

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	Incised 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	DIVE05
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_DIVE05		
	^.....^		
	In Water:	2017-12-04T13:38:12.065000	
		27°, 21.225' N ; 085°, 26.375' W	
	Out Water:	2017-12-04T23:33:43.108000	
		27°, 21.058' N ; 085°, 25.836' W	
	Off Bottom:	2017-12-04T20:38:36.883000	
		27°, 21.080' N ; 085°, 25.946' W	
	On Bottom:	2017-12-04T14:48:31.630000	
		27°, 21.228' N ; 085°, 26.193' W	
	Dive duration:	9:55:31	
	Bottom Time:	5:50:5	
Max. depth:	2234.5 m		
Special Notes	none		
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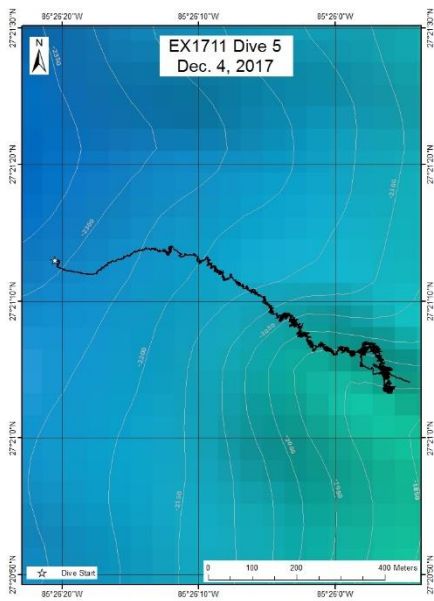


<p>Purpose of the Dive</p>	<p>The dive was one of a comparative pair exploring the geology and associated communities at 1800-2300 m on the northern end of the West Florida Escarpment. This first dive explored the southern section, where the escarpment is marked by promontories. The second dive will survey the northern section of the escarpment, where the promontories are reduced, resulting in steep cliffs. ROV exploration of these features aided our understanding of the geological structure and origin of this area of the Florida Escarpment. Additionally, these pronounced features hosted many deep-water sessile communities, for which we collected baseline data on the distribution, abundance, diversity, biogeography and connectivity. A midwater survey also took place during this dive.</p>
<p>Description of the Dive</p>	<p>EX1711 Dive 5 was at 'Incised Escarpment Ridge' on the northern edge of the West Florida Escarpment. The dive track climbed a consistently steep slope, which surprisingly consisted of both sedimented areas and exposed hard substrate, and which resulted in high species diversity. The dive began on a sedimented slope at 2210 m, where we first observed an <i>Umbellula</i> sp. sea pen, our first for this expedition. We also observed at least three species of holothurian: <i>Benthothuria funebris</i>, <i>Oloughlinius</i> sp. covered in pteropod shells, and <i>Molpadiodemus</i> sp., as well as Nematocarcinidae sp. shrimp, a xenophyophore, a Ceriantharia sp., <i>Ipnops murrayi</i>, <i>Halosauropsis</i> sp., and echiuran feeding tracks. Areas of exposed carbonate rock upslope were colonized by Euplectellidae sp., Geodiidae sp., and large Farreidae sp. sponges, as well as a number of dead glass sponges with extensive communities of Stolonifera sp., Scalpellidae sp. barnacles, Ophiacanthidae sp. ophiuroids, and amphipods growing on the stalks. We also observed a high diversity of cnidarians: <i>Corallimorpharia</i> sp., <i>Anthomastus agassizii</i>, <i>Lepidisis caryophyllia</i>, Isidiidae sp., <i>Chrysogorgia</i> sp., <i>Iridogorgia splendens</i> (with commensal <i>Bathypalaemonella serratipalma</i>), <i>Acanthogorgia</i> sp., <i>Paramuricea</i> sp., <i>Corallium</i> sp., <i>Paragorgia</i> sp., <i>Calyptrophora</i> sp. and <i>Candidella gigantea</i>, among others. The dive ended in a sedimented area with rock outcrops, which hosted <i>Aphrocallistes</i> sp., <i>Polymastia</i> sp., Serpulidae sp., Hyocrinidae sp., Bathyrinidae sp. Stolonifera sp., <i>Candidella</i> sp., <i>Lepidisis</i> sp., and <i>Narella</i> sp. housing commensal Euryalidae sp. ophiuroids. We also observed <i>Acanella</i> sp. octocorals anchored in sediment. Notable observations included parasitic Ascothoracida sp. on a <i>Chrysogorgia</i> sp., a hypnotic swimming Polynoidae sp., predatory tunicate (<i>Megalodicopia</i> sp. or <i>Dicopia</i> sp.), pink Synallactidae sp. holothurian, <i>Neolithodes</i> sp., <i>Hymenaster</i> sp. asteroid, many brooding mysids, an empty dumbo octopus egg case on a stalked crinoid, and an <i>Acanthonus armatus</i> (bony-eared assfish). We conducted midwater exploratory observational transects at four depths (900, 700, 500, 300 m) with the support of remote experts on fishes, crustaceans, gelatinous animals, cephalopods, and bioacoustics, and observed a diverse assemblage of midwater organisms. Appendicularians and chaetognaths were abundant at all depths surveyed. At 900 m, we saw red caridean shrimp and several different species of hydromedusae. While transiting from 900 to 700 m, we observed an undescribed species of ctenophore. At 700 m, we observed several more hydromedusa species, a physonect siphonophore, and the unusual and rarely-imaged appendicularian <i>Kowalevskia</i>. The greatest diversity and biomass of organisms were observed at 500 m, the depth closest to the peak backscatter observed around 440 m in the EK60 data. Organisms included multiple ctenophore species (both lobate and cydippid), protists, a salp chain, a calycophoran siphonophore, and fishes including <i>Cyclothone</i></p>

