



Okeanos Explorer ROV Dive Summary

Dive Information

<p>General Location Map</p>	
<p>General Area Descriptor</p>	<p>U.S. and Canadian Atlantic Continental Margin</p>
<p>Site Name</p>	<p>Block-Alvin Intercanyon</p>
<p>Science Team Leads</p>	<p>Meagan Putts (UH) Jeff Obelcz (USNRL)</p>
<p>Expedition Coordinator</p>	<p>Daniel Wagner (NOAA-OER)</p>
<p>ROV Dive Supervisor</p>	<p>Sean Kennison (GFOE)</p>
<p>Mapping Lead</p>	<p>Michael White (NOAA-OER)</p>

ROV Dive Name

<p>Cruise</p>	<p>EX1905L2</p>
<p>Dive Number</p>	<p>DIVE12</p>

Equipment Deployed

ROV	<i>Deep Discoverer</i>		
Camera Platform	<i>Seirios</i>		
ROV Measurements	✓ CTD	✓ Depth	✓ Altitude
	✓ Scanning Sonar	✓ USBL Position	✓ Heading
	✓ Pitch	✓ Roll	✓ HD Camera 1
	✓ HD Camera 2	✓ Low Res Cam 1	✓ Low Res Cam 2
	✓ Low Res Cam 3	✓ Low Res Cam 4	✓ Low Res Cam 5
Equipment Malfunctions	N/A		
ROV Dive Summary Data (from Processed ROV)	<p>In Water: 2019-09-14T12:23:40.335549 39°, 49.62' N ; 70°, 51.058' W</p> <p>On Bottom: 2019-09-14T13:22:56.760239 39°, 49.245' N ; 70°, 51.008' W</p> <p>Off Bottom: 2019-09-14T19:41:52.358617 39°, 49.126' N ; 70°, 51.172' W</p> <p>Out Water: 2019-09-14T20:42:29.306971 39°, 49.026' N ; 70°, 50.826' W</p> <p>Dive duration: 8:18:48</p> <p>Bottom Time: 6:18:55</p> <p>Max. depth: 1277.0 m</p>		
Special Notes	N/A		

Scientists Involved

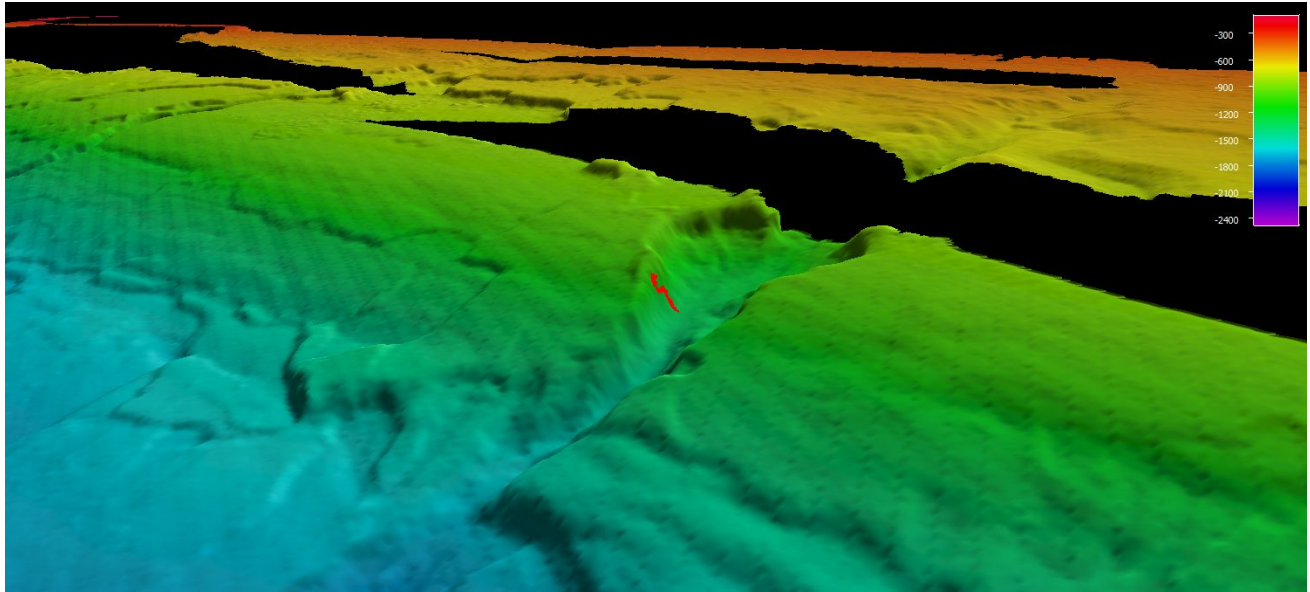
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Dive Purpose and Description

