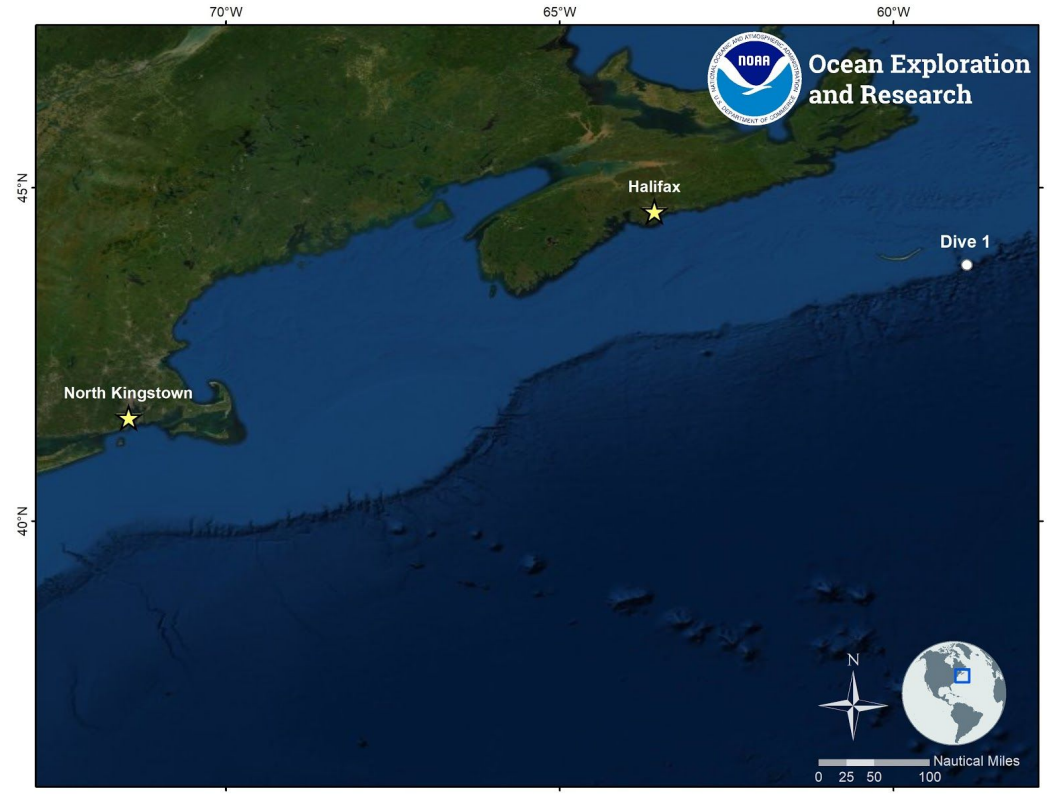
Okeanos Explorer ROV Dive Summary

Dive Information

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

ROV Dive Name

Cruise	EX1905L2
Dive Number	DIVE01

Equipment Deployed

ROV	*Deep Discoverer*		
Camera Platform	*Seirios*		
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	The ROV had trouble purging air from the suction sampler hose on descent, and as a result lost roughly 10 minutes on the way down. There were no other equipment issues.		
ROV Dive Summary Data (from Processed ROV)	In Water: 2019-08-29T16:38:31.205285 43°, 54.093' N ; 58°, 56.454' W On Bottom: 2019-08-29T17:57:06.310209 43°, 53.987' N ; 58°, 56.435' W Off Bottom: 2019-08-29T21:56:03.153147 43°, 54.106' N ; 58°, 56.381' W Out Water: 2019-08-29T22:39:26.881961 43°, 54.075' N ; 58°, 56.198' W Dive duration: 6:0:55 Bottom Time: 3:58:56 Max. depth: 1348.0 m		
Special Notes	N/A		

