



Okeanos Explorer ROV Dive Summary

Dive Information

<p>General Location Map</p>	
<p>General Area Descriptor</p>	<p>U.S. Southeast</p>
<p>Site Name</p>	<p>Blake Plateau Knolls</p>
<p>Science Team Leads</p>	<p>Amy Wagner (CSUS) and Alexis Weinnig (Temple)</p>
<p>Expedition Coordinator</p>	<p>Kasey Cantwell (NOAA-OER)</p>
<p>ROV Dive Supervisor</p>	<p>Chris Ritter (GFOE)</p>
<p>Mapping Lead</p>	<p>Shannon Hoy (NOAA-OER)</p>

ROV Dive Name

<p>Cruise</p>	<p>EX1903L2</p>
<p>Dive Number</p>	<p>Dive 04</p>

Scientists Involved (provide name, affiliation, email)

Name	Affiliation	Email
Adam Skarke	Mississippi State University	adam.skarke@msstate.edu
Alexis Weinnig	Temple University	aweinnig@temple.edu
Amy Wagner	California State University, Sacramento	amy.wagner@csus.edu
Andrew Shuler	CSS, inc.	andrew.shuler@noaa.gov
Asako Matsumoto	Chiba Institute of Technology	amatsu@gorgonian.jp
Benjamin Frable	Scripps Institution of Oceanography	bfrable@ucsd.edu
Bernard Ball	University College Dublin	bernie.ball.ucd@gmail.com
Cheryl Morrison	U.S. Geological Survey	cmorrison@usgs.gov
Chip Collier	SAFMC	Chip.collier@safmc.net
Cristiana Castello-Branco	Postdoc at Smithsonian National Museum of Natural History	cristianacbranco@gmail.com
Danielle Power	NOAA Ship Okeanos Explorer	danielle.l.power@noaa.gov
Elizabeth Fraser	NOAA NCCOS	gugliottief@gmail.com
Enrique (Ren) Salgado	NOAA CSS	enrique.salgado@noaa.gov
Erik Cordes	Temple University	ecordes@temple.edu
Frable Ben	Scripps Institution of Oceanography	bfrable@ucsd.edu
Georgios Kazanidis	University of Edinburgh	georgios.kazanidis@ed.ac.uk
Heather Coleman	DSC RTP, NOAA	heather.coleman@noaa.gov
Herbert Leavitt	NOAA Office of Ocean Exploration and Research (OER Hollings Scholar)	herbert.leavitt@noaa.gov
J Dunn	NOAA OER	christopher.dunn@noaa.gov
Janessy Frometa	NOAA Deep Coral Ecology Lab	janessy.frometa@noaa.gov
Jay Lunden	Temple University	jlunden@temple.edu
Jenna Hill	USGS	jhill@usgs.gov
Jill Bourque	USGS	jbouque@usgs.gov
Jim Masterson	FAU Harbor Branch Oceanographic	jmaster7@fau.edu
Joana Xavier	CIIMAR, University of Porto, Portugal	joanarxavier@gmail.com
John Reed	Harbor Branch Oceanographic Institute	jreed12@fau.edu



