



Okeanos Explorer ROV Dive Summary

Dive Information	
General Location	
General Area Descriptor	North Carolina Canyons
Site Name	Inter-Canyon Ridge
Science Team Leads	Leslie Sautter / Cheryl Morrison
Expedition Coordinator	Kasey Cantwell
ROV Dive Supervisor	Bobby Mohr
Mapping Lead	Derek Sowers
ROV Dive Name	
Cruise	EX1806
Leg	-
Dive Number	DIVE12
Equipment Deployed	

ROV	Deep Discoverer																				
Camera Platform	Seirios																				
ROV Measurements	<input checked="" type="checkbox"/> CTD	<input checked="" type="checkbox"/> Depth	<input checked="" type="checkbox"/> Altitude																		
	<input checked="" type="checkbox"/> Scanning Sonar	<input checked="" type="checkbox"/> USBL Position	<input checked="" type="checkbox"/> Heading																		
	<input checked="" type="checkbox"/> Pitch	<input checked="" type="checkbox"/> Roll	<input checked="" type="checkbox"/> HD Camera 1																		
	<input checked="" type="checkbox"/> HD Camera 2	<input checked="" type="checkbox"/> Low Res Cam 1	<input checked="" type="checkbox"/> Low Res Cam 2																		
	<input checked="" type="checkbox"/> Low Res Cam 3	<input checked="" type="checkbox"/> Low Res Cam 4	<input checked="" type="checkbox"/> Low Res Cam 5																		
Equipment Malfunctions																					
ROV Dive Summary (from processed ROV data)	Dive Summary: EX1806_DIVE12 ^^^ In Water: 2018-06-26T17:13:04.193242 35°, 5.84' N ; 75°, 1.454' W On Bottom: 2018-06-26T18:00:54.532632 35°, 5.868' N ; 75°, 1.222' W Off Bottom: 2018-06-26T21:55:21.578942 35°, 5.993' N ; 75°, 1.441' W Out Water: 2018-06-26T22:39:49.270978 35°, 6.155' N ; 75°, 0.632' W Dive duration: 5:26:45 Bottom Time: 3:54:27 Max. depth: 1269.0 m																				
Special Notes																					
Scientists Involved (please provide name, location, affiliation, email)	<table border="1"> <thead> <tr> <th>Name</th> <th>Institution</th> <th>Email</th> </tr> </thead> <tbody> <tr> <td>Alexis Weinnig</td> <td>Temple University</td> <td>tug08093@temple.edu</td> </tr> <tr> <td>Amanda Demopoulos</td> <td>USGS</td> <td>ademopoulos@usgs.gov</td> </tr> <tr> <td>Andrea Quattrini</td> <td>Harvey Mudd College</td> <td>aquattrini@g.hmc.edu</td> </tr> <tr> <td>Asako Matsumoto</td> <td>Planetary Exploration Research Center, Chiba Institute of Technology</td> <td>amatsu@gorgonian.jp</td> </tr> <tr> <td>Cheryl Morrison</td> <td>USGS Leetown Science Center</td> <td>cmorrison@usgs.gov</td> </tr> </tbody> </table>			Name	Institution	Email	Alexis Weinnig	Temple University	tug08093@temple.edu	Amanda Demopoulos	USGS	ademopoulos@usgs.gov	Andrea Quattrini	Harvey Mudd College	aquattrini@g.hmc.edu	Asako Matsumoto	Planetary Exploration Research Center, Chiba Institute of Technology	amatsu@gorgonian.jp	Cheryl Morrison	USGS Leetown Science Center	cmorrison@usgs.gov
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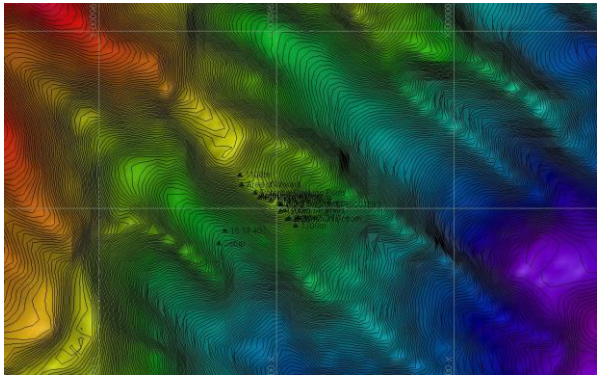
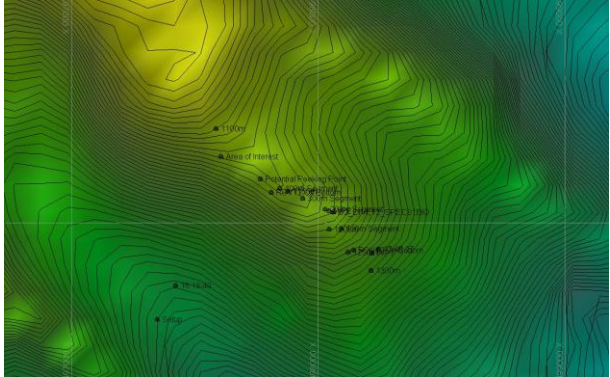


