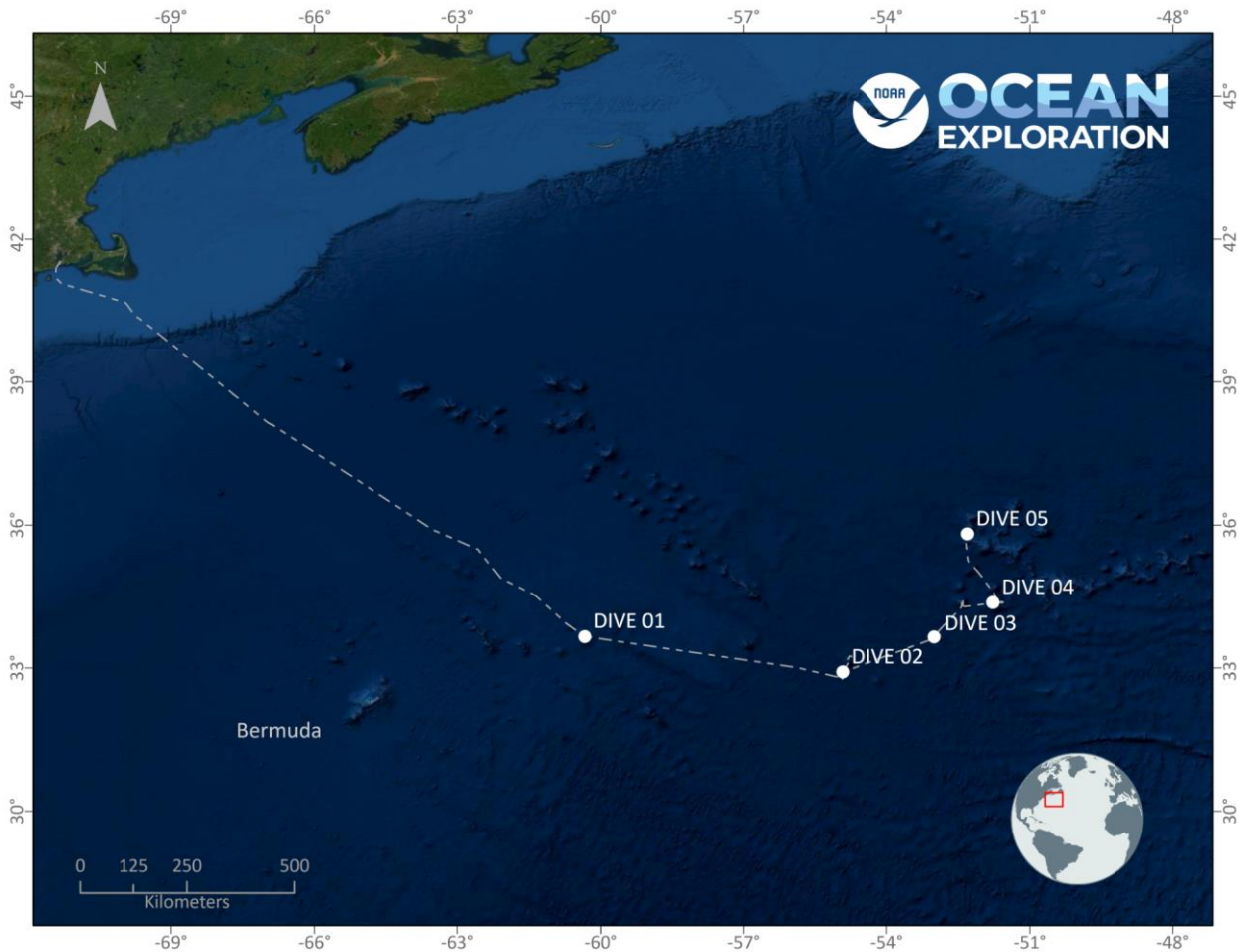


ROV Dive Summary, EX-21-04, Dive 05, July 8, 2021

General Location Map



Dive Information

Site Name	Rockaway Seamount
General Area Descriptor	Corner Rise Seamounts
Science Team Leads	Rhian Waller, Jason Chaytor, Kira Mizell
Expedition Coordinator	Kasey Cantwell, Kimberly Galvez (Expedition Coordinator in Training)
ROV Dive Supervisor	Chris Ritter