Scientists Involved

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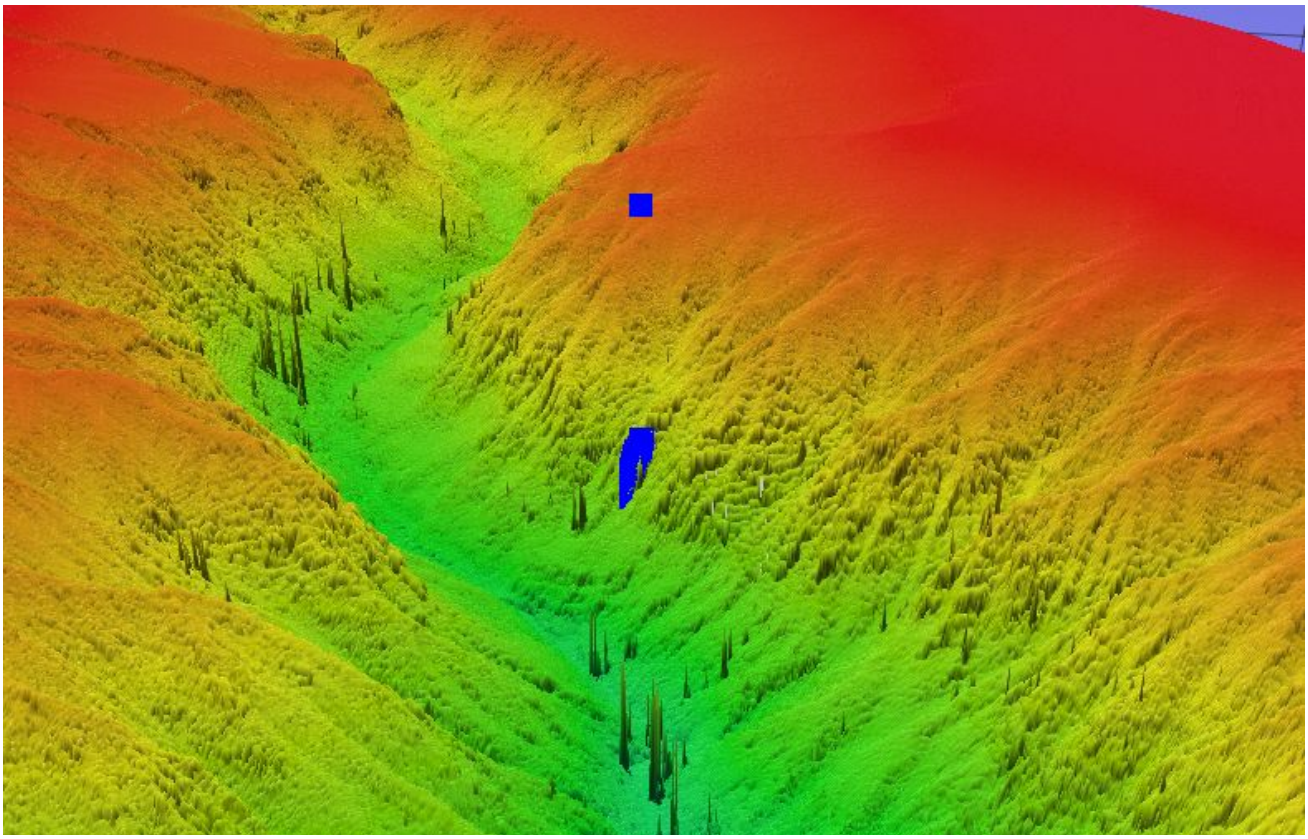
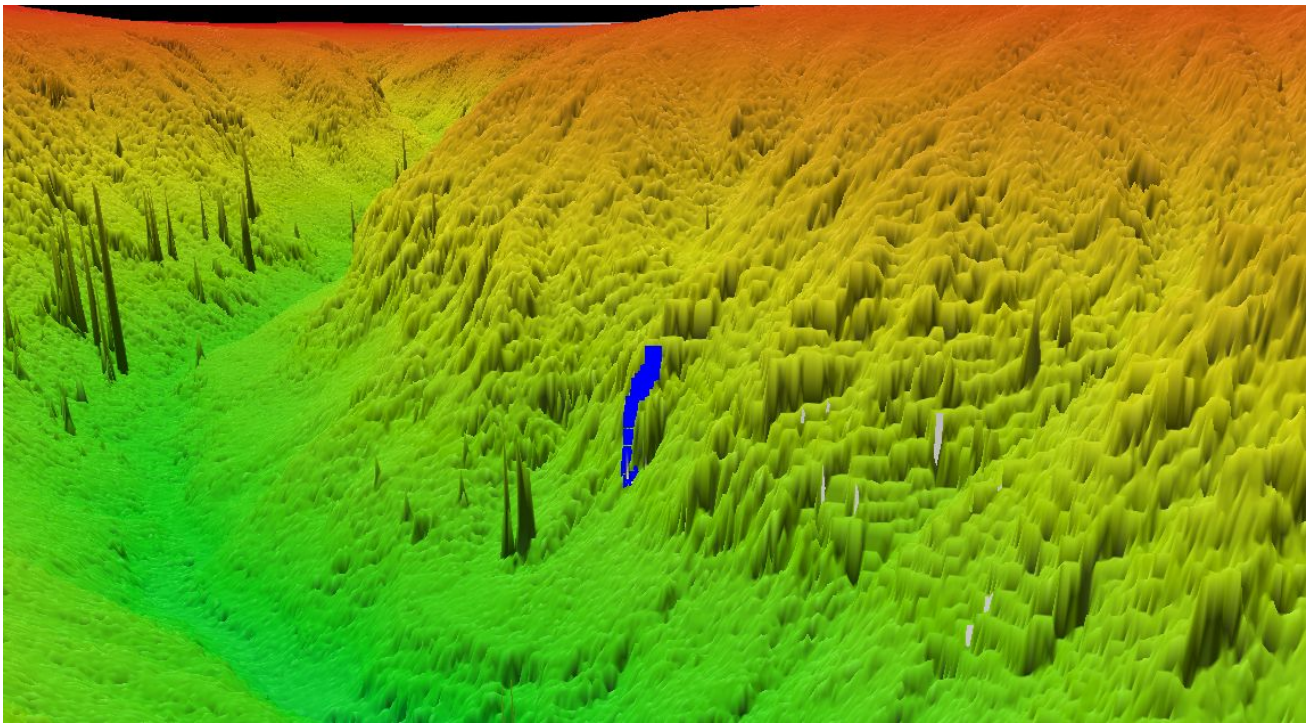
Dive Purpose and Description

