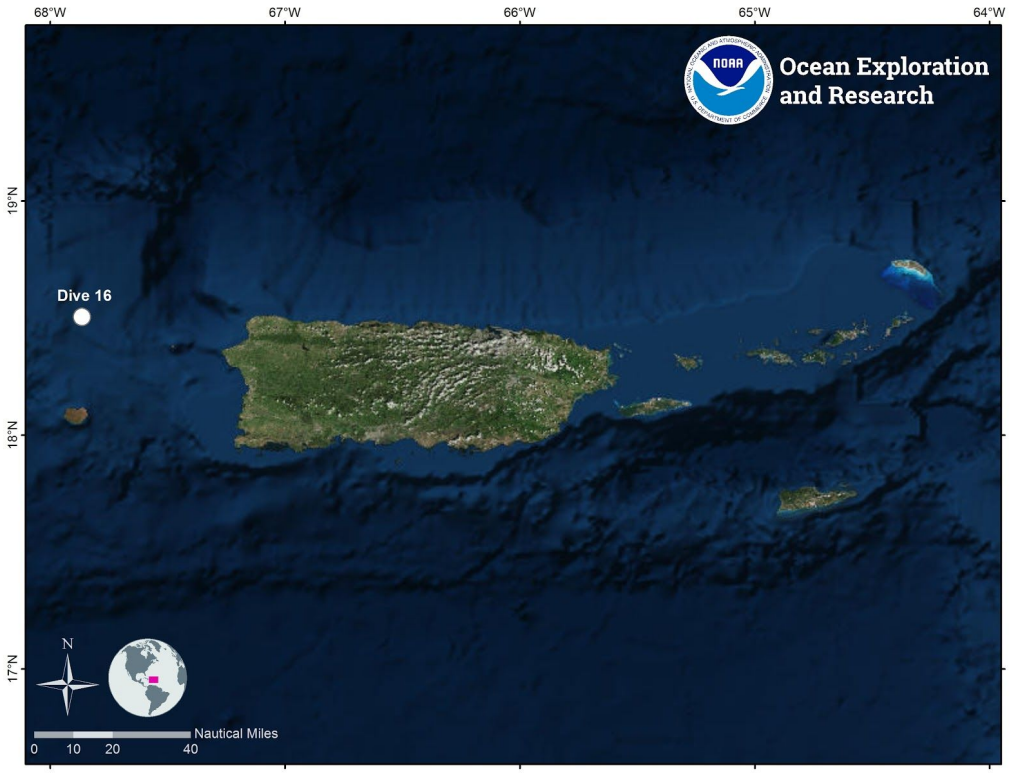
Ocean Exploration and Research

Okeanos Explorer ROV Dive Summary

Dive Information	
General Location Map	
General Area Descriptor	U.S. Caribbean Sea
Site Name	Pichincho Fish Tail
Science Team Leads	Stacey Williams (ISER) Steven Auscavitch (Temple)
Expedition Coordinator	Daniel Wagner (NOAA-OER)
ROV Dive Supervisor	Chris Ritter (GFOE)
Mapping Lead	Derek Sowers (NOAA-OER)
ROV Dive Name	
Cruise	EX1811
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

None

ROV Dive Summary Data (from processed ROV data)

In Water:	2018-11-16T12:29:18.142470 18°, 31.19' N ; 67°, 50.25' W
On Bottom:	2018-11-16T13:07:11.546465 18°, 31.082' N ; 67°, 50.186' W
Off Bottom:	2018-11-16T20:07:09.667886 18°, 31.082' N ; 67°, 49.807' W
Out Water:	2018-11-16T20:34:15.035535 18°, 31.082' N ; 67°, 49.71' W
Dive duration:	8:4:56
Bottom Time:	6:59:58
Max. depth:	521.0 m

Special Notes

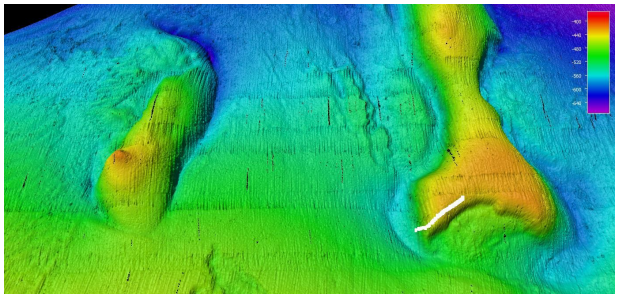
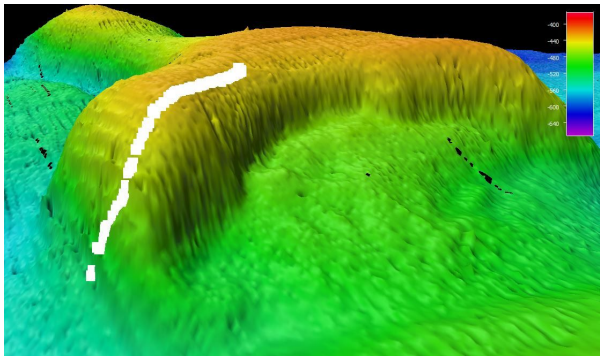
There were no issues with the ROVs, but the ADCP dropped out during launch.

