

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 | Chris Ritter |
| Supervisor | |

| 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 | | | |
| Cultural Heritage? ROV Dive Summary Data | Dive Summary: EX2104_DIVE02 AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA | | | |
| | 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. |
|---|--|
| | 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 | D2's CTD data was noisy (later this was found to be a result of a new LED light being too close |
| Malfunctions | 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



[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 -



| SampleID | 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 |





| SampleID | 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 |





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| 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; |





| SampleID | 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)

| First Name | Last Name | Email | Affiliation |
|------------|------------|------------------------------------|---|
| Cindy | Van Dover | clv3@duke.edu | Duke University |
| Daniel | Woods | djw73@duke.edu | Duke University |
| Dhugal | Lindsay | dhugal@jamstec.go.jp | JAMSTEC |
| Emily | Crum | emily.crum@noaa.gov | NOAA Ocean Exploration |
| Harold | Carlson | harold.carlson@noaa.gov | NOAA, USC |
| Heather | Judkins | Judkins@usf.edu | University of South Florida St. Petersburg |
| Jason | Chaytor | jchaytor@usgs.gov | USGS |
| Jaymes | Awbrey | C00227433@louisiana.edu | University of Louisiana at Lafayette |
| Jocelyn | Cooper | jocelyn.cooper@maine.edu | University of Maine |
| Kasey | Cantwell | kasey.cantwell@noaa.gov | NOAA Ocean Exploration |
| Kenneth | Sulak | jumpingsturgeon@yahoo.com | USGS |
| Kevin | Konrad | Kevin.Konrad@unlv.edu | University of Nevada, Las Vegas |
| Kimberly | Galvez | kimberly.galvez@noaa.gov | OER |
| Kira | Mizell | kmizell@usgs.gov | USGS |
| Les | Watling | watling@hawaii.edu | University of Hawaii at Manoa |
| Michael | Vecchione | vecchiom@si.edu | NOAA & NMNH |
| Noelle | Helder | noelle.helder@noaa.gov | NOAA OER |
| Peter | Auster | peter.auster@uconn.edu | UConn & Mystic Aquarium |
| Bramley | Murton | bramley.murton@noc.ac.uk | National Oceanography Centre, UK |
| Rhian | Waller | rhian.waller@maine.edu | University of Maine |
| Robert | Carney | rcarne1@lsu.edu | LSU Dept Oceanography and Coastal Sciences |
| Scott | France | france@louisiana.edu | University of Louisiana at Lafayette |
| Susan | Gottfried | susan.gottfried@noaa.gov | NCEI |
| Tina | Molodtsova | tina@ocean.ru | P.P.Shirshov Institute of Oceanology RAS |
| Upasana | Ganguly | upasana.ganguly1@louisiana.ed u | University of Louisiana at lafayette |
| Pierre | Josso | piesso@bgs.ac.uk | British Geological Survey |
| Andrea | Quattrini | quattrinia@si.edu | Smithsonian Institution |



Please direct inquiries to:

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

