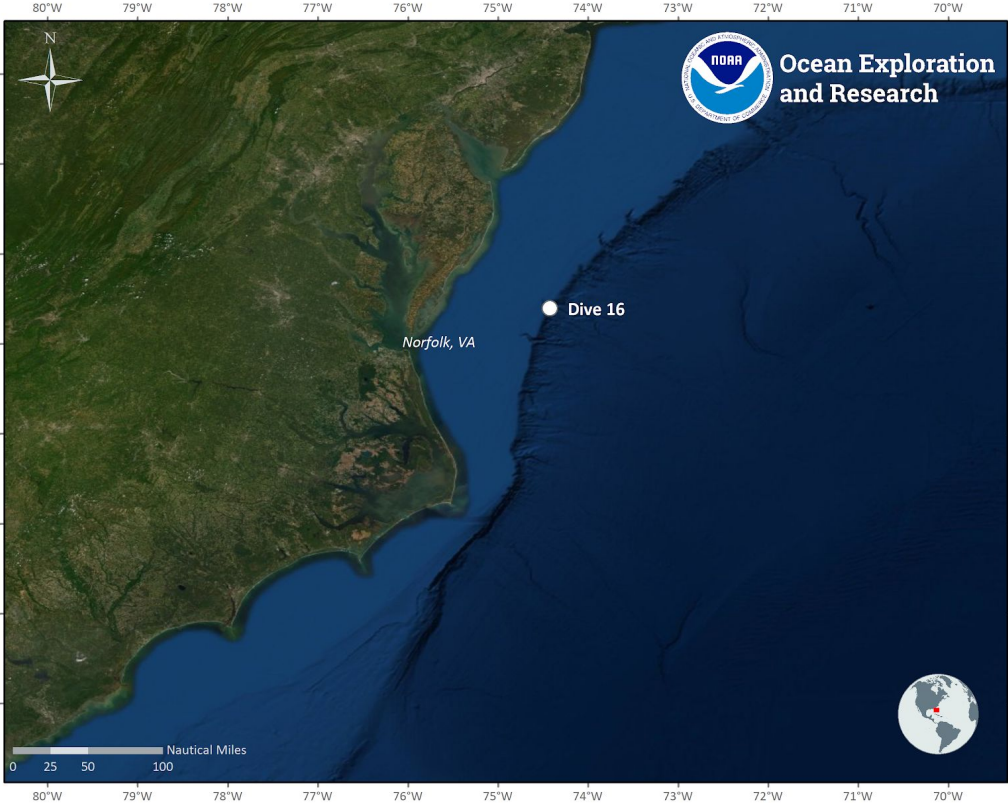




# *Okeanos Explorer* ROV Dive Summary

## Dive Information

General Location Map	
General Area Descriptor	U.S. Mid-Atlantic, Frank R. Lautenberg Deep Sea Coral Protection Area
Site Name	Washington Canyon
Science Team Leads	Amy Wagner (CSUS) and Alexis Winnig (Temple)
Expedition Coordinator	Kasey Cantwell (NOAA-OER)
ROV Dive Supervisor	Chris Ritter (GFOE)
Mapping Lead	Shannon Hoy (NOAA-OER)

## ROV Dive Name

Cruise	EX1903L2
Dive Number	DIVE16

## Equipment Deployed

ROV	Deep Discoverer		
Camera Platform	Seirios		
ROV Measurements	✔CTD	✔Depth	✔Altitude
	✔Scanning Sonar	✔USBL Position	✔Heading
	✔Pitch	✔Roll	✔HD Camera 1
	✔HD Camera 2	✔Low Res Cam 1	✔Low Res Cam 2
	✔Low Res Cam 3	✔Low Res Cam 4	✔Low Res Cam 5
Equipment Malfunctions			
ROV Dive Summary Data (from Processed ROV)	<div>Dive Summary:EX1903L2_DIVE16 ^^  In Water:                   2019-07-08T12:27:26.442345                      37°, 24.375' N ; 74°, 24.89' W   On Bottom:                 2019-07-08T13:18:48.297772                      37°, 24.312' N ; 74°, 24.823' W   Off Bottom:                2019-07-08T18:35:18.588734                      37°, 24.604' N ; 74°, 24.499' W   Out Water:                 2019-07-08T20:17:12.769412                      37°, 24.851' N ; 74°, 23.704' W   Dive duration:             7:49:46   Bottom Time:              5:16:30   Max. depth:                996.0 m</div>		
Special Notes	Due to increasing winds and bad weather, we began our ascent from the seafloor approximately two hours ahead of schedule.		

