ROV Dive Summary
EX2301, Dive 09, April 26, 2023

General Location Map

Dive Information

Site Name	Nitinat Canyon 2
General Area Descriptor	Sloped canyon wall with max depth of 1121m

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_DIVE09 ^^ Dive Type: Normal In Water: 2023-04-26T15:23:56.909394 nan ; nan On Bottom: 2023-04-26T16:07:26.394976 48.176840553348896 ; -125.77389553421234 Off Bottom: 2023-04-26T23:05:44.479973 48.17022302959137 ; -125.77172715553915 Out Water: 2023-04-26T23:37:30.230644 48.169929774737184 ; -125.7747304665276 Dive Duration: 8:13:33 Bottom Time: 6:58:18 Max Vehicle Depth: 989.6 m Min Seafloor Depth: 743.3 m Distance Travelled: 891.9 m

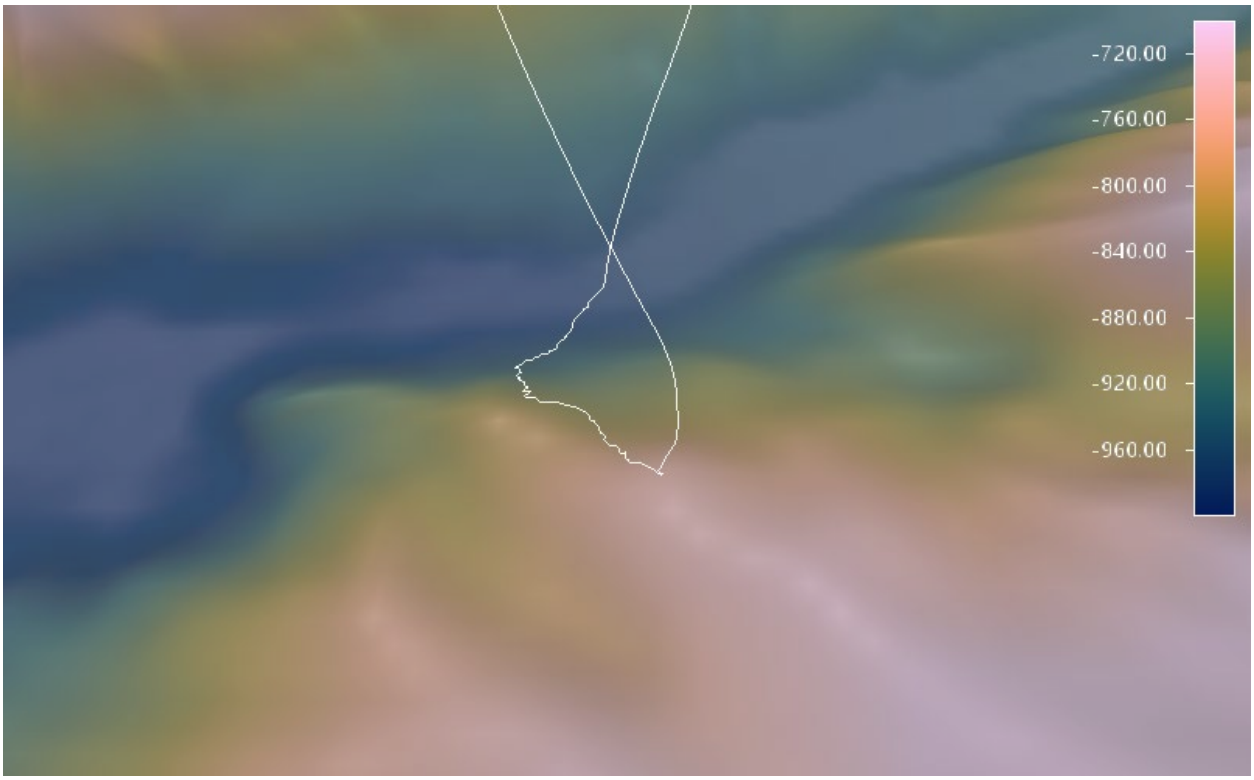
Dive Description	This was the ninth dive of EX2301 and was located within Nitinat Canyon up the slope of a north-facing wall. The dive began at approx. -990m and ascended to approx. -790m. Geologic features include heavy sedimentation all throughout the canyon slope. At about -910m depth there were regions with pervasive rock debris likely glacial erratic or slumped rock debris eroded off slope. At about -800m we descended into a valley where the slope plateaued for the remainder of the dive. We did not encounter much hard bottom for sessile organisms to settle. The fish observed included Zoarcidae, Myxinidae, Liparidae, *Sebastolobus altivelis*, *Microchirus variegatus*, *Nezumia sp*., and a few Bathyraja rays. A number of organisms were living among the sedimented surface including Chionoectes crabs, *Solaster borealis*, Thissacanthias, Ophiuroidea, Holothuroidae, Heteropolypus, Laetmogonidae, Pteraster, and Florometra. We encountered a *Deepstaria* jellyfish and two *Opisthoteuthis californiana* octopus. A few corals were observed including *Gersemia juliepackardae*, *Callistephanus* sp., *Paragorgia yutlinux*, *Balticina* sp., and *Parastenella* sp., Umbellula sp. Sponges were present on many of the small exposed rocks and boulders. We successfully captured 5 niskin water samples for eDNA filtration. We had one geologic sample and two biologic samples (small barrel sponge and seastar).
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 — Absent Hydrates — Absent
CMECS Feature Type(s)	Canyon slope
SeaTube Link (science annotations)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=2833

