



Okeanos Explorer ROV Dive Summary

Dive Information

<p>General Location Map</p>	
<p>General Area Descriptor</p>	<p>About 30 nautical miles southeast of Key West</p>
<p>Site Name</p>	<p>Key Largo Deep</p>
<p>Science Team Leads</p>	<p>Kimberly Galvez, University of Miami, Rosenstiel School of Marine and Atmospheric Science Stephanie Farrington, Florida Atlantic University. Harbor Branch Oceanographic Institute</p>
<p>Expedition Coordinator</p>	<p>Michael P. White, NOAA OER</p>
<p>ROV Dive Supervisor</p>	<p>Christopher Ritter, Global Foundation for Ocean Exploration</p>
<p>Mapping Lead</p>	<p>Shannon Hoy, NOAA OER</p>

ROV Dive Name

<p>Cruise</p>	<p>2019 Southeast U.S. Deep-sea Exploration</p>
<p>Dive Number</p>	<p>Dive 09</p>

Scientists Involved (provide name, affiliation, email)

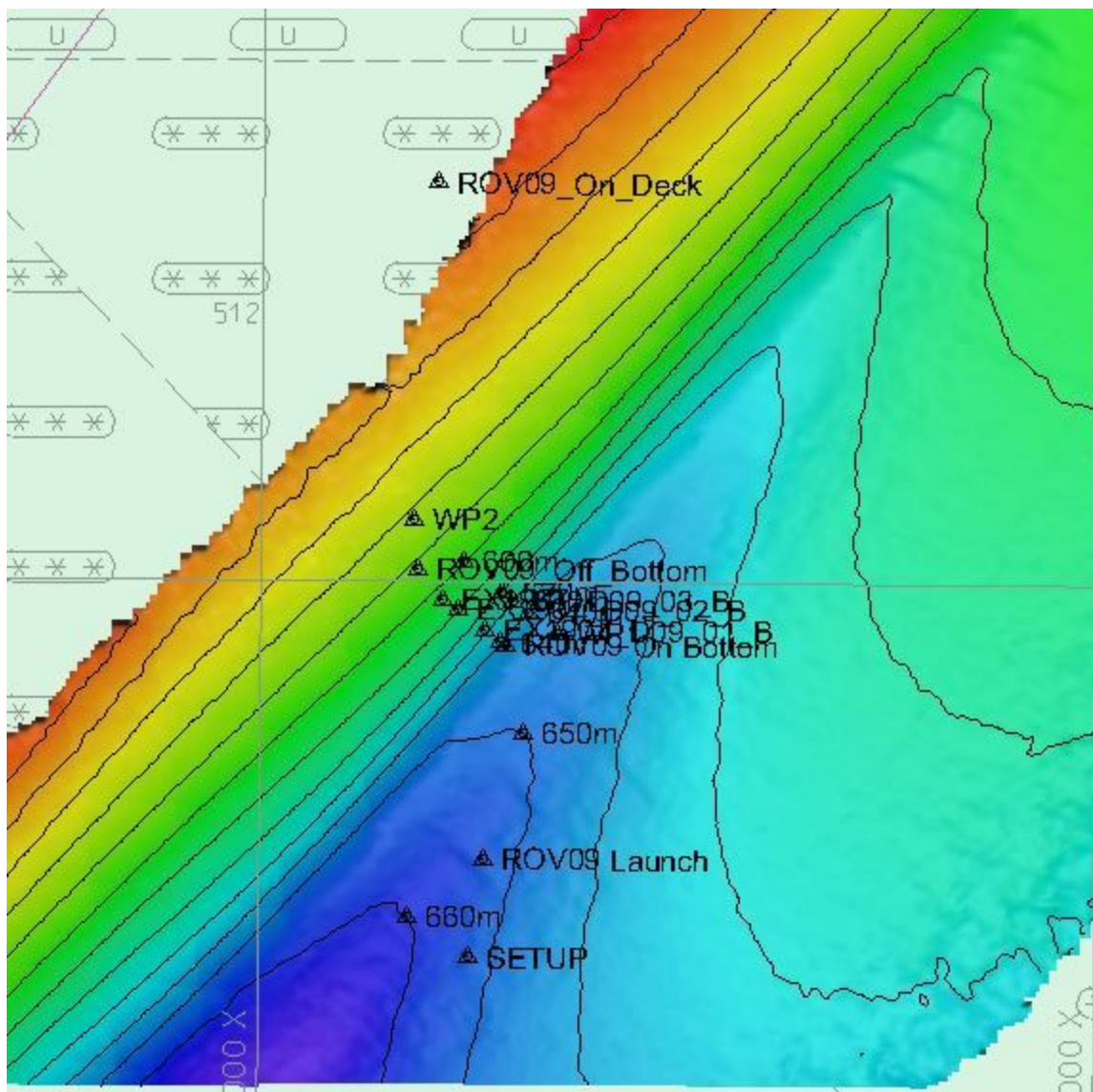
Name	Affiliation	Email
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Liva Levin	Lisa Levin Integrative Oceanography Division Scripps Institution of Oceanography	llevin@ucsd.edu

