ROV Dive Summary
EX2301, Dive 07, April 24, 2023

General Location Map

Dive Information

Site Name	Quinault Canyon
General Area Descriptor	Sloped region within canyon with max depth of 1711m

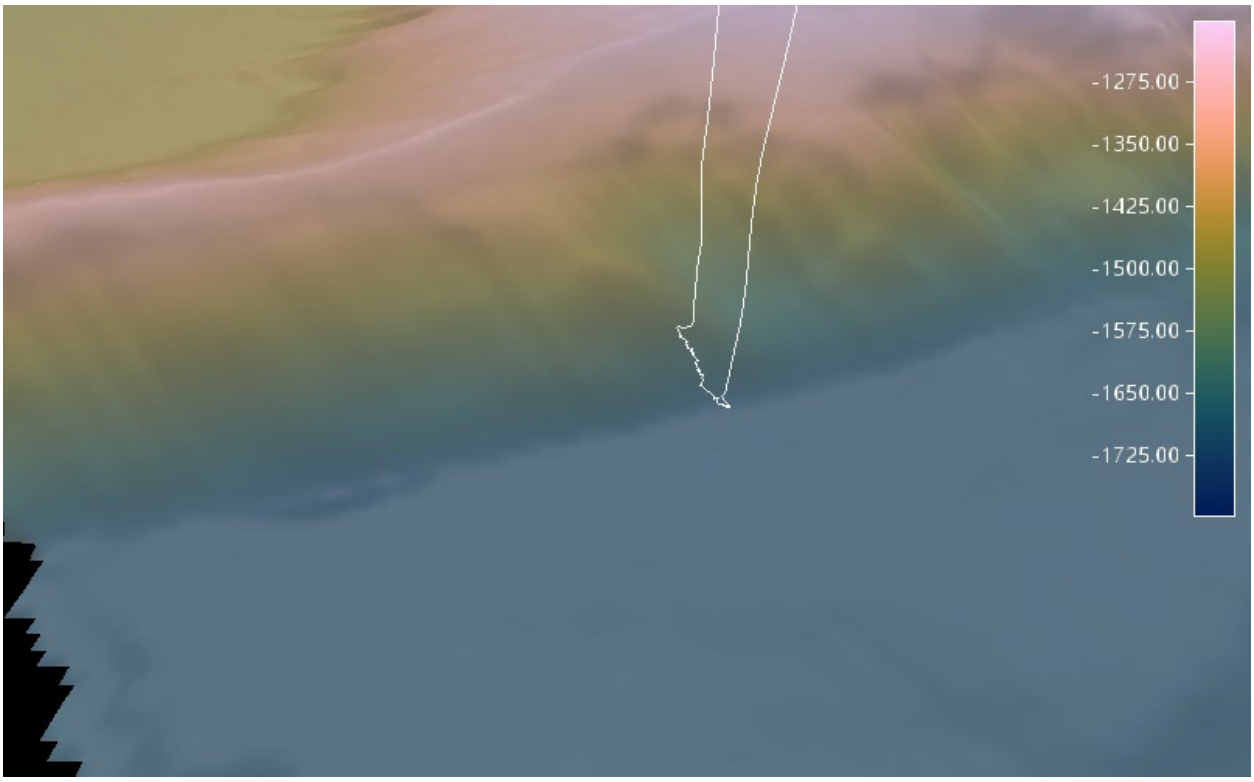
Science Team Leads	Alexis Weinnig, Paige Koenig
Expedition Coordinator	Thomas Morrow
ROV Dive Supervisor	Chris Ritter
Sample Data Manager	Caitlin Ruby, Ashley Marranzino
Mapping Lead	N/A
Dive Purpose	ROV Engineering Shakedown
Maritime Heritage Restrictions	No
ROV Dive Summary Data	Dive Summary: EX2301_DIVE07 ^^ Dive Type: Normal In Water: 2023-04-24T15:28:14.054558 nan ; nan On Bottom: 2023-04-24T16:44:25.964000 47.294462946072336 ; -125.2723766129122 Off Bottom: 2023-04-24T22:25:27.631564 47.2966314037654 ; -125.27387654763363 Out Water: 2023-04-24T23:34:43.447615 47.29673822180735 ; -125.28134689096326 Dive Duration: 8:06:29 Bottom Time: 5:41:01 Max Vehicle Depth: 1718.5 m Min Seafloor Depth: 1597.1 m Distance Travelled: 364.4 m

Dive Description	This was the seventh dive of EX2301 and was located at the outlet of Quinault Canyon up the slope of the south-facing wall. The dive began at approx. 1711m and ascended to approx. -1605m. Geologic features include heavy sedimentation at the base of the canyon and semi-consolidated rock outcrops along steeper sloped areas originating from Pleistocene glacial sediment. Most rock outcrops were heavily weathered and contained laminations. At ~1611m depth there was a trail of discard bivalve shells indicative of past seepage activity. There was a notability high number of *Poralia sp*. jellyfish in the water column close to the benthos that were in view in the Serios camera for the majority of the dive. We also had two observations of *Tiburonia granrojo* (Big Red Jellyfish) in an unusual orientation with the feeding arms pointed towards the surface and the bell floating close to the seafloor. We observed a diversity of fish including Macrouridae, Zoarcidae, *Psychrolutes phrictus*, *Antimora microlepis*, and *Antimora rostrata*. There has a high diversity of echinoderms including Pterasteridae, Solasteridae, Brisingidae, Asteronyx sp, Hippasteria sp., Asteroschema sp., Holothuriidae, and crinoids. We encountered two Muusoctopus. There was a diversity of corals along the depth range including *Callogorgia sp*., *Bathypathes sp*., *Parastenella sp*., *Paragorgia sp*., Isididae, and *Trissopathes sp*, in addition to a high volume of flytrap anemones (A*ctinoscyphia aurelia*). A few types of sponges were observed including *Farrea sp*. and *Hexactinellida*. There was also evidence of potential past methane seepage in the area indicated by dead tubeworm (*Lamellibrachia sp.*) tubes in the sediment Four biological specimens were collected including a Hexactinellida sponge, *Callogorgia sp*., *Bathypathes sp*. with a polynoid associate, and *Paragorgia*, *sp*. with associates. We successfully captured 5 niskin water samples for eDNA filteration.
Notable Observations	
Community and Habitat Observations	Corals and Sponges — Present Chemosynthetic Community — Absent High biodiversity Community — Absent Active Seep or Vent — Absent Extinct Seep or Vent — Present Hydrates — Absent
CMECS Feature Type(s)	Canyon slope
SeaTube Link (science annotations)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=2813

