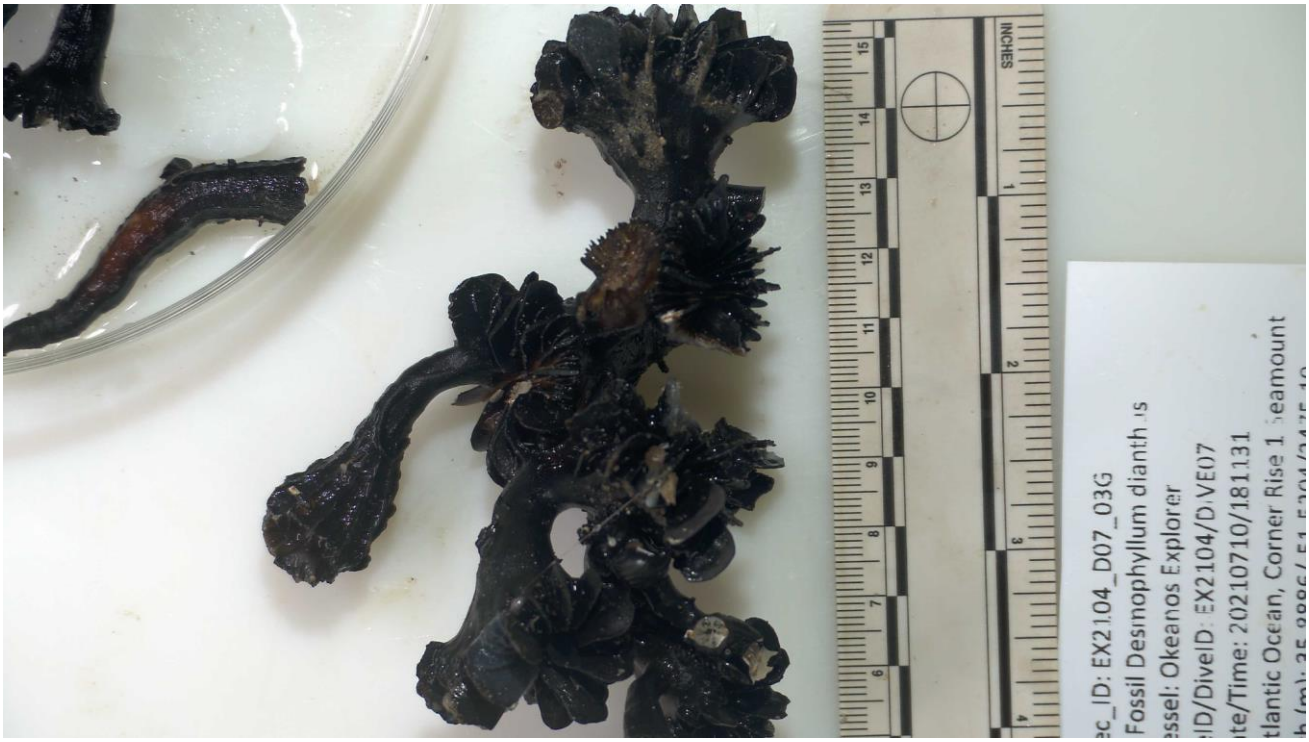




Sample ID	EX2104_D07_02G
Date (UTC)	20210710

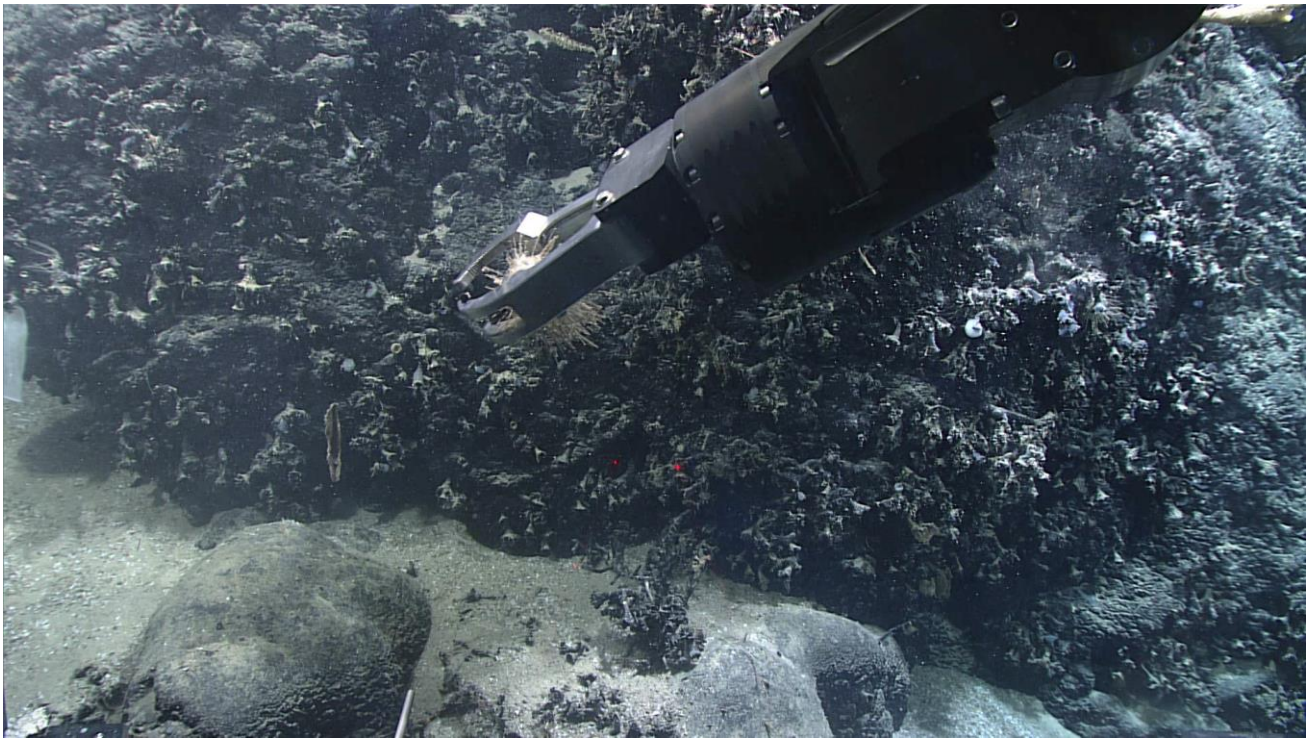
Time (UTC)	163620
Depth (m)	2569.218994
Latitude (decimal degrees)	35.88830185
Longitude (decimal degrees)	-51.52075958
Temp. (°C)	3.338
Field ID(s)	Basalt Rock
Comments	Very large and heavy, 47cm long, 30cm wide, 22cm tall, various encrusting organisms

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



Sample ID	EX2104_D07_03G
Date (UTC)	20210710
Time (UTC)	181131
Depth (m)	2475.0979
Latitude (decimal degrees)	35.88861847
Longitude (decimal degrees)	-51.52037811
Temp. (°C)	3.463
Field ID(s)	Fossil Desmophyllum dianthus
Comments	fossil coral with several aged layers, covered with FeMn, about 25 specimens

Associates Sample ID	Field Identification	Count
EX2104_D07_03G_A01	Carbonate Sample	1



Sample ID	EX2104_D07_04B
Date (UTC)	20210710
Time (UTC)	181437
Depth (m)	2474.9729

Latitude (decimal degrees)	35.88869858
Longitude (decimal degrees)	-51.52037811
Temp. (°C)	3.459000111
Field ID(s)	Demospongiae
Comments	Very spiky, possible glass sponge?, round, 11cm, contains trapped sediment, settled on a fossilized coral

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

Scientists Involved (provide name, email, affiliation)

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