Dive Purpose	This is a planned map and dive on mapping data that will be collected the night before. There is no other deep submergence work in the immediate area. This dive will connect deep submergence work further to the North off of Miami and work further to the West in the HAPC. Dive 09 will help characterize an area that has very little deep water information. It is also a logistical dive as EX1907 transits further to the west. Dive objectives will be to gather baseline information about an area that has little to no deep water work and characterize newly acquired mapping data.
Dive Description	<p>Target: Mapped this AM, Deep Slope, likely sedimented bottom.</p> <p>The seafloor was composed of a mixture of fine-grain with coarse-grain carbonate matrix, likely skeletal material and eroded material of limestone in the surrounding area. Skeletal material likely consists of pteropods, foraminifera, mollusk & gastropod shells, and peloids. Based on the amount of bioturbation seen in the area, the unconsolidated sediment package seems to be quite deep, extending a few meters. Evidence of bioturbation is classified as depressions and small volcano-shaped piles of sediment that has been formed due to burrowing organisms such as crustaceans and possibly fish.</p> <p>For a sedimented area there was quite a bit of life. Some of the fauna includes the following:</p> <p>Mollusca: Illex squid throughout the dive in the water column traveling north, bobtail squid (3 cm), <i>Bathypolypus bairdii</i> (spoonarm octopus).</p> <p>Arthropods: cf. <i>Pleoticus robustus</i>- royal red shrimp, <i>Glyphocrangon</i> - armored shrimp c.f. Geryonidae crab, snapping shrimp?, Gammarid- pink crowned isopods on the stalk of <i>Hyalonema</i>. unknown lobster- large claws. Pelagic arthropods include: Sergestidae- shrimp and munnopsid isopods.</p> <p>Fish: Triglidae- sea robin, <i>Laemonema</i> codling, underworld skates - <i>Fenestraja plutonia</i> and marbled catsharks.</p> <p>Echinodermata: Goniasteridae - cookie stars, long armed brittle stars, <i>Zenometra c.f. columnaris</i> (10 armed crinoid), Holothuria - pink with palpate skin, squat lobsters and crabs in the smaller holes, larger holes maybe blind lobsters, 2 sighted during the dive in the holes. <i>Pseudoarchaster</i> - sea star, <i>Henricia</i> sea star (EX1907_D09_03B) feeding on Chondrocladia sponge (EX1907_D09_03B_A01).</p> <p>Cnidarians: Chrysogorgiidae c.f. <i>Acanella?</i> with polynoid polychaetes, Pennatulacea, Edwardsiidae- burrowing anemones, sea pens <i>Calibelemnon</i> and <i>Kophobelemnon</i>.</p> <p>Sponges: <i>Hyalonema</i> sponges as well as c.f. <i>Chondrocladia</i> (EX1907_D09_01B); a carnivorous, hermaphroditic sponge with white stem with round balls on sticks, the round bulbs are reproductive structures (Per Coms. M.C. Diaz) and <i>Chondrocladia</i> sp. 2 (EX1907_D09_02B) 5 cm tall with small white cylinders.</p> <p>Human debris: Mostly plastics were found on the bottom</p>
Notable Observations	Many carnivorous sponges and an <i>Henricia</i> sea star (EX1907_D09_03B) feeding on Chondrocladia sponge (EX1907_D09_03B_A01)