Equipment Deployed

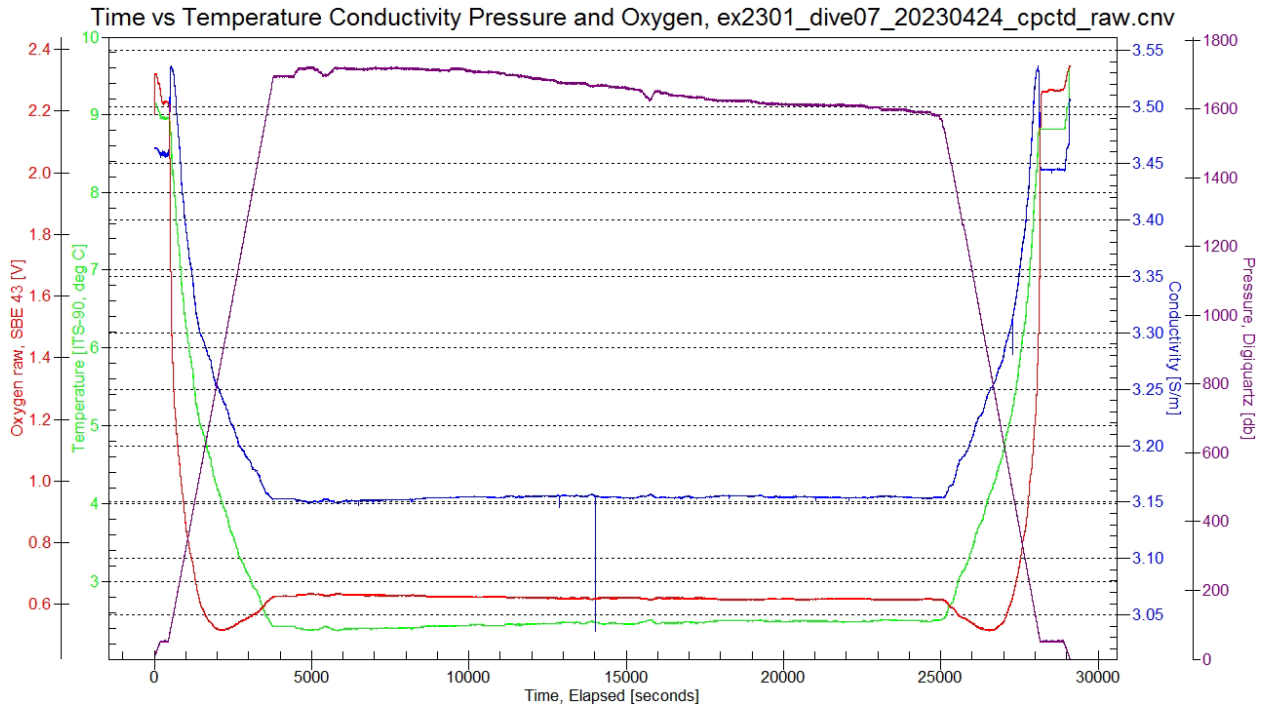
ROV	*Deep Discoverer*
Camera Platform	*Seirios*
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The following row notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	

Close-Up Map of Main Dive Site



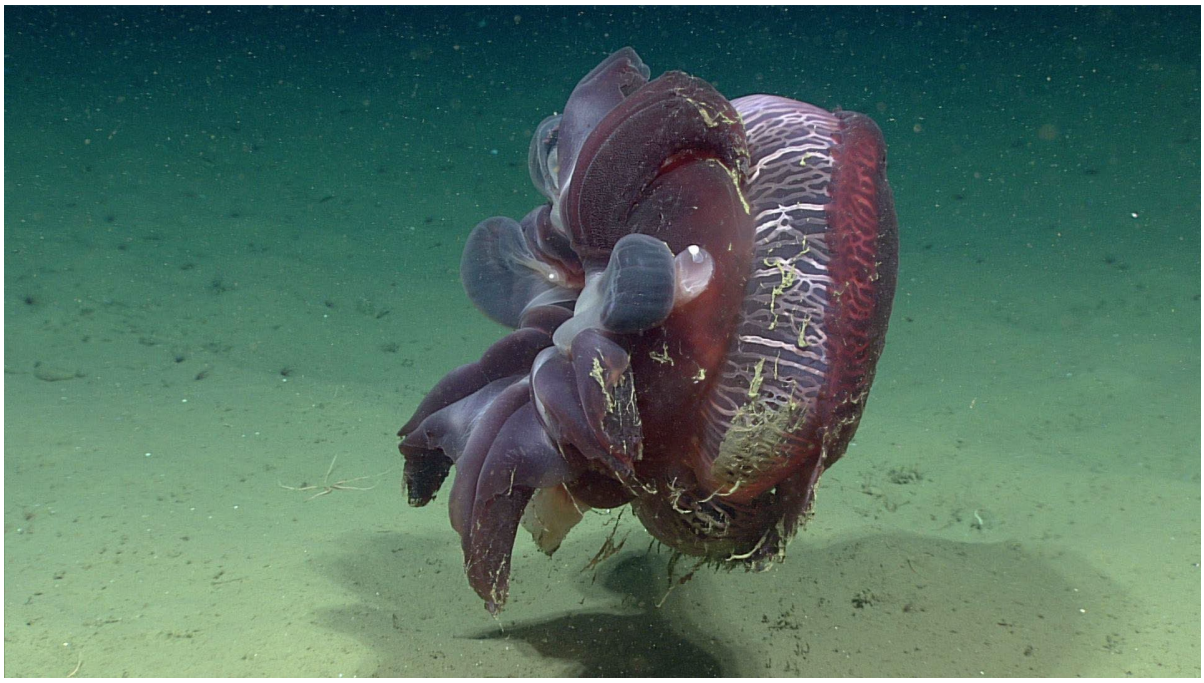
Main dive site for ROV shakedown on 50m bathymetry, depth in meters. 2X vertical exaggeration.

