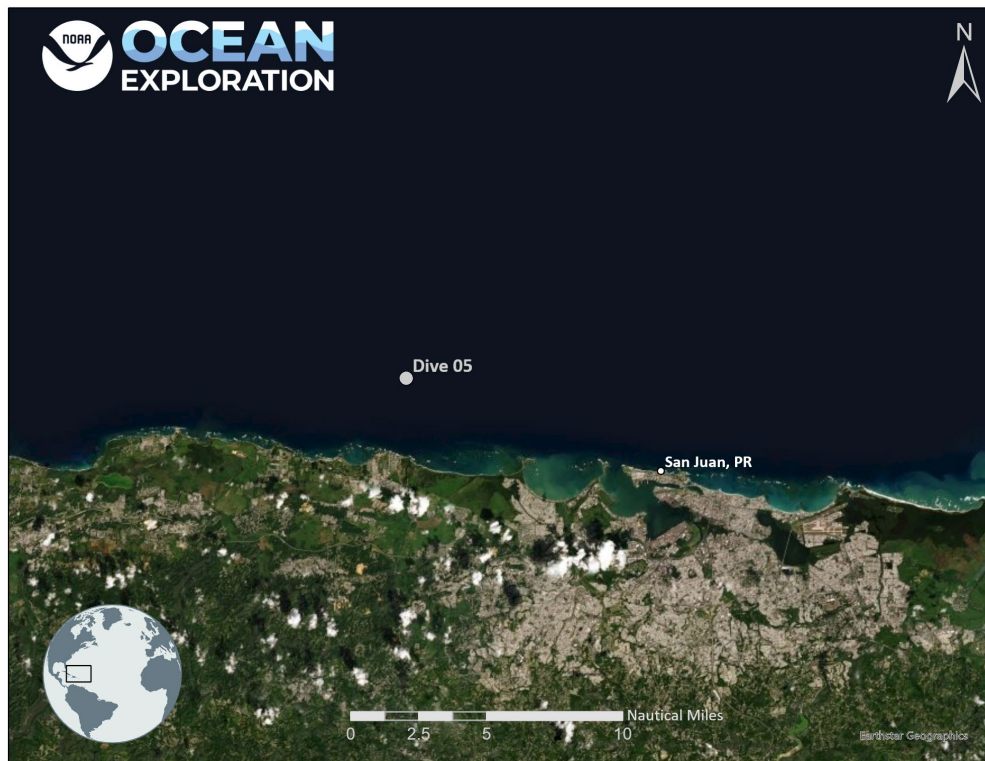


# ROV Dive Summary, EX-22-06, Dive 05 August 25, 2022

## General Location Map



## Dive Information

Site Name	Dive 05 - Clipper Endeavor
General Area Descriptor	Puerto Rico and the USVI
Science Team Leads	Joana Xavier (Biology), Deb Glickson (Geology)
Expedition Coordinator	Sam Candio
ROV Dive Supervisor	Levi Unema