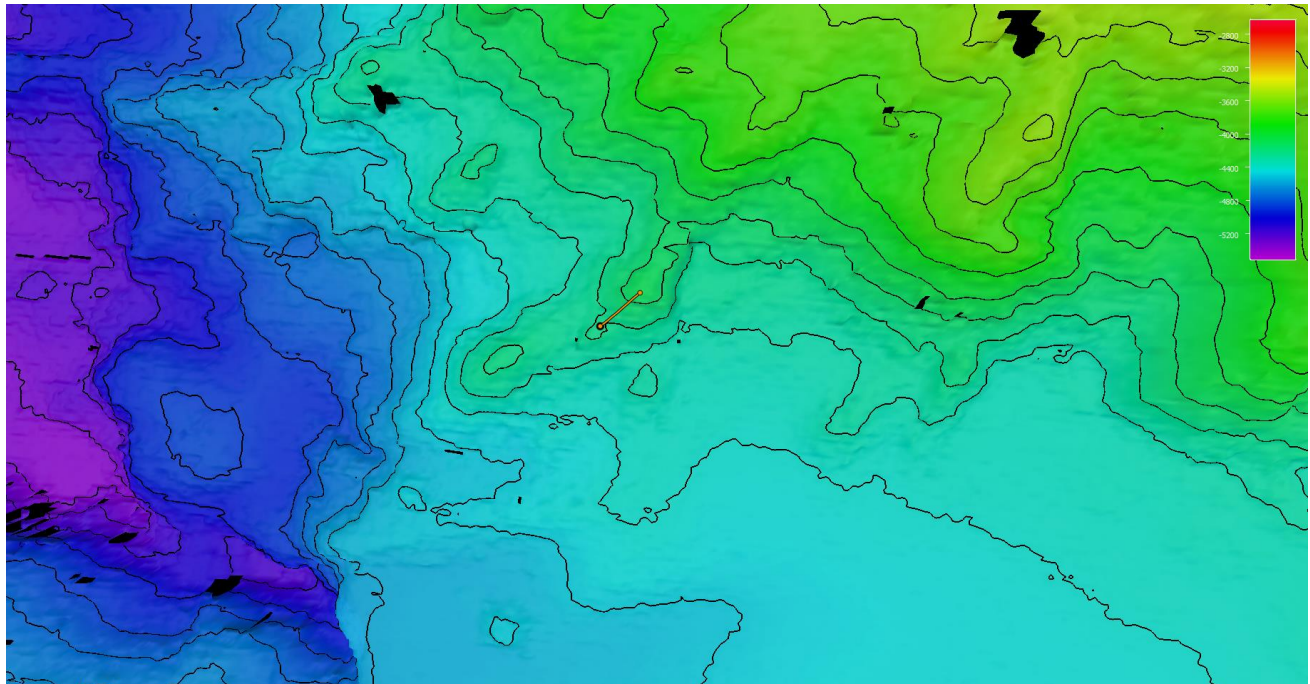
Dive Description	<p>A diverse range of substrate types and bottom morphologies were encountered during the dive to the deep western flank of Rockaway Seamount. D2 landed in an area of high-relief rock outcrops with scattered sediment (biogenic/volcanoclastic, but with pteropod tests less common and smaller than the shallower dives to date) and rock debris. Because ferromanganese crusts appeared to be relatively thin in places, the tops of pillow lavas were identified as the ROV crossed over the outcrops. A highly angular and lightly FeMn-coated rock was sampled from the landing area. Botryoidal FeMn textures were observed on the vertical faces of rock outcrops, with the top surfaces largely free of complex FeMn textures. The bottom quickly transitioned to an extensive sediment plain, with FeMn-coated rocks scattered across the sediment surface. Extensive bioturbation and mixing of the sediment were seen, including mixing of more coherent "clayballs" to the surface, especially in the areas surrounding the scattered rocks. Only weakly developed sediment ripples were seen, but a few feeding tracks were observed. The bottom type transitioned back to high-relief volcanic rock outcrops at the end of the dive with a range of different flow morphologies observed (pillow, sheet/lobate) and a narrow debris flow channel filled with a range of rock debris sizes (possible rock damming of the channel seen right at the end of the dive). Two additional rock samples were collected at the end of the dive, one from within the pillow/lobate flow area and the other from the debris flow channel.</p> <p>Biologically, as expected, there was generally low diversity throughout the dive track. A potential new depth record, or new species, of bamboo coral (genus <i>Bathygorgia</i>) was discovered shortly after landing, and there were several representatives in that area and throughout the dive track. Munidopsis squat lobsters were also observed throughout the dive track on the faces of rocks and not in association with sponges or corals. Sponges were the most abundant fauna during the dive, several Euplectellid (sponges on stalks) were seen, carnivorous sponges (Cladorhizidae), as well as fan shaped sponges forming lines down rocks. One potential new species of sponge was collected. An <i>Abyssopathes</i> black coral was observed (small specimen), and two species of cerianthid were seen, one large dark colored with two amphipods in holes at the base. A number of swimming invertebrates were seen (no fish were observed on this dive), including several water walker isopods (<i>Muniopsis</i>), <i>Swima</i> sp. polychaete worms, a swimming cucumber (<i>Enypniastes</i>) and several mysids. Although overall diversity and density was low, this dive did have more diversity than expected given the depth.</p>
Notable Observations	<p>Large cerianthid anemone Potential new species of <i>Bathygorgia</i> bamboo coral High-relief volcanic flow features with what appears to be limited FeMn-crusts</p>
Community and habitat observations	<p>Corals and Sponges - Present Chemosynthetic Community - Absent High biodiversity Community - Absent Active Seep or Vent - Absent Extinct Seep or Vent - Absent Hydrates - Absent</p>
CMECS Feature Type(s)	<p>Rock, Sediment (Fine & coarse unconsolidated)</p>
SeaTube Link (science annotation system)	<p>https://data.oceannetworks.ca/SeaTubeV3?resourceTypeid=600&resourceid=2283</p>

