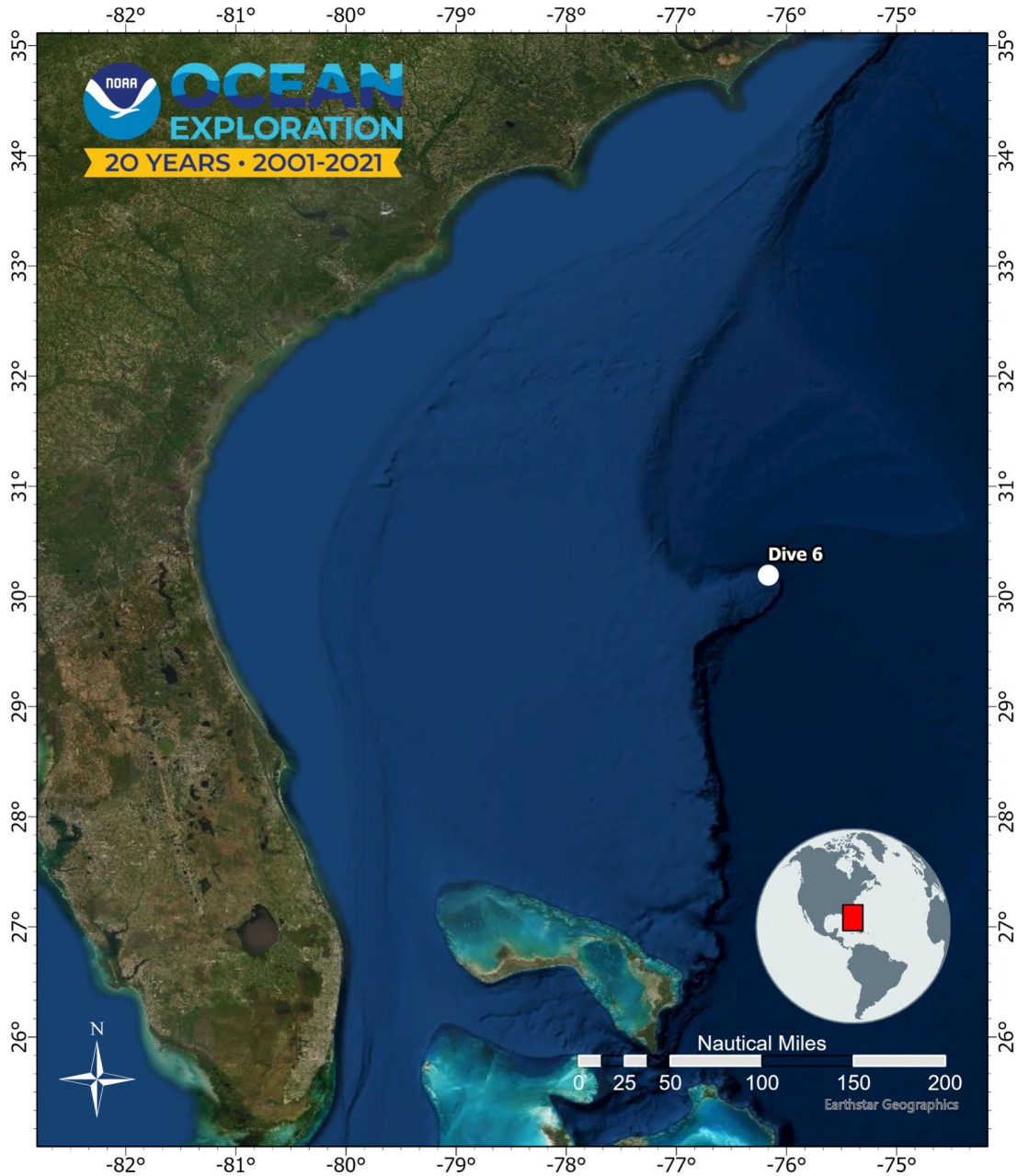


ROV Dive Summary, EX-21-07, Dive 06, November 3, 2021

General Location Map



The rocks in the area were a jumbled pile of large < 5 m wide boulders that had a thin layer of silty sand on their upper surfaces. At one point we came across a very large (>8 m tall) boulder that showed geologic layering, presumably carbonate layering of the Blake Plateau. It likely broke off the upper slope and slid down, consistent with literature detailing “scarp retreat” as strong southward flowing currents at the base of the Blake Spur sculpt this underwater feature rising more than one mile from the abyssal plain.

