*Okeanos Explorer* ROV Dive Summary

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| --- | --- | --- | --- | --- | --- |
| Dive Information | | | | | |
| General Location | |  | | | |
| General Area Descriptor | | Gulf of Mexico | | | |
| Site Name | | Smooth Escarpment Ridge | | | |
| 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 | | DIVE06 | | | |
| 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\_DIVE06  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^  In Water: 2017-12-05T13:42:24.015000  28°, 00.318' N ; 086°, 26.536' W  Out Water: 2017-12-05T21:29:51.081000  N/A ; N/A  Off Bottom: 2017-12-05T20:30:35.621000  28°, 00.392' N ; 086°, 26.245' W  On Bottom: 2017-12-05T14:55:11.008000  28°, 00.222' N ; 086°, 26.391' W  Dive duration: 7:47:27  Bottom Time: 5:35:24  Max. depth: 2095.9 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 | | Asako Matsumoto | Planetary Exploration Research Center, Chiba Institute of Technology | amatsu@gorgonian.jp | | Amy Baco-Taylor | Florida State University | abacotaylor@fsu.edu | | Charles Messing | Nova Southeastern University | messingc@nova.edu | | Christopher Mah | Dept of Invertebrate Zoology, NMNH Smithsonian | brisinga@gmail.com | | Diva Amon | Natural History Museum, London | divaamon@gmail.com | | Enrique Salgado | NCCOS | enrique.salgado@noaa.gov | | Heather Judkins | University of South Florida St. Petersburg | Judkins@mail.usf.edu | | Kevin Rademacher | NOAA/NMFS/MS Labs | kevin.r.rademacher@noaa.gov | | Kimberly Galvez | University of Miami | kgalvez@rsmas.miami.edu | | Lauren Jackson | NCEI-Stennis | Lauren.Jackson@noaa.gov | | Les Watling | University of Hawaii at Manoa | watling@hawaii.edu | | Meagan Putts | University of Hawaii | meagan.putts@noaa.gov | | Megan McCuller | Southern Maine Community College | mccullermi@gmail.com | | Nolan Barrett | Harbor Branch Oceanographic Institute at Florida Atlantic University | barrettnh@g.cofc.edu | | Rachel Bassett | NOAA NCCOS DCEL | rachel.bassett@noaa.gov | | Robert Carney | Oceanography and Marine Sciences, LSU | rcarne1@lsu.edu | | Scott France | University of Louisiana at Lafayette | france@louisiana.edu | | Steve Auscavitch | Temple University | steven.auscavitch@temple.edu | | Tina Molodtsova | Shirshov Institute of Oceanology RAS | tina@ocean.ru | | Tracey Sutton | Nova Southeastern University | tsutton1@nova.edu | | William Kiene | NOAA Office of National Marine Sanctuaries | William.Kiene@noaa.gov | | Daniel Warren | P&C Scientific, LLC | daniel.warren@pandcscientific.com | | | | |
| Purpose of the Dive | | The dive was one of an exploratory pair that compared the geology and associated communities in 1800-2300 m at the northern end of the West Florida Escarpment. This second dive explored where the escarpment is very steep as a result of reduced promontories. ROV exploration of these features aided our understanding of the geological structure and origin of this area. Additionally, these exposed areas of hard substrate hosted deep-water sessile communities, for which we collected baseline data on their distribution, abundance, diversity, biogeography and connectivity. | | | |
| Description of the Dive | | **Description of the Dive**  EX1711 Dive 6 was at ‘Smooth Escarpment Ridge’ on the northern edge of the West Florida Escarpment. The dive track climbed a very steep slope, which consisted of mostly exposed hard substrate and hosted diverse and abundant sessile communities.  On touchdown at 2091 m, the slope (50-60°) was sedimented with a number of gullies, concretions and outcrops. We observed the fishes *Aldrovandia* sp., a Bythitidae sp., a *Monomitopus* sp. and an *Acanthonus armatus*, a variety of cnidarians (*Bathypathes* sp., a Ceriantharia sp., an Actiniaria sp., Isididae sp., ?*Anthomastus*/ *Pseudanthomastus* sp., solitary cup corals), sponges (Farreidae sp., Cladorhizidae sp. Geodiidae sp., *Polymastia* sp., *Hyalonema* sp., and *Saccocalyx* sp.), and crustaceans (Scalpellidae sp. and *Nematocarcinus* sp).  Continuing upslope, the terrain changed to a near-vertical ferromanganese-encrusted cliff wall (85° slope), which coincided with an increase in benthic abundance and diversity, including *Corallium* sp., *Metallogorgia melanotrichos* with commensal *Ophiocreas* sp., *Iridogorgia* sp., *Acanthogorgia* sp., *Lepidisis* sp., and *Candidella imbricata* with commensal polychaetes. We observed a curved, thin upright outcrop, where the crust acted as a trap for debris, including large ferromanganese-encrusted coral skeletons falling from further upslope. We also observed Hexactinellidae spp., but few fish or crustaceans.  