Equipment Deployed

ROV	<i>Deep Discoverer</i>
-----	------------------------

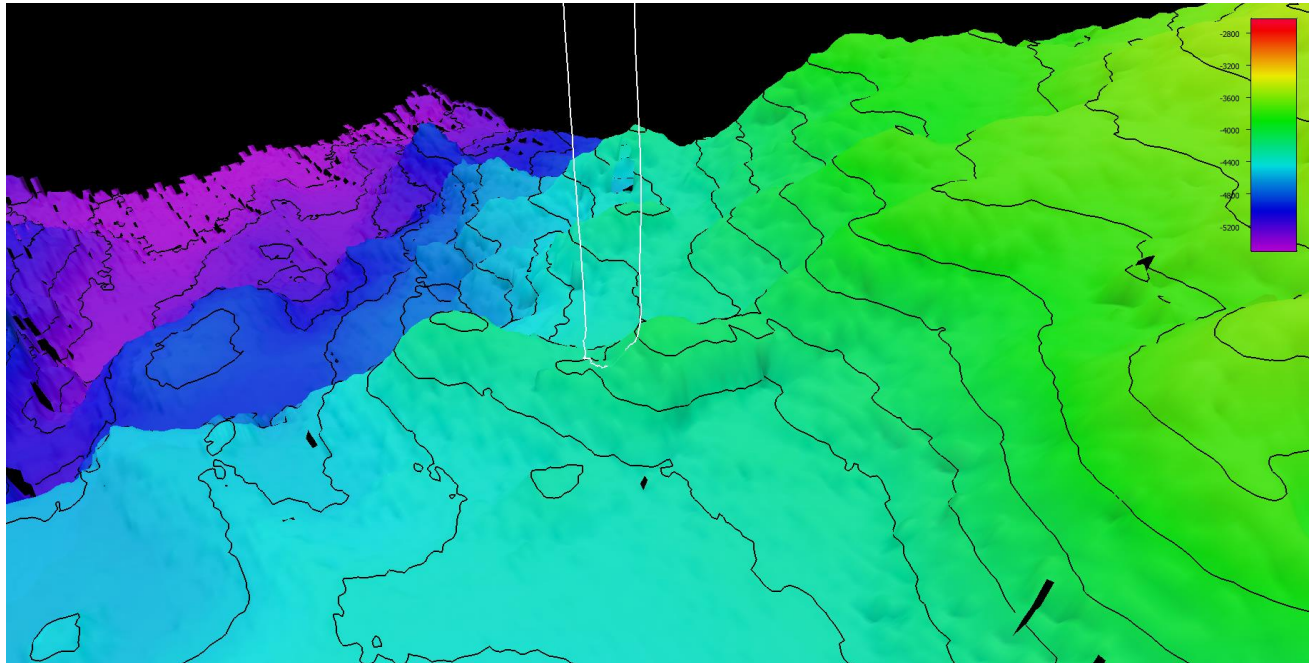
Camera Platform	<i>Seirios</i>
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The section below notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	D2's CTD was having issues today throughout the dive. Data users should use <i>Seirios'</i> CTD/Salinity data. Issue will be troubleshooting overnight prior to Dive 06.

Overview of Dive Site



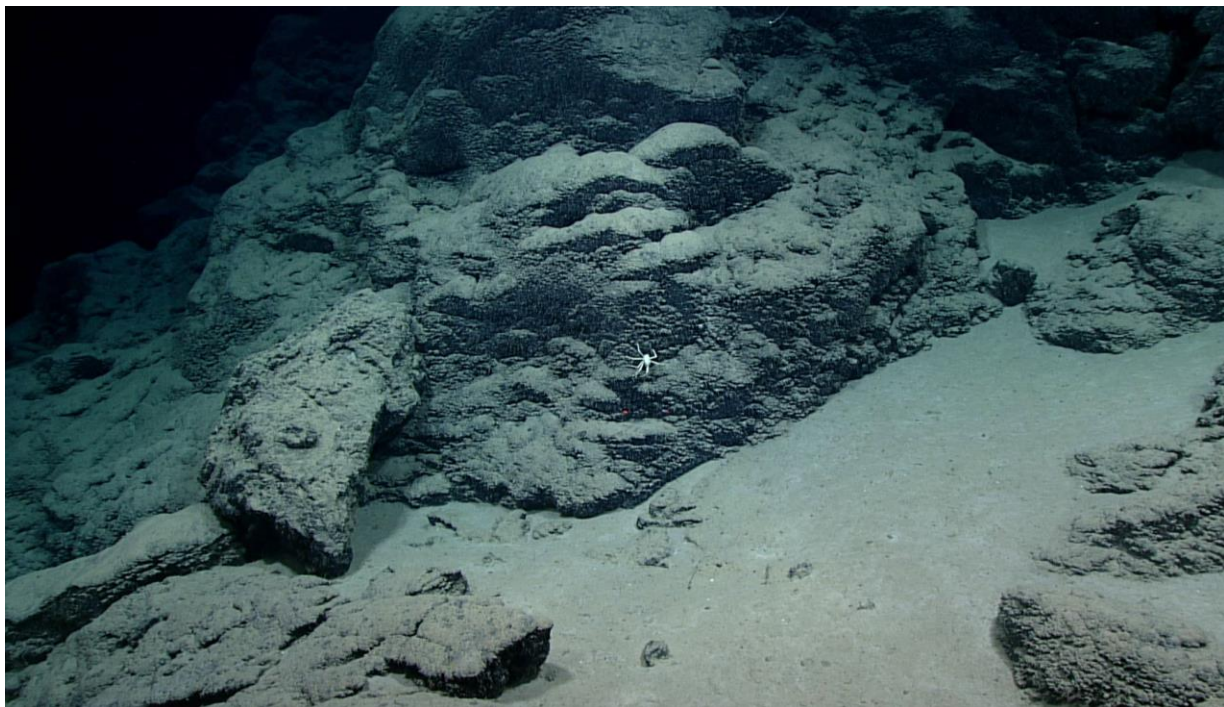
Smoothed ROV dive track (orange) on an overview bathymetry of the seamount, 3x vertical exaggeration.

