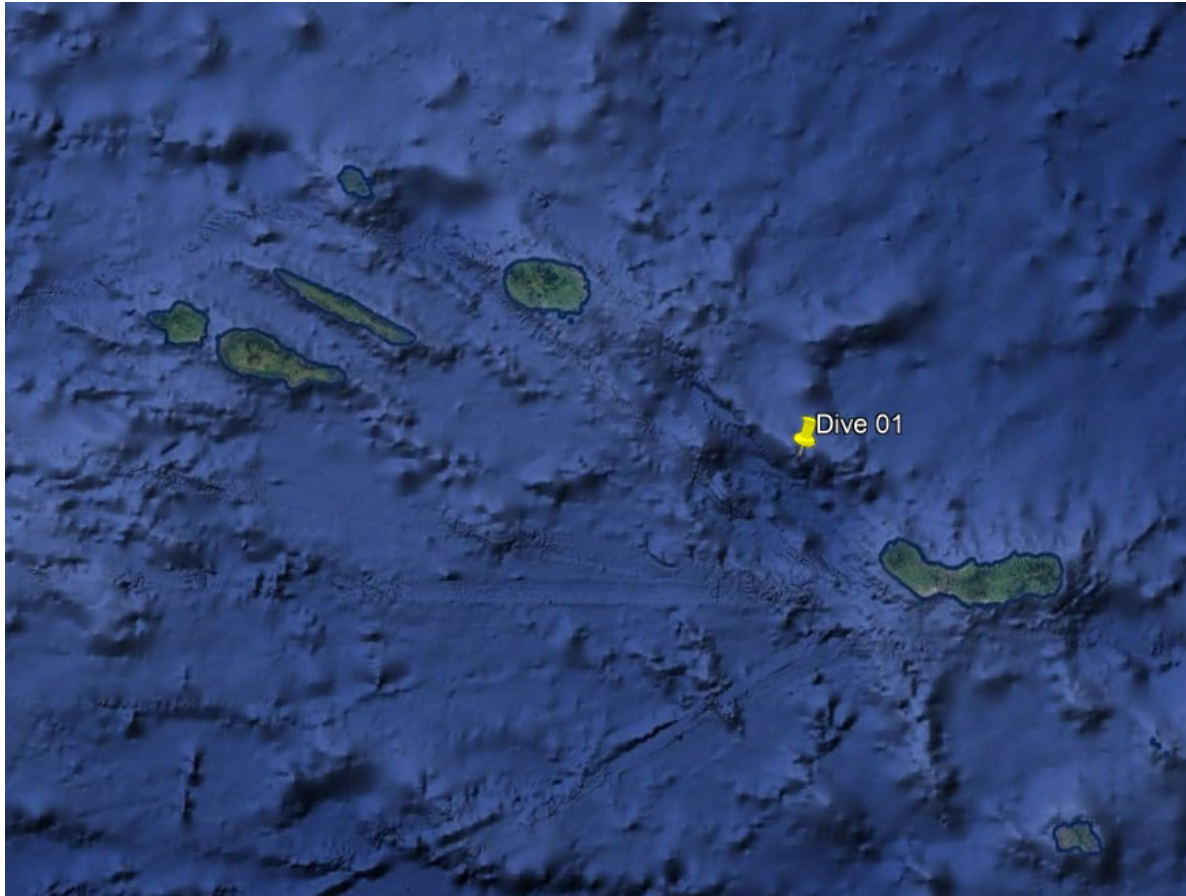


ROV Dive Summary, EX-22-06, Dive 01 August 07, 2022

General Location Map

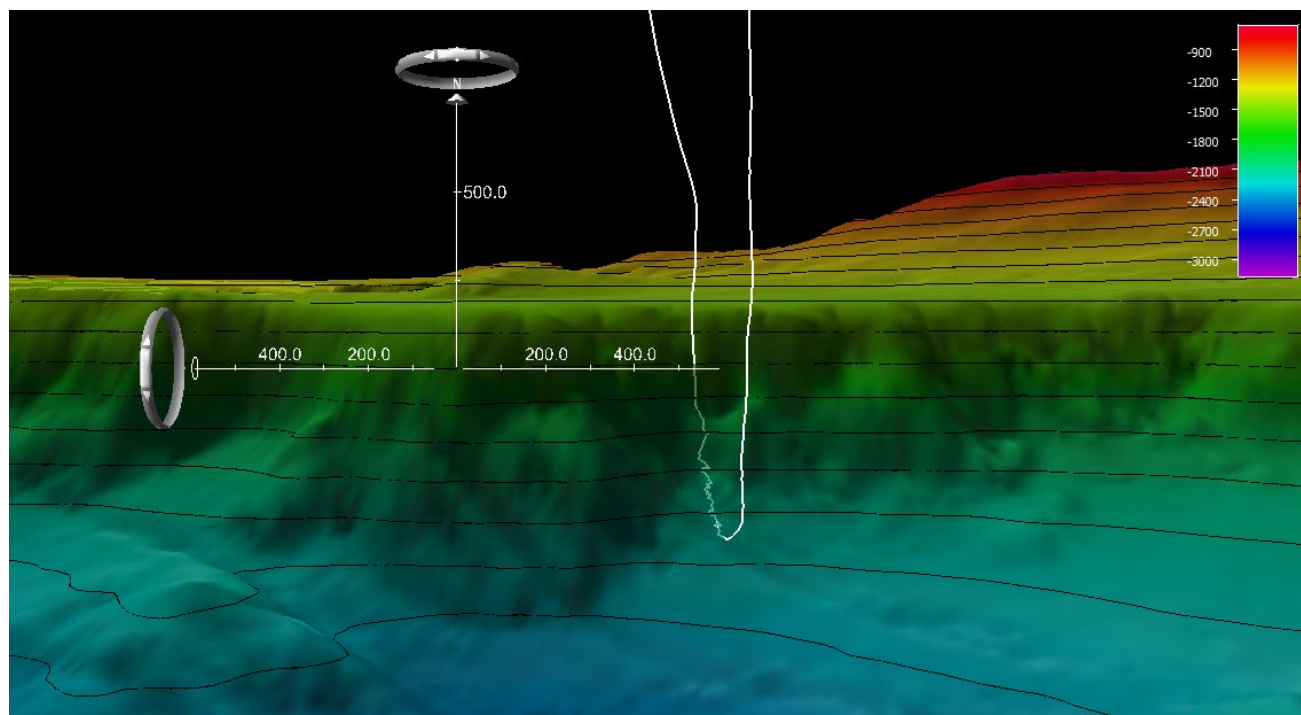


Dive Description	<p>The dive started at approximately 2200m, on a north-facing ridge of the João Valadão Ridge. We landed on a light-colored, sedimented slope with basalt talus and some whitish/yellowish rocks. We immediately encountered a cirrate octopod with its arms pulled in and the mysterious holes that have been previously observed on the second Voyage to the Ridge and other expeditions. As we began to move up the slope, we saw more of the whitish rocks. While originally thought to be carbonate, we soon decided that these were more likely to be pyroclasts, products of shallow submarine (Surtseyan) eruptions, that had rolled down the slope. We saw a dandelion siphonophore and a large crinoid, as well as an octopus (<i>Muusoctopus januarii</i>) in a rock crevice. We collected an Euplectellid glass sponge that was inhabited by a pair of polynoid scale worms, as well as a large pyroclast.</p> <p>As we continued to move upslope, it became much more sedimented and we saw many more of the pyroclasts, which were interpreted as part of a landslide deposit from further upslope. The landslide deposit was poorly sorted, from small cobbles to very large boulders. Most fragments were angular, although a few were more rounded. We think this may have been a recent landslide, due to a lack of sediment on the rocks themselves, as well as a lack of biology. However, we did see some blue encrusting sponges (possibly family <i>Hymedesmiidae</i>), a tunicate, and some glass sponges.