Sound Speed Manager Image of ROV CTD Profile

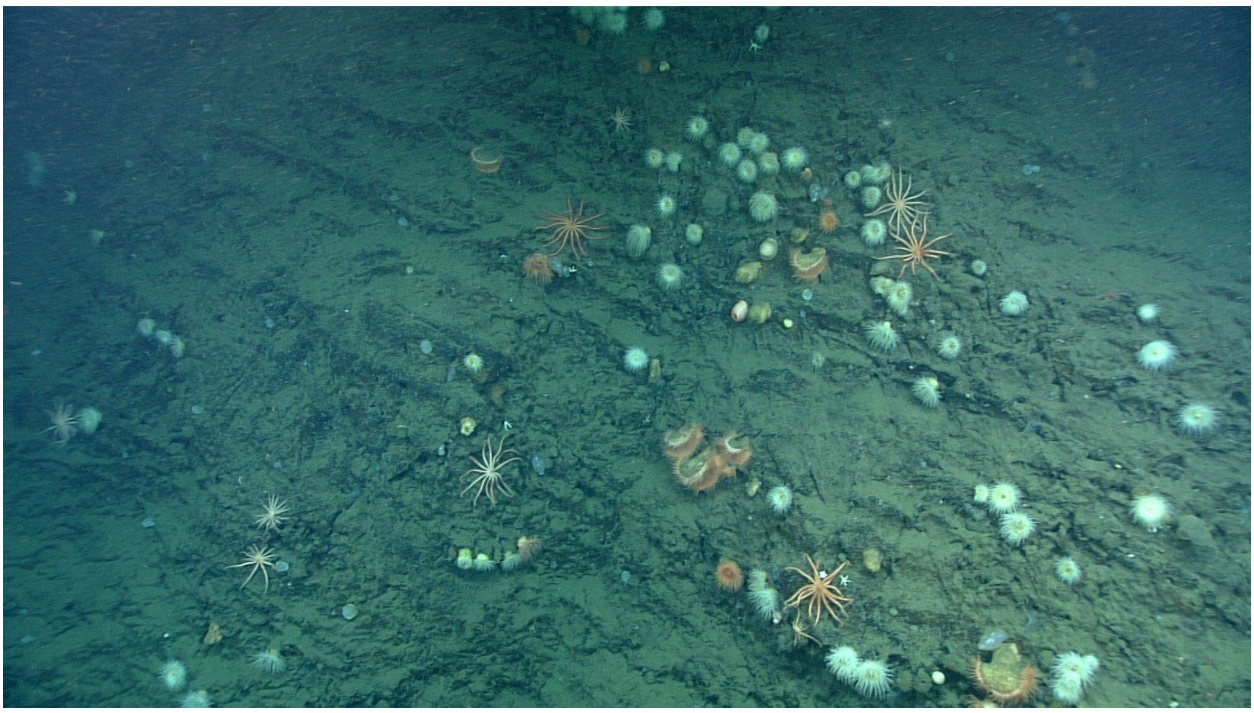


ROV CTD profiles for Dive 07

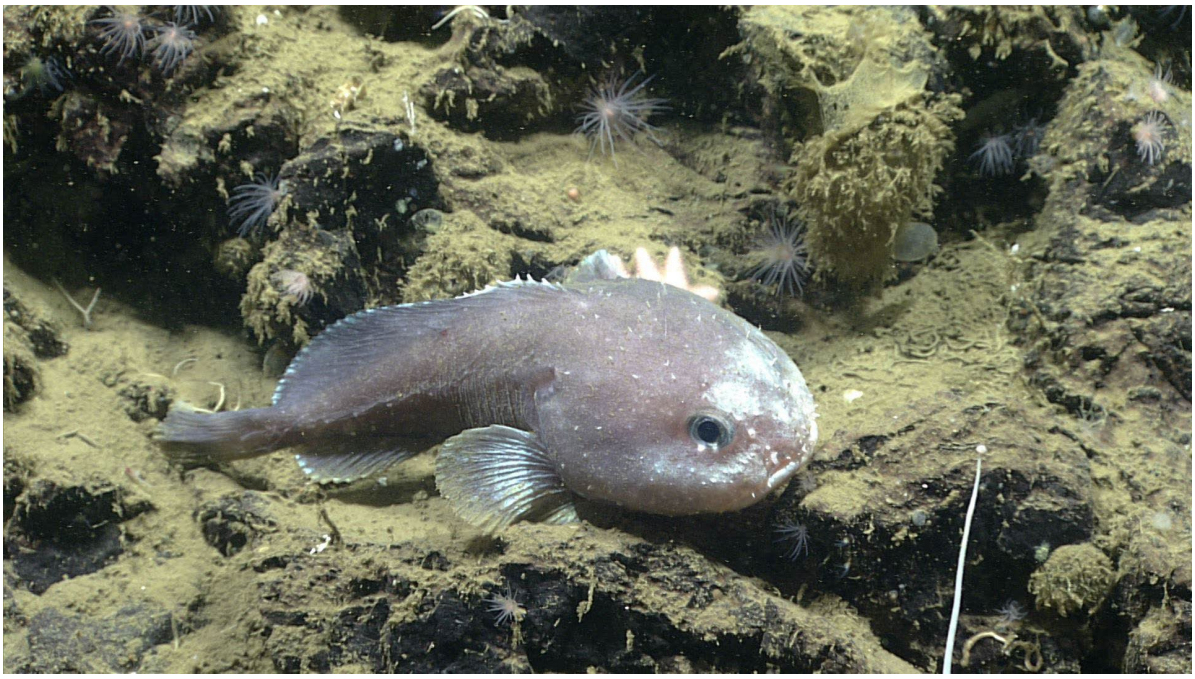
Representative Photos of the Dive



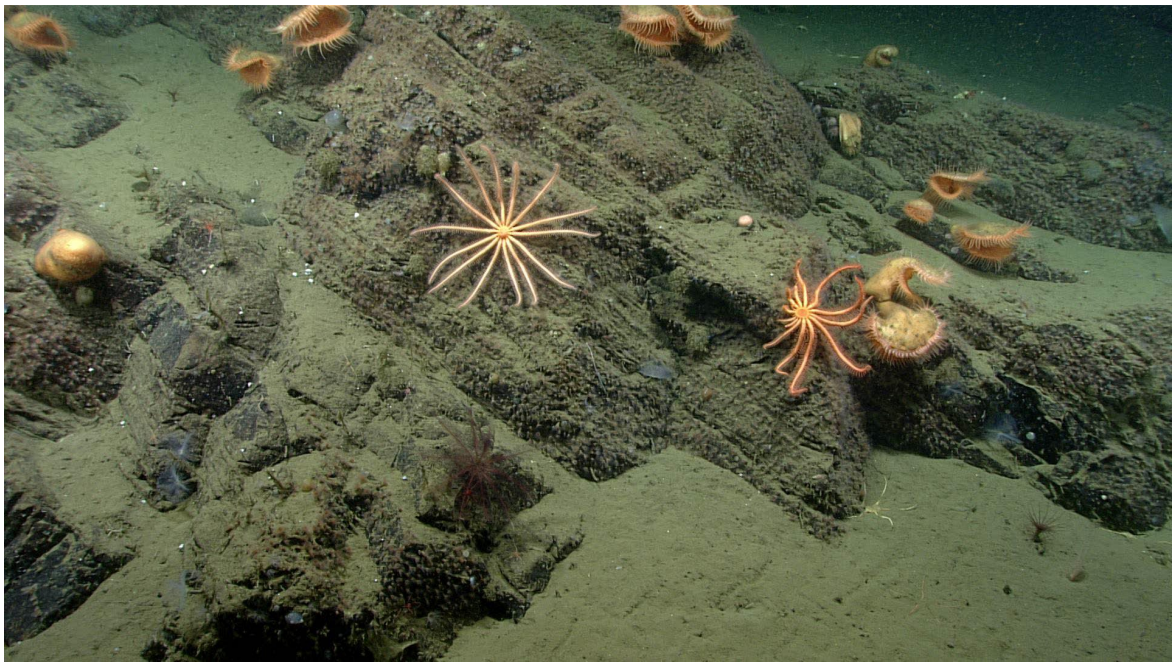
Tiburonia granrojo (Big Red Jellyfish) observed early during the dive.



Rocky outcrop featuring numerous anemones and echinoderms.



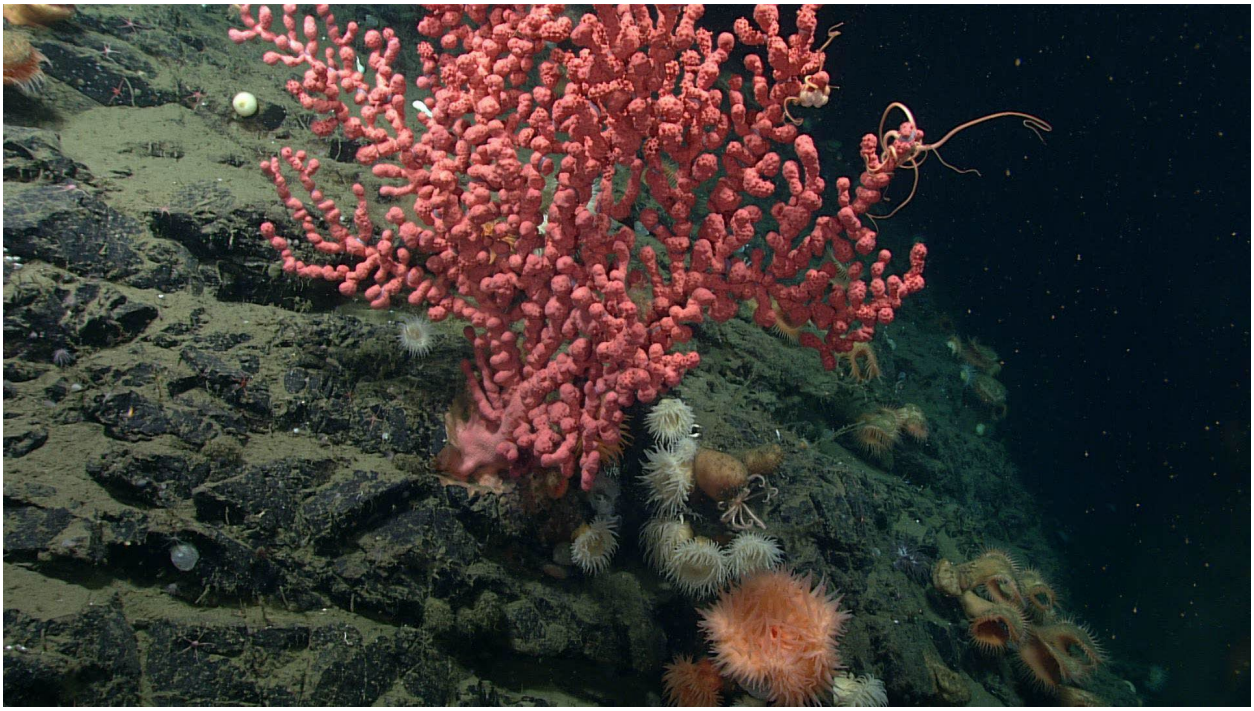
Blob Sculpin spotted resting on a small outcrop.