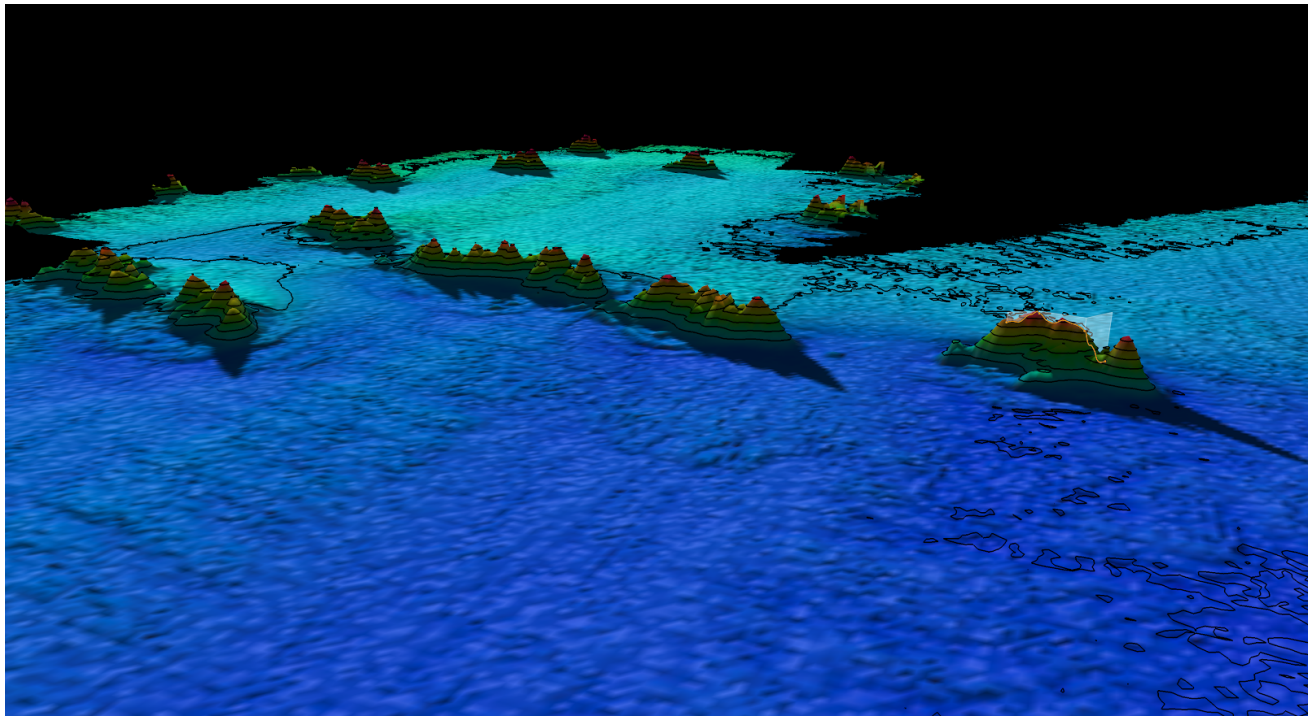
Kelley Brumley	Fugro	kbrumley@fugro.com
Kevin Jerram	UNH	kjerram@ccom.unh.edu
Kevin Kocot	University of Alabama	kmkocot@ua.edu
Laura Anthony	NOAA	laura.anthony@noaa.gov
Les Watling	University of Hawaii at Manoa	watling@hawaii.edu
Mark Mueller	BOEM	mark.mueller@boem.gov
Megan McCuller	North Carolina Museum of Natural Sciences	megan.mcculler@naturalsciences.org
Michael Vecchione	NOAA National Systematics Lab	vecchiom@si.edu
Mike Ford	NOAA	michael.ford@noaa.gov
Morgan Will	DCEL	morgan.will@noaa.gov
Robert Carney	LSU, Oceanography, emeritus	rcarne1@lsu.edu
Scott France	University of Louisiana at Lafayette	france@louisiana.edu
Shannon Hoy	NOAA OER	shannon.hoy@noaa.gov
Tara Harmer Luke	Stockton University	luket@stockton.edu, tara.luke@stockton.edu
Timothy Shank	Woods Hole Oceanographic Institution	tshank@whoi.edu
Tina Molodtsova	P.P.Shirshov Institute of Oceanology RAS	tina@ocean.ru