</p> <p>Finally, we reached a very steep bare rock wall. The wall was mostly composed of brecciated and fragmented pillows at its base, with some radial cooling fractures. As we continued onward, we saw a striated surface that might have been slickensides on a fault face or could have been associated with the landslide deposit. We encountered these striated faces three times during the dive. We ended the dive in more rubble with some intact flow morphologies.</p> <p>The most common corals were <i>Metallogorgia (melanotrichos?)</i> with its associate ophiuroid (<i>Ophiocreas oedipus</i>). An unknown glass sponge, presumed in the Auloplacidae family, was also collected. A fragment of sub-fossil <i>Lophelia</i> colony was found in one of the rock boxes and this yielded at least 6 additional demosponge species (preserved in bulk). Three water samples were collected for eDNA work: one on descent in the Deep Scattering Layer, one on bottom at arrival of the ROV, and one before leaving bottom.</p>
Notable Observations	Mysterious holes that might be lebensspuren, volcanoclastics, landslide deposits, unknown glass sponge.
Community and habitat observations	Corals and Sponges - Present Chemosynthetic Community - Absent High biodiversity Community - Absent Active Seep or Vent - Absent Extinct Seep or Vent - Absent Hydrates - Absent
CMECS Feature Type(s)	Spreading Center Submarine Slide Deposit Rubble Field Scarp/wall
SeaTube Link (science annotation system)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=6080

Equipment Deployed

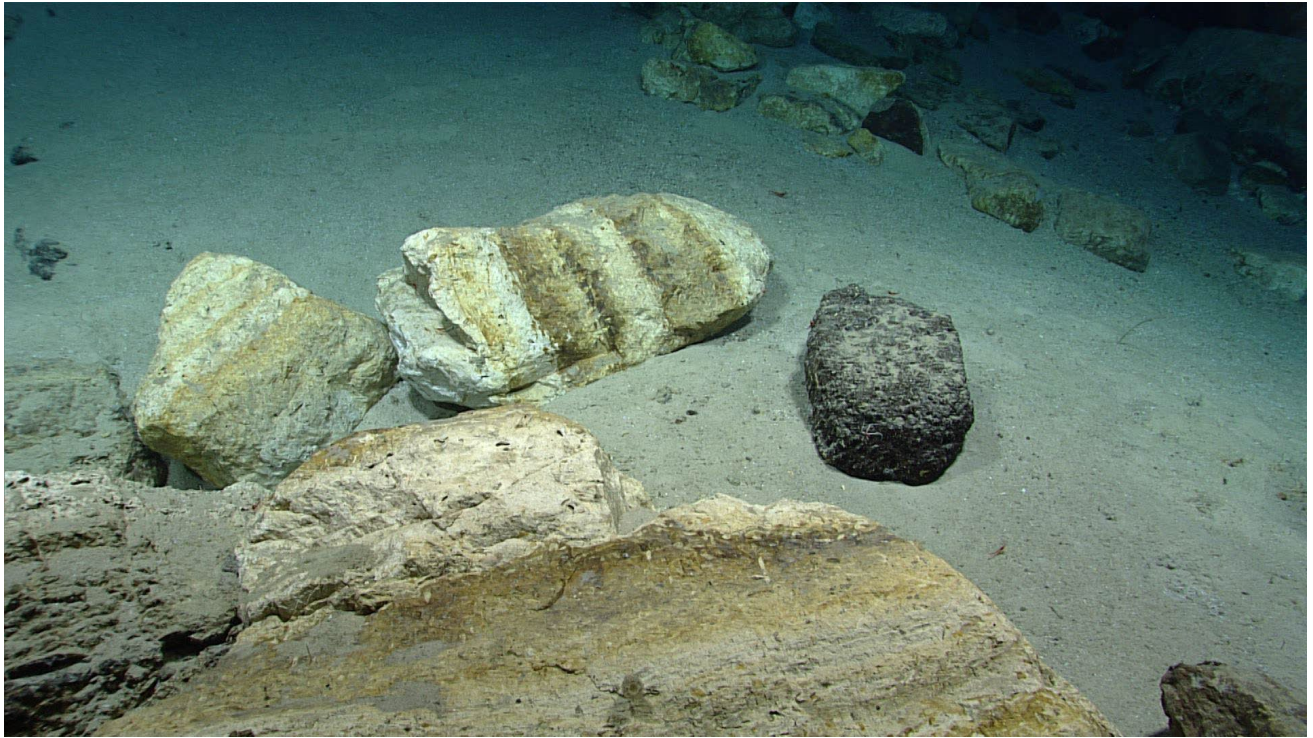
ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms,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