Feather stars, crinoid, and flytrap anemones anchor to an outcrop covered in smaller zoanthids.

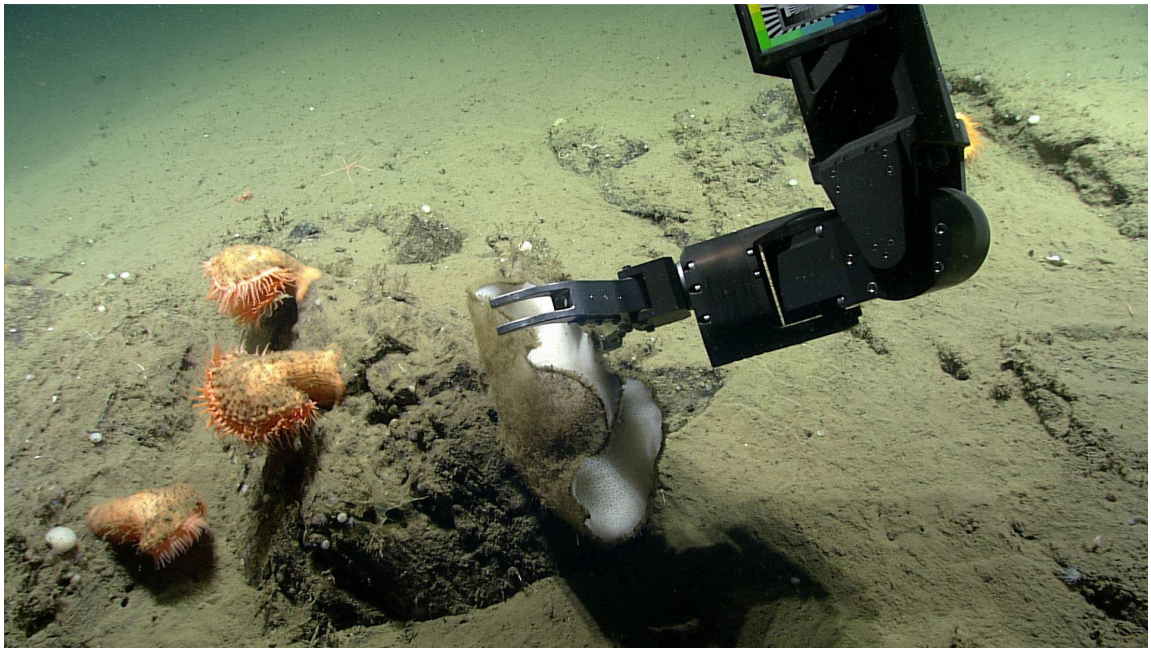
Muusoctopus and numerous embedded brittle stars along the sedimented bottom.

Bivalve remnants in focused regions suggest past fluid flow or seeps in the area



Bubblegum coral (*Paragorgia sp.*) hosting brittle stars imaged on a rocky outcrop with neighboring anemones.

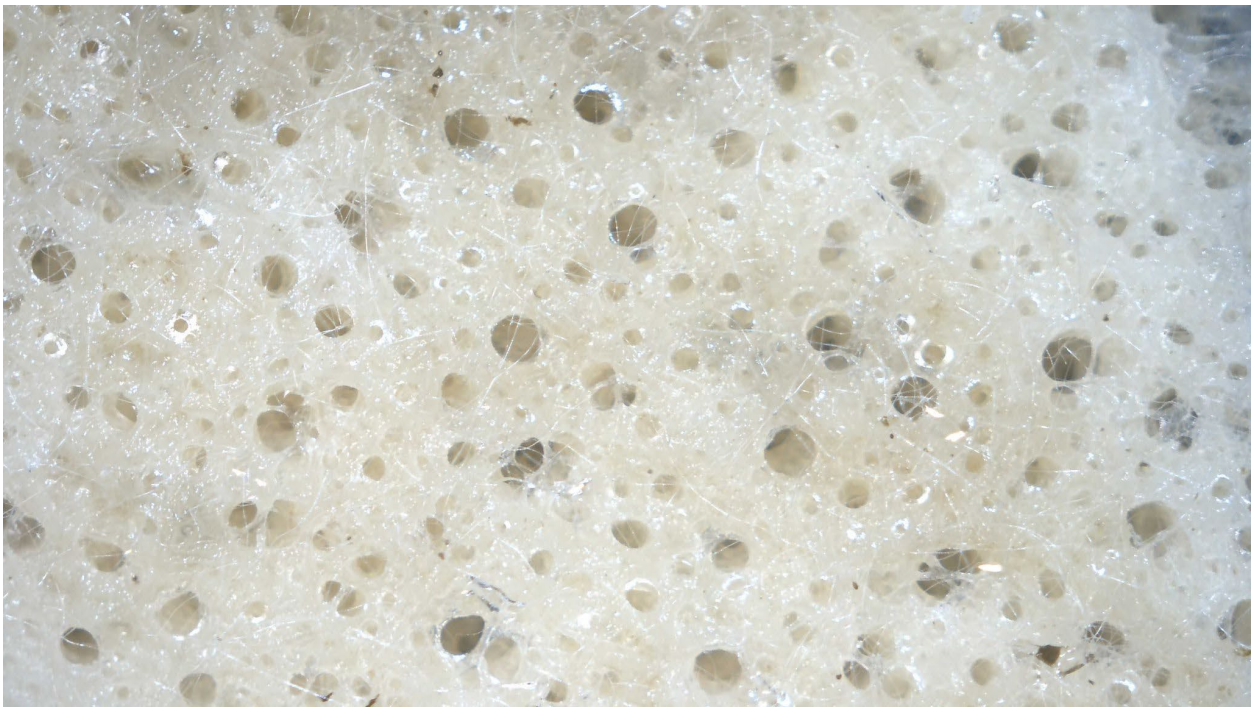
Samples Collected



Hexactinellidae sample *in situ* during collection.

Hexactinellidae sample in laboratory image with sample label, scale bar, and color chart.

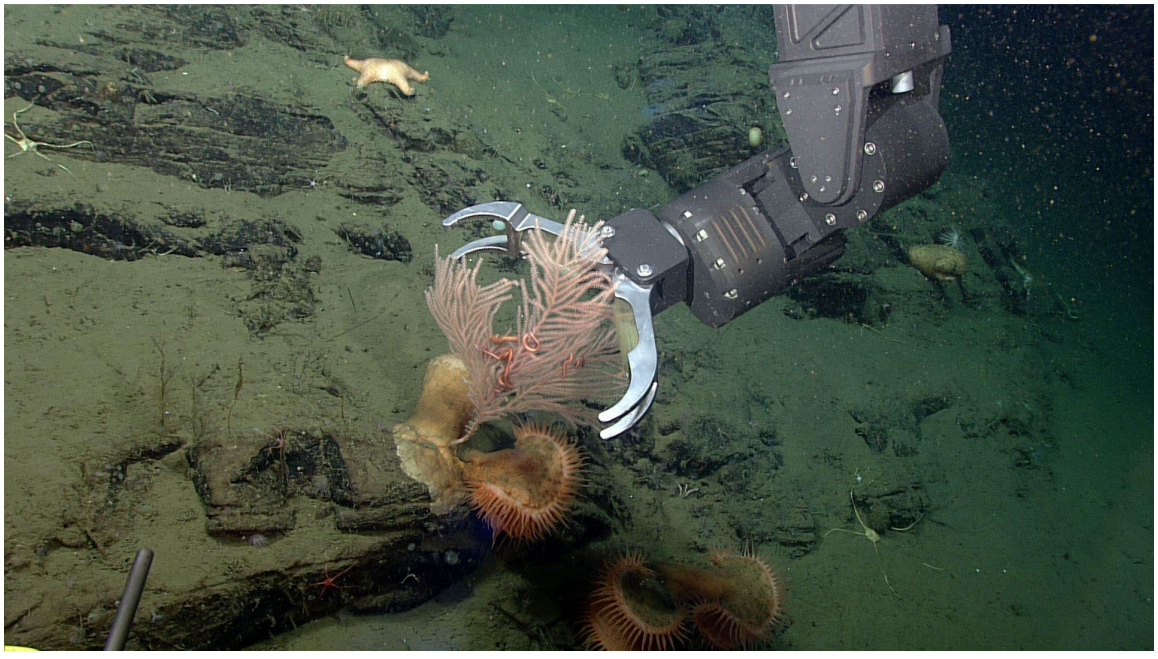
Closeup of Hexactinellidae outer surface and protruding spicules.



