



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>Kinlan Canyon</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>DIVE06</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)	In Water:	2019-09-03T14:26:02.717985 40°, 51.107' N ; 66°, 32.501' W	
	On Bottom:	2019-09-03T15:21:22.997190 40°, 51.01' N ; 66°, 32.52' W	
	Off Bottom:	2019-09-03T19:48:31.441119 40°, 51.206' N ; 66°, 32.38' W	
	Out Water:	2019-09-03T20:32:06.965881 40°, 50.805' N ; 66°, 32.5' W	
	Dive duration:	6:6:4	
	Bottom Time:	4:27:8	
	Max. depth:	1076.0 m	
Special Notes	N/A		



Scientists Involved

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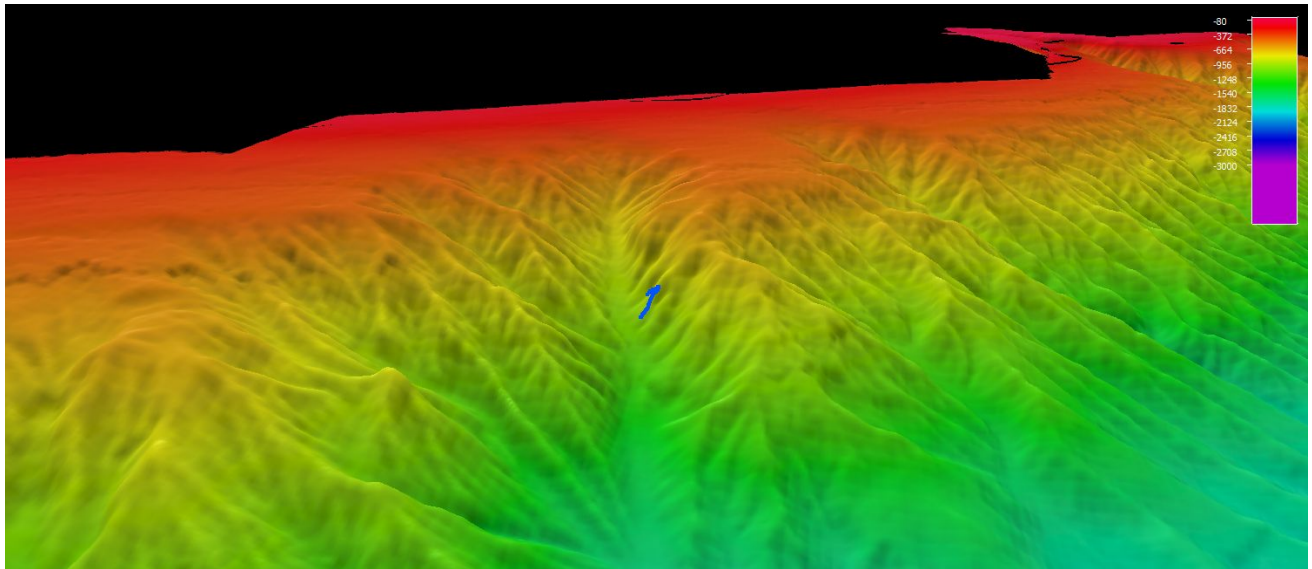


