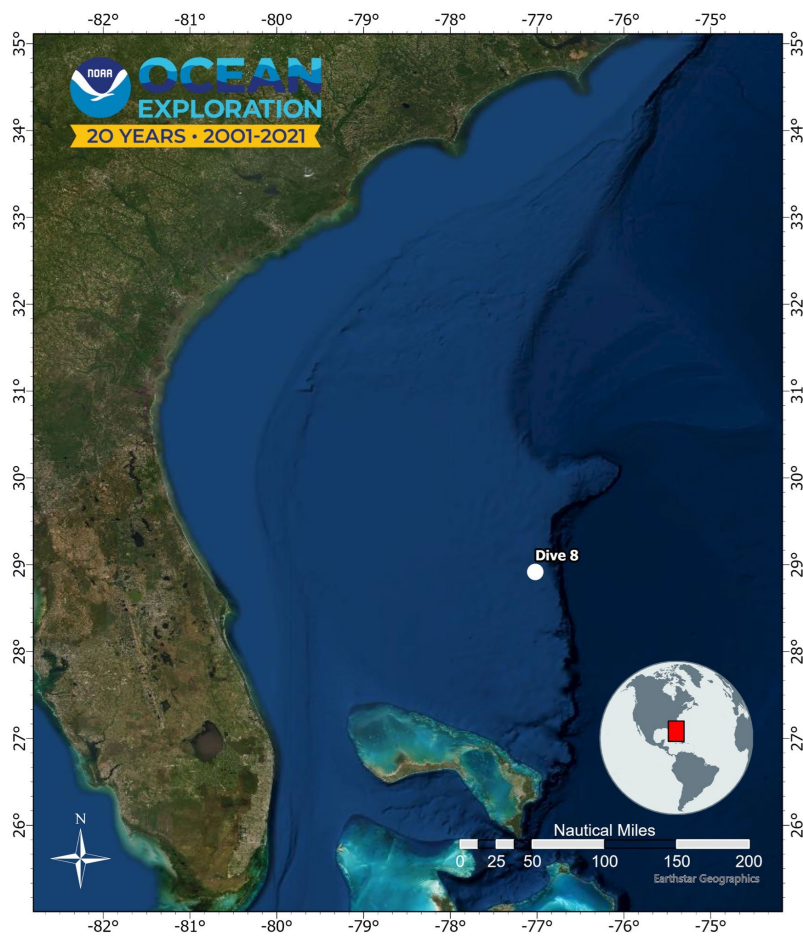


# ROV Dive Summary, EX-21-07, Dive 08, November 05, 2021

## General Location Map



## Dive Information

Site Name	Sinkhole
General Area Descriptor	Sinkhole on the Blake Plateau
Science Team Leads	Stephanie Farrington, Allen Collins
Expedition Coordinator	Matt Dornback
Sample Data Manager	Jonathan Jackson



