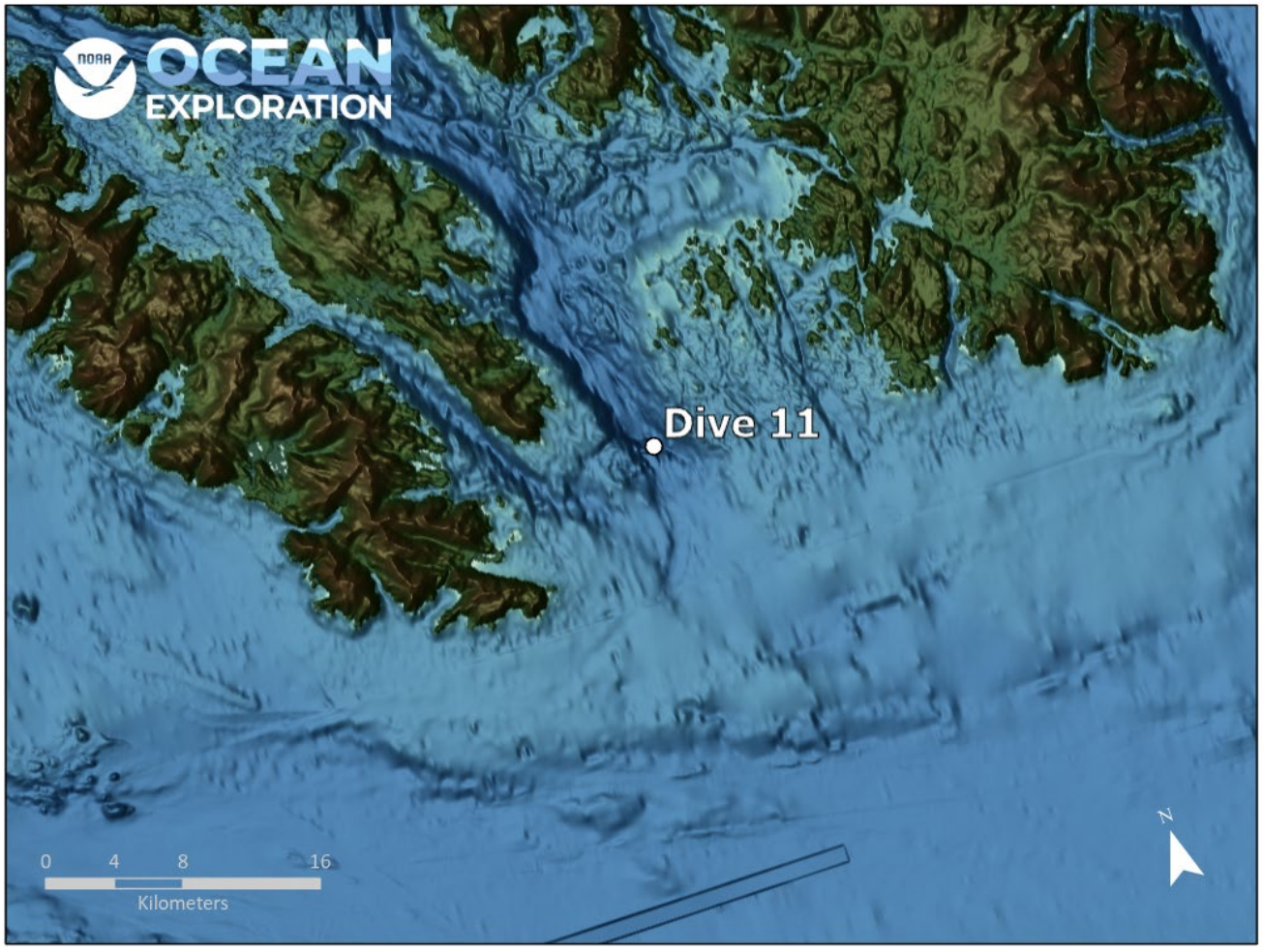
ROV Dive Summary
EX2306, Dive 11, September 4, 2023