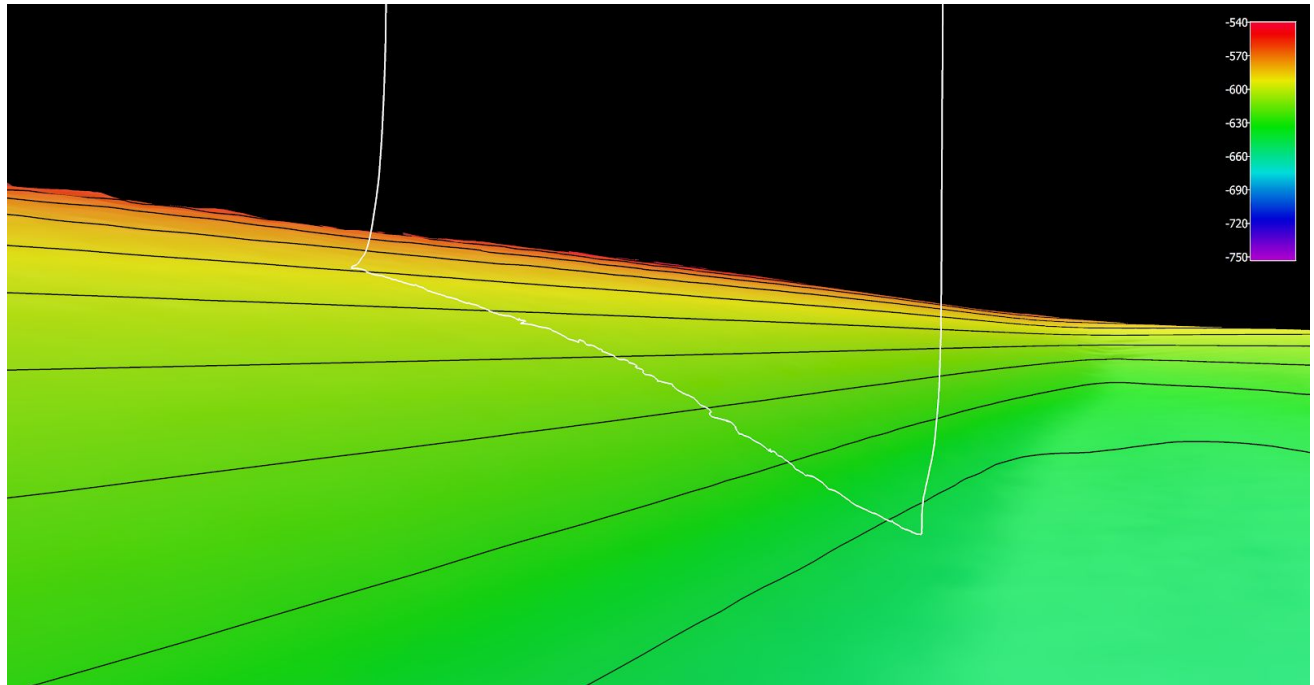


Community Presence/Absence (community is defined as more than two species)	<p>X Corals and Sponges</p> <ul style="list-style-type: none"> ✓ Chemosynthetic Community ✓ High biodiversity Community ✓ Active Seep or Vent ✓ Extinct Seep or Vent ✓ Hydrates
CMECS Feature Type	Flat
SeaTube Link (science annotation system)	https://data.oceannetworks.ca/SeaTubeV2?resourceTypeId=1000&resourceId=23621&divId=3840