The most common species sighted throughout the entire dive was our first biological sample **EX2107_D06_03B**: 10 cm: flat, lobate, crispy/breakable branching cluster of flat, thin lobes-possibly *Tretopleura* sp. or other Uncinateridae (Hexactinellida). This sponge was definitely the most abundant species among the macrofauna. There were only a few patchy areas where the sponge was not present, but those areas were almost completely barren of all other macrofauna. The other most common species were the pink Ophiuroidea: *Ophioplinthaca* sp. These spiky-armed brittlestars have a distinct central disk that resembles a flower and were often spotted on the rocks or the tops of some of the taller sessile fauna.

A few stalked glass sponge species were sighted and one (likely Bolosomiinae, possibly *Saccocalyx*) was collected **EX2107_D06_04B**. Two species of small cladorhizids (carnivorous sponges), a branching form without identification and the other cf. *Abyssocladia*) were spotted upon zooming. The *Abyssocladia*-like cladorhizid had small white spherical bodies visible in its tissues, possibly embryos. We imaged an interesting isopod (Family: Munnidae, *Asellota*) that had climbed up on one of the blades of the common fan sponge, and later in the dive a pycnogonid (family Colossendeidae) and isolated amphipod were imaged on the same sponge. An image of the isopod was shared with isopod specialist Buz Wilson, who identified the animal as representing an as yet unidentified genus. Also observed were occasional white squat lobsters on the bottom among the rocks and large anemones.

Our third water sample for eDNA processing (**EX2107_D06_05W**) was collected at 3626 m.

Multiple species of bamboo corals were also common throughout the entire dive along with Farreidae (folded/tube hexactinellida) and a large amorphous ball-shaped hexactinellids (possibly Leucopsacidae and Rossellidae). A yellow/tan planar cluster of fat finger demosponge (looked similar to a cartoon glove) **EX2107_D06_06B** was also common growing attached to rocks throughout. This sponge was <10 cm tall, soft, and oozed exudate upon collection. After collection of sample 6B the claw was jammed open, so no other samples could be collected during this dive, other than water samples.

Several species of gorgonians (Chrysogorgiidae: *Bathygorgia* with anemones) were observed. We spent time zooming in on a *Parapagurus* hermit crab with sponges on legs and anemones elsewhere. At one point, we encountered a large, vigorous looking hydroid colony, with stolonial mat and upright branches, that had overgrown both a dead sponge and rock surface. The polyp morphology indicated that the hydroid was either a filiferan (perhaps bougainvillid) or a thecate haleciid (with small, nearly absent theca). The brisingid asteroid *Freyella*, which is the most common brisingid at this depth, was encountered.

We were able to make a new behavioral observation: Pterasteridae (slime star) was being preyed upon by Solasteridae (7 armed sea star).

We encountered one stunning pink/purple sponge, a 50 cm individual that most likely represents a rare form (undescribed species?) of the glass sponge *Hertwigia*.

Water sample at the end of our time on the bottom **EX2107_D06_07W** was collected at 3601 meters. Our final water sample **EX2107_D06_08W** - was collected at a similar depth at the top of the feature.