Dive Purpose and Description

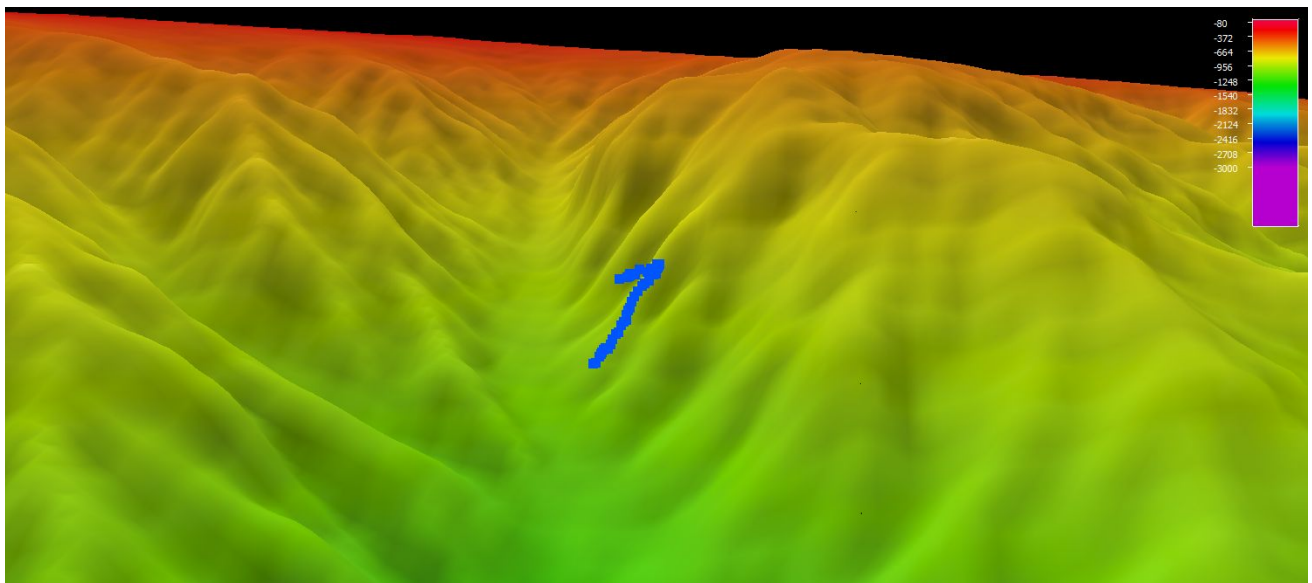
Dive Purpose	Two previous dives have been conducted in Kinlan Canyon, including a ROV <i>Deep Discoverer</i> dive in 2013 and a ROV <i>ROPOS</i> dive in 2017. Both of those dives documented communities of the reef-building coral <i>Lophelia pertusa</i> . The purpose of this dive was to assess the intra-canyon extent of <i>Lophelia pertusa</i> and other coral and sponge communities. This was also a tribute dive dedicated to the memory of Dr. Brian Kinlan, a former NOAA scientist who pioneered the use of predictive habitat suitability modeling for scientific exploration and conservation, after who this canyon was named.
Dive Description	The ROV reached the seafloor at 1520 UTC; the substrate was soft with a community of fishes, such as cutthroat eels (<i>Synaphobranchus gracilis</i>) and long-finned hake (<i>Phycis chesteri</i>), as well as various invertebrates, including spiny “lobsterette” (<i>Sabinea hystrix</i>), short-finned squid (<i>Illex illecebrosus</i>), red crabs, and pancake urchins (Echinothruidae). The northern canyon wall was reached, but the landing point was slightly away from the planned one, so an adjustment was made to ascend the canyon wall on a ridge arm, instead of a gully. At approximately 1800 UTC, at ~1060 m water depth, the slope transitioned from relatively smooth, blanketed with fine grained sediments, to large boulders and cobbles encrusted with corals, sponges, and other invertebrates. This transitioned into sheer cliff walls of poorly sorted sandstone matrix, likely from the same geological formation as that observed at the base of the minor unnamed canyon on dive 5. We decided to transit along the canyon walls, so as to stay within the same geological unit and maximize our chances of observing <i>Lophelia pertusa</i> predicted to be within the canyon. The walls supported a dense deep-sea coral and sponge community consisting of stoloniferous octocorals, bamboo coral (Keratoisidnae), bubblegum coral (<i>Paragorgia</i>), stony corals (<i>Lophelia pertusa</i> and other single polyp scleractinians), demosponges (both large colonies and encrusting Poeciloscerida), and glass sponges. Five total samples were obtained: Euplectellidae vase sponge, <i>Hertwigia</i> sp. glass sponge, yellow plate-like demosponge, <i>Geodia</i> sp. demosponge, and <i>Paragorgia</i> sp. bubblegum coral.
Notable Observations	<ul style="list-style-type: none"> - Sheer cliff walls similar to those observed in the minor unnamed canyon on dive 5, at similar depths - <i>Lophelia pertusa</i> and numerous other corals - Potentially undescribed sponges collected during dive
Community Presence/Absence (community is defined as more than two species)	<ul style="list-style-type: none"> ✓ Corals and Sponges <input type="checkbox"/> Chemosynthetic Community ✓ 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



Cutthroat eel (*Synaphobranchus gracilis*) with a large copepod parasite. The long yellow streamers are the reproductive structures of the copepod.

