



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>Unnamed 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>DIVE05</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: 2019-09-02T12:34:31.437175 40°, 54.483' N ; 66°, 30.327' W On Bottom: 2019-09-02T13:35:29.320403 40°, 54.343' N ; 66°, 30.028' W Off Bottom: 2019-09-02T20:10:47.070757 40°, 54.046' N ; 66°, 30.233' W Out Water: 2019-09-02T20:36:06.896178 40°, 53.906' N ; 66°, 30.061' W Dive duration: 8:1:35 Bottom Time: 6:35:17 Max. depth: 758.0 m		
Special Notes	N/A		

Scientists Involved

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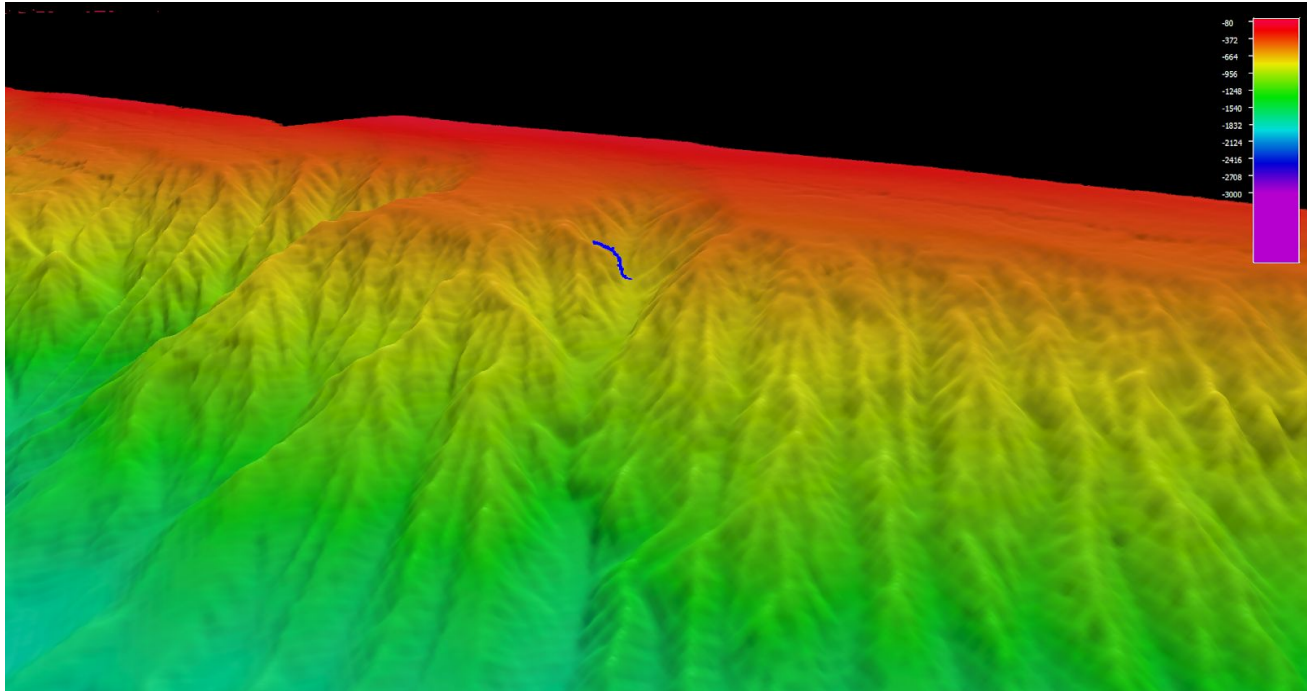


