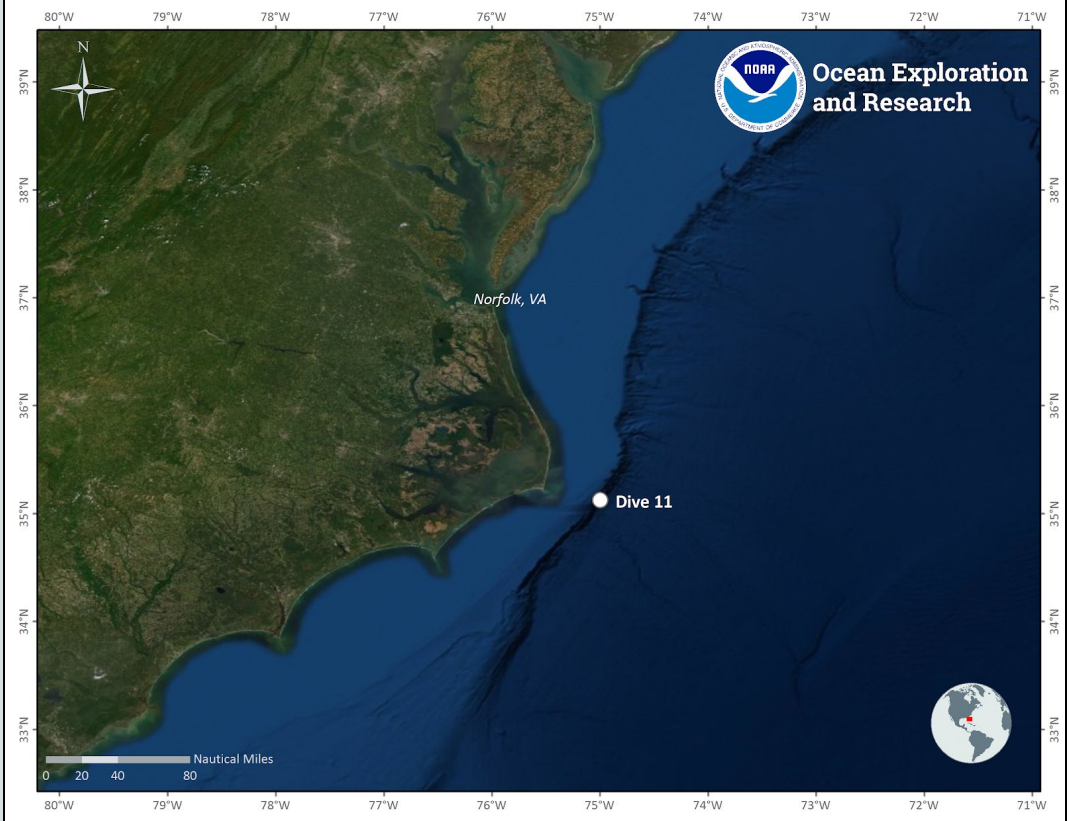
Ocean Exploration and Research

Okeanos Explorer ROV Dive Summary

Dive Information

General Location Map	
General Area Descriptor	U.S. Southeast, NC Canyons
Site Name	Deep "Dodge" Canyon
Science Team Leads	Amy Wagner (CSUS) and Alexis Weinnig (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	Dive 11

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)	Dive Summary: EX1903L2_DIVE11 ^^ In Water: 2019-07-03T16:52:01.092073 35°, 37.477' N ; 74°, 44.914' W On Bottom: 2019-07-03T17:57:40.224319 35°, 37.471' N ; 74°, 44.858' W Off Bottom: 2019-07-03T21:27:20.396816 35°, 37.403' N ; 74°, 44.93' W Out Water: 2019-07-03T23:44:59.763931 35°, 36.607' N ; 74°, 45.286' W Dive duration: 6:52:58 Bottom Time: 3:29:40 Max. depth: 1348.0 m		
Special Notes	Due to very high surface currents in the Gulf Stream and heavy fishing vessel traffic at a shallower site, this alternate site was chosen further to the north and out of the Gulf Stream. Dive was extended to accommodate the lost bottom time due to needing to test several sites. Began recovery earlier than planned due to a severe storm in the area. Vehicles we held in the water column while we waited for lightening to clear.		