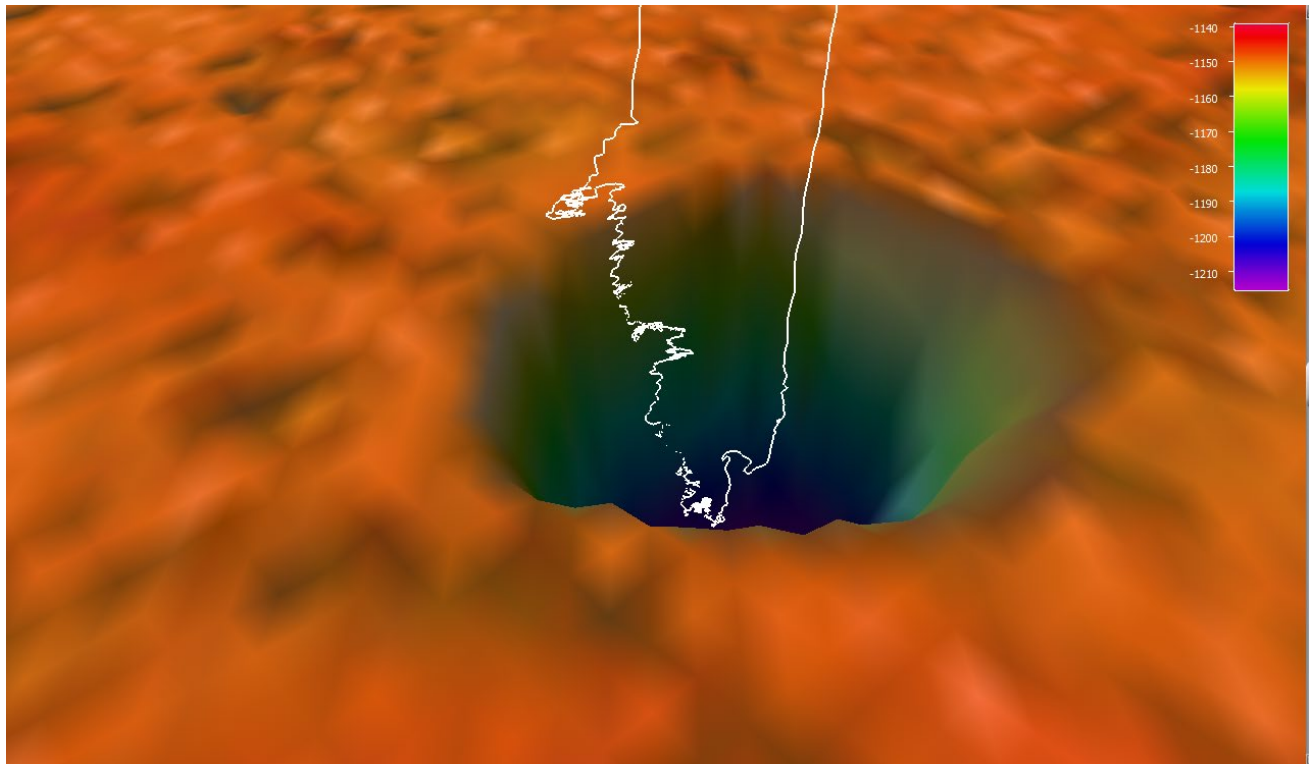
	<p>The basal section of the wall of the sinkhole was steep, 90° in parts with visible geological layering. There were cliff faces with FeMg crusts and other cliff areas that were white after sections had more recently (on a geological timescale) broken off and tumbled down the slope. Parts of the walls had small caves or scintillation holes. Eight-armed crinoids and a parapagurid crab with an anemone/zoanthid hat were sighted while traversing the base of the wall. Corallimorphs and anemones were present but rare. In the water column, the euthecosome pteropod <i>Clione limacina</i>, a voracious predator of thecosome pteropods was spotted.</p> <p>As we arrived at the upper portion of the sinkhole wall, the slope decreased, with less outcropping, and an increase in cobble sized rocks (&lt;25 cm). This area of the sinkhole also exhibited a slight increase in biota with gorgonians (<i>Cryosogorgia</i>, bamboos, <i>Parantipathes</i>, <i>Aphanostichopathes</i>, other Antipatharians, <i>Anthomastus</i>, <i>Metalogorgia</i>, and primnoids), a few yellow and blue demosponges, and solitary cup corals. Fauna remained sparse throughout the entire dive, although small demosponges were visible on most zooms, including encrusting forms, poecilosclerids, and <i>Latruncula</i>-like asterophids (possibly <i>Asteropus</i>).</p> <p>A little known urchin, <i>Habrocidaris</i> (EX2107_D08_07B) and an unusual stoloniferous octocoral with bases in tubes along the stalk = Cornulariidae (EX2107_D08_08B), along with associates (isopods, thecate hydroids, sabellid worms), were sampled. There were 2 areas where a bamboo coral and a primnoid were in close association on the wall.</p> <p>When we had reached the top of the sinkhole, we spent some time investigating the nearby flats that were covered in sand and a few small rocks as expected. We observed the asteroid <i>Circeaster</i> feeding on a small, delicate chrysogorgiid colony. Near the end of our dive, out of the darkness drifted a stunning squid, <i>Chiroteuthis</i> sp. We followed it as it drifted in a head-down position trailing long tentacles that occasionally brushed the bottom (mostly retracted into sheaths) all the way to the edge of the sinkhole.</p> <p>Human debris: rubber sheeting, yellow balloon ribbon, root beer can, paint can, and soccer ball.</p>
Notable Observations	<ul style="list-style-type: none"> <li>• We collected a rare and unusual echinoid urchin, <i>Habrocidaris</i>, which will be used to assess its apparent “ancient” looking morphology to answer whether this is an early diverging lineage or a more recent lineage that has converged on its ancient look</li> <li>• We observed a soccer ball hundreds of kilometers from shore in the bottom of a sinkhole more than one kilometer deep</li> </ul>
Community and habitat observations	<p>Corals and Sponges - Present</p> <p>Chemosynthetic Community - Absent</p> <p>High biodiversity Community - Absent</p> <p>Active Seep or Vent - Absent</p> <p>Extinct Seep or Vent - Absent</p> <p>Hydrates - Absent</p>
CMECS Feature Type(s)	Hole/Pit
SeaTube Link (science annotation system)	<a href="https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&amp;resourceId=2493">https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&amp;resourceId=2493</a>