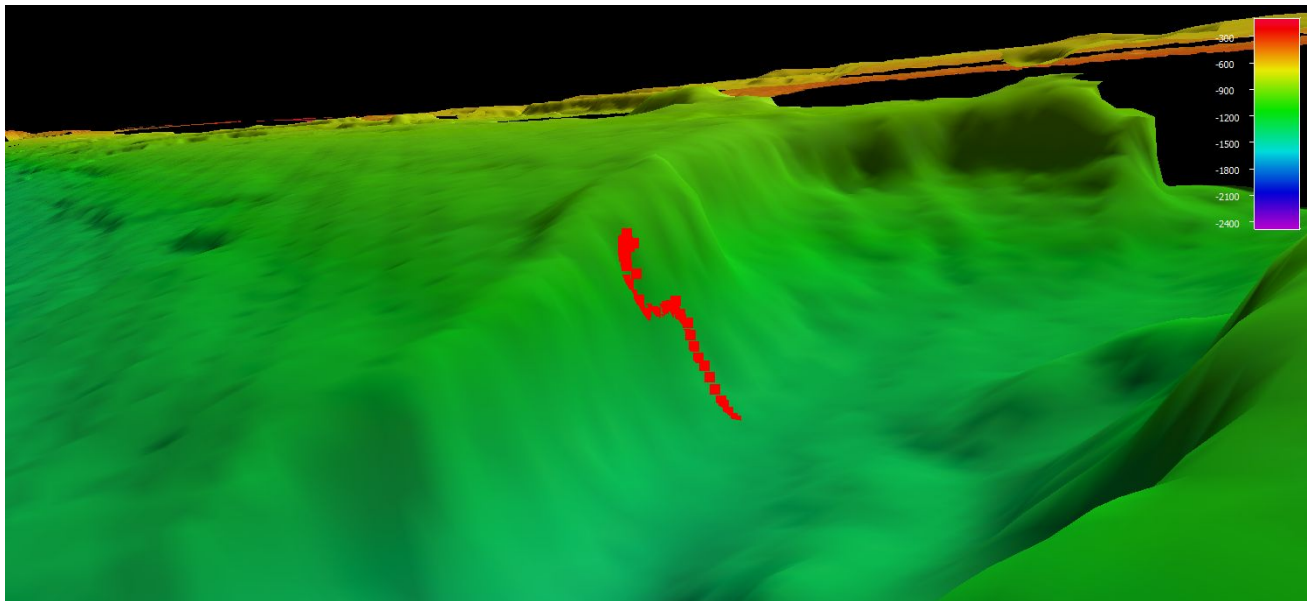
Dive Purpose	The purpose of the dive was to explore a minor box canyon located between Block and Alvin Canyons. The dive track was designed to traverse across steep terrain that was predicted to provide suitable habitat for deep-sea corals and sponges. This site was also close to the Ocean Observatories Initiative (OOI) Pioneer Array. Thus, benthic data collected during the dive would be linkable to long-term oceanographic datasets collected at the Pioneer Array.
Dive Description	The ROVs reached the seafloor at approximately 1315 UTC. The bottom community was characteristic of soft substrate observed throughout this expedition, and comprised of small swimming sea cucumbers (Eliipiidae), hake (<i>Antimora</i> sp.), cutthroat eels (<i>Synaphobranchus gracilis</i>), and octopods (<i>Graneledone verrucosa</i>). The canyon axis also had carbonate debris scattered throughout. Once the ROVs reached the canyon walls, the lower parts were comprised of highly consolidated but not cemented mudstone, which has been observed in numerous other canyons throughout this expedition. Despite being steep, the canyon walls were not colonized heavily with encrusting organisms besides small demosponges. As the ROVs ascended the canyon walls, the lithology transitioned into the sheer carbonate rocks also observed in Veatch Canyon. These walls were encrusted patchily with flame scallops (<i>Acesta cryptadelphe</i>), sea stars (<i>Neomorpha ser forcipatus</i>), cup corals, yellow octocorals (<i>Acanthogorgia</i> sp. and <i>Paramuricea</i> sp.), purple stoloniferous corals (<i>Clavularia</i> sp.), bubblegum corals (<i>Paragorgia arborea</i>), and black corals (<i>Bathypathes</i> sp., <i>Parantipathes larix</i> , and <i>Telopathes magna</i>). Variations in lithology were also observed, with thin intervals (20-50 cm) of much harder carbonate rock more heavily encrusted than the softer interceding areas. Five samples were collected on this dive: a demosponge, a small primnoid coral, two specimens of <i>Acanthogorgia</i> sp. with many associates including aplacophorans, and <i>Parantipathes larix</i> with associated brittlestars (Ophiacanthidae) and squat lobsters (<i>Uroptychus</i> sp.). The collected coral specimens are known species, but they will be important to support multiple genetic and evolutionary studies. Additionally, some of their associates may be new species.
Notable Observations	<ul style="list-style-type: none"> - Sheer carbonate walls extending most of the height of the western canyon wall - Heavily encrusting corals and sponges, particularly near the rim of the canyon
Community Presence/ Absence (community is defined as more than two species)	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Corals and Sponges <input type="checkbox"/> Chemosynthetic Community <input checked="" type="checkbox"/> High-biodiversity Community <input type="checkbox"/> Active Seep or Vent <input type="checkbox"/> Extinct Seep or Vent <input type="checkbox"/> Hydrates



