ROV Dive Summary
EX2306, Dive 12, September 5, 2023

General Location Map

Dive Information

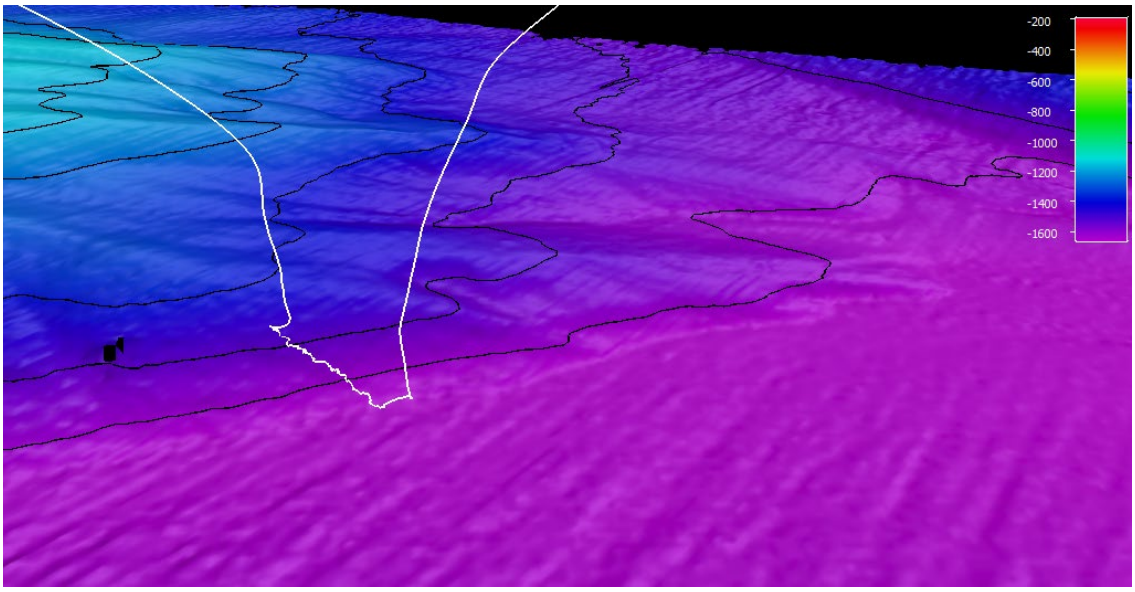
Site Name	Noyes Canyon
General Area Descriptor	Gulf of Alaska
Science Team Leads	Merlin Best (Bio); Jamie Conrad (Geo)
Expedition Coordinator	Sam Candio
ROV Dive Supervisor	Lars Murphy
Dive Purpose	Exploration of the walls of this canyon will provide a unique look at the rocks that underlie the shelf, which may form a distinct habitat at sub-shelf depths compared to the post-glacial sediments that are exposed outboard of the shelfbreak. Extensive bycatch of gorgonian coral, black, and hydro corals as well as unidentified and glass sponges has been observed in this area at depths of 300-1200 m. It is thought that corals and sponges are likely to be found in these steeper areas, which are not effectively sampled with traditional methods.
Maritime Heritage Restrictions	No
ROV Dive Summary Data	Dive Type: Normal In Water: 2023-09-05T16:25:50.614960 55.0335504100047 ; -134.5265585214871 On Bottom: 2023-09-05T17:49:30.278330 55.03310179028865 ; -134.52023609319437 Off Bottom: 2023-09-05T23:42:40.473014 55.03112621633663 ; -134.51710394591584 Out Water: 2023-09-06T00:34:02.721296 55.03145969583393 ; -134.5044812957278 Dive Duration: 8:08:12 Bottom Time: 5:53:10 Max Vehicle Depth: 1635.2 m Min Seafloor Depth: 1452.0 m Distance Traveled: 399.9 m

