

## *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	DIVE15
Equipment Deployed	
ROV	Deep Discoverer

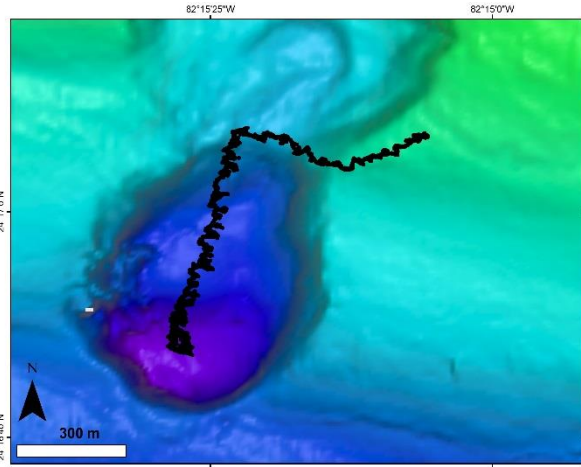
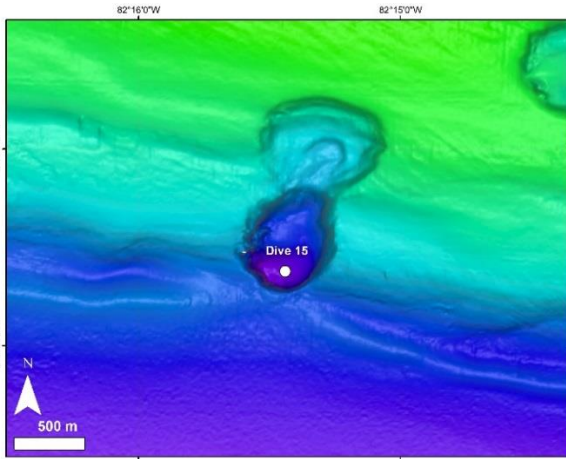


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Purpose of the Dive	Dive 15 targeted a large sinkhole off the Pourtales Terrace. This area is completely unexplored, with the closest historical dive being conducted over 4 km away. Other sinkholes have been surveyed on the Pourtales Terrace, and these are known to host diverse communities of invertebrates and fishes. Additionally, the top of the Pourtales Terrace, which would be surveyed towards the end of the dive, is known to host rich communities of deep-sea corals, invertebrates and other associated fauna.			