As the ROV ascended the cliff, we observed a number of exposed plateaus supporting spectacular sessile communities consisting of *Iridogorgia splendens*, *Chrysogorgia* sp., Isididae sp., *Enallopsammia rostrata*, *Candidella gigantea* with commensal euryalids, *Victorgorgia* sp., *Paramuricea* sp., *Swiftia* sp. and *Paragorgia* sp. Sponges included Farreidae sp., *Polymastia* sp., *Amphidiscella* sp., and Cladorhizidae sp. Antipatharians included abundant *Heteropathes americana*, *Telopathes* sp. *Stichopathes* sp., *Parantipathes* sp., and *Bathypathes* sp. The abundance of crinoids was surprising, with taxa belonging to 6-7 families: Hyocrinidae (1 likely new species—the first record of this family from the tropical western Atlantic), Bathycrinidae (possibly *Monachocrinus caribbeus*), Bourgueticrinidae (*Democrinus* sp.), Thalassometridae (probably *Thalassometra* n. sp.), Charitometridae (*Crinometra brevipinna*), Antedonidae (1-2 species), and possibly Pentametrocrinidae (?*Thaumatocrinus* sp.). Many of the stalked crinoids had commensals, which included featherstars and *Amathillopsis* sp. amphipods on the stalks.  Notable benthic observations included an ‘adolescent’ *Metallogorgia* sp., a dandelion siphonophore, two asteroids (*Hymenaster* sp. and a *Henricia* sp.). and a number of *Circeaster* sp. or *Astroceramus* sp. asteroids consuming octocorals. | | | |
| Overall Map of the ROV Dive Area | | | Close-up Map of Main Dive Site | | |
| /Volumes/PublicData/cruises/EX1711/DiveSummaries/HypackScreenGrabs/DIVE06_Hypack_wide.JPG | | | /Volumes/PublicData/cruises/EX1711/DiveSummaries/HypackScreenGrabs/DIVE06_Hypack_zoom.JPG | | |
| Representative Photos of the Dive | | | | | |
|  | | |  | | |
| Long slender glass sponges (Farreidae), a yellow demosponge, and feather stars (Thalassometridae n. sp.) on an irregular, deeply eroded knee projecting from a near vertical wall at a depth of 1,932 m. | | | An unidentified octocoral (later identified likely as the stoloniferan *Clavularia rudis*) that defied collection, growing out of the flat top of an enormous, sediment-veneered apparent slump block, accompanied by *Stichopathes* sp. whips, numerous Bathycrinidae, and at least two species of bamboo corals (Isididae), one unbranched and one branched. The latter was accompanied by an asteroschematid ophiuroid and a thalassometrid feather star. Depth: 1,887 m. | | |
|  | | |  | | |
| *Ophiocreas* sp. snake star among one of several clusters of polyp-bearing branches along the central stalk of an “adolescent” *Metallogorgia* sp. More mature colonies have a terminal shallow umbrella of polyp-bearing branches with no polyps along the central stalk. Depth: 1,805 m. | | | Dense assemblage of antipatharians (including large *Parantipathes* sp., center, with chirostylid), octocorals (including Isididae sp. whips and Plexauridae), and crinoids (yellow Thalassometridae n. sp. feather stars and stalked Bathycrinidae), on an elevated, lithified, sediment-veneered mound at a depth of 1,716 m. | | |
|  | | |  | | |
| Samples Collected | | | | | |
| Sample | | | | | |
| Sample ID | EX1711\_20171205T152021\_D2\_DIVE06\_SPEC01GEO | | C:\EX_SODA\div6\EX1711_IMG_20171205T151825Z_D2_DIVE06_SPEC01GEO_02.jpg | | |
| Date (UTC) | 20171205 | |  | | |
| Time (UTC) | 152021 | |  | | |
| Depth (m) | 2092.08 | |  | | |
| Temperature (°C) | 4.3 | |  | | |
| Field ID(s) | Carbonate rock | |  | | |
| Commensal ID and Field Identification | none | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171205T170503\_D2\_DIVE06\_SPEC02BIO | | C:\EX_SODA\div6\EX1711_IMG_20171205T165421Z_ROVHD.jpg | | |
| Date (UTC) | 20171205 | |  | | |
| Time (UTC) | 170503 | |  | | |
| Depth (m) | 1963.33 | |  | | |
| Temperature (°C) | 4.28 | |  | | |
| Field ID(s) | Isididae | |  | | |
| Commensal ID and Field Identification | none | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171205T181526\_D2\_DIVE06\_SPEC03GEO | | C:\EX_SODA\div6\EX1711_IMG_20171205T180703Z_ROVHD.jpg | | |
| Date (UTC) | 20171205 | |  | | |
| Time (UTC) | 181526 | |  | | |
| Depth (m) | 1892.64 | |  | | |
| Temperature (°C) | 4.28 | |  | | |
| Field ID(s) | Fossilized coral | |  | | |
| Commensal ID and Field Identification | Stephanoscyphus (Cnidarian) N=1 | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171205T195715\_D2\_DIVE06\_SPEC04BIO | | C:\EX_SODA\div6\EX1711_IMG_20171205T195101Z_ROVHD.jpg | | |
| Date (UTC) | 20171205 | |  | | |
| Time (UTC) | 195715 | |  | | |
| Depth (m) | 1750.19 | |  | | |
| Temperature (°C) | 4.28 | |  | | |
| Field ID(s) | Crinoid Thalassometridae sp | |  | | |
| Commensal ID and Field Identification | Isididae N=1 | | | | |
| Comments |  | | | | |

# Please direct inquiries to:

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