Scientists Involved (provide name, affiliation, email)

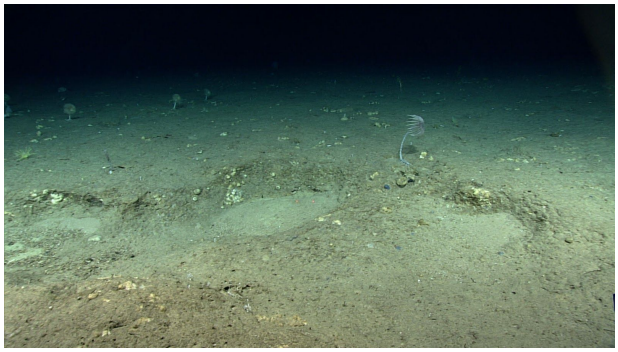
Name	Affiliation	Email
Asako Matsumoto	Chiba Institute of Technology	amatsu@gorgonian.jp
Aurea Rodriguez	University of Puerto Rico at Mayagüez	auryro@gmail.com
Charles Messing	Nova Southeastern University	messingc@nova.edu
Christopher Mah	National Museum of Natural History	brisinga@gmail.com
Daniel Wagner	NOAA/OER	daniel.wagner@noaa.gov
Debi Blaney	NOAA/OER	debi.blaney@noaa.gov
Graciela Garcia-Moliner	Caribbean Fishery Management Council	graciela_cfmc@yahoo.com
Íris Costa	Senckenberg am Meer, Germany	irisfs@gmail.com
Jason Chaytor	US Geological Survey	jchaytor@usgs.gov
Jim Masterson	Harbor Branch Oceanographic Institute	jmaster7@fau.edu
Joana Xavier	University of Bergen, Norway	Joana.Xavier@uib.no
Kate Overly	NOAA/NMFS	katherine.overly@noaa.gov
Kenneth Sulak	US Geological Survey	jumpingsturgeon@yahoo.com
Lauren Walling	University of Louisiana at Lafayette	lauren.walling1@louisiana.edu
Marcela Cañon	Interamerican University	marcela.canon@bahiapr.com
Mary Wicksten	Texas A&M University	m-wicksten@tamu.edu
Megan Cromwell	NOAA/NCEI	megan.cromwell@noaa.gov
Megan McCuller	North Carolina Museum of Natural Sciences	megan.mcculler@naturalsciences.org
Michelle Schärer	HJR Reefscaping	michelle.scharer@upr.edu
Rich Mooi	California Academy of Sciences	rmooi@calacademy.org
Scott France	University of Louisiana at Lafayette	france@louisiana.edu
Stacey Williams	Institute for Socio-Ecological Research	stcmwilliams@gmail.com
Steven Auscavitch	Temple University	steven.auscavitch@temple.edu
Tara Harmer Luke	Stockton University	luket@stockton.edu
Tom Hourigan	NOAA/NMFS	tom.hourigan@noaa.gov
Zach Proux	NOAA/CSS	prouxzs@g.cofc.edu

Dive Purpose	This dive targeted potential habitats of deepwater fish species, including snappers and groupers. The depth profile and topography, fell within the habitat preferences of commercially important deepwater fishes as reported by the local fishing community in the region. The dive also sought to characterize the habitats of deep-sea corals, sponges, mobile invertebrates and other demersal fish communities along the seafloor.
Dive Description	During this dive we traversed over a gently-sloped hardbottom consisting of carbonate. The seafloor was in most places well-swept by currents. The current was strong at the beginning of the dive going to the southeast and changed throughout the dive both in direction (eastward) and decreased in intensity. Fish diversity was relatively low with only 10 species identified. The most abundant fish species was the greeneye (*Chlorophthalmus agassizi*). We did see five queen snappers (*Etelis oculatus*) during the dive, which were rather large snappers. They approached the ROV and then swam off quickly. The other fish seen during the dive were bearded brotula (*Brotula barbata*), dogfish, cat shark (*Scyliorhinus* sp.), boarfish (*Antigonia capros*), *Pontinus atophthalmus*, roughy (*Gephyroberyx* sp.), and dory (*Cyttopsis rosea*). There was also a small silvery fish that was not identified. Deep-sea corals were characteristic of other coral assemblages found at depths shallower than 500 m depth at other sites in the Mona Passage. Stylasterids were small but abundant and composed of three species (*Stylaster* sp., *Distichopora* sp. and *Crypthelia* sp.). Black corals were well represented with *Stylopathes* sp. being most common, followed by *Parantipathes* sp., *Stichopathes* sp., and *Antipathes* sp. colonies. Among the Primnoidae, we encountered large sea fans of *Narella cf. bellissima* (>20 cm tall) and smaller *Plumarella* sp. colonies. Chrysogorgiid bottlebrush colonies were also periodically seen throughout the dive. Toward the dive's end on top of the mound we observed a greater density of S1 clade bamboo corals (*Cladarisis* sp.). Plexaurids displayed different color morphs from yellow to purple, that were initially thought to be the same species of Paramuricea. Finally, we observed a few colonies of *Acanthogorgia* cf. *aspera*, similar in morphology to those observed north of Mona Island. Sponges were in high abundance. However, many were encrusting or small in diameter. The larger sponges were the cup or foliose-shaped sponge (one of which we collected during this dive) and *Phakellia* sp. demosponges, the latter of which were common at this site. There were also Euplectillids at this site and we collected a long, thin vase-like morphotype. There was also another euplectillid morph that occurred in clusters, but this was only observed once during the dive and was not sampled. Echinoderm behavioral observations at this site were particularly noteworthy. The most numerically abundant echinoderm group were the crinoids, both stalked and unstalked. We collected a stalked crinoid, *Endoxocrinus* sp. that was poorly known from this area. There were also a lot of small yellow crinoids, *Crinometra brevipinna*. The primnoid octocorals had numerous brittle star associates, often with several per colony. Besides the crinoids, there were a lot of brittle stars, and many times the brittle stars were wrapped around the cidarid spines, which was an unusual behavior. This may have been an effort to extend their grasp beyond the benthic boundary layer. We saw two basket stars, and both had their arms open. We also observed one pink holothurian, two sea star species, *Mediaster* sp. and an unknow goniasterid. We saw about five species of sea urchins, *Calocidaris* sp., *Stylocidaris* sp., *Histocidaris nuttingi*, *Areosoma* sp. and *Cidaris rugosa*. We saw a *C. rugosa* grazing the cirri off one of the stalked crinoids. We saw three more *H. nuttingi* eating a smaller stalked crinoid and two bamboo corals. Broken bamboo coral branches were frequently seen and might be from cidarid predation. We also recorded some trash, a couple of bottles, some cloth or fabric, and what looked to be like broken metal broom stick.