Close-up Map of Main Dive Site

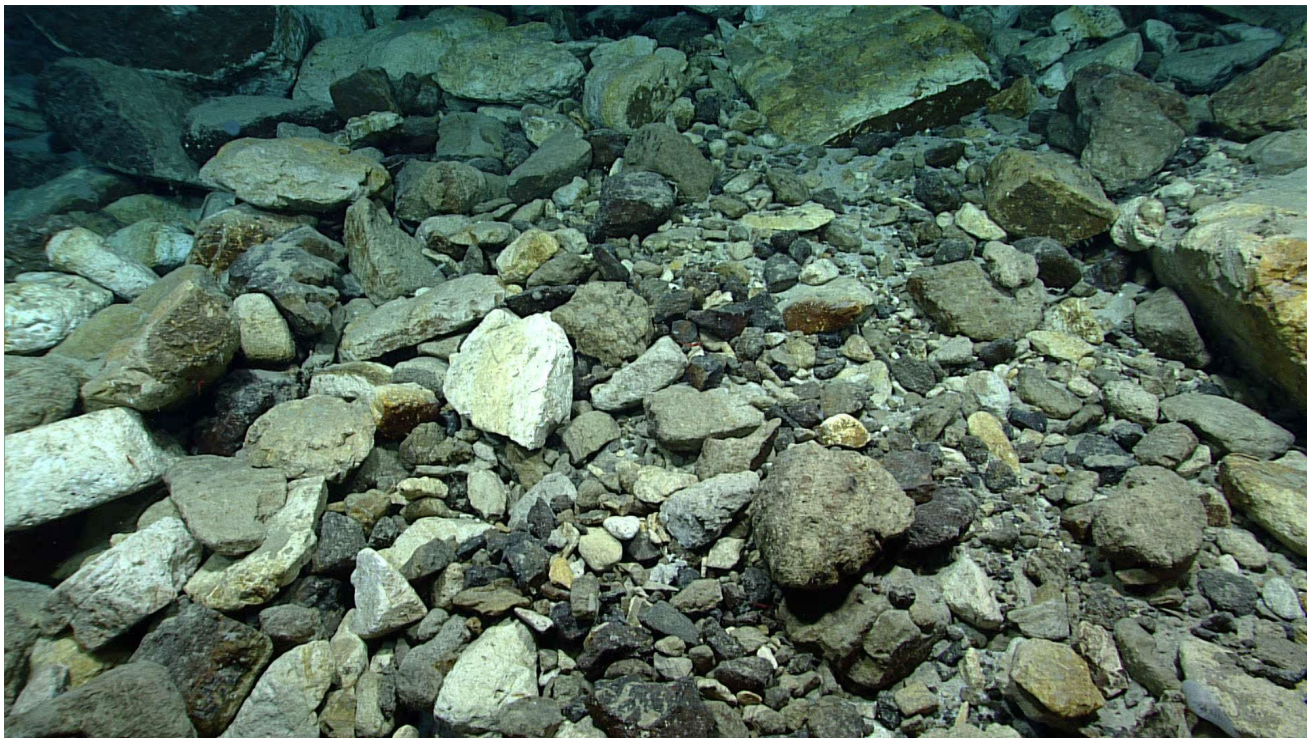


Smoothed ROV dive track in white on 25m resolution, 1x vertical exaggeration, depth in meters, 100 meter contours.