Close-up Map of Main Dive Site

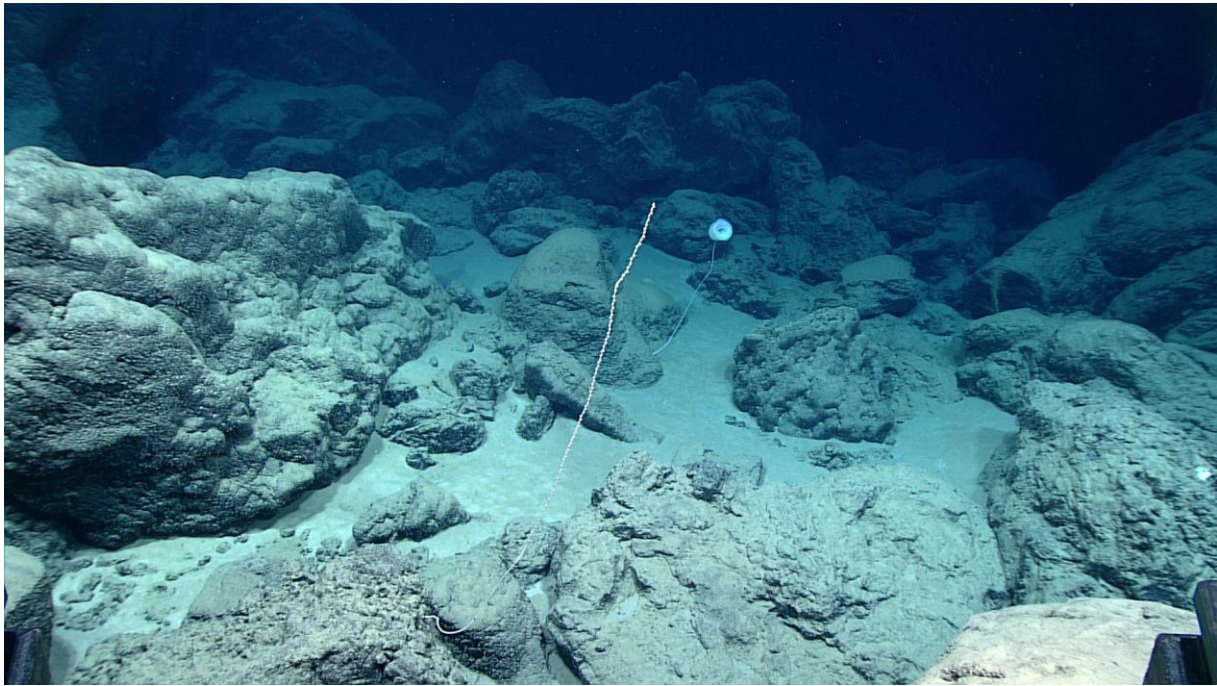


Smoothed ROV dive track in white on 25x25 cell size bathymetry, 3x vertical exaggeration, depth in meters, 100 meter contours.