Dive Description	***Geology*** The twelfth dive of EX2306 was in Noyes Canyon, about 5 km east of the Queen Charlotte Fault, the structural boundary between the North American and Pacific Plates, offshore southeastern Alaska. The dive began at a depth of about 1640 m, encountering soft muddy unconsolidated sediment on a flat canyon bottom that shows no evidence of modern sediment transport. The ROV ascended about 180 m up the southern canyon wall, which was mantled in a drape of thin-bedded, soft muddy sediment lying parallel to the slope of the canyon wall. In places, loose boulders were scattered on the slope, most, if not all, composed of massive mustone, some split and fractured. Several slide lobes and tongues of mudstone blocks of cobble to boulder size were encountered, chaotic piles and trains of unsorted rocky debris, debris slide chutes, and slump or slide headwalls provided abundant evidence of recent mass wasting of the canyon walls. Although most of this mass wasting is likely related to the 2013 Craig M7.5 earthquake, variable biologic boring and recolonization of the slide headwalls implies multiple mass wasting events. One sample of the massive friable mudstone was collected. ***Biology*** In addition to an unusual abundance of Graneledone boreopacifica, we observed scattered corals, anemones, and echinoderm species, and obtained several samples for further study.
Notable Observations	Two Graneledone boreopacifica associated with the same rock, brooding over visible eggs; individual adult G. boreopacifica in the area, and several juveniles, indicating a successful nursery area.
Community and Habitat Observations	Corals and Sponges — Present Chemosynthetic Community — Absent High biodiversity Community —Present Active Seep or Vent — Absent Extinct Seep or Vent — Absent Hydrates — Absent
CMECS Feature Type(s)	Boulder Field Flat Ledge Outcrop/Rock Outcrop Shelf Valley Slope Submarine Canyon Submarine Slide Deposit
SeaTube Link (science annotations)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=6760

Equipment Deployed

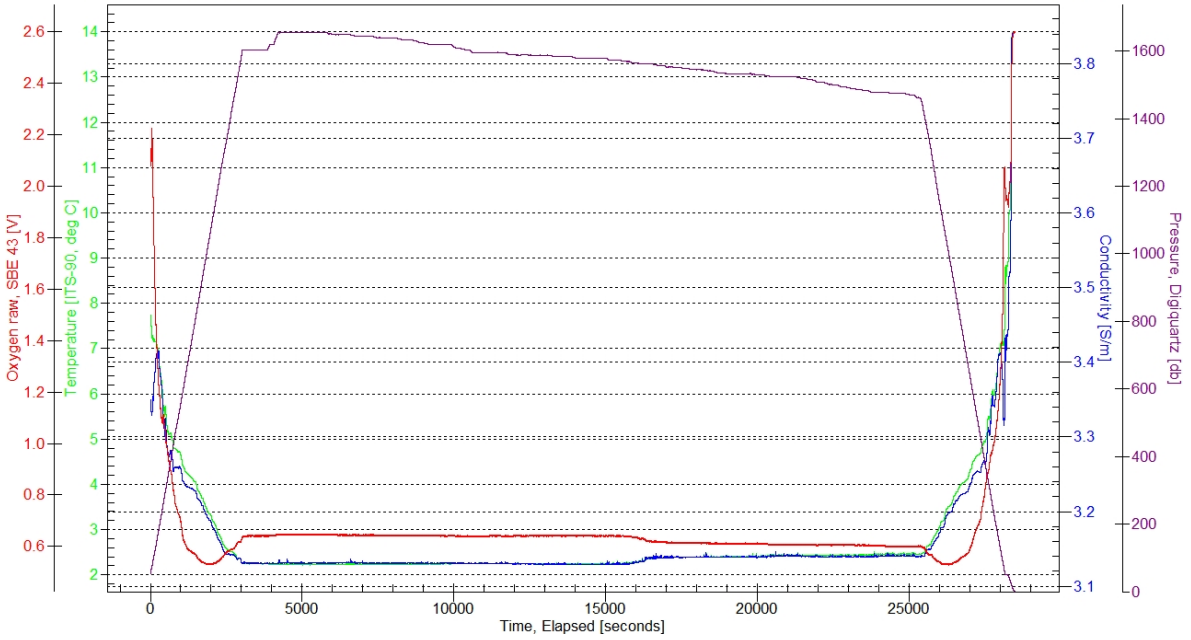
ROV	*Deep Discoverer*
Camera Platform	*Seirios*
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The following row notes if any of these sensors were malfunctioning or not operational
Equipment Malfunctions	None

