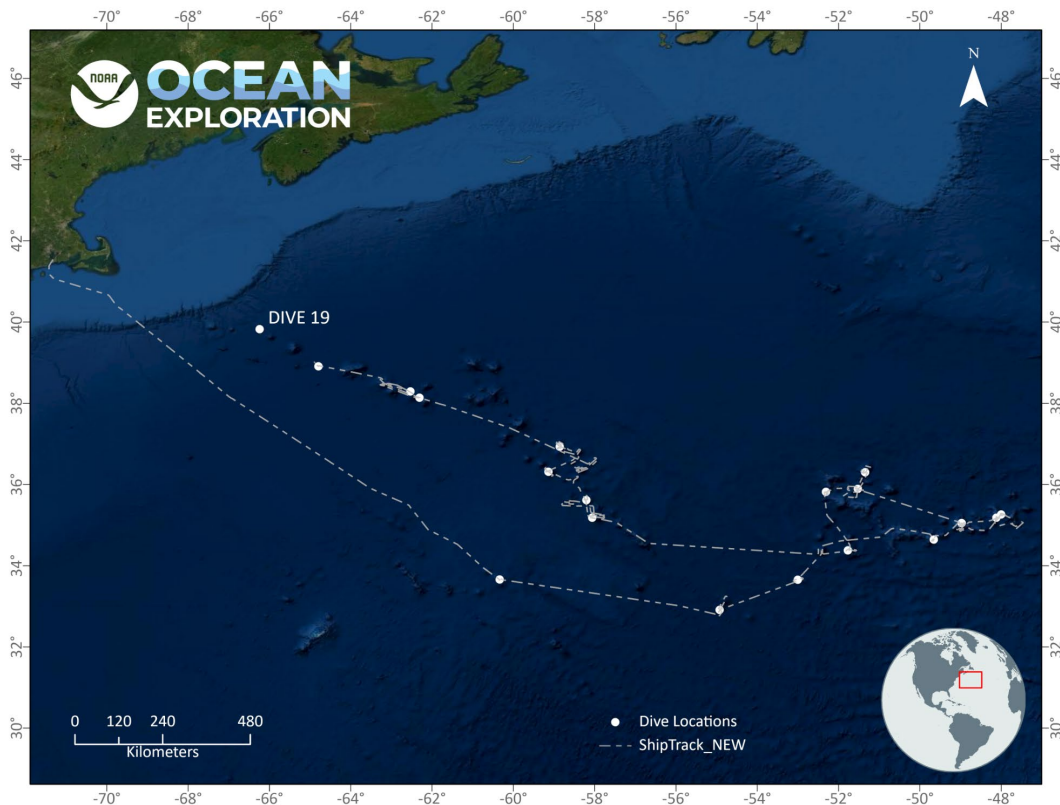


ROV Dive Summary, EX-21-04, Dive 19, July 27, 2021

General Location Map



Dive Information

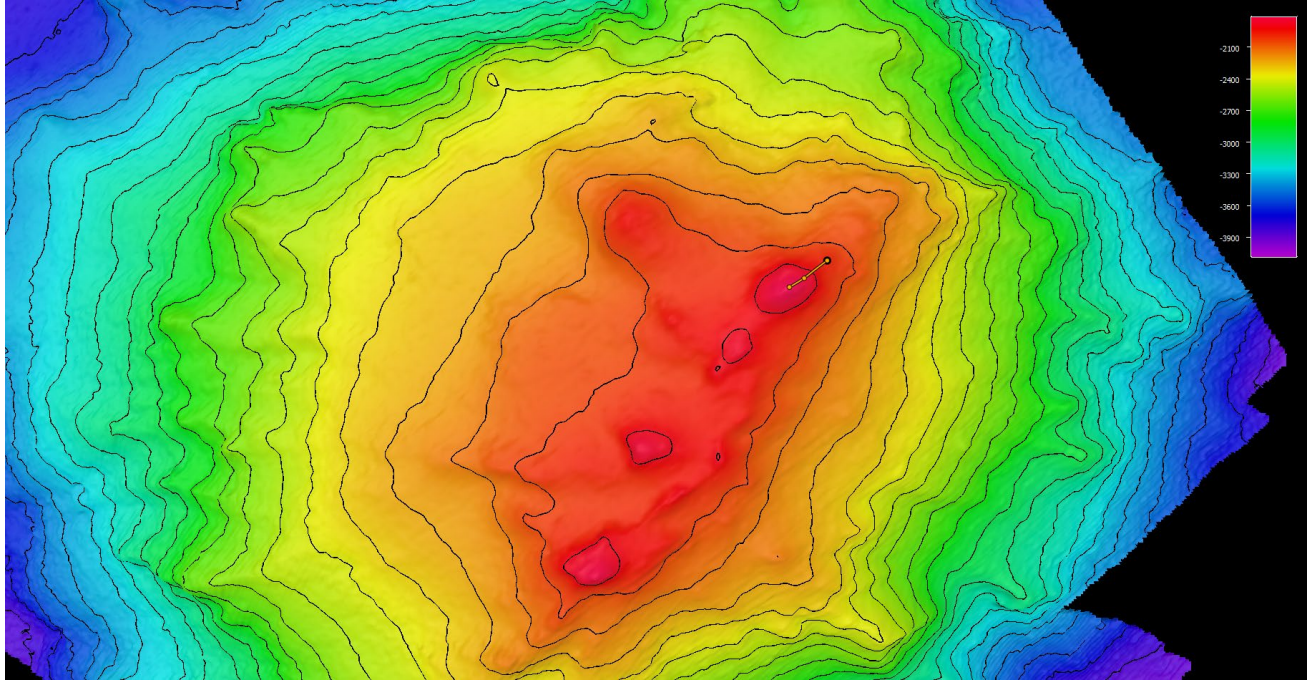
Site Name	Retriever Seamount
General Area Descriptor	Northern summit pinnacle
Science Team Leads	Rhian Waller, Jason Chaytor
Expedition Coordinator	Kasey Cantwell, Kimberly Galvez (Expedition Coordinator in Training)
ROV Dive Supervisor	Chris Ritter
Mapping Lead	Shannon Hoy
Dive Purpose	Shallowest dive to date on Retriever, exploring a cone feature on the top of the plateau

	<p>Echinus, Hygrosoma, Chondraster, Actinerus anemones, and aggregations of hydroids and bryozoans), including several species of fish (Chaunax coffin fish, Neolithodes, Lepidion, <i>Malacocephalus occidentalis</i>).</p> <p>Notable coral species on this dive include - Metallogorgia, Paramuricea, Acanella, Paramuricea, Hemicorallium, Acanthogorgia, Clavularia, Anthomastus, Iridigorgia (2 species), Paragorgia, Isidella, Swiftia, Candidella, Chrysogorgia, D-clade Keratoisis, B-Clade forked whip bamboo corals, non forked whip bamboo corals, unknown stoloniferous octocoral Stauropathes, Parantipathes, Telopathes magna, Bathypathes, thin black coral whip, Pennatula, Halipteris, rock pen Desmophyllum dianthus, Caryophyllia</p> <p>Notable ecological observations include an Irridogorgia that had calcified over what looked like squid eggs, crinoid covered corals (including an Irridogorgia) an Echinus seemingly having eaten over half of a bamboo whip coral, and several really large coral colonies (Paragorgia (~100yrs old), unknown plexuarid, telopathes and a Jasonis bamboo coral that may date at around 1600 years old using age data for bamboo corals from Alaska (Andrews et al., 2007) towards the peak of the pinnacle.</p>
Notable Observations	Dense, high diversity coral garden habitat Four large (>1.5m), and therefore old, octocorals towards the peak of the pinnacle
Community and habitat observations	Corals and Sponges - Present Chemosynthetic Community - Absent High biodiversity Community - Present 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=2423

