

## Okeanos Explorer ROV Dive Summary

Dive Information	
General Location Map	
General Area Descriptor	Gulf of Mexico
Site Name	South of Okeanos Ridge
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	DIVE12
Equipment Deployed	
ROV	Deep Discoverer
Camera Platform	Seirios

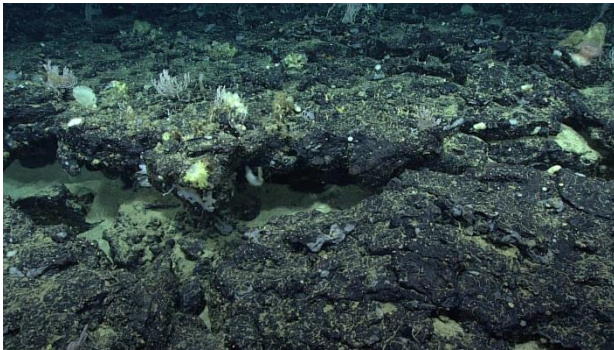


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Purpose of the Dive	<p>Dive 12 targeted an area located just south of Okeanos Ridge, a priority area identified by the Gulf of Mexico Fishery Management Council for the potential establishment of a habitat area of particular concern (HAPC) in the future. Four previous dives surveyed Okeanos Ridge with deep-sea submersibles, and documented extensive deep-sea coral habitat. However, all of those previous dives were conducted &gt;5 km to the north. Thus, the target area of Dive 12 was completely unexplored. The purpose of Dive 12 was to survey the biology and geology of a ridge feature at depths between 400-525 m.</p>			
Description of the Dive	<p>The ROV landed on a heavily-sedimented, flat surface with exposed barren rocks at a depth of 509 m at 14:12 UTC. After reaching the seafloor, the ROV proceeded to the east, up a slope on the west side of a large ridge. The slope was characterized by large carbonate rock boulders intermixed with black nodular rocks interpreted to be weathered iron oxide crust. As the ROV moved up the slope, corals and sponges as well as fish became more abundant. At 15:50 the ROV approached the top of the slope and observed thick plates of black iron oxide crust on top of carbonate boulders. The flat top of the ridge was characterized by a continuous surface of black iron oxide crust, which was inhabited by abundant coral, sponge, and fish species. Primnoid corals were the dominant observed species. The ROV moved to the north along the ridge and observed continuous undercutting of the iron oxide ridge cap by dissolution and erosion of underlying carbonate rock. Inferred dissolution was evidenced by numerous voids and caverns in the carbonate rock face. In many locations, the undercut oxide crust formed overhanging ledges that extend over one meter out from the underlying vertical carbonate rock face. Corals and sponges were attached to the underside of the overhang but not in the same abundances as observed on top of the ridge. In multiple locations along the ridge, collapsed sections were observed, in which detached portions of iron oxide crust could clearly be aligned with the portion of the ridge top they detached from. At 20:24 UTC the ROV left the western edge of the ridge and moved across the ridge top to the east. During this transect, the seafloor was characterized by continuous iron oxide crust with minimal to no sediment cover. The abundance of coral and sponges remained relatively constant but the represented species changed, most notably from primnoid coral dominance to bamboo coral dominance. The dive concluded at 21:10 UTC.</p> <p>The most commonly observed animals were the primnoid coral <i>Candidella imbricata</i>, demosponges and glass sponges. Other species observed included various species of corals (<i>Paramuricea</i> sp., <i>Plumarella</i> sp., unbranched Plexauridae, <i>Acanthogorgia</i> spp., <i>Muriceaides</i> sp., <i>Anthomastus</i> sp., <i>Aquaumbra</i> sp., <i>Capnella</i> sp., <i>Stolonifera</i>, <i>Isidella</i> sp., <i>Cheliondonis aurantiaca</i>, <i>Stylaster</i> sp., <i>Lophelia pertusa</i>, <i>Javania</i> sp., <i>Caryophyllia</i> sp., <i>Leiopathes</i> sp., <i>Bathypathes</i> spp., <i>Stichopathes</i> sp., <i>Heteropathes</i> cf. <i>americana</i>), sponges (<i>Aphrocallistes beatrix</i>, <i>Farrea occa</i>, <i>Phakellia</i> sp., and various unidentified Hexactinellid and Demosponges), squat lobsters (<i>Eumunida picta</i>, <i>Gastroptychus</i> sp.), zoanthids</p>			

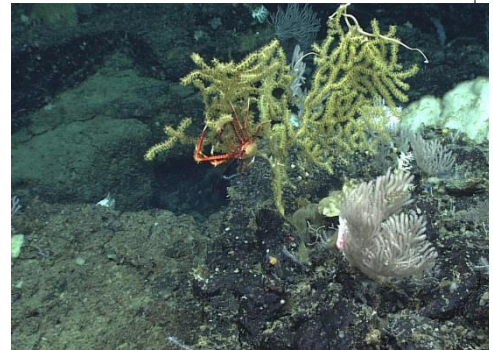








Primnoid corals.



