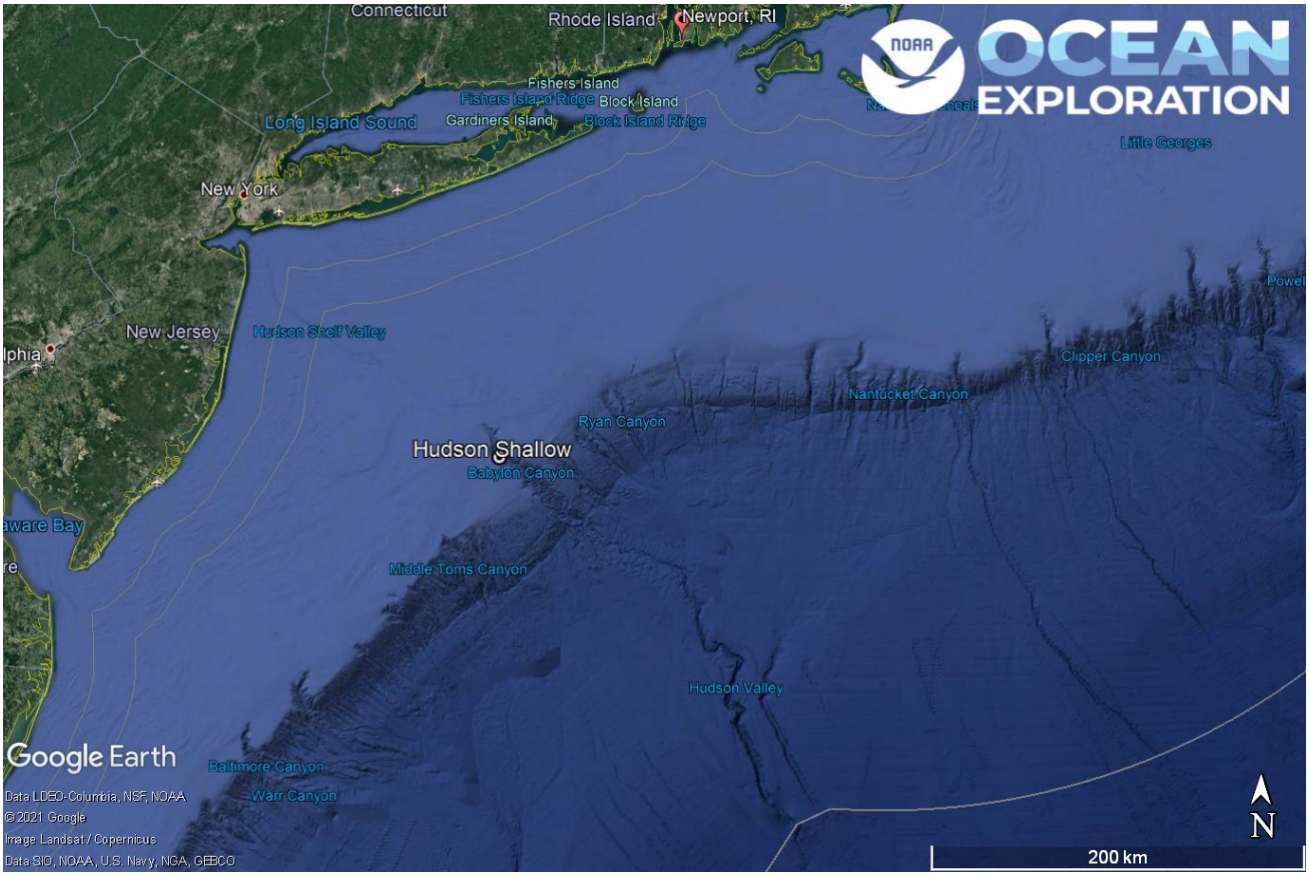
ROV Dive Summary, EX-21-03, Dive 07, June 22, 2021

General Location Map



Dive 07 named Hudson Shallow. This site is in Hudson Canyon off of New York and New Jersey.

Dive Information

Site Name	Hudson Shallow
General Area Descriptor	Mid-Atlantic Canyons
Science Team Leads	Karl McLetchie
Expedition Coordinator	Kasey Cantwell/Matt Dornback
ROV Dive Supervisor	Karl McLetchie
Mapping Lead	Shannon Hoy