Dive Purpose and Description

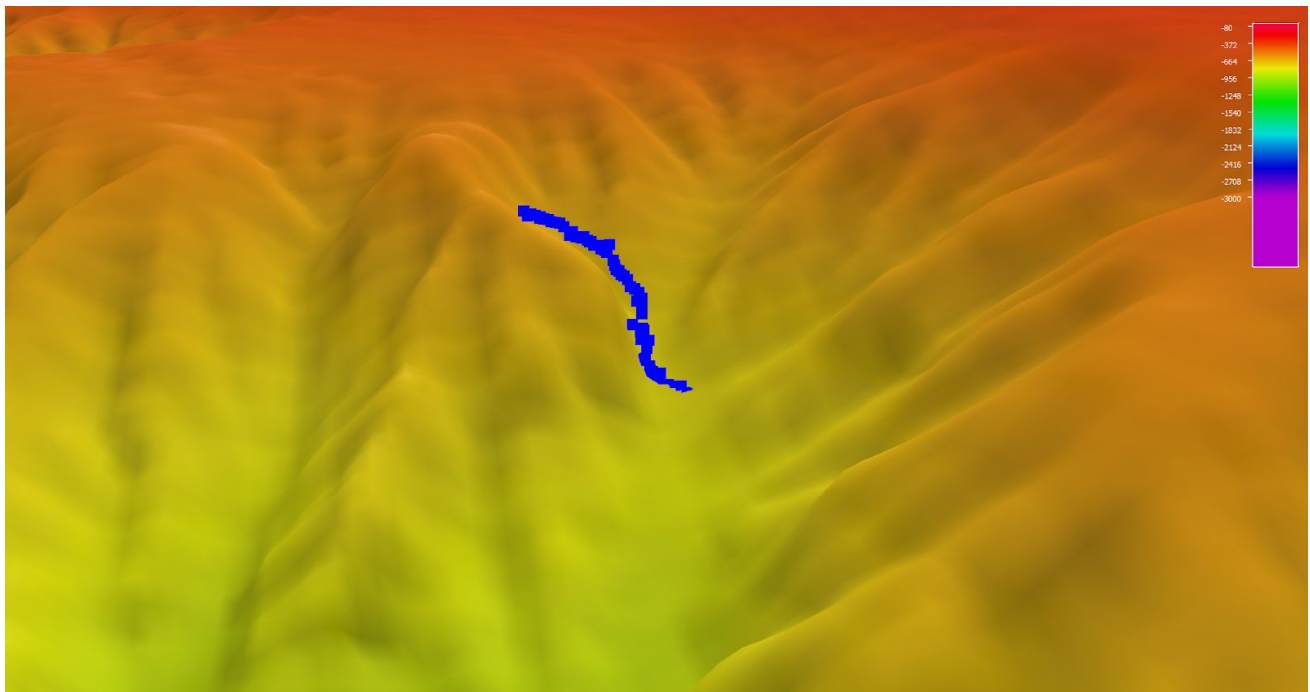
Dive Purpose	This unnamed canyon, as well as many nearby shelf-sourced minor canyons in this region have mostly been unexplored. Kinlan Canyon, located south of this unnamed canyon, is known to be suitable habitat for <i>Lophelia pertusa</i> coral communities. The planned dive track was designed to cross the canyon axis and thereby sought to assess the geologically recent sediment transport history of the canyon, as well as investigate the benthic communities of the area.
Dive Description	<i>Deep Discoverer</i> landed on the seafloor at approximately 1330 UTC proximal to the northern wall of the unnamed canyon axis. The current was relatively strong, likely in excess of 50 cm/s. The floor of the canyon was predominantly soft sediment, with a similar biological assemblage as that observed at the <i>Vazella</i> sponge grounds site, with quill worms (<i>Hyalinocia tubicola</i>), lantern sharks (<i>Centrosymnus</i> sp.), schools of fin squid (<i>Illex illecebrosus</i>), and deep-sea red crabs (<i>Chaceon quinquidens</i>). Several clumps of <i>Lophelia pertusa</i> skeleton were observed in the axis of the canyon with sediment displaced around them, suggesting that they fell off the northern canyon wall. As we transversed the canyon axis, we observed abundant evidence for slope failure in the form of large boulders, which hosted sponges, <i>Desmophyllum</i> cup corals, yellow plexauid corals, and hormathiid anemones. Upon reaching the southern wall of the canyon, where our ascent path was planned, we discovered sheer walls of sandstone and limestone heavily encrusted with corals, sponges, and other invertebrates. Three large specimens of Atlantic Halibut (<i>Hippoglossus hippoglossus</i>) were observed, an endangered species. The planned ascent up the southern canyon wall was halted to clear a suspended fishing line, and abundant evidence of fishing gear was spotted along the bottom. Shortly after beginning our ascent along the wall, the canyon wall abruptly transitioned to a more mildly sloping, fine sediment environment similar to the Northeast Channel dive site. We collected four total samples: one krill (<i>Meganytiphanes norvegica</i>) that unintentionally swam into the suction tube chamber, a couple shrimp (<i>Plesionika hotulssi</i>) that was particularly abundant at this site, a siphonophore, and an <i>Acanthogorgia</i> sp. coral.
Notable Observations	<ul style="list-style-type: none"> - Several specimens of the endangered Atlantic Halibut - High-density coral and sponge community on the sheer southern walls also heavily encrusted with other invertebrates (but no living <i>Lophelia pertusa</i>)
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



