

Okeanos Explorer ROV Dive Summary

Dive Information	
General Location Map	
General Area Descriptor	Gulf of Mexico
Site Name	Unnamed mound in EB 1009
Science Team Leads	Daniel Wagner (Biology) Adam Skarke (Geology)
Expedition Coordinator	Nikolai Pawlenko
ROV Dive Supervisor	Karl McLetchie
Mapping Lead	Mike White
ROV Dive Name	
Cruise	EX1803
Dive Number	DIVE04
Equipment Deployed	
ROV	Deep Discoverer
Camera	Seirios

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Purpose of the Dive	<p>Dive 4 targeted EB 1009, an area of the Gulf of Mexico that has never before been explored using deep-sea submersibles. The closest historical dive to the site, a single 2009 survey by AUV <i>Sentry</i>, was conducted over 12 km to the north in GB 837. Therefore, this dive was highly exploratory in nature, and its main purpose was to survey the area for hard-bottom communities, particularly deep-sea corals, sponges, and associated fauna. The target dive site showed very high habitat suitability for framework-building corals in models developed for the Gulf of Mexico (Kinlan et al. 2013). Furthermore, the area also contained several positive anomalies in the seafloor seismic amplitude map developed for the Gulf (BOEM 2017), indicating that it likely contains hard substrate. Thus, besides exploring a poorly known region of the Gulf of Mexico, observations collected during this dive would also help ground-truth existing models for deep-sea coral habitat suitability and seafloor seismic anomalies.</p>			
Description of the Dive	<p>The ROV reached the bottom on a heavily-sedimented, flat area at a depth of 895 m at 14:02 UTC. After reaching the bottom, the ROV transited to the west, moving up the flank of a ridge in an area identified as a positive seismic anomaly by the Bureau of Ocean Energy Management (BOEM). The ridge flank was covered with fine grained sediment and had abundant excavation burrows. It also had isolated areas with low amplitude sediment ripples suggesting current flow sufficient to mobilize sediment. Upon reaching the upper extent of the ridge (waypoint 2) at a depth of 850 m at approximately 15:34 UTC the ROV moved upslope towards the peak of an adjacent mound. As the ROV moved up the slope sediment became coarser and intermittently exhibited angular gravel to cobble sized clasts. At approximately 18:00 UTC the ROV observed bedded sedimentary rocks free of sediment cover. These rocks were tan to brown in color and appeared to be highly weathered. At approximately 18:46 UTC fractured blocky rocks with a dark grey to black color were observed on the surface of the mound. It was speculated that this material may be fractured asphalt. At approximately 19:00 UTC the ROV reached the summit of the mound, which was characterized by fully exposed bedded sedimentary rock substrate. Rock</p>			





Rock outcrop observed during the dive.

The blind lobster *Acanthacaris caeca* imaged during the dive.



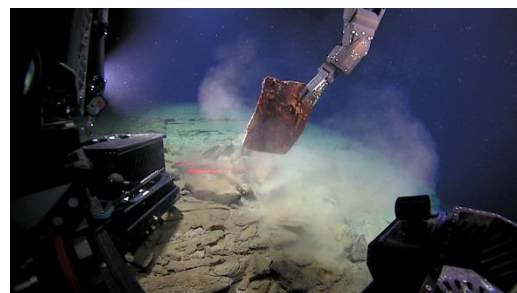
Goosefish *Lophiodes beroe* imaged during the dive.

Rock outcrop observed during the dive.


Samples Collected

Sample

Sample ID	EX1803_20180417T193128_D2_DIVE04_SPEC01GEO
Date (UTC)	20180417
Time (UTC)	193128
Depth (m)	638.65
Temperature (°C)	7.25
Field ID(s)	Bedded sedimentary rock



Commensals	Commensal ID	Field Identification	Notes
	EX1803_20180417T193128_D2_DIVE04_SPEC01GEO_A01	Caryophyllia sp	3 live cup corals and 12 dead cup corals N=15

Comments			
Sample			
Sample ID	EX1803_20180417T201517_D2_DIVE04_SPEC02GEO		
Date (UTC)	20180417		
Time (UTC)	201517		
Depth (m)	639.13		
Temperature (°C)	7.71		
Field ID(s)	Unknown black rock		
			
	<p><i>Interior is tan to grey in color and the oxidized exterior is dark orange to black. Sample is a well lithified sedimentary rock with grains that range in size from silt to fine sand.</i></p>		
Commensals	Commensal ID	Field Identification	Notes
	EX1803_20180417T201517_D2_DIVE04_SPEC02GEO_A01	Caryophyllia sp	N =1
Comments			

Please direct inquiries to:

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