## 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-

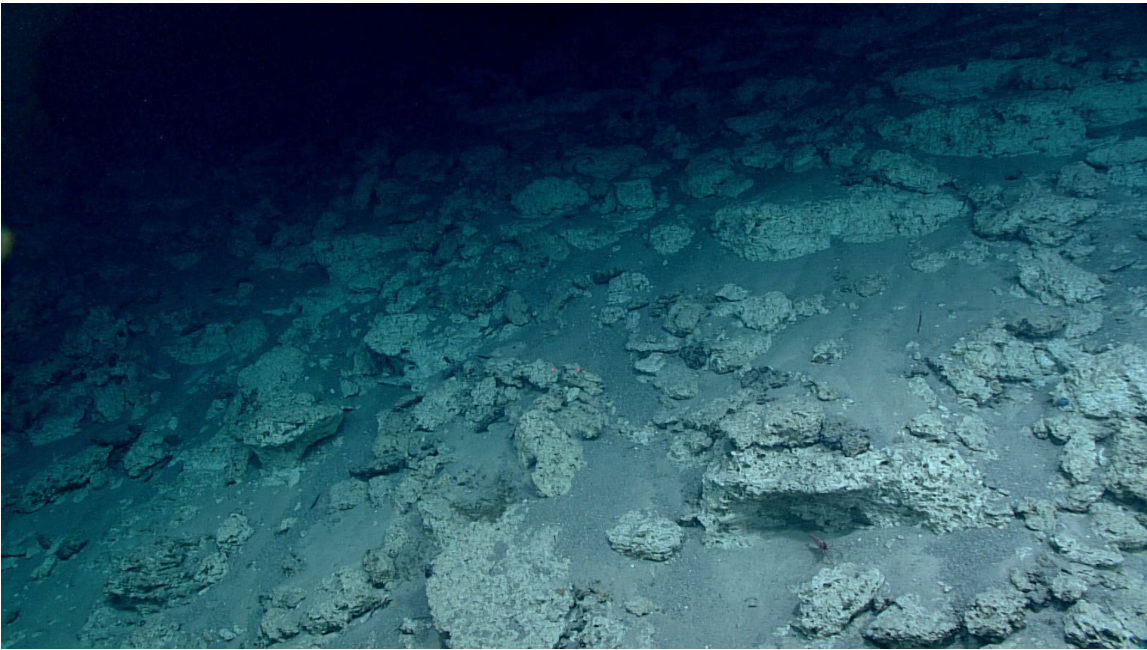
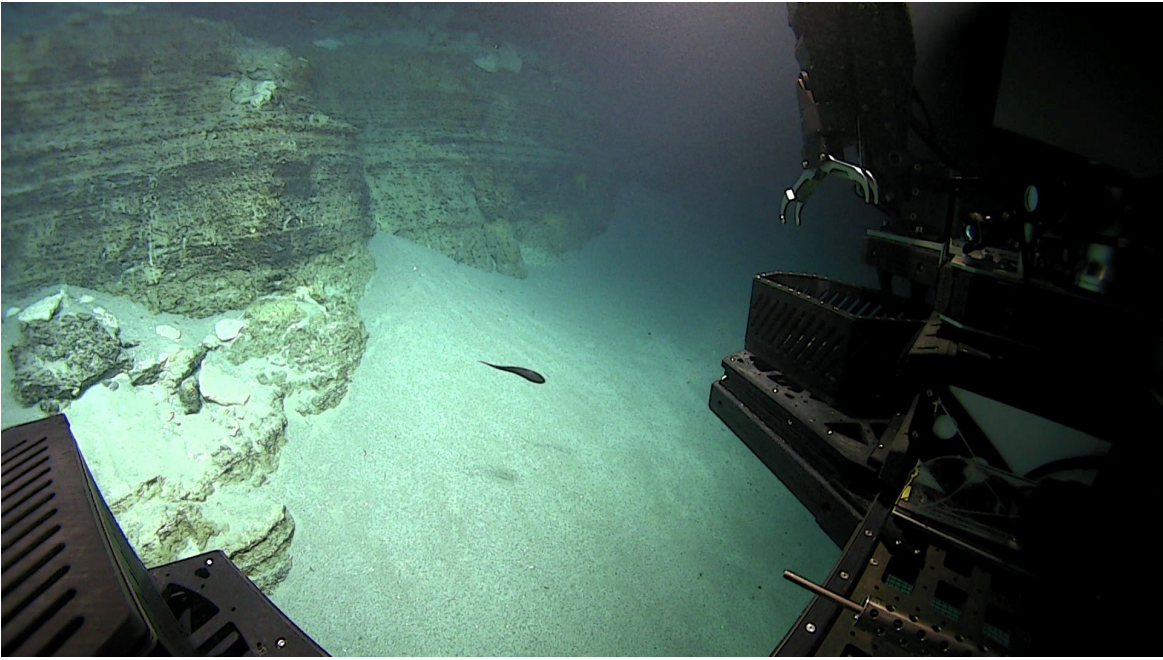
	resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The section below notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	