Equipment Deployed

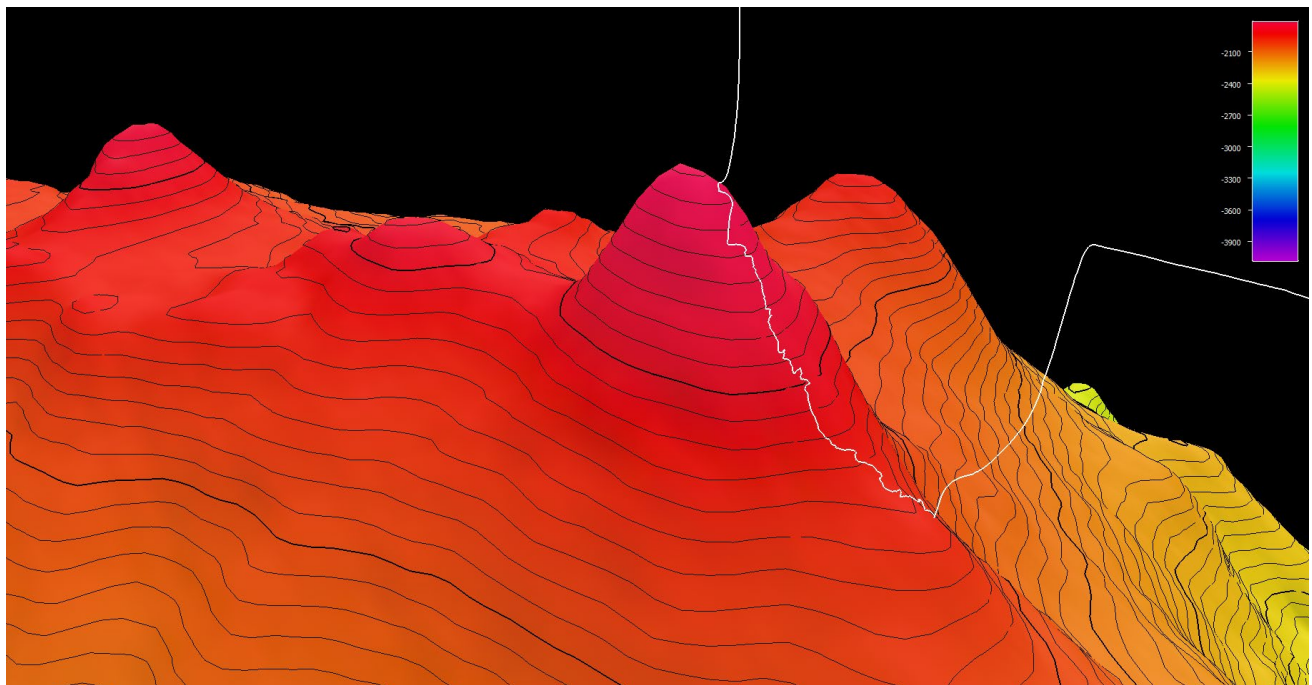
ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The section below notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	The salinity sensor on <i>Seirios</i> is still showing bad data.