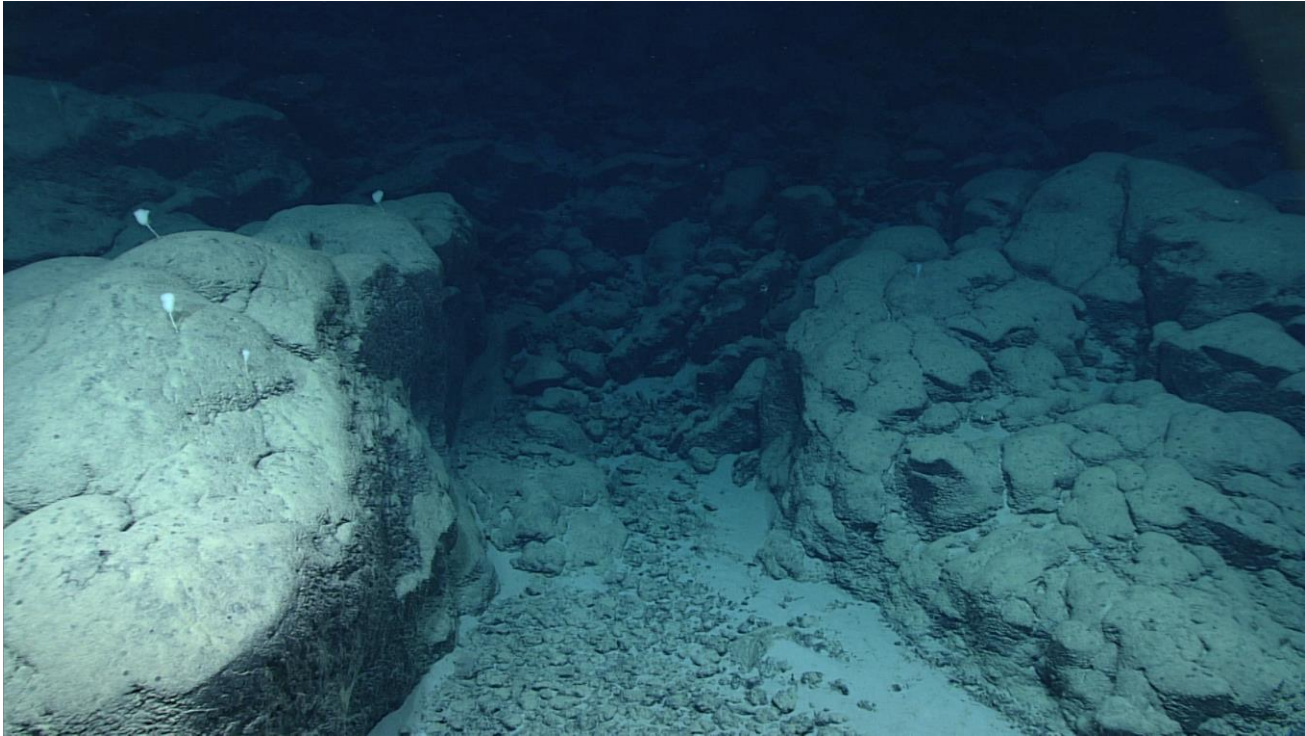
Representative Photos of the Dive



[At the beginning of dive we landed in an area of high relief outcrops and scattered sediments, with munidopsis squat lobsters often found on the faces of rocks]