Dive Purpose	This dive was conducted at a knoll feature on the Blake Plateau. This region of the Blake Plateau was first identified and mapped on the EX1806 Windows to the Deep 2018 Expedition. They planned on doing an EX1903 ROV dive on one of these knolls but were operationally unable, so this dive became a priority for this expedition. The mapping conducted on EX1806 revealed multiple knolls that were isolated from each other by a few hundred meters. Based on the bathymetry there was likelihood this feature could be a cold-water coral mound and was worth investigating further through an ROV dive.
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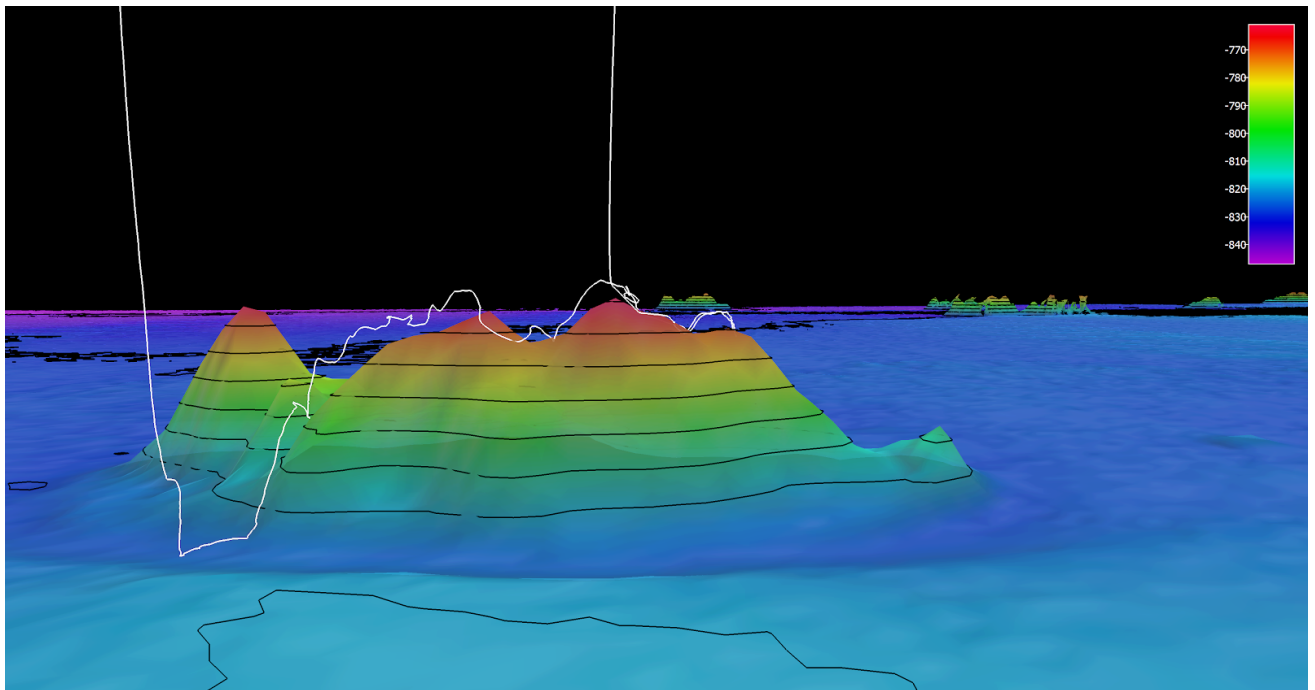
Dive Description	<p>The ROV launched at 1230 UTC and reached the bottom around 1311 UTC at a depth of 826 meters. We approached bottom off of the northeastern side of the knoll which was mostly a soft sediment with some coral rubble. As we approached the base of the knoll the amount of coral rubble increased and we observed small white plexaurid and primnoid octocorals growing abundantly amongst the coral rubble at about 800 meters. As we continued up the slope of the knoll we encountered a dense community associated with the coral rubble including crinoids (stalked and unstalked), hexactinellid sponges, ophiuroidea brittle stars, octocorals (Isididae, Plexauridae, Primnoidae, Paragorgidae), fish (<i>Nezumia bairdii</i>, <i>Synaphobranchus</i>, viper fish). Throughout our ascent up the knoll it became apparent that the knoll was comprised of multiple hills that were not previously visible in the 25 meter grid bathymetry data. As we reached the local high (755 meters) on the north east of one of the hills of the knoll we encountered a high percentage of live <i>Lophelia pertusa</i> coverage with large colonies with long branches. There were also patches of <i>Madrepora sp.</i> intermixed amongst the Lophelia and we even observed the two different scleractinian corals growing together, with tissue from the <i>Madrepora</i> growing on to the <i>Lophelia</i> skeleton. In the areas of highest coverage there was almost 100% live coral coverage. We observed many organisms amongst the live <i>Lophelia pertusa</i> coverage, including numerous <i>Aphrocallistes beatrix</i> sponges and <i>Euminida picta</i> squat lobsters. We also observed a few <i>Alphonsino</i> fish (commercially fished) around the areas with live coral coverage. The dive track continued southwest and as we moved away from the local high of a few hills the live Lophelia coverage dropped back to almost 0%, with 100% coral rubble coverage. We encountered a large “black tar sponge” of the genus <i>Derictus</i>, which was sampled on the EX1806 Windows to the Deep 2018 expedition. As we continued west on the feature we continued to observe coral rubble and associated communities including varieties of plexaurid and primnoid octocorals. An interesting observation made during the dive was that the high density of live Lophelia coverage was actually on the north/northeast portion of the feature, when a majority of these similar coral mounds have live coverage on the south side of the mound. This might be due to a different current working through the area - potentially an eddy off of the gulf stream. It is also notable that there was temperature variability throughout the dive ranging from 10 C to 12 C. Five biological samples were collected throughout the dive including an <i>Aphrocallistes</i> sponge, a <i>Periphylla</i> jellyfish that was hovering close to the seafloor, an <i>Endoxocrinus</i> crinoid, white plexaurid octocoral and a siphonophore that was wrapped around a small octocoral. ROV left bottom and recovery started around 2000 UTC.</p>
Notable Observations	Dense live <i>Lophelia pertusa</i> colonies on the northwest side of the feature - large “black tar sponge” of the genus <i>Derictus</i> -
Community Presence/Absence (community is defined as more than two species)	<ul style="list-style-type: none"> X Corals and Sponges <ul style="list-style-type: none"> ✓ Chemosynthetic Community X High biodiversity Community <ul style="list-style-type: none"> ✓ Active Seep or Vent ✓ Extinct Seep or Vent ✓ Hydrates
Feature Type	Cold-water stoney coral reef (Cold-water coral mounds)
SeaTube (annotations program) link	https://data.oceannetworks.ca/SeaTubeV2?resourceTypeId=1000&resourceId=23621&divId=984