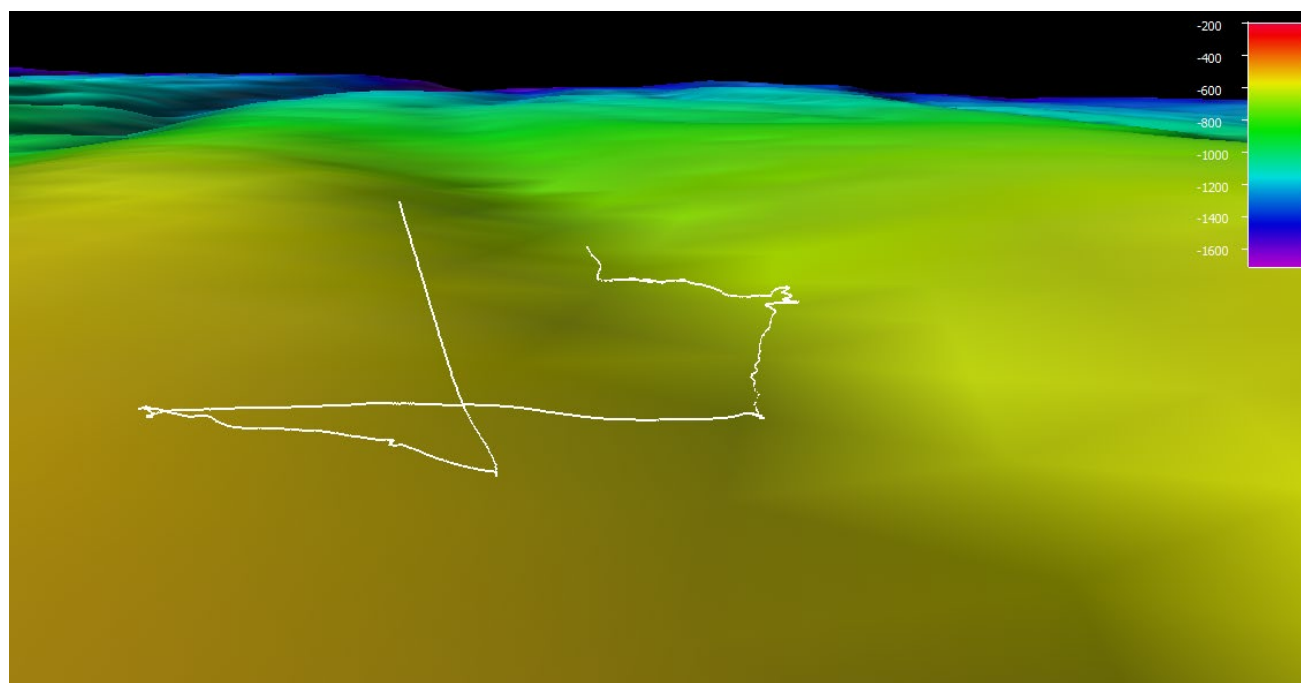


Dive Description	<p>This UCH dive was an attempt to find the Clipper Endeavor, a large commercial airliner that crashed into the sea in 1952 off San Juan after losing two engines almost immediately after take-off. We were provided 4 sonar targets - of those, we were able to dive on 2, as the other 2 were in a Marine Protected Area.</p> <p>We landed on soft sediment at 1302 UTC, about 50 m from the first target. We viewed a hatchetfish and a squid while setting up the ROV. The first target was a weathered, manganese (Mn) crusted, limestone outcrop. It had an abundance of long anemones, and also sponges. At 1406 UTC, 485m we came across more anemones on what looked like heavily sedimented fabric, and an anthropogenic object that looked like an open square (metal?).</p> <p>About 20 minutes later we reached the second target, which was slightly downslope. At that location, we encountered a large rocky outcrop that was covered in an aggregation of fishes (roughy, snapper, alfonsino). Interestingly, the number of fish there kicked up a lot of sediment. We imaged this for a few minutes while determining our next target.</p> <p>We then moved to another area of high reflectance on the backscatter imagery. It was not either of the last 2 targets previously identified, since these were both within the MPA. When we reached that target, it was another weathered, Mn crusted limestone outcrop. We saw several interesting biota in this area, including a Remaster seastar, many ctenophores in the water column, and several fishes (including the pink frogmouth). We kept moving west along this target, and encountered several areas of hardbottom (1700 UTC). While much of it was weathered limestone, there were some smoother, domed outcrops as well (limestone? Something else?).</p> <p>At 1721, we found a block of very weathered limestone had a lot more biodiversity, with zoanths (growing on a coiled substrate, possibly <i>Stichopathes</i> coral skeletons), corals, brittle stars, a cutlassfish and a sea urchin with long spines (<i>Calocidaris micans</i>). At 1855 UTC, 605 m, we found several unusual echinoderms – a 4-rayed fitiaster with 8 rows of spines, a stalked crinoid with big, archaic, fingerlike structures (<i>Holopus</i>), and a white ophiuroid with a center center. At 1910 UTC, we saw two more pieces of fabric. At 1926 we reached a local high for the outcrop, standing about a meter above the rest of the outcrop. At 1956/614m, we encountered a live <i>Stichopathes</i> and a salp. Much of this dive was slightly downhill, which means that some of the imagery is a little “blue” as we were looking downward.</p>
Notable Observations	3 <i>Holopus</i> crinoids
Community and habitat observations	Corals and Sponges - Present Chemosynthetic Community - Absent High biodiversity Community - Absent Active Seep or Vent - Absent Extinct Seep or Vent - Absent Hydrates - Absent
CMECS Feature Type(s)	Flat Slope Rock Outcrop