Overview of Main Dive Site



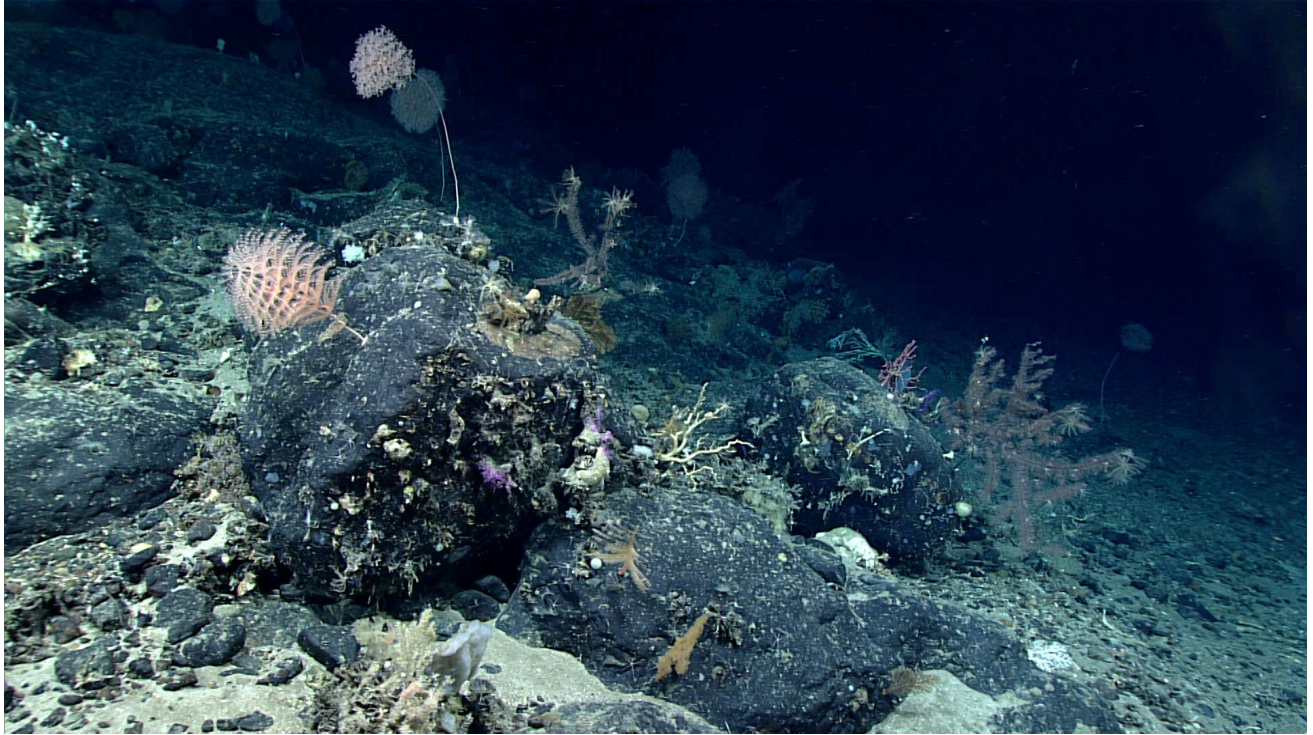
Smoothed ROV dive track (orange) on an overview bathymetry of the seamount, 3x vertical exaggeration.