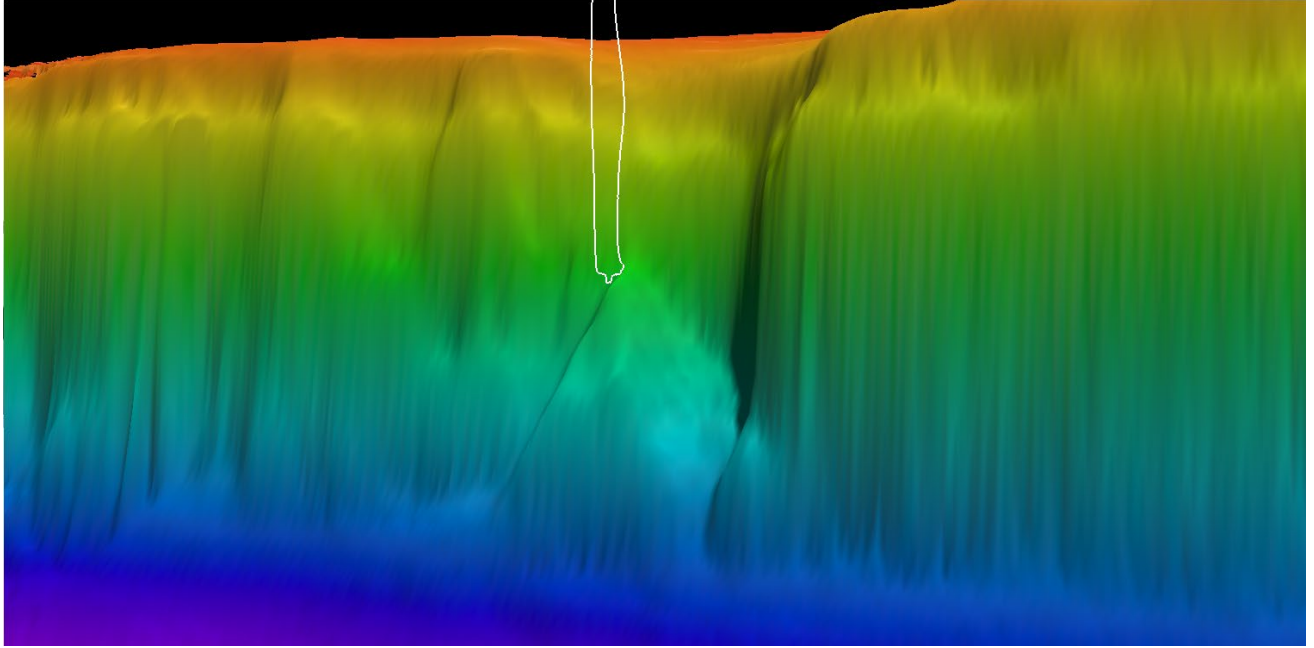
Notable Observations	<ul style="list-style-type: none">• We collected a hexactinellid glass sponge, possibly <i>Tretopleura</i> sp. or other Uncinateridae that is likely undescribed
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	<ul style="list-style-type: none"> We made a new behavioral observation: Pterasteridae (slime star) was being preyed upon by Solasteridae (7 armed sea star)
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)	Scarp Wall
SeaTube Link (science annotation system)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=2473

