*Okeanos Explorer* ROV Dive Summary

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| --- | --- | --- | --- | --- | --- |
| Dive Information | | | | | |
| General Location | |  | | | |
| General Area Descriptor | | Gulf of Mexico | | | |
| Site Name | | Long Mounds | | | |
| 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 | | DIVE04 | | | |
| 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\_DIVE04  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^  In Water: 2017-12-03T13:38:50.990000  26°, 26.655' N ; 084°, 45.713' W  Out Water: 2017-12-03T21:34:32.014000  26°, 26.836' N ; 084°, 45.711' W  Off Bottom: 2017-12-03T21:19:21.226000  26°, 26.841' N ; 084°, 45.739' W  On Bottom: 2017-12-03T13:55:01.715000  26°, 26.688' N ; 084°, 45.647' W  Dive duration: 7:55:41  Bottom Time: 7:24:19  Max. depth: 413.6 m | | | |
| Special Notes | | none | | | |
| Scientists Involved  (please provide name, location, affiliation, email) | | |  |  |  | | --- | --- | --- | | **Name** | **Affiliation** | **Email** | | Alexandra Avila | Oregon State University / Nancy Foster Scholar (ONMS) | alexandra.m.avila@gmail.com | | 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 | | Charles Messing | Nova Southeastern University | messingc@nova.edu | | Christopher Mah | Dept of Invertebrate Zoology, NMNH Smithsonian | brisinga@gmail.com | | Christopher Kelley | University of Hawaii | ckelley@hawaii.edu | | Diva Amon | Natural History Museum, London | divaamon@gmail.com | | Jaymes Awbrey | University of Louisiana - Lafayette | jawbrey@louisiana.edu | | Kenneth Sulak | USGS | ksulak@usgs.gov | | Kevin Rademacher | NOAA/NMFS/MS Labs | kevin.r.rademacher@noaa.gov | | Lauren Jackson | NCEI-Stennis | Lauren.Jackson@noaa.gov | | Les Watling | University of Hawaii at Manoa | watling@hawaii.edu | | Megan McCuller | Southern Maine Community College | mccullermi@gmail.com | | Robert Carney | Oceanography and Marine Sciences, LSU | rcarne1@lsu.edu | | Sandra Brooke | Florida State University | sbrooke@fsu.edu | | Scott France | University of Louisiana at Lafayette | france@louisiana.edu | | 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 dive targeted an area proposed by the Gulf of Mexico Fishery Management Council as a new Habitat Area of Particular Concern (HAPC). The area showed high habitat suitability for deep-sea corals in models. Therefore, the primary objective of this dive was to acquire baseline information on the distribution and abundance of benthic fauna, in particular corals and sponges. By beginning in a valley, climbing an escarpment and then crossing the exposed top edge, the dive encountered a variety of benthic habitats. This dive generated information on the distribution, diversity, and habitat use of these communities, which have management implications. | | | |
| Description of the Dive | | EX1711 Dive 4 was at ‘Long Mounds’ on the West Florida Escarpment. As a relatively shallow dive (from 410 m to 383 m) the fauna differed from deeper habitats and included a high diversity of fish species. The ROV descended into a heavily-sedimented valley, where we observed *Steindachneria argentea*, *Helicolenus dactylopterus* (blackbelly rosefish), Epigonidae sp. (deepwater cardinalfish), Scorpaenidae sp., *Illex* sp. (shortfin squid), Triglidae sp. (armored searobins), and *Chaunax* sp. among fishes, and Eumunididae sp., hermit crabs inhabiting scaphopod shells, cirripedes, ophiuroids, shrimp, solitary cup corals and *Cidaris rugosa*.  At this point, the ship’s dynamic positioning system began to malfunction. To minimize risk to the ROVs, they were raised well above bottom, where they remained for almost 45 minutes. During this time, we observed coronate jellies, pyrosomes, larvaceans, siphonophores and ctenophores, including *Eurhamphaea* sp.  Once the ROVs returned to the seafloor, a toe-like section of the carbonate escarpment was explored. The exposed carbonate rock hosted many different species of small encrusting sponges including *Poecillastra* sp., Rossellidae sp., and *Acanthascus* sp. Other invertebrate taxa included solitary cup corals, asteroids, ophiuroids, featherstars, *Stichopus* sp. holothurians, Serpulidae sp., hydroids, cyclostome bryozoans, *Crypthelia*? sp. Stylasteridae, Plexauridae sp., and *Eumunida picta*. Fishes included Scorpaenidae sp., Ogcocephalidae sp., Pleuronectiformes sp., *Anthias woodsi* (reflecting the shallow depth of this dive), as well as a large school of *Gephyroberyx darwini*, a commercially targeted fish.  