### Close-up Map of Main Dive Site





# Representative Photos of the Dive



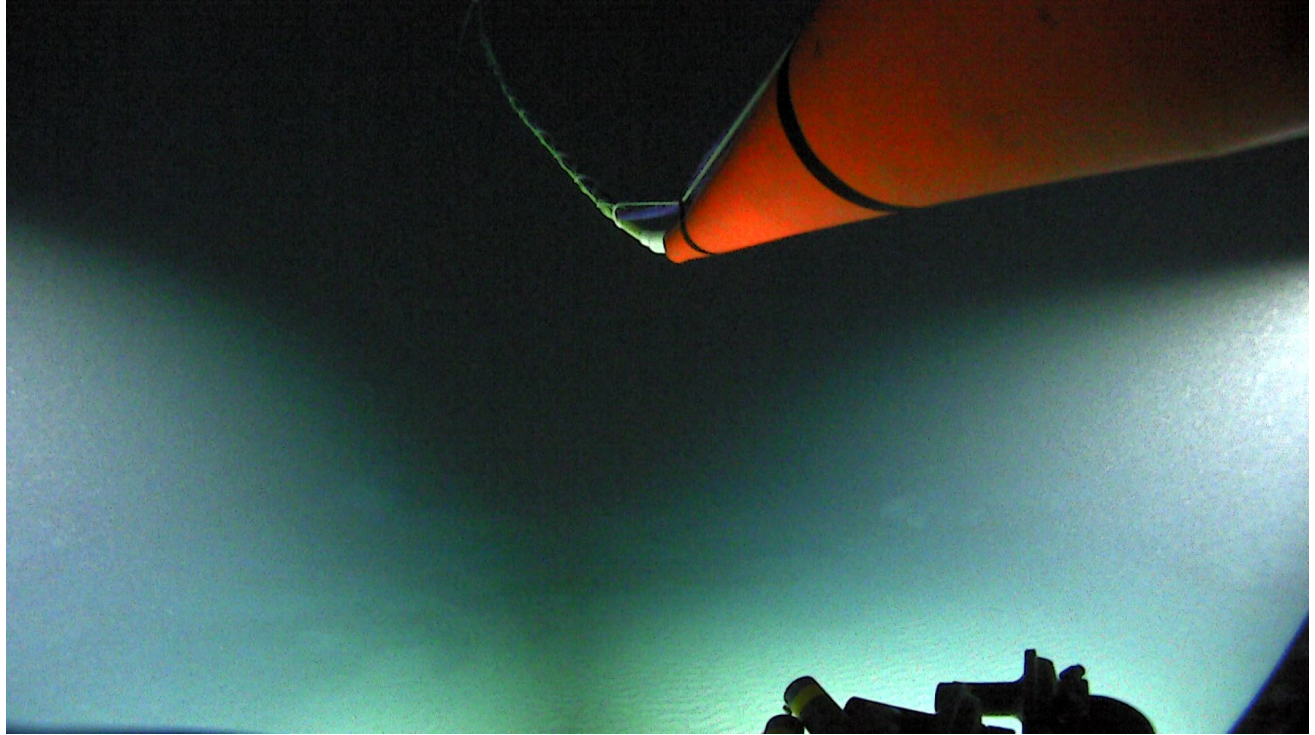
# Samples Collected -



Sample ID	EX2107_D08_01W
Date (UTC)	20211105
Time (UTC)	142250
Depth (m)	508.783
Latitude (decimal degrees)	28.91623
Longitude (decimal degrees)	-77.02126
Temp. (°C)	12.444
Field ID(s)	Water Sample
Comments	eDNA

