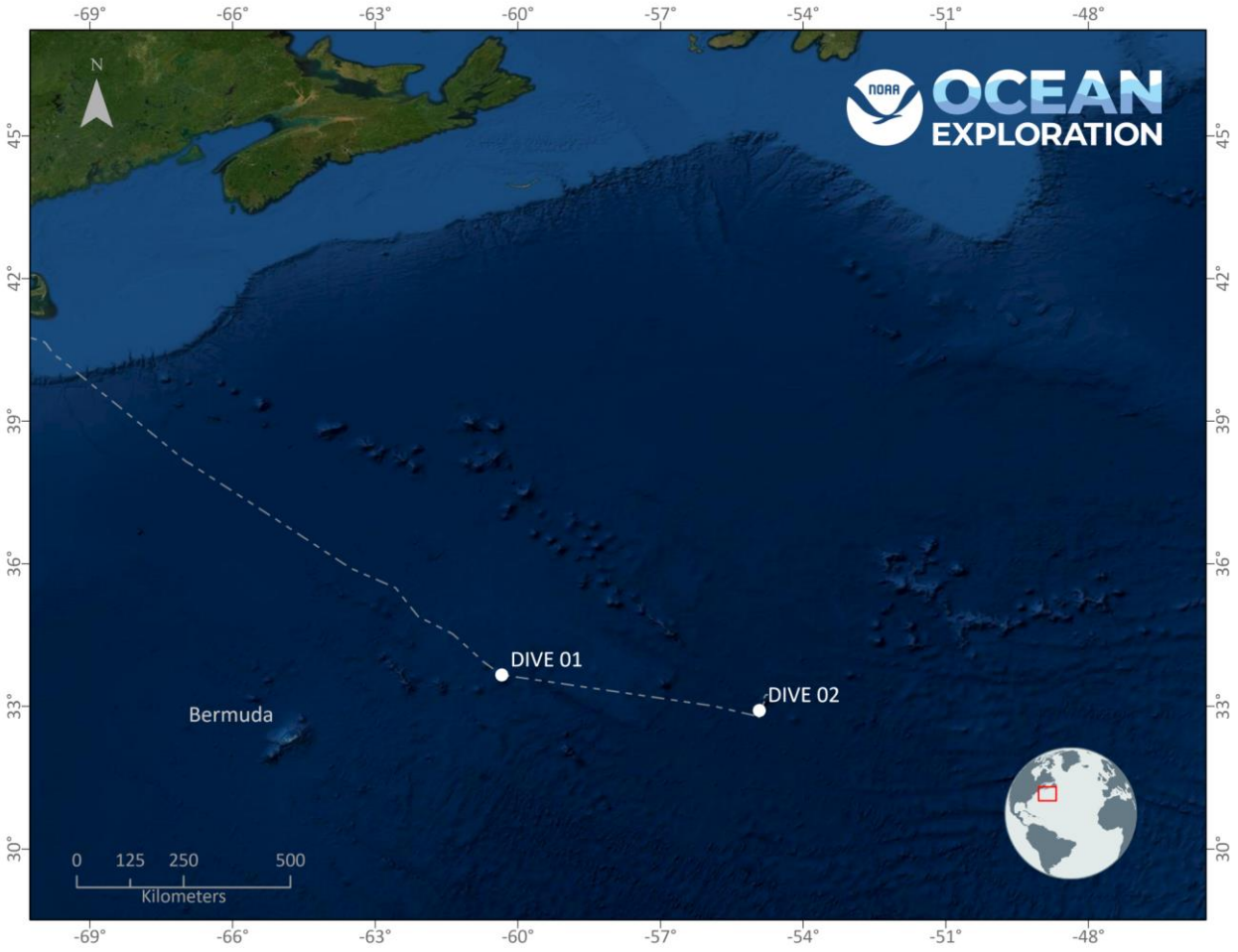
ROV Dive Summary, EX-21-04, Dive 02, July 05, 2021

General Location Map



Dive Information

Site Name	Congress Seamount South
General Area Descriptor	High Seas east of Nashville Seamount. Potentially part of the New England Seamount Chain
Science Team Leads	Rhian Waller, Jason Chaytor
Expedition Coordinator	Kasey Cantwell, Kimberly Galvez (Expedition Coordinator in Training)
ROV Dive Supervisor	Chris Ritter