Dive Purpose	This dive was located within the Gully Marine Protected Area (MPA), which protects the largest submarine canyon in the Western North Atlantic. This productive environment is host to a number of protected fish and marine mammal species, and assessment of biodiversity is critical for effective MPA management. The dive was meant to explore the eastern wall of the Gully Canyon, which has never been surveyed with deep-sea submersibles. Additionally, this dive sought to document and collect several species of sponges and corals which are thought to be new to science. Furthermore, this dive sought to explore the recent geological activity of the canyon in the form of seabed ripples, fresh debris fields, and axial canyon incision.
Dive Description	Shortly after reaching the seafloor near the eastern canyon wall (1350 m), a large boulder was sighted, which was encrusted with sessile fauna, including bamboo corals (*Keratoisis* sp.), anemones (*Phorosoma placenta*), soft corals (*Anthomastus* sp.), and soloniferous corals (*Hexadella* sp.). The transit up the eastern wall of the canyon began soon thereafter, but vigorous bottom currents made maneuvering and positioning of the ROV for photography difficult. Bamboo corals were observed in high abundance, which had not been documented during previous explorations on the western flank of the Gully Canyon. Two undescribed specimens of glass sponge were collected, a euplectellid vase sponge (*Dictyaulus/Euplectella*) and a ruffled sponge in the subfamily Corbitellinae. The canyon wall morphology was distinctive, with steep slopes and sheer cliffs in addition to slope parallel rills and abundant evidence of mass wasting. Several corals were also observed that were previously not recorded from this region, including a nodal branching bamboo coral and bubblegum coral (*Paragorgia*), which were collected as samples. The ROV left the seafloor at a final depth of approximately 1100 m, after having collected five total samples.
Notable Observations	- Collected three specimens of sponges identified as high priority by Fisheries and Oceans Canada - Several corals observed that were not previously known from this region - Steep and rugose canyon wall topography, including slope parallel rills
Community Presence/ Absence (community is defined as more than two species)	✓ Corals and Sponges □ Chemosynthetic Community ✓ High-biodiversity Community □ Active Seep or Vent □ Extinct Seep or Vent □ Hydrates