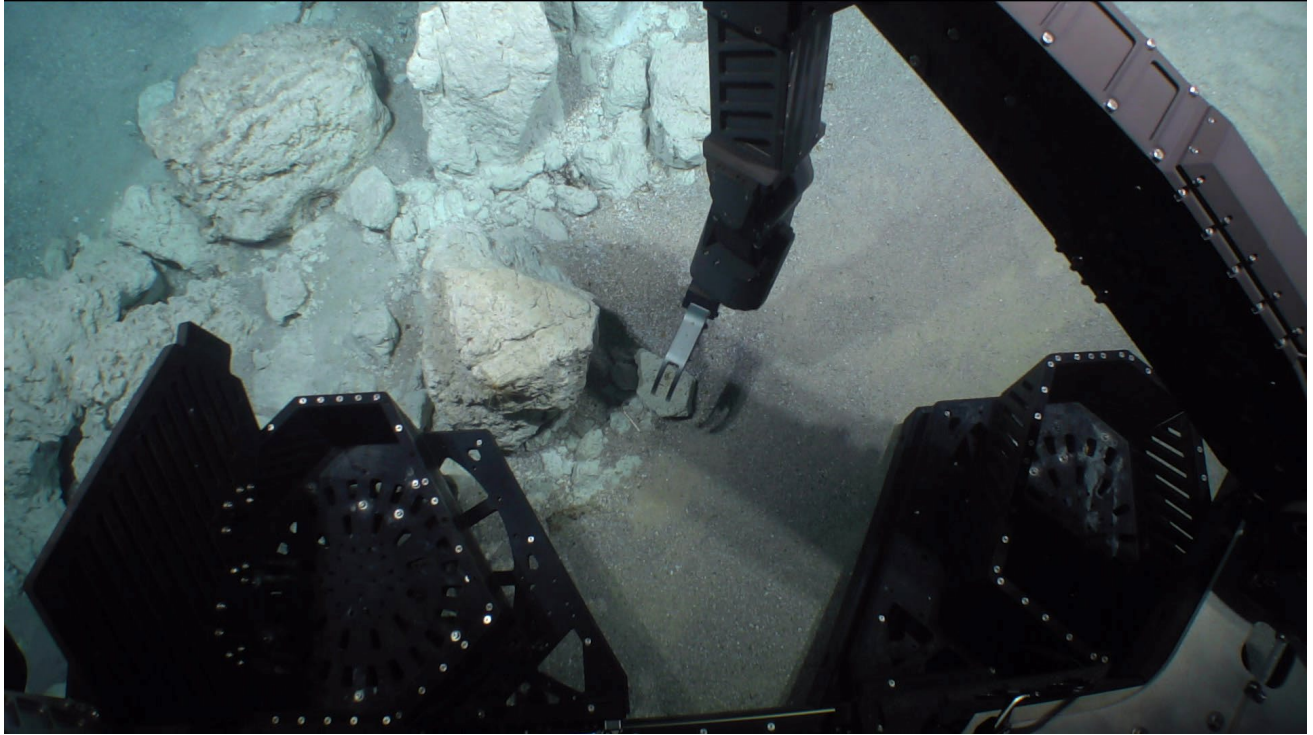
Associates Sample ID	Field Identification	Count
N/A	N/A	N/A





Sample ID	EX2107_D08_02W
Date (UTC)	20211105
Time (UTC)	145520
Depth (m)	1205.336
Latitude (decimal degrees)	28.91688
Longitude (decimal degrees)	-77.02116
Temp. (°C)	4.392
Field ID(s)	Water
Comments	eDNA

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



Sample ID	EX2107_D08_03G
Date (UTC)	20211105
Time (UTC)	151642
Depth (m)	1204.814941
Latitude (decimal degrees)	28.91686058



Longitude (decimal degrees)	-77.02116394
Temp. ( °C)	4.382999897
Field ID(s)	Rock
Comments	Consolidated clay, light tan color, fine texture, multiple pieces