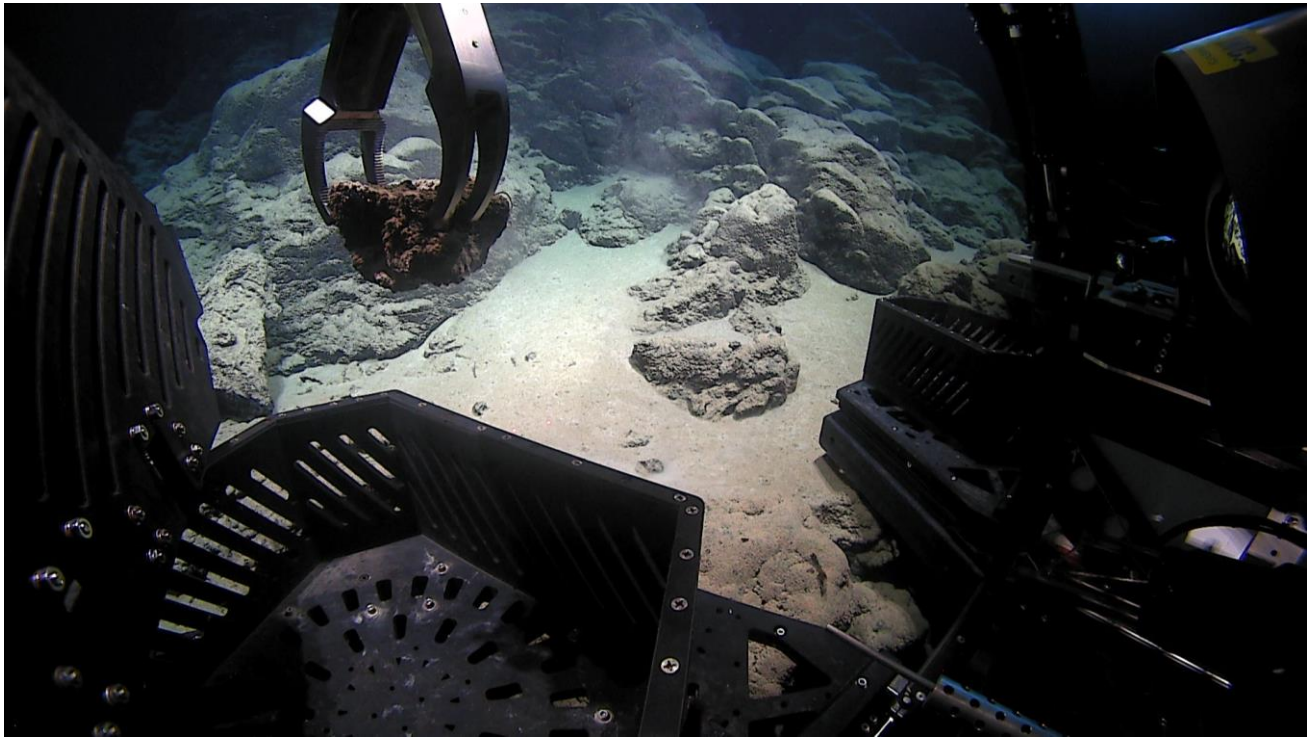


[A potential new depth record and/or species of Bathygorgia bamboo coral. A stalked sponge in the background]



[A rock debris flow and possible rock dam at the end of the dive where the final sample was collected]

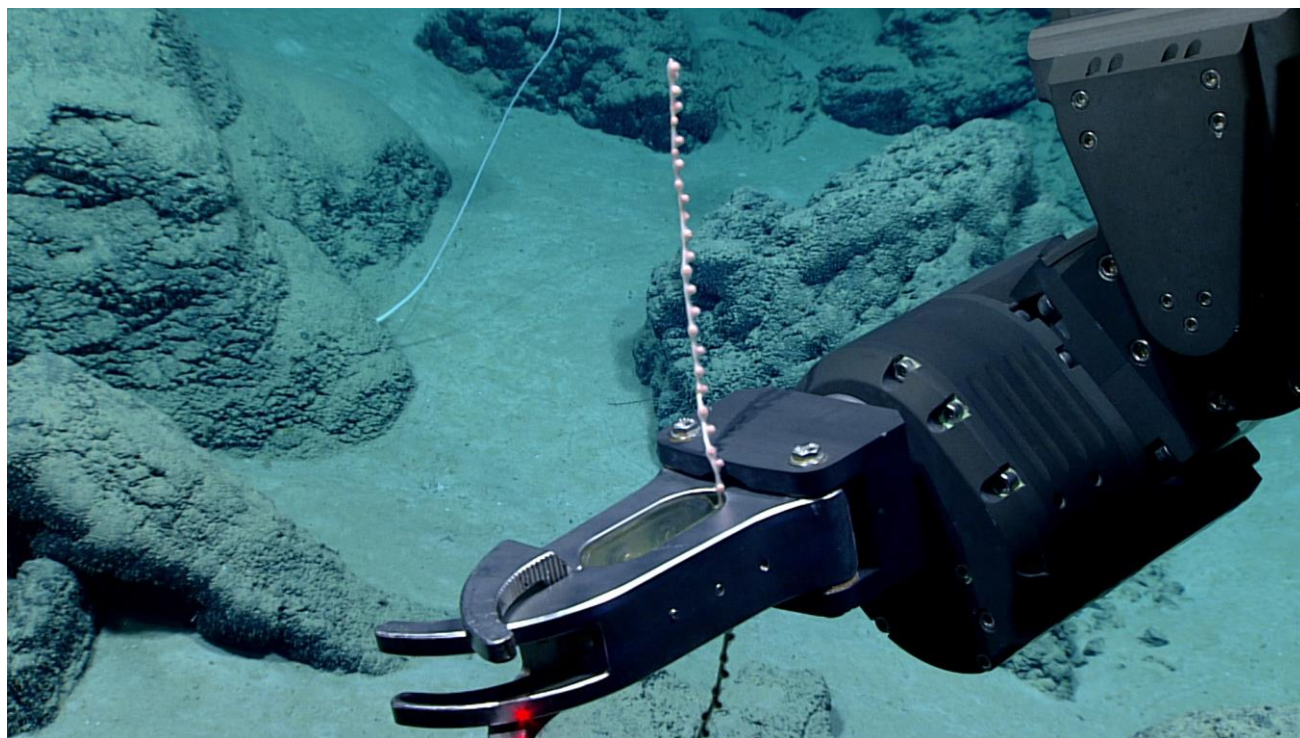
Samples Collected -



Sample ID	EX2104_D05_01G
Date (UTC)	20210708

Time (UTC)	151948
Depth (m)	4171.041992
Latitude (decimal degrees)	35.81689835
Longitude (decimal degrees)	-52.30752945
Temp. (°C)	2.245
Field ID(s)	Deep Rock Sample
Comments	0.7Kg