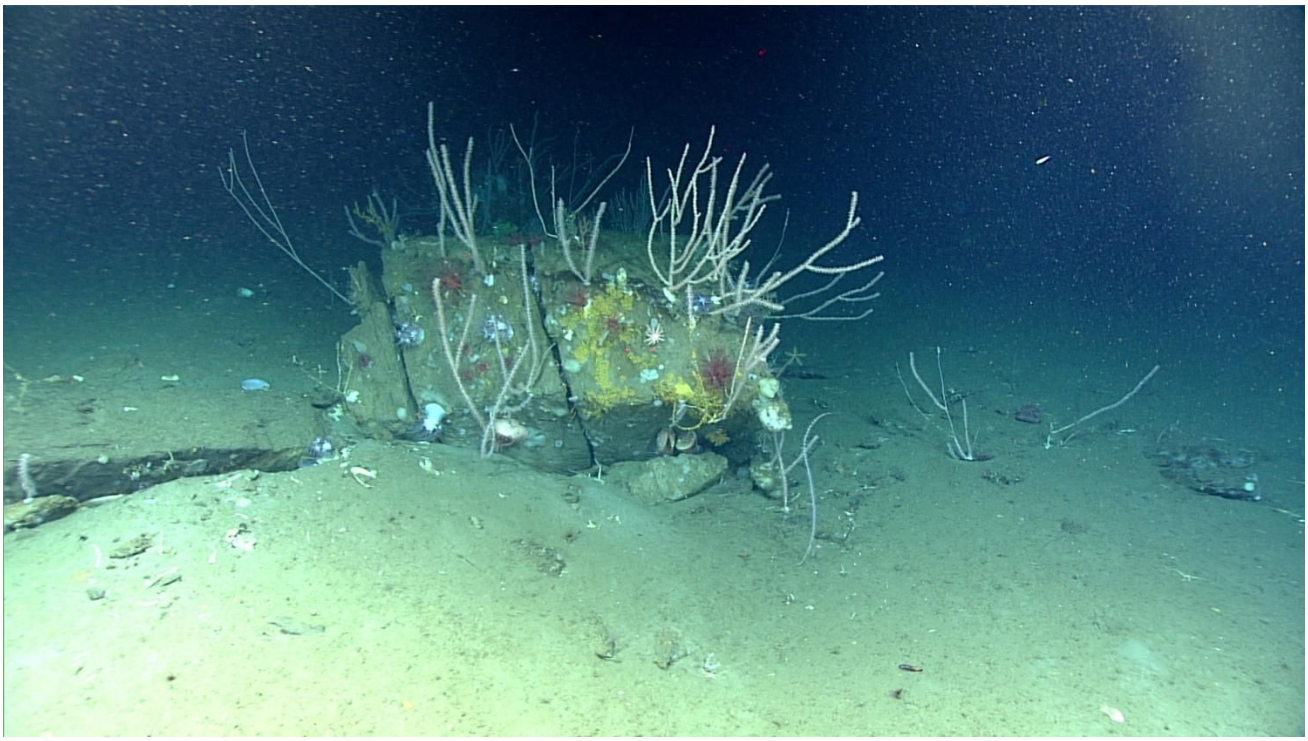
Overall Map of the ROV Dive Area



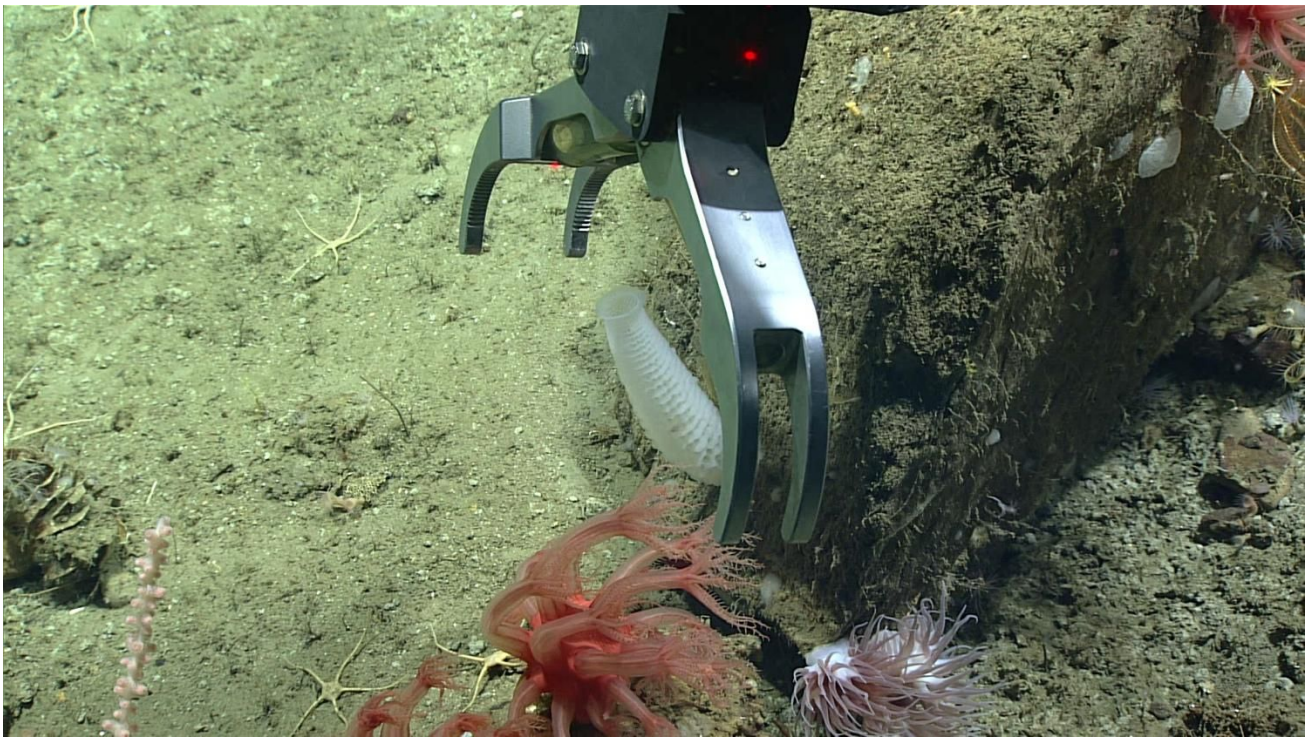
Close-up Map of Main Dive Site