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

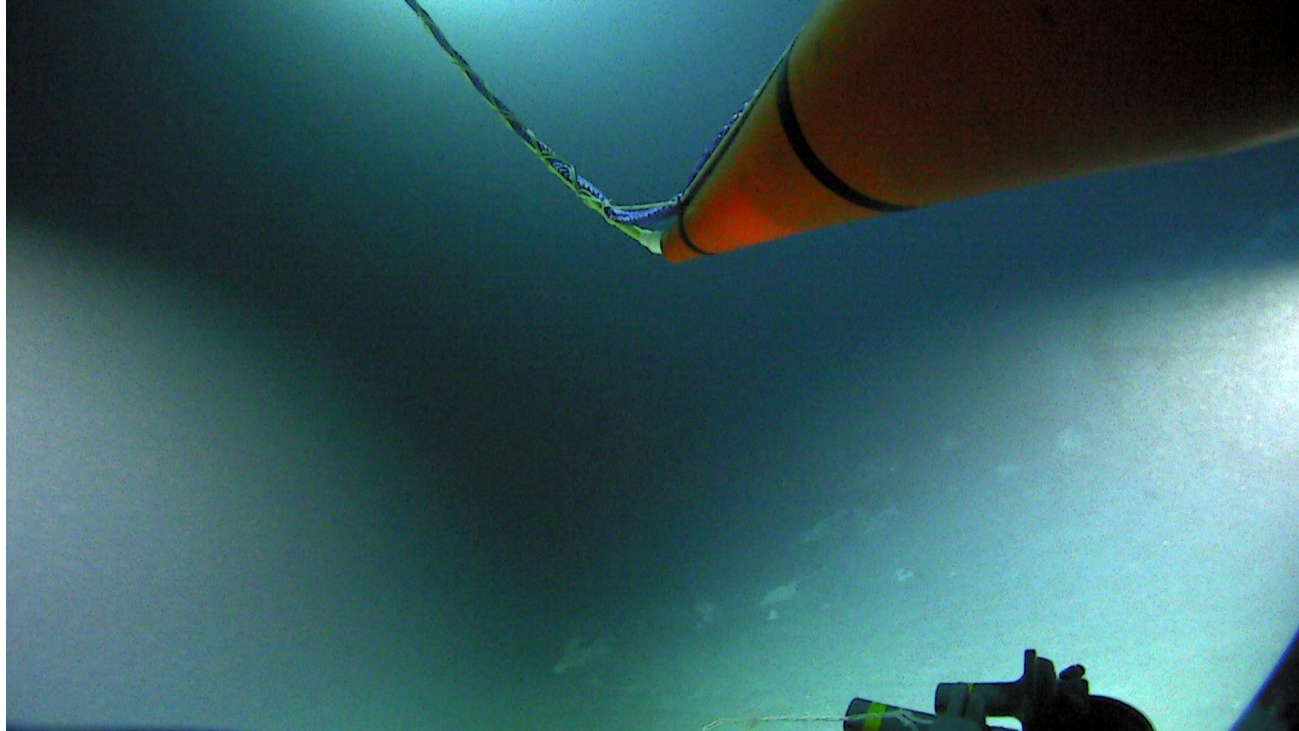




Sample ID	EX2107_D08_04B (on collect was labeled as 4G - was changed in lab based on contents of the sediment)
Date (UTC)	2021105
Time (UTC)	152118
Depth (m)	1205.646973
Latitude (decimal degrees)	28.91684341
Longitude (decimal degrees)	-77.02116394
Temp. (°C)	4.382999897
Field ID(s)	Gastropoda
Comments	0 to 1 cm mostly pteropod shells, multiple species, cream in color

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





Sample ID	EX2107_D08_05W
Date (UTC)	20211105
Time (UTC)	154313
Depth (m)	1192.868
Latitude (decimal degrees)	28.91651
Longitude (decimal degrees)	-77.021230
Temp. (°C)	4.389
Field ID(s)	Water Sample
Comments	eDNA

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





Sample ID	EX2107_D08_06G
Date (UTC)	20211105
Time (UTC)	155026
Depth (m)	1193.154
Latitude (decimal degrees)	28.91649

Longitude (decimal degrees)	-77.0212
Temp. (°C)	4.382
Field ID(s)	Rock
Comments	black crust on half probably FeMg, sabellidae tubes, hard slightly crumbly, cream color on unexposed area

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



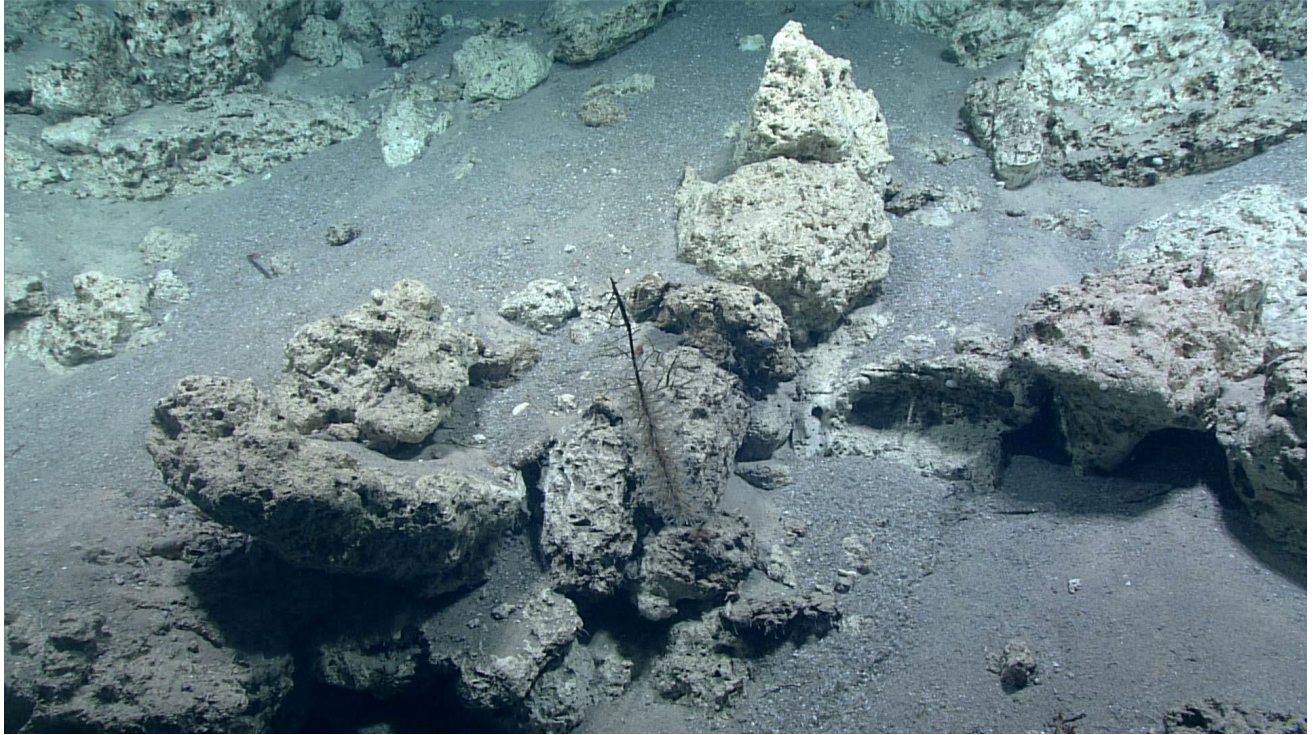




Sample ID	EX2107_D08_07B
Date (UTC)	20211105
Time (UTC)	160552
Depth (m)	1192.453003
Latitude (decimal degrees)	28.91649055
Longitude (decimal degrees)	-77.02124023
Temp. (°C)	4.388999939
Field ID(s)	Habrocidaris
Comments	long spines on the side, light pink and little translucent in color, orange gut,