Scientists Involved (provide name, affiliation, email)

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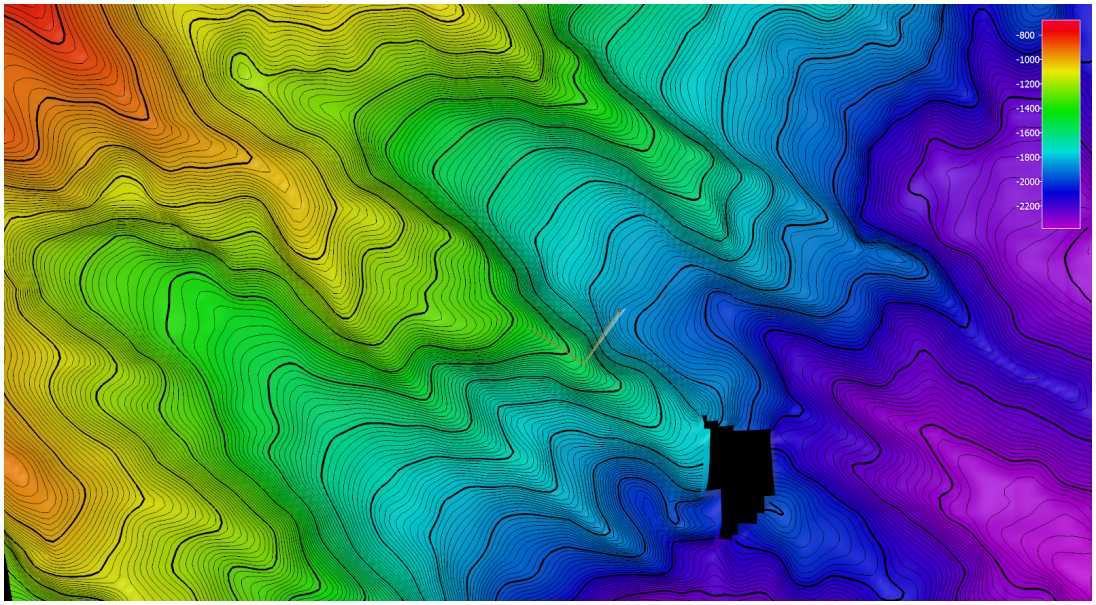
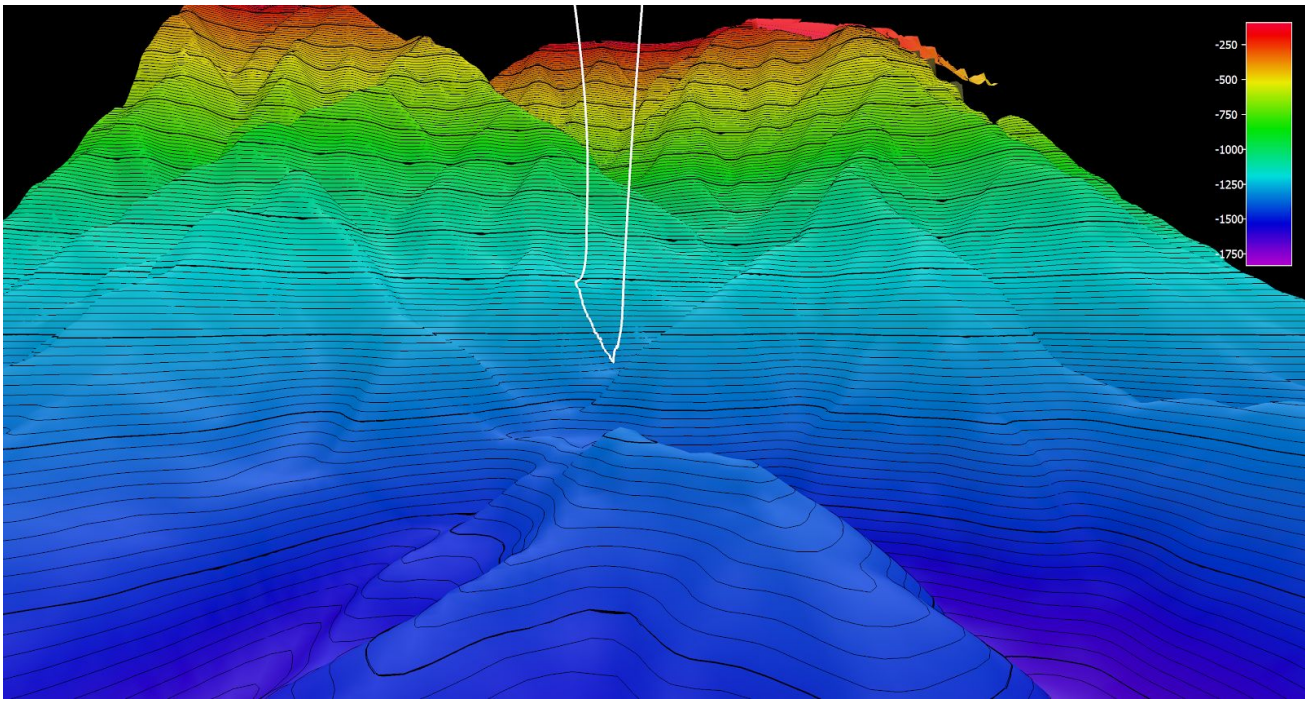
Dive Purpose	The primary objective of this dive is to explore and characterize a small canyon that has the potential to be suitable habitat for deep-water coral, sponges, and associated fauna.
Dive Description	It took a substantial amount of time to locate a dive site that was suitable. The first few sites we had planned were in the direct line of the Gulf Stream which was clocking over 4 kts. We also encountered a substantial amount of fishing traffic at a site we had located at a more shallow point on this same canyon. We were finally able to launch the ROV at this site around 16:43 UTC and reach bottom at 17:57 UTC at 1,345 meters. There was a lot of sediment and turbidity in the water column for the majority of the descent and throughout the dive. Once we reached bottom it was a very soft, silty bottom with multiple fish present (at least two types of eelpouts, rattails, and other eels). The fish were mostly sitting on the seafloor and not up swimming in the water column. Shortly after being on bottom we saw a short-finned squid (*Illex illecebrosus*) and saw a few more individuals of the same species throughout the dive. We continued along our dive track and the seafloor continued to be heavily sedimented, even as we worked up a relatively steep slope (>30 degrees). We observed another type of squid (*Mastigoteuthis magna*) in the water column. About an hour and a half into the