Equipment Deployed

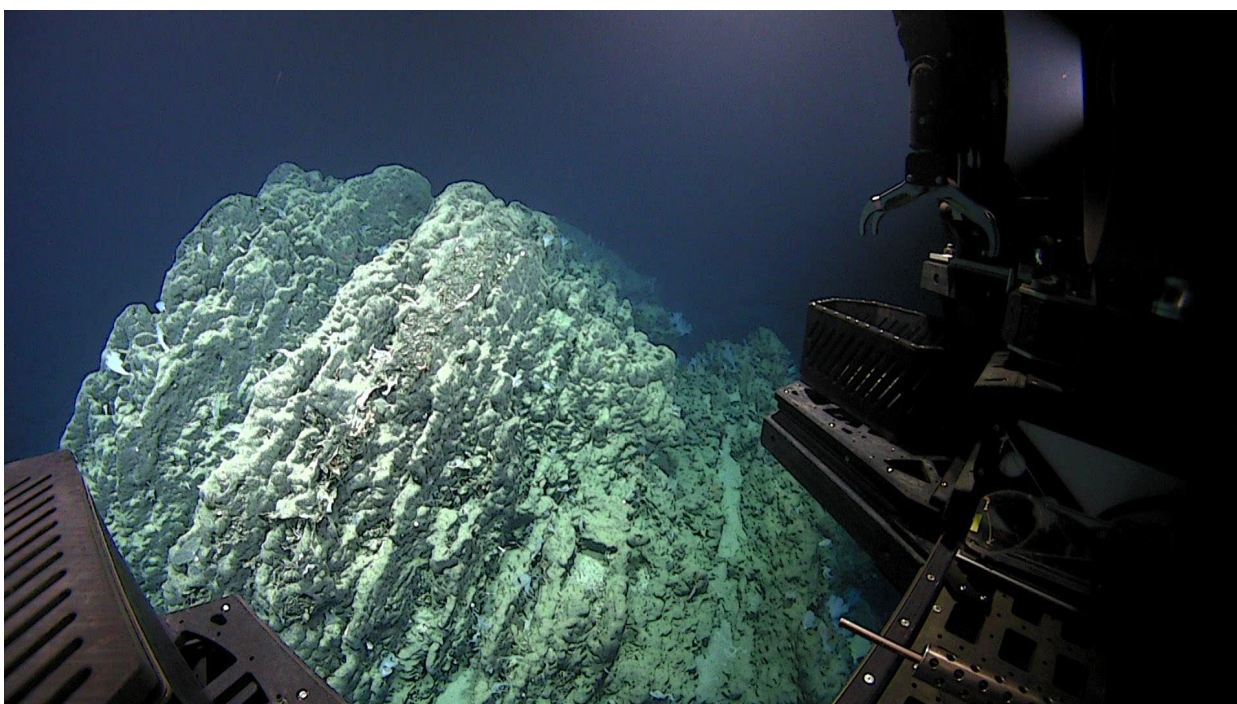
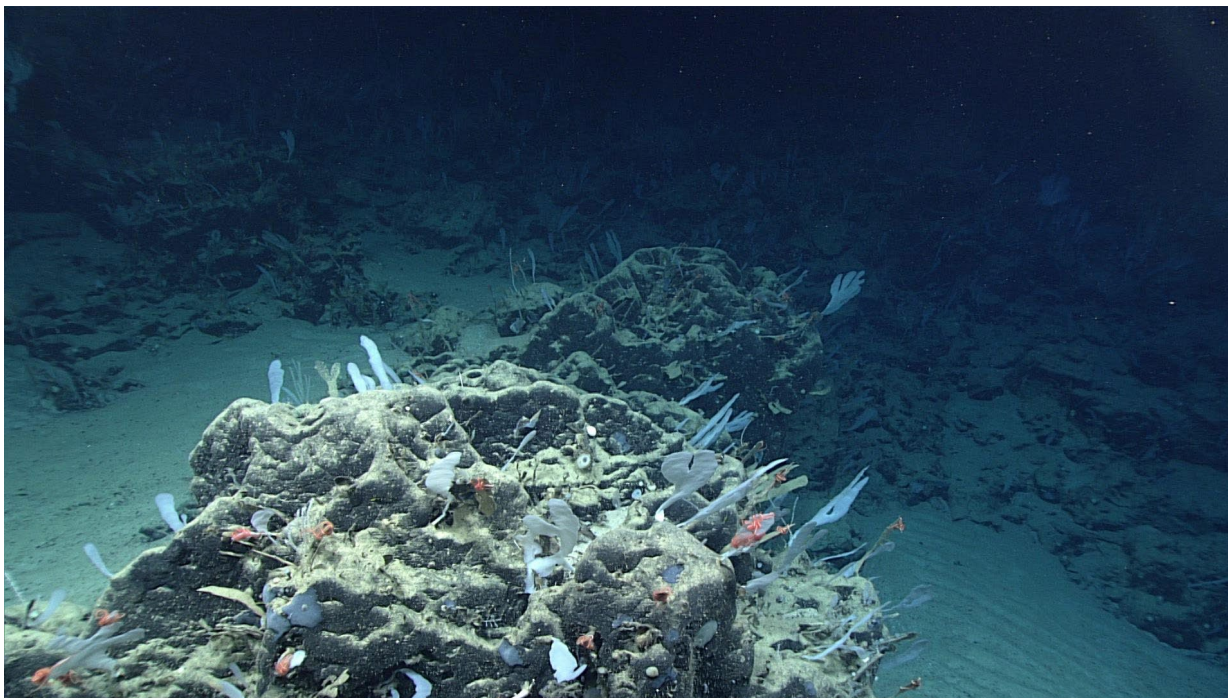
ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The section below notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	Claw was stuck open after sample 6

Close-up Map of Main Dive Site



Smoothed ROV dive track in white on bathymetry, 3x vertical exaggeration.

