



# 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>Retriever Seamount</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>DIVE09</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	There was a fault on the ROVs thruster, but this did not affect dive operations.		
ROV Dive Summary Data (from Processed ROV)	In Water: 2019-09-10T12:30:54.099268 39°, 48.49' N ; 66°, 12.774' W On Bottom: 2019-09-10T14:22:14.438642 39°, 48.242' N ; 66°, 12.85' W Off Bottom: 2019-09-10T19:00:31.211312 39°, 48.267' N ; 66°, 12.962' W Out Water: 2019-09-10T20:37:42.549384 39°, 49.128' N ; 66°, 11.85' W Dive duration: 8:6:48 Bottom Time: 4:38:16 Max. depth: 2671.0 m		
Special Notes	N/A		

## Scientists Involved

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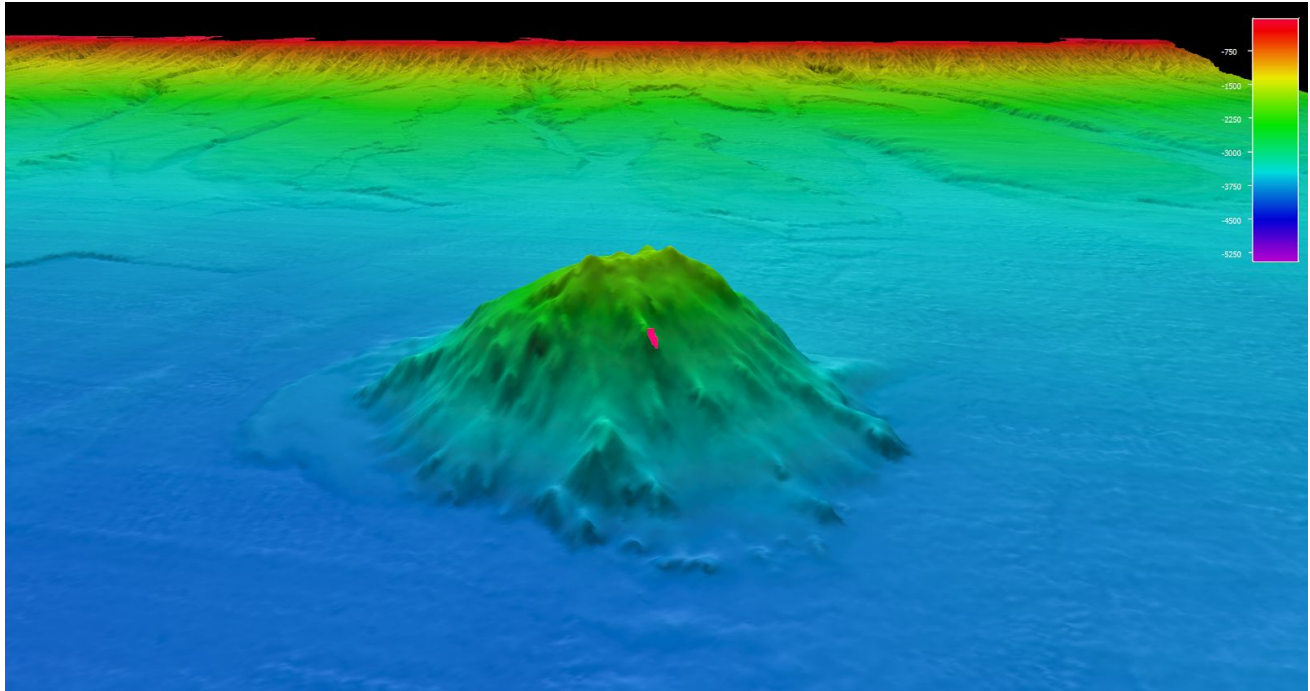


