*Okeanos Explorer* ROV Dive Summary

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| --- | --- | --- | --- | --- | --- |
| Dive Information | | | | | |
| General Location | |  | | | |
| General Area Descriptor | | Gulf of Mexico | | | |
| Site Name | | South Reed | | | |
| Science Team Leads | | Diva Amon and Charles Messing | | | |
| Expedition Coordinator | | Brian RC Kennedy | | | |
| ROV Dive Supervisor | | Dan Rogers | | | |
| Mapping Lead | | Mike White | | | |
| ROV Dive Name | | | | | |
| Cruise | | EX1711 | | | |
| Leg | | - | | | |
| Dive Number | | DIVE01 | | | |
| 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\_DIVE01  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^  In Water: 2017-11-30T15:16:09.587000  24°, 38.970' N ; 083°, 54.723' W  Out Water: 2017-11-30T21:31:40.184000  24°, 39.435' N ; 083°, 54.393' W  Off Bottom: 2017-11-30T21:07:14.068000  24°, 39.393' N ; 083°, 54.475' W  On Bottom: 2017-11-30T15:58:16.778000  24°, 39.093' N ; 083°, 54.619' W  Dive duration: 6:15:30  Bottom Time: 5:8:57  Max. depth: 817.0 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 | | Amanda Netburn | NOAA/CIOERT | amanda.netburn@noaa.gov | | Andrea Quattrini | Harvey Mudd College | aquattrini@g.hmc.edu | | Asako Matsumoto | Planetary Exploration Research Center, Chiba Institute of Technology | amatsu@gorgonian.jp | | Baco-Taylor Amy | 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 | | Daniel Wagner | NOAA | daniel.wagner@noaa.gov | | Diva Amon | Natural History Museum, London | divaamon@gmail.com | | Elizabeth Gugliotti | College of Charleston | gugliottief@g.cofc.edu | | Erik Cordes | Temple University | ecordes@temple.edu | | George Matsumoto | MBARI | mage@mbari.org | | Heather Judkins | University of South Florida St. Petersburg | Judkins@mail.usf.edu | | 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 | | Lauren Jackson | NCEI-Stennis | Lauren.Jackson@noaa.gov | | Les Watling | University of Hawaii at Manoa | watling@hawaii.edu | | Marsh Youngbluth | HBOI/FAU | youngbluth@yahoo.com | | 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 | | Michael Vecchione | NOAA/NMFS National Systematics Lab | vecchiom@si.edu | | 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 | | Stephanie Farrington | Harbor Branch Oceanographic Inst | sfarrington@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 | | 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 | | | | |
| 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 climbing two escarpments and crossing a terrace, the dive encountered a variety of benthic habitats and communities. This dive generated information on the distribution, diversity, and habitat use of these communities. | | | |
| Description of the Dive | | EX1711 Dive 1 was at ‘South Reed’, a site located in an area proposed as a Habitat of Particular Concern southwest of Florida. The ROV descended to the base of an escarpment at 816 m, where it immediately encountered a sedimented seafloor and a large school of *Illex* sp. (shortfin squid), which remained present throughout the dive. Numerous dead squid were noted in the area, some of which had been pulled into burrows, which suggested that this was a mating aggregation with subsequent die-off. This area also hosted several species of decapods: *Acanthacaris caeca* (blind white lobster) and *Bathynomus giganteus* (giant isopod), both with accompanying burrows, and *Nematocarcinus* sp. shrimp. Additional decapods—*Chaceon fenneri* (golden crab), *C. quinquedens* (red crab), and royal red shrimp (*Pleoticus robustus*)—highlighted the importance of the area for these commercially-fished species. Fish species observed in the sedimented areas included Congridae sp. eels, *Nezumia* sp. rattails, Bythitidae sp. cusk eels, *Cyclothone* sp. birstlemouths, *Aldrovandia* sp. halosaurs, and *Bathypterois* sp. tripod fish. A highlight included a brief visit from a hammerhead shark.  The first escarpment consisted of a lightly ferromanganese-encrusted carbonate, which hosted several species of bryozoans, octocorals with commensals (*Acanella* sp. isidids, *Plumarella* sp. primnoids, Paramuricea sp. plexaurids, *Pseudoanthomastus* sp., and *Swiftia* sp.); black corals with commensals (*Stichopathe*s sp., *Bathypathes* sp., *Alternatipathes* sp.); zoanthids and demosponges (*Polymastia* sp. and an unknown blue species). The hard substrate on this escarpment quickly transitioned into a sedimented slope. Several *Chondrocladia verticillata* cladorhizid sponges (a poorly known species in this area) and a potential new record for the area and new species, *Abyssocladia* cladorhizid, were observed. Additional observations included a small number of cerianthid tube anemones, gonasterid seastar, potential beaked whale scour marks and two pieces of marine debris (a piece of canvas and a bag).  