Equipment Deployed

ROV	*Deep Discoverer*
Camera Platform	*Seirios*

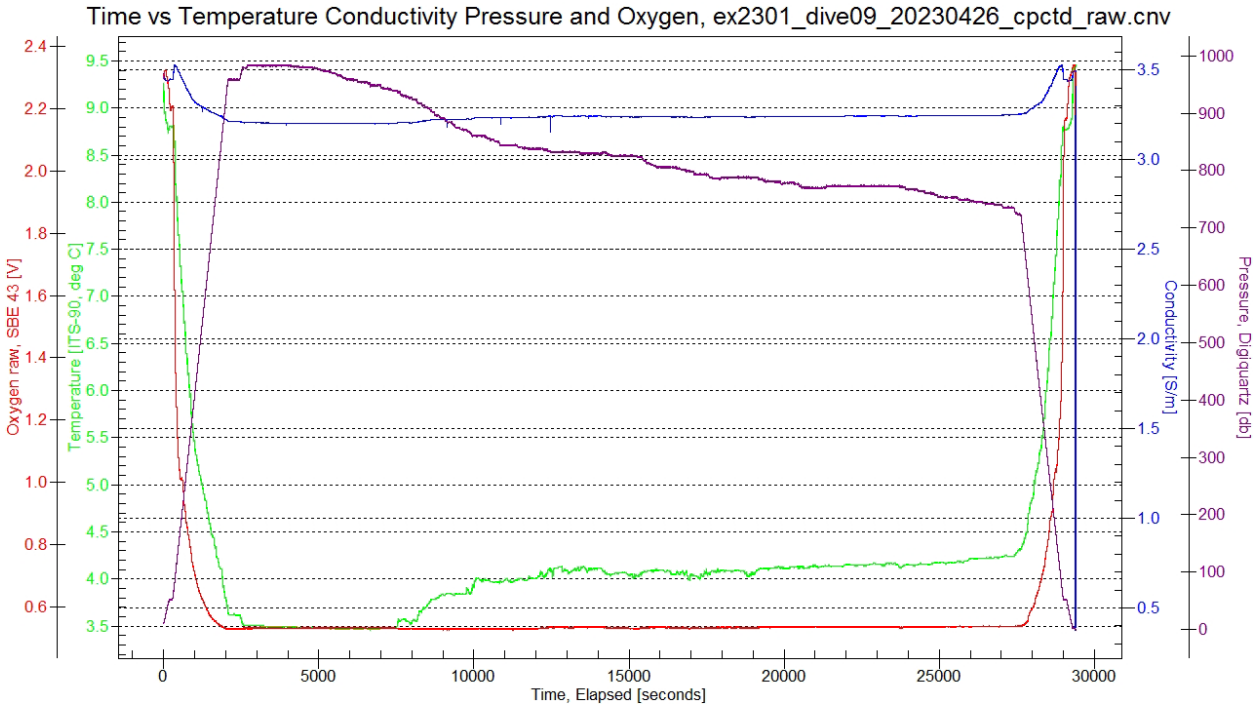
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The following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

Close-Up Map of Main Dive Site



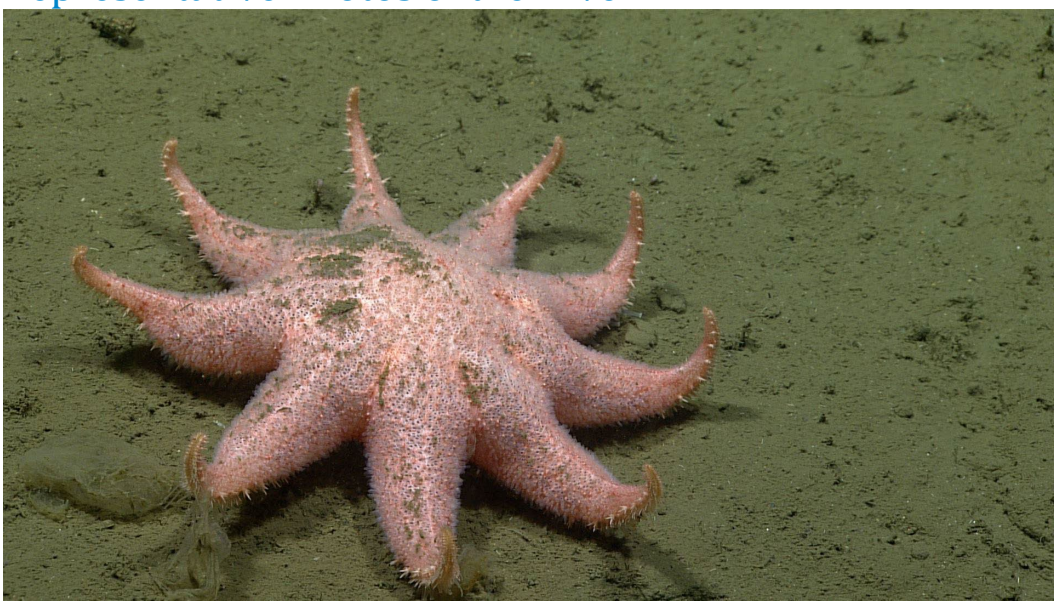
Main dive site for ROV shakedown on 25m bathymetry, depth in meters. 2X vertical exaggeration.