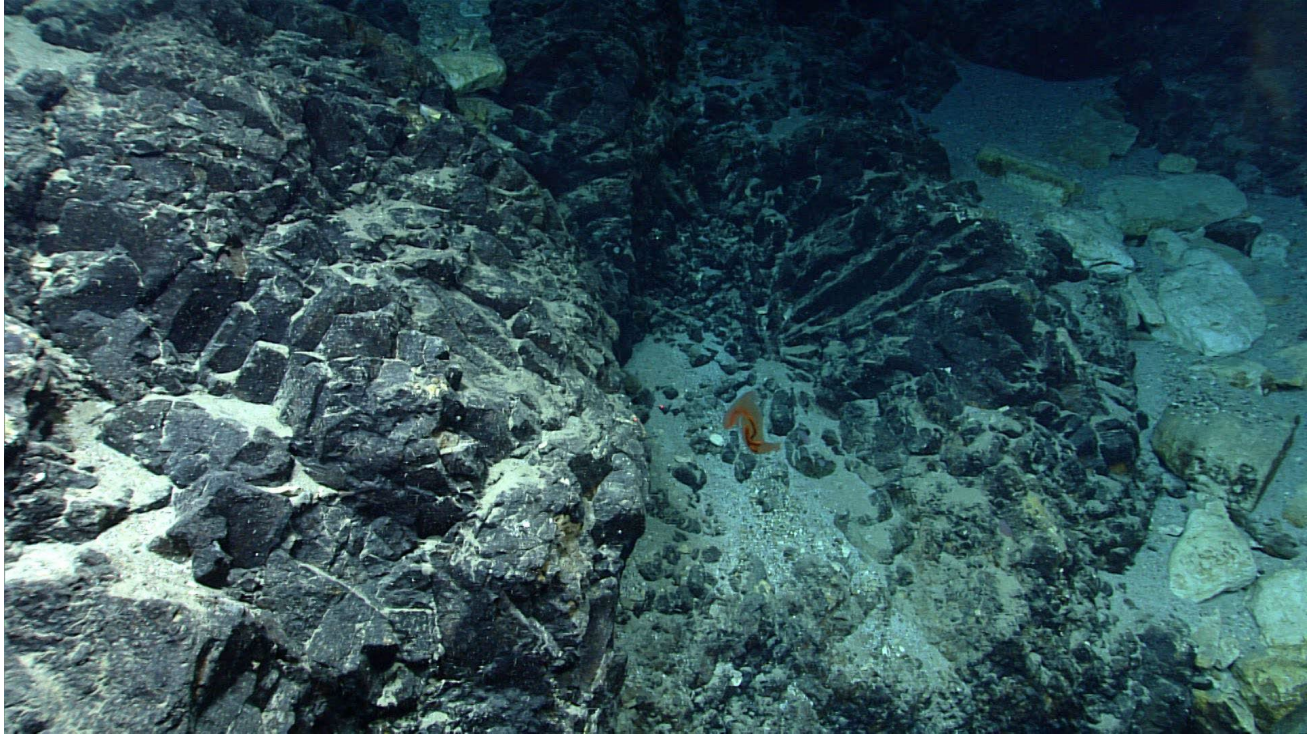
Representative Photos of the Dive



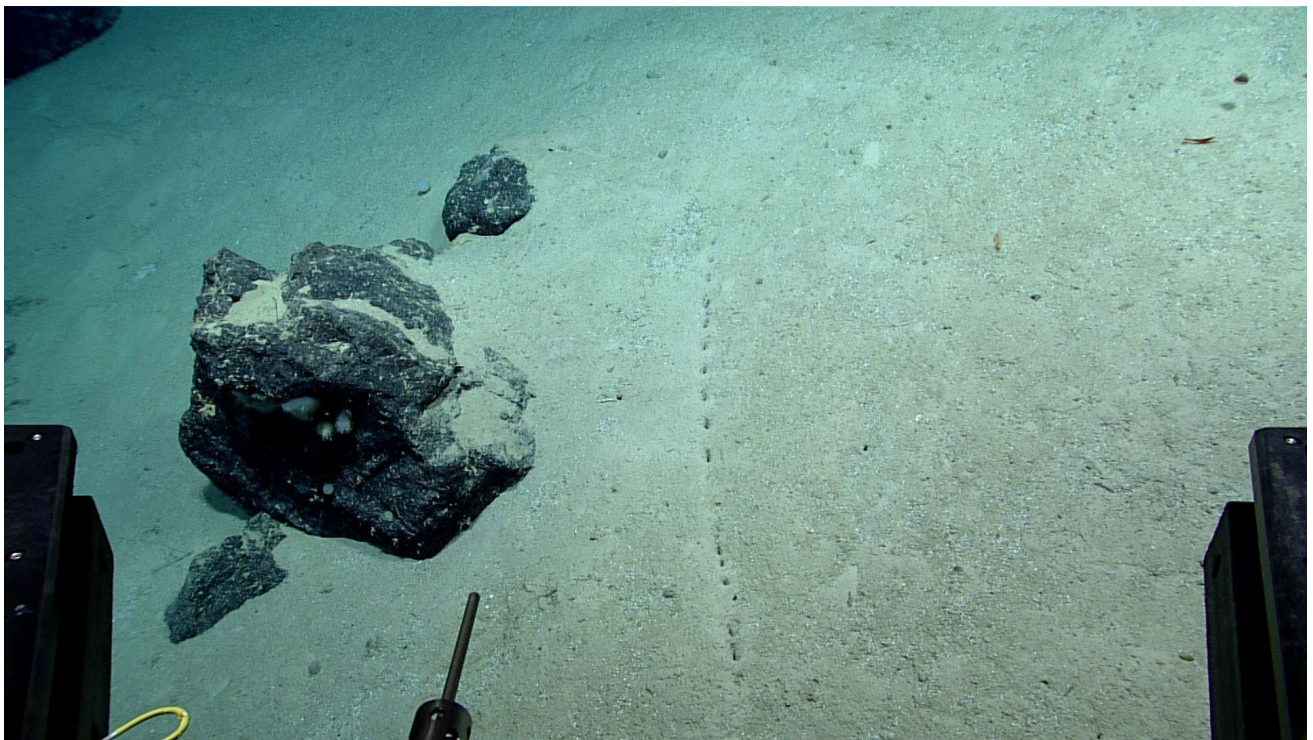
Striated/layered pyroclasts, composed of ash with some rock fragments.



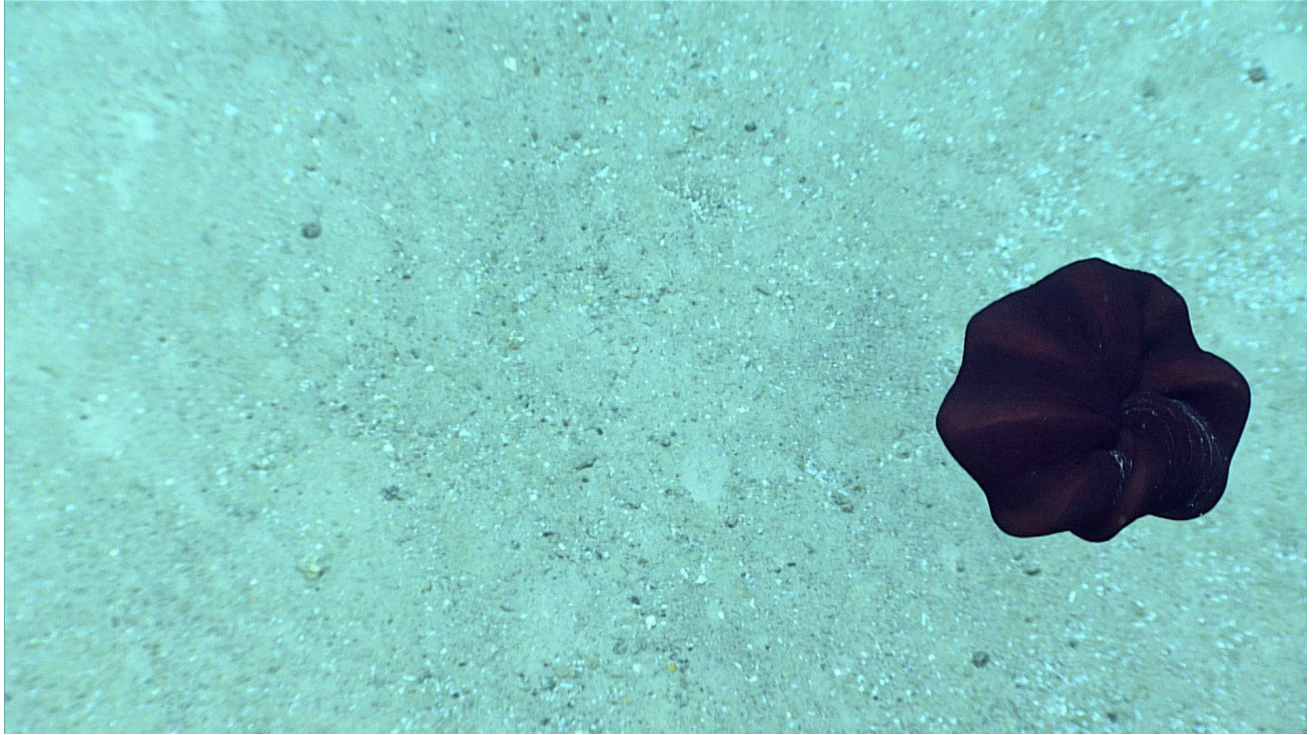
Fairly fresh, poorly sorted landslide deposits.