## Dive Purpose and Description

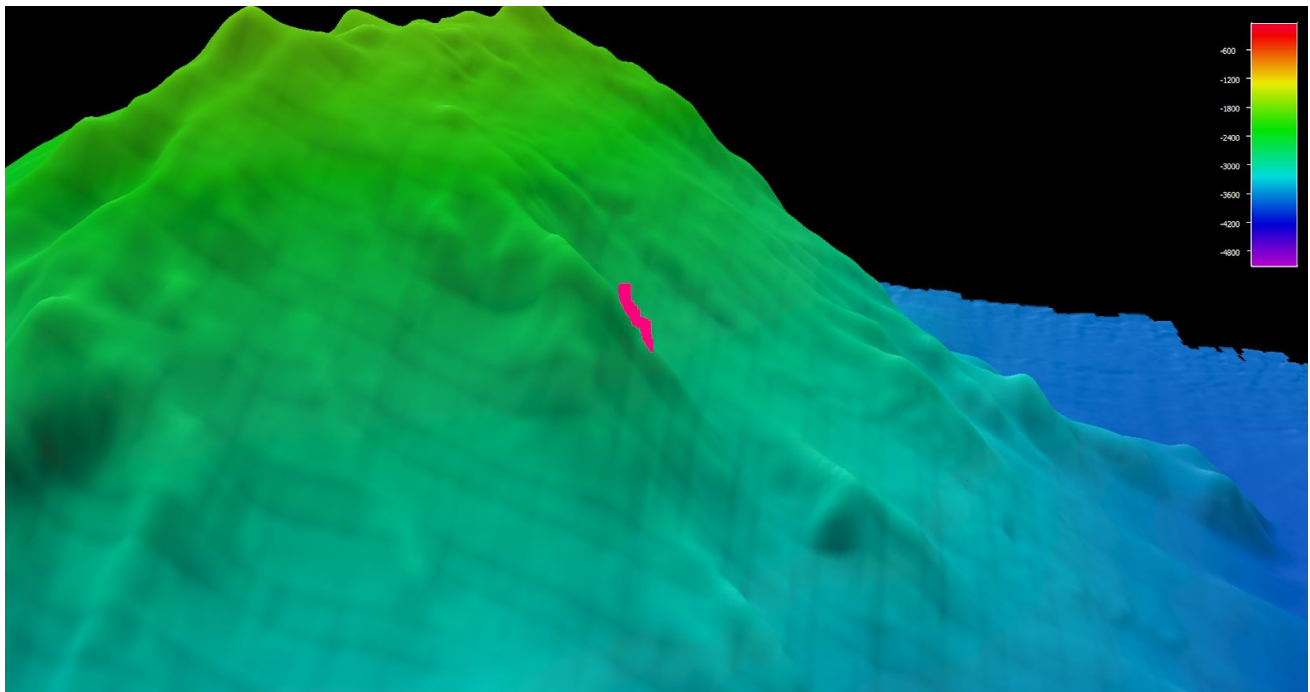
Dive Purpose	Previous dives on Retriever Seamount targeted depths >3,800 m and <2,400 m. This dive sought to explore the depth range between those two previous dives in order to add valuable new information on the diversity of habitats across various depth ranges of Retriever Seamount. Additionally, this dive explored the southeast corner of Retriever Seamount, an area of the seamount which has also not been explored. The site was expected to be highly suitable habitat for deep-sea corals and sponges as a result of the steepness of its slopes identified via seafloor mapping.
Dive Description	The ROV reached the seafloor at approximately 1430 UTC at a depth of ~2,650 m. The geological character of this dive was very uniform, consisting of igneous talus and sheer (at times vertical or overhanging) seamount walls. The igneous rock appeared to have large crystals of a deep blue or gray color within a matrix of fine black crystals. Both corals and sponges were observed in high densities on this dive, with a particularly large abundance and diversity of sponges. Observed sponges included Euplectellid glass sponges, Rossellid vase sponges, fragile Euretid wide-mouth vase sponges, <i>Polymastia</i> sp. demosponges, <i>Geodia</i> sp. demosponges, encrusting demosponges, and a number of unknown sponges. The deep-sea coral community consisted of bottlebrush golden coral ( <i>Chrysogorgia abludo</i> ), pink coral ( <i>Corallium niobe</i> and <i>Corallium bathyrubrum</i> ), large fans of bubblegum coral ( <i>Paragorgia</i> sp.), soft coral (Nidaliidae), and stoloniferous corals. Mobile benthic fauna included halosaurs ( <i>Aldrovandia</i> sp.), cusk eels (Ophidiidae), rattail fish (Macrouridae), juvenile king crabs ( <i>Neolithodius</i> sp.), and squat lobsters ( <i>Munidopsis</i> sp.). Samples collected were primarily focused on documenting the wide range of sponges observed, but also included the collection of Nidaliidae soft coral growing on a large Euretid sponge.
Notable Observations	<ul style="list-style-type: none"> <li>- Extremely high-density and diversity of sponges</li> <li>- Almost exclusively steep and rugose igneous terrain</li> </ul>
Community Presence/Absence (community is defined as more than two species)	<ul style="list-style-type: none"> <li>✓ Corals and Sponges</li> <li><input type="checkbox"/> Chemosynthetic Community</li> <li>✓ High-biodiversity Community</li> <li><input type="checkbox"/> Active Seep or Vent</li> <li><input type="checkbox"/> Extinct Seep or Vent</li> <li><input type="checkbox"/> Hydrates</li> </ul>