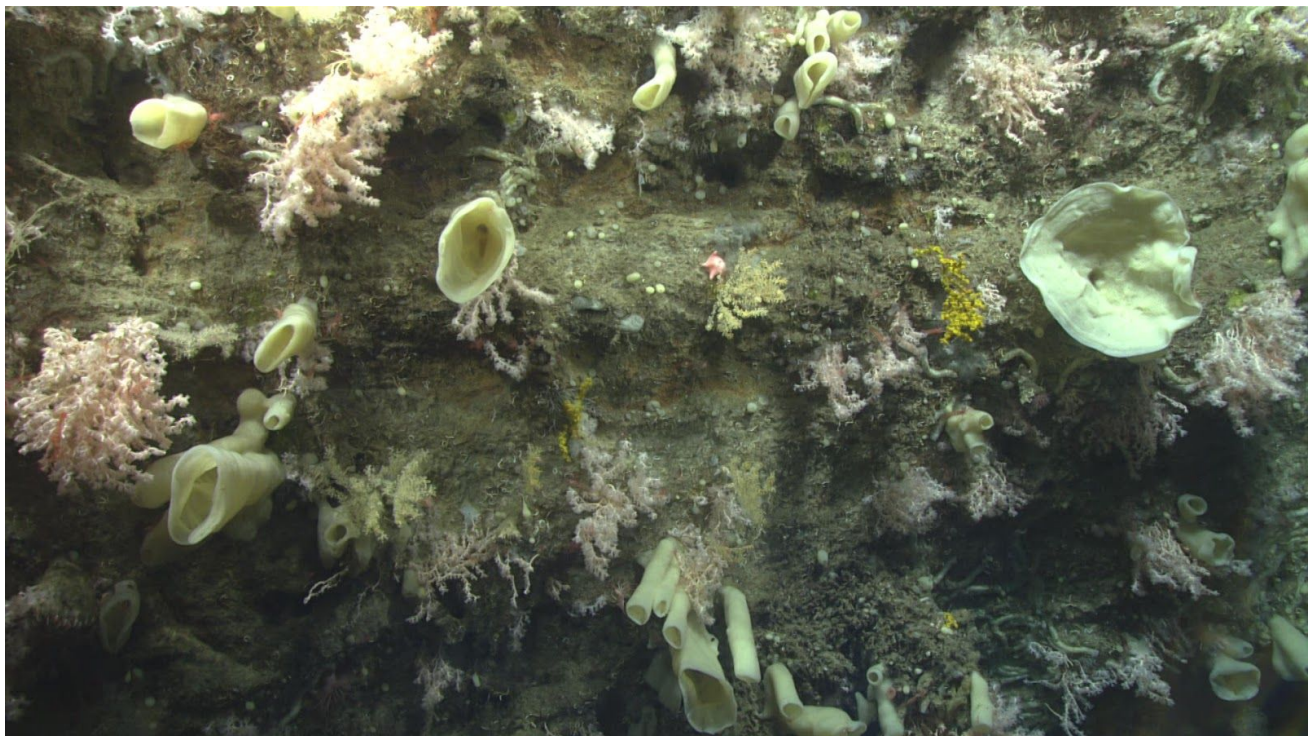
Close-up Map of Main Dive Site



Representative Photos of the Dive