Overall Map of the ROV Dive Area

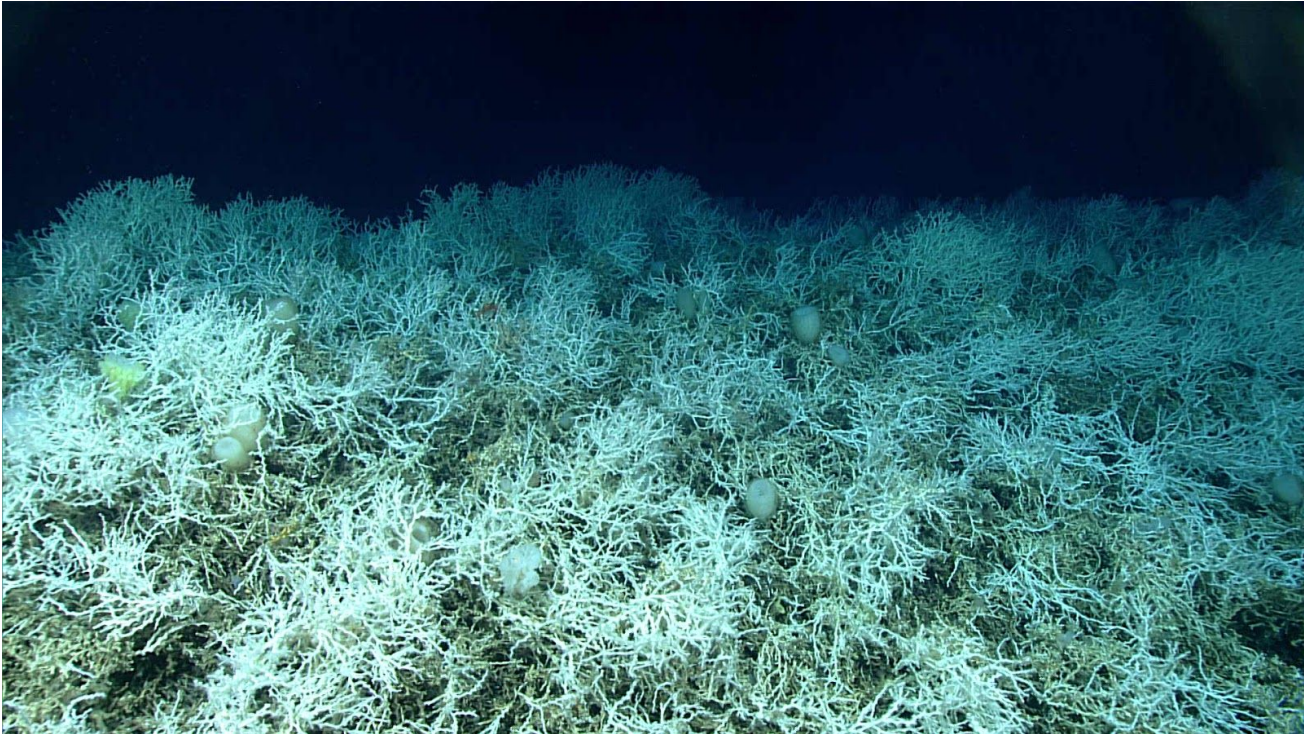




Close-up Map of Main Dive Site



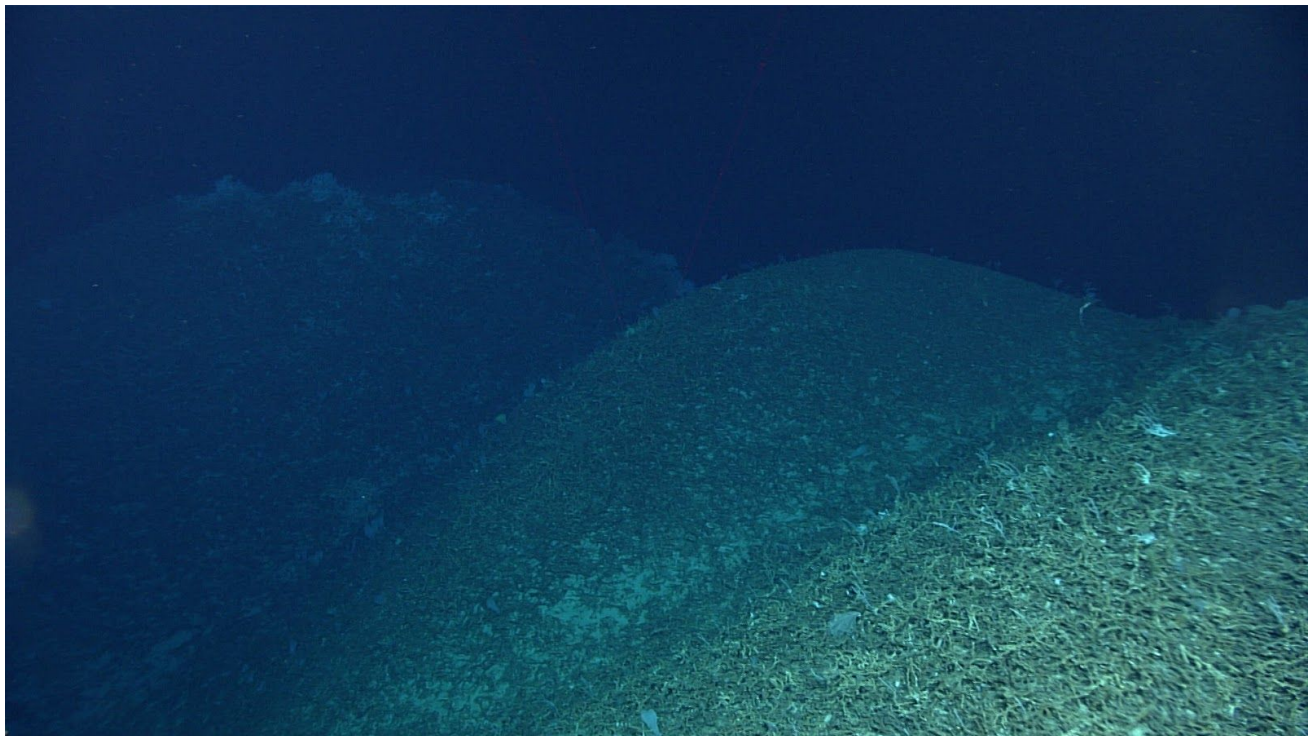
Representative Photos of the Dive



