*Okeanos Explorer* ROV Dive Summary

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| --- | --- | --- | --- | --- | --- |
| Dive Information | | | | | |
| General Location | |  | | | |
| General Area Descriptor | | Gulf of Mexico | | | |
| Site Name | | Escarpment Canyon | | | |
| Science Team Leads | | Diva Amon and Charles Messing | | | |
| Expedition Coordinator | | Brian Kennedy | | | |
| ROV Dive Supervisor | | Dan Rogers | | | |
| Mapping Lead | | Mike White | | | |
| ROV Dive Name | | | | | |
| Cruise | | EX1711 | | | |
| Leg | | - | | | |
| Dive Number | | DIVE02 | | | |
| 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 (from processed ROV data) | | Dive Summary: EX1711\_DIVE02  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^  In Water: 2017-12-01T13:43:24.283000  24°, 37.343' N ; 084°, 06.237' W  Out Water: 2017-12-01T21:42:37.435000  24°, 36.240' N ; 084°, 05.366' W  Off Bottom: 2017-12-01T20:20:58.976000  24°, 37.422' N ; 084°, 06.279' W  On Bottom: 2017-12-01T15:06:01.051000  24°, 37.260' N ; 084°, 06.173' W  Dive duration: 7:59:13  Bottom Time: 5:14:57  Max. depth: 2321.5 m | | | |
| Special Notes | | none | | | |
| Scientists Involved  (please provide name, location, affiliation, email) | | |  |  |  | | --- | --- | --- | | **Name** | **Affiliation** | **Email** | | Adam Skarke | Mississippi State University | adam.skarke@msstate.edu | | Alexandra Avila | Oregon State University / Nancy Foster Scholar (ONMS) | alexandra.m.avila@gmail.com | | Amanda Demopoulos | USGS | ademopoulos@usgs.gov | | Andrea Quattrini | Harvey Mudd College | aquattrini@g.hmc.edu | | Anna Ling | University of Miami | a.ling@rsmas.miami.edu | | Asako Matsumoto | Planetary Exploration Research Center, Chiba Institute of Technology | amatsu@gorgonian.jp | | Carolyn Ruppel | US Geological Survey | cruppel@usgs.gov | | Charles Messing | Nova Southeastern University | messingc@nova.edu | | Cindy Van Dover | Duke | clv3@duke.edu | | Claire Roberts | Gulf of Mexico Fishery Management Council | claire.roberts@gulfcouncil.org | | Daniel Wagner | NOAA | daniel.wagner@noaa.gov | | Diva Amon | Natural History Museum, London | divaamon@gmail.com | | George Sedberry | NOAA ONMS | george.sedberry@noaa.gov | | Jason Chaytor | USGS | jchaytor@usgs.gov | | John Reed | Harbor Branch Oceanographic Institute | jreed12@fau.edu | | Kevin Rademacher | NOAA/NMFS/MS Labs | kevin.r.rademacher@noaa.gov | | Kimberly Galvez | University of Miami | kgalvez@rsmas.miami.edu | | Kristopher Benson | NOAA Restoration Center | kristopher.benson@noaa.gov | | Les Watling | University of Hawaii at Manoa | watling@hawaii.edu | | Mary Wicksten | Texas A&M University | wicksten@bio.tamu.edu | | Meagan Putts | University of Hawaii | meagan.putts@noaa.gov | | Megan McCuller | Southern Maine Community College | mccullermi@gmail.com | | Melanie Damour | Bureau of Ocean Energy Management | Melanie.Damour@boem.gov | | Mike Ford | NOAA Fisheries | michael.ford@noaa.gov | | Morgan Kilgour | Gulf of Mexico Fishery Management Council | morgan.kilgour@gulfcouncil.org | | Nolan Barrett | Harbor Branch Oceanographic Institute at Florida Atlantic University | barrettnh@g.cofc.edu | | Robert Carney | Oceanography and Marine Sciences, LSU | rcarne1@lsu.edu | | Scott France | University of Louisiana at Lafayette | france@louisiana.edu | | Shirley Pomponi | CIOERT - FAU HBOI | SPomponi@fau.edu | | Steve Ross | Univ. of NC at Wilmington | rosss@uncw.edu | | Steve Auscavitch | Temple University | steven.auscavitch@temple.edu | | Tara Harmer Luke | Stockton University | luket@stockton.edu | | Thomas Hansknecht | Past taxonomist | tjhansk@comcast.net | | Tina Molodtsova | Shirshov Institute of Oceanology RAS | tina@ocean.ru | | William Kiene | NOAA Office of National Marine Sanctuaries | William.Kiene@noaa.gov | | | | |