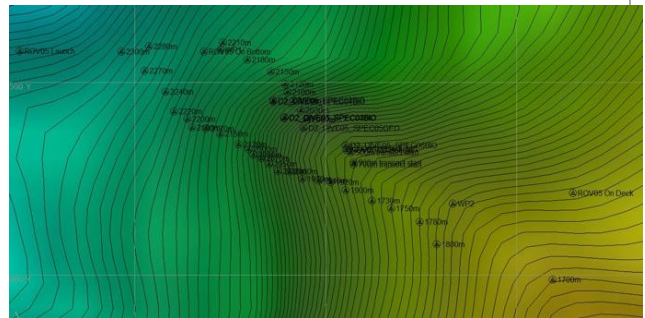


pallida. On the final transect at 300 m, we saw what appeared to be a shrimp on a chain of phaeodorean protists, a *Solmissus* hydromedusa, a solitary salp and a *Praya* siphonophore.

Overall Map of the ROV Dive Area



Close-up Map of Main Dive Site



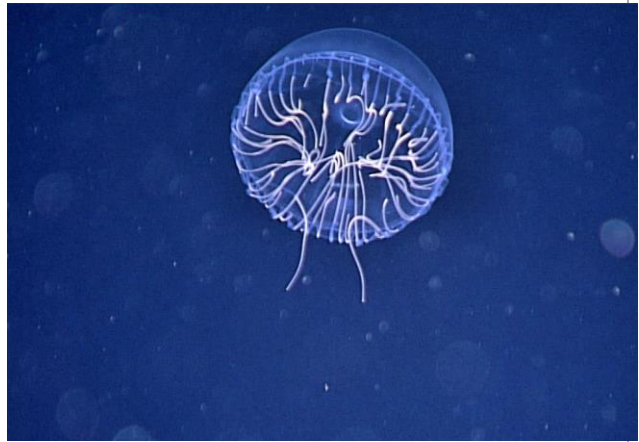
Representative Photos of the Dive



The sea cucumber *Oloughlinius* ?n. sp., which covers itself with thecosome (pteropod) shells, chiefly in the genus *Clio*, on a muddy bottom covered with phytodetritus, at a depth of 2,192 m.