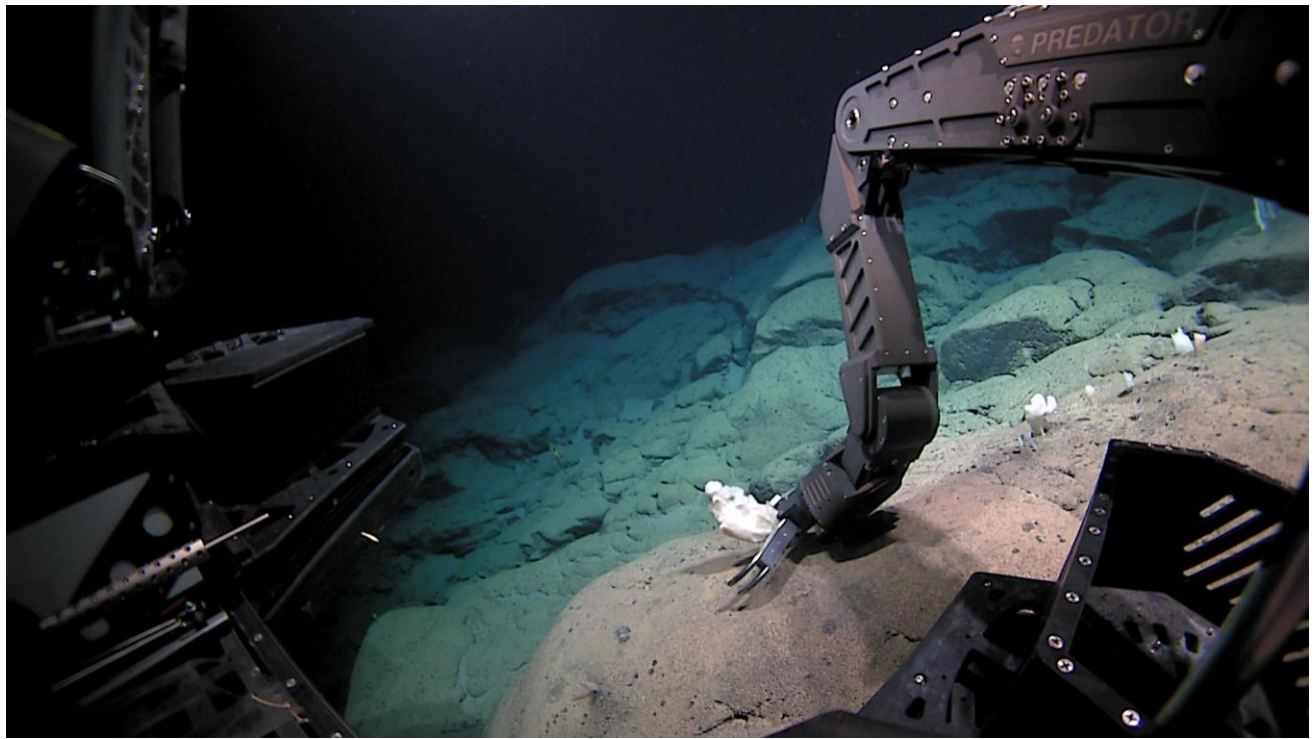
Associates Sample ID	Field Identification	Count
N/A	N/A	N/A





Sample ID	EX2104_D05_02B
Date (UTC)	20210708
Time (UTC)	154224
Depth (m)	4167.821777
Latitude (decimal degrees)	35.81672668
Longitude (decimal degrees)	-52.30762482
Temp. (°C)	2.251
Field ID(s)	Bathygorgia
Comments	16cm

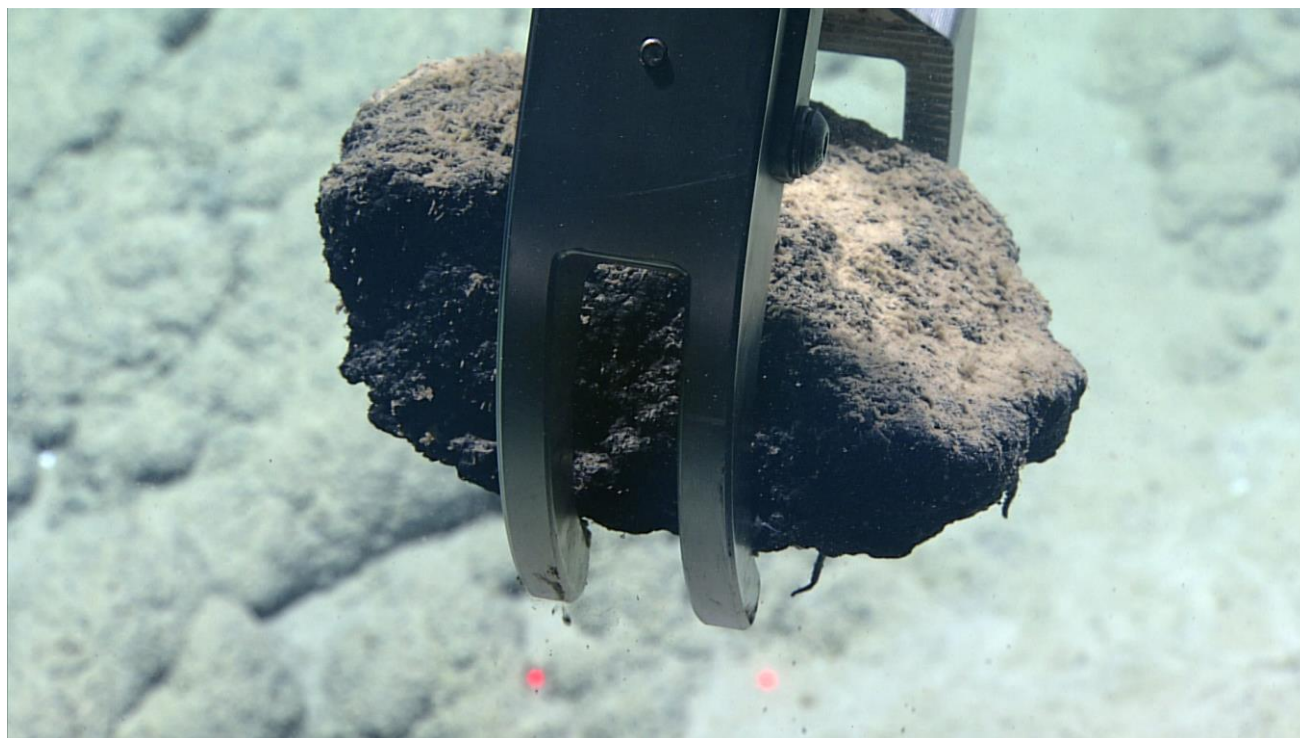
Associates Sample ID	Field Identification	Count
N/A	N/A	N/A