Description of the Dive	<p>The ROV landed inside the sinkhole near its deepest portion at a depth of 492 m at 14:30 m. The seafloor was covered with sediments, and swarms of small fish swam near the bottom. As the ROV moved north along the sinkhole, several patches of <i>Sargassum</i> seaweed and various items of man-made debris were encountered. The most commonly observed animals inside the sinkhole were fishes, shrimp, squid and crabs, all of which swam close to the soft sediments. Debris included ropes, cans, clothing, and a fish trap. As the ROV transited toward the northern side of the sinkhole, the bottom continued to be characterized by sediment cover and fish became less abundant. At 17:05 UTS as the ROV approached the northern side of the sinkhole, rock outcrop was observed. As the ROV continued east and upslope toward the rim of the sinkhole, larger rock outcrops were observed. Only a few isolated sponges and corals were observed on rocks. At 18:20 UTC low blades of ferromanganese oxide were observed. These were interpreted to be cast of fractures in carbonate rock that had since been eroded away. Some small columns of carbonate rock were observed as well. As the ROV emerged from the sinkhole and onto the surrounding shelf, the seafloor was characterized by a hard rock substrate with a very thin sediment layer and sponges became more abundant.</p> <p>As the ROV climbed the sinkhole wall, the substrate changed to limestone covered by a thin layer of sediment. Glass sponges were occasionally seen on the substrate, as well as tube worms, anemones, crinoids, urchins and bryozoans. Once the ROV moved away from the sinkhole and towards the terrace, the terrain became flat. Numerous holes covered the substrate, most of which with protruding brittle star arms. <i>Phakellia</i> sp demosponges became common, as did Echinothuriidae urchins.</p> <p>Invertebrates observed during the dive included sponges (<i>Phakellia</i> sp., <i>Aphrocallistes beatrix</i>, <i>Corallistes</i> sp.), crabs (<i>Chaceon fenneri</i>, <i>Rochinia crassa</i>, <i>Bathynectes longispina</i>, <i>Pagurus</i> sp.), squat lobsters (<i>Eumunida picta</i>), anemones (<i>Liponema</i> sp., Hoermethiidae, unidentified Actinaria), lace corals (<i>Stylaster</i> sp.), snowshoe urchins (Echinothuriidae), seastars (<i>Peltaster placenta</i>, <i>Plinthaster dentatus</i>, <i>Ceramster</i> sp.), squid (<i>Illex</i> sp.), as well as unidentified byozoans and hydroids.</p> <p>Fish observed included short-bearded codling (<i>Laemonema barbatulum</i>), blackbelly rosefish (<i>Helicolenus dactyloperis</i>), armored searobin (<i>Peristedion</i> sp.), Western roughy (<i>Hoplostethus occidentalis</i>), rattails (<i>Nezumia</i> cf. <i>aequalis</i>, <i>Coelorinchus caelorhincus</i>), hake (<i>Merluccius albidus</i>), herring smelt (<i>Argentina striata</i>), cardinalfish (<i>Epigonus</i> sp.), duckbill flathead (<i>Bembrops anatirostris</i>), toad fish (<i>Chaunax suttkusi</i>), shallowtail bass (<i>Anthias woodsi</i>), hatchetfish (<i>Polypnus</i> sp.), barracudina (<i>Lestidium atlanticum</i>), bristle mouth (<i>Manducus maderensis</i>), shortnose greeneye (<i>Chlorophthalmus agassizi</i>), a slope dragonet (<i>Centrodraco</i> sp.), and unidentified flatfishes. The ROV left the seafloor at a final depth of 308 m at 20:45 UTC.</p>	
Notable Observations	Large swarms of small fish near the landing spot. Only five colonies of stylasterid corals were seen throughout the dive.	
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



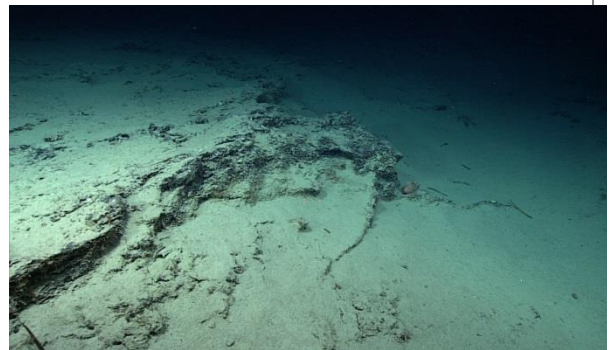
*Bembrops anatrostris* fish next to squid.



*Barracudina Lestidium atlanticum*.



Small sea star imaged near the end of the dive.



Rock outcrop observed during dive.

Samples Collected

Sample





Sample ID	EX1803_20180502T174223_D2_DIVE15_SPECO1GEO														
Date (UTC)	20180502														
Time (UTC)	174223														
Depth (m)	433.4														
Temperature (°C)	7.98														
Field ID(s)	Ferromanganese crusted limestone														
Commensals	Weight 9.5kg														
	<table border="1"> <thead> <tr> <th>Commensal ID</th> <th>Field Identification</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>EX1803_20180502T174223_D2_DIVE15_SPECO1GEO_A01</td> <td>Hexactinellida</td> <td>N=7 + pieces</td> </tr> <tr> <td>EX1803_20180502T174223_D2_DIVE15_SPECO1GEO_A02</td> <td>Polychaeta</td> <td>N=16</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> </tbody> </table>			Commensal ID	Field Identification	Notes	EX1803_20180502T174223_D2_DIVE15_SPECO1GEO_A01	Hexactinellida	N=7 + pieces	EX1803_20180502T174223_D2_DIVE15_SPECO1GEO_A02	Polychaeta	N=16			
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Comments															



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