Thick live *Lophelia pertusa* coverage at the top of the knoll feature

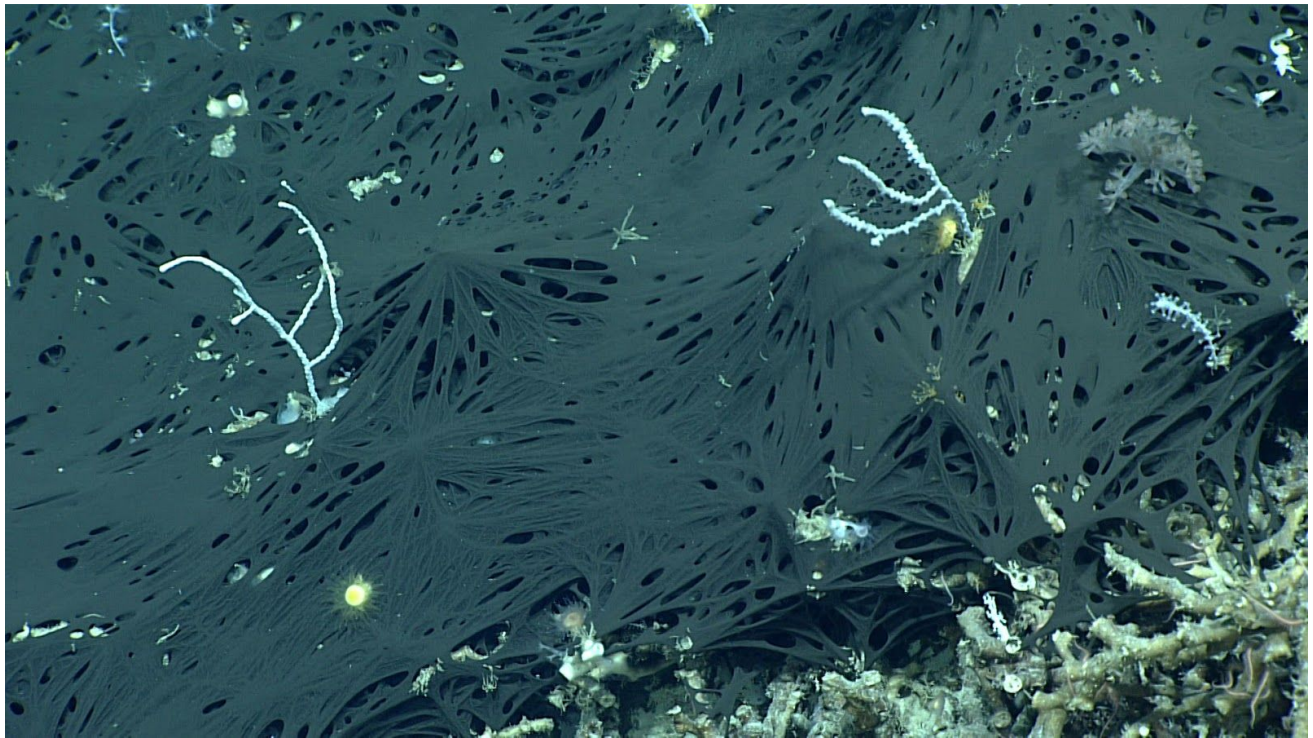


Eumunida picta squat lobster perched on top of live *Lophelia pertusa* and *Madrepora* sp.