Overall Map of the ROV Dive Area



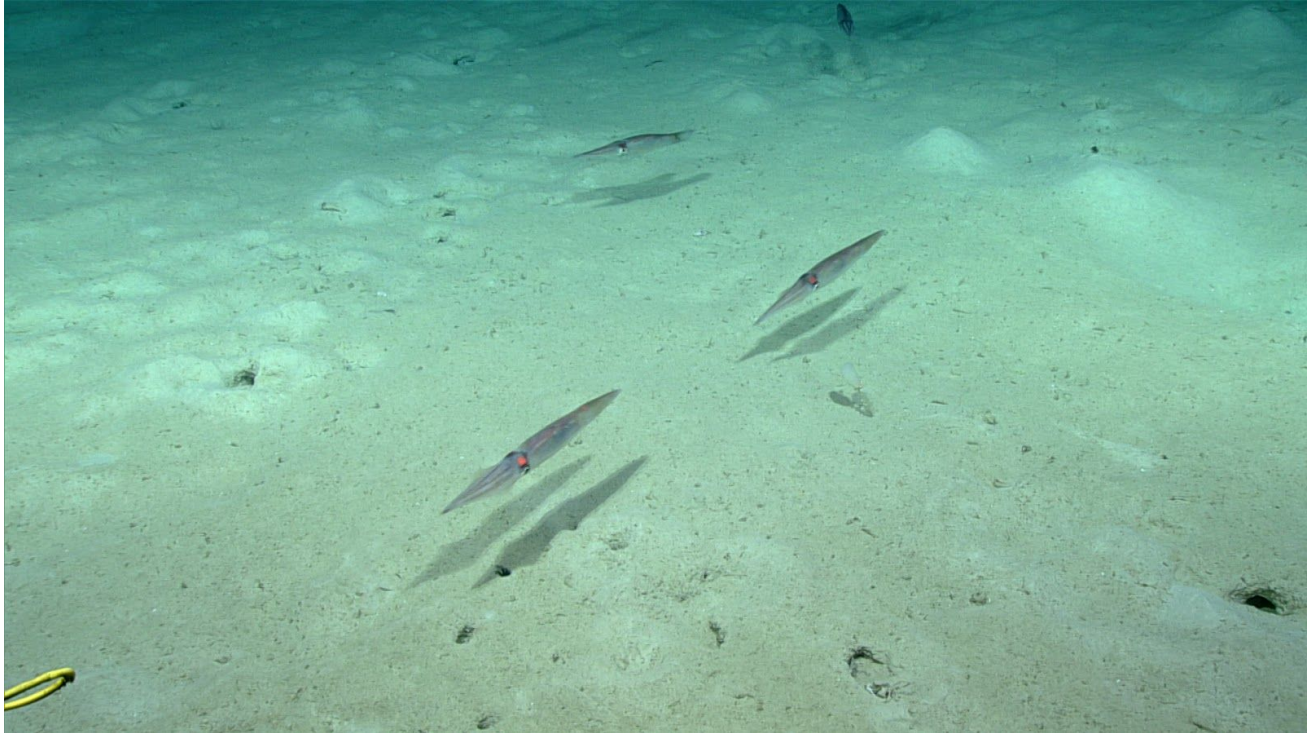
Close-up Map of Main Dive Site



Smoothed ROV dice track in white on 25x25 cell size bathymetry, 3x vertical exaggeration, depth in meters, 10 meter contours



Representative Photos of the Dive



100% Sandy bottom with Illex squids common.



Brachyuran crab that was seen hiding in the small holes.





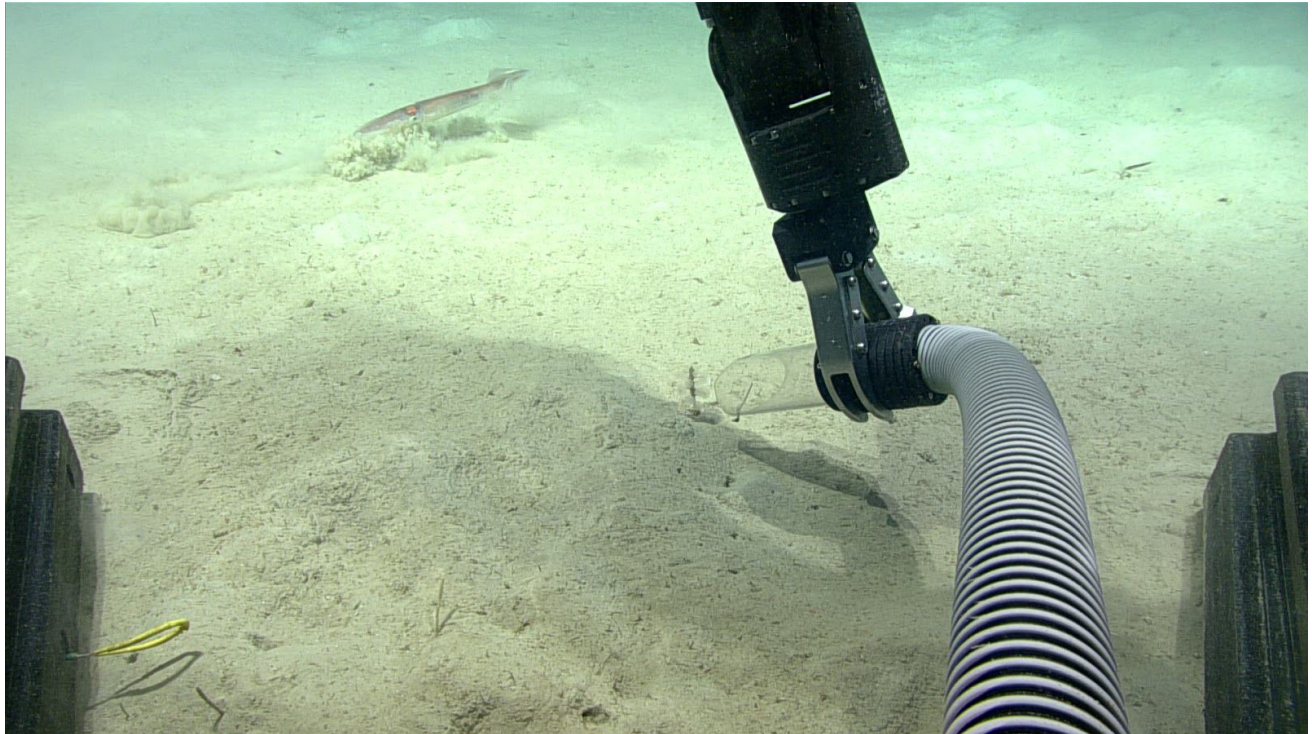
Unknown bobtail squid.