Overall Map of the ROV Dive Area



Close-up Map of Main Dive Site



Representative Photos of the Dive

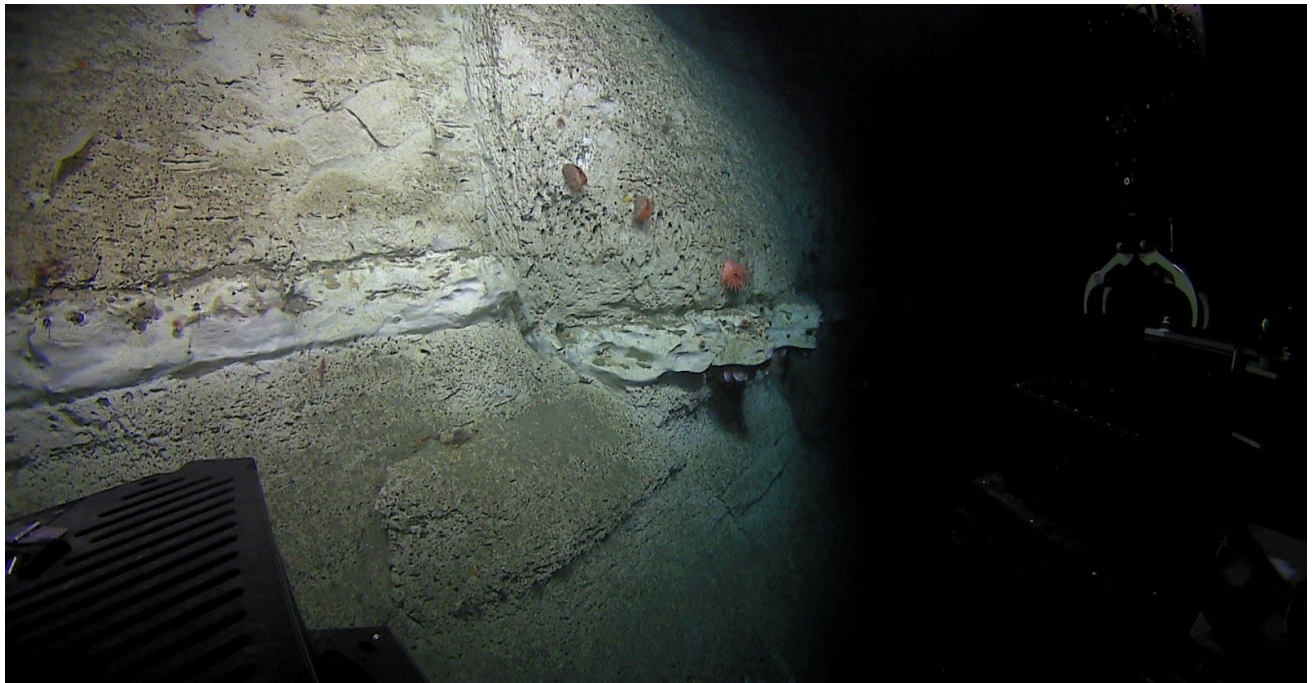


Warty octopus (*Graneledone verrucosa*) and shortfin squid (*Illex illecebrosus*) documented during the dive.