Close-up Map of Main Dive Site

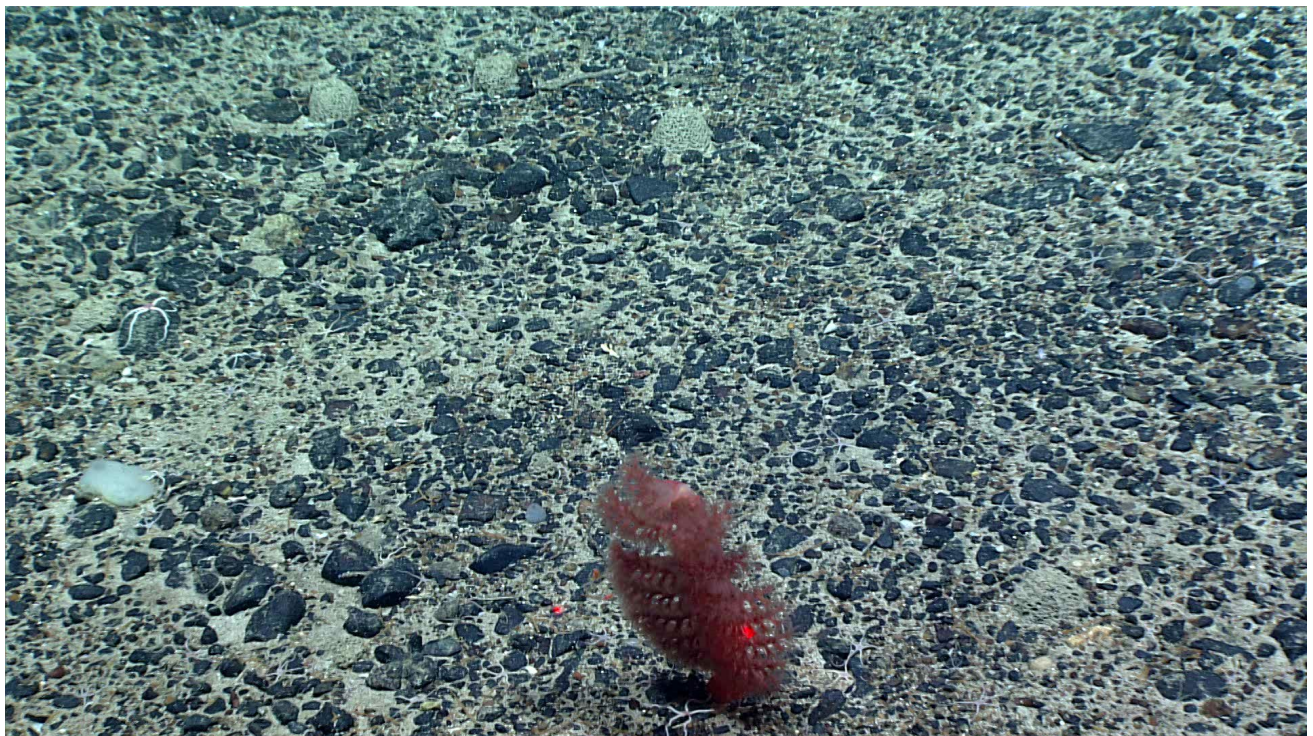


Smoothed ROV dive track in white on 25x25 cell size bathymetry, 3x vertical exaggeration, depth in meters, 10 meter contours

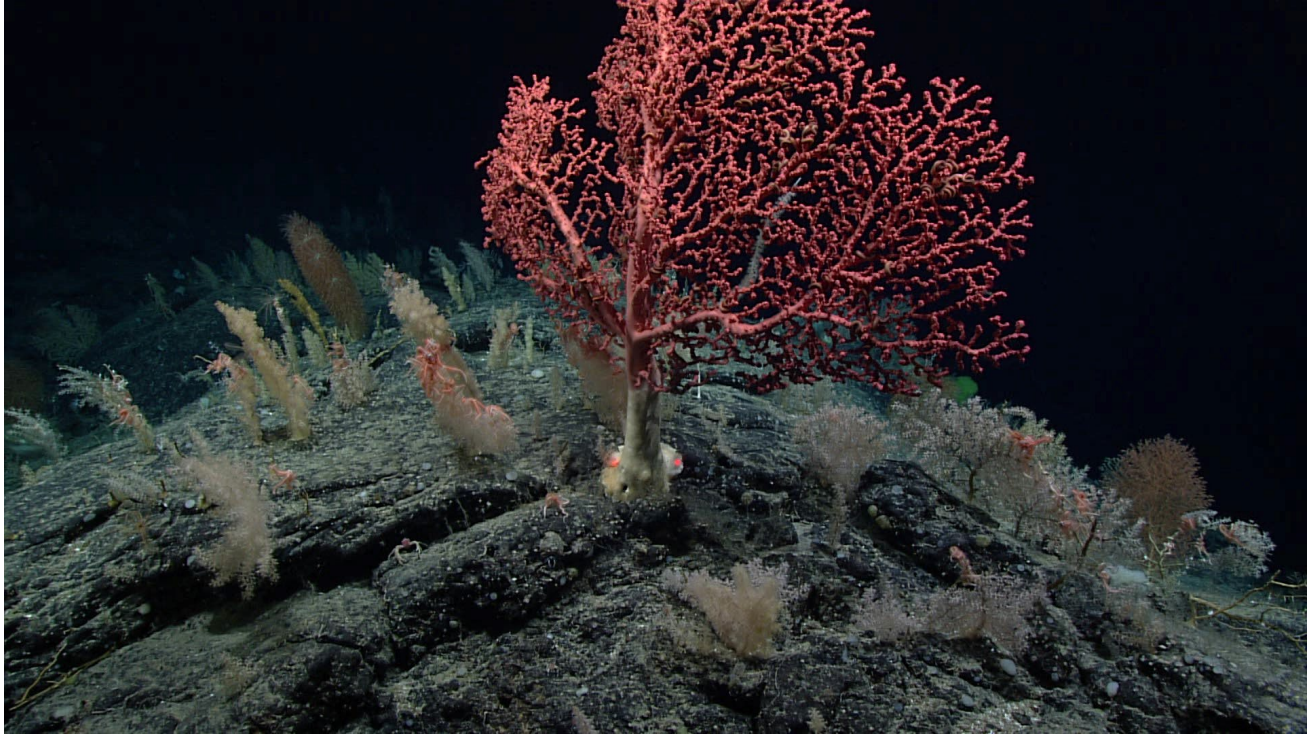
Representative Photos of the Dive



[High diversity coral environments were found throughout the dive track, particularly on areas with displaced FeMn-encrusted boulders and lobate/pillow lava outcrops.]