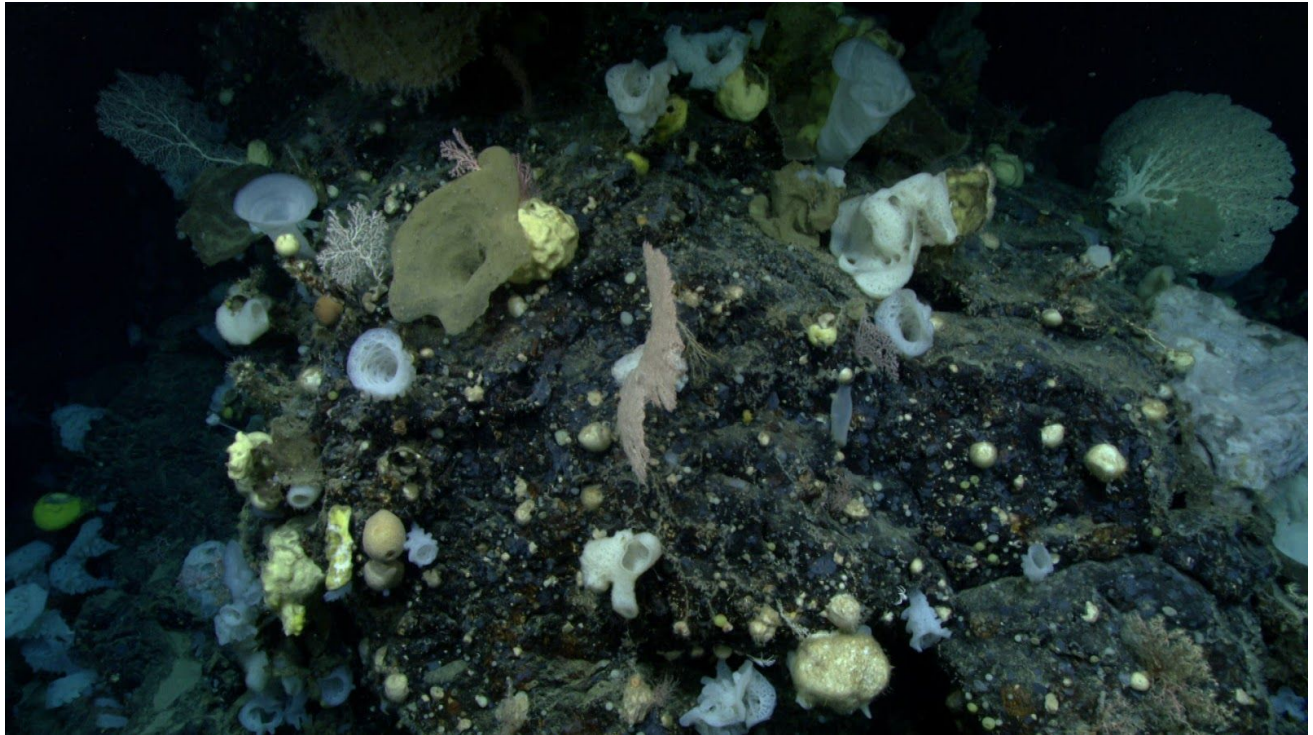
## Overall Map of the ROV Dive Area



## Close-up Map of Main Dive Site



## Representative Photos of the Dive



A stunning array of corals and sponges adorning every surface on the eastern slope of Retriever Seamount. This high diversity and density was characteristic of the entire dive.