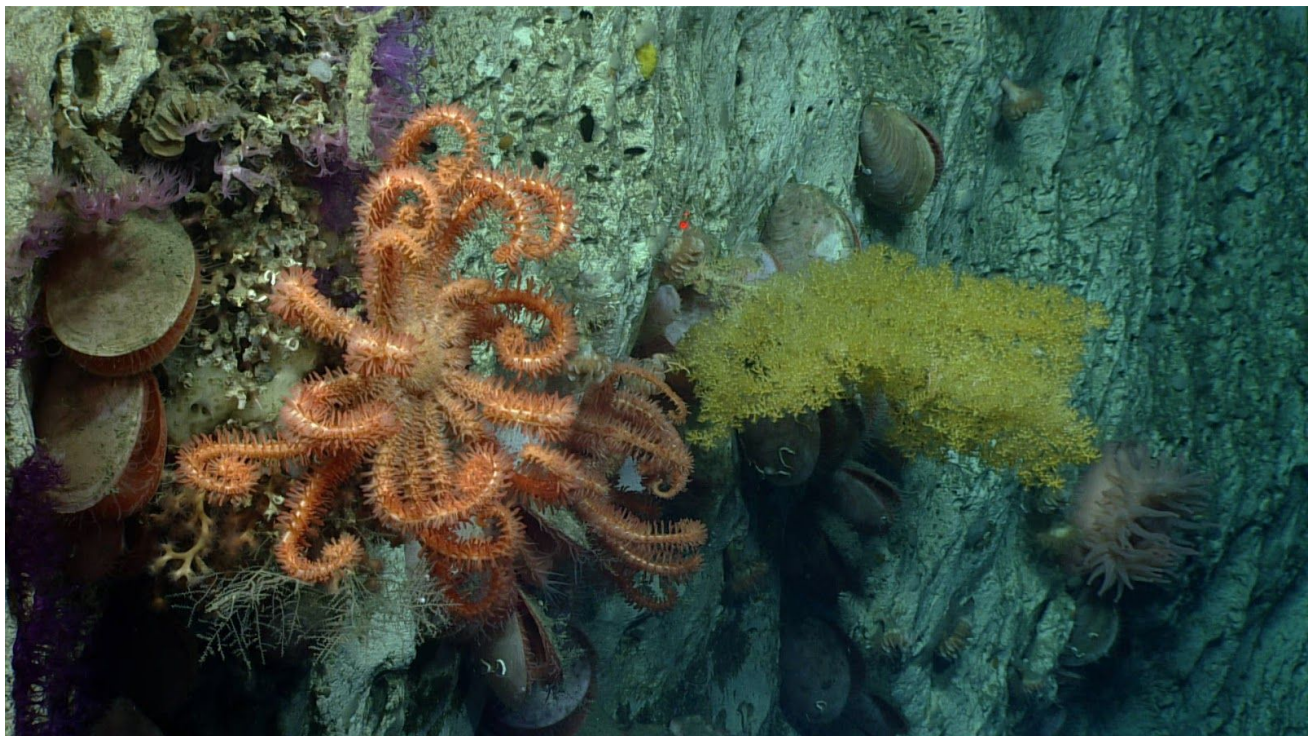


Cutthroat eel (*Synaphobranchus affinis*) feeding on a piece of fish.





Fault in rock observed during the dive. Much harder carbonate rock were more frequently overgrown by organisms compared to the softer interceding areas.



