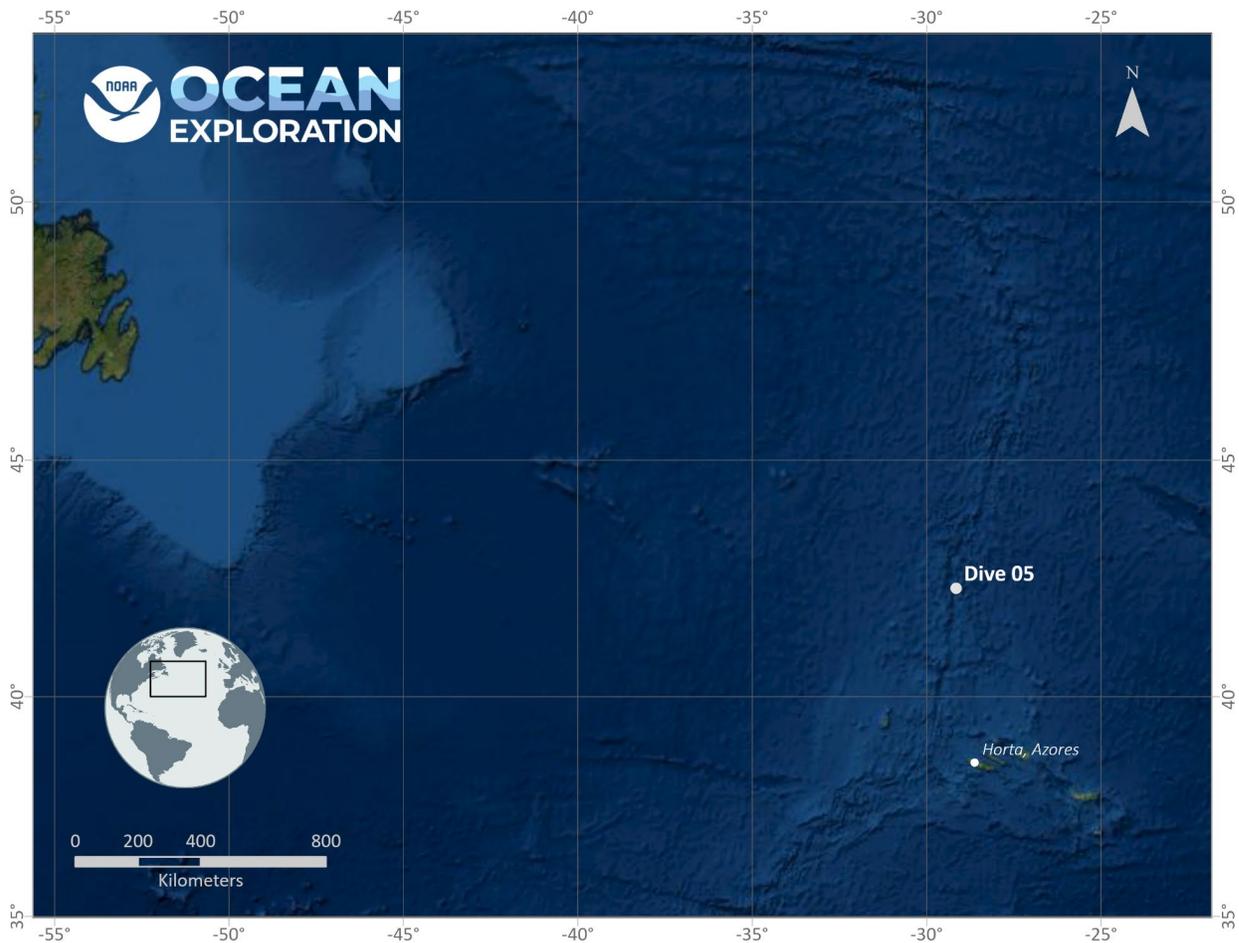


ROV Dive Summary, EX-22-05, Dive 05, July 24, 2022

General Location Map



Dive Information

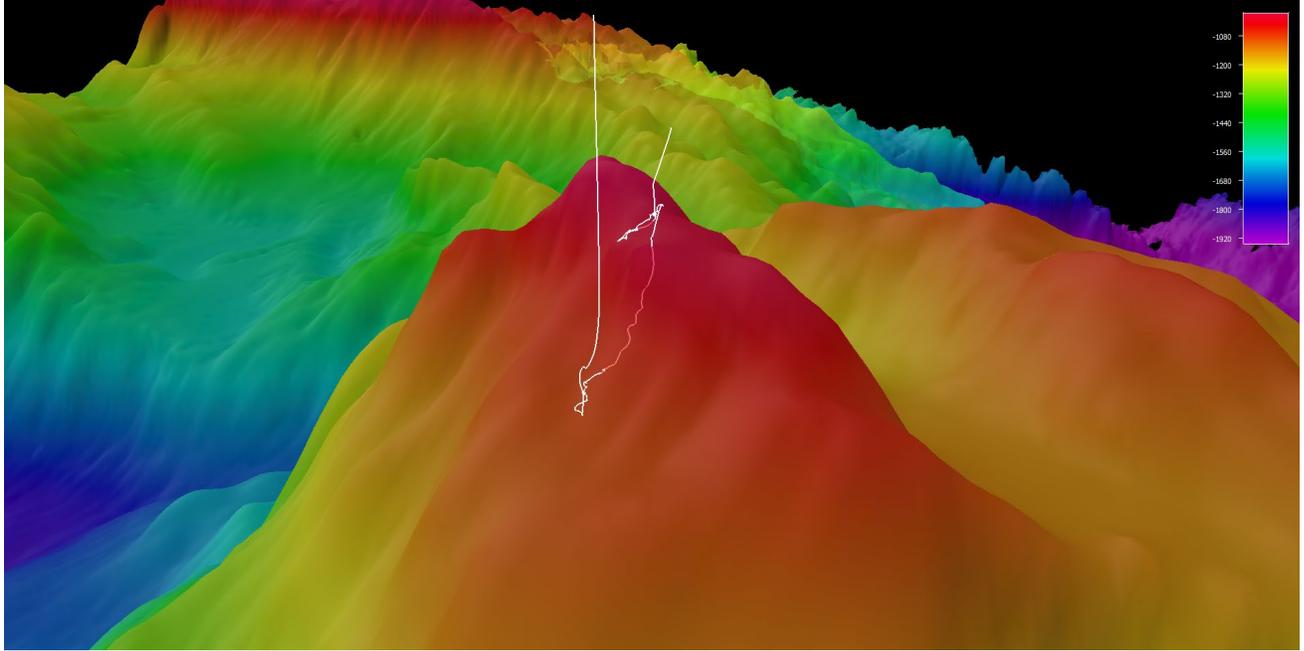
Site Name	Zenith
General Area Descriptor	Seamount at a ridge-parallel normal fault, Mid-Atlantic Ridge.
Science Team Leads	Dr. Scott France (Biology), Dr. Ashton Flinders (Geology)
Expedition Coordinator	Dr. Derek Sowers
ROV Dive Supervisor	Christopher Ritter