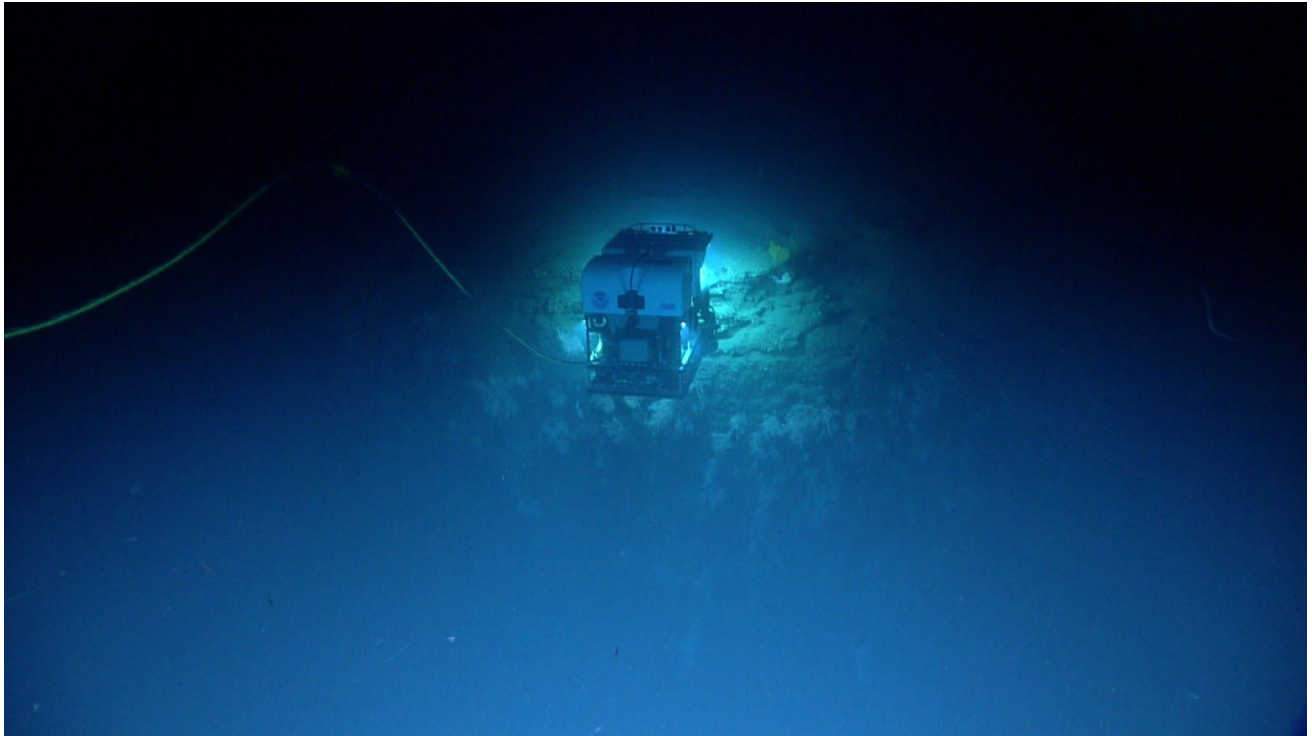


Small bobtail squid (*Rossia* sp.) nestled between clumps of dead *Lophelia pertusa* in the canyon axis.