Closeup of Hexactinellidae interior surface.

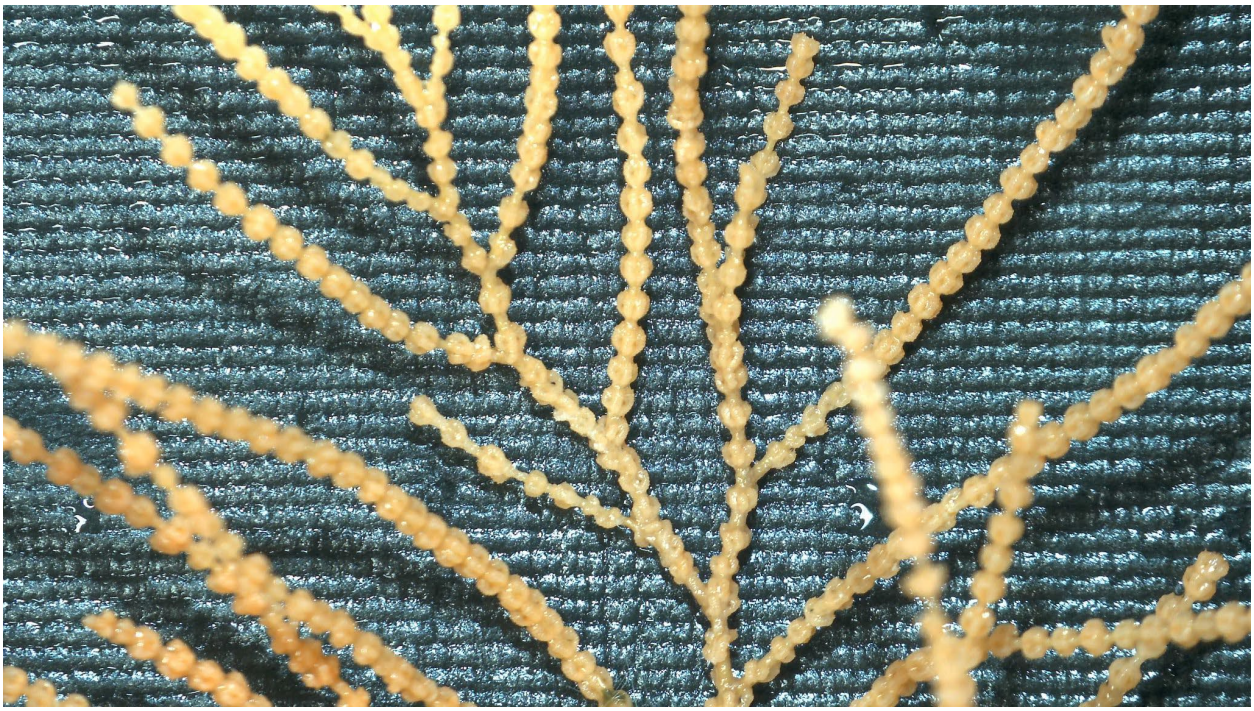
Sample ID	EX2301_D07_01B
Date (UTC)	04242023
Time (UTC)	18:31:36
Depth (m)	1703.131
Latitude (decimal degrees)	47.295528
Longitude (decimal degrees)	-125.273315
Temp. (°C)	2.469
Field ID(s)	Hexactinellidae
Comments	Glass Sponge: Very fibrous. Fibers projecting along outer edge. Squishy texture (not brittle). ~25cm x 15cm. Smooth texture on outer surface. Fibrous on the inner surface.

Associates Sample ID	Field Identification	Count
N/A		

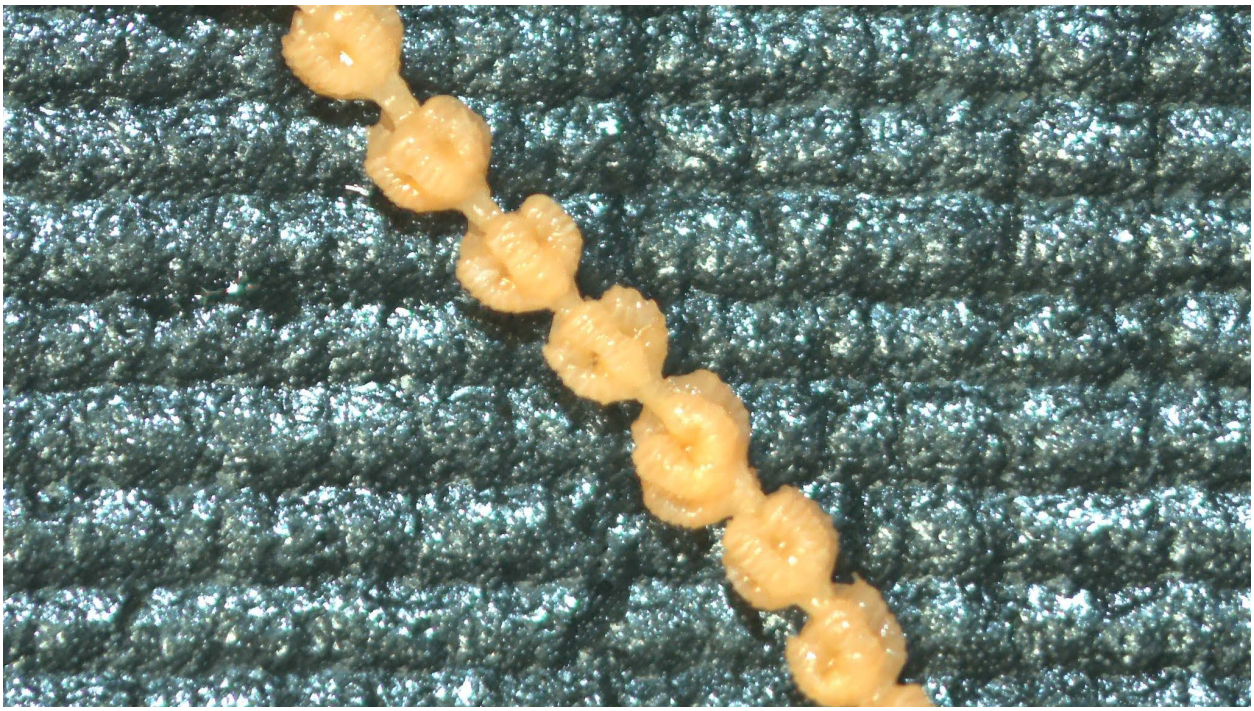


Primnoidae *in situ* during sample collection.

Primnoidae sample in laboratory with sample label, scale bar, and color chart.



Closeup of Primnoidae stalks and polyps.



Closeup of Primnoidae polyps (closed) in laboratory.