At the upper crest of the escarpment, benthic communities appeared to increase in density and diversity, perhaps due to increasing current, and included many corals, e.g., isidids (*Craterisis* sp.?), *Muriceopsis* sp., solitary cup corals, and *Leiopathes* sp. black corals. Many large colonies hosted commensal ophiuroids (Ophiacanthidae sp. and Asteroschematidae sp.). Other species observed among the corals included *Helicolenus dactylopterus* (blackbelly rosefish), Scorpaenidae sp., *Stichopus* sp. holothurian, a two-toned sponge, and many pterobranchs (possibly *Cephalodiscus* sp.).  The ROV crested the escarpment onto an eroded pavement that was partially sedimented and proceeded westward. Numerous suspension feeders on rock outcrops included *Aphrocallistes* sp. hexactinellids, and many large Isididae sp. and Plexauridae sp. corals. Other species included *Stichopus* sp., *Gracilechinus gracilis, Laemonema barbatulum* and Lophiidae sp. goosefish.  Notable benthic observations included a Congridae sp. eel that captured and ate a Serranidae sp., a glimpse of a swordfish, a very shallow xenophyophore (382 m) and a young Gorgonocephalidae sp. | | | |
| Overall Map of the ROV Dive Area | | | Close-up Map of Main Dive Site | | |
|  | | | ../HypackScreenGrabs/DIVE04_Hypack_zoom.JPG | | |
| Representative Photos of the Dive | | | | | |
|  | | |  | | |
| Several Darwin’s slimeheads (*Gephyroberyx darwinii*), a commercially important species, around a deeply eroded, karstic limestone outcrop at a depth of 394 m. | | | A pterobranch hemichordate colony (?*Cephalodiscus* sp.) on a small limestone cobble at a depth of 384 m. Individual zooids are tethered together by slender stalks that arise from a common mat. Unlike most other pterobranchs, the zooids climb up the outside of slender collagenous stalks rather than inside tubes in order to suspension feed. | | |
|  | | |  | | |
| Bamboo corals (Isididae) on a limestone rubble field at a depth of 380.5 m. | | | An apparent xenophyophore on a sediment substrate at the unusually shallow, for this group, depth of 382 m. | | |
|  | | |  | | |
| Samples Collected | | | | | |
| Sample | | | | | |
| Sample ID | EX1711\_20171203T180022\_D2\_DIVE04\_SPEC01BIO | |  | | |
| Date (UTC) | 20171203 | |  | | |
| Time (UTC) | 180022 | |  | | |
| Depth (m) | 401.79 | |  | | |
| Temperature (°C) | 9.61 | |  | | |
| Field ID(s) | Stylasteridae | |  | | |
| Commensal ID and Field Identification | Feather star N=1  Anemone N=1  Ophiuroidea legs (only a pair of legs); different species then the feather star  Amphipoda N=1  Scale worm N=1 | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171203T192012\_D2\_DIVE04\_SPEC02BIO | | C:\Users\ship.user\Desktop\report\EX1711_IMG_20171203T191759Z_ROVHD.jpg | | |
| Date (UTC) | 20171203 | |  | | |
| Time (UTC) | 192012 | |  | | |
| Depth (m) | 381.14 | |  | | |
| Temperature (°C) | 9.74 | |  | | |
| Field ID(s) | Pterobranchia sp. | |  | | |
| Commensal ID and Field Identification | Porifera N=1  Octocorallia N=1  Limestone rock N=1  Porifera B (different species) N=1 | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171203T203553\_D2\_DIVE04\_SPEC03BIO | | C:\Users\ship.user\Desktop\report\EX1711_IMG_20171203T202341Z_ROVHD.jpg | | |
| Date (UTC) | 20171203 | |  | | |
| Time (UTC) | 203553 | |  | | |
| Depth (m) | 383.36 | |  | | |
| Temperature (°C) | 9.9 | |  | | |
| Field ID(s) | Isididae | |  | | |
| Commensal ID and Field Identification | None | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171203T210200\_D2\_DIVE04\_SPEC04BIO | | C:\Users\ship.user\Desktop\report\EX1711_IMG_20171203T205056Z_ROVHD.jpg | | |
| Date (UTC) | 20171203 | |  | | |
| Time (UTC) | 210200 | |  | | |
| Depth (m) | 383.2 | |  | | |
| Temperature (°C) | 9.92 | |  | | |
| Field ID(s) | Octocorallia | |  | | |
| Commensal ID and Field Identification | Solitary cup coral N=1  Barnacle (juvenile) N=1 | | | | |
| Comments |  | | | | |

# Please direct inquiries to:

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