Mapping Lead	Shannon Hoy
Dive Purpose	Explore a previously unmapped and poorly explored seamount to see if there is a biological or geological connection between Congress Seamount and the New England Seamount or Corner Rise Seamount chains.
Was the dive restricted for Underwater Cultural Heritage?	No
ROV Dive Summary Data	Dive Summary: EX2104_DIVE02 ^^ Dive Type: Normal In Water: 2021-07-05T12:25:41.991340 32.92284245974828 ; -54.91379232398777 On Bottom: 2021-07-05T14:09:18.430491 32.92229624801112 ; -54.91399155132126 Off Bottom: 2021-07-05T19:03:24.389528 32.920194501119894 ; -54.916575250098816 Out Water: 2021-07-05T20:40:02.569083 32.92007233512227 ; -54.91720123650024 Dive Duration: 8:14:20 Bottom Time: 4:54:5 Max Vehicle Depth: 2815.2 m Min Seafloor Depth: 2561.5 m Distance Travelled: 698.4 m

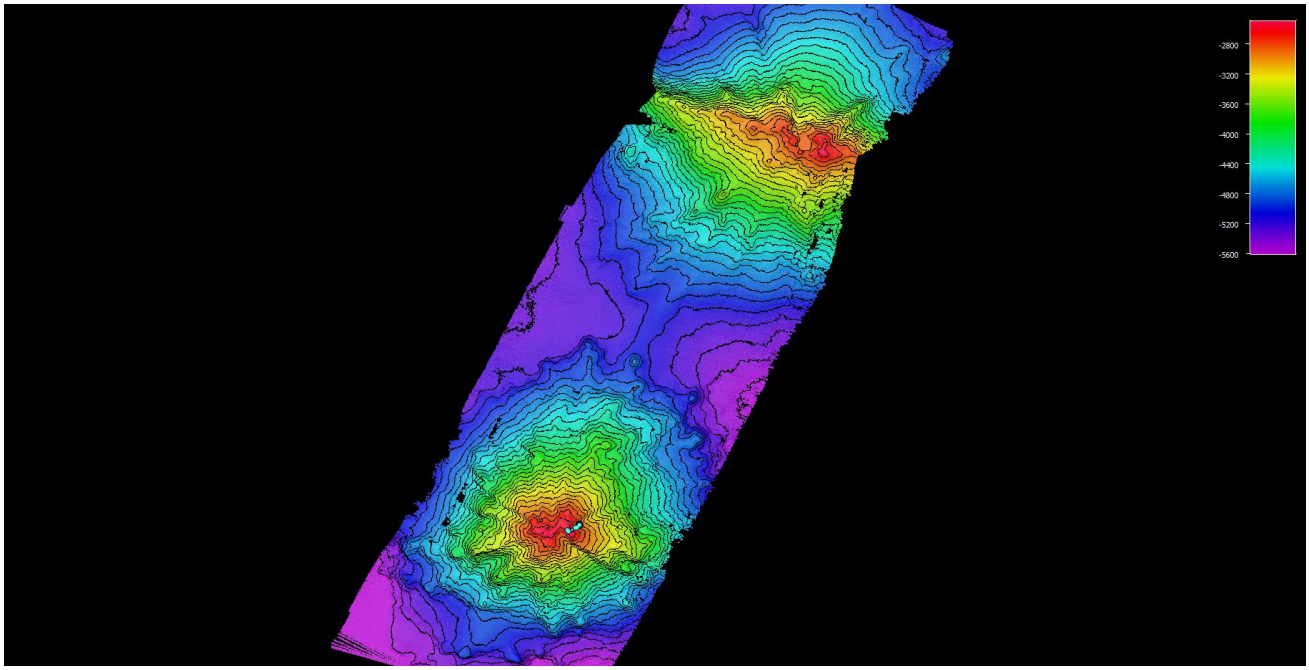
Dive Description	The ROV approached the bottom at the start of the dive in a region of steep, rocky terrain with only thin and scattered sediment cover. Ferromanganese crusts were pervasive across all exposed hard substrate, displaying many of the complex surface textures seen during Dive 1 at "North Bermuda Tritop". Ferromanganese-coated fossil coral base fragments and broken coral skeletons "twigs" were observed on most rock outcrops and in the adjacent sediments. The first half of the dive traversed a mix of rock-debris and in-situ slopes, with thin sediment accumulations (fine to coarse, biogenic component-dominated sediments with larger pteropod tests) dusting the rock surfaces and between rocks and larger outcrops. The first of two geologic samples was collected early in the dive, most likely within one of the rock debris slope areas. As the dive progressed towards the summit of the seamount, the seafloor changed markedly to sediment-free sheet-flow type morphologies and steeper, rugged outcrops that at times appeared to display pillow-lava textures. The second geologic sample was collected near the transition to this more continuous rock pavement environment. Prior to coming off bottom just below the summit, several open fractures that were partially filled sediment mantled by ripple marks/dead coral debris and a broad sediment covered slope, were traversed. There was a low diversity of both coral and sponge species during this dive, with fauna occuring only in patches, alongside large aggregations of broken coral branches and dead stalks covered in FeMn crusts. During the beginning portion of the dive abundant Isididae bamboo corals were present, but nearly all were at least 50% denuded, and many were completely covered over by one of two species of Zooantharia, which were abundant throughout the length of the dive. A few small Bathypathes black corals and Corallium corals were present and an unknown Cerianthid was collected for identification. Towards the top of the dive track anemones were noticed around Isididae jasonisis, causing the coral to create small basket-like branches. One was collected for identification and documentation purposes. Fish fauna was limited to halosaurs, cusk eel and two species of Synaphobranchids. Other noted associates include molluscs, a pycnogonid, brittle stars and brisingids.
Notable Observations	Extensive sediment cover just below summit Multiple volcanic flow morphologies Low diversity of general fauna and high densities of zooanthids
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)	Rock, Sediment (Fine & coarse unconsolidated)
SeaTube Link (science annotation system)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=2253