Dive Description	<p><i>Biology</i></p> <p>For the entire dive track we moved among a wide variety and high density of colorful corals and sponges (and their many associates, including crinoids, urchins, brittle stars). At the start of the dive (1073 m) the fauna were growing on mostly sediment-free pillow basalts. Further upslope, at about 1025 m depth, we encountered flatter areas with considerable coral rubble and smaller rock outcrops, and then moved back to sloped pillows. Small clumps of a branching scleractinian were common, and likely the source of the extensive rubble. Several rock outcrops held a picturesque assemblage of corals and sponges. Some of the corals were large colonies, in particular some of the black corals (<i>Leiopathes</i>, <i>Tylopathes</i>, <i>Phanopathes</i>), and plexaurid and bamboo octocorals. We observed (and collected a fragment of) a bamboo coral that was covered in very small platyctenid benthic ctenophores. Sponges included <i>Hertwigia falcifera</i>, <i>Chonelasma</i>, <i>Euplectella</i>, <i>Pheronema carpenteri</i>; several of the sponges (and some plexaurid octocorals) were not recognized by the experts participating in the chatroom, and suggests undescribed diversity at this site. There were many requests for collections today, more than we were able to accommodate.</p> <p>Fish highlights included false boarfish, <i>Neocyttus helgae</i>; Orange Roughy (<i>Hoplostethus atlanticus</i>); and Atlantic thornyhead, <i>Trachyscorpia cristulata</i>.</p> <p><i>Geology</i></p> <p>Pillow basalt fragments likely coated in manganese. One outcrop that looked like a potential small pillow mound with elongate pillow lobes, but could have been an overturned surface. Pervasive coral skeletons covering most of the area.</p>
Notable Observations	A number of outcrops supported diverse assemblages of corals and sponges, including several large colonies.
Community and habitat observations	<p>Corals and Sponges - Present</p> <p>Chemosynthetic Community - Absent</p> <p>High biodiversity Community - Present</p> <p>Active Seep or Vent - Absent</p> <p>Extinct Seep or Vent - Absent</p> <p>Hydrates - Absent</p>
CMECS Feature Type(s)	Seamount / Slope
SeaTube Link (science annotation system)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=2603

Equipment Deployed

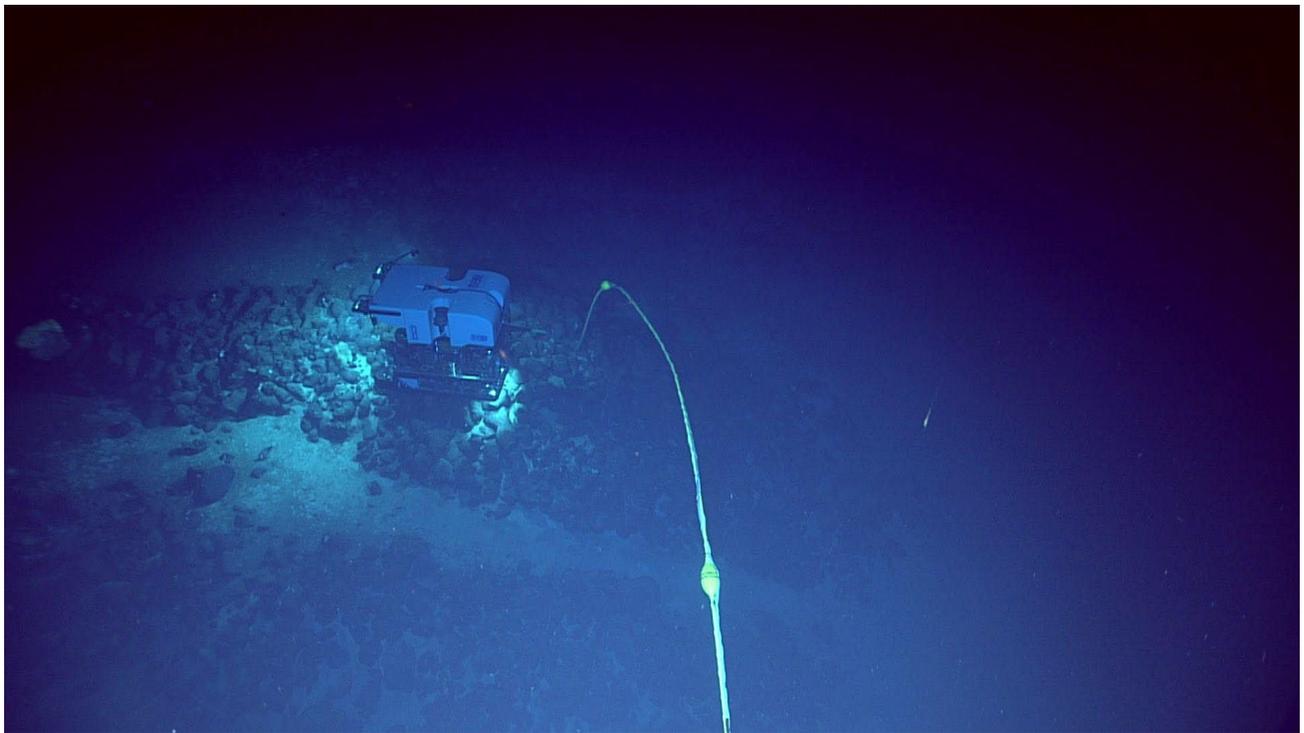
ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms,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