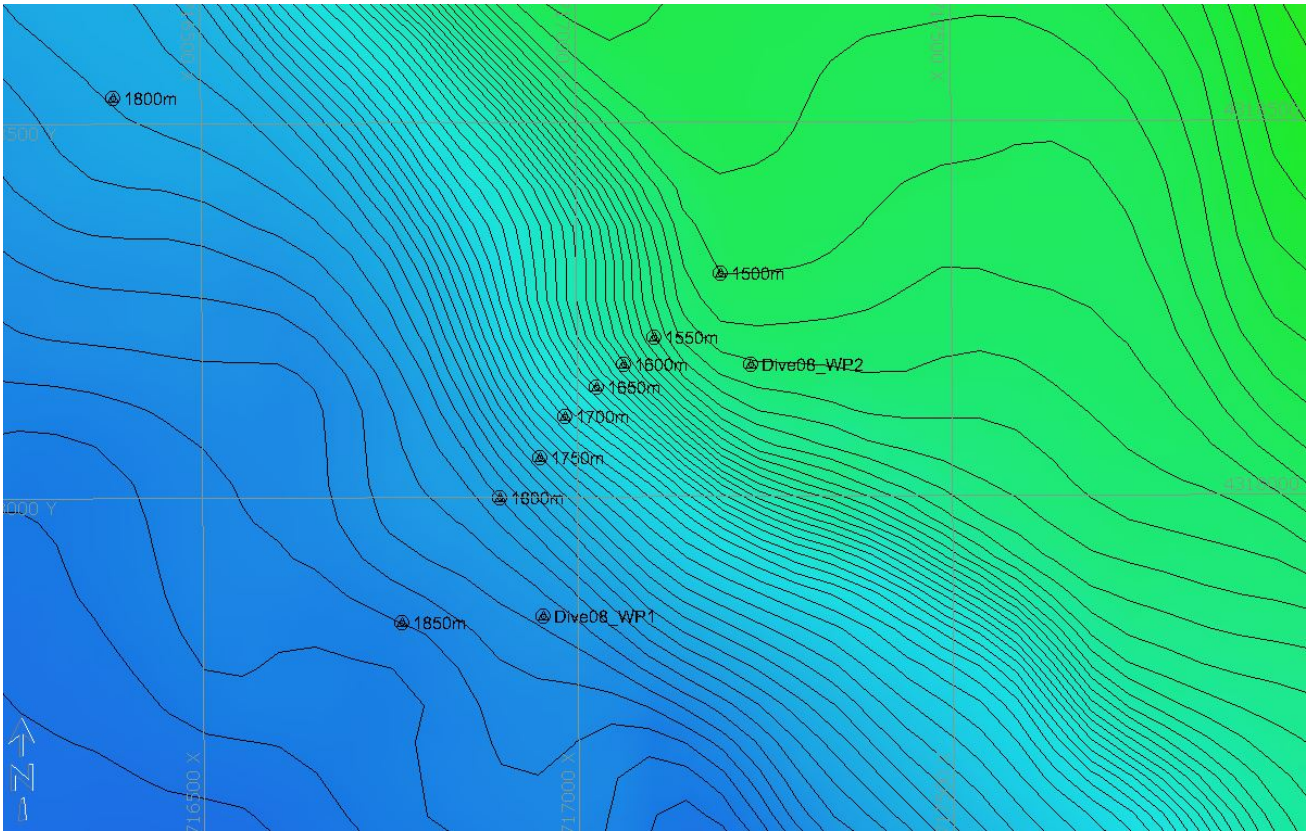
Dive Purpose	The seventh engineering dive of the ROV Shakedown. Primary objectives include pilot training, testing new motors, motor controllers, lights, cameras, and hydraulic systemson the ROVs. Secondary objectives include exploring the upper area of Hudson Canyon and collecting characteristic geological and biological samples.
Was the dive restricted for Underwater Cultural Heritage?	No
ROV Dive Summary Data	Dive Summary: EX2103_DIVE07 ^^ Dive Type: Normal In Water: 2021-06-22T16:47:51.327113 39.53018213775482 ; -72.3773614112248 On Bottom: 2021-06-22T17:23:54.439750 39.52977251645905 ; -72.37732892393338 Off Bottom: 2021-06-22T21:03:11.315254 39.53103870837962 ; -72.37715922502778 Out Water: 2021-06-22T21:28:24.334029 39.53461656611496 ; -72.38049405822777 Dive Duration: 4:40:33 Bottom Time: 3:39:16 Max Vehicle Depth: 560.2 m Min Seafloor Depth: 391.5 m Distance Travelled: 284.7 m

Dive Description	With the delayed deployment of the ROV, a later recovery was planned for 18:30. The ROVs were deployed at 13:00 and found bottom at 560m in a high turbidity environment on the heavily sedimented canyon floor. Euphausid shrimp swarmed the vehicle lights. Crabs, brittlestars, and anemones were dispersed across the seafloor. Around 15:00 the ROV started ascending the canyon wall. The wall was composed of a sedimentary rock that formed terraces. The terraces were abundant with anemones, sponges, and a single paragorgia covered in royal red shrimp. A goosefish, numerous skates, a flounder, and numerous other fish were seen too. One sample was attempted but was aborted due to a squall that forced the ship to make moves and the ROVs off the bottom around 17:30. Due to strong winds with gusts over 40 knots the rest of the dive was cancelled and ROV recovery began. The ME20 was tested on a flytrap anemone that can sometimes bioluminesce. With all lights off except the aft pole lights at 5% there was a good image of the anemone. Although the anemone did not bioluminise when prodded with the Kraft, a blue streak did pass through the camera; likely a luminescent shrimp/krill. We will keep testing it on likely biology.
Notable Observations	
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)	Submarine Canyon, Slope, Terraces
SeaTube Link (science annotation system)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=2203