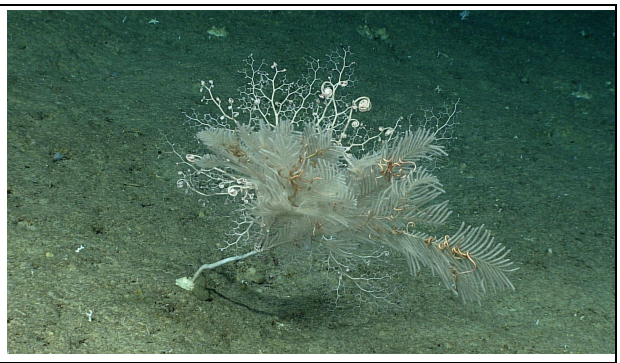
Notable Observations	Predation by urchins on other echinoderms and corals.
Community Presence/ Absence (*community is defined as more than two species*)	✓ Corals and Sponges ❑ Chemosynthetic Community ✓ High biodiversity Community ❑ Active Seep or Vent ❑ Extinct Seep or Vent ❑ Hydrates

Overall Map of the ROV Dive Area	Close-up Map of Main Dive Site
	

Representative Photos of the Dive	
	
At this site we found some of the largest queen snapper observed thus far on this expedition. Often shying away from *D2*'s presence or lights, at least five occurrences of queen snapper strafing the vehicle were noted.	Some of the most noteworthy highlights were several occurrences of cidarid urchins grazing on other echinoderms, primarily isocrinids, and bamboo corals. This behavior has been long hypothesized but rarely observed *in situ*.



Hard carbonate pavement dominated the seafloor throughout the entirety of the dive track. Small dissolutional or erosional features like pits and holes were at times used as habitat by both fishes and invertebrates.



The slopes of this feature had some of the highest currents and density of attached organisms like this *Callogorgia* sp. seafan with numerous echinoderm associates (basket stars, brittle stars). Many colonies were permanently bent or leaning, indicating a relatively strong velocity and constant downslope current direction.

Samples Collected

Sample ID	EX1811_2D16_01B
Date (UTC)	20181116134746
Time (UTC)	134746
Depth (m)	497.568
Temp. (˚C)	12.821
Field ID(s)	Tunicate

Commensals

Commensal Sample ID	Field Identification	Count
EX1811_D16_01B_A01	Crustacean	1
EX1811_D16_01B_A02	Sponge	1

Comments

Sample ID	EX1811_D16_02B
Date (UTC)	20181116
Time (UTC)	144502
Depth (m)	473.814
Temp. (°C)	12.838
Field ID(s)	Euplectillidae

Commensals

Commensal Sample ID	Field Identification	Count
EX1811_D16_02B_**A01**	Brittle Star	1
EX1811_D16_02B_A02	Hydroids	Many

Comments

Sample ID	EX1811_D16_0SPEC03B
Date (UTC)	20181116
Time (UTC)	164704
Depth (m)	434.18
Temp. (°C)	14.462
Field ID(s)	Porifera

Commensals: No commensals

Comments

Sample ID	EX1811_D16_04B	
Date (UTC)	20181116	
Time (UTC)	171357	
Depth (m)	433.331	
Temp. (°C)	14.084	
Field ID(s)	*Endoxocrinus* sp.	
Commensals	No commensals	
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