



Okeanos Explorer ROV Dive Summary

Dive Information			
General Location	<p style="text-align: center;">Gulf of Mexico 2017</p>		
	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	<input checked="" type="checkbox"/> CTD	<input checked="" type="checkbox"/> Depth	<input checked="" type="checkbox"/> Altitude

	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	<p>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.</p>		
Description of the Dive	<p>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 <i>Steindachneria argentea</i>, <i>Helicolenus dactylopterus</i> (blackbelly rosefish), Epigonidae sp. (deepwater cardinalfish), Scorpaenidae sp., <i>Illex</i> sp. (shortfin squid), Triglidae sp. (armored searobins), and <i>Chaunax</i> sp. among fishes, and Eumunididae sp., hermit crabs inhabiting scaphopod shells, cirripedes, ophiuroids, shrimp, solitary cup corals and <i>Cidaris</i></p>		



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., Ogocephalidae 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.).

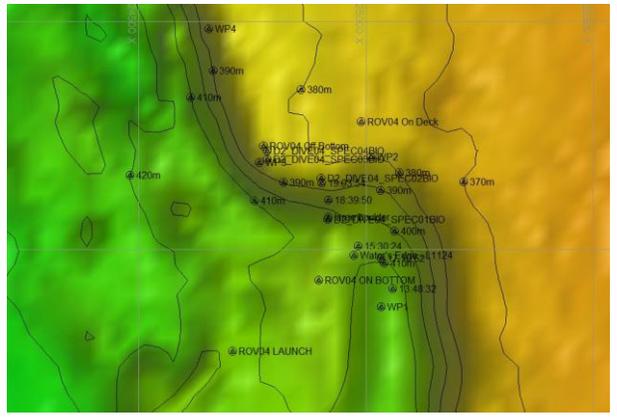
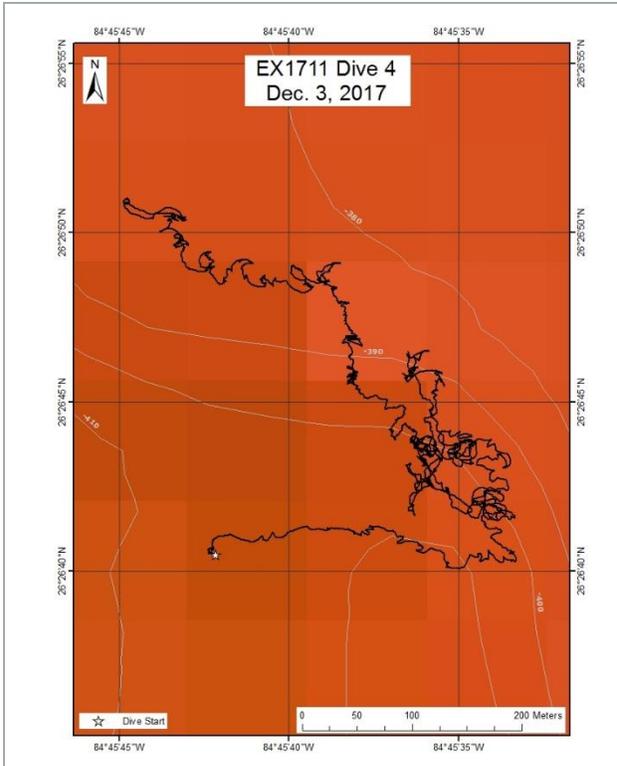
The ROV crested the escarpment onto an eroded pavement that was partially sedimented and proceeded westward. Numerous suspension feeders on rock outcrops included *Aphrocallistes* sp. hexactinellids, and many large Isididae sp. and Plexauridae sp. corals. Other species included *Stichopus* sp., *Gracilechinus gracilis*, *Laemonema barbatulum* and Lophiidae sp. goosfish.

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.

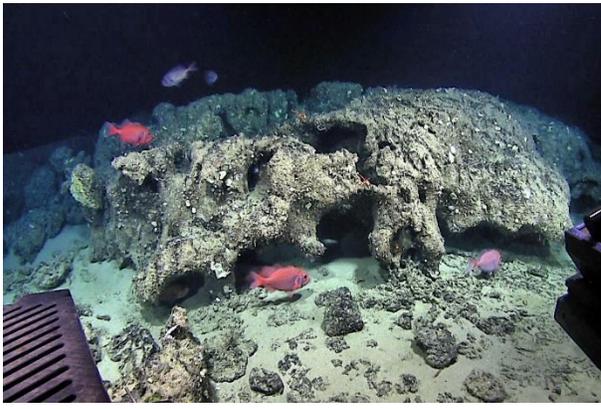
Overall Map of the ROV Dive Area

Close-up Map of Main Dive Site





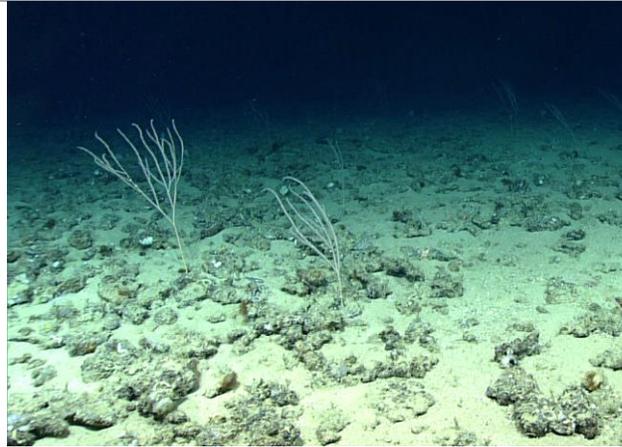
Representative Photos of the Dive



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 (?*Cephelodiscus* 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.

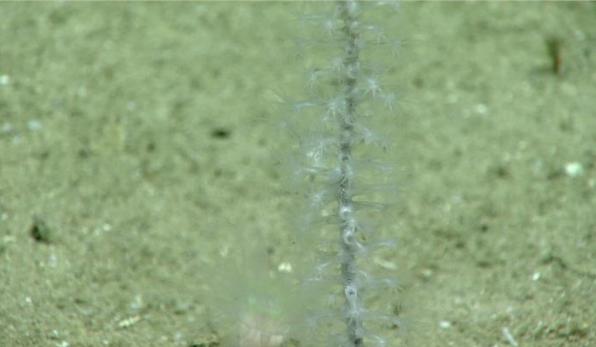
Samples Collected

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 than the feather star	
	Amphipoda N=1	
Comments	Scale worm N=1	

Sample

Sample ID	EX1711_20171203T192012_D2_DIVE04_SPEC02BIO
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	
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	
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:

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