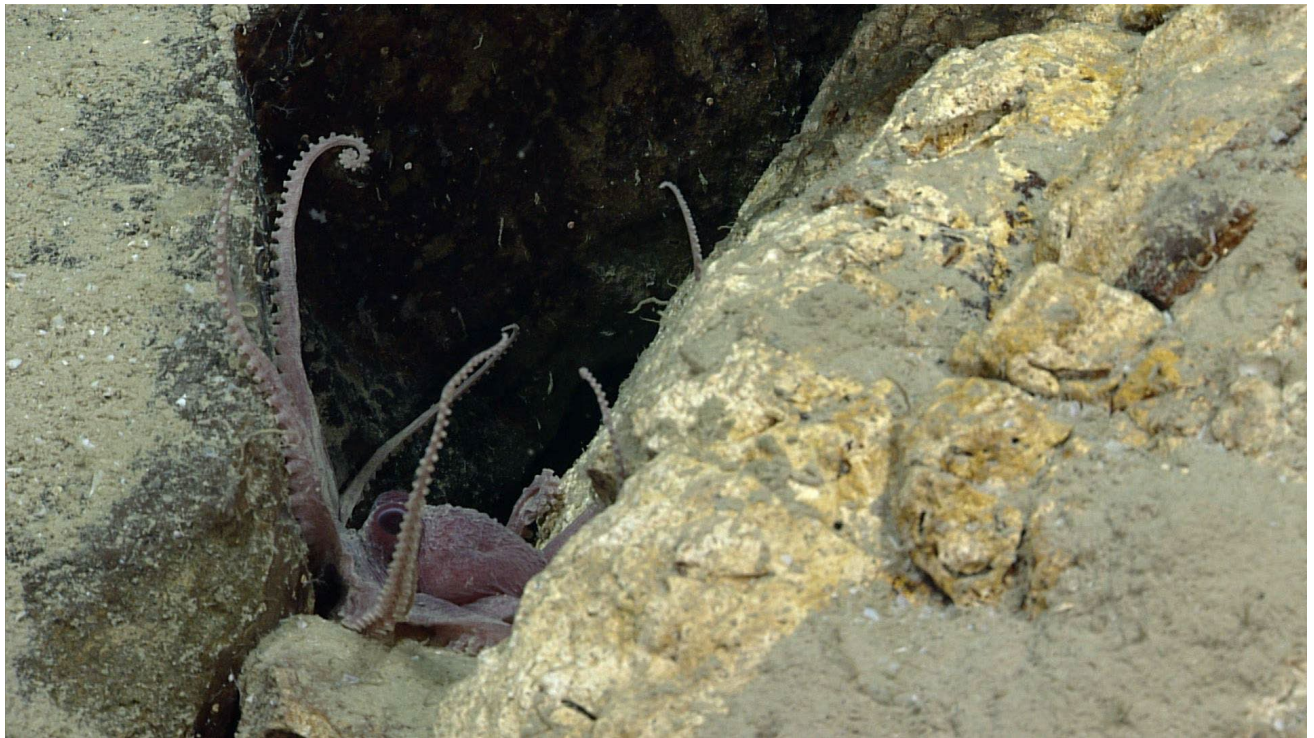
Basalt wall exhibiting radial fractures.



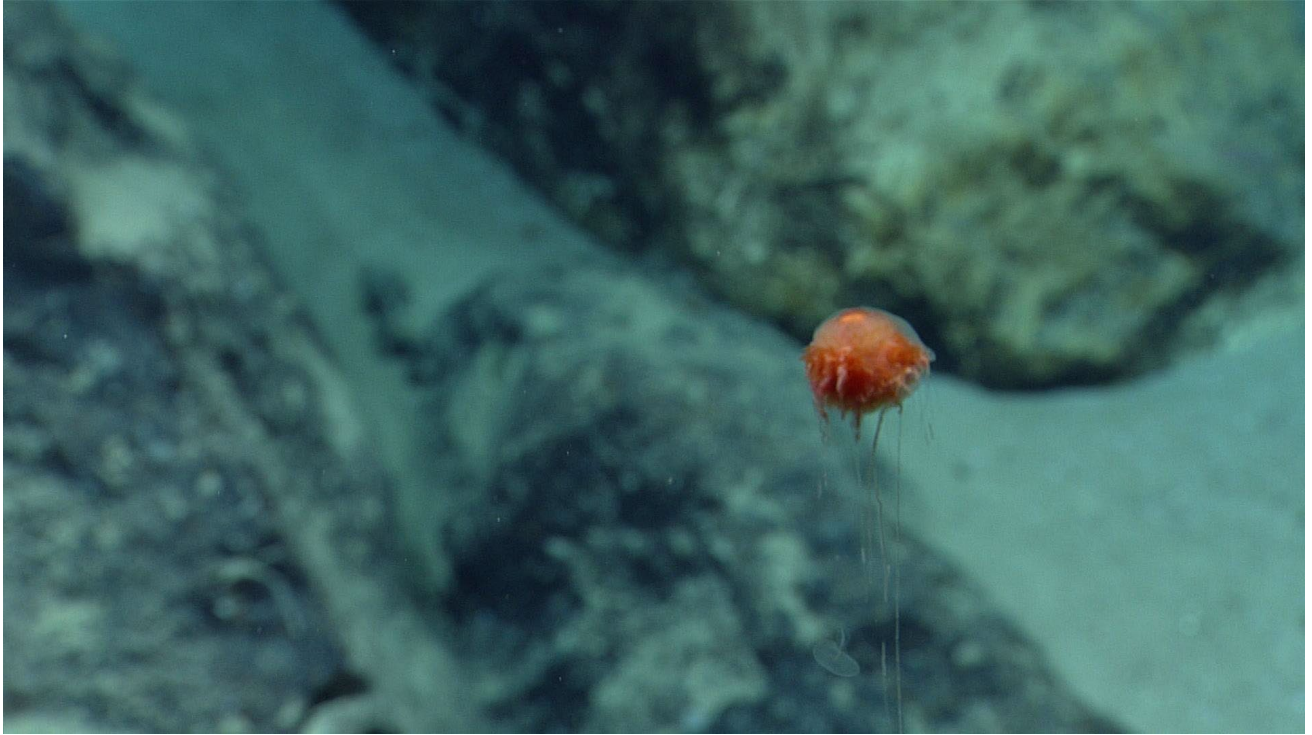
Mysterious holes on seafloor sediments, of unknown origin but presumed to be trace marks of a burrowing organism.