Sound Speed Manager Image of ROV CTD Profile



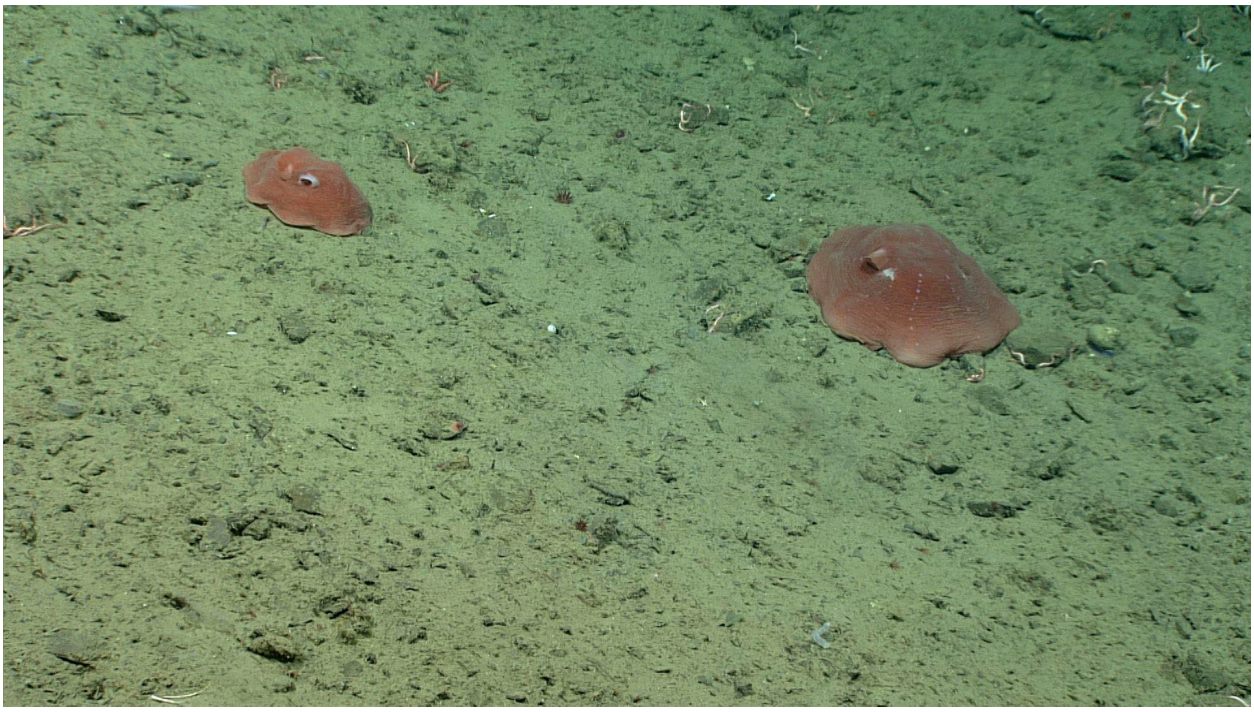
ROV CTD profiles for Dive 09

Representative Photos of the Dive



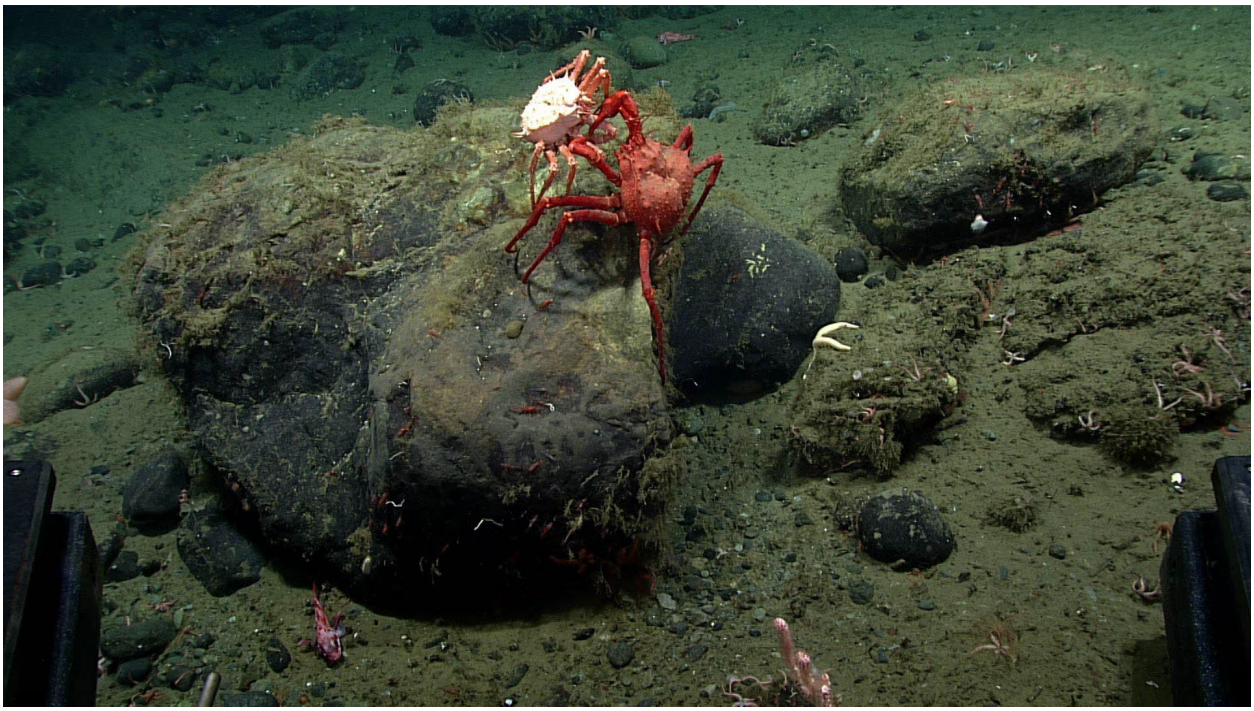
Solaster borealis on the sedimented sea floor.

Sponge with crab imaged on a small outcrop.