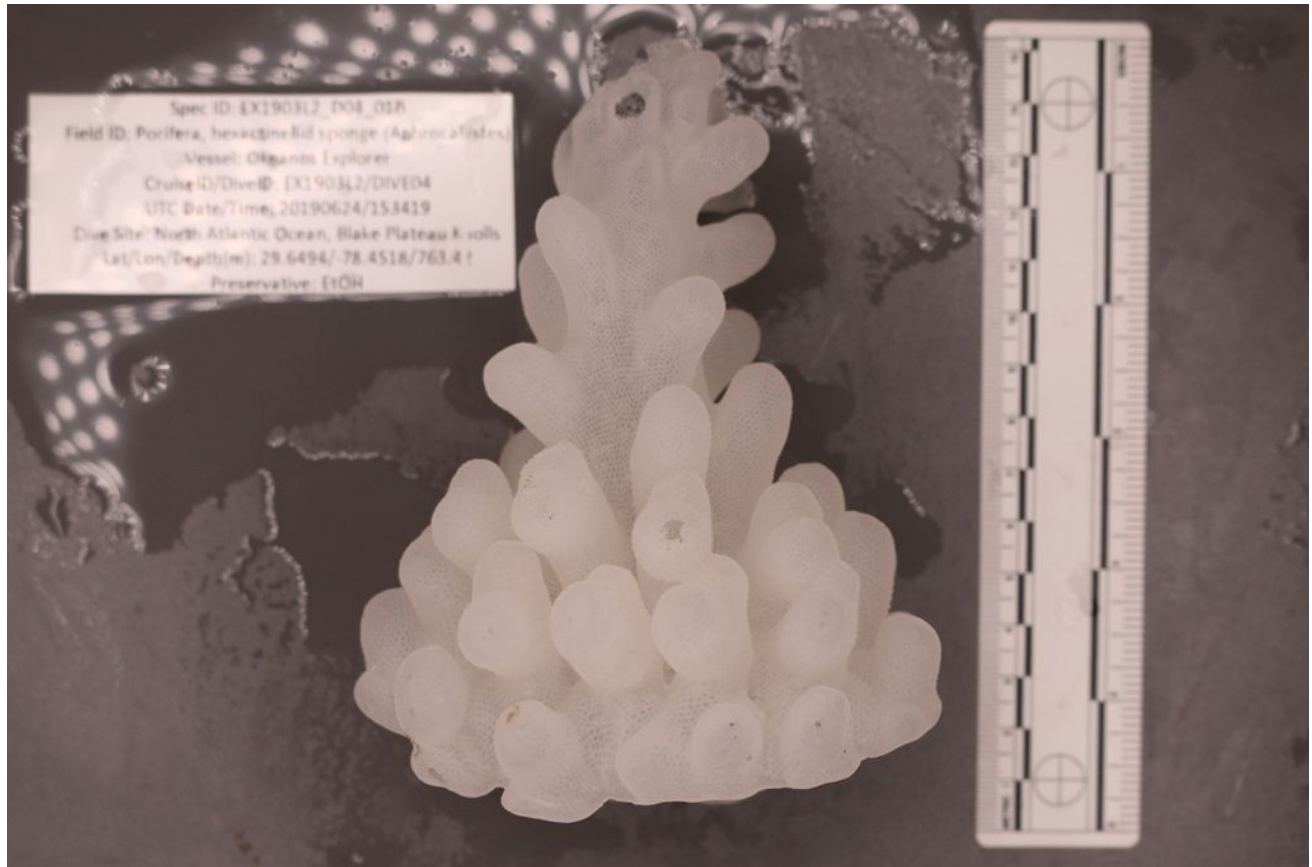
View of multiple hills along the knoll populated with scleractinian coral rubble.