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

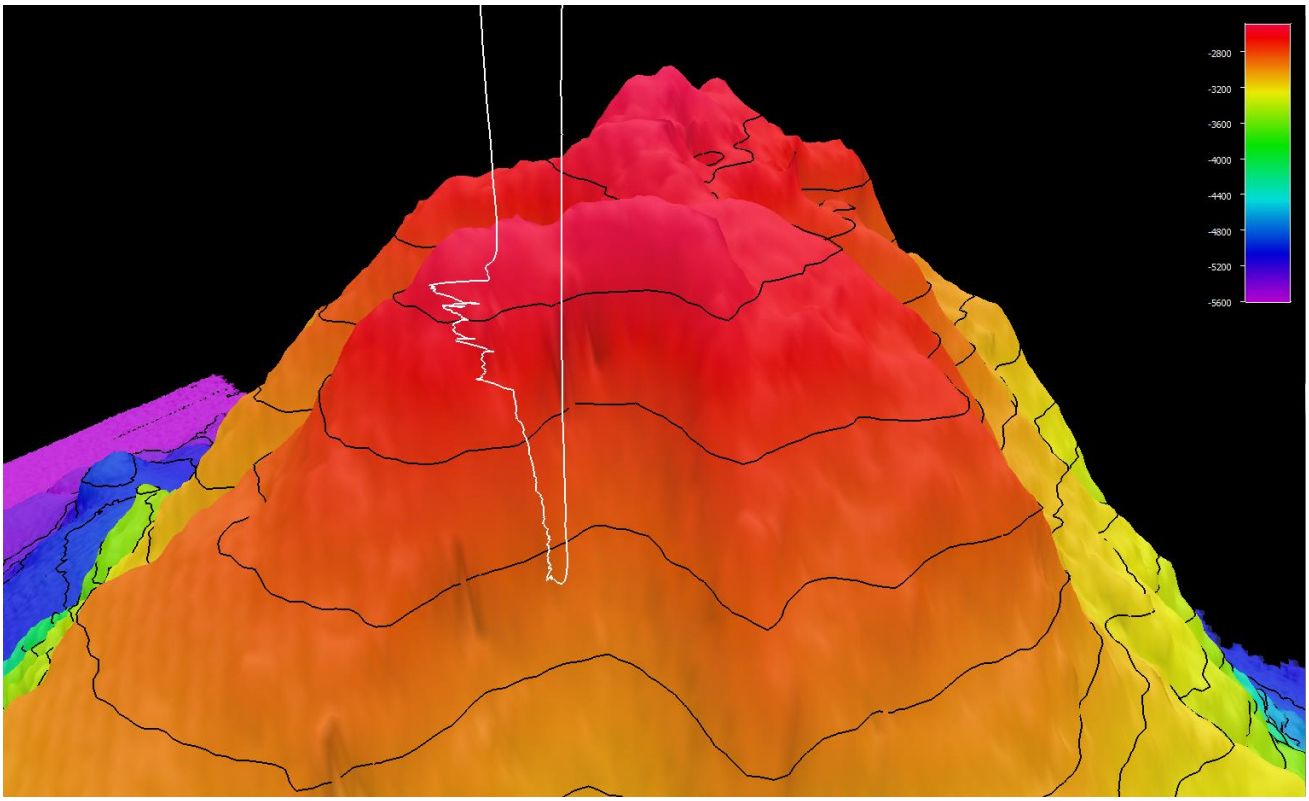
	drawers and thrusters. The section below notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	D2's CTD data was noisy (later this was found to be a result of a new LED light being too close to the CTD sensor). This issue was resolved in advance of EX2104 Dive 3.