Equipment Deployed

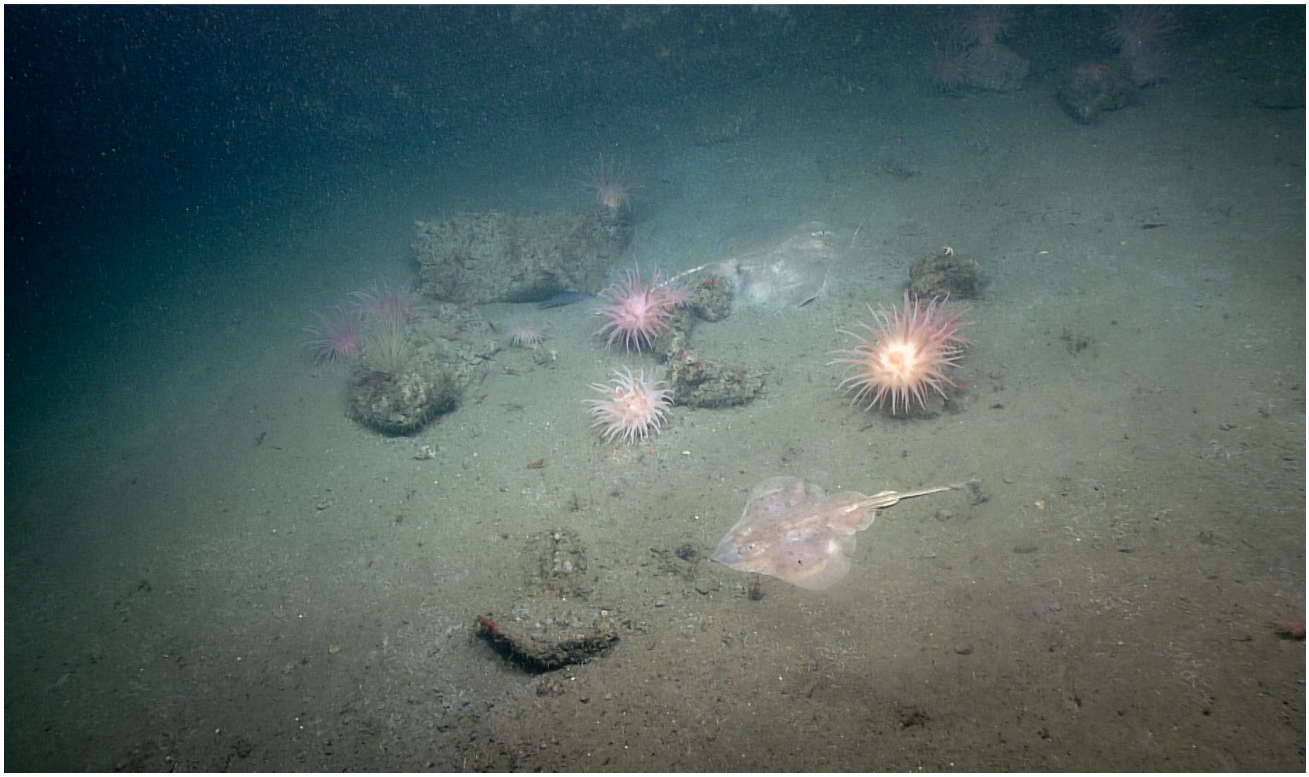
ROV	*Deep Discoverer*
Camera Platform	*Seirios*
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The section below notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	Turbidity sensor

Close-up Map of Main Dive Site



Hypack map of the Dive 07 waypoints. Depth is displayed by contour lines at 10 meter increments and by colors. Warm colors are shallower and cool colors are deeper.

Representative Photos of the Dive



Skates and anemones congregating around rocky rubble.

A Goosefish.

Samples Collected -

No samples were collected

Niskin Sampling Summary

No Niskin bottles were used

Scientists Involved (provide name, email, affiliation)

Name	Email	Affiliation
Upasana Ganguley	upasana.ganguly1@louisiana.edu	University of Louisiana at lafayette
Dhugal Lindsay	dhugal@jamstec.go.jp	JAMSTEC
Kelsey Viator	ksviator2000@gmail.com	University of Louisiana at Lafayette
Michael Vecchione	vecchiom@si.edu	NOAA & NMNH

Please direct inquiries to:

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