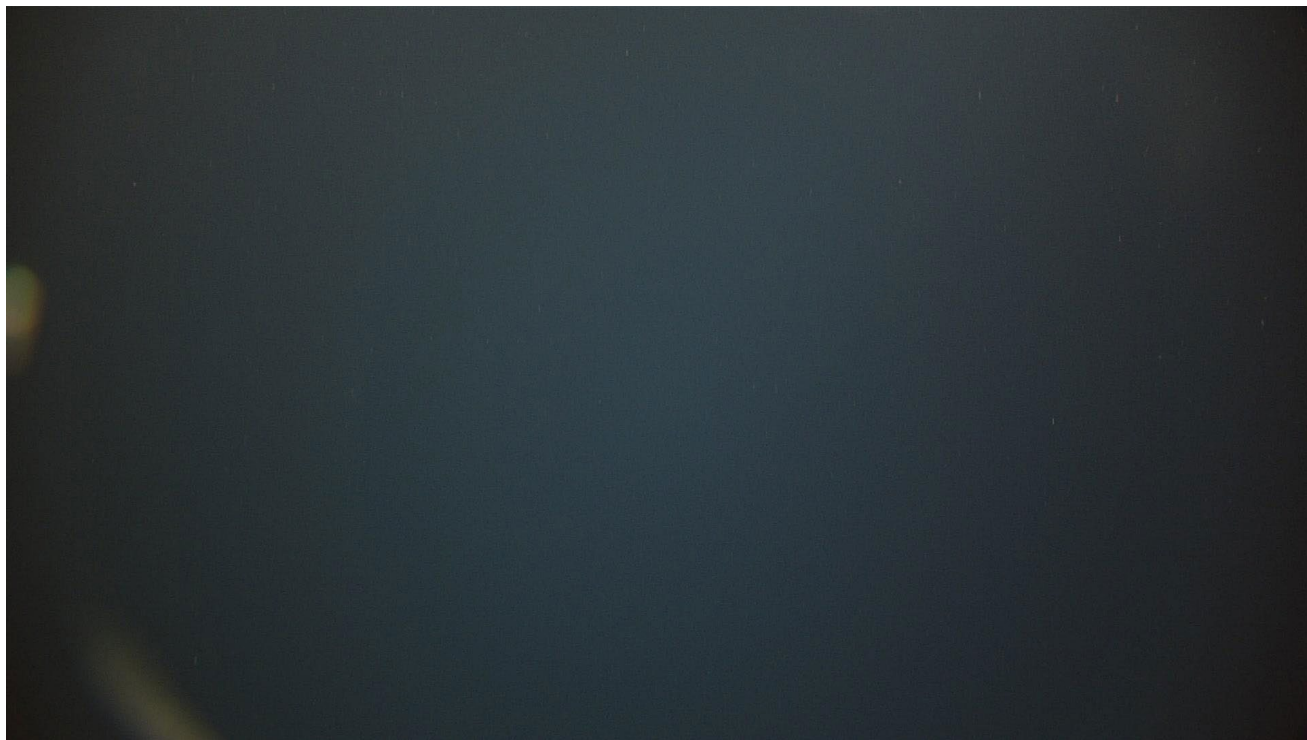
Representative Photos of the Dive



One 8 m tall boulder was observed with geological layering, seemingly having broken free from a shallower depth having “migrated”.