dive (19:30 UTC, 1,300 meters) we came upon a rock that appeared to be authigenic carbonate with two different types of bacterial mats growing on the rock. This is thought to be a possible site of methane seepage, however we did not observe methane bubbles, methane hydrate, or other signs of chemosynthetic communities. There were also a number of eelpouts in the crevices of the authigenic carbonate. As we continued on with the dive the canyon features continued to be heavily sedimented with almost not organisms actually attached and growing on the benthos. We observed a few bryozoans and hydroids growing on ledges but during the close up footage it was apparent they were already becoming pretty heavily sedimented. We observed a few different types of shrimp and a few red crabs (*Chaceon* sp.). Around 21:30 UTC the weather had picked up on the surface and the ROV supervisor decided it would be safest to bring the vehicle off bottom and remain at 150 meters until it was safe for recovery. The ROV was officially recovered at 00:00 UTC after the storms and lightning had passed. No samples were collected during this dive.
Notable Observations	Potential seep site with authigenic carbonate and bacterial mats
Community Presence/ Absence (community is defined as more than two species)	✔ Corals and Sponges ✔ Chemosynthetic Community ✔ High biodiversity Community ✔ Active Seep or Vent ✔ Extinct Seep or Vent ✔ Hydrates
CMECS Feature Type	Submarine Canyon, Authigenic Carbonate Outcrops

SeaTube Link	https://data.oceannetworks.ca/SeaTubeV2?resourceTypeId=1000&resourceId=23621&diveId=1443