Two flapjack octopodes (*Opisthoteuthis californiana*) flatten themselves out close to the seafloor

Several shrimp seek shelter on a primnoid coral

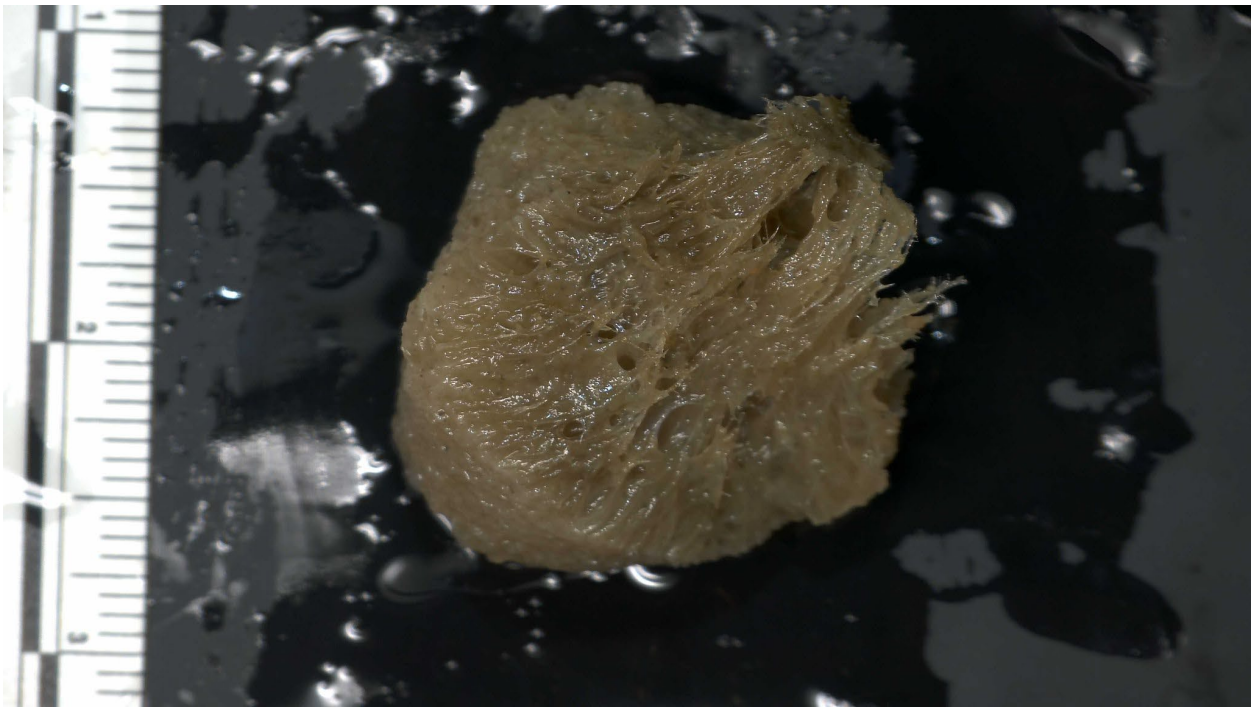


A crab carries a second, smaller crab across boulders and cobbles.