	Christopher Mah	Dept of Invertebrate Zoology, NMNH Smithsonian	brisinga@gmail.com
	Derek Sowers	OER	derek.sowers@noaa.gov
	Ervan Garrison	University of Georgia	egarriso@uga.edu
	Heather Judkins	University of South Florida St. Petersburg	Judkins@mail.usf.edu
	Irina Sorset	Bureau of Safety and Environmental Enforcement (BSEE)	irina.sorset@bsee.gov
	James Lunden	Temple University	jlunden@temple.edu; jlunden@haverford.edu
	Jason Chaytor	USGS	jchaytor@usgs.gov
	Jill Bourque	US Geological Survey	jbourque@usgs.gov
	Jim Masterson	FAU Harbor Branch Oceanographic ECC	jmaster7@fau.edu
	John Reed	Harbor Branch Oceanographic Institute	jreed12@fau.edu
	Kenneth Sulak	USGS (ret.)	ksulak@usgs.gov
	Kevin Jerram	UNH	kjerram@ccom.unh.edu
	Leslie Sautter	College of Charleston	Sautterl@cofc.edu
	Megan McCuller	North Carolina Museum of Natural Sciences	mccullermi@gmail.com
	Nolan Barrett	South Carolina University	barrettnh@g.cofc.edu
	Rachel Bassett	NOAA NCCOS DCEL	rachel.bassett@noaa.gov
	Robert Carney	Louisiana State Univ	rcarne1@lsu.edu
	Sandra Brooke	Florida State University	sbrooke@fsu.edu
	Santiago Herrera	Lehigh University	sherrera@alum.mit.edu, sah516@lehigh.edu
	Scott Allen	NOAA Ship Okeanos Explorer	
	Scott France	University of Louisiana at Lafayette	france@louisiana.edu
	Stephanie Bush	Smithsonian	stephalopod@gmail.com
	Steve Auscavitch	Temple University	steven.auscavitch@temple.edu



	Tara Harmer Luke	Stockton University	luket@stockton.edu
	Thomas Hansknecht	Ret. taxonomist (mobile Alabama)	tjhansk@comcast.net
	Timothy Shank	Wood Hole Oceanographic Institution	tshank@whoi.edu
	Tina Molodtsova	Shirshov Institute of Oceanology RAS	tina@ocean.ru; tina.molodtsova@gmail.com
	Tracy Gill	NOAA/NOS/NCCOS/Marine Spatial Ecology/Biogeography Branch	tracy.gill@noaa.gov
	Treyson Gillespie	College of Charleston	gillespieta@g.cofc.edu
	Upasana Ganguly	University of Louisiana at Lafayette	upasana.ganguly1@louisiana.edu
	Victoria Gitto	College of Charleston	geogittotm@gmail.com
Purpose of the Dive	<p>This dive is part of a series that investigates the similarities and differences in community composition between deepwater habitats of the SE US continental margin. Submarine canyon sites in the past have been shown to be deep sea coral habitats, particularly in areas of rock/hard-bottom exposure. This site was proposed by Deep Search to represent canyon features that have yet to be explored in detail. The autonomous vehicle <i>Sentry</i> has surveyed a handful of locations in the canyons off North Carolina, however visual information about the presence and ID of corals and other benthic fauna have not been possible. An ROV/HOV is required to visually examine these rugged, high profile features. This region was first mapped during a MPA cruise aboard the NOAA Ship <i>Nancy Foster</i> in 2007 (NF-07-02) and new information will inform biogeographic patterns in the region. Diving in the area will provide important information to groundtruth habitat suitability models.</p>		
Description of the Dive	<p>Substrate throughout the dive was calcareous mud that appeared slightly cohesive just below the surface, allowing for steeply sloped areas. No hard-bottom/rock substrate was encountered. Numerous deep burrows were observed, as well as conical mounds, although the organisms that made these features is unknown.</p> <p>This organisms observed at this site were more typical of soft sediment habitats. Sea pens (Octocorallidae: Pennatulacea) were the most common cnidarians observed during this dive, possibly from the Family Virgulariidae. Several individuals of the stony cup coral <i>Flabellum</i> were observed, including one living on the back of a small lithodid crab. Another hermit crab carried carcinoecium-forming zoanthids (possibly <i>Epizoanthus</i> sp.). Hexacorals belonging to the Actinaria (anemones) and Ceriantharia (tube anemones) were also observed. Benthic decapod shrimp observed included members of the genera <i>Nematocarcinus</i>, <i>Heterocarpus</i>, and <i>Glyphocarcinon</i>. Crabs included lithodid and golden crabs (<i>Chaceon fenneri</i>). Small opossum shrimp (lophogastrids in the</p>		



