



Okeanos Explorer ROV Dive Summary: EX-19-07, Dive 10, November 17, 2019

Dive Information

<p>General Location Map</p>	
<p>General Area Descriptor</p>	<p>Pourtales Terrace, South of Florida Keys</p>
<p>Site Name</p>	<p>Pourtales Terrace</p>
<p>Science Team Leads</p>	<p>Kimberly Galvez, University of Miami, Rosenstiel School of Marine and Atmospheric Science Stephanie Farrington, Florida Atlantic University. Harbor Branch Oceanographic Institute</p>
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<p>ROV Dive Supervisor</p>	<p>Christopher Ritter, Global Foundation for Ocean Exploration</p>
<p>Mapping Lead</p>	<p>Shannon Hoy, NOAA OER</p>



**Ocean Exploration
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Scientists Involved (provide name, affiliation, email)

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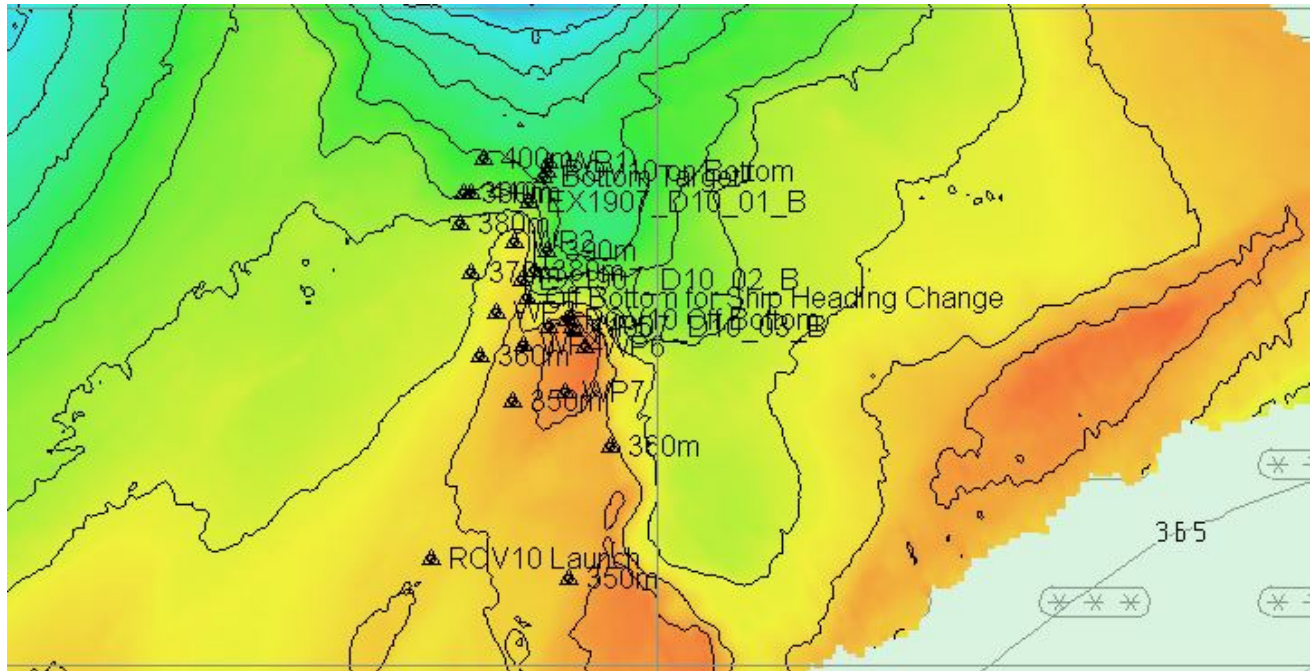
Dive Purpose	Dive 10 is planned on features that could be a suitable habitat for deep sea corals and sponges. Dive 10 will occur in the Pourtales Terrace HAPC and is a priority for regional managers. Planned dive track will cross over in and out of the HAPC. Other deep submergence work in this area has confirmed the presence of deep water coral mounds. Dive is planned away from previous work.
Dive Description	<p>Target: Inside and outside the HAPC on the foot of the Pourtales terrace spanning the border, using MB that was collected overnight.</p> <p>Base of mound: The base of the slope consisted of dense coral rubble with little to no sediments observed. Large exposed karst substrates dotted the environment. On the slope large slabs and boulders were seen cascading down from the rim, as if they broke off in large mass wasting events (~80% of facies in the area). Majority of broken slabs were encrusted with phosphorite or ferromanganese. However, midway up the slope, areas of limestone with no encrusting was seen. These boulders consisted of larger packages than the slabs that were encrusted with dissolution or erosion cutting away at certain stratigraphic intervals giving a “stacked pancake” look. Slopes increased from 20° to 40°.</p> <p>Fauna: Fish: Scorpaenidae/BBRF, sharks, <i>Laemonema</i>, <i>Anthias woodsi</i> (swallowtail bass) who threw up its food, Beryciformes-sawbelly-like fish; Echinoderms: <i>Tremaster mirabilis</i> pancake star, <i>c.f. Echinus</i>-white urchin, other sea stars (with 5 legs, cream color, 2 cm palpate skin), crinoids, bright red brittle star; corals/cnidarian: stylaster, <i>Leiopathes</i> ~1 m with gooseneck barnacles, <i>Illex</i> squid schools (at least 4-5 throughout the dive); sponges- <i>Raspailia</i> mesh fans- abundant, <i>c.f. Geodiidae</i> 30 cm wide, <i>Astrophorida</i> and a hexactinellid that was new to the Bio-Science Co-Lead and Cris Diaz (HBOIFAU) so it was collected (EX1907_D10_01B).</p> <p>At 367 m there was an increase in stylaster as the most common species some were >30 cm</p> <p>Top of ledge: The terrace-like plateaus in at the top of the slope were dominated karst encrusted with phosphorite or ferromanganese. Large sections of the carbonate underlying the encrusted feature had been eroded and undercut, leaving overhangs of the plateau that biota had colonized. Large portions of the top strata were seen along the slope beneath the undercut areas, likely pieces that had once been attached to the top bank.</p> <p>Fauna: after the top of the ledge becomes more abundant and diverse including; Cnidaria: 20-30 cm bubblegum coral - <i>Paragorgia</i>, <i>Liponema</i> anemones, corallimorphs, black corals- <i>Leiopathes c.f. glaberrima</i> but by far the most abundant species is cup corals, Arthropods: <i>Mithrax</i>- spider crabs, hermit crabs in <i>Scyphelia junonia</i> shells, portunid crab eating something pink and fleshy; sponges: <i>Raspailia</i> mesh fan sponges- abundant, hairy/lots of spicules glass sponges- (look dead from afar) upon collection this Hexactinellida (EX_1907_D10_02B) showed white inside, Petrosiidae/Pachasterllida, <i>Mycale</i>/Poecilosclerida; Echinoderms: Brisingidae - sunstar; Fish: sunfish, sand tiger shark, <i>Centrodraco acanthopoma</i> dragonet fish, Wreckfish- <i>Polyprion americanus</i>.</p> <p>There was fishing line everywhere including wrapped around gorgonians and stylaster. There were also larger rebar fishing weights, they increased in abundance after crossing outside of the HAPC. There were very rusted and likely very old.</p> <p>Crossing over the HAPC line the top of ledge continues with the current coming from the south. The strata remained the same as within the HAPC, with plateaus of karst encrusted with phosphorite or ferromanganese and undercut leaving the overhang exposed. Biota similar to the “top of ledge” community we had been seeing, the fauna increased at the end of the dive</p>