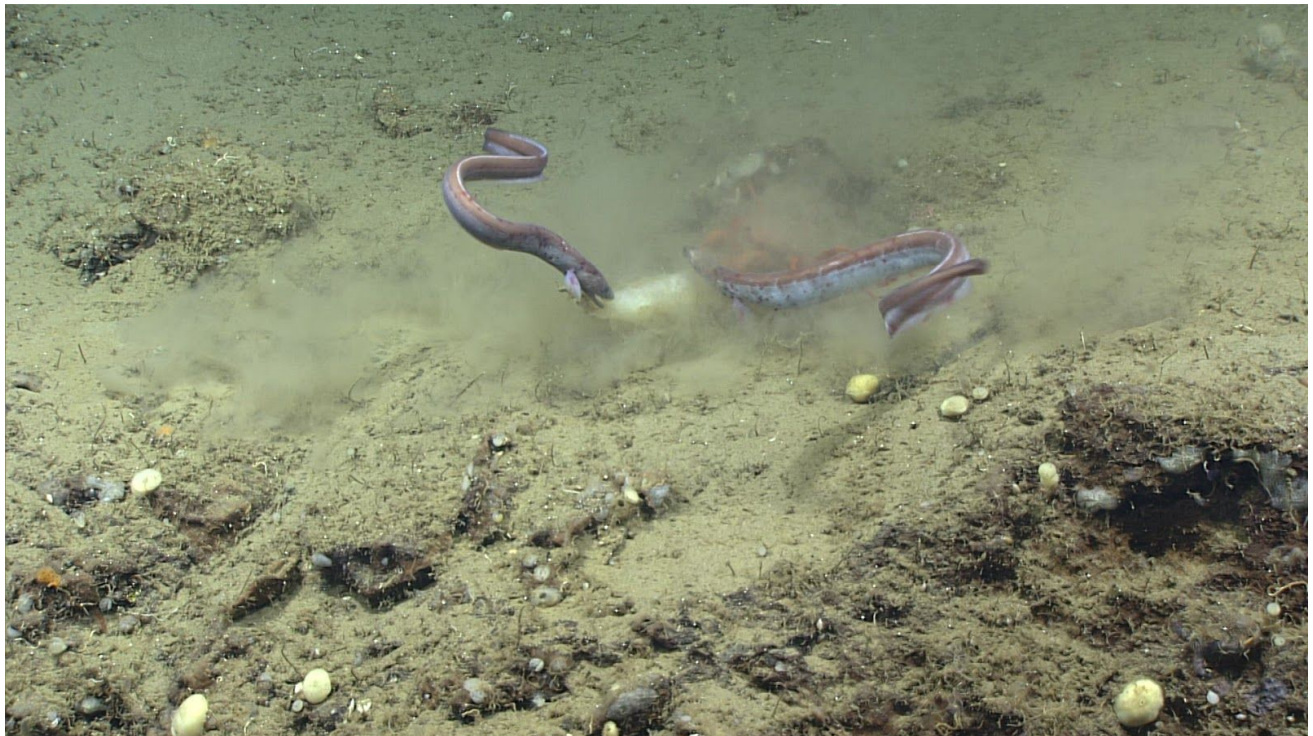


Grouping of flame scallops (*Acesta cryptadelphe*) on the wall of Kinlan Canyon.





Large bubblegum coral (*Paragorgia* sp.) with a number of snakestar (*Euryalida*) associates in its branches.



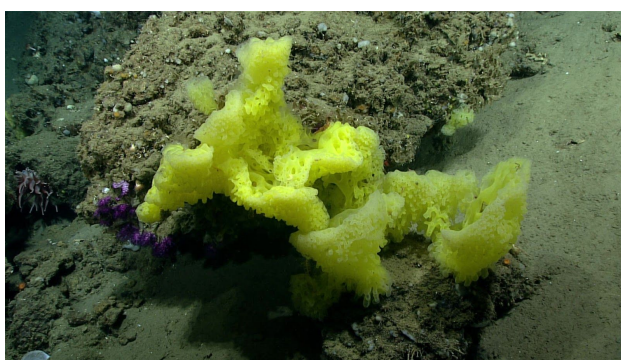
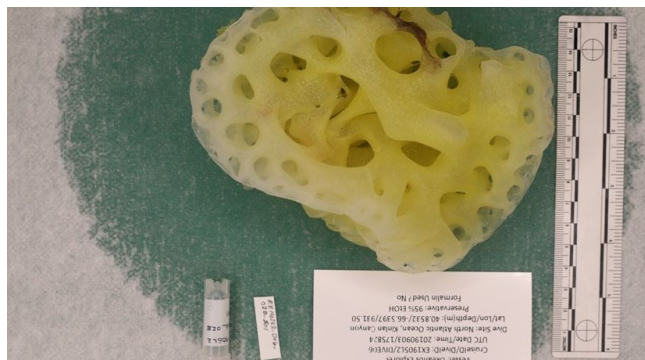
Two cutthroat eels (*Synphobranchus gracilis*) fight a crab for a piece of short-finned squid.