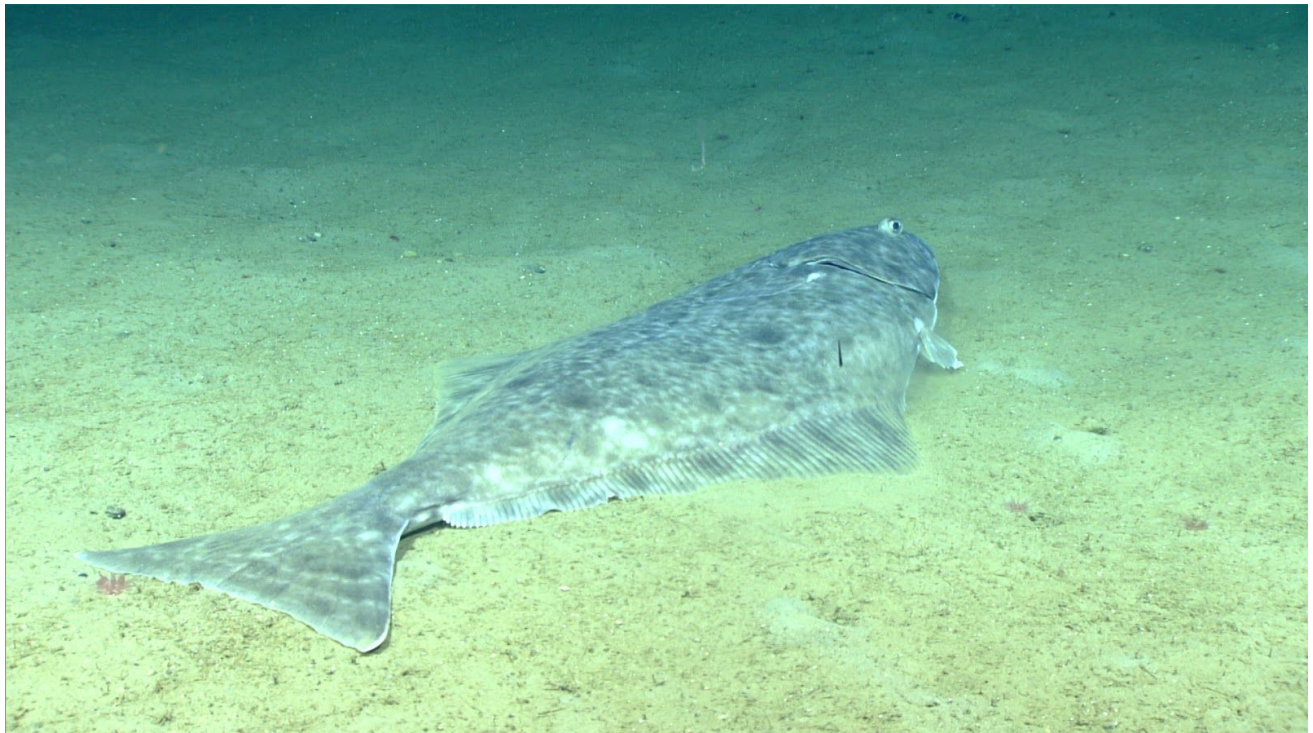


Dense deep-sea coral and sponge community observed on a sheer wall located on the southern slope of the unnamed canyon.





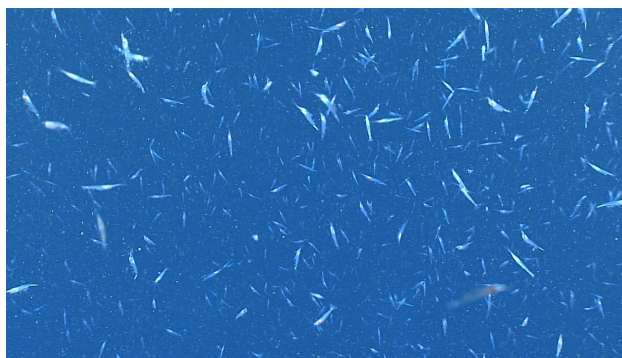
Deep Discoverer documenting the high-density community on the sheer wall face of the unnamed canyon.