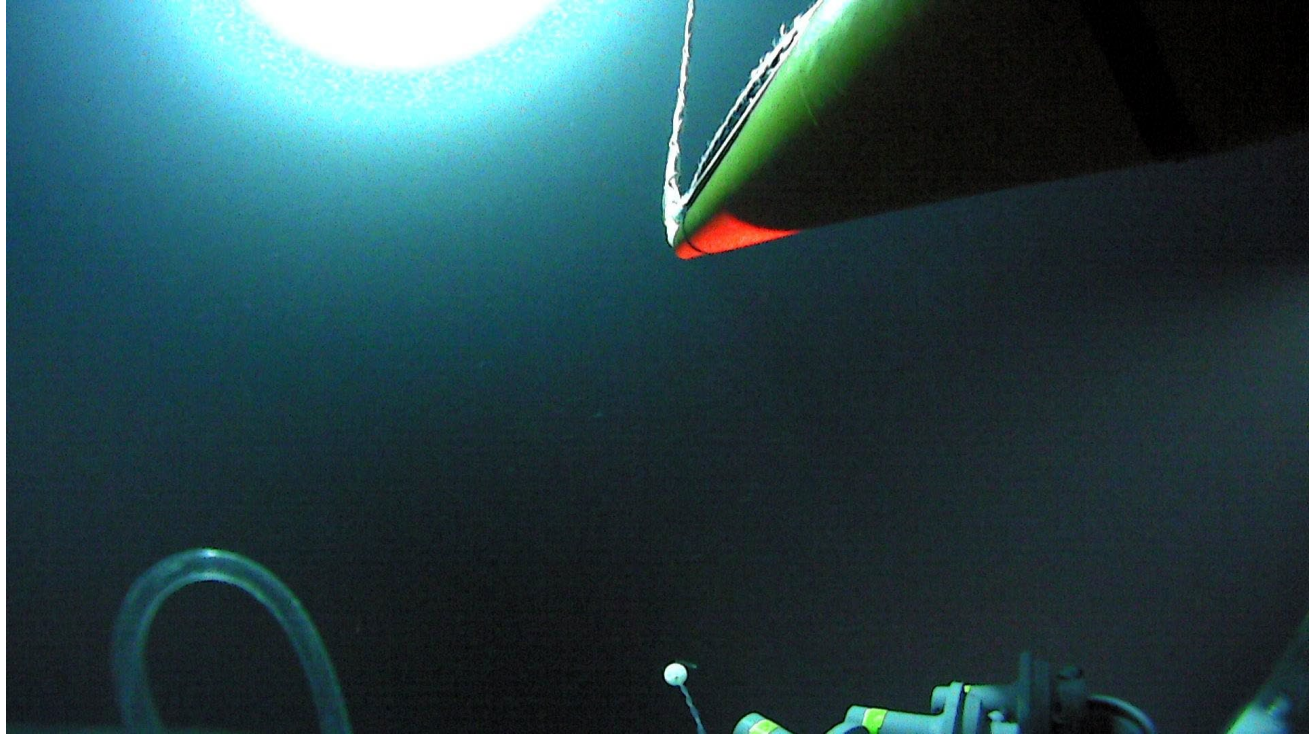


Samples Collected -



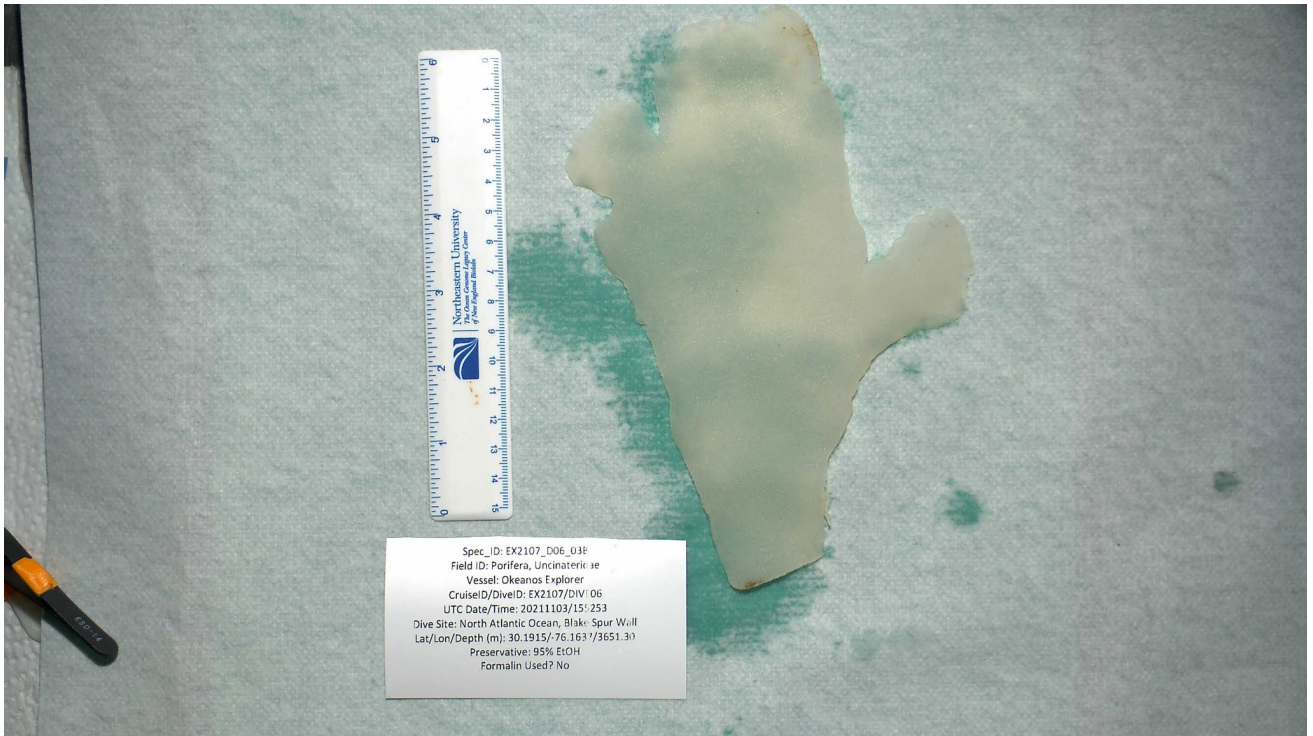
Sample ID	2107_D06_01W
Date (UTC)	20211103
Time (UTC)	13:16
Depth (m)	506.602
Latitude (decimal degrees)	30.194380
Longitude (decimal degrees)	-76.162100
Temp. (°C)	16.892
Field ID(s)	Water sample
Comments	eDNA

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



Sample ID	2107_D06_02W
Date (UTC)	20211103
Time (UTC)	15:35
Depth (m)	3649.794
Latitude (decimal degrees)	30.191410
Longitude (decimal degrees)	-76.163620
Temp. (°C)	2.35
Field ID(s)	Water sample
Comments	eDNA

