

Okeanos Explorer ROV Dive Summary

Dive Information	
General Location Map	
General Area Descriptor	Gulf of Mexico
Site Name	Southern West Florida Escarpment 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	DIVE13
Equipment Deployed	
ROV	Deep Discoverer
Camera	Seirios

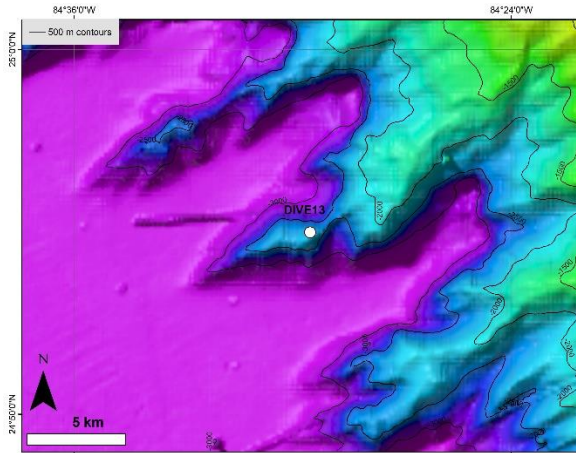
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Purpose of the Dive	<p>The purpose of Dive 13 was to survey the biology and geology of a ridge feature in the southern end of the West Florida Escarpment at depths between 2100-2250 m. This area is completely unexplored, with the closest historical dive being conducted over 50 km away. Additionally, this area will explore a narrow ridge feature, similar in shape to many ridges surveyed during the CAPSTONE efforts in the Pacific Ocean. Therefore, this dive would also provide insights into how the faunas of these two ocean basins compare to one another in similar environments. Additionally, Dive 13 also included midwater surveys, which were carried out at the end of the dive.</p>				



Description of the Dive	<p>The ROV landed on a heavily-sedimented, flat surface at a depth of 2240 m at 14:45 UTC. After reaching the seafloor, the ROV proceeded upslope towards the ridge crest. At 15:09 UTC scattered boulders and low outcrops were observed on the seafloor with Isolated large branching corals and sponges attached. Further upslope, the ROV observed large outcrops of exposed carbonate rock, which as covered with a black ferromanganese oxide. Outcrops exhibited patchy clustered communities of corals and sponges, with particularly high concentrations of organisms in some clusters. Outcrops were separated by sediment with minimal evidence of bioturbation. Sea stars and glass sponge stalks were observed in sedimented areas. Outcrops with dense coral communities were observed until approximately 17:24 UTC. After that, the ROV observed heavily sedimented seafloor for the remainder of the dive as it proceeded to the peak of the ridge. Man-made debris (bottles and cans) as well as isolated sponges, sea stars, and sea pens were observed on the sediment surface. From 17:45 UTC through the conclusion of the dive, large sediment mounds and deep gouges were observed on the seafloor. Sediment coloration indicated that some of the mounds and gouges were recently excavated.</p> <p>The majority of habitat surveyed during the seafloor portion of the dive consisted of heavily-sedimented slopes. <i>Nematocarcinus ensifer</i> shrimp, <i>Protoptylum</i> sp. seapens, and <i>Hyalonema</i> sp. sponges were occasionally seen in these areas, the latter of which were frequently overgrown by stoloniferan octocorals, zoanthids and hydroids. Large gouges were also seen in the sediment throughout the dive, which were similar in size and shape to those that have been hypothesized to be caused by feeding of beaked whales in other locations. A single urchin (<i>Echinothuridae</i>) was also seen in a heavily sedimented area.</p> <p>Additionally, the ROV came across few, large rocky outcrops, which hosted diverse communities of corals, including bamboo corals (<i>Keratoisis</i> sp., <i>Jasonisis</i> sp., <i>Lepidisis</i> sp.), plexaurid corals (<i>Paramuricea biscaya</i>), bubblegum corals (<i>Paragorgia</i> sp.), corallids (<i>Corallium niobe</i>), black corals (<i>Bathypathes</i> spp., <i>Stichopathes</i> sp., <i>Stauropathes</i> sp., <i>Telopathes</i> sp.), stoloniferan corals (<i>Clavularia rudis</i>, unidentified <i>Stoloniefera</i>), chrysogorgid corals (<i>Chrysogorgia</i> sp., <i>Iridogorgia magnispiralis</i>), and anthothelid corals (<i>Anthothela</i> sp.). Other animals recorded close to these rocky outcrops included glass sponges (various species of <i>Hexactenellida</i>), seastars (<i>Goniasteridae</i>), anemones (<i>Relacanthis</i> sp.), squat lobsters (<i>Galacantha</i> sp.), crinoids (stalked and unstalked), bryozoans (<i>Bryozoa</i>), benthic ctenophores (<i>Platyctenida</i>), and barnacles (<i>Cirripedia</i>). Fish observed during the seafloor portion of the dive included tripodfishes (<i>Ipnots murrayi</i>, <i>Bathypterois grallator</i>), cusk eels (<i>Barathrodemus manatinus</i>), halosaurs (<i>Aldrovandia</i> sp.), a deep-sea lizardfish (<i>Bathysaurus mollis</i>), and a rattail (<i>Coryphaenoides</i> sp.).</p> <p>The seafloor portion of the dive ended at 19:57 UTC at a final depth of 2124 m. At this point, the ROV ascended to a depth of 2116 m to begin the first of a series of midwater transects. Animals observed during the midwater portion of the dive included ctenophores, polychaetes, siphonophores, salps, and larvaceans.</p>	
Notable Observations	A goniasterid seastar, possibly a <i>Circeaster</i> sp. or <i>Sibogaster</i> sp., was seen feeding on a <i>Bathypathes</i> sp. black coral at 16:13 UTC. This is the first time a seastar has been recorded feeding on a black coral.	
Community Presence/Absence (community is defined as more than two species)	<input checked="" type="checkbox"/> Corals and Sponges Present <input type="checkbox"/> Chemosynthetic Community Present <input checked="" type="checkbox"/> High biodiversity Community Present	<input type="checkbox"/> Active Seep or Vent <input type="checkbox"/> Extinct Seep or Vent <input type="checkbox"/> Hydrates Present