Sample ID	EX2301_D07_02B
Date (UTC)	04242023
Time (UTC)	19:15:10
Depth (m)	1675.127
Latitude (decimal degrees)	47.296003
Longitude (decimal degrees)	-125.273509
Temp. (°C)	2.417
Field ID(s)	Primnoidae, probably *Callogorgia*
Comments	Light peach in color. Polyps close facing upwards and are in rows around the axis. 15 cm in length.

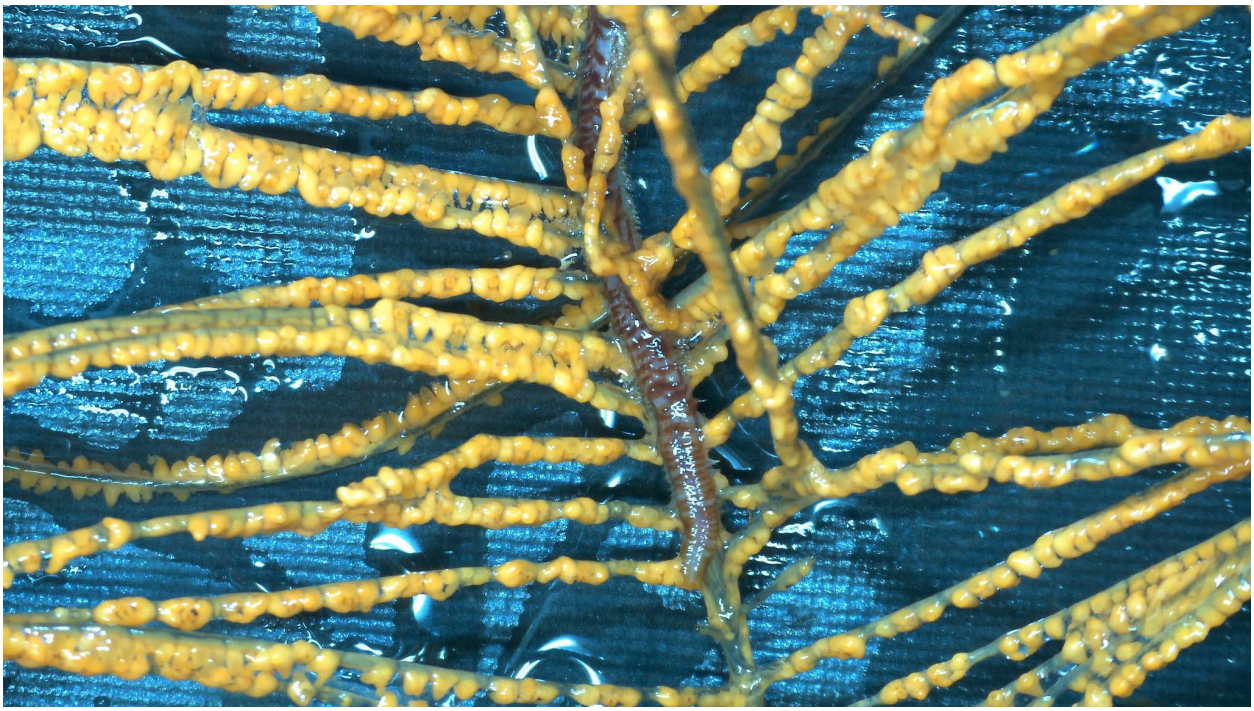
Associates Sample ID	Field Identification	Count
NA		

Bathypathes sp. sample *in situ* prior to collection.

Bathypathes sp. sample with sample label, scale bar, and color chart in laboratory photo.

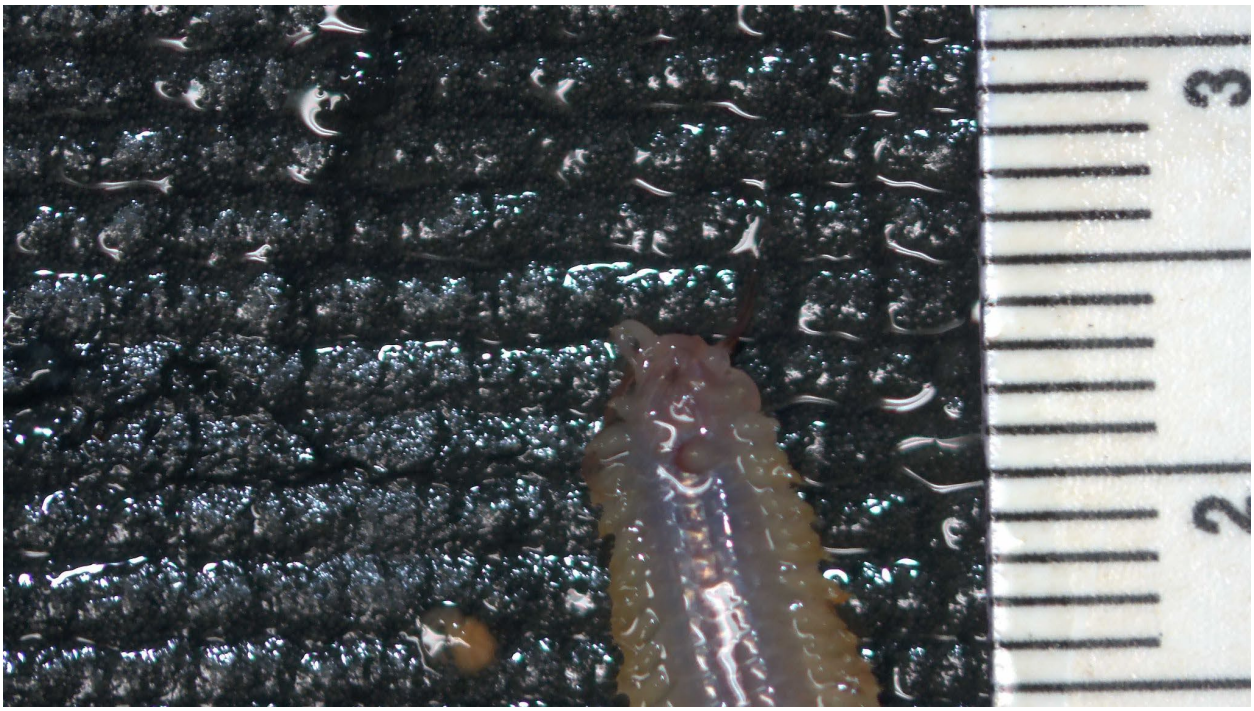
Sample ID	EX2301_D07_03B
Date (UTC)	04242023
Time (UTC)	20:43:10
Depth (m)	1623.932
Latitude (decimal degrees)	47.296730
Longitude (decimal degrees)	-125.274008
Temp. (˚C)	2.483
Field ID(s)	*Bathypathes*
Comments	Paired branching at main axis. A few instances of non-linear branching. Orange. 60cm across. 15cm tall. Large Polychaeta associate on main axis.

Polychaeta associate in laboratory photo with sample label, scale bar, and color chart (1 of 3 associate polychaeta)



Polychaeta associate as found on *Bathypathes sp.* in laboratory photo.