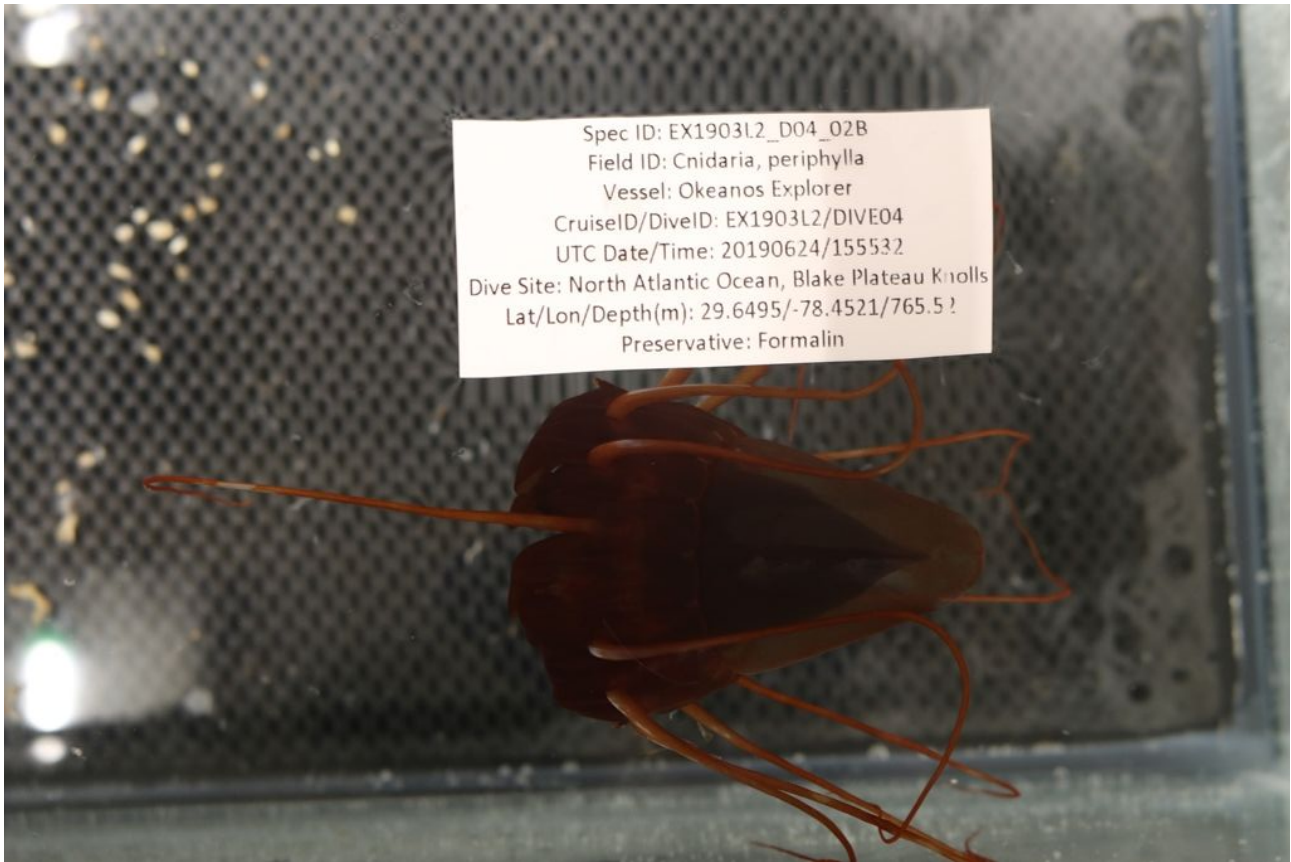
Close up view of the “black tar sponge” of the genus *Derictus* growing over coral rubble and around octocorals. A sample of this sponge was collected during EX1806 at a different location on the Blake Plateau.

Samples Collected



Sample ID	EX1903L2_D04_01B	
Date (UTC)	20190624	
Time (UTC)	153419	
Depth (m)	763.4	
Temp. (°C)	10.170	
Field ID(s)	Hexactinellid sponge (<i>Aphrocallistes</i> sp.)	
Associates	Associates Sample ID	Field Identification
	No associates	
Comments		