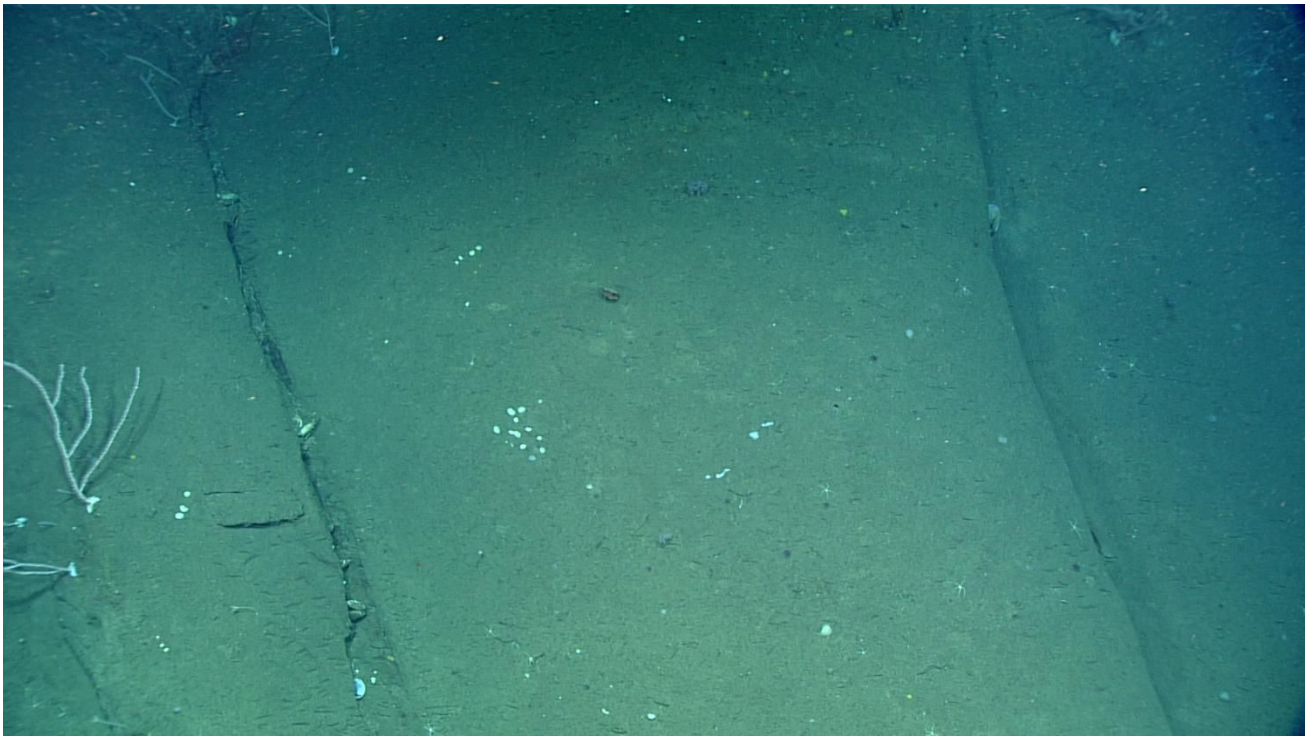
Representative Photos of the Dive



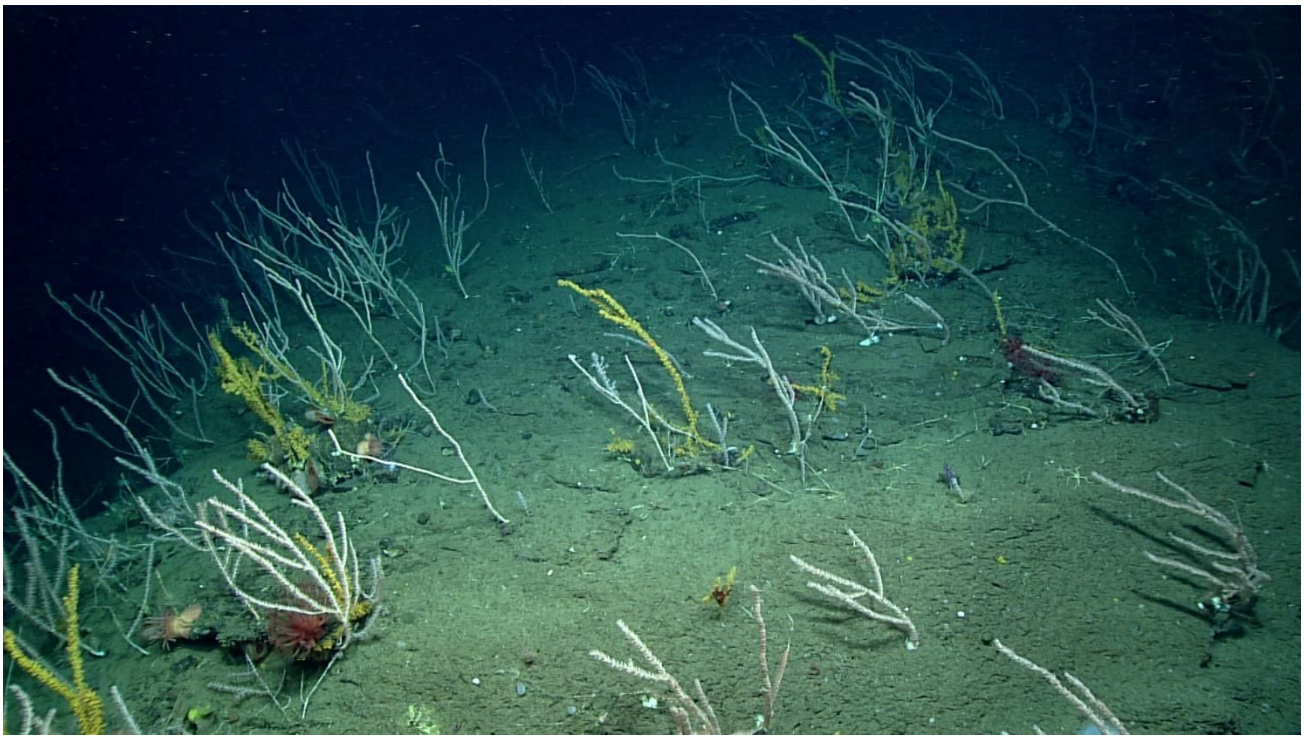
Large clast in proximity of east canyon wall encrusted with bamboo corals, mushroom corals, stoloniferous coral, crinoids, demosponges sponges, and anemones.