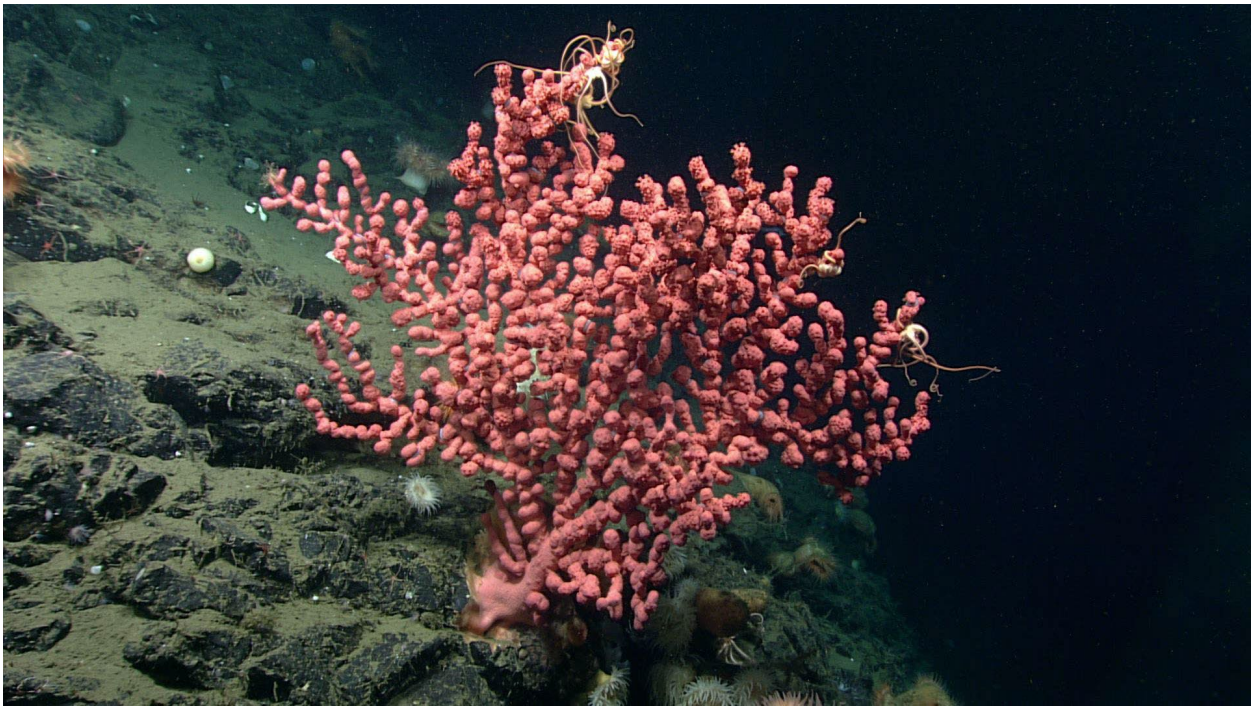
Polychaeta associate closeup with scale bar.



Polychaeta associate closeup with scale bar.

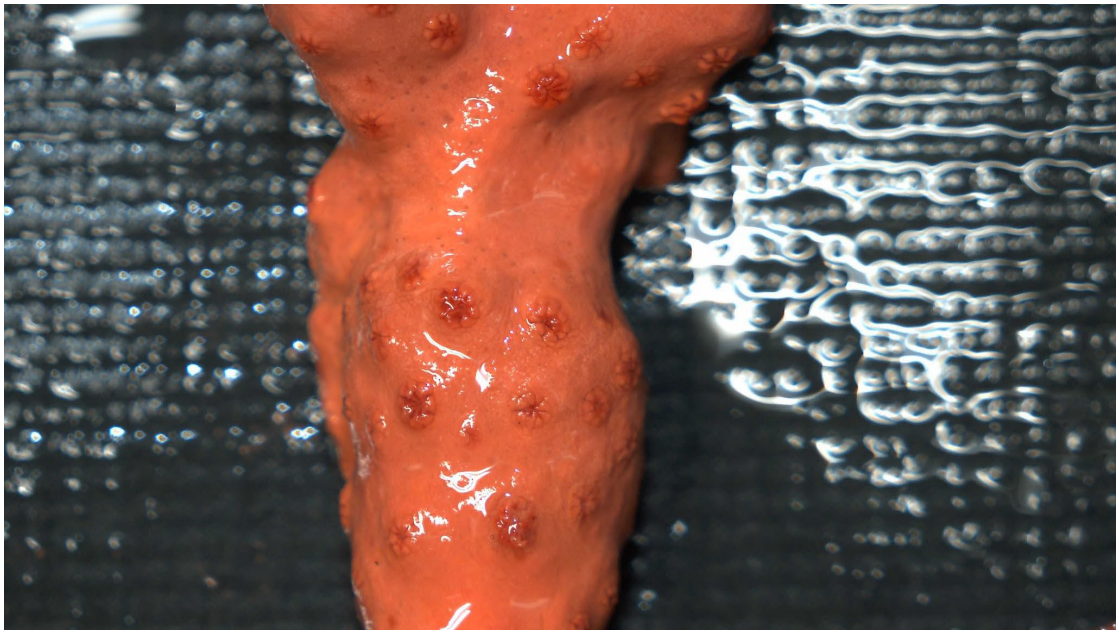
Polychaeta associate closeup with scale bar.

Associates Sample ID	Field Identification	Count
EX2301_D07_03B_A01B	Polychaeta	1
EX2301_D07_03B_A02B	Polychaeta	1
EX2301_D07_03B_A03B	Polychaeta	1



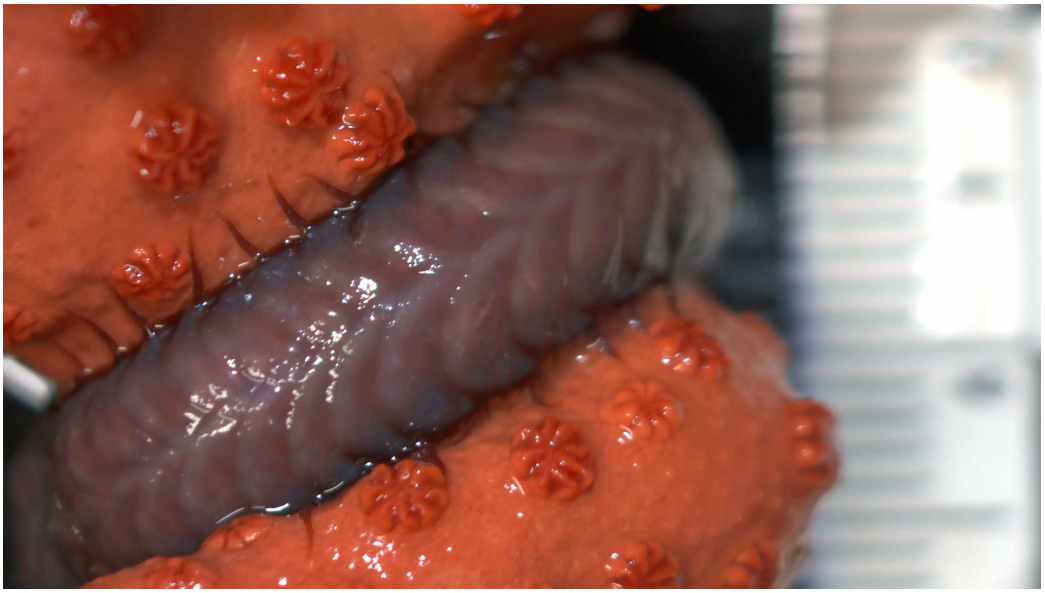
Paragorgia sp. imaged *in situ* with associated brittle stars prior to sampling.