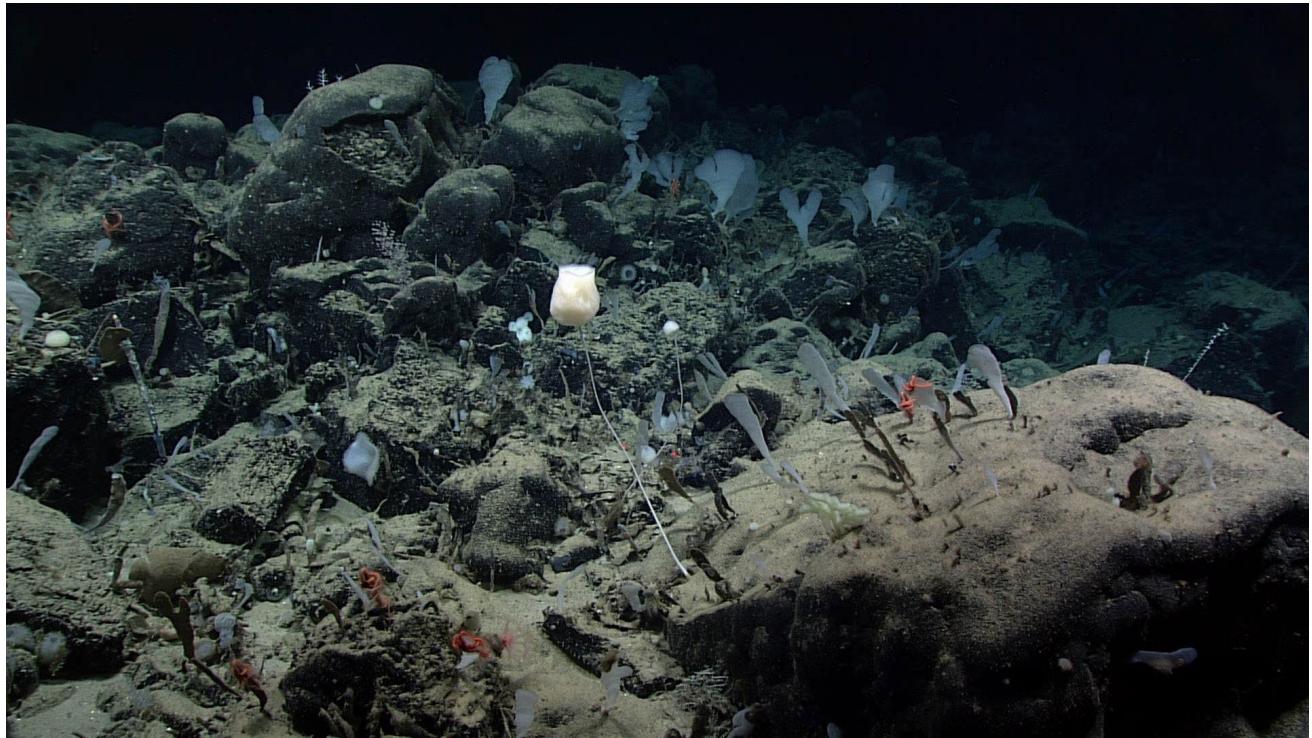
Associates Sample ID	Field Identification	Count
N/A	N/A	N/A



Sample ID	2107_D06_03B
Date (UTC)	20211103
15:52	15:52
Depth (m)	3651.298
Latitude (decimal degrees)	30.191530
Longitude (decimal degrees)	-76.163710
Temp. (°C)	2.342

Field ID(s)	Tretopleura
Comments	20 cm, flat, lobate, branching clusters of flat lobes, most common species, very brittle and rubbery; photographed with original ID label, but ID was changed to Tretopleura, pectactin spicules present under microscope.

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





Spec_ID: EX2107_D06_04B
 Field ID: Porifera, Amphidiscella
 Vessel: Okeanos Explorer
 CruiseID/DiveID: EX2107/04V_06
 UTC Date/Time: 20211103/16:33
 Dive Site: North Atlantic Ocean, Blake Spur Wull
 Lat/Lon/Depth (m): 30.1912/-76.1641/3626.4
 Preservative: 95%EtOH
 Formalin Used? No

Sample ID	2107_D06_04B
Date (UTC)	20211103
Time (UTC)	16:53
Depth (m)	3626.4
Latitude (decimal degrees)	30.191200
Longitude (decimal degrees)	-76.164360
Temp. (°C)	2.365
Field ID(s)	Bolosominae
Comments	10 cm wide sponge head and 40 cm stalk, very soft with thin spicules, stalk is breakable

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



Sample ID	2107_D06_05W
Date (UTC)	20211103
Time (UTC)	16:56
Depth (m)	3625.84
Latitude (decimal degrees)	30.191280
Longitude (decimal degrees)	-76.164400
Temp. (°C)	2.363
Field ID(s)	Water sample
Comments	eDNA