General Location Map



Dive Information

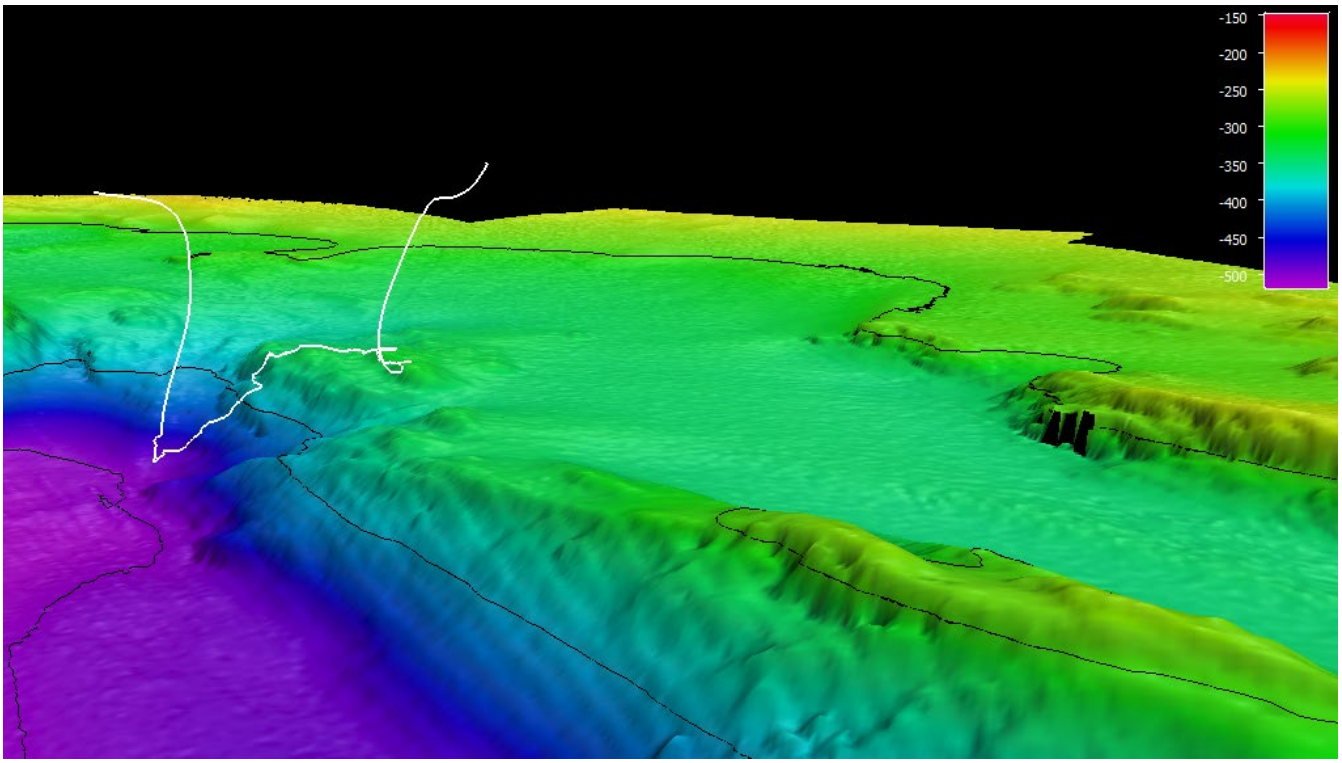
Site Name	Cordova Bay
General Area Descriptor	Gulf of Alaska
Science Team Leads	Merlin Best (Bio); Jamie Conrad (Geo)
Expedition Coordinator	Sam Candio
ROV Dive Supervisor	Lars Murphy
Dive Purpose	To help assess the primnoid coral distribution and abundance model published by Rooper et al in 2017, and to evaluate the rocky habitat in this glacially carved canal.
Maritime Heritage Restrictions	No
ROV Dive Summary Data	Dive Type: Normal In Water: 2023-09-04T16:31:07.711007 54.725107765868685 ; -132.53653376586868 On Bottom: 2023-09-04T17:04:38.416847 54.724357 ; -132.53711627874102 Off Bottom: 2023-09-05T00:13:22.552022 54.72354632840955 ; -132.54045966863615 Out Water: 2023-09-05T00:33:38.311482 54.7212901687135 ; -132.54108442133565 Dive Duration: 8:02:30 Bottom Time: 7:08:44 Max Vehicle Depth: 484.8 m Min Seafloor Depth: 309.7 m Distance Traveled: 543.0 m