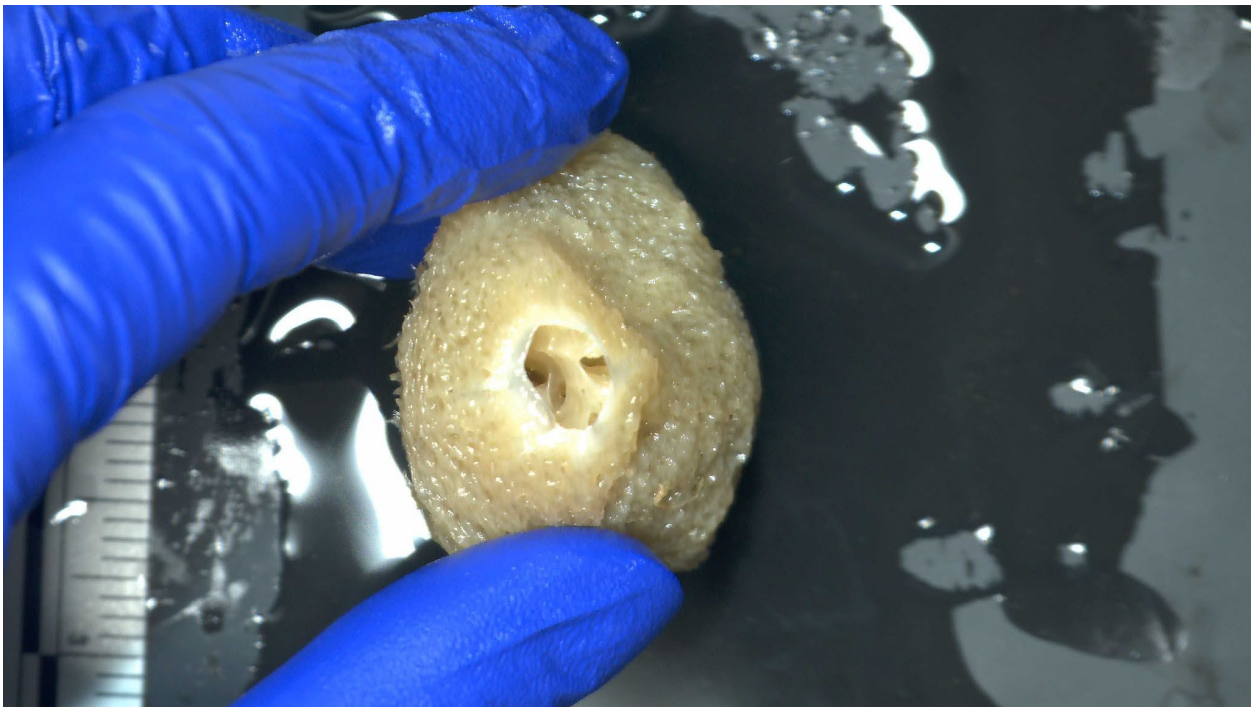
Samples Collected

Demosponge *in situ* during collection with abundant brittle stars.

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



Demosponge sample with scale bar in laboratory photo.