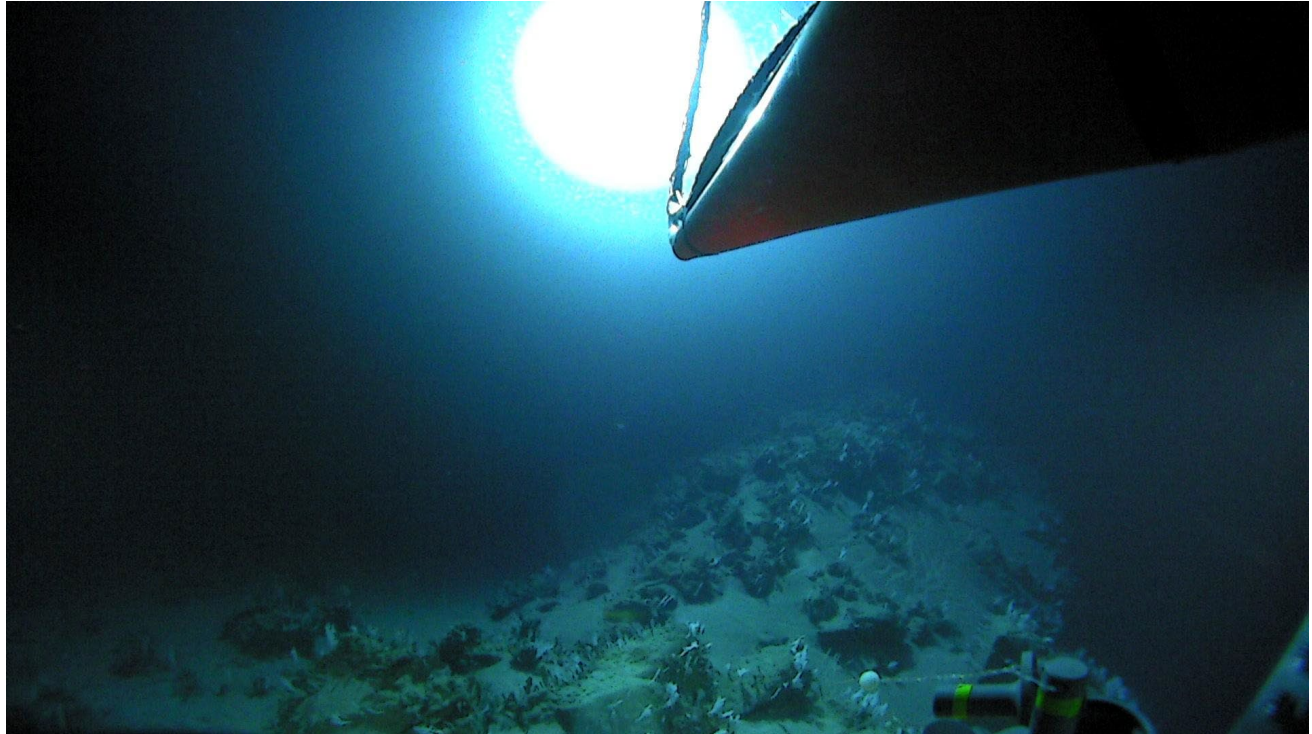
Associates Sample ID	Field Identification	Count
N/A	N/A	N/A



Sample ID	2107_D06_06B
Date (UTC)	20211103
Time (UTC)	17:07
Depth (m)	3624.49
Latitude (decimal degrees)	30.191150
Longitude (decimal degrees)	-76.164540

Temp. (°C)	2.331
Field ID(s)	Demospongiae
Comments	Fan cluster of lobes, soft, fluorescent green hue in lab, photographed with original label but ID changed to Demopongiae next day, no hexactin spicules present under microscope

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



Sample ID	2107_D06_07W
Date (UTC)	20211103
Time (UTC)	18:24
Depth (m)	3600.866
Latitude (decimal degrees)	30.190490
Longitude (decimal degrees)	-76.165090
Temp. (°C)	2.386
Field ID(s)	Water sample
Comments	eDNA

Associates Sample ID	Field Identification	Count

N/A	N/A	N/A
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Sample ID	2107_D06_08W
Date (UTC)	20211103
Time (UTC)	18:55
Depth (m)	2800.878
Latitude (decimal degrees)	30.189800
Longitude (decimal degrees)	-76.164430
Temp. (°C)	2.755
Field ID(s)	Water sample
Comments	eDNA

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

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