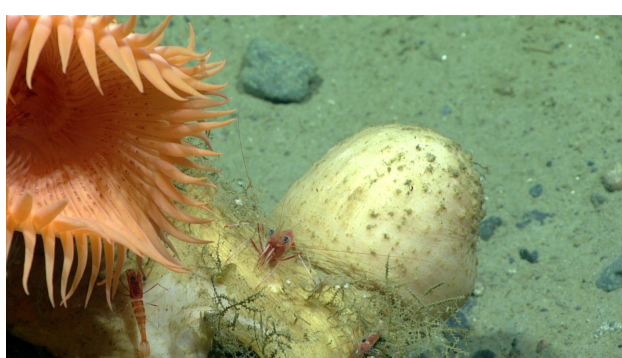
Endangered Atlantic Halibut (*Hippoglossus hippoglossus*) observed resting on the sandy bottom.



Samples Collected

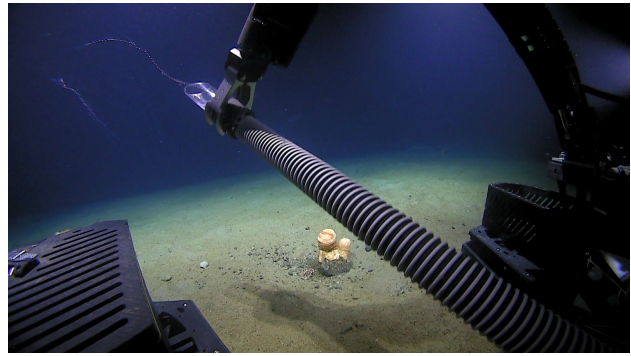
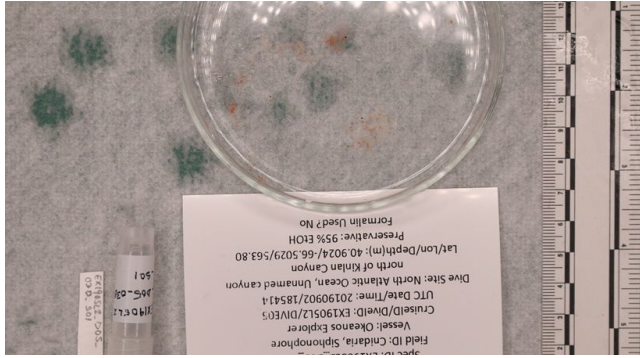


Sample ID	EX1905L2_D05_01B
Date (UTC)	20190902
Time (UTC)	140529
Latitude	40.90520
Longitude	-66.50120
Depth (m)	748.2
Temp. (°C)	5.118
Field ID(s)	Krill
Commensals	No commensals
Comments	Unintentional sample, swam into suction canister



Sample ID	EX1905L2_D05_02B		
Date (UTC)	20190902		
Time (UTC)	185125		
Latitude	40.90240		
Longitude	-66.50290		
Depth (m)	564.0		
Temp. (°C)	5.364		
Field ID(s)	Plesionika holthuisi		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D05_02B_A01	Hydroidolina	1
	EX1905L2_D05_02B_A02	Gastropoda	4
	EX1905L2_D05_02B_A03	Amphipoda	5
	EX1905L2_D05_02B_A04	Animalia	1
Comments	N/A		





Sample ID	EX1905L2_D05_03B
Date (UTC)	20190902
Time (UTC)	185414
Latitude	40.90240
Longitude	-66.50290
Depth (m)	563.8
Temp. (°C)	5.391
Field ID(s)	Siphonophore
Commensals	No commensals
Comments	N/A



Sample ID	EX1905L2_D05_04B		
Date (UTC)	20190902		
Time (UTC)	194330		
Latitude	40.90120		
Longitude	-66.50340		
Depth (m)	540.7		
Temp. (°C)	5.390		
Field ID(s)	Acanthogorgia sp.		
Commensals	Commensal Sample ID	Field Identification	Count
	EX1905L2_D05_04B_A01	Polynoidae	1
	EX1905L2_D05_04B_A02	Amphipoda	2
Comments	N/A		



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