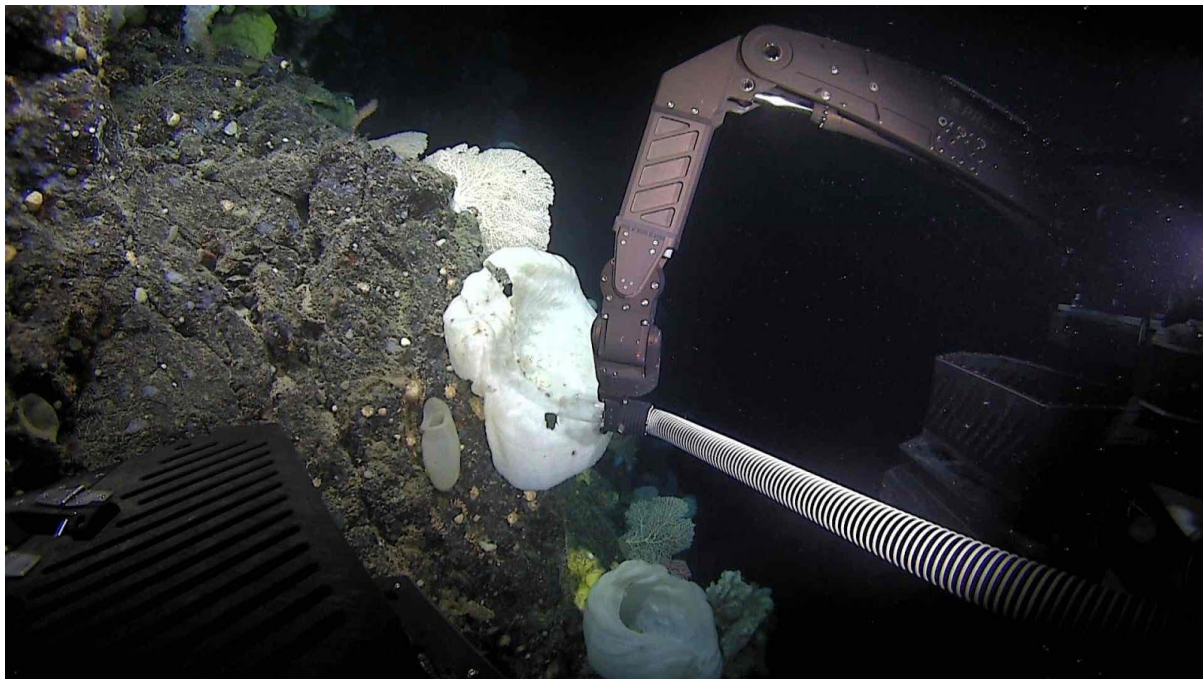


Dense aggregation of sponges. A sample of the large sponge in the center view was collected.





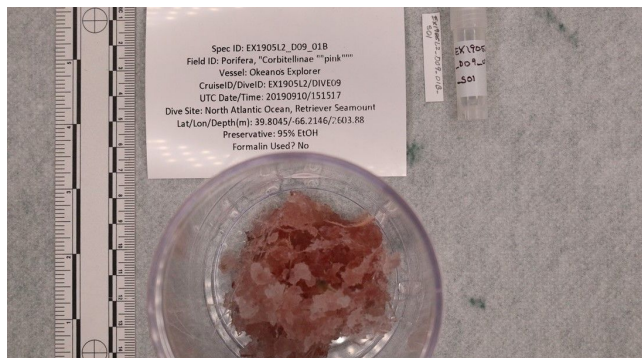
A Juvenile king crab (*Neolithodes* sp.), which was commonly observed on this dive at Retriever Seamount.



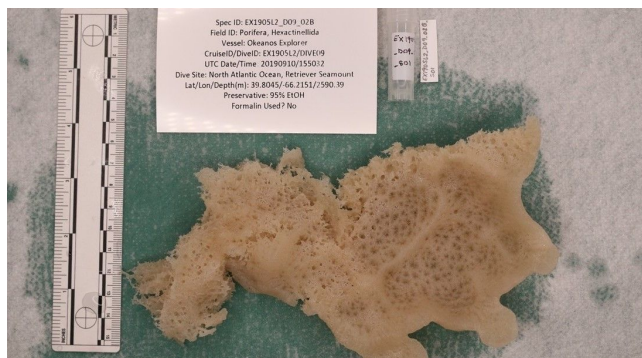
A new collection method was used for collecting this fragile glass sponge (*Euretidae*) with associated soft corals (*Nidaliidae*); the sponge was tapped with suction sampler.