Sampling euplectellid vase glass sponge (Dicytaulus/Euplectella) which likely represents new species.



Slope parallel rills abundant on eastern canyon walls.



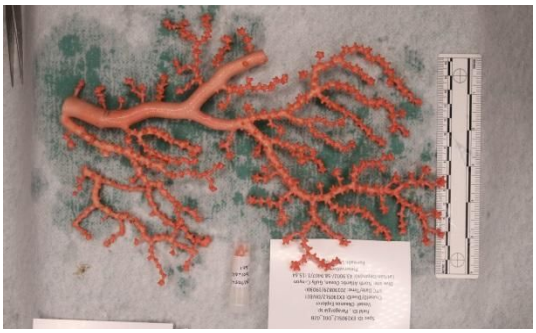
Dense deep-sea coral community on the eastern wall of Gully Canyon featuring an abundance of *Keratoisis* bamboo corals, parazoanthids, *Anthomastus* mushroom coral, and various invertebrate associates.

Samples Collected

Sample ID	EX1905L2_D01_01B
Date (UTC)	20190829
Time (UTC)	184539
Latitude	43.90010
Longitude	-58.94060
Depth (m)	1317.1
Temp. (˚C)	3.931
Field ID(s)	*Dictyaulus* sp.
Commensals	

Commensal Sample ID	Field Identification	Count
EX1905L2_D01_01B_A01	Decapoda shrimp white	2