Close-up Map of Main Dive Site

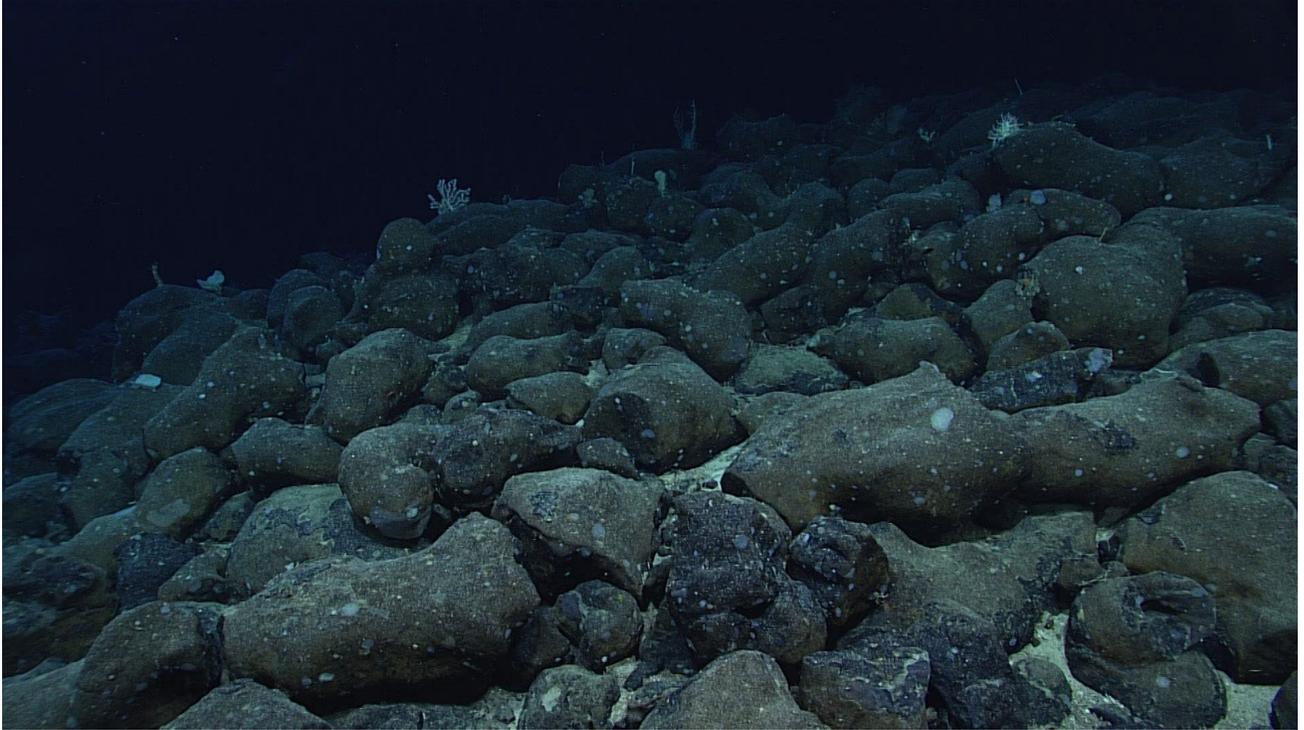


Smoothed ROV dive track in white on 25x25 cell size bathymetry, 3x vertical exaggeration, depth in meters, 10 meter contours.

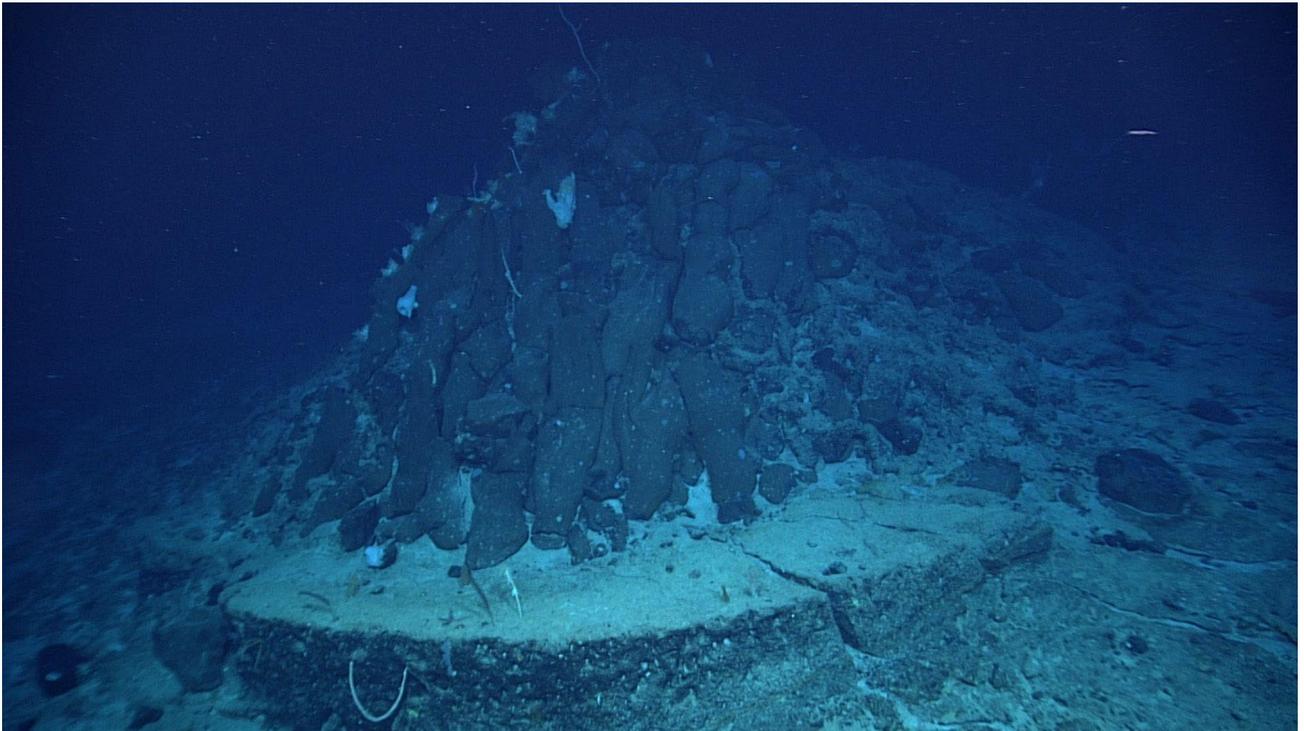
Representative Photos of the Dive



Pillow exposure and pillow talus lobes separated by current driven sediment.