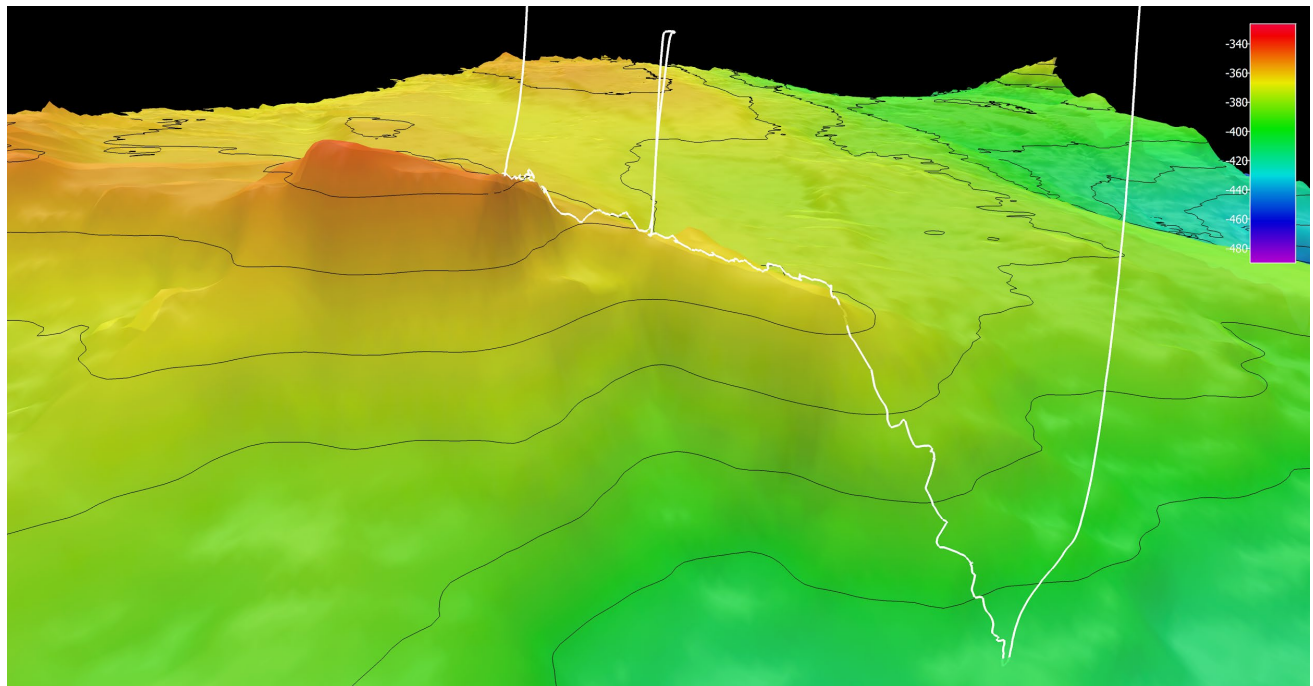
	<p>along the top of the ledge included the appearance of our 1st basket stars <i>Gorgonocephalus</i> x 10 as well as more <i>Aphrocallistes beatrix</i> (EX1907_D10_03B).</p>
<p>Notable Observations</p>	<p>Mola Mola, <i>Mycteroperca bonaci</i>- black or Wreckfish Grouper x2, human debris- rebar weights, fabrics, and loads of line</p>
<p>Community Presence/ Absence (community is defined as more than two species)</p>	<ul style="list-style-type: none"> ◀ Corals and Sponges <ul style="list-style-type: none"> ✓ Chemosynthetic Community ◀ High biodiversity Community <ul style="list-style-type: none"> ✓ Active Seep or Vent ✓ Extinct Seep or Vent ✓ Hydrates
<p>CMECS Feature Type</p>	<p>Ridge, Scarp</p>