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

First Name	Last Name	Affiliation	Email
Bronwyn	Williams		North Carolina Museum of Natural Sciences
Tamara	Frank	tfrank1@nova.edu	Nova Southeastern University
Bradley	Stevens	bgstevens@umes.edu	University of Maryland Eastern Shore
Carolyn	Ruppel	cruppel@usgs.gov	USGS
Jay	Lunden	jlunden@temple.edu	Temple University
Cheryl	Morrison	cmorrison@usgs.gov	U.S. Geological Survey
Enrique (Ren)	Salgado	enrique.salgado@noaa.gov	NOAA CSS
Erin	Easton	erin.easton@utrgv.edu	University of Texas Rio Grande Valley
Jill	Bourque	jbouque@usgs.gov	USGS
Jim	Masterson	jmaster7@fau.edu	FAU Harbor Branch Oceanographic
John	Reed	jreed12@fau.edu	Harbor Branch Oceanographic Institute
Megan	McCuller	megan.mcculler@naturalsciences.org	North Carolina Museum of Natural Sciences
Kevin	Kocot	kmkocot@ua.edu	University of Alabama
Asako	Matsumoto	amatsu@gorgonian.jp	Chiba Institute of Technology
Scott	France	france@louisiana.edu	University of Louisiana at Lafayette
Michael	Vecchione	vecchiom@si.edu	NOAA National Systematics Lab
Robert	Carney	rcarne1@lsu.edu	LSU, Oceanography, emeritus
Tara	Harmer Luke	luket@stockton.edu; tara.luke@stockton.edu	Stockton University
Alexis	Weinnig	aweinnig@temple.edu	Temple University
Amy	Wagner	amy.wagner@csus.edu; amywagner98@gmail.com	California State University, Sacramento
Danielle	Power	danielle.l.power@noaa.gov	NOAA Ship Okeanos Explorer
J	Dunn	christopher.dunn@noaa.gov	NOAA OER
Kevin	Jerram	kjerram@ccom.unh.edu	UNH
Shannon	Hoy	shannon.hoy@noaa.gov	NOAA OER