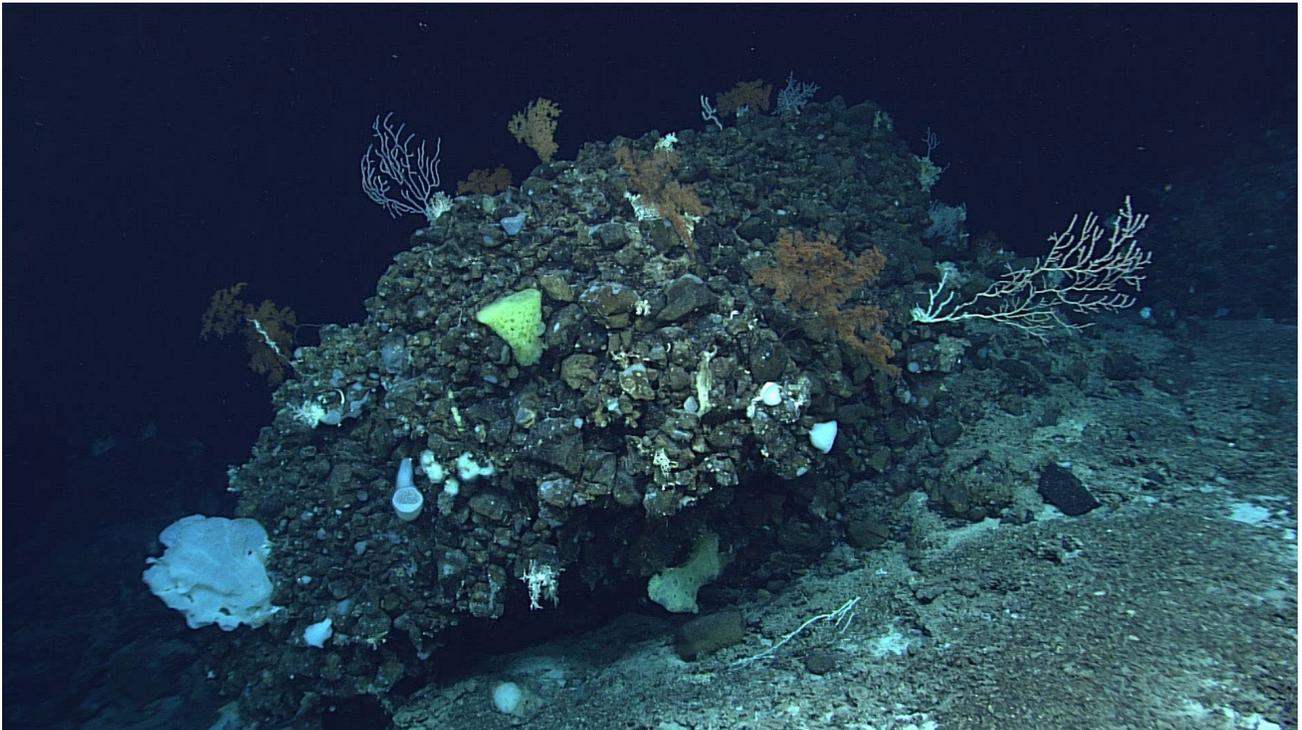
Small pillow outcrop.



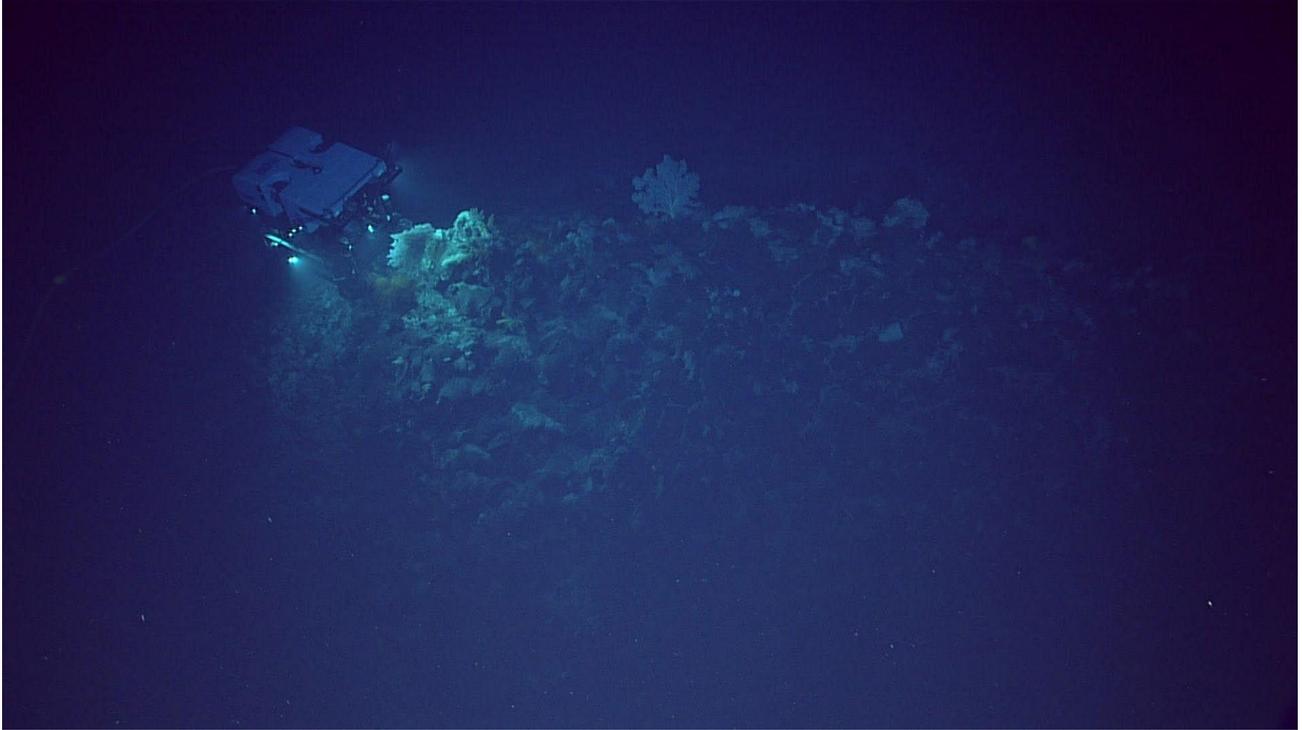
Elongate pillow lobes from either a small eruptive vent or post-deposit faulting (uplift)