| Purpose of the Dive | | The Florida Escarpment southwest of Pulley Ridge has a complex canyon and promontory system with relief exceeding 1000 m. These extraordinary “spur and groove” or “saw-tooth” structures have steep cliffs and canyon features with extensive hard substrate walls that are ideal for the establishment of deep-water sessile communities, as well as soft-sediment habitats. This dive site, given the canyon location, allowed us to encounter and characterize a variety of benthic habitats and associated communities, including the distribution and abundance of corals and sponges. This generated information on the distribution, diversity, biogeography, and connectivity of these communities. | | | |
| Description of the Dive | | EX1711 Dive 2 was at ‘Escarpment Canyon’, located west of south Florida. The ROV descended to the sedimented canyon floor at 2319 m and encountered *Nematocarcinus* sp. and *Pleoticus robustus* (Royal Red shrimp) before quickly traversing to the base of the canyon wall. The wall initially appeared to be fractured blocky carbonate with a ferromanganese crust and hosted a number of sponge species (Euplectellidae sp., Cladorhizidae sp. and Hyalonematidae sp.). Additional organisms included two ophidiids (*Acanthonus armatus* and Ophidiidae sp.), several *Bathypterois* sp. (tripod fish), a Bathycrinidae sp. stalked crinoid, and *Enypniastes eximia* holothurian. Moving up the wall, the slope shallowed to another sedimented area where an *Argonauta* egg case, a ctenophore, several halosaurs, an asteroid, a corallimorpharian and a *Coryphaenoides* macrourid were observed.  The canyon wall steepened again as the ROV continued ascent. Sparse fauna dominated by a few Euplectellidae sp. sponges led to a section of wall with thousands of Euplectellidae sponges, as well as areas of large coral colonies (Isididae spp., Chrysogorgiidae spp., *Anthomastus/Pseudoanthomastus*? sp., *Corallium* sp., and solitary cup corals) apparently restricted to projections and corners (likely areas of elevated current flow). Many of these corals supported associated shrimp, brisingid asteroids, zoanthids, hydroids, scalpellid barnacles, chirostylid squat lobsters, and Antedonidae spp. featherstars. Bathycrinidae occurred in greater numbers higher up the slope. A notable observation made here was a live larvacean (*Bathochordaeus*? sp.).  Closer to the top of the canyon wall (2180 m), a heavily sedimented area on a much shallower slope supported a surprisingly sparse fauna, including only a few deposit feeders (*Bathyplotes abyssicola* holothurian), as well as sponges (Euretidae sp. and Pheronematidae sp.), cerianthids, and a fantastic polychaete (?Onuphidae), which had incorporated a number of pteropod shells into its tube. The geology along the upper edge of the wall was particularly dramatic, and consisted of several large, heavily pitted, carbonate structures. Unfortunately, we also observe a large amount of marine debris (numerous gaskets, two plastic bags, a bucket, a Danish cookie tin, a can, two glass bottles, and a fluorescent tube) throughout the dive. | | | |
| Overall Map of the ROV Dive Area | | | Close-up Map of Main Dive Site | | |
