

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	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	<input checked="" type="checkbox"/> CTD	<input checked="" type="checkbox"/> Depth	<input checked="" type="checkbox"/> Altitude
	<input checked="" type="checkbox"/> Scanning Sonar	<input checked="" type="checkbox"/> USBL Position	<input checked="" type="checkbox"/> Heading
	<input checked="" type="checkbox"/> Pitch	<input checked="" type="checkbox"/> Roll	<input checked="" type="checkbox"/> HD Camera 1
	<input checked="" type="checkbox"/> HD Camera 2	<input checked="" type="checkbox"/> Low Res Cam 1	<input checked="" type="checkbox"/> Low Res Cam 2
	<input checked="" type="checkbox"/> Low Res Cam 3	<input checked="" type="checkbox"/> Low Res Cam 4	<input checked="" type="checkbox"/> Low Res Cam 5
Equipment Malfunctions	none		
ROV Dive Summary (from processed ROV data)	Dive Summary: EX1711_DIVE06		
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	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
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Purpose of the Dive	<p>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.</p>
Description of the Dive	<p>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.</p> <p>On touchdown at 2091 m, the slope (50-60°) was sedimented with a number of gullies, concretions and outcrops. We observed the fishes <i>Aldrovandia</i> sp., a Bythitidae sp., a <i>Monomitopus</i> sp. and an <i>Acanthonus armatus</i>, a variety of cnidarians (<i>Bathypathes</i> sp., a <i>Ceriantharia</i> sp., an <i>Actiniaria</i> sp., Isididae sp., ?<i>Anthomastus/ Pseudanthomastus</i> sp., solitary cup corals), sponges (Farreidae sp., Cladorhizidae sp. Geodiidae sp., <i>Polymastia</i> sp., <i>Hyalonema</i> sp., and <i>Saccocalyx</i> sp.), and crustaceans (<i>Scalpellidae</i> sp. and <i>Nematocarcinus</i> sp).</p> <p>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 <i>Corallium</i> sp., <i>Metallogorgia melanotrichos</i> with commensal <i>Ophiocreas</i> sp., <i>Iridogorgia</i> sp., <i>Acanthogorgia</i> sp., <i>Lepidisis</i> sp., and <i>Candidella imbricata</i> 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.</p> <p>As the ROV ascended the cliff, we observed a number of exposed plateaus supporting spectacular sessile communities consisting of <i>Iridogorgia splendens</i>, <i>Chrysogorgia</i> sp., Isididae sp., <i>Enallopsammia rostrata</i>, <i>Candidella gigantea</i> with commensal euryalids, <i>Victorgorgia</i> sp., <i>Paramuricea</i> sp., <i>Swiftia</i> sp. and <i>Paragorgia</i> sp. Sponges included Farreidae sp., <i>Polymastia</i> sp., <i>Amphidiscella</i> sp., and Cladorhizidae sp. Antipatharians included abundant <i>Heteropathes americana</i>, <i>Telopathes</i> sp. <i>Stichopathes</i> sp., <i>Parantipathes</i> sp., and <i>Bathypathes</i> 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), Bathyrcrinidae (possibly <i>Monachocrinus caribbeus</i>), Bourgueticrinidae (<i>Democrinus</i> sp.), Thalassometridae (probably <i>Thalassometra</i> n. sp.), Charitometridae (<i>Crinometra brevipinna</i>), Antedonidae (1-2 species), and possibly Pentametrocrinidae (? <i>Thaumatocrinus</i> sp.). Many of the stalked crinoids had commensals, which included featherstars and <i>Amathillopsis</i> sp. amphipods on the stalks. Notable benthic observations included an 'adolescent' <i>Metallogorgia</i> sp., a dandelion siphonophore, two asteroids (<i>Hymenaster</i> sp. and a <i>Henricia</i> sp.) and a number of <i>Circeaster</i> sp. or <i>Astroceramus</i> sp. asteroids consuming octocorals.</p>
Overall Map of the ROV Dive Area	Close-up Map of Main Dive Site





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 chirostyliid), 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	
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	
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	
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	
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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