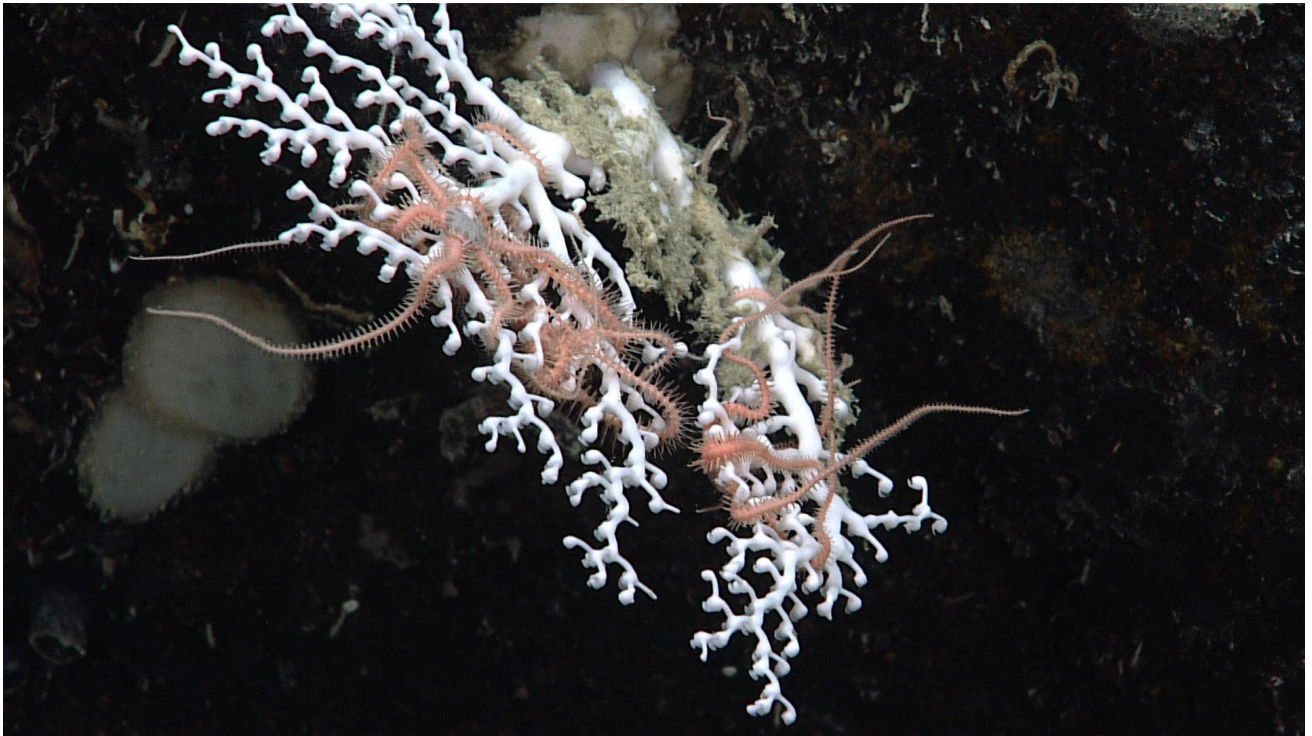
An unidentified species of octopus observed at the start of the dive with its arms folded into the mantle.



An octopus of the species *Muusoctopus januarii* hiding in a rocky crevice.



A dandelion siphonophore.



A hydrocoral of the genus *Crypthelia* with associated brittle stars.

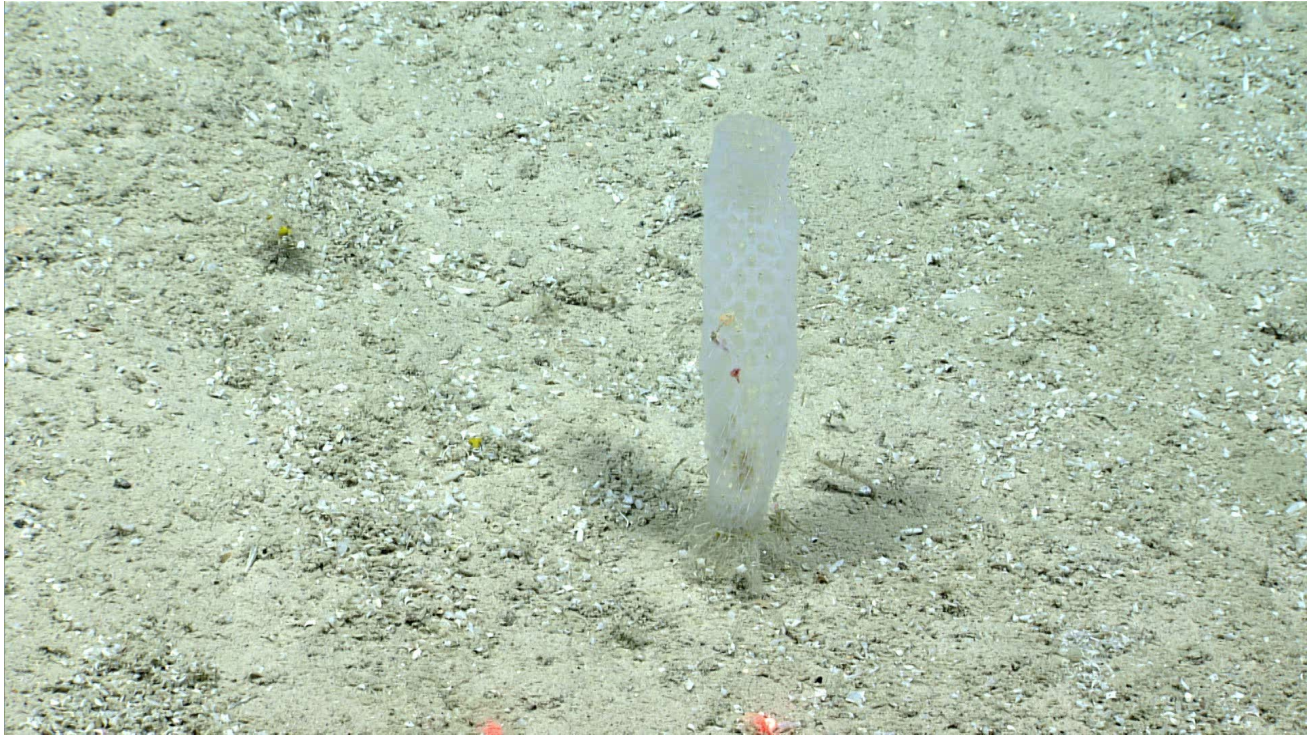


Blue encrusting sponge, possibly in the genus *Hymedesmia*, with clearly visible pore sieve areas (along the margin) and central oscule.



A black coral in the genus *Bathypathes* (possibly *B. pseudoalternata*)