| /Volumes/PublicData/cruises/EX1711/DiveSummaries/HypackScreenGrabs/DIVE02_Hypack_wide.JPG | | | /Volumes/PublicData/cruises/EX1711/DiveSummaries/HypackScreenGrabs/DIVE02_Hypack_zoom.JPG | | |
| Representative Photos of the Dive | | | | | |
| \\192.168.4.201\CruiseData\EX1711\Imagery\EX1711_DIVE02_20171201\EX1711_IMG_20171201T152539Z_ROVHD.jpg | | |  | | |
| Sediment-veneered, fractured blocky limestone with a ferromanganese crust at the base of the lower escarpment in 2,321 m. Two glass sponges, including Euplectellidae (slender pale tube), are visible at lower right. | | | The bony-eared assfish, *Acanthonus armatus* (Ophidiidae), on a muddy bottom in2,283 m. | | |
| C:\Users\messingc\Documents\NOAA\NOAA Okeanos Nov-Dec 2017\EX1711 Dive 2 1 Dec 2017\Anthomastus with aplacophoran Dive 2 1 Dec 2017 EX1711.jpg | | |  | | |
| A soft coral, either *Pseudoanthomastus* sp. or *Anthomastus* sp. (Alcyoniidae), on a vertical wall in 2,254 m. The mustard-colored worm coiled around the coral is an unidentified aplacophoran mollusk. | | | Giant gooseneck barnacles (Scalpellidae) on a dead octocoral colony, with slender-branched bamboo coral (Isididae) on either side on an escarpment wall in 2,221 m. | | |
|  | | |  | | |
| Samples Collected | | | | | |
| Sample | | | | | |
| Sample ID | EX1711\_20171201T154009\_D2\_DIVE02\_SPEC01BIO | | X:\EX1711\Imagery\EX1711_DIVE02_20171201\EX1711_IMG_20171201T153757Z_ROVHD.jpg | | |
| Date (UTC) | 20171201 | |  | | |
| Time (UTC) | 154009 | |  | | |
| Depth (m) | 2312.58 | |  | | |
| Temperature (°C) | 4.35 | |  | | |
| Field ID(s) | Cladorhizidae sp (Sponge) | |  | | |
| Commensal ID and Field Identification | Polychaeta N=2 | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171201T180514\_D2\_DIVE02\_SPEC02BIO | | X:\EX1711\Imagery\EX1711_DIVE02_20171201\EX1711_IMG_20171201T180222Z_ROVHD.jpg | | |
| Date (UTC) | 20171201 | |  | | |
| Time (UTC) | 180514 | |  | | |
| Depth (m) | 2224.74 | |  | | |
| Temperature (°C) | 4.35 | |  | | |
| Field ID(s) | Euplectellidae sp (Sponge) | |  | | |
| Commensal ID and Field Identification | none | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171201T183013\_D2\_DIVE02\_SPEC03BIO | | X:\EX1711\Imagery\EX1711_DIVE02_20171201\EX1711_IMG_20171201T181404Z_ROVHD.jpg | | |
| Date (UTC) | 20171201 | |  | | |
| Time (UTC) | 183013 | |  | | |
| Depth (m) | 2219.84 | |  | | |
| Temperature (°C) | 4.35 | |  | | |
| Field ID(s) | Isididae, maybe *Caribisis* sp (bamboo coral) | |  | | |
| Commensal ID and Field Identification | none | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171201T190455\_D2\_DIVE02\_SPEC04BIO | | X:\EX1711\Imagery\EX1711_DIVE02_20171201\EX1711_IMG_20171201T190231Z_ROVHD.jpg | | |
| Date (UTC) | 20171201 | |  | | |
| Time (UTC) | 190455 | |  | | |
| Depth (m) | 2211.35 | |  | | |
| Temperature (°C) | 4.34 | |  | | |
| Field ID(s) | *Corallium* sp. (precious coral) | |  | | |
| Commensal ID and Field Identification | none | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171201T192027\_D2\_DIVE02\_SPEC05BIO | | *X:\EX1711\Imagery\EX1711_DIVE02_20171201\EX1711_IMG_20171201T190907Z_ROVHD.jpg* | | |
| Date (UTC) | 20171201 | |  | | |
| Time (UTC) | 192027 | |  | | |
| Depth (m) | 2209.32 | |  | | |
| Temperature (°C) | 4.36 | |  | | |
| Field ID(s) | Bathycrinidae (crinoid) | |  | | |
| Commensal ID and Field Identification | Antedonidae (feather star) N=1  solitary hydroid N=1  Sabellidae N=1  juvenile feather star N=1 | | | | |
| Comments |  | | | | |

# Please direct inquiries to:

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