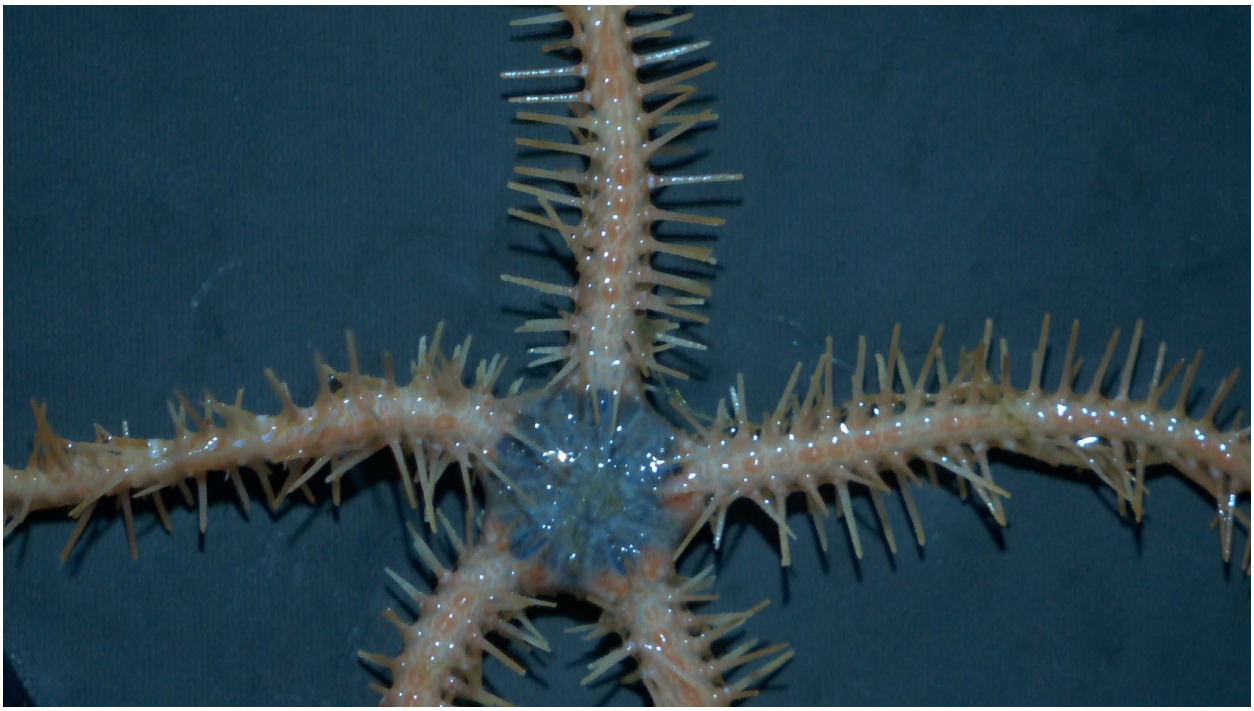


Demosponge sample with scale bar in laboratory photo.

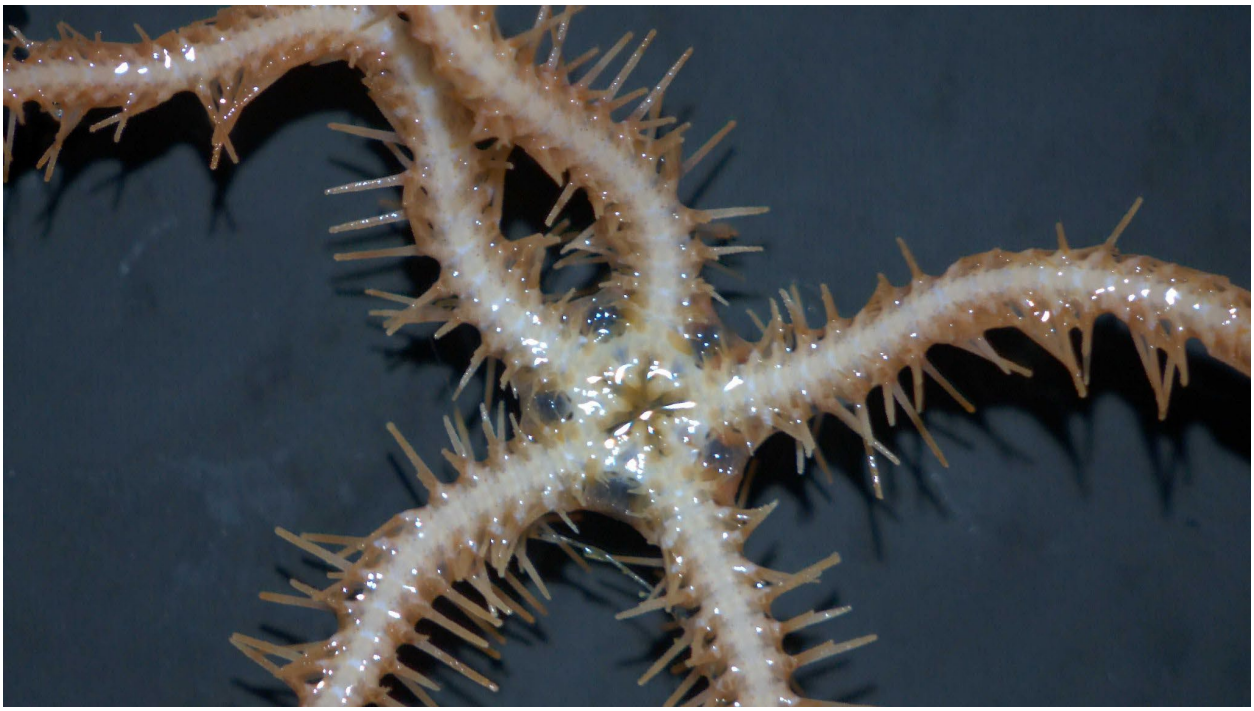
Sample ID	EX2301_D09_01B
Date (UTC)	20230426

Time (UTC)	191156
Depth (m)	836.7
Latitude (decimal degrees)	48.173257
Longitude (decimal degrees)	-125.775427
Temp. (˚C)	3.939
Field ID(s)	Demosponge (Mycale loveni - ?)
Comments	Cream colored, light brown, much less yellow than in situ. 4.5cm tall. Osculum ~1cm. Many brittle star associates. Very fibrous. No distinct smell.