Stalked glass sponge (Hyalonematidae) with numerous scalpellid gooseneck barnacles on its stalk, anchored on a sediment slope at a depth of 2,129 m.




A magnificient scaleworm (Polynoidae) swimming above the seafloor and shimmering in the ROV's lights, at a depth of 1,952 m.

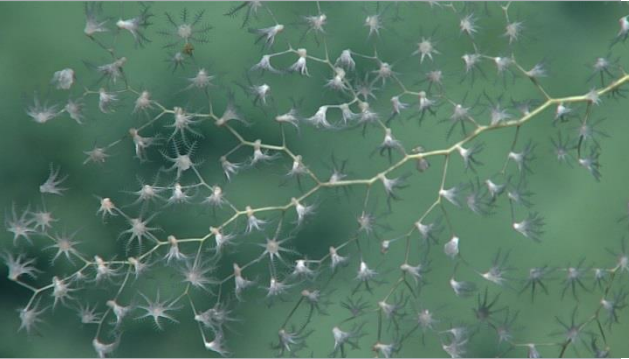
Hydromedusa observed during a midwater transect at a depth of 500 m.

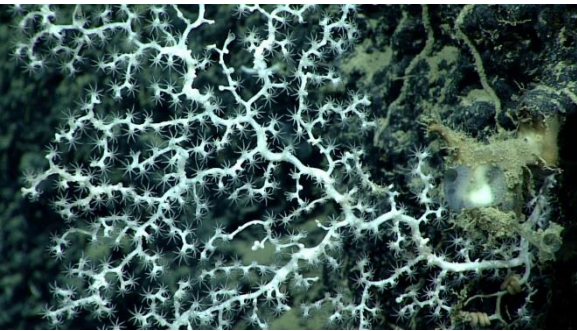


Samples Collected

Sample

Sample ID	EX1711_20171204T164655_D2_DIVE05_SPEC01BIO	
Date (UTC)	20171204	
Time (UTC)	164655	
Depth (m)	2089.49	
Temperature (°C)	4.31	
Field ID(s)	Hyocrinidae crinoid	
Commensal ID and Field Identification	None	
Comments		

Sample

Sample ID	EX1711_20171204T171824_D2_DIVE05_SPEC02BIO	
Date (UTC)	20171204	
Time (UTC)	171824	
Depth (m)	2078.36	
Temperature (°C)	4.3	
Field ID(s)	Chrysogorgia sp	
Commensal ID and Field Identification	Ascothoracida parasites	
Comments		

Sample		
Sample ID	EX1711_20171204T181754_D2_DIVE05_SPEC03BIO	
Date (UTC)	20171204	
Time (UTC)	181754	
Depth (m)	1971.35	
Temperature (°C)	4.28	
Field ID(s)	<i>Corallium</i> sp.	
Commensal ID and Field Identification	none	
Comments		
Sample		
Sample ID	EX1711_20171204T182136_D2_DIVE05_SPEC04BIO	
Date (UTC)	20171204	
Time (UTC)	182136	
Depth (m)	1971.43	
Temperature (°C)	4.29	
Field ID(s)	Farreidae sponge	
Commensal ID and Field Identification	Scale worm N=1 Amphipoda N=2	
Comments		
Sample		
Sample ID	EX1711_20171204T185620_D2_DIVE05_SPEC05GEO	
Date (UTC)	20171204	
Time (UTC)	185620	
Depth (m)	1915.12	
Temperature (°C)	4.29	
Field ID(s)	Limestone rock	
Commensal ID and Field Identification	Crinoid N=2 Porifera A N=1 Polychaeta N=1 Porifera B N=1	
Comments		

Sample	
Sample ID	EX1711_20171204T202517_D2_DIVE05_SPEC06BIO
Date (UTC)	20171204
Time (UTC)	202517
Depth (m)	1863.56
Temperature (°C)	4.29
Field ID(s)	<i>Acanella</i> sp.
Commensal ID and Field Identification	Amphipoda N=1 <i>Bathypalaeomonella</i> N=1
Comments	



Please direct inquiries to:

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