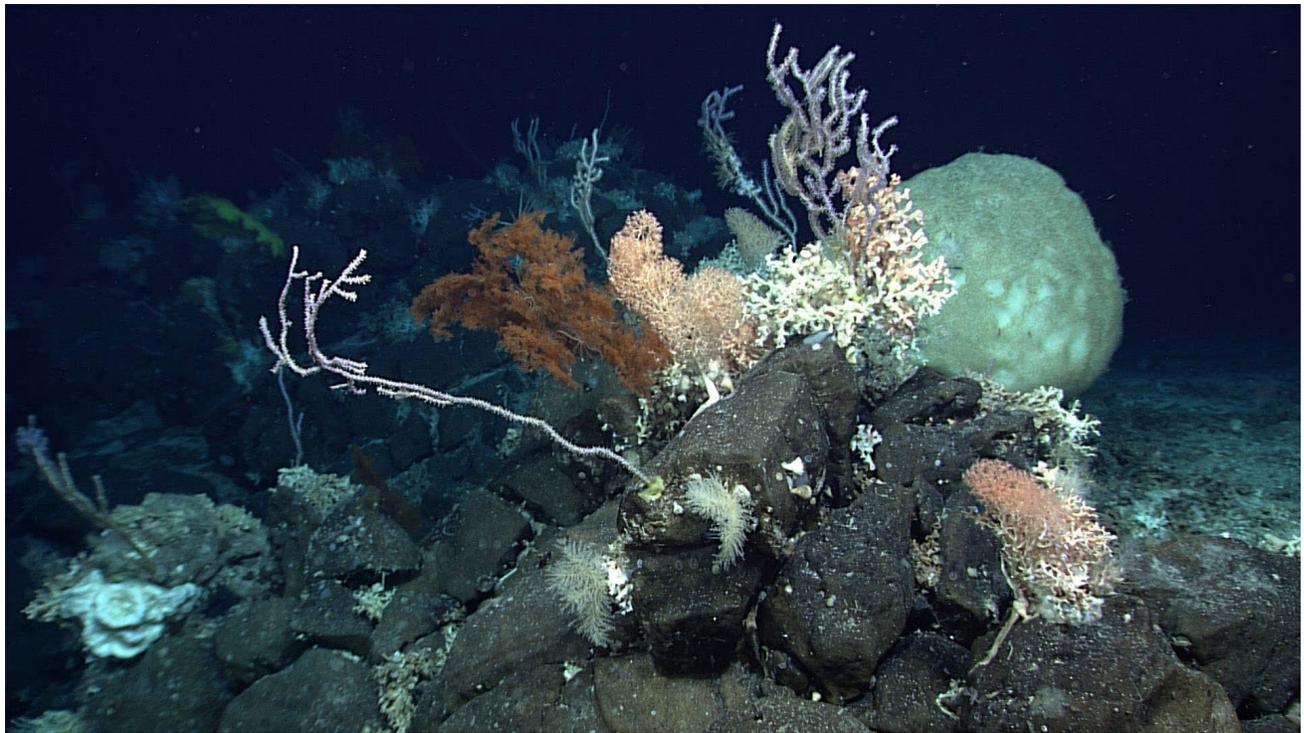
Coral skeleton and occasional pillow rubble.



An outcrop home to many suspension feeders at 1058 m depth.

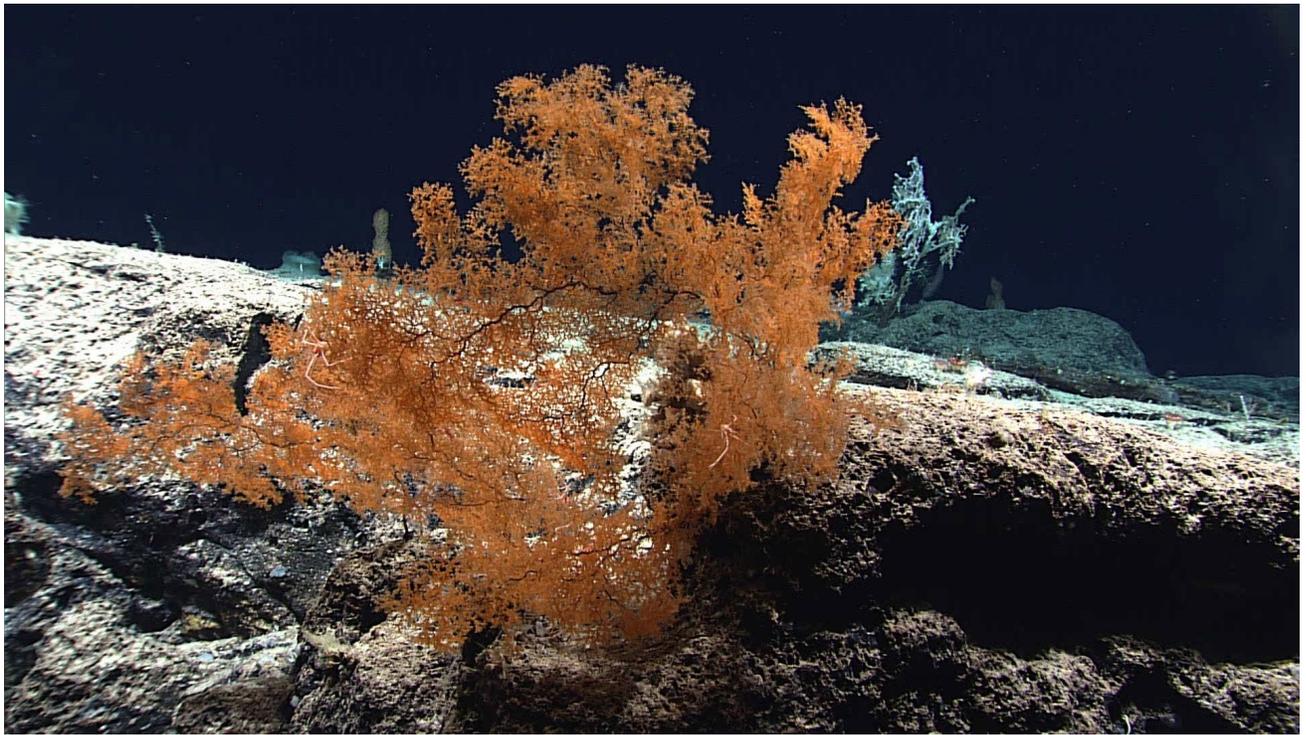


ROV *Deep Discoverer* imaging large coral colonies at 986 m depth.



An example of the diversity of coral and sponges on outcrops, here at 989 m depth.