A diverse assemblage of invertebrates growing on the canyon wall, including a *Novodinia* sea star, a yellow octocoral (*Acanthogorgia* sp.), purple stoloniferous octocorals (*Clavularia* sp.), flame scallops (*Acesta cryptadelphe*), and an anemone



Samples Collected



Sample ID	EX1905L2_D12_01B		
Date (UTC)	20190914		
Time (UTC)	143812		
Latitude	39.82040		
Longitude	-70.85230		
Depth (m)	1176.9		
Temp. (°C)	4.260		
Field ID(s)	Demospongiae		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D12_01B_A01	Gastropoda	1
	EX1905L2_D12_01B_A02	Polychaeta	1
	EX1905L2_D12_01B_A03	Holothuroidia	1



Sample ID	EX1905L2_D12_02B		
Date (UTC)	20190914		
Time (UTC)	152127		
Latitude	39.82020		
Longitude	-70.85260		
Depth (m)	1164.8		
Temp. (°C)	4.295		
Field ID(s)	<i>Acanthogorgia armata</i>		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D12_02B_A01	Polychaeta	5



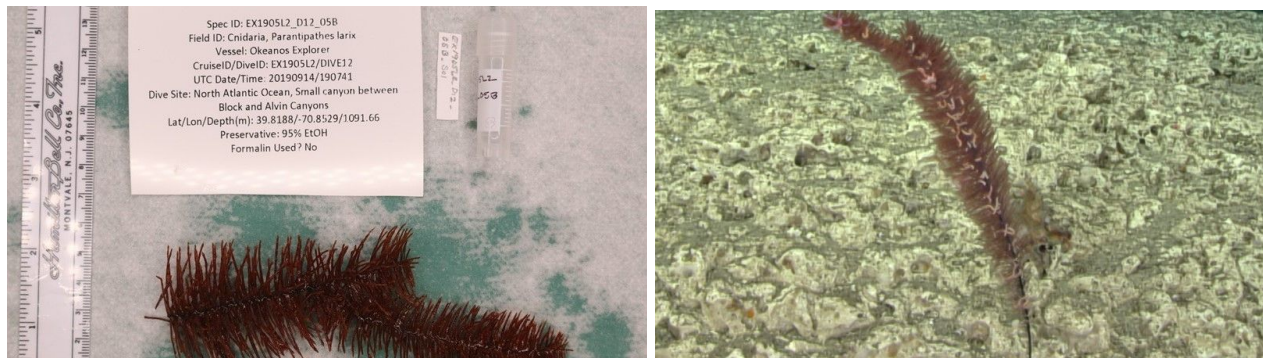


Sample ID	EX1905L2_D12_03B		
Date (UTC)	20190914		
Time (UTC)	163808		
Latitude	39.81910		
Longitude	-70.85240		
Depth (m)	1170.8		
Temp. (°C)	4.291		
Field ID(s)	Primnoidae		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D12_03B_A01	Gastropoda	1
	EX1905L2_D12_03B_A02	Sipunculida	1
	EX1905L2_D12_03B_A03	Caprellidae	1
	EX1905L2_D12_03B_A04	Amphipoda A	18
	EX1905L2_D12_03B_A05	Isopoda	1
Comments			



Sample ID	EX1905L2_D12_04B		
Date (UTC)	20190914		
Time (UTC)	173624		
Latitude	39.81870		
Longitude	-70.85270		
Depth (m)	1138.1		
Temp. (°C)	4.263		
Field ID(s)	<i>Acanthogorgia armata</i>		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D12_04B_A01	Aplacophora	2

	EX1905L2_D12_04B_A02	Actinaria	2
	EX1905L2_D12_04B_A03	Ophiacanthidae	11
	EX1905L2_D12_04B_A04	Polynoidae	23
	EX1905L2_D12_04B_A05	Polychaeta	5
Comments			



Sample ID	EX1905L2_D12_05B		
Date (UTC)	20190914		
Time (UTC)	190741		
Latitude	39.81880		
Longitude	-70.85290		
Depth (m)	1091.7		
Temp. (°C)	4.285		
Field ID(s)	<i>Parantipathes larix</i>		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D12_05B_A01	Ophiacanthidae	5
	EX1905L2_D12_05B_A02	<i>Uroptycus</i> sp.	2
Comments			

Please direct inquiries to:

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