## Equipment Deployed

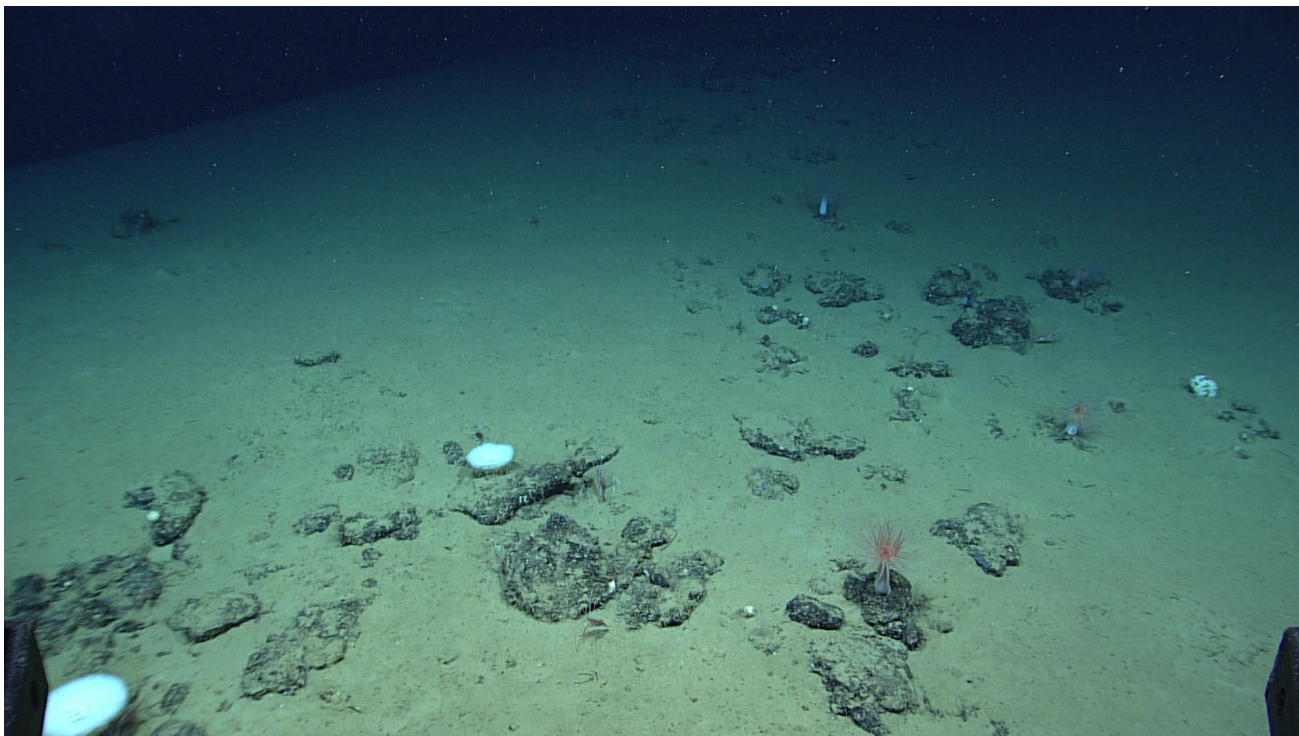
ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The section below notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	None