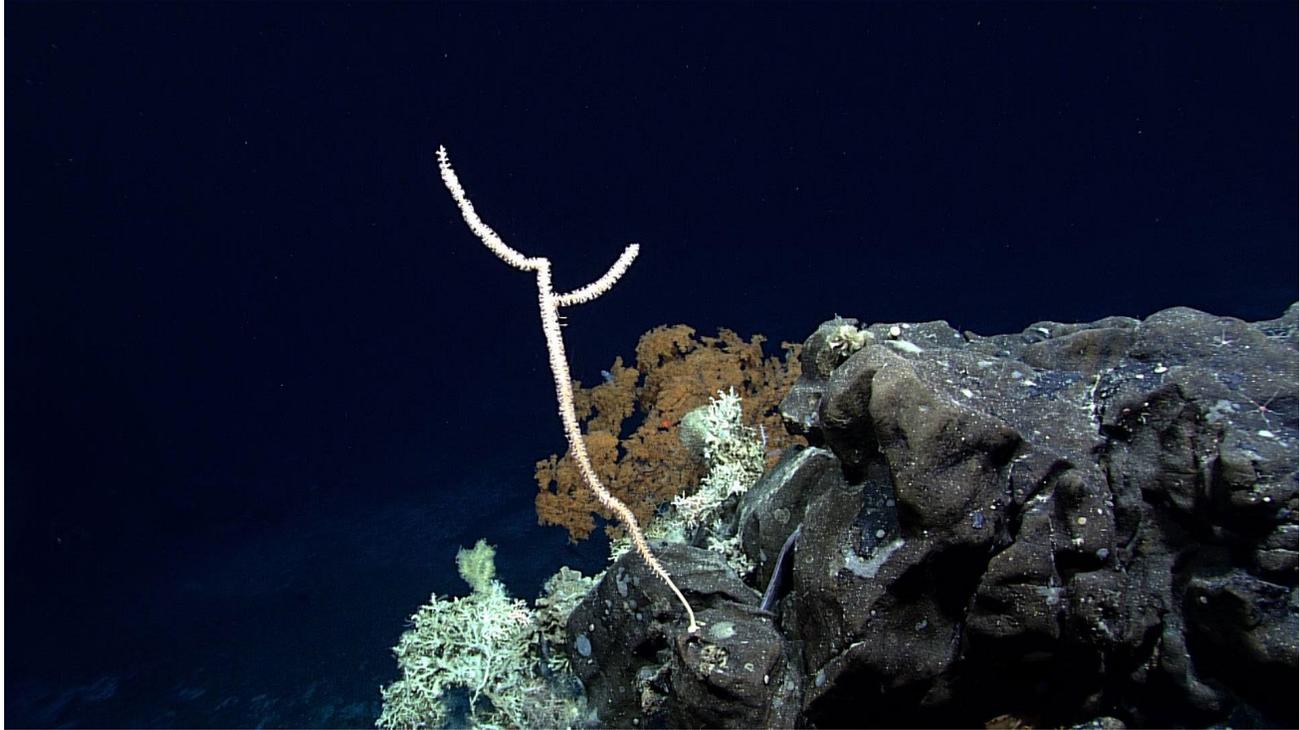
Samples Collected -



Sample ID	EX2205_D05_03B
Date (UTC)	20220724
Time (UTC)	11:46:34
Depth (m)	1065.4
Latitude (decimal degrees)	42.340
Longitude (decimal degrees)	-29.150

Temp. (°C)	6.276
Field ID(s)	Leiopathes
Comments	

Associates Sample ID	Field Identification	Count
EX2205_D05_03B_A01	Crinoidea	1
EX2205_D05_03B_A02	Caridea	3
EX2205_D05_03B_A03	Chirostylidae	1



Sample ID	EX2205_D05_04B
Date (UTC)	20220724
Time (UTC)	13:06
Depth (m)	1061.4
Latitude (decimal degrees)	42.340
Longitude (decimal degrees)	-29.150
Temp. (°C)	6.277

Field ID(s)	Keratoisididae
Comments	

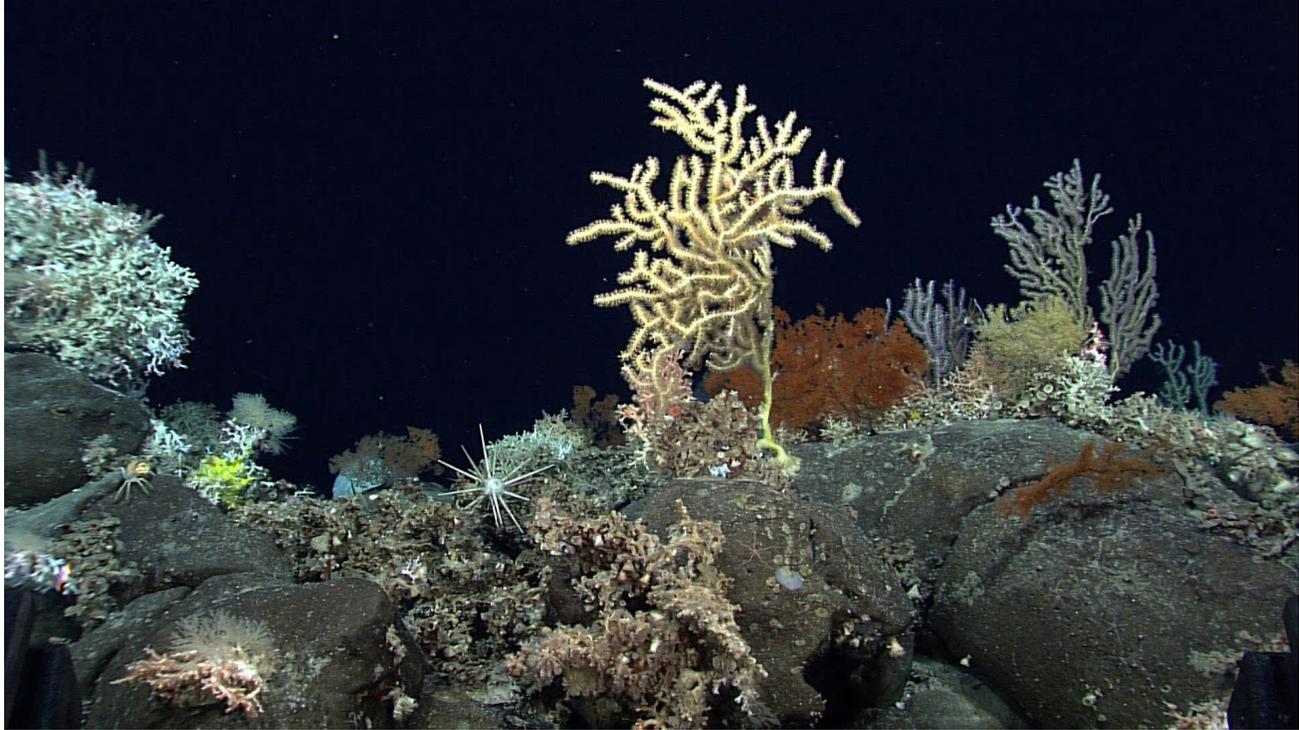
Associates Sample ID	Field Identification	Count
EX2205_D05_04B_A01	Chirostylidae	1
EX2205_D05_04B_A02	Ctenophora	7
EX2205_D05_04B_A03	Ctenophora	2



Sample ID	EX2205_D05_05B
Date (UTC)	20220724
Time (UTC)	13:44:12
Depth (m)	1055.8
Latitude (decimal degrees)	42.340