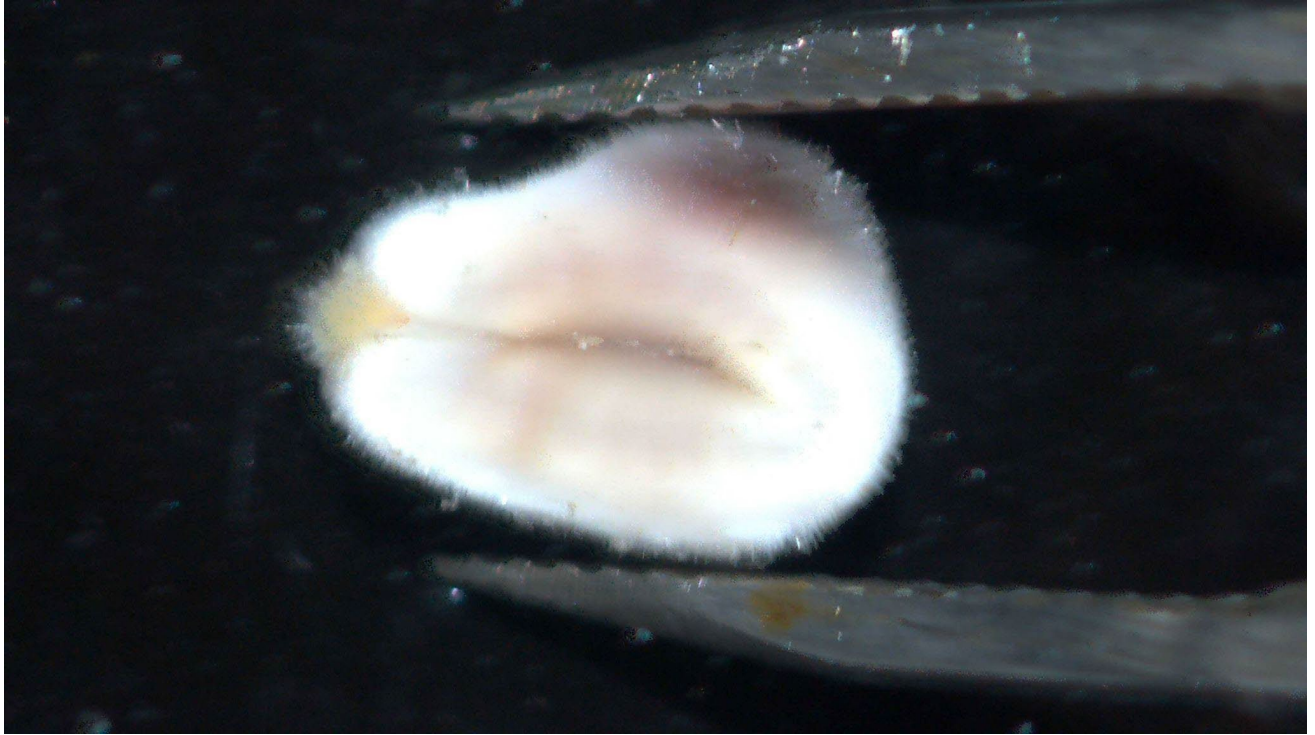
Samples Collected



Sample ID	EX2206_D01_03B
Date (UTC)	22020807
Time (UTC)	133856
Depth (m)	2121.0

Latitude (decimal degrees)	38.159
Longitude (decimal degrees)	-26.236
Temp. (°C)	4.809
Field ID(s)	Euplectella sp.
Comments	Tubular sponge with thin body wall with an intricate intercrossing skeletal arrangement, and numerous lateral oscula. With an apical colander-like sieve-plate, and a tuft of basal spicules for attachment to the substrate. 1.5 cm long spicules protruding from the external wall.



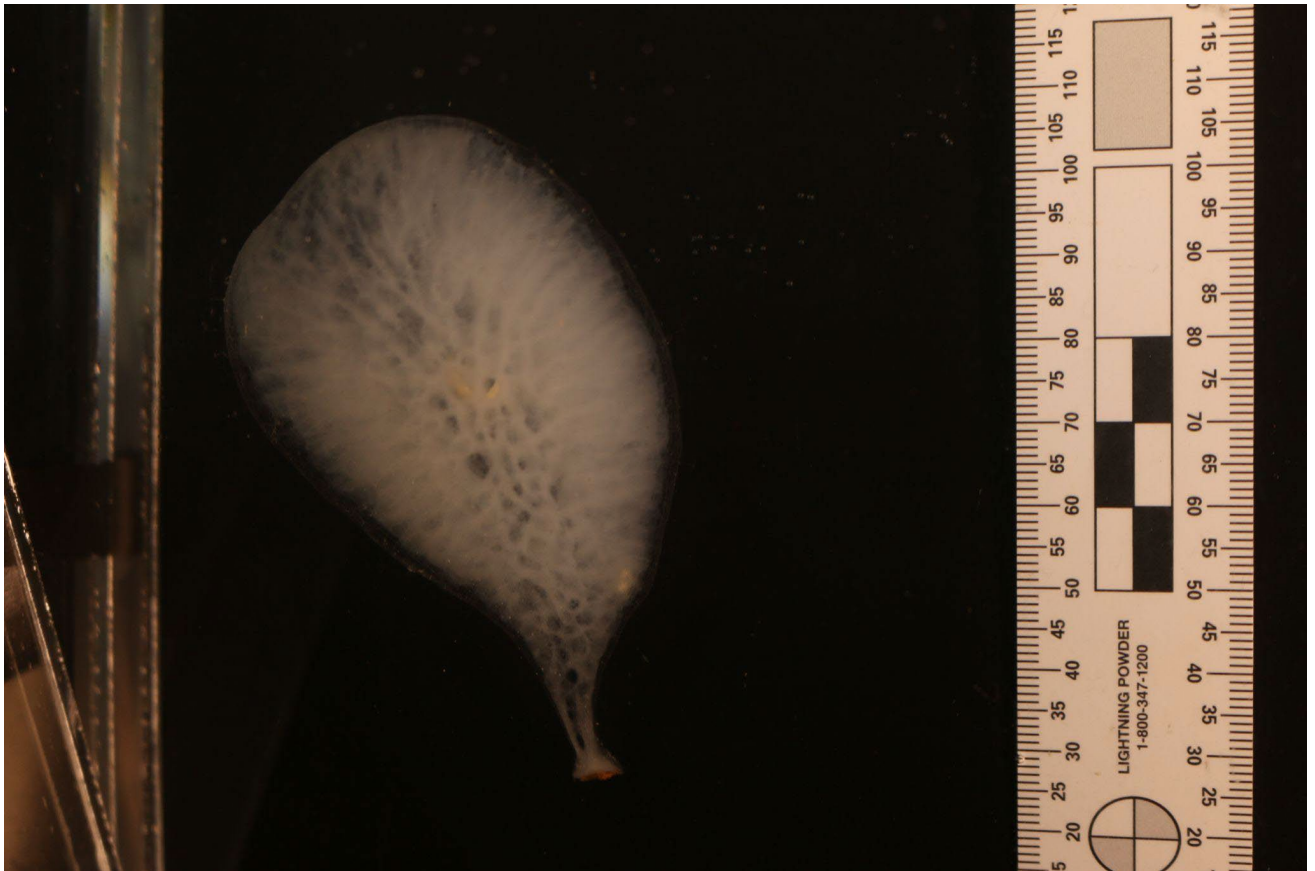


Associates Sample ID	Field Identification	Count
EX2206_D2_03B_A01	Scale Worms	2
EX2206_D2_03B_A02	Unknown	1





Sample ID	EX2206_D01_04G
Date (UTC)	22060807
Time (UTC)	134431
Depth (m)	2115.6
Latitude (decimal degrees)	38.159
Longitude (decimal degrees)	-26.236
Temp. (°C)	4.8
Field ID(s)	Pyroclast
Comments	Weathering/alteration product changing the color, fine grained texture, possible obsidian clasts. 2nd piece, small black, mostly round piece surrounding very fine sediment (silt or clay?).