	<p>superorder Peracardia) were observed in the water column. A pancake urchin, <i>Phormosoma placenta</i>, had a bristle worm on one of its spines. The most common asteroid sea star was the mud star, possibly from the genus <i>Plutanaster</i> (Paxillosida: (Astropectinidae). Other sea stars included <i>Neomorphaster</i> and <i>Solaster</i>. A large pycnogonid sea spider was seen, along with several proboscis from echiuran spoon worms. A bobtail squid (Rossinae) took to the water column as we approached, and a short finned squid, <i>Illex illecebrosus</i>, changed colors on the seafloor. A moon snail and another gastropod from the family Naticidae were also observed. There were many fish including cusk eels (<i>Dicrolene intronigra</i>), the halosaur <i>Aldrovandia phalacra</i>, rattails (<i>Nezumia</i> sp.), tripod fish <i>Bathypterois viridensis</i>, and the eelpout <i>Lycodes terraenovae</i>.</p>	
<p>Notable Observations</p>	<p>The biota were typical of soft sedimented habitats at this depth range, yet the dominant taxa differed from Dive 11 at a similar habitat type (yet depth difference of at least 250 meters).</p>	
<p>Community Presence/ Absence (<i>community is defined as more than two species</i>)</p>	<p><input checked="" type="checkbox"/> Corals and Sponges Present</p> <hr/> <p><input type="checkbox"/> Chemosynthetic Community Present</p> <hr/> <p><input type="checkbox"/> High biodiversity Community Present</p>	<p><input type="checkbox"/> Active Seep or Vent</p> <hr/> <p><input type="checkbox"/> Extinct Seep or Vent</p> <hr/> <p><input type="checkbox"/> Hydrates Present</p>
<p>Overall Map of the ROV Dive Area</p>		<p>Close-up Map of Main Dive Site</p>
		
<p>Representative Photos of the Dive</p>		



The substrate was calcareous mud, with more indurated mud below, allowing for steep slopes in many areas. Here, a golden crab, *Chaceon fenneri*, runs across the muddy substrate.

Many large burrows and conical mounds were observed, although the residents were not home. Also shown is a rattail, *Nezumia* sp.



A lithodid crab (possibly *Neolithodes*) with a *Flabellum* cup coral attached to its back.

Mud stars (Order Paxillosida, possibly *Plutanaster*) were common at this site. Their tube feet are modified into spines that help them burry in the sediment.



Hermit crabs carrying carcinoecium-forming zoanthids (*Epizoanthus* sp.) scurried across the mud.



Many eelpout (Zoarcidae: *Lycodes terraenovae*) were observed sitting on the soft sediment.



A type of moon snail (Gastropoda: Naticidae) made a long trail across the soft sediment.



A decapod shrimp, *Glyphocrangon*, was observed at 1162 m depth.



A cusk eel (Ophidiidae) was observed swimming close to the sea floor.

A dorsal view of a sea pen with fleshy leaves extending from opposite sides of the main axis, each leaf bearing numerous polyps.

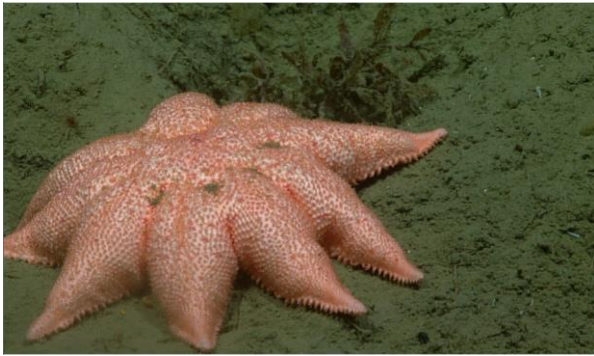


A *Neomorphaster* sea star was seen with one of its arms curled.

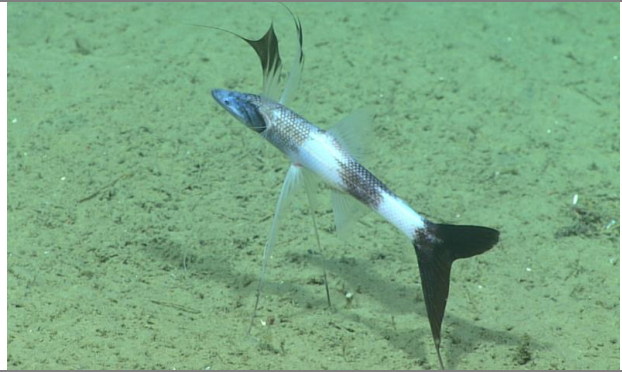


A bobtail squid (Order Sepiolida) took to the water column using his fins. Bobtail squid are

cephalopods that have eight arms and two tentacles like squid, but are related to cuttlefish yet have no cuttlebone for internal support.



A sea star from the family Solasteridae.



This tripodfish, *Bathypterois viridensis*, has elongate sensory fin rays used to sense vibrations nearby.



A short finned squid, *Illex illecebrosus*.



A large lithodid crab was seen walking across the soft sediment.

Samples Collected

Sample

Sample ID	SPEC01BIO
Date (UTC)	2018 06 26
Time (UTC)	19:52:43
Depth (m)	1167.88
Temperature (°C)	4.35

Field ID(s)	Pennatulacea
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Reason for Collection	<i>Lab Assessment Required for ID</i>		
Notes			
Associates	<i>[Notes section here can include number of organisms, condition of organism(s) upon retrieval or photos as needed]</i>		
	Associate ID	Field Identification	Notes
	n/a		

Please direct inquiries to:

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