Sample ID	EX2104_D05_03B
Date (UTC)	20210708
Time (UTC)	161738

Depth (m)	4182.413086
Latitude (decimal degrees)	35.81703186
Longitude (decimal degrees)	-52.30757523
Temp. (°C)	2.256999969
Field ID(s)	Demospongiae
Comments	22cm

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





Sample ID	EX2104_D05_04G
Date (UTC)	20210708
Time (UTC)	172220
Depth (m)	4165.708984
Latitude (decimal degrees)	35.81801987
Longitude (decimal degrees)	-52.30634689
Temp. (°C)	2.232
Field ID(s)	Rock sample with FeMn crust
Comments	15cm long by 12 cm wide by 6.5cm tall

Associates SampleID	Field Identification	Count
N/A	N/A	N/A



Sample ID	EX2104_D05_05G
Date (UTC)	20210708
Time (UTC)	180727

Depth (m)	4114.128906
Latitude (decimal degrees)	35.81894302
Longitude (decimal degrees)	-52.30562592
Temp. (°C)	2.263
Field ID(s)	Rock Landslide
Comments	30cm long, 12cm wide, and 12cm tall at tallest point and 6cm at shortest

Scientists Involved (provide name, email, affiliation)

First Name	Last Name	Email	Affiliation
Christopher	Kelley	ckelley@hawaii.edu	University of Hawaii
Christopher	Mah	brisinga@gmail.com	Dept. Invertebrate Zoology, National Museum of Natural History
Cindy	Van Dover	clv3@duke.edu	Duke University
Dhugal	Lindsay	dhugal@jamstec.go.jp	JAMSTEC
Emily	Crum	emily.crum@noaa.gov	NOAA Ocean Exploration
Fae	Sapsford	fsapsford@sargassoseacommission.org	Sargasso Sea Commission
George	Matsumoto	mage@mbari.org	MBARI
Harold	Carlson	harold.carlson@noaa.gov	NOAA, USC
Jason	Chaytor	jchaytor@usgs.gov	USGS
Jaymes	Awbrey	C00227433@louisiana.edu	University of Louisiana at Lafayette
Jill	Bourque	jbouque@usgs.gov	USGS
Jocelyn	Cooper	jocelyn.cooper@maine.edu	University of Maine
John	Deitz	johncdeitz@comcast.net	Long Island University
Kasey	Cantwell	kasey.cantwell@noaa.gov	NOAA Ocean Exploration
Kelsey	Viator	ksviator2000@gmail.com	University of Louisiana at Lafayette
Kevin	Konrad	Kevin.Konrad@unlv.edu	University of Nevada, Las Vegas
Kimberly	Galvez	kimberly.galvez@noaa.gov	OER
Kira	Mizell	kmizell@usgs.gov	USGS
Les	Watling	watling@hawaii.edu	University of Hawaii at Manoa
Meagan	Putts	meagan.putts@noaa.gov	University of Hawaii

Michael	Vecchione	vecchiom@si.edu	NOAA & NMNH
Noelle	Helder	noelle.helder@noaa.gov	NOAA OER
Bramley	Murton	bramley.murton@noc.ac.uk	National Oceanography Centre, UK
Rhian	Waller	rhian.waller@maine.edu	University of Maine
Robert	Carney	rcarne1@lsu.edu	LSU Dept Oceanography and Coastal Sciences
Scott	France	france@louisiana.edu	University of Louisiana at Lafayette
Tina	Molodtsova	tina@ocean.ru	P.P.Shirshov Institute of Oceanology RAS
Upasana	Ganguly	upasana.ganguly1@louisiana.edu	University of Louisiana at Lafayette
Pierre	Josso	piesso@bgs.ac.uk	British Geological Survey

Please direct inquiries to:

NOAA Office of Ocean Exploration & Research
1315 East-West Highway, SSMC3 RM 10210
Silver Spring, MD 20910
oceanexplorer@noaa.gov