Increasing amounts of coral rubble appeared upslope and transitioned into an area of sediment-veneered hard substrate with small patches of dead *Lophelia* sp. coral. An increasing slope indicated the beginning of the second escarpment, which was inhabited by live patches of the *Lophelia pertusa* (some with commensal eunicid polychaetes) and several colonies of *Madrepora oculata.* The community became more diverse and dense further upslope, and also included *Acanthogorgia* sp., *Paramuricea* sp., and *Pseudoanthomastus* sp. octocorals, and solitary scleractinian cup corals, many of which hosted commensals (featherstars, shrimp, chirostylid squat lobsters, and polynoid polychaetes). Additional organisms included antipatharian black corals, including *Stichopathes* sp., a potentially new species of cladorhizid sponge, several *Saccocalyx* hexactinellids, three white hake, and a “walking” octopus, *Muusoctopus januarrii*. The geology along the upper edge of the second escarpment was particularly dramatic, and consisted of several small walls of carbonate. The local high of the escarpment (645 m) was a flat terrace predominantly inhabited by a high density of three species of black corals. | | | |
| Overall Map of the ROV Dive Area | | | Close-up Map of Main Dive Site | | |
| ../HypackScreenGrabs/DIVE01_Hypack_wide.JPG | | | ../HypackScreenGrabs/DIVE01_Hypack_zoom.JPG | | |
| Representative Photos of the Dive | | | | | |
|  | | |  | | |
| A chirostylid squat lobster on a chiefly dead *Paramuricea* sp. fan mostly overgrown with a yellow colonial anemone (Zoanthidea), growing on a vertical, eroded face on the lower escarpment in 773.5 m. | | | A pair of blind lobsters, *Acanthacaris caeca*, at the entrance to their tunnel burrow on a muddy platform between escarpments in 722 m. | | |
|  | | | \\192.168.4.201\CruiseData\EX1711\Imagery\EX1711_DIVE01_20171130\EX1711_IMG_20171130T210409Z_ROVHD.jpg | | |
| ROV *Deep Discoverer* sampling on the steep second escarpment in 646 m. The stony coral, *Madrepora oculata* (with commensal *Eunice* sp.), collected here also included a new species of carnivorous sponge (*Abyssocladia* sp.), chrysogorgiid, hydroids, ophiuroid, astrorhizacean foraminiferans, and a solitary coral. | | | Dead *Illex* sp. (shortfin squid) in a field of orange antipatharian corkscrew whips (*Stichopathes* sp.) on a sediment-veneered pavement at the escarpment crest in 644 m. The large schools and scattered individual living squid (including some resting on the seafloor), and the numerous dead squid, all encountered throughout the dive, suggest that this was a mating aggregation with subsequent die-off. | | |
|  | | |  | | |
| Samples Collected | | | | | |
| Sample | | | | | |
| Sample ID | EX1711\_20171130T172531\_D2\_DIVE01\_SPEC01BIO | | X:\EX1711\Imagery\EX1711_DIVE01_20171130\EX1711_IMG_20171130T171159Z_ROVHD.jpg | | |
| Date (UTC) | 20171130 | |  | | |
| Time (UTC) | 172531 | |  | | |
| Depth (m) | 790.0 | |  | | |
| Temperature (°C) | 6.080 | |  | | |
| Field ID(s) | LACE BRYOZOAN | |  | | |
| Commensal ID and Field Identification | none | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171130T182054\_D2\_DIVE01\_SPEC02BIO | | X:\EX1711\Imagery\EX1711_DIVE01_20171130\EX1711_IMG_20171130T181205Z_ROVHD.jpg | | |
| Date (UTC) | 20171130 | |  | | |
| Time (UTC) | 182054 | |  | | |
| Depth (m) | 734.94 | |  | | |
| Temperature (°C) | 6.12 | |  | | |
| Field ID(s) | carnivorous sponge *Chondrocladia* sp. | |  | | |
| Commensal ID and Field Identification | Polynoidae N=2  Ophiuroidea N=1 | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171130T195641\_D2\_DIVE01\_SPEC03BIO | | X:\EX1711\Imagery\EX1711_DIVE01_20171130\EX1711_IMG_20171130T194932Z_ROVHD.jpgp | | |
| Date (UTC) | 20171130 | |  | | |
| Time (UTC) | 195641 | |  | | |
| Depth (m) | 699.53 | |  | | |
| Temperature (°C) | 6.91 | |  | | |
| Field ID(s) | black coral (Antipatharia) | |  | | |
| Commensal ID and Field Identification | none | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171130T201106\_D2\_DIVE01\_SPEC04BIO | | X:\EX1711\Imagery\EX1711_DIVE01_20171130\EX1711_IMG_20171130T200536Z_ROVHD.jpg | | |
| Date (UTC) | 20171130 | |  | | |
| Time (UTC) | 201106 | |  | | |
| Depth (m) | 692.49 | |  | | |
| Temperature (°C) | 6.92 | |  | | |
| Field ID(s) | purple *Acanthogorgia* coral | |  | | |
| Commensal ID and Field Identification | none | | | | |
| Comments |  | | | | |
| **Sample** | | | | | |
| Sample ID | EX1711\_20171130T203543\_D2\_DIVE01\_SPEC05BIO | | X:\EX1711\Imagery\EX1711_DIVE01_20171130\EX1711_IMG_20171130T202550Z_ROVHD.jpg | | |
| Date (UTC) | 20171130 | |  | | |
| Time (UTC) | 203543 | |  | | |
| Depth (m) | 676.37 | |  | | |
| Temperature (°C) | 6.95 | |  | | |
| Field ID(s) | Cladorhizidae sponge | |  | | |
| Commensal ID and Field Identification | *Madrepora oculata*  Ophiuroidea  Demospongiae pink sponge  *Bathypsammia* ? Orange cup coral  *Eunice* sp.  Astrorhizacean foraminiferan  Hydroid  Chrysogorgiidae ? | | | | |
| Comments |  | | | | |

# Please direct inquiries to:

NOAA Office of Ocean Exploration & Research  
1315 East-West Highway (SSMC3 10th Floor)  
Silver Spring, MD 20910  
(301) 734-1014