Close-Up Map of Main Dive Site



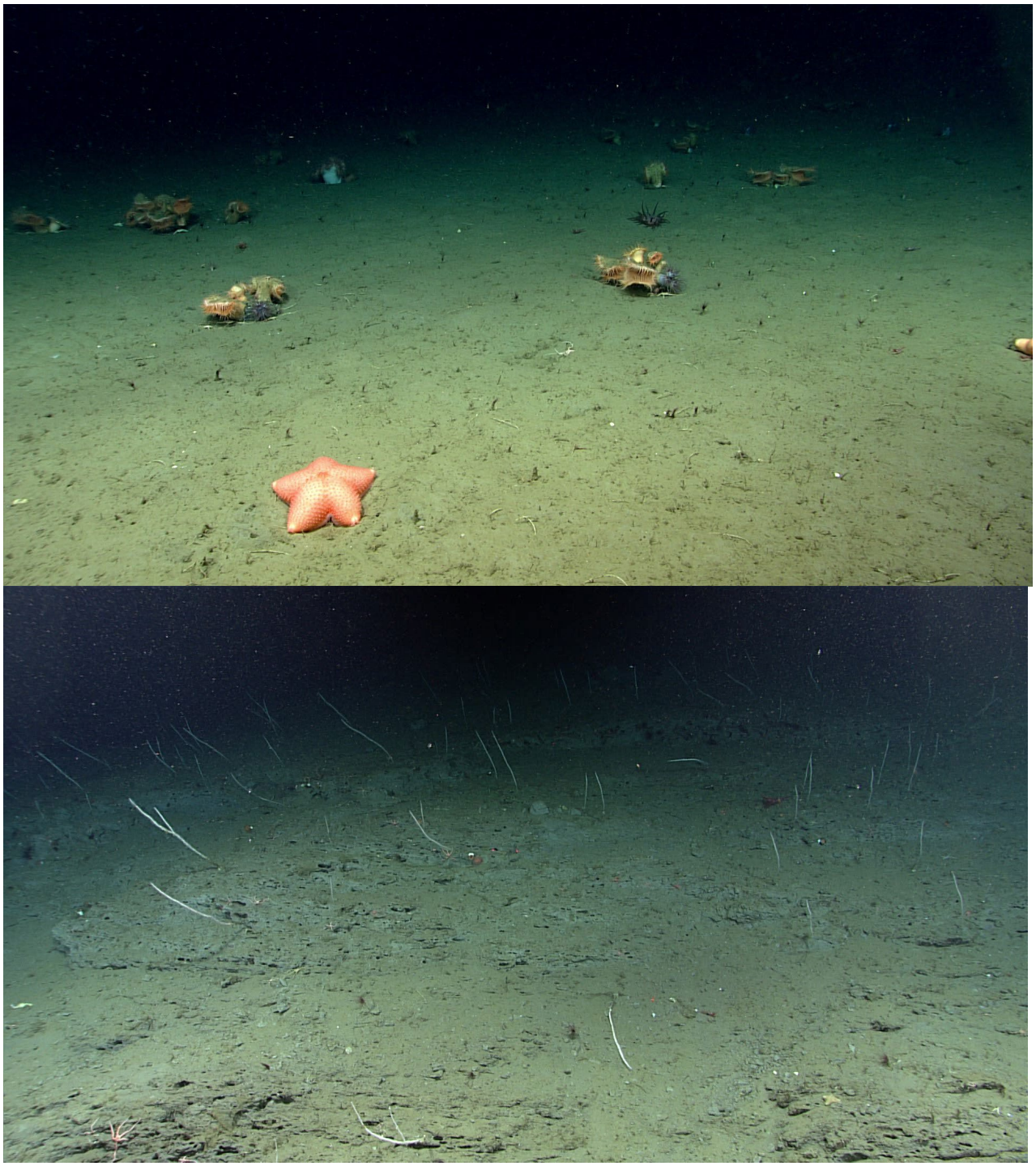
Smoothed ROV dive track in white on 30x30 m cell size bathymetry, 1x vertical exaggeration, depth in meters, 100 meter contours.