[Penatula sp. on a gravel/cobble-mantled sediment]



[Large *Paragorgia arborea* was observed during this dive track. Based on published radial growth rates for this species, this colony is approximately 100 years old]



[Live *Desmophyllum dianthus* were observed in several locations, particular underhangs. In this image 4 large colonies can be seen, but also three new recruits as well on the top area of the rock.]

Samples Collected -



Sample ID	EX2104_D19_01G
Date (UTC)	20210727
Time (UTC)	144316
Depth (m)	1937.102051
Latitude (decimal degrees)	39.83892822
Longitude (decimal degrees)	-66.22882843

Temp. (°C)	3.553999901
Field ID(s)	Angular Rock
Comments	18cm x 16cm x 4cm. Possible volcanic. FeMn crusted rock. Worm tubes.

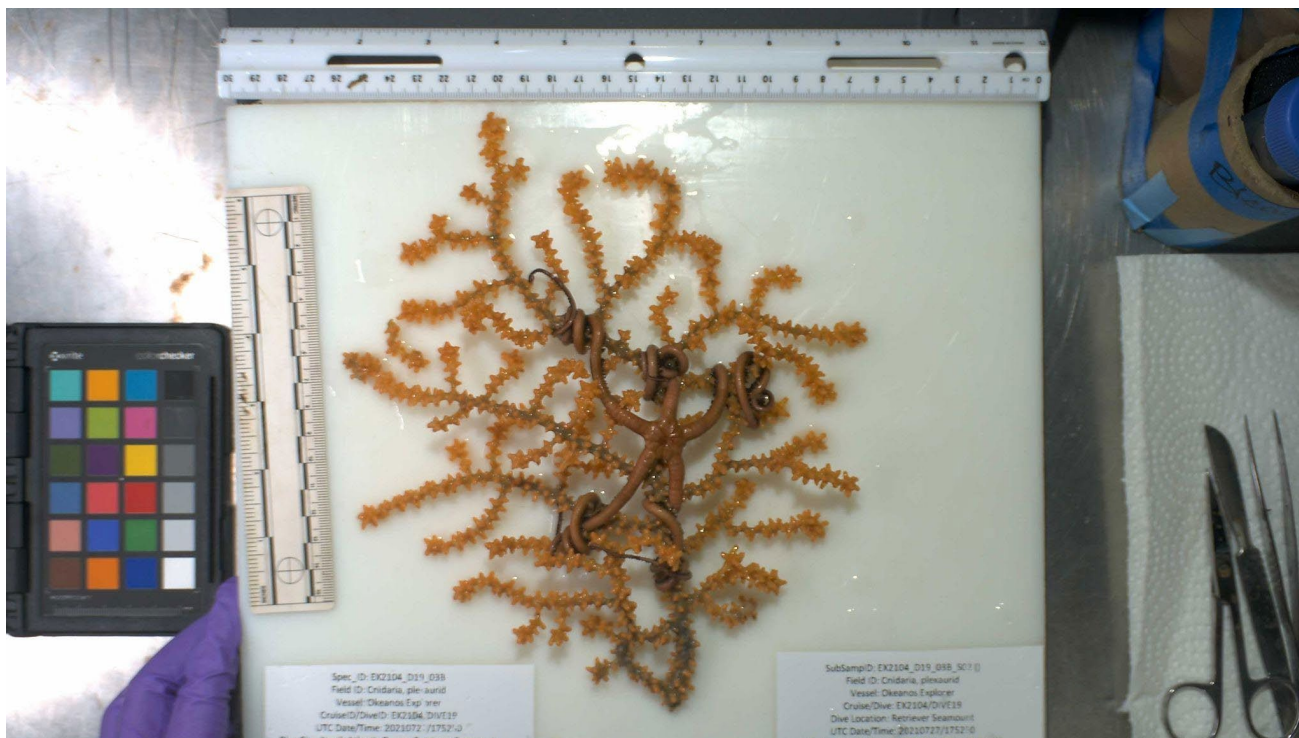
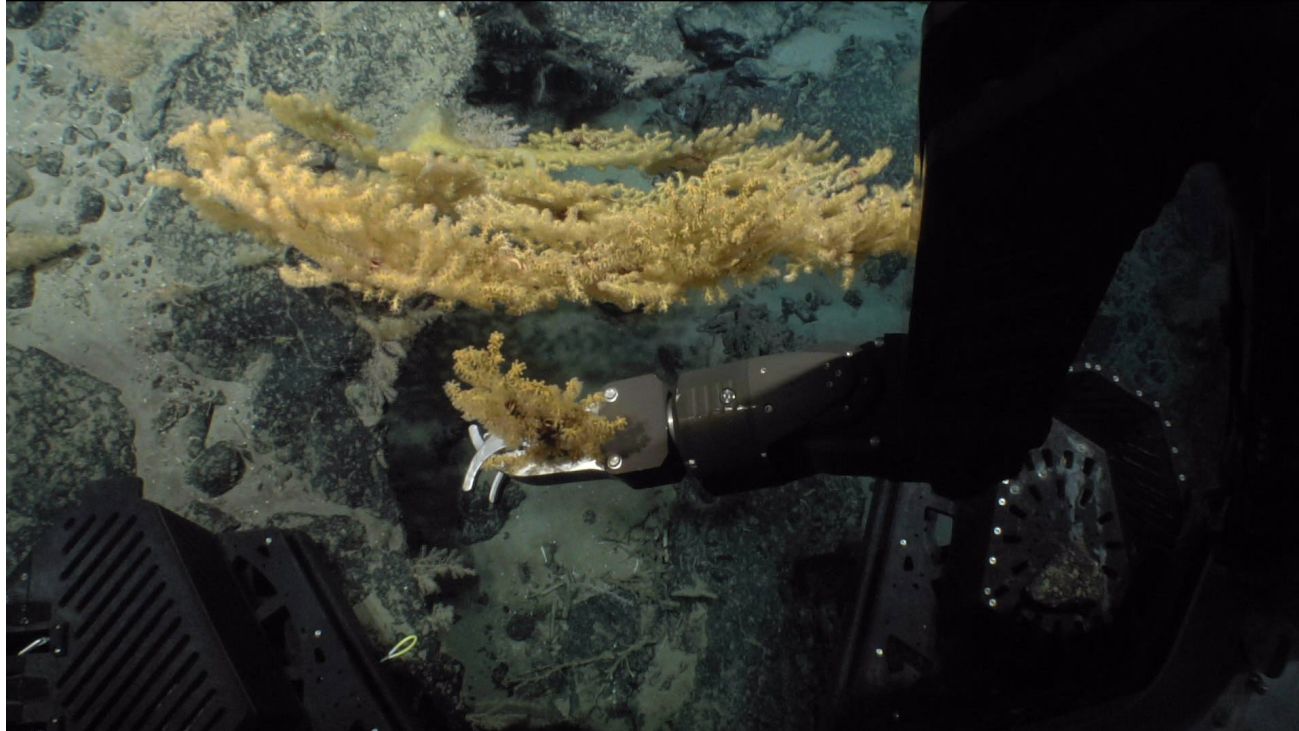
Associates Sample ID	Field Identification	Count
N/A	N/A	N/A





Sample ID	EX2104_D19_02G
Date (UTC)	20210727
Time (UTC)	165136
Depth (m)	1895.498047
Latitude (decimal degrees)	39.83752441
Longitude (decimal degrees)	-66.23006439
Temp. (°C)	3.71600008
Field ID(s)	Partially Rounded Rock
Comments	19cm long x 12cm wide x 7cm tall. Lots of pits and holes, seemingly just in the crust. Worm tubes present. Rusting. FeMn crust. Unknown rock type.

Associates Sample ID	Field Identification	Count
EX2104_D19_02G_A01	Unknown Brachiopod	3
EX2104_D19_02G_A02	Hydroida	multiple



Sample ID	EX2104_D19_03B
Date (UTC)	20210727
Time (UTC)	175250
Depth (m)	1868.646973
Latitude (decimal degrees)	39.83721161
Longitude (decimal degrees)	-66.2302475
Temp. (°C)	3.677999973

Field ID(s)	plexaurid
Comments	24cm

Associates Sample ID	Field Identification	Count
EX2104_D19_03B_A01	Asteroschema (Ophiocreas)	1

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