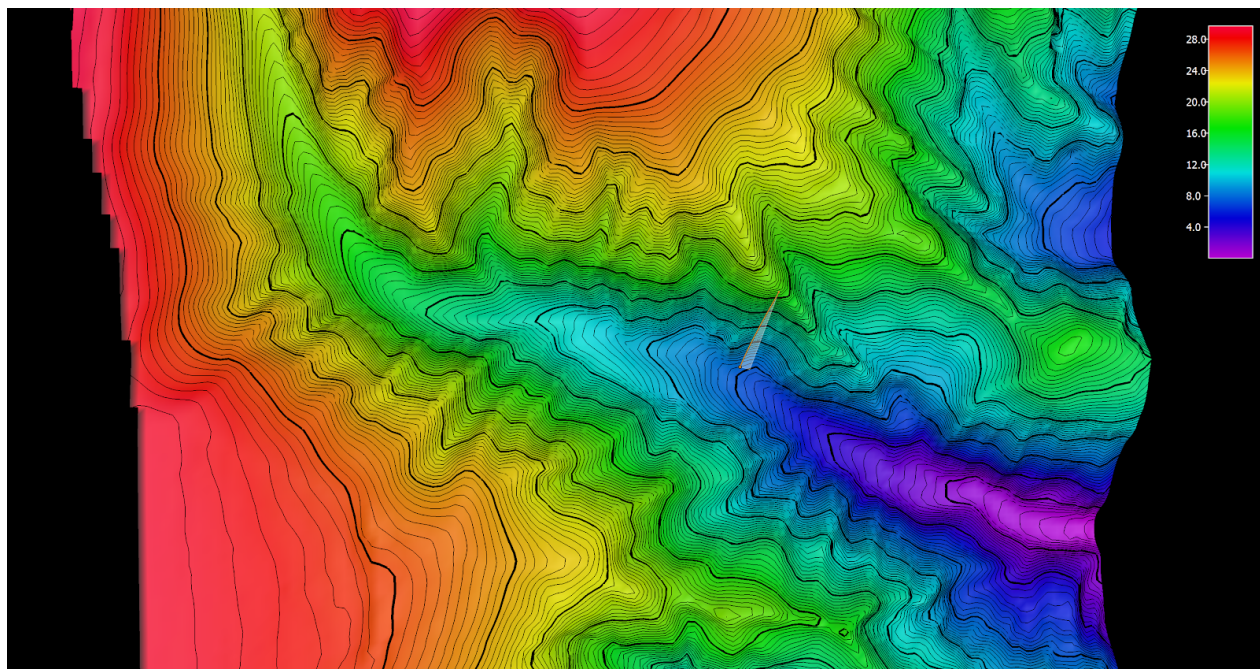


Dive Purpose	The primary objective of this dive was to explore and characterize a section of wall within Washington Canyon, one of the mid-Atlantic canyons, with a relatively steep slope that has the potential to be suitable habitat for deep-water coral, sponges, and associated fauna.
Dive Description	Today (7/8/19), we dove on the south-facing wall of Washington Canyon. This canyon is one of the main conduits of organic material and sediment from the mid-Atlantic continental shelf to the deep Atlantic basin. The ROV landed on a soft, sedimented seafloor at a depth of 991 m at 13:18 UTC near the bottom of the canyon wall as determined by multibeam bathymetry. As we traversed toward the canyon wall, there were a number of cutthroat eels ( <i>Synaphobranchidae</i> ), red crabs ( <i>Chaceon sp.</i> ), short-finned squid ( <i>Illex sp.</i> ), and rattails ( <i>Nezumia sp.</i> ). These were the primary organisms observed for much of the dive over the soft, silty bottom. We saw a number of rattails with parasites (parasitic copepods and isopods) and one rattail was seen with a parasitic copepod that had parasitic leeches. There were also many white tubes in the sediment that were suggested to be polychaete tubes. One of these tubes was sampled at the end of the dive for identification. A number of mating pairs of <i>Chaceon sp.</i> were observed, as well. At a depth of about 930 m, a rocky outcrop was present. The outcrop had a number of small sponges, anemones, and cup corals ( <i>Desmophyllum dianthis</i> ) attached to the hard surface. A couple of types of flat fishes and rays were also seen in and around the rocky surface, including a juvenile witch flounder ( <i>Glyptocephalus sp.</i> ), deepsea batfish ( <i>Ogcocephalidae</i> ), and monkfish ( <i>Lophius sp.</i> ). Beyond the rocky outcrop, was more highly sedimented seafloor and semi-consolidated mud/clay with many <i>Chaceon sp.</i> and squat lobsters in burrows. At approximately 17:15 UTC, we had to bring the ROV up from the bottom due to high winds and seas for about 30 minutes. We were able to return to the bottom for another 30 minutes and observed eelpouts and blackbellied rosefish in addition to the previously noted fish and crab species. At 18:13 UTC we left the bottom for a second time and the ROV began ascent at 18:35 UTC from a depth of 463 m. Recovery was delayed due to continued weather and was complete at 20:45 UTC.
Notable Observations	
Community Presence/Absence (community is defined as more than two species)	<ul style="list-style-type: none"> <li>✓ Corals and Sponges</li> <li>✓ Chemosynthetic Community</li> <li>✓ High biodiversity Community</li> <li>✓ Active Seep or Vent</li> <li>✓ Extinct Seep or Vent</li> <li>✓ Hydrates</li> </ul>
SeaTube Link (science annotation system)	<a href="https://data.oceannetworks.ca/SeaTubeV2?resourceTypeId=1000&amp;resourceId=23621&amp;divId=1493">https://data.oceannetworks.ca/SeaTubeV2?resourceTypeId=1000&amp;resourceId=23621&amp;divId=1493</a>
Feature Type	Submarine Canyon, Scarp/wall