Samples Collected



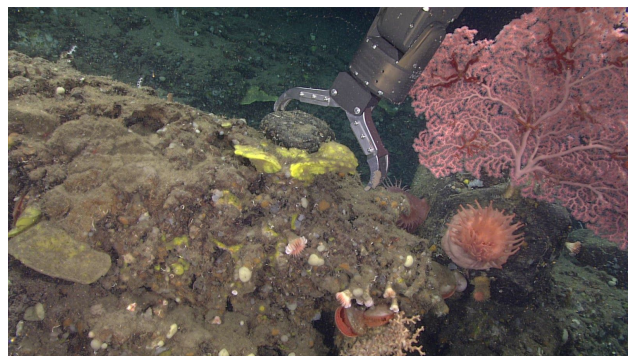
Sample ID	EX1905L2_D06_01B		
Date (UTC)	20190903		
Time (UTC)	174330		
Latitude	40.85320		
Longitude	-66.53970		
Depth (m)	935.0		
Temp. (°C)	4.534		
Field ID(s)	<i>Regadrella</i> sp.?		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D06_01B_A01	Decapod shrimp	2
	EX1905L2_D06_01B_A02	Polychaete	1
	EX1905L2_D06_01B_A03	Ophiuroidea	2
	EX1905L2_D06_01B_A04	Gastropoda A	1
	EX1905L2_D06_01B_A05	Gastropoda B	1
	EX1905L2_D06_01B_A06	Poecilasmatidae	1
	EX1905L2_D06_01B_A07	Rock?	1
Comments	N/A		



Sample ID	EX1905L2_D06_02B		
Date (UTC)	20190903		
Time (UTC)	175824		
Latitude	40.85320		
Longitude	-66.53970		
Depth (m)	931.5		

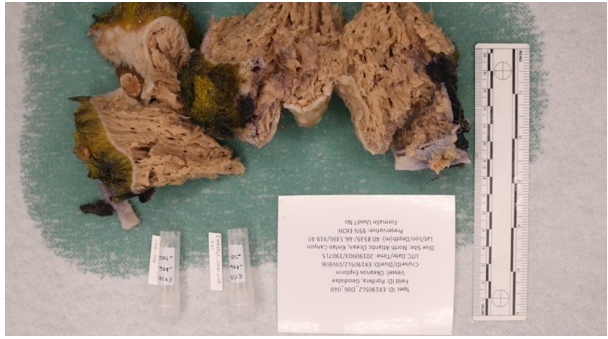


Temp. (°C)	4.568		
Field ID(s)	<i>Hertwigia</i> sp. yellow		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D06_02B_A01	Polynoidae	2
	EX1905L2_D06_02B_A02	Polychaeta	1
	EX1905L2_D06_02B_A03	Gastropoda	1
	EX1905L2_D06_02B_A04	Ophiacanthidae	1
	EX1905L2_D06_02B_A05	Isopoda	2
	EX1905L2_D06_02B_A06	Amphipoda	4
	EX1905L2_D06_02B_A07	Polychaeta	3
	Comments	N/A	

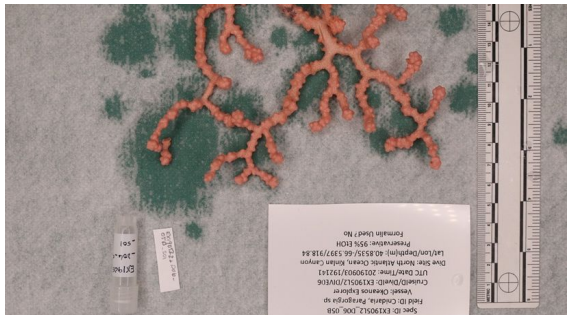


Sample ID	EX1905L2_D06_03B		
Date (UTC)	20190903		
Time (UTC)	184249		
Latitude	40.85330		
Longitude	-66.53960		
Depth (m)	923.7		
Temp. (°C)	4.552		
Field ID(s)	<i>Pocillastra</i> sp.? yellow		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D06_03B_A01	Ophiurida	1
	EX1905L2_D06_03B_A02	Amphipoda	1
	EX1905L2_D06_03B_A03	Polychaeta	2
Comments	N/A		





Sample ID	EX1905L2_D06_04B		
Date (UTC)	20190903		
Time (UTC)	190715		
Latitude	40.85350		
Longitude	-66.53960		
Depth (m)	919.4		
Temp. (°C)	4.574		
Field ID(s)	Geodiidae		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D06_04B_A01	<i>Placiphorella atlantica</i>	2
	EX1905L2_D06_04B_A02	Hanleya nagelfar	1
	EX1905L2_D06_04B_A03	Ophiurida	2
	EX1905L2_D06_04B_A04	Polychaeta	1
	EX1905L2_D06_04B_A05	Polychaeta B	1
Comments	N/A		



Sample ID	EX1905L2_D06_05B		
Date (UTC)	20190903		
Time (UTC)	192141		
Latitude	40.85350		
Longitude	-66.53970		
Depth (m)	918.8		
Temp. (°C)	4.576		
Field ID(s)	<i>Paragorgia</i> sp.		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D06_05B_A01	Eurylida	1
	EX1905L2_D06_05B_A02	Ctenophore	2

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