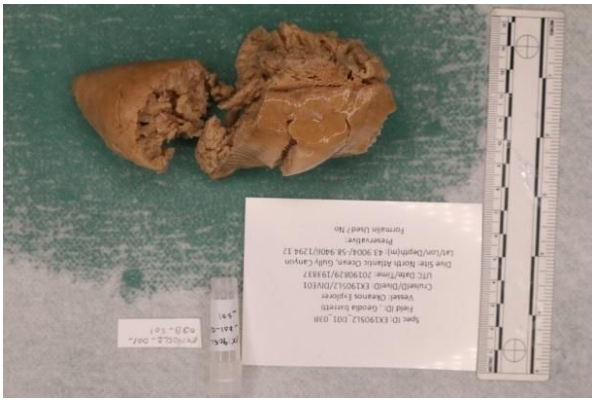
Comments	N/A



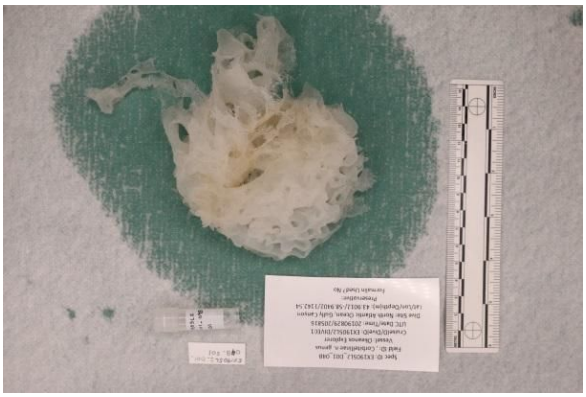
Sample ID	EX1905L2_D01_02B
Date (UTC)	20190829
Time (UTC)	190300
Latitude	43.90020
Longitude	-58.94070
Depth (m)	1315.6
Temp. (˚C)	3.968
Field ID(s)	*Paragorgia* sp.
Commensals	

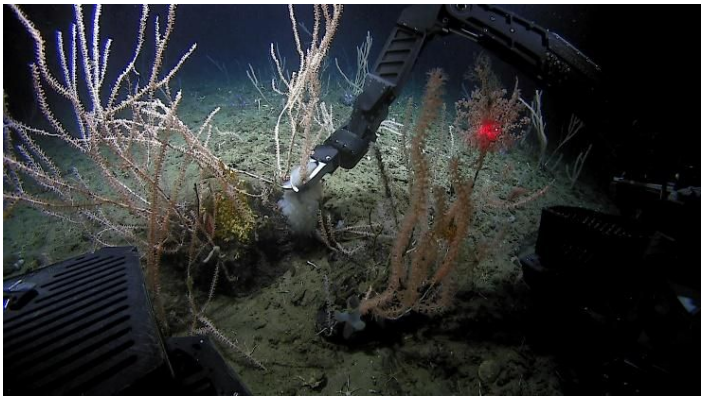
Commensal Sample ID	Field Identification	Count
EX1905L2_D01_02B_A01	Asteroschematidae	2
EX1905L2_D01_02B_A02	Pycnogonidae	1
EX1905L2_D01_02B_A03	Amphipoda	4
EX1905L2_D01_02B_A04	Polychaeta	19

Comments	N/A



Sample ID	EX1905L2_D01_03B
Date (UTC)	20190829
Time (UTC)	193837
Latitude	43.90040
Longitude	-58.94060
Depth (m)	1294.1
Temp. (˚C)	3.969
Field ID(s)	*Geodia barretti*
Commensals	No commensals
Comments	N/A

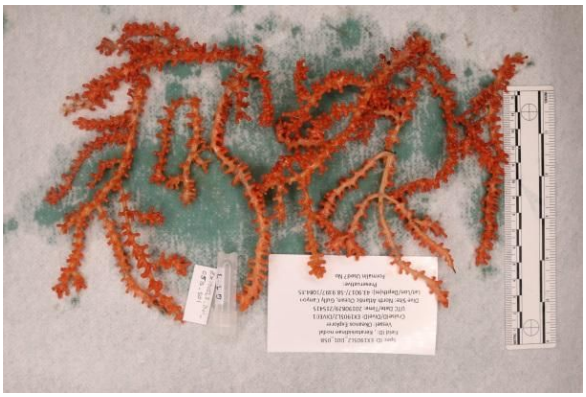




Sample ID	EX1905L2_D01_04B
Date (UTC)	20190829
Time (UTC)	205816
Latitude	43.90120
Longitude	-58.94020
Depth (m)	1142.5
Temp. (˚C)	4.040
Field ID(s)	Corbitellinae new genus
Commensals	

Commensal Sample ID	Field Identification	Count
EX1905L2_D01_04B_A01	*Keratoisis* sp.	1

Comments	N/A



Sample ID	EX1905L2_D01_05B
Date (UTC)	20190829
Time (UTC)	215415
Latitude	43.90170
Longitude	-58.93970
Depth (m)	1084.9
Temp. (˚C)	4.131
Field ID(s)	Keratoisidinae nodal
Commensals	
Comments	

Commensal Sample ID	Field Identification	Count
EX1905L2_D01_05B_A01	Mysida	1
EX1905L2_D01_05B_A02	Decapoda shrimp	1

Please direct inquiries to:

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