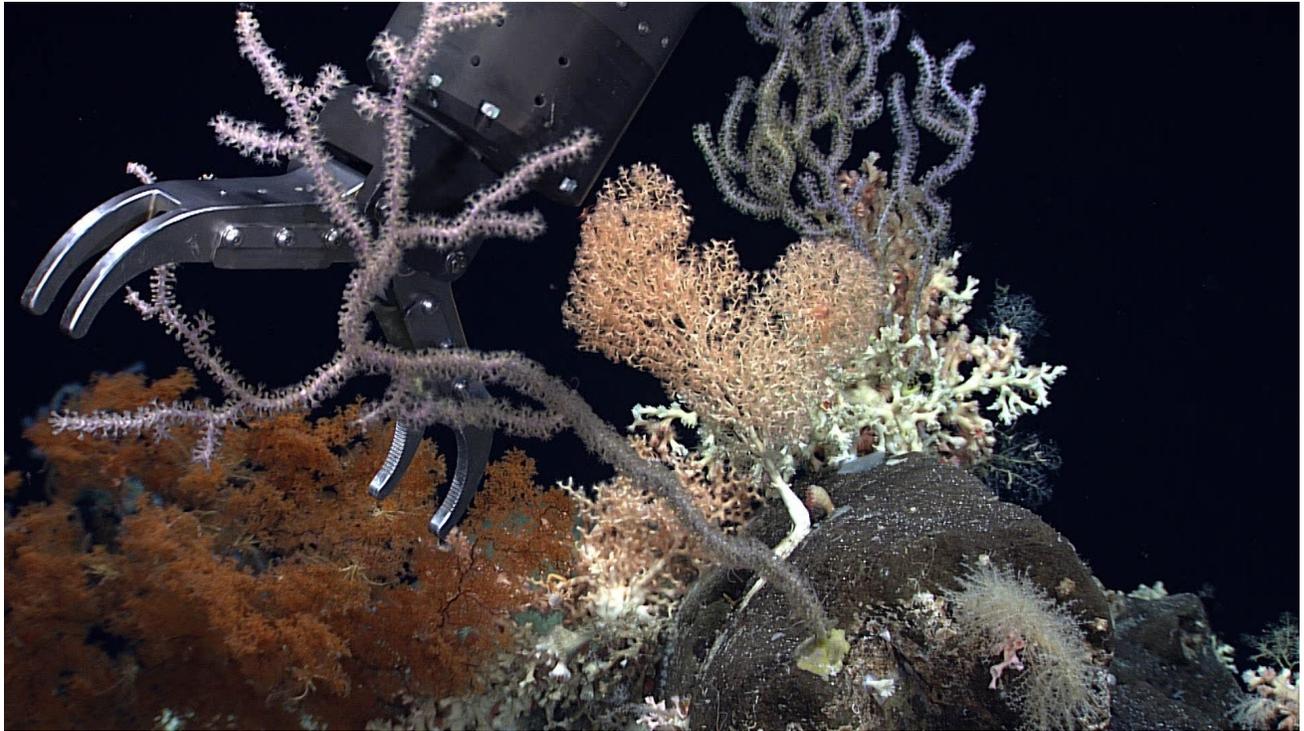
Longitude (decimal degrees)	-29.149
Temp. (°C)	6.405
Field ID(s)	Pheronema carpenteri
Comments	

Associates Sample ID	Field Identification	Count
EX2205_D05_05B_A01	Octocorallia	1
EX2205_D05_05B_A02	Crinoidea	1
EX2205_D05_05B_A03	Glyceridae	2
EX2205_D05_05B_A04	Gastropoda	3
EX2205_D05_05B_A05	Ophiuroidea	12



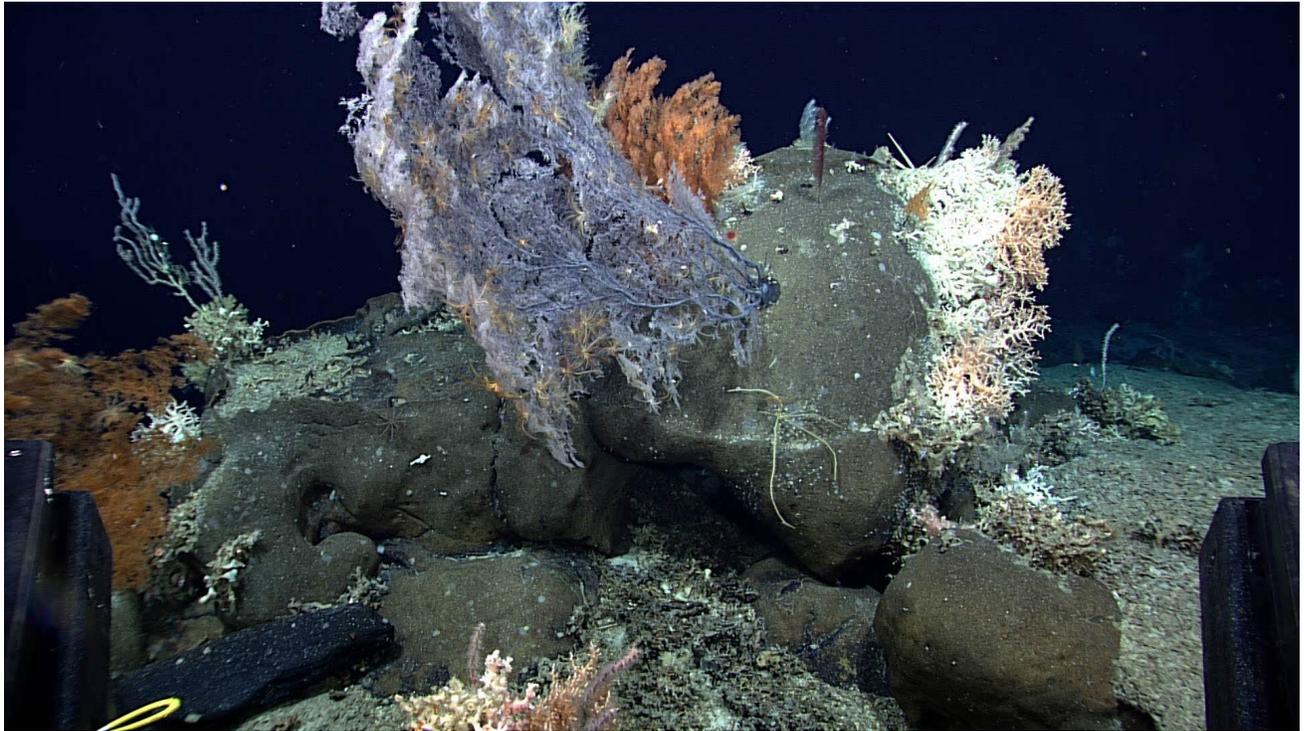
Sample ID	EX2205_D05_06B
Date (UTC)	20220724
Time (UTC)	15:11:50
Depth (m)	982.5
Latitude (decimal degrees)	42.340
Longitude (decimal degrees)	-29.148
Temp. (°C)	6.934