Ophiuroidea associate with sample label, scale bar, and color chart in laboratory photo.

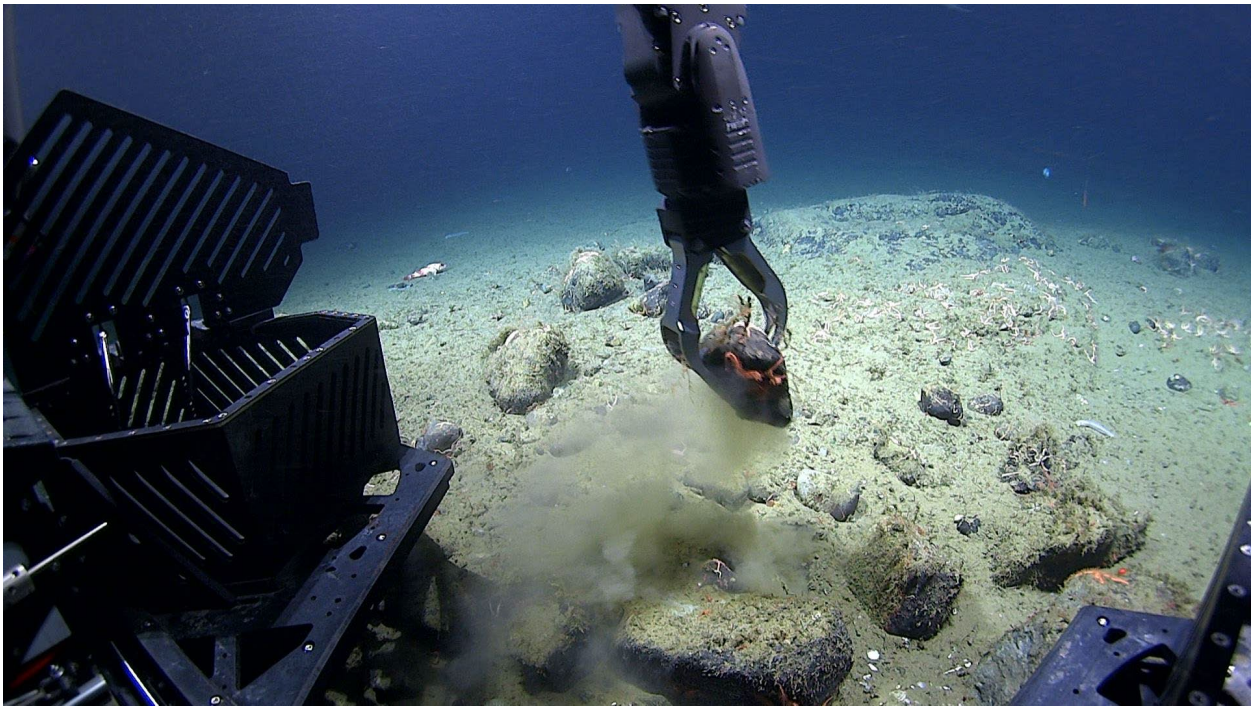


Closeup of ophiuroidea associate, dorsal view.



Closeup of ophiuroidea associate, ventral view.

Associates Sample ID	Field Identification	Count
EX2301_D09_01B_A01B	Ophiuroidea	1
EX2301_D09_01B_A02B	Ophiuroidea	1
EX2301_D09_01B_A03B	Polychaeta	1
EX2301_D09_01B_A04B	Ophiuroidea	1
EX2301_D09_01B_A05B	Ophiuroidea	1
EX2301_D09_01B_A06B	Polychaeta	1
EX2301_D09_01B_A07B	Pandalidae	2