*Eumunida picta* squat lobster perched on colony of *Paramurcia* sp. octocoral.



Group of silfonsinos *Beryx decadactylus*.

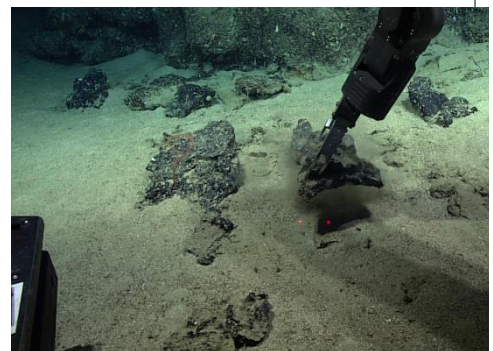


The fish *Trachyscorpia cristulata* next to a primnoid coral seafan.

Samples Collected

Sample

Sample ID	EX1803_20180429T143605_D2_DIVE12_SPEC01GEO
Date (UTC)	20180429
Time (UTC)	143605
Depth (m)	512.57
Temperature (°C)	7.63
Field ID(s)	Carbonate rock



Commen sals	Weight 8.45kg		
	Commensal ID	Field Identification	Notes
	EX1803_20180429T143605_D2_DIVE12_SPEC01GEO_A01	Polychaeta	N=1
	EX1803_20180429T143605_D2_DIVE12_SPEC01GEO_A02	Bryozoa	N=3
	EX1803_20180429T143605_D2_DIVE12_SPEC01GEO_A03	Octocorallia	N=2
	EX1803_20180429T143605_D2_DIVE12_SPEC01GEO_A04	Hexactinellida	N=1
EX1803_20180429T143605_D2_DIVE12_SPEC01GEO_A05	Echinoidea	N=1	

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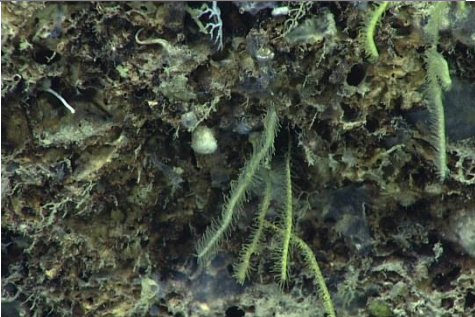
**Sample**

Sample ID	EX1803_20180429T153100_D2_DIVE12_SPEC02BIO	
Date (UTC)	20180429	
Time (UTC)	153100	
Depth (m)	467.24	
Temperature (°C)	7.74	
Field ID(s)	<i>Primnoidae</i>	

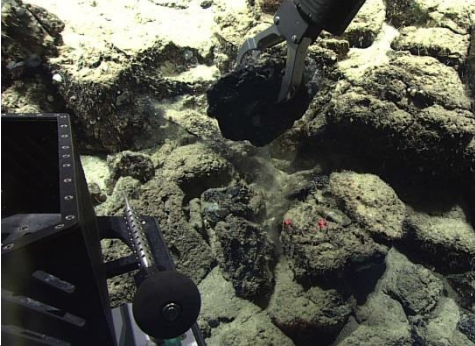
Commen sals	[		
	Commensal ID	Field Identification	Notes
	EX1803_20180429T153100_D2_DIVE12_SPEC02BIO_A01	Ophiuridae	N=1

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**Sample**

Sample ID	EX1803_20180429T181028_D2_DIVE12_SPEC03BIO	
Date (UTC)	20180429	
Time (UTC)	181028	
Depth (m)	437.05	
Tempera	8.62	



ture ( °C)			
Field ID(s)	Antipatharia		
Commensals	Commensal ID	Field Identification	Notes
	none		
Comments			
<b>Sample</b>			
Sample ID	EX1803_20180429T185523_D2_DIVE12_SPEC04GEO		
Date (UTC)	20180429		
Time (UTC)	185523		
Depth (m)	438.17		
Temperature ( °C)	8.64		
Field ID(s)	Carbonate rock		
Commensals	Weight 12.64kg		
	Commensal ID	Field Identification	Notes
	EX1803_20180429T185523_D2_DIVE12_SPEC04GEO_A01	Hexactinellida	N=2
	EX1803_20180429T185523_D2_DIVE12_SPEC04GEO_A02	Scleractinia	N=2
	EX1803_20180429T185523_D2_DIVE12_SPEC04GEO_A03	Stylasteridae	N=2
	EX1803_20180429T185523_D2_DIVE12_SPEC04GEO_A04	Branchiopoda	N=1
EX1803_20180429T185523_D2_DIVE12_SPEC04GEO_A05	Ophiroidae	N=1	
Comments			

**Please direct inquiries to:**

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