## Close-up Map of Main Dive Site

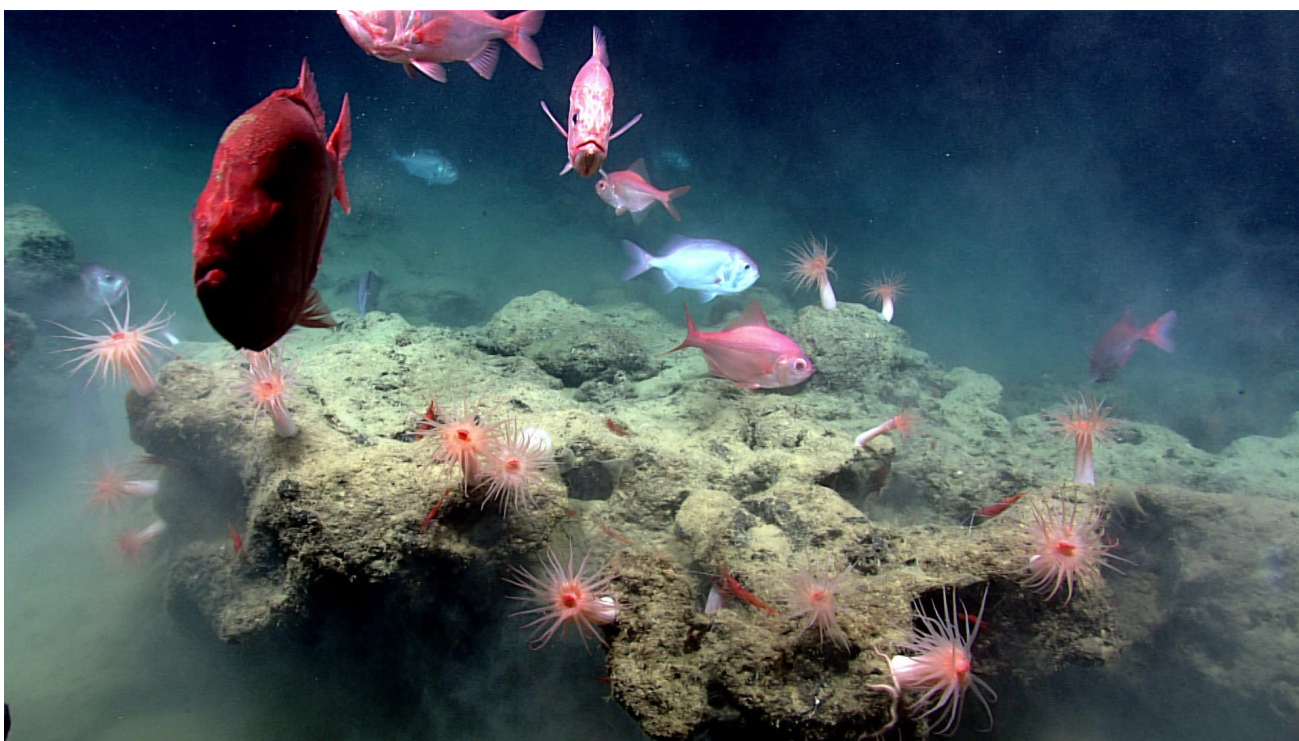


Smoothed ROV dive track in white on a 100 m resolution bathymetric surface, 1x vertical exaggeration, depth in meters.