Overview of Dive Site



Smoothed ROV dive track (blue) on an overview bathymetry of the seamount, 3x vertical exaggeration.

Close-up Map of Main Dive Site



Smoothed ROV dive track (white) of South Congress Seamount - 3x vertical exaggeration, depth in meters, 100 meter contours

Representative Photos of the Dive

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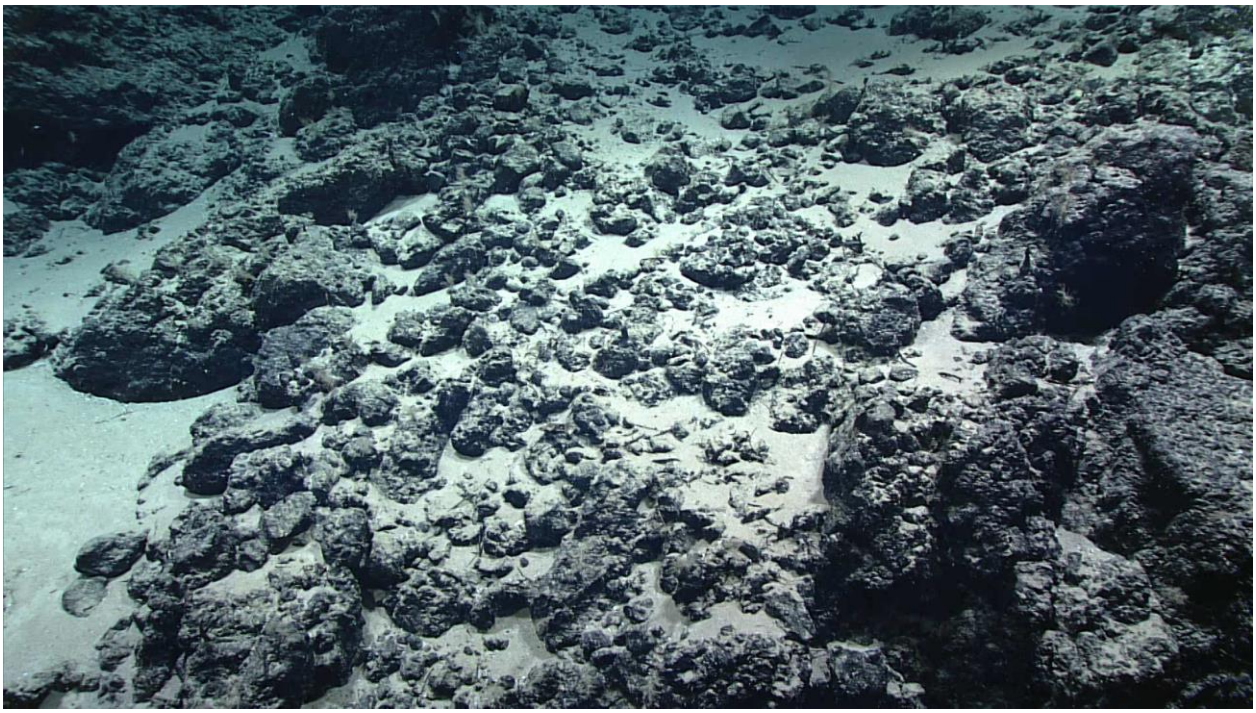
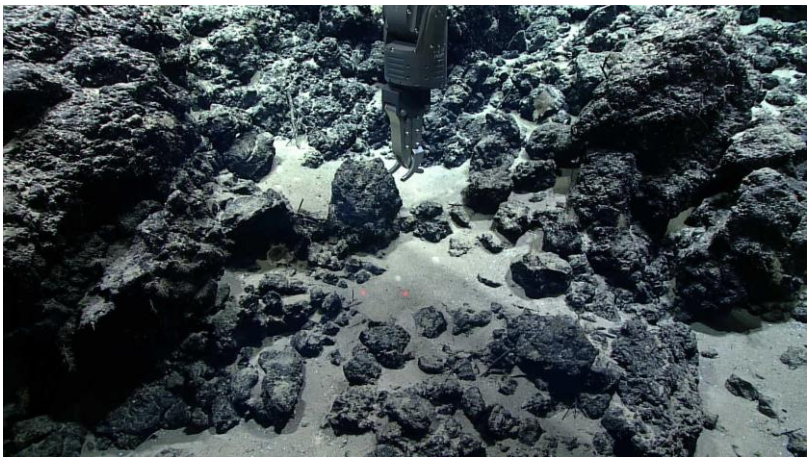
[A typical cluster of zooanthids from this dive - two species encrusting a bamboo coral skeleton with various associates]