Overall Map of the ROV Dive Area

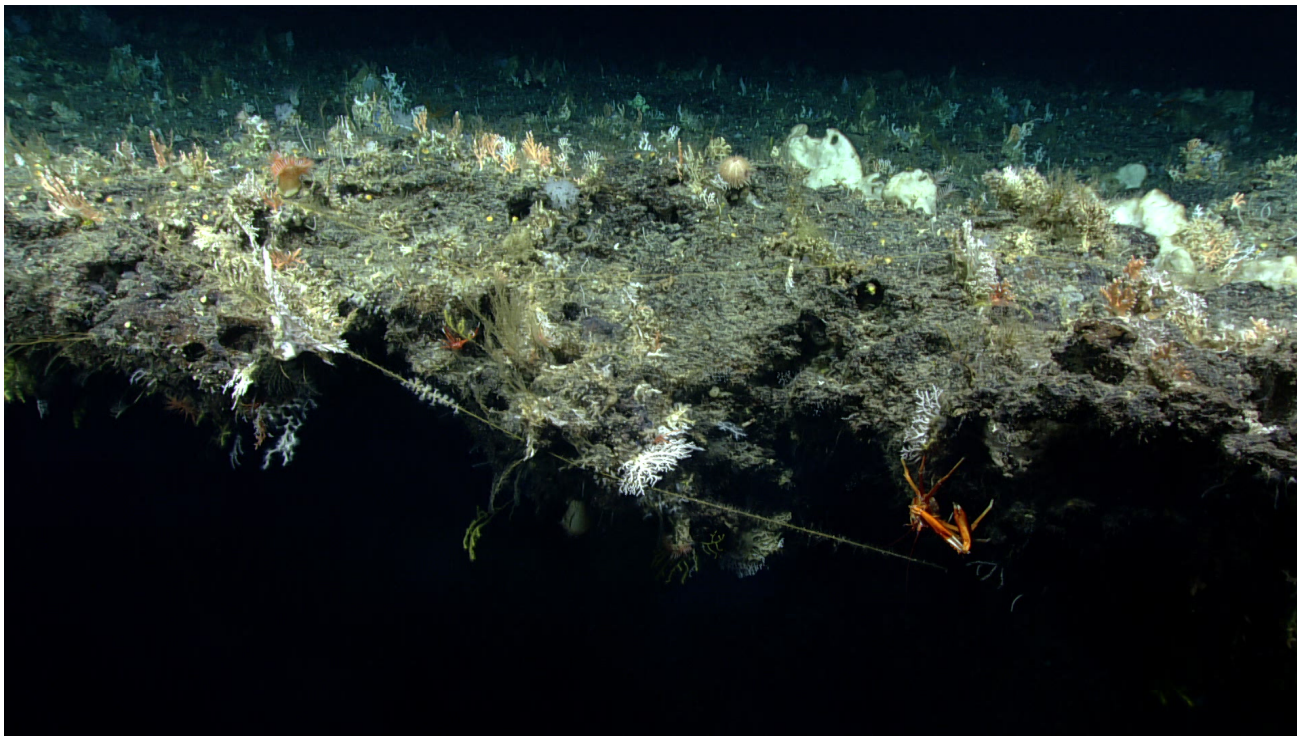


Close-up Map of Main Dive Site



Smoothed ROV dice track in white on 25x25 cell size bathymetry, 3x vertical exaggeration, depth in meters, 10 meter contours

Representative Photos of the Dive



Upper escarpment covered in stylaster with fishing line.