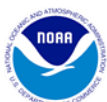


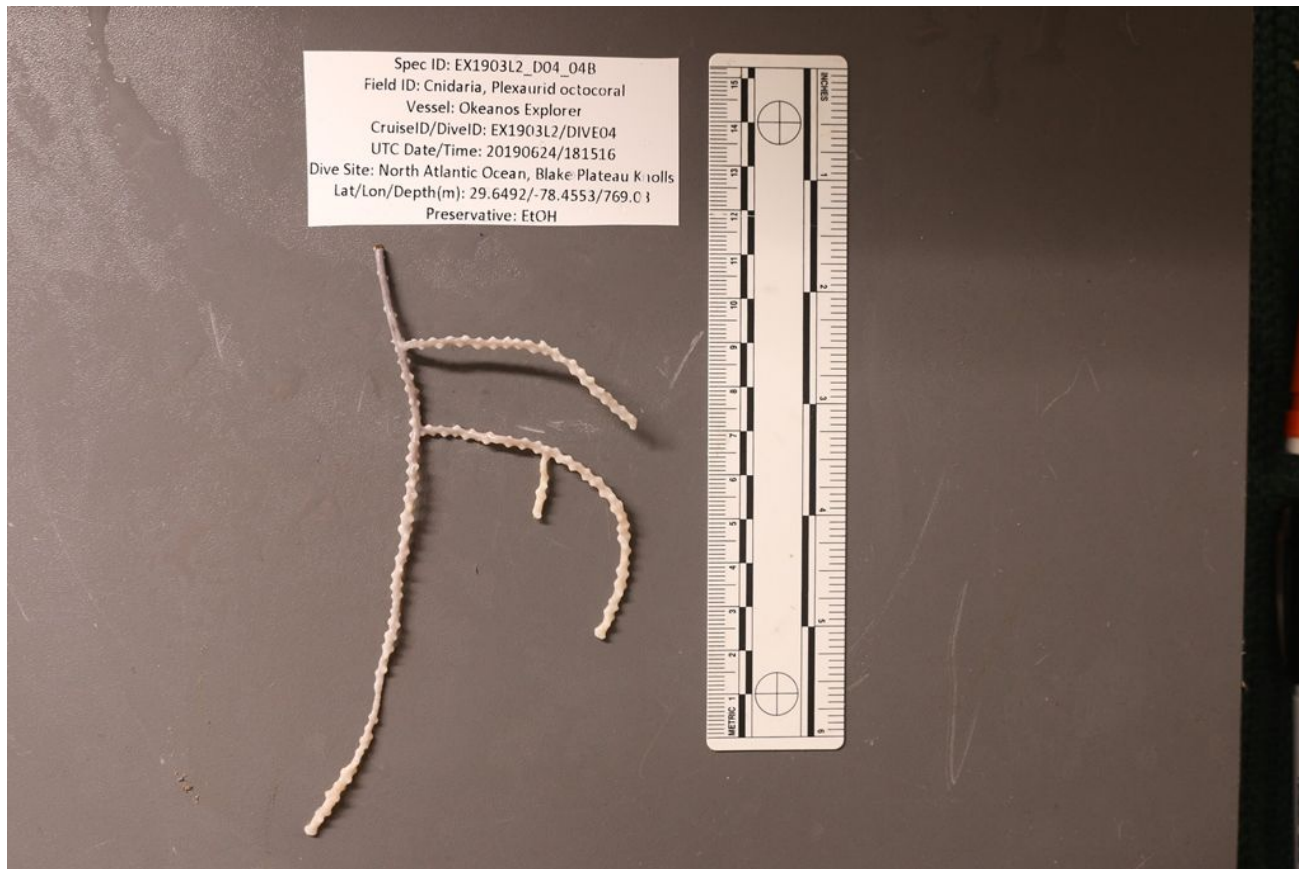
Sample ID	EX1903L2_D04_02B							
Date (UTC)	20190624							
Time (UTC)	155532							
Depth (m)	765.5							
Temp. (°C)	10.281							
Field ID(s)	Periphylla							
Associates	<table border="1"> <thead> <tr> <th>Associates Sample ID</th> <th>Field Identification</th> </tr> </thead> <tbody> <tr> <td>EX1903L2_D04_02B_A01</td> <td>Amphipoda</td> </tr> <tr> <td>EX1903L2_D04_02B_A02</td> <td>Decapoda</td> </tr> </tbody> </table>		Associates Sample ID	Field Identification	EX1903L2_D04_02B_A01	Amphipoda	EX1903L2_D04_02B_A02	Decapoda
	Associates Sample ID	Field Identification						
	EX1903L2_D04_02B_A01	Amphipoda						
	EX1903L2_D04_02B_A02	Decapoda						
Comments								





Sample ID	EX1903L2_D04_03B					
Date (UTC)	20190624					
Time (UTC)	181102					
Depth (m)	769.1					
Temp. (°C)	10.767					
Field ID(s)	Crinoid, stalked					
Associates	<table border="1"> <thead> <tr> <th>Associates Sample ID</th> <th>Field Identification</th> </tr> </thead> <tbody> <tr> <td>No associates</td> <td></td> </tr> </tbody> </table>		Associates Sample ID	Field Identification	No associates	
	Associates Sample ID	Field Identification				
	No associates					
Comments						





Sample ID	EX1903L2_20190624T181516_D2_DIVE04_SPEC04BIO					
Date (UTC)	20190624					
Time (UTC)	181516					
Depth (m)	769.0					
Temp. (°C)	10.928					
Field ID(s)	Plexauridae					
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	Associates Sample ID	Field Identification				
	No associates					
Comments						



Sample ID	EX1903L2_D04_05B		
Date (UTC)	20190624		
Time (UTC)	193431		
Depth (m)	764.9		
Temp. (°C)	10.858		
Field ID(s)	Siphonophorae		
Associates			
	Associates Sample ID	Field Identification	Count
	No associates		
Comments			

Please direct inquiries to:

NOAA Office of Ocean Exploration & Research
 1315 East-West Highway (SSMC3 10th Floor)
 Silver Spring, MD 20910
 (301) 734-1014



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