Field ID(s)	Yellow Plexauridae
Comments	



Sample ID	EX2205_D05_07B
Date (UTC)	20220724
Time (UTC)	15:47:49

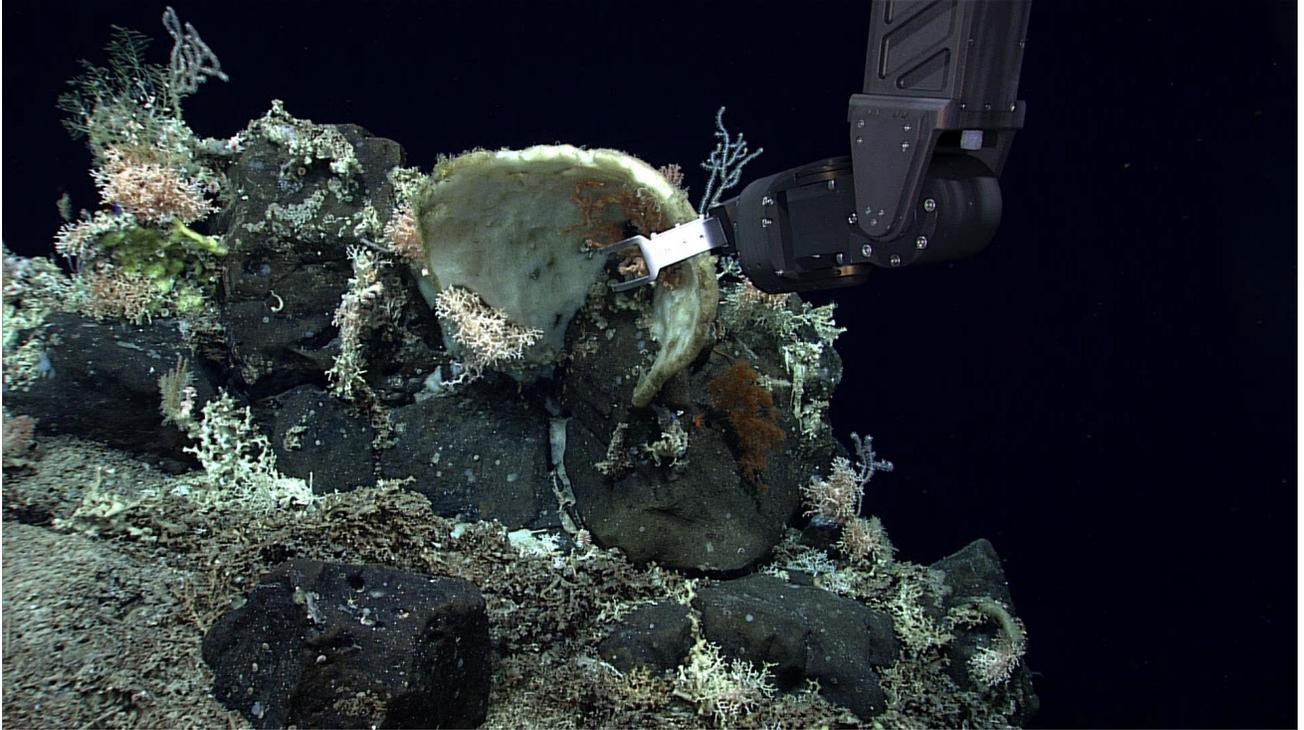
Depth (m)	987.9
Latitude (decimal degrees)	42.340
Longitude (decimal degrees)	-29.148
Temp. (°C)	7.024
Field ID(s)	Purple Plexauridae
Comments	





Sample ID	EX2205_D05_09B
Date (UTC)	20220724
Time (UTC)	16:19:47
Depth (m)	998.9
Latitude (decimal degrees)	42.340
Longitude (decimal degrees)	-29.148
Temp. (°C)	6.794
Field ID(s)	Tylopathes
Comments	

Associates Sample ID	Field Identification	Count
EX2205_D05_09B_A01	Nemertea	1



Sample ID	EX2205_D05_010B
Date (UTC)	20220724
Time (UTC)	17:12:39
Depth (m)	1011.2
Latitude (decimal degrees)	42.341
Longitude (decimal degrees)	-29.148
Temp. (°C)	6.571

Field ID(s)	Axinellidae
Comments	Amphitheater sponge

Associates Sample ID	Field Identification	Count
EX2205_D05_010B_A01	Ophiuroidea	3
EX2205_D05_010B_A02	Nemertea	2
EX2205_D05_010B_A03	Polychaeta	1
EX2205_D05_010B_A04	Amphipoda	1

Niskin Sampling Summary

Sample ID	EX2205_D05_01W
Date (UTC)	20220724
Time (UTC)	10:56:22
Depth (m)	569.8
Latitude (decimal degrees)	42.3380
Longitude (decimal degrees)	-29.1489
Bottle number	Niskin Bottle 1
Temperature (°C)	5.79
Dissolved Oxygen (ml/L)	10.87
Treatment	eDNA

Sample ID	EX2205_D05_02W
Date (UTC)	20220724
Time (UTC)	11:46:34
Depth (m)	1074.4
Latitude (decimal degrees)	42.3395
Longitude (decimal degrees)	-29.1502
Bottle number	Niskin Bottle 2

Temperature (°C)	7.08
Dissolved Oxygen (ml/L)	6.24
Treatment	eDNA

Sample ID	EX2205_D05_08W
Date (UTC)	20220724
Time (UTC)	15:47:49
Depth (m)	990.4
Latitude (decimal degrees)	42.3401
Longitude (decimal degrees)	-29.1484
Bottle number	Niskin Bottle 3
Temperature (°C)	6.60
Dissolved Oxygen (ml/L)	6.96
Treatment	eDNA

Sample ID	EX2205_D05_11W
Date (UTC)	20220724
Time (UTC)	17:49:31
Depth (m)	1000.1
Latitude (decimal degrees)	42.3411
Longitude (decimal degrees)	-29.1476
Bottle number	Niskin Bottle 4
Temperature (°C)	6.51
Dissolved Oxygen (ml/L)	6.76
Treatment	eDNA

Sample ID	EX2205_D05_12W
Date (UTC)	20220724
Time (UTC)	18:08:24

Depth (m)	551.8
Latitude (decimal degrees)	42.3410
Longitude (decimal degrees)	-29.1484
Bottle number	Niskin Bottle 5
Temperature (°C)	5.50
Dissolved Oxygen (ml/L)	10.99
Treatment	eDNA

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