Sound Speed Manager Image of ROV CTD Profile



Plot of ROV CTD profile, showing temperature, conductivity, pressure, and dissolved oxygen over time.

Representative Photos of the Dive



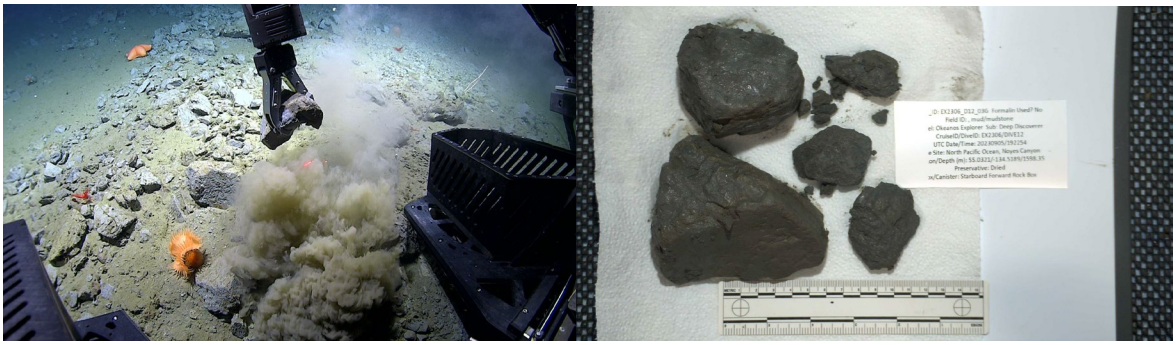
Sparse fauna on soft sediment and mudstone; hormathid anemones and pterasterid seastar (top), and Asbestopluma sp. (bottom)

Samples Collected

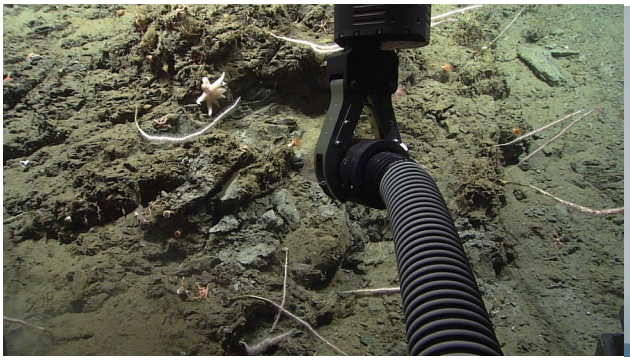
Sample ID	EX2306_D12_02B
Date (UTC)	20230905
Time (UTC)	182854
Depth (m)	1627.39196777344
Latitude (decimal degrees)	55.032772064209
Longitude (decimal degrees)	-134.519744873047
Temp. (°C)	2.22900009155273
Field ID(s)	Acanthogorgia

Associates Sample ID:	EX2306_D12_02B_A01B
Field Identification:	Amphipoda
Count:	1

Associates Sample ID:	EX2306_D12_02B_A02B
Field Identification:	Hydrozoa
Count:	1



Sample ID	EX2306_D12_03G
Date (UTC)	20230905
Time (UTC)	192254
Depth (m)	1598.34594726563
Latitude (decimal degrees)	55.032096862793
Longitude (decimal degrees)	-134.518920898438
Temp. (°C)	2.24200010299683
Field ID(s)	mud/mudstone
Comments	medium to dark gray friable thin-bedded mudstone



Sample ID	EX2306_D12_04B
Date (UTC)	20230905
Time (UTC)	195148
Depth (m)	1573.40002441406
Latitude (decimal degrees)	55.0319213867188
Longitude (decimal degrees)	-134.518600463867
Temp. (°C)	2.24699997901917
Field ID(s)	Caryophyllia