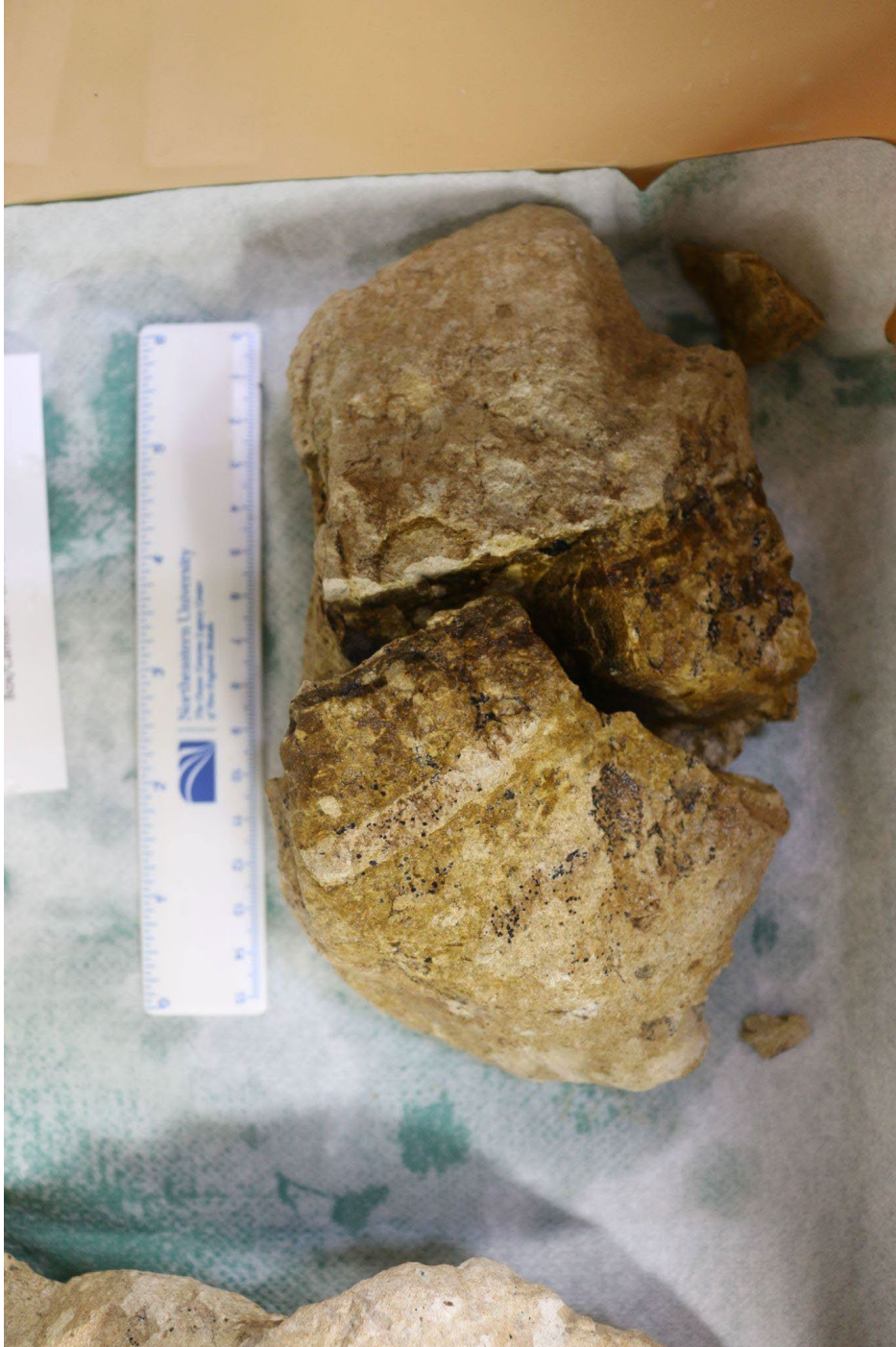




Sample ID	EX2206_D01_05B
Date (UTC)	20220807
Time (UTC)	T153207
Depth (m)	2046.776
Latitude (decimal degrees)	38.160
Longitude (decimal degrees)	-26.236
Temp. (°C)	2046.8
Field ID(s)	Hexactinellid, possibly family Auloplacidae (new species?)
Comments	White globular body, narrowing towards the base with a small stalk and attached to the substrate by means of a disc. With a deep atrial cavity, and a wide apical oscule. It has a thin veil (spicule network) along the external wall. Consistency is rather soft and compressible. Possible associate inside.







Sample ID	EX2206_D01_06G
Date (UTC)	22020807
Time (UTC)	161819
Depth (m)	1996.512
Latitude (decimal degrees)	38.16048
Longitude (decimal degrees)	-26.2361
Temp. (°C)	4.853

Field ID(s)	Pyroclast
Comments	<p>Multiple rocks collected as one sample.</p> <p>Lighter rocks - Yellow to white in color. Small black inclusions, possibly obsidian. Some weathering/alteration present.</p> <p>Darker rock - possibly a basaltic bomb. Some vesicles present, smooth texture. Fine-grained, no phenocrysts visible.</p>



Sample ID	EX2206_D01_08B
Date (UTC)	22020807
Time (UTC)	170750
Depth (m)	1883.007
Latitude (decimal degrees)	38.16128
Longitude (decimal degrees)	-26.23615
Temp. (°C)	5.916
Field ID(s)	Volunteer Dead Coral covered in an assortment of biological organisms
Comments	Biological debris, Fragment of fossilized scleractinian, several encrusting, subglobular sponges, demosponges

Niskin Sampling Summary

Sample ID	EX2206_D01_01W
Date (UTC)	20220807
Time (UTC)	113824
Depth (m)	404.9 m
Latitude (decimal degrees)	38.158
Longitude (decimal degrees)	26.236
Bottle number	NISKIN 1
Temperature (°C)	12.445
Dissolved Oxygen (ml/L)	6.639
Treatment	eDNA

Sample ID	EX2206_D01_02W
Date (UTC)	22060807
Time (UTC)	124211
Depth (m)	2152.8
Latitude (decimal degrees)	38.158
Longitude (decimal degrees)	-26.236
Bottle number	NISKIN 2
Temperature (°C)	4.787
Dissolved Oxygen (ml/L)	7.72
Treatment	eDNA

Sample ID	EX2206_D01_07W
Date (UTC)	22060807
Time (UTC)	172053
Depth (m)	1839.824
Latitude (decimal degrees)	38.16159
Longitude (decimal degrees)	-26.23616

Bottle number	NISKIN 3
Temperature (°C)	4.93
Dissolved Oxygen (ml/L)	7.644
Treatment	eDNA

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