## Representative Photos of the Dive



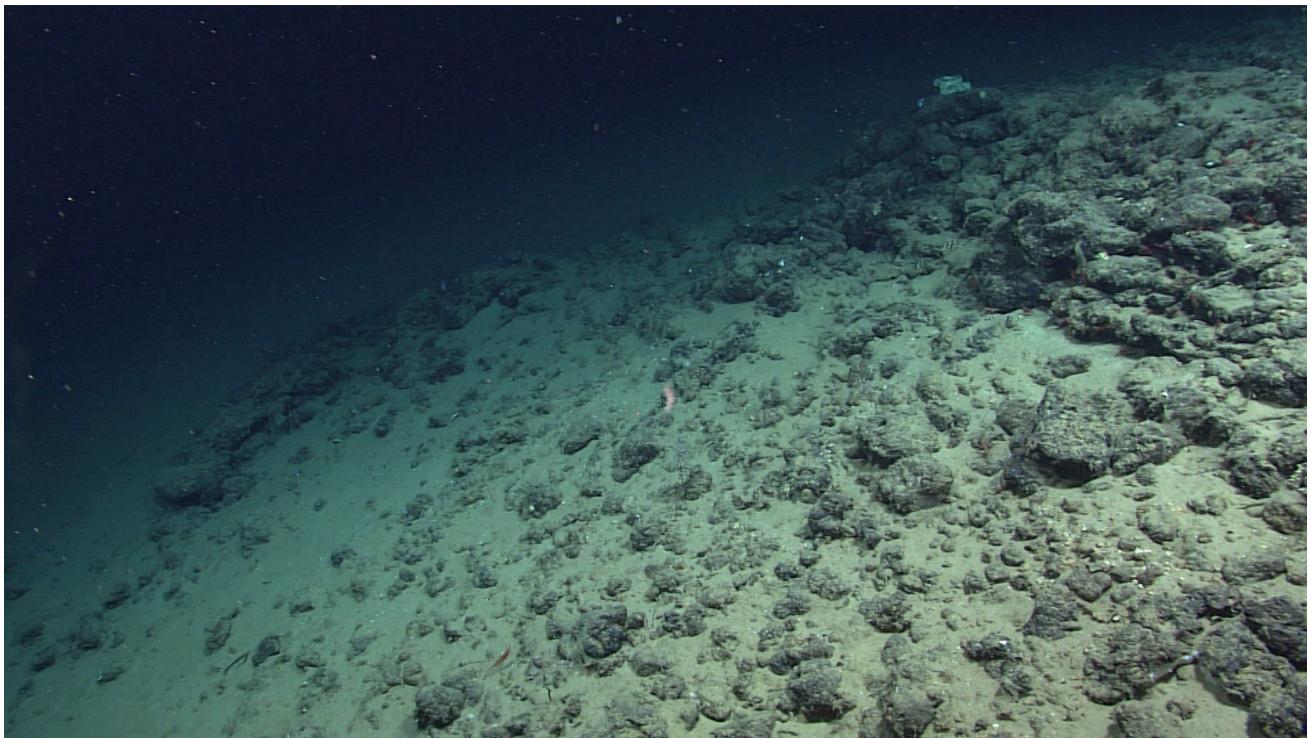
A rocky outcrop on the seafloor at the first target.



Rocky outcrop at the second target, with an aggregation of fish and tube anemones.



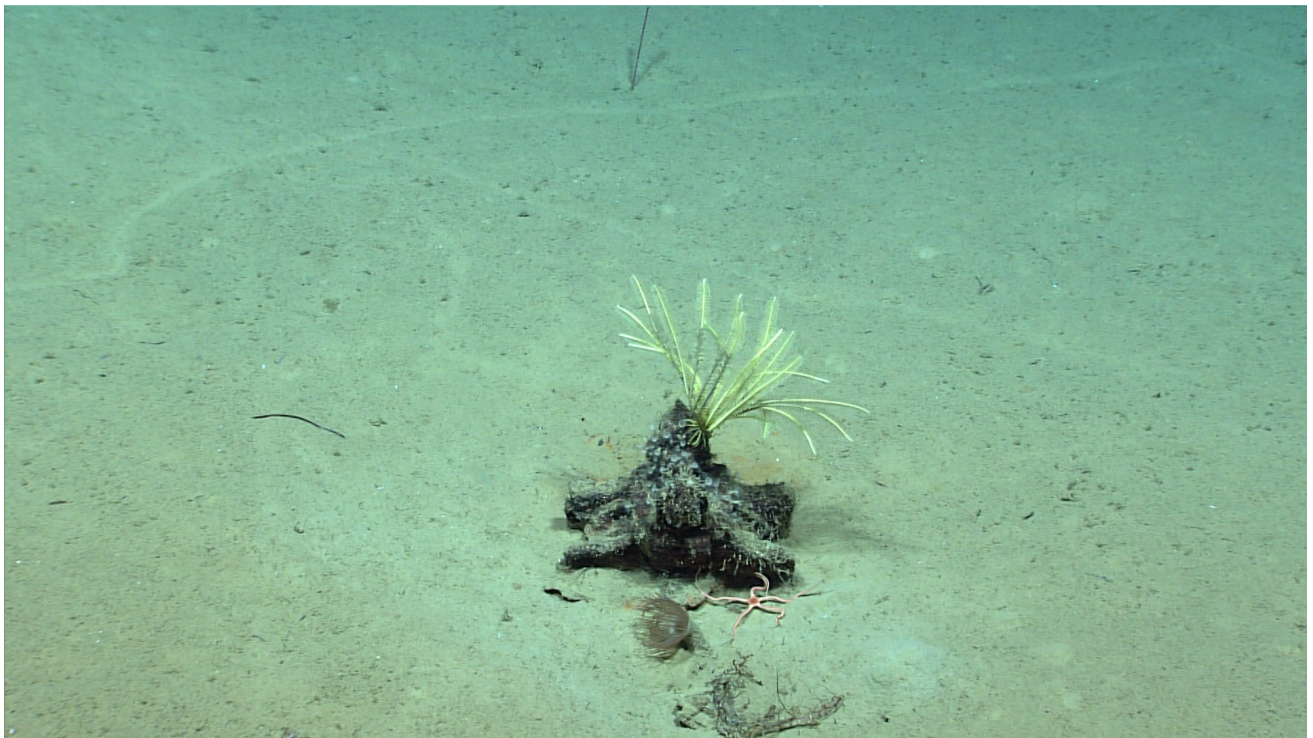
Tube anemones on what might be fabric and an oddly shaped square object.