Squat lobster with long arms with chelate tips.

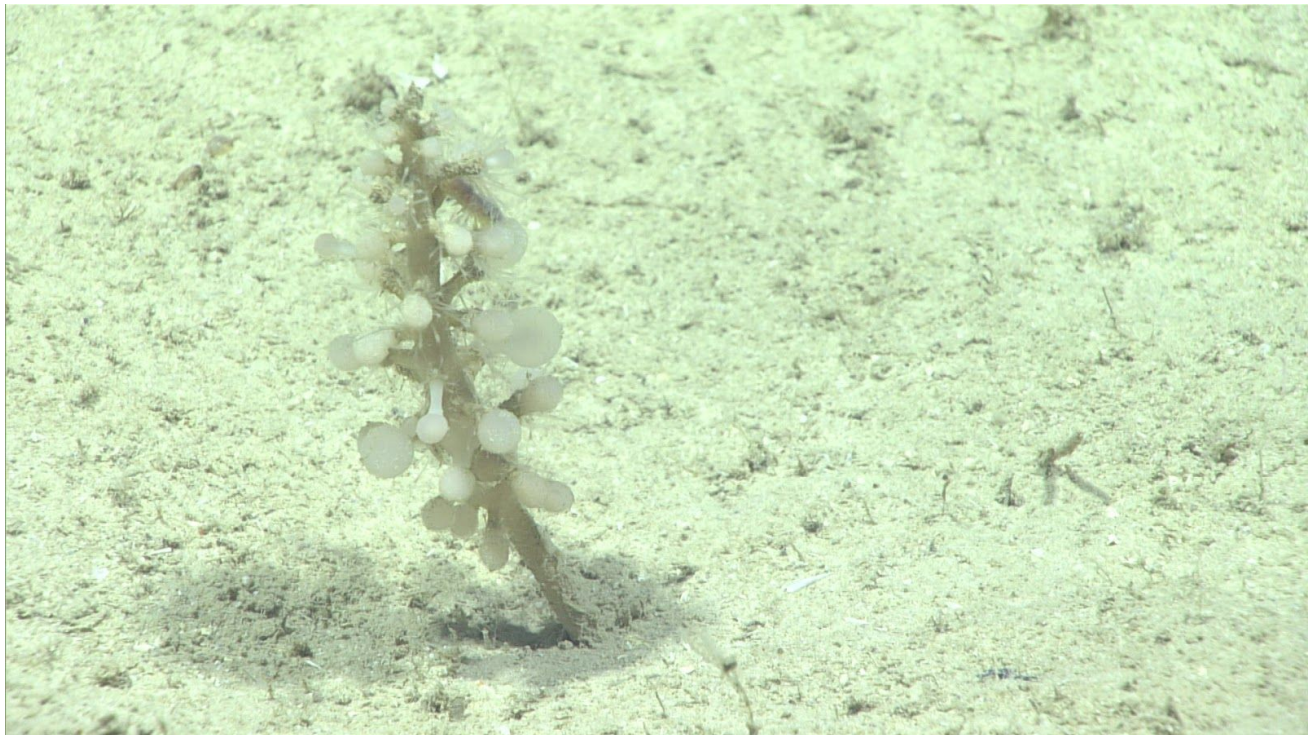


Samples Collected -

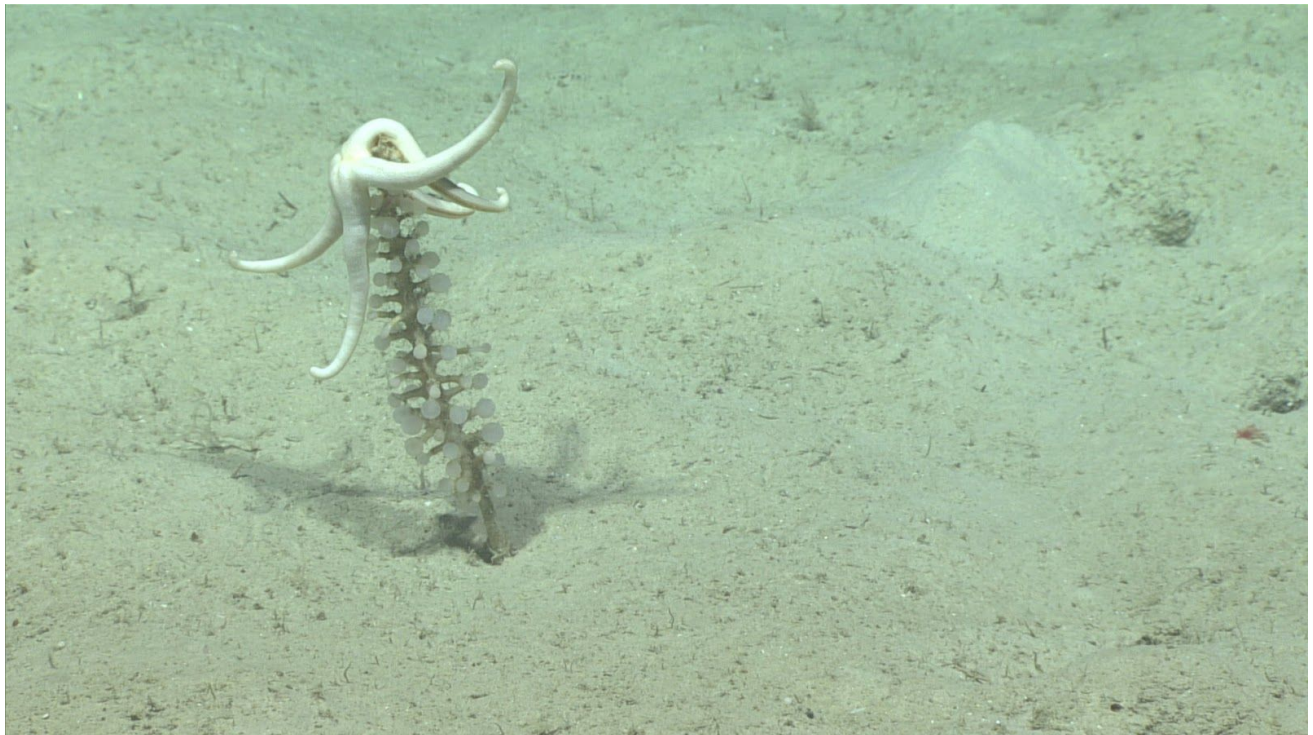


Sample ID	EX1907_D09_01B		
Date (UTC)	November 16, 2019		
Time (UTC)	16:04		
Depth (m)	627		
Temp. (°C)	6.275		
Field ID(s)	Chondrocladia ID: 131894 [WORM]		
Associates	Associates Sample ID	Field Identification	Count
	EX1907_D09_01B_A01	sediment	
	EX1907_D09_01B_A02	Ophiuroidea	1
Comments	White stem with round balls in sticks the round bulbs are reproductive structures. Hermaphrodite sponge.DNA, Fo and 80 ETOH		





Sample ID	EX1907_D09_02B											
Date (UTC)	November 16, 2019											
Time (UTC)	18:05											
Depth (m)	608											
Temp. (°C)	6.486											
Field ID(s)	Chondrocladia ID: 131894 [WORM]											
Associates	<table border="1"> <thead> <tr> <th>Associates Sample ID</th> <th>Field Identification</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>			Associates Sample ID	Field Identification	Count						
	Associates Sample ID	Field Identification	Count									
Comments	5 cm tall with small white cylinders DNA, Fo and 80 ETOH											



Sample ID	EX1907_D09_03B		
Date (UTC)	November 16, 2019		
Time (UTC)	19:15		
Depth (m)	601		
Temp. (°C)	6.488		
Field ID(s)	<i>Henricia</i> ID: 123276 [WORM]		
Associates	Associates Sample ID		Field Identification
	EX1907_D09_03B_A01		Chondrocladia
	EX1907_D09_03B_A02		Polychaeta
			Count
		1	1
Comments			

Please direct inquiries to:

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