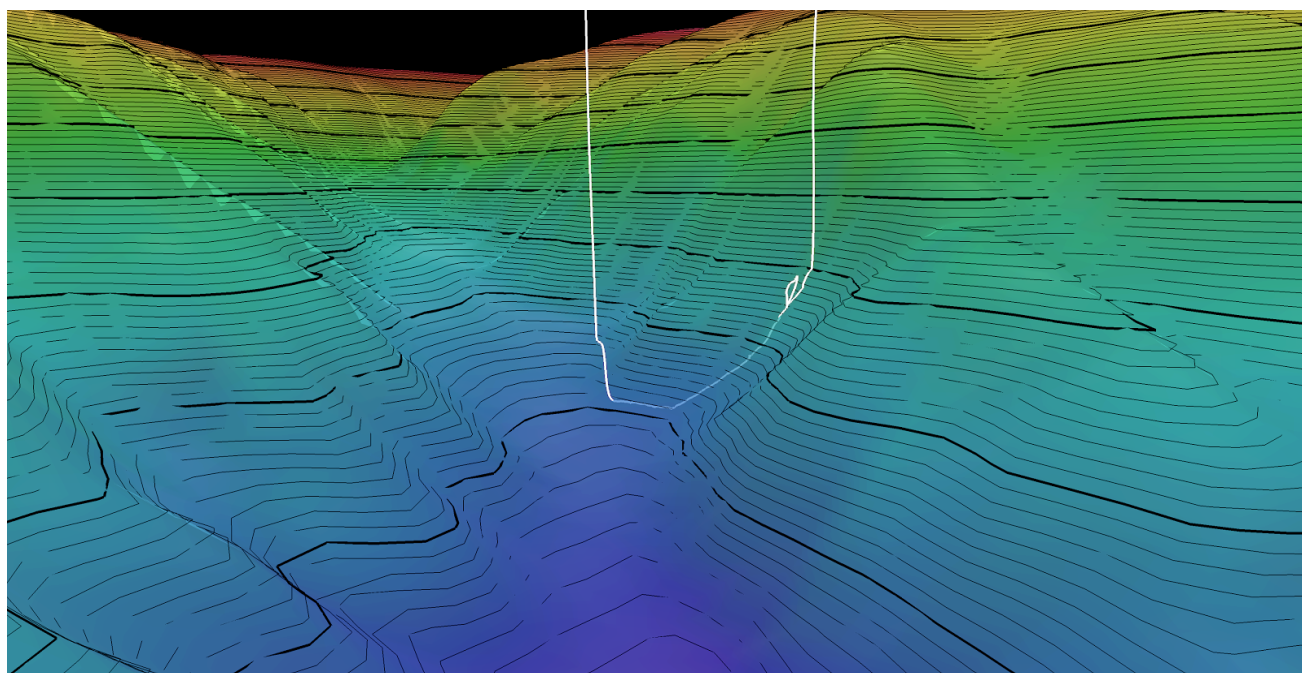
## Overall Map of the ROV Dive Area



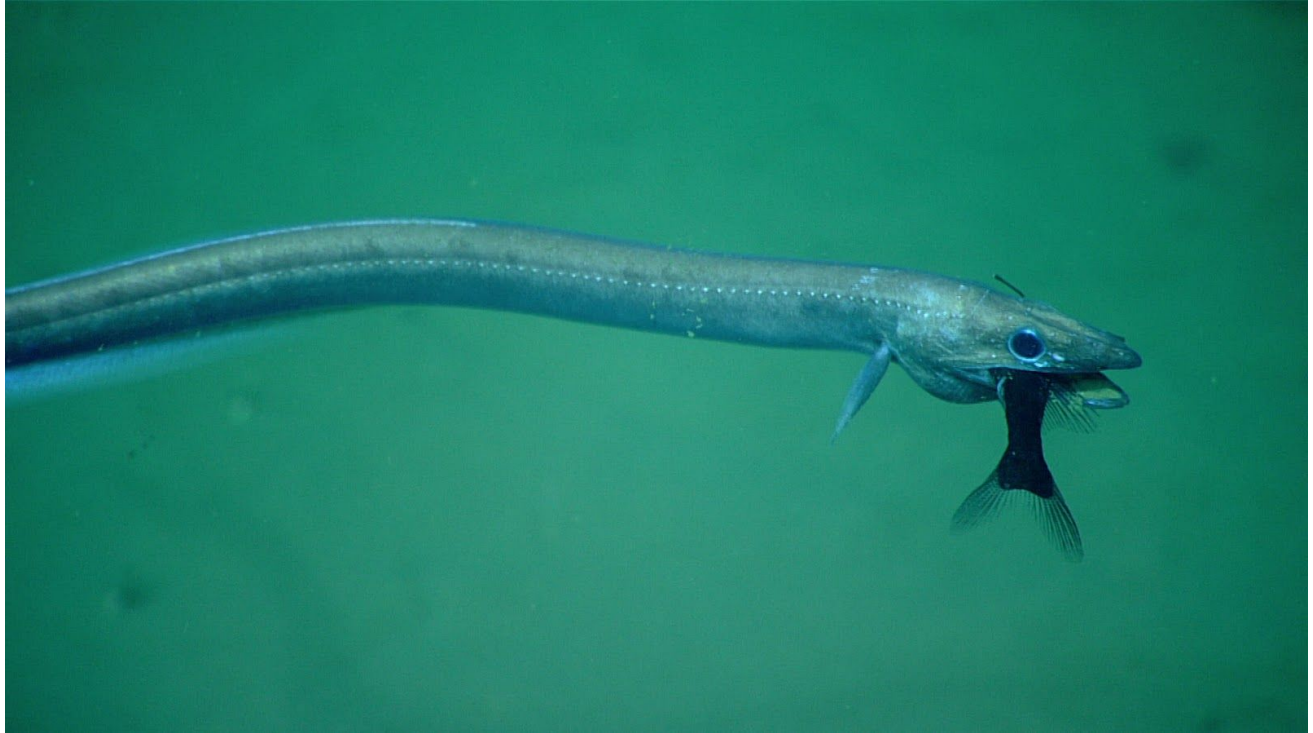




**Close-up Map of Main Dive Site**



## Representative Photos of the Dive



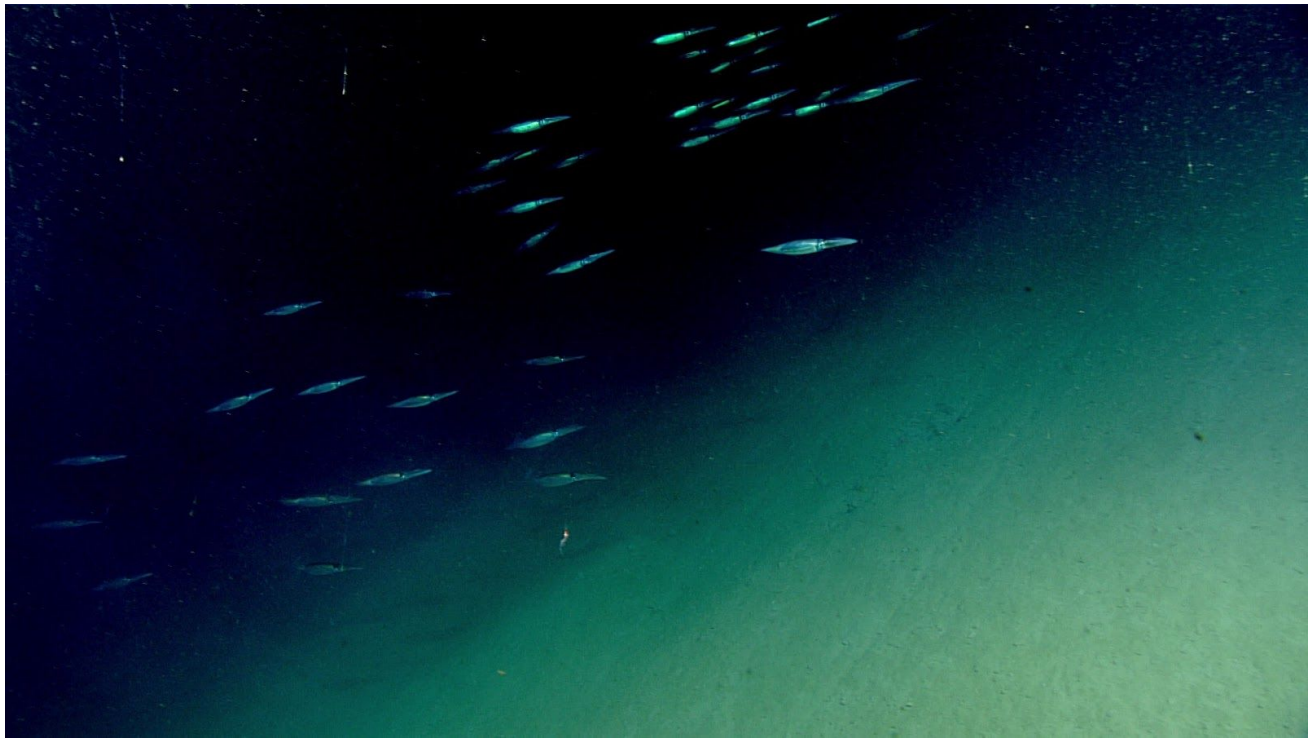
Cutthroat eel (*Synaphobranchus* sp.) eating a fish.



Rattail (*Nezumia* sp.) with parasites (possibly parasitic copepod with parasite)







School of short-finned squid (*Illex sp.*) commonly seen throughout dive.



One of two monkfish (*Lophius sp.*) seen.

## Samples Collected



Sample ID	EX1903L2_D16_01B	
Date (UTC)	20190708	
Time (UTC)	181151	
Depth (m)	820.3	
Temp. (°C)	4.770	
Field ID(s)	White Tubes (likely Polychaetes)	
Associates	Associates Sample ID	Field Identification
	EX1903L2_D16_01B_A01	Copepoda
	EX1903L2_D16_01B_A02	Copepoda
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



**Ocean Exploration  
and Research**