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

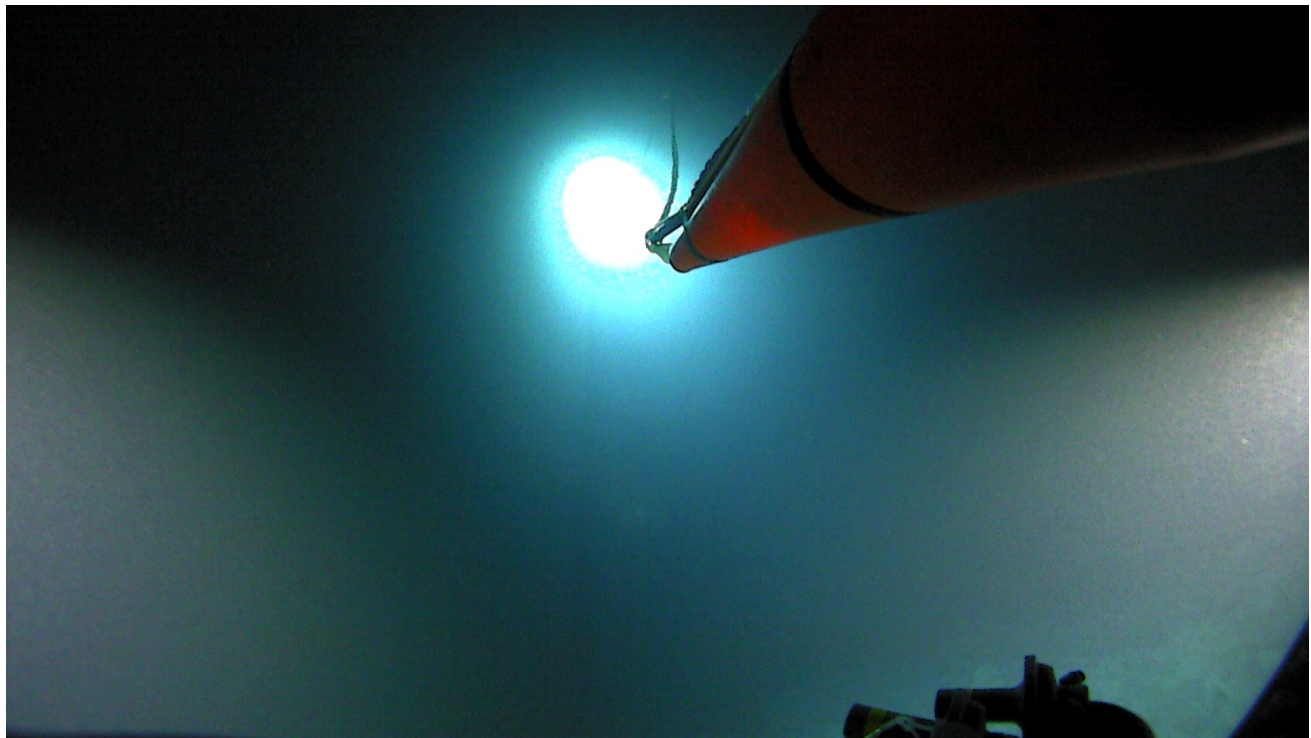




Sample ID	EX2107_D08_08B
Date (UTC)	20211105
Time (UTC)	170549
Depth (m)	1162.203003
Latitude (decimal degrees)	28.91615677

Longitude (decimal degrees)	-77.02116394
Temp. ( °C)	4.377999783
Field ID(s)	Cornulariidae
Comments	cream color, 2 cm tubes with polyps inside, black stalk,

Associates Sample ID	Field Identification	Count
EX2107_D08_08B_A01	Isopoda	1
EX2107_D08_08B_A02	Thecata	1
EX2107_D08_08B_A03	Sabellidae	1