[A mixture of pillow lava-like outcrops and blocky rock debris were seen for much of this dive]

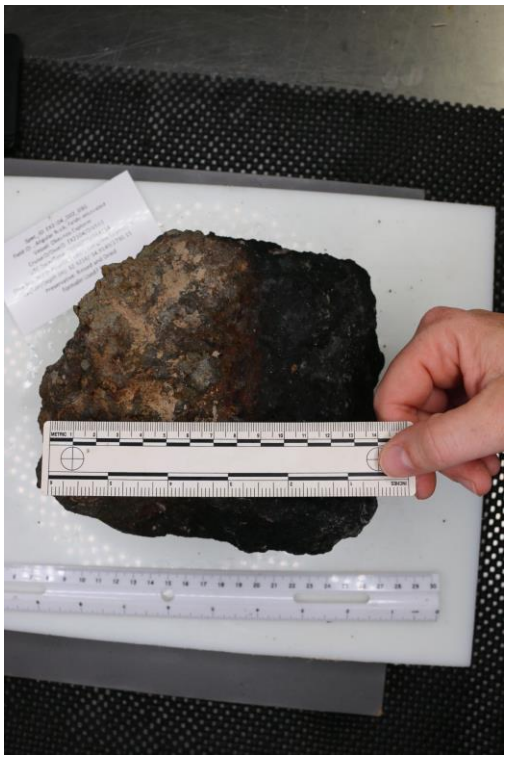
[One of the larger accumulations of deepwater corals observed - multiple bamboo corals, corallium (right, red) and a Bathypathes black coral (central, red)]

Samples Collected -



Sample ID	EX2104_D02_01G
Date (UTC)	20210705
Time (UTC)	143423
Depth (m)	2815.615
Latitude (decimal degrees)	32.922153
Longitude (decimal degrees)	-54.913944
Temp. (°C)	
Field ID(s)	FeMn encrusted rock
Comments	likely all FeMn encrusted; loose carbonate sediment around

Sample ID	EX2104_D02_02B
Date (UTC)	20210705
Time (UTC)	155307
Depth (m)	2780.438
Latitude (decimal degrees)	32.922050
Longitude (decimal degrees)	-54.914444
Temp. (°C)	3.074
Field ID(s)	Cerianthidae
Comments	Not enough of a primary specimen to preserve; both primary and subsample will go for genetic sampling



Sample ID	EX2104_D02_03G
Date (UTC)	20210705
Time (UTC)	164114
Depth (m)	2730.150
Latitude (decimal degrees)	32.921585
Longitude (decimal degrees)	-54.914913
Temp. (°C)	
Field ID(s)	Angular Rock
Comments	partially FeMn encrusted; partially buried in sediment; fine carbonate sediment around it; contains worm tubes;

Sample ID	EX2104_D02_04B
Date (UTC)	20210705
Time (UTC)	181405
Depth (m)	2594.649
Latitude (decimal degrees)	32.918243
Longitude (decimal degrees)	-54.91609
Temp. (°C)	3.209
Field ID(s)	Jasonisis
Comments	a coral with an encapsulated anemone; 7 cm wide x 5 cm anemone; too small to do genetic sampling on

Scientists Involved (provide name, email, affiliation)

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