Paragorgia sp. imaged in lab with sample label, scale bar, color chart, and associate brittle star and polynoidea

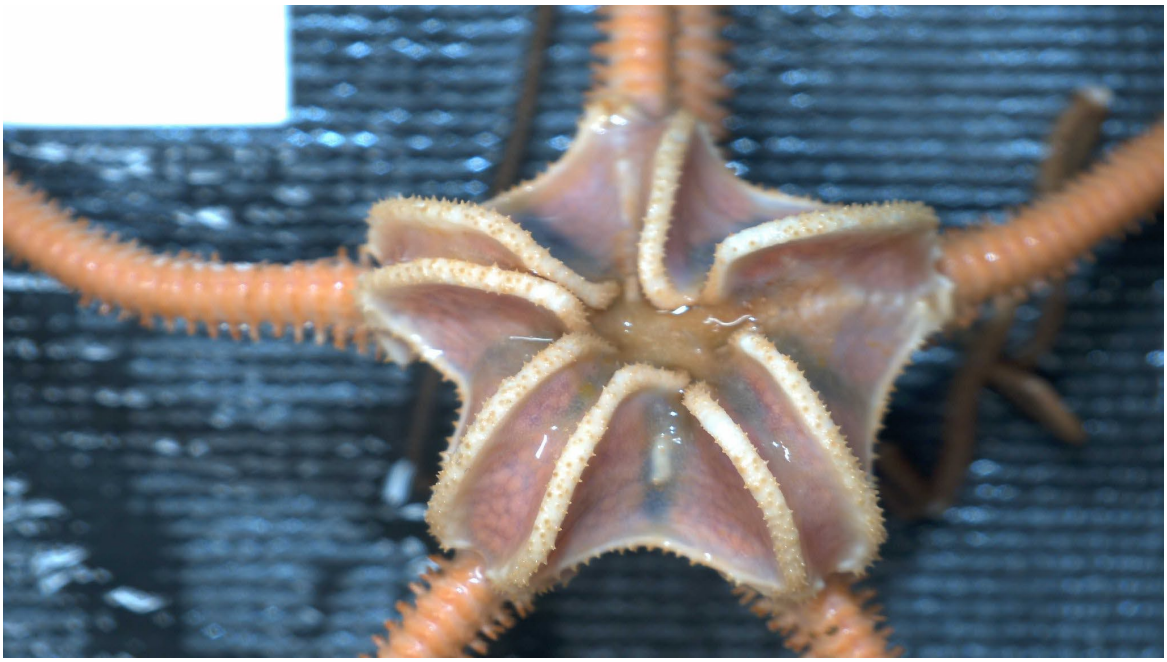


Closeup of *Paragorgia sp.* polyps imaged in laboratory.

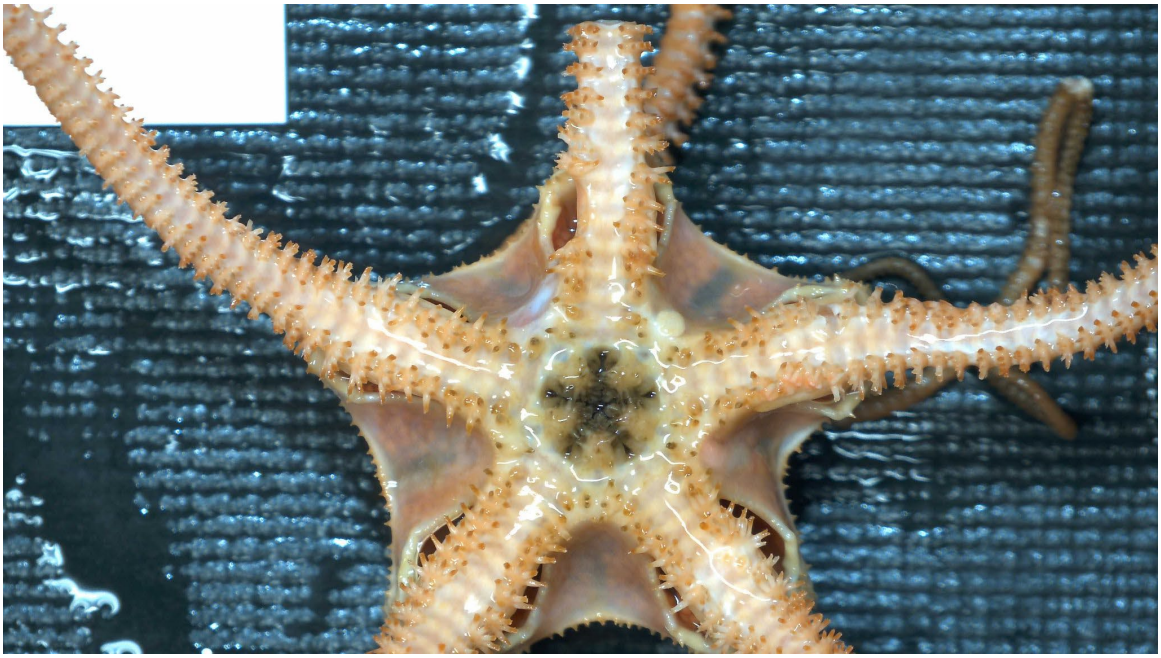
Sample ID	EX2301_D07_04B
Date (UTC)	04242023
Time (UTC)	21:37:15
Depth (m)	1612.362
Latitude (decimal degrees)	47.296867
Longitude (decimal degrees)	-125.274222
Temp. (°C)	2.473
Field ID(s)	*Paragorgia*
Comments	15 cm total length. No polyps growing underneath where polynoids (scale worms) were attached. 1-2cm in girth. Generally, very healthy specimen. Standard *Paragorgia* pink.



Closeup of polynoidae associate on *Paragorgia sp.* imaged in laboratory with scale bar.



Closeup of ophiurodea associate imaged in laboratory, dorsal view.



Closeup of ophiurodea associate imaged in laboratory, ventral view.

Associates Sample ID	Field Identification	Count
EX2301_D07_04B_A01B	Ophiuroidea	1
EX2301_D07_04B_A02B	Polynoidae	2

Niskin Sampling Summary

Sample ID	EX2301_D07_05W
Date (UTC)	20230424
Time (UTC)	21:46:44
Depth (m)	1610.26
Latitude (decimal degrees)	47.296898
Longitude (decimal degrees)	-125.274309
Bottle Number	Niskin 1
Temperature (°C)	2.495
Dissolved Oxygen (ml/L)	1.058
Treatment	eDNA - 1 L water filtered through filter with 0.22µm filter. Filter frozen.

Sample ID	EX2301_D07_06W
Date (UTC)	20230424
Time (UTC)	21:50:01
Depth (m)	1605.206
Latitude (decimal degrees)	47.296942
Longitude (decimal degrees)	-125.274363
Bottle Number	Niskin 2
Temperature (°C)	2.488
Dissolved Oxygen (ml/L)	1.077
Treatment	eDNA - 1 L water filtered through filter with 0.22µm filter. Filter frozen.

Sample ID	EX2301_D07_07W

Date (UTC)	20230424
Time (UTC)	22:14:33
Depth (m)	1592.5706
Latitude (decimal degrees)	47.266998
Longitude (decimal degrees)	-125.274434
Bottle Number	Niskin 3
Temperature (°C)	2.50306
Dissolved Oxygen (ml/L)	1.08043
Treatment	eDNA - 1 L water filtered through filter with 0.22µm filter. Filter frozen.

Sample ID	EX2301_D07_08W
Date (UTC)	20230424
Time (UTC)	22:17:02
Depth (m)	1592.232
Latitude (decimal degrees)	47.296996
Longitude (decimal degrees)	-125.274382
Bottle Number	Niskin 4
Temperature (°C)	2.484
Dissolved Oxygen (ml/L)	1.05
Treatment	eDNA - 1 L water filtered through filter with 0.22µm filter. Filter frozen.

Sample ID	EX2301_D07_09W
Date (UTC)	20230424
Time (UTC)	22:18:37
Depth (m)	1592.135
Latitude (decimal degrees)	47.297006
Longitude (decimal degrees)	-125.274479

Bottle Number	Niskin 5
Temperature (°C)	2.492
Dissolved Oxygen (ml/L)	1.063
Treatment	eDNA - 1 L water filtered through filter with 0.22µm filter. Filter frozen.

Sample ID	EX2301_D07_BLW
Date (UTC)	20230424
Treatment	Blank for eDNA- 1 L water of distilled water filtered through filter with 0.22µm filter. Filter frozen.

Scientists Involved

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