Another rocky outcrop on the seafloor, near the third target.



Pink frogmouth.



A crinoid growing on something that might have been ferrous.

## Samples Collected

No samples were collected due to this being a UCH dive.

## Scientists Involved

Name	Email	Affiliation
Ashley	Marranzino	ashley.marranzino@noaa.gov
Celso Domingos	bio.celso.domingos@gmail.com	CIIMAR - University of Porto
Christopher Mah	brisinga@gmail.com	National Museum of Natural History- Smithsonian
Deb Glickson	DGlickson@nas.edu	National Academies of Sciences, Engineering, and Medicine
Elisabetta Menini	elisabetta.menini@duke.edu	Duke University
George Matsumoto	mage@mbari.org	MBARI
Heather Judkins	Judkins@usf.edu	University of South Florida - St. Petersburg
James Delgado	james.delgado@searchinc.com	SEARCH, Inc.
Joana Xavier	joanarxavier@gmail.com	CIIMAR - Interdisciplinary Centre of Marine and Environmental Research
Michelle Schärer	michelle.scharer@upr.edu	University of Puerto Rico
Nolan Barrett	barrettnh56@gatech.edu	Georgia Institute of Technology
Phil Hartmeyer	phil.hartmeyer@noaa.gov	NOAA OER
Sam Cuellar	samuel.cuellar@noaa.gov	NOAA OER
Steve Auscavitch	steven.auscavitch@temple.edu	Temple University
Tara Harmer Luke	tara.luke@stockton.edu	Stockton University
Trish Albano	trish.albano@noaa.gov	NOAA OER
Roslynn King	rbking@ucsd.edu	Scripps Institute of Oceanography
Graciela Garcia-Moliner	graciela_cfm@yahoo.com	Caribbean Fishery Management Council
Russell Matthews	rmatthews@mor-ent.com	Air/Sea Heritage Foundation
Michael	Brennan	SEARCH, Inc.
Frank Cantelas	frank.cantelas@noaa.gov	NOAA OER
Megan Lickliter-Mundon	m.lickliter@gmail.com	DPAA
Jack Irion	jack.irion@boem.gov	BOEM
Jim Masterson	jmaster7@fau.edu	Florida Atlantic University
Asako Matsumoto	amatsu@gorgonian.jp	Chiba Institute of Technology

### Please direct inquiries to:

NOAA Office of Ocean Exploration & Research  
1315 East-West Highway, SSMC3 RM 10210  
Silver Spring, MD 20910  
[oceanexplorer@noaa.gov](mailto:oceanexplorer@noaa.gov)