Geologic sample during sample collection

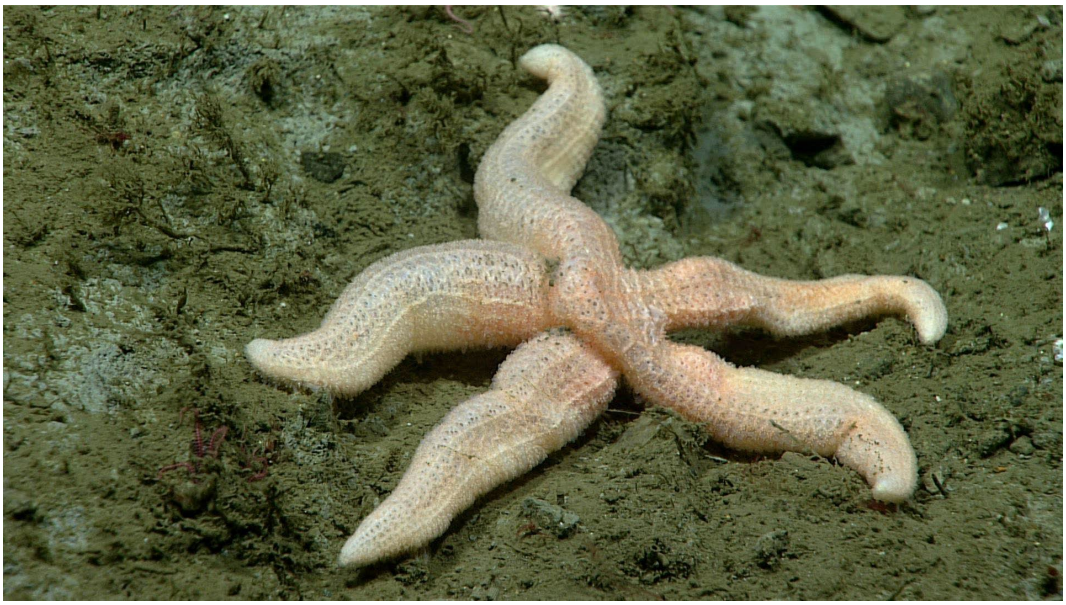
Geologic sample, sample label, scale bar, and color chart in laboratory photo.

Closeup of geologic sample texture.

Sample ID	EX2301_D09_02G
Date (UTC)	20230426
Time (UTC)	203521

Depth (m)	794.6
Latitude (decimal degrees)	48.172231
Longitude (decimal degrees)	-125.774962
Temp. (°C)	4.055
Field ID(s)	Unidentifiable Glacial Erratic, likely metamorphosed.
Comments	Cannot identify without cross section. Heavily weathered exterior. Appears dark on outside, likley due to weathering. Lighter colored lateral veins. Smooth, not angular. Fine grained. 18.5cm x 14cm x 9

Associates Sample ID	Field Identification	Count
EX2301_D09_02G_A01B	Ophiotrichidae	1
EX2301_D09_02G_A02B	Ophiotrichidae	1
EX2301_D09_02G_A03B	Hydrozoa	1
EX2301_D09_02G_A04B	Caprella	76



Ampheraster marianus sample *in situ* prior to collection.

Ampheraster marianus sample, label, scale bar, and color chart in laboratory photo

Sample ID	EX2301_D09_03B
Date (UTC)	20230426
Time (UTC)	211426
Depth (m)	781.411
Latitude (decimal degrees)	48.171851
Longitude (decimal degrees)	-125.774278
Temp. (°C)	4.078
Field ID(s)	Ampheraster marianus
Comments	Light pink. Semi-translucent. 5 arms. Protruding its tube feet. Releasing water out of its water vascular system before final fixation.

Associates Sample ID	Field Identification	Count
n/a		

Niskin Sampling Summary

Sample ID	EX2301_D09_04W
Date (UTC)	20230426
Time (UTC)	220508
Depth (m)	774
Latitude (decimal degrees)	48.170823
Longitude (decimal degrees)	-125.773027
Bottle Number	1
Temperature (°C)	4.165
Dissolved Oxygen (ml/L)	0.377
Treatment	Frozen

Sample ID	EX2301_D09_05W
Date (UTC)	20230426
Time (UTC)	220918
Depth (m)	774
Latitude (decimal degrees)	48.170767
Longitude (decimal degrees)	-125.773066
Bottle Number	2
Temperature (°C)	4.138
Dissolved Oxygen (ml/L)	0.401
Treatment	Frozen

Sample ID	EX2301_D09_06W
Date (UTC)	20230426
Time (UTC)	221745

Depth (m)	765
Latitude (decimal degrees)	48.170572
Longitude (decimal degrees)	-125.772869
Bottle Number	3
Temperature (°C)	4.165
Dissolved Oxygen (ml/L)	0.437
Treatment	Frozen

Sample ID	EX2301_D09_07W
Date (UTC)	20230426
Time (UTC)	222126
Depth (m)	763
Latitude (decimal degrees)	48.170511
Longitude (decimal degrees)	-125.772774
Bottle Number	4
Temperature (°C)	4.175
Dissolved Oxygen (ml/L)	0.406
Treatment	Frozen

Sample ID	EX2301_D09_08W
Date (UTC)	20230426
Time (UTC)	223535
Depth (m)	757
Latitude (decimal degrees)	48.170310
Longitude (decimal degrees)	-125.772632
Bottle Number	5
Temperature (°C)	4.191
Dissolved Oxygen (ml/L)	0.372
Treatment	Frozen

Sample ID	EX2301_D09_BLW
Date (UTC)	20230426
Treatment	500 mL of distilled water filtered through 0.22µm filter. Filter stored in freezer.

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