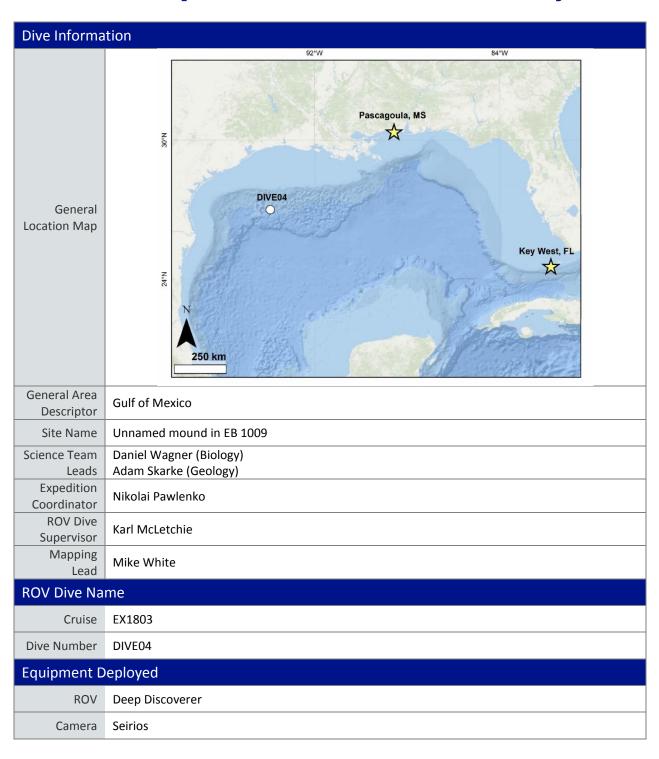


Okeanos Explorer ROV Dive Summary



Platform					
	⊠ стD		☑ Depth	Altitude	
ROV Measuremen ts	Scanning Sonar		□ USBL Position □	☐ Heading	
	∑ Pitch ☐ Pitch		 ⊠ Roll	HD Camera 1	
	☐ HD Camera 2			Low Res Cam 2	
	∑ Low Res Cam 3		_	Low Res Cam 5	
Equipment	None.		2 20 W We3 Call 3		
Malfunctions	Dive Summary: EX1803_DIVE04				
ROV Dive	-		^^^^^^^^^ 2018-04-17T13:21:46.353993 27°, 0.746' N ; 93°, 54.673' W		
	On Bottom:		2018-04-17T14:01:54.278261 27°, 0.703' N ; 93°, 54.663' W		
Summary (from processed	Off Bottom:		2018-04-17T21:07:46.193012 27°, 0.37' N ; 93°, 55.026' W		
ROV data)	Out Water:		2018-04-17T21:33:49.457445 27°, 0.239' N ; 93°, 54.972' W		
	Dive duration:		8:12:3		
	Bottom Time:		7:5:51		
	Max. depth:		898.0 m		
Special Notes					
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	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 Sentry, 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				
5	communities, particularly deep-sea corals, sponges, and associated fauna. The target dive site				
Purpose of the Dive	showed very high habitat suitability for framework-building corals in models developed for the				
the Dive	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 (<u>BOEM 2017</u>), 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.				
			om on a heavily-sedimented, flat area at		
	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				
Description	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				
Description of the Dive	adjacent mound. As the ROV moved up the slope sediment became coarser and intermittently				
or the bive	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				
	tne mound, v	wnich was cha	racterized by fully exposed bedded sedi	mentary rock substrate. Rock	



samples were collected at 19:28 UTC (EX1803-DIVE04-SPEC01GEO) and 20:12 UTC (EX1803-DIVE04-SPEC02GEO). The ROV explored the summit of the mound in search of a gas seep identified in multibeam sonar water column data collected the previous night; however, it was not located. The dive concluded with the ROV moving to the west toward an adjacent peak. The most commonly observed animals were the hake Merluccius albidus, the blind lobster Acanthacaris caeca, the shrimp Cerataspis sp., the red crab Chaceon quinquedens, and the squat lobster Munidopsis spinosa. Other animals observed included several species of squid (including Ornituthis antillarum, Echinotheutis atlantica), fish (Dicrolene sp., Gadomus longfilis, Synapobranchus spp., Conger spp., Manducus maderensis, Epigonus sp., Nezumia sp., Diplacanthopoma sp., Lophiodes beroe), the urchin Echinus sp., the giant isopod Bathynomus qiganteus, cup corals, as well as several species of sponges, holothurians and ctenophores. Towards the dive, the ROV recorded three small colonies of the stony coral Lophelia pertusa, a stolonieferan ocotcoral and a corallimorpharian. Notable Numeours large burrows were seen during the dive, several of which with the blind lobster Observations Acanthacaris caeca inside or near them. Community Presence/ ⊠ Corals and Sponges Present ☐ Active Seep or Vent Absence (community ☐ Chemosynthetic Community Present ☐ Extinct Seep or Vent is defined as ☐ High biodiversity Community Present ☐ Hydrates Present more than two species) Overall Map of the ROV Dive Area Close-up Map of Main Dive Site Depth (m) Depth (m)

Representative Photos of the Dive







Rock outcrop observed during the dive.

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





Goosefish *Lophiodes beroe* imaged during the dive.

 $\label{local conditions} Rock\ outcrop\ observed\ during\ the\ dive.$

Samples Collected

Sa			
	\sim	\sim	
74			-

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



Commens als

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		4.7
Time (UTC)	201517	AN AND	
Depth (m)	639.13		in the second se
Temperat ure (°C)	7.71		
Field ID(s)	Unknown black rock		
	Interior is tan to grey in color and the oxidiz lithified sedimentary rock with grains that r		
	Commensal ID	Field Identification	Notes
Commens	EX1803_20180417T201517_D2_DIVE04_SPEC02GEO_A01	Caryophyllia sp	N =1
als			
Comments			

Please direct inquiries to:

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