## Samples Collected

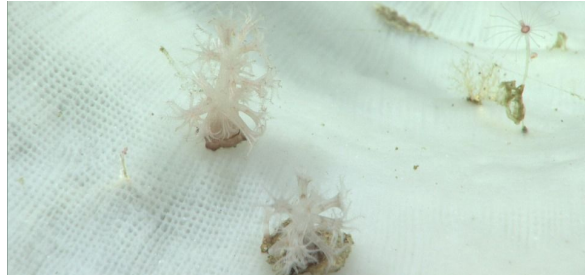


Sample ID	EX1905L2_D09_01B		
Date (UTC)	20190910		
Time (UTC)	151517		
Latitude	39.80450		
Longitude	-66.21460		
Depth (m)	2603.9		
Temp. (°C)	2.902		
Field ID(s)	Corbitellinae pink		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D09_01B_A01	Polychaeta A	16
	EX1905L2_D09_01B_A02	Polynoidae	1
	EX1905L2_D09_01B_A03	Amphipoda A	1
	EX1905L2_D09_01B_A04	Amphipoda B	1
	EX1905L2_D09_01B_A05	Amphipoda C	3
	EX1905L2_D09_01B_A06	Demospongiae	1

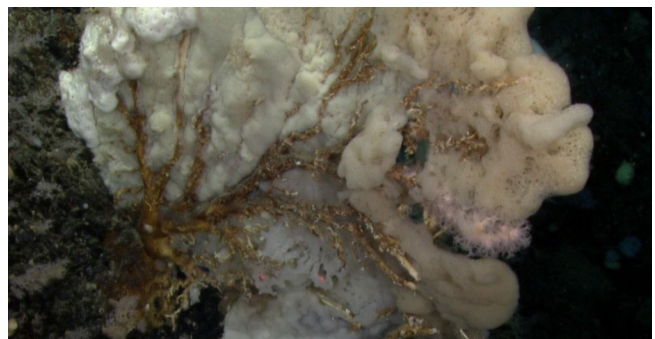
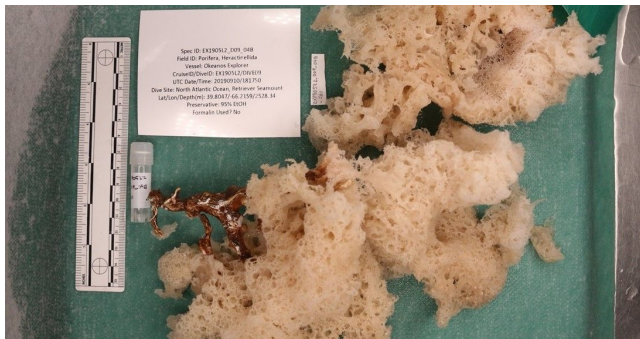


Sample ID	EX1905L2_D09_02B		
Date (UTC)	20190910		
Time (UTC)	155032		
Latitude	39.80450		
Longitude	-66.21510		
Depth (m)	2590.4		
Temp. (°C)	3.008		
Field ID(s)	Hexactinellida		
Commensals	No commensals		





Sample ID	EX1905L2_D09_03B		
Date (UTC)	20190910		
Time (UTC)	173922		
Latitude	39.80460		
Longitude	-66.21590		
Depth (m)	2539.6		
Temp. (°C)	3.255		
Field ID(s)	Nidaliidae		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D09_03B_A01	Euretidae	1
	EX1905L2_D09_03B_A02	Polychaeta	1
	EX1905L2_D09_03B_A03	Munidopsis sp.	1



Sample ID	EX1905L2_D09_04B		
Date (UTC)	20190910		
Time (UTC)	181750		
Latitude	39.80470		
Longitude	-66.21590		
Depth (m)	2528.3		
Temp. (°C)	3.279		
Field ID(s)	Hexactinellida		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D09_04B_A01	Zoantharia	1
	EX1905L2_D09_04B_A02	Isopoda	1
	EX1905L2_D09_04B_A03	Nidaliidae	1
	EX1905L2_D09_04B_A04	Amphipoda	1
	EX1905L2_D09_04B_A05	Scapellidae	1
	EX1905L2_D09_04B_A06	Balanoidea	2
	EX1905L2_D09_04B_A07	Hydroidolina	1
	EX1905L2_D09_04B_A08	Corallium dead	1







Sample ID	EX1905L2_D09_05B		
Date (UTC)	20190910		
Time (UTC)	185819		
Latitude	39.80450		
Longitude	-66.21600		
Depth (m)	2503.9		
Temp. (°C)	3.302		
Field ID(s)	Geodiidae		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D09_05B_A01	Ophiurida	1
	EX1905L2_D09_05B_A02	Zoantharia	2
	EX1905L2_D09_05B_A03	<i>Corallium</i> dead	1
Comments			

**Please direct inquiries to:**

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