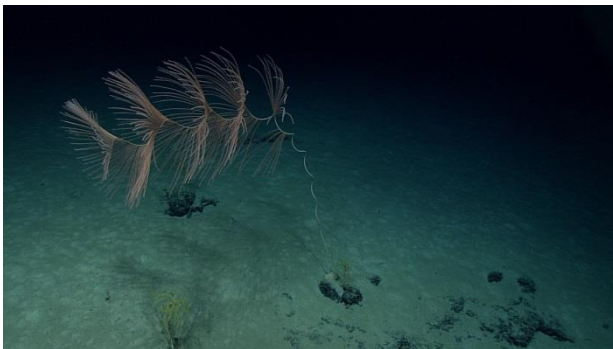
Overall Map of the ROV Dive Area



Close-up Map of Main Dive Site



Representative Photos of the Dive



Irigogorgia magnispiralis.

Echinothuriidae sea urchin.

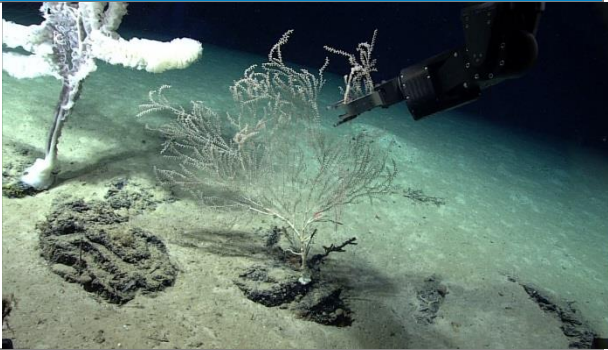



Siphonophore


Midwater fish.

Samples Collected



Sample																
Sample ID	EX1803_20180430T153336_D2_DIVE13_SPEC01BIO															
Date (UTC)	20180430															
Time (UTC)	153336															
Depth (m)	2229.15															
Temperature (°C)	4.3															
Field ID(s)	<i>Keratoisis</i> sp.															
																
		<table border="1"> <thead> <tr> <th>Commensal ID</th> <th>Field Identification</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>none</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Commensal ID	Field Identification	Notes	none								
		Commensal ID	Field Identification	Notes												
		none														
Comments																

Sample																
Sample ID	EX1803_20180430T163451_D2_DIVE13_SPEC02BIO															
Date (UTC)	20180430															
Time (UTC)	163451															
Depth (m)	2184.04															
Temperature (°C)	4.3															
Field ID(s)	<i>Telopathes</i> sp.															
																
		<table border="1"> <thead> <tr> <th>Commensal ID</th> <th>Field Identification</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>none</td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Commensal ID	Field Identification	Notes	none								
		Commensal ID	Field Identification	Notes												
		none														
Comments																

Sample	
Sample ID	EX1803_20180430T193555_D2_DIVE13_SPEC03BIO
Date (UTC)	20180430
Time (UTC)	193555
	



Depth (m)	2127.14		
Temperature (°C)	4.29		
Field ID(s)	Pheronematidae		
Commensals	Commensal ID	Field Identification	Notes
	None		
Comments			

Please direct inquiries to:

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