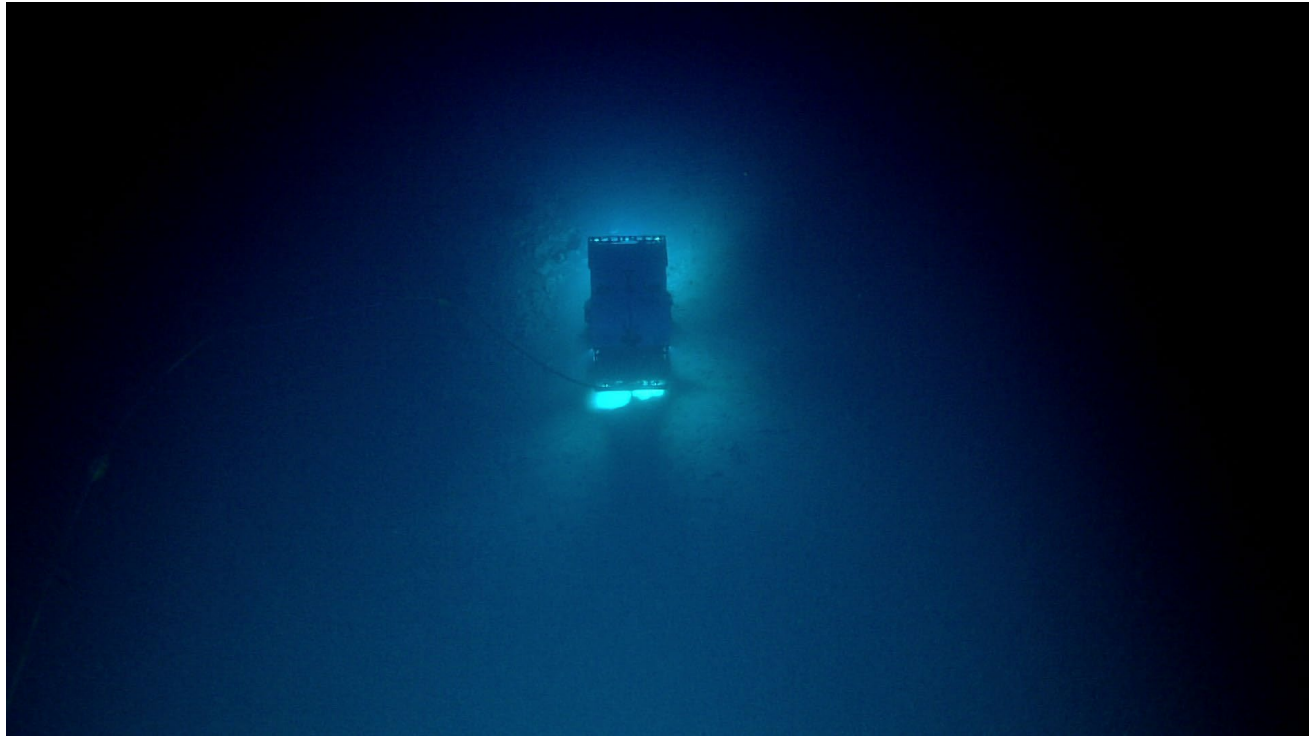


Sample ID	EX2107_D08_09W
Date (UTC)	20211105
Time (UTC)	171511
Depth (m)	1154.157
Latitude (decimal degrees)	28.91612
Longitude (decimal degrees)	-77.021140
Temp. ( °C)	4.382



Field ID(s)	Water Sample
Comments	eDNA

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



Sample ID	EX2107_D08_10W
Date (UTC)	20211105
Time (UTC)	175105
Depth (m)	1090.466
Latitude (decimal degrees)	28.91594
Longitude (decimal degrees)	-77.021500
Temp. (°C)	4.54
Field ID(s)	Water Sample
Comments	eDNA

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



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

First Name	Last Name	Email	Affiliation
Steve	Auscavitch	steven.auscavitch@temple.edu	Boston University
Nolan	Barrett	barrettnh56@gatech.edu	Georgia Institute of Technology
Cristiana	Castello Branco	cristianacbranco@gmail.com	National Museum of Natural History
Jason	Chaytor	jchaytor@usgs.gov	USGS
Cris	Diaz	taxachica@gmail.com	Harbor Branch Oceanographic Institute
Scott	France	france@louisiana.edu	University of Louisiana at Lafayette
Chris	Mah	brisinga@gmail.com	National Museum of Natural History
Asako	Matsumoto	amatsu@gorgonian.jp	Chiba Institute of Technology
Megan	McCuller	megan.mcculler@naturalsciences.org	NC Museum of Natural Sciences
Tina	Molodtsova	tina@ocean.ru	Shirshov Institute of Oceanology
Monet	Murphy	dmonet.murphy@gmail.com	Duke University
Carolyn	Ruppel	cruppel@usgs.gov	USGS
Adam	Skarke	adam.skarke@msstate.edu	Mississippi State University
Ken	Sulak	jumpingsturgeon@yahoo.com	USGS
Cindy	Van Dover	clv3@duke.edu	Duke University
Mike	Vecchione	vecchiom@si.edu	NMFS and NMNH

### Please direct inquiries to:

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