Overall Map of the ROV Dive Area



Close-up Map of Main Dive Site



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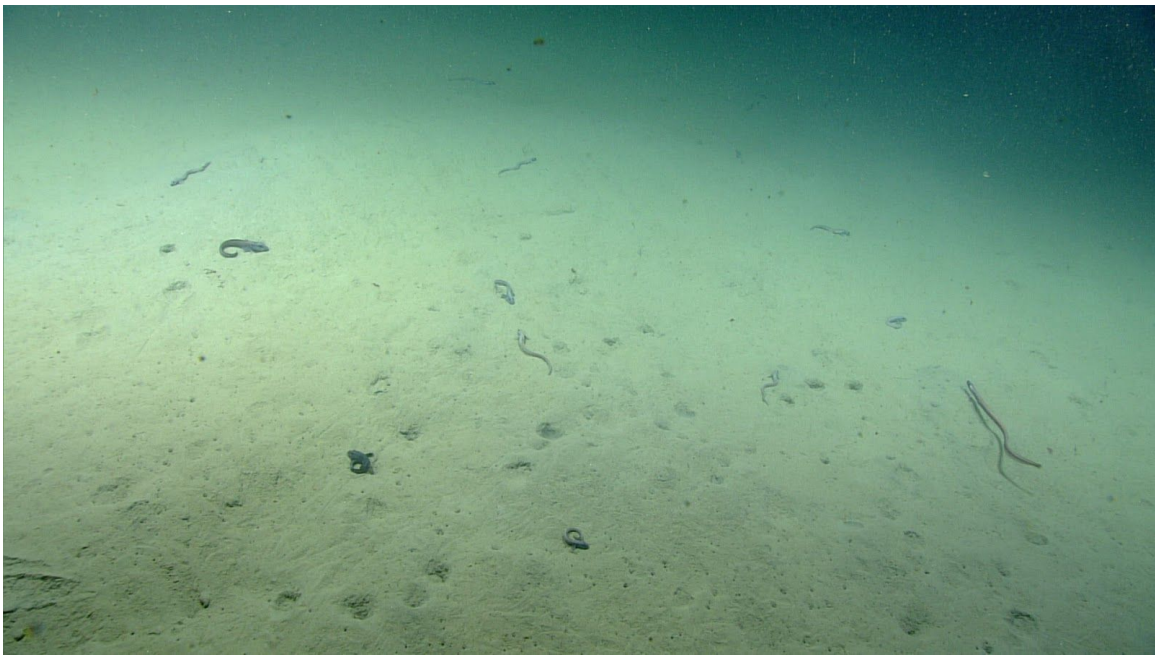
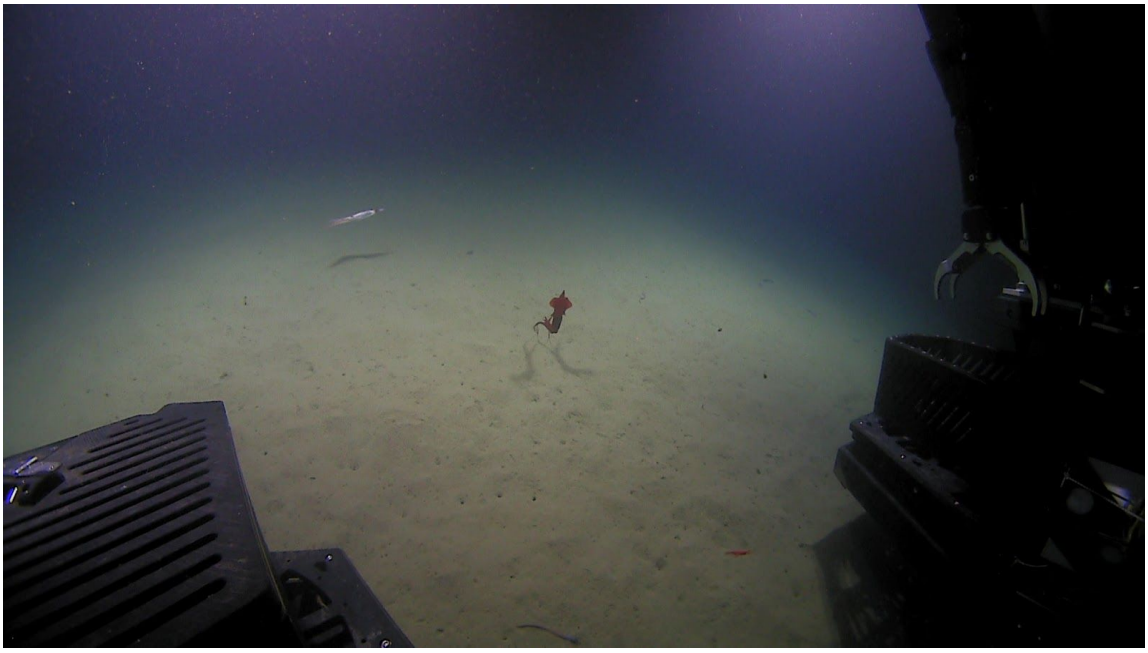
Representative Photos of the Dive