One of the 10 basket stars seen





Wreckfish- *Polyprion americanus* seen on this dive



Mola mola seen swimming around the ROV

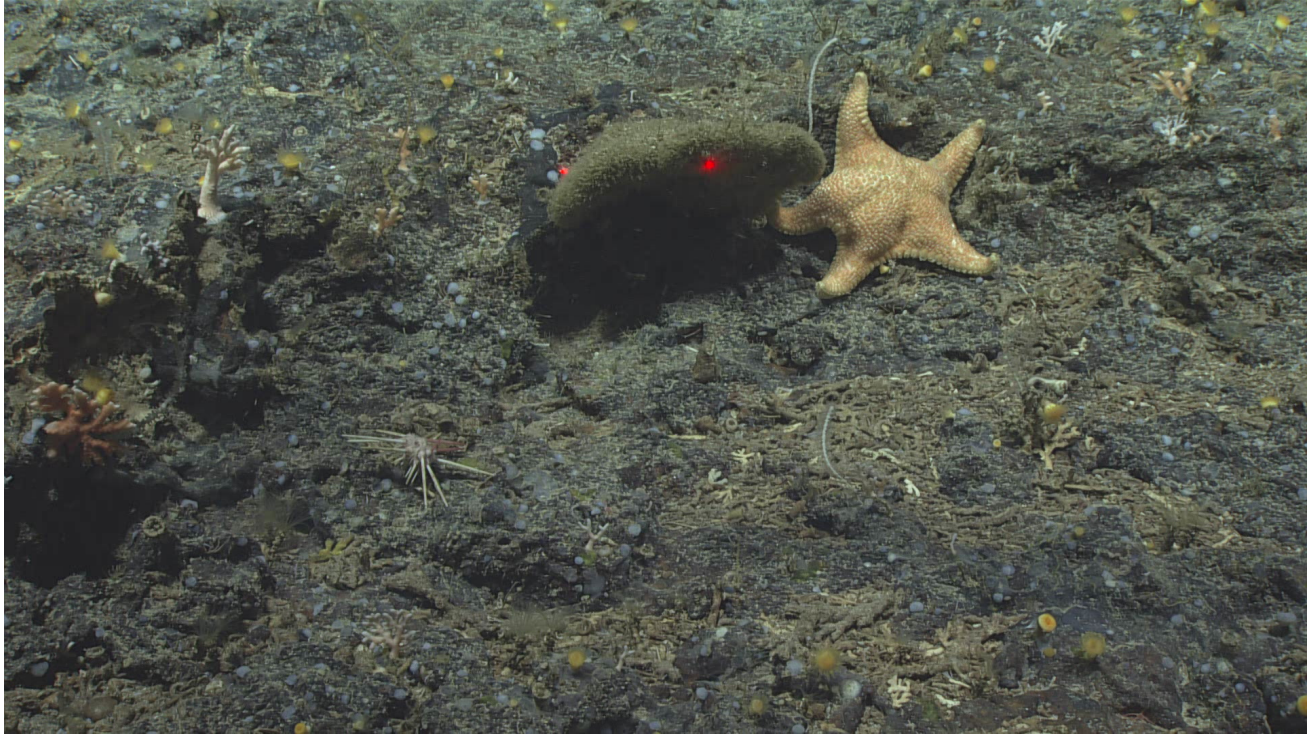


Samples Collected -



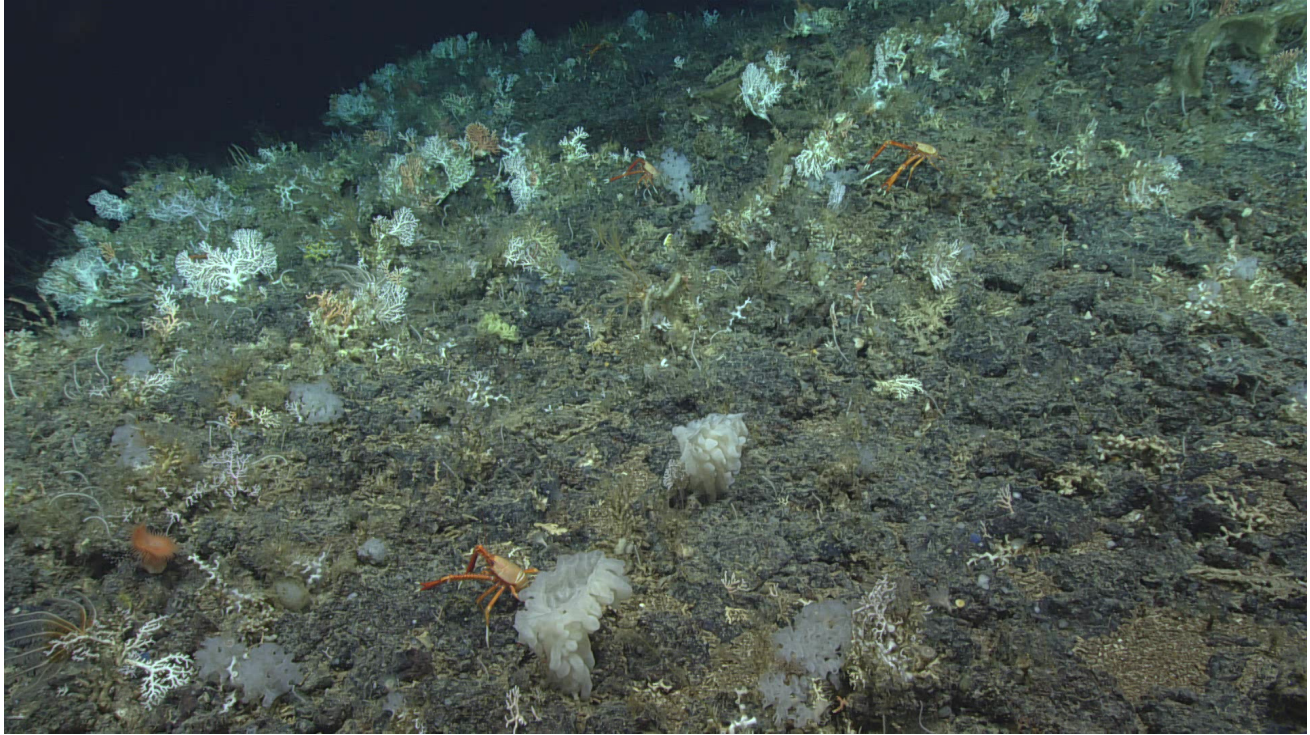
Sample ID	EX1907_D10_01B		
Date (UTC)	11/17/2019		
Time (UTC)	15:58		
Depth (m)	383		
Temp. (°C)	9.871		
Field ID(s)	Hexactinellida (glass sponges; hexactinellid sponges) ID: 22612 [WORM]		
Associates	Associates Sample ID	Field Identification	Count
Comments	8 cm wide, white cluster of hollow tubes. intact in suction bucket 1		





Sample ID	EX_1907_D10_02B		
Date (UTC)	11/17/2019		
Time (UTC)	19:13		
Depth (m)	361		
Temp. (°C)	9.512		
Field ID(s)	Hexactinellida (glass sponges; hexactinellid sponges) ID: 22612 [WORM]		
Associates	Associates Sample ID	Field Identification	Count
	EX1907_D10_02B_A01	sediment	
Comments	brown 20 cm, hairy/lots of spicules, inside is white; <i>c.f. spongea?</i> soft texture		





Sample ID	EX1907_D10_03B		
Date (UTC)	11/17/2019		
Time (UTC)	22:10:00		
Depth (m)	349.146		
Temp. (°C)	9.239		
Field ID(s)	Aphrocallistes beatrix		
Associates	Associates Sample ID	Field Identification	Count
Comments	Aphrocallistes beatrix ID: 134380 [WORM] stopping to collect EX1907_D10_03B ASPIRE Collection		

Please direct inquiries to:

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