Associates Sample ID:	EX2306_D12_04B_A01B
Field Identification:	Cerianthidae
Count:	1

Associates Sample ID:	EX2306_D12_04B_A02B
Field Identification:	Crustacea
Count:	3

Sample ID	EX2306_D12_05B
Date (UTC)	20230905
Time (UTC)	201458
Depth (m)	1566.37194824219
Latitude (decimal degrees)	55.031867980957
Longitude (decimal degrees)	-134.51838684082
Temp. (°C)	2.24600005149841
Field ID(s)	antipatharia

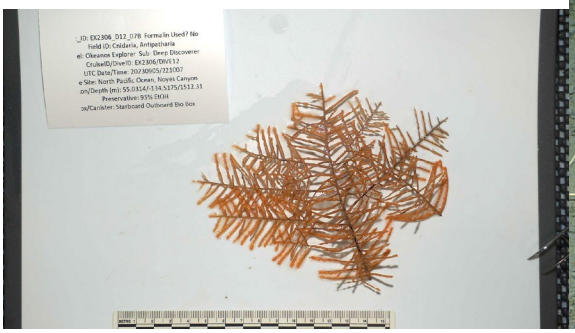
Associates Sample ID:	EX2306_D12_05B_A01B
Field Identification:	Asbestopluma
Count:	1

Associates Sample ID:	EX2306_D12_05B_A02B
Field Identification:	Ophiuroidea
Count:	1

Associates Sample ID:	EX2306_D12_05B_A03B
Field Identification:	Polynoidae
Count:	1

Associates Sample ID:	EX2306_D12_05B_A04B

Field Identification:	Amphipoda
Count:	1



Sample ID	EX2306_D12_07B
Date (UTC)	20230905
Time (UTC)	221007
Depth (m)	1512.30798339844
Latitude (decimal degrees)	55.0313682556152
Longitude (decimal degrees)	-134.517456054688
Temp. (°C)	2.40300011634827
Field ID(s)	Antipatharia

Sample ID	EX2306_D12_08B
Date (UTC)	20230905
Time (UTC)	222847

Depth (m)	1505.4560546875
Latitude (decimal degrees)	55.0313186645508
Longitude (decimal degrees)	-134.517318725586
Temp. (°C)	2.43899989128113
Field ID(s)	Peribolaster
Comments	

Niskin Sampling Summary

Sample ID	EX2306_D12_01W
Date (UTC)	20230905
Time (UTC)	175232
Depth (m)	1633.36901855469
Latitude (decimal degrees)	55.033088684082
Longitude (decimal degrees)	-134.520278930664
Bottle Number	Niskin Bottle 1
Temperature	2.22900009155273
Dissolved Oxygen (mg/L)	1.20799994468689
Treatment	DNA/RNA Shield

Sample ID	EX2306_D12_06W
Date (UTC)	20230905
Time (UTC)	215804
Depth (m)	1513.73999023438
Latitude (decimal degrees)	55.0313987731934
Longitude (decimal degrees)	-134.517578125

Bottle Number	Niskin Bottle 2
Temperature	2.40400004386902
Dissolved Oxygen (mg/L)	0.930999994277954
Treatment	DNA/RNA Shield

Sample ID	EX2306_D12_09W
Date (UTC)	20230905
Time (UTC)	233534
Depth (m)	1453.60900878906
Latitude (decimal degrees)	55.0307312011719
Longitude (decimal degrees)	-134.516265869141
Bottle Number	Niskin Bottle 3
Temperature	2.46799993515015
Dissolved Oxygen (mg/L)	0.898999989032745
Treatment	DNA/RNA Shield

Sample ID	EX2306_D12_10W
Date (UTC)	20230906
Time (UTC)	001806
Depth (m)	357.852996826172
Latitude (decimal degrees)	55.0307731628418
Longitude (decimal degrees)	-134.511474609375
Bottle Number	Niskin Bottle 4
Temperature	5.01800012588501
Dissolved Oxygen (mg/L)	2.01500010490417
Treatment	DNA/RNA Shield

Scientists Involved

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