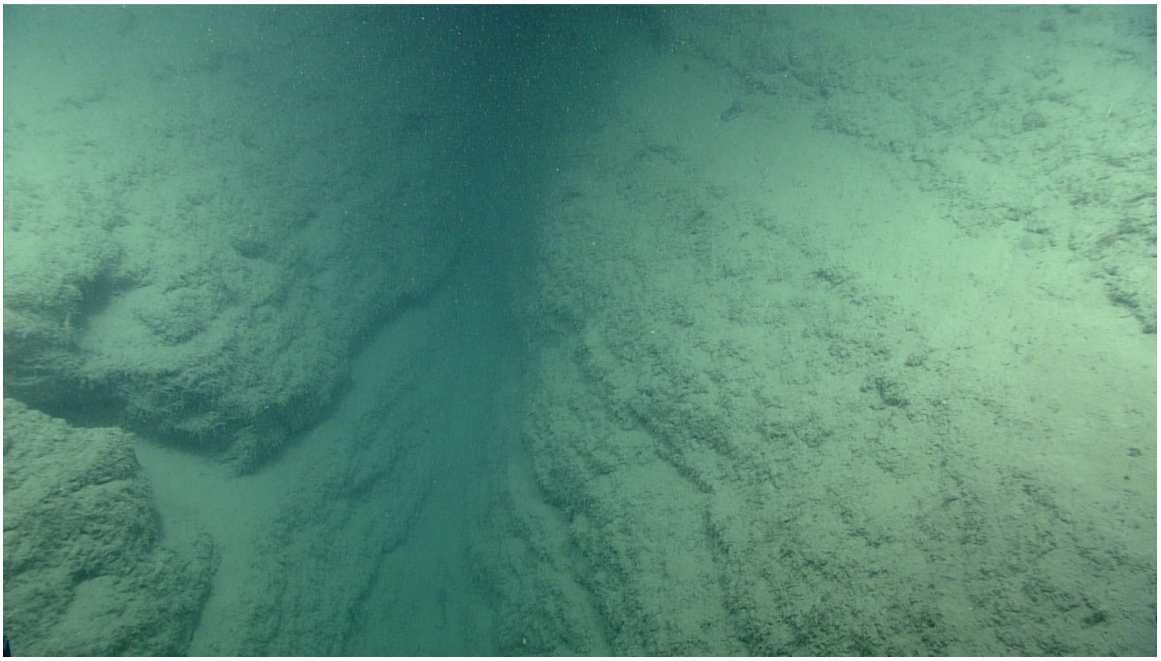


Seafloor as the ROV approached bottom - very sedimented and a number of fish (eelpouts and cusk eels)



Two species of squid observed during this dive. Red squid (*Mastigoteuthis magna*) and opaque squid (*Illex illececbrosus*)

Potential authigenic carbonate rock with two different types of bacteria (silverish and white filaments)



Samples Collected

There were no samples collected on this dive.

Please direct inquiries to:

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