Dive Description	***Geology*** The dive began at a depth of about 500 m on Cordova Bay, where the ROV encountered a seafloor of unconsolidated mud. The ROV then ascended a rocky escarpment probably underlain by rocks of the Cambrian and Proterozoic Wales Group, a complex assemblage of metamorphosed volcanic and sedimentary rocks, which here formed a series of steep rocky faces interspersed with variably sedimented terraces. Above the steep escarpment was a relatively flat area covered with muddy sediment separating rocky linear ridges. Three rock samples of quartz-epidote-actinolite schist, some appearing to show some relict compositional layering, were collected. ***Biology*** A very high abundance of Primnoa pacifica were observed throughout the dive. Stands of large older Primnoa corals ran along the ridges of many of the features covered, and some incredible biodiversity were observed on and surrounding these stands. There were a variety of rockfish species, including juveniles and gravid adults, several other fish species, hydrocorals, and countless associated fauna. A wide array of samples were collected for further study, and to groundtruth the species distribution model that highlighted this study site.
Notable Observations	Sea stars, nudibranchs, and calliostomatid snails grazing on Primnoa pacifica.
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)	Basin Boulder Field Ledge Outcrop/Rock Outcrop Plateau Ridge Scarp/Wall Slope Terrace
SeaTube Link (science annotations)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=6750

Equipment Deployed

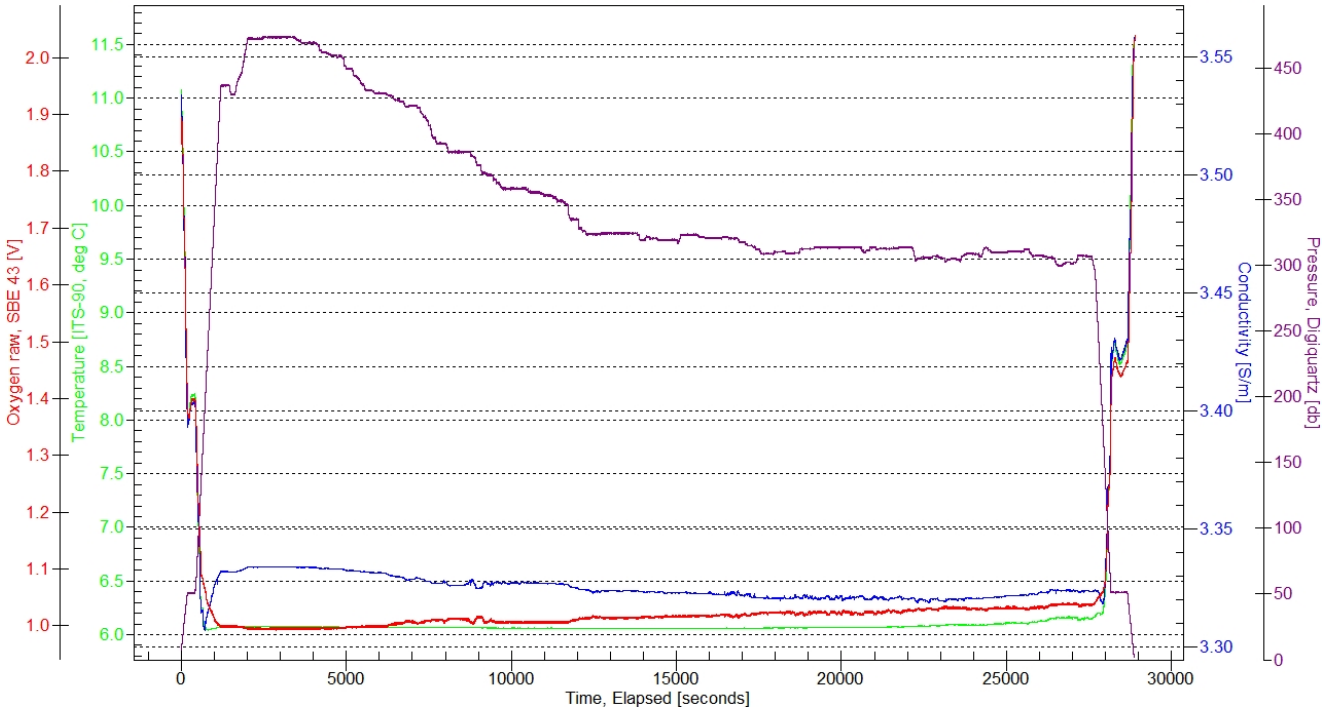
ROV	*Deep Discoverer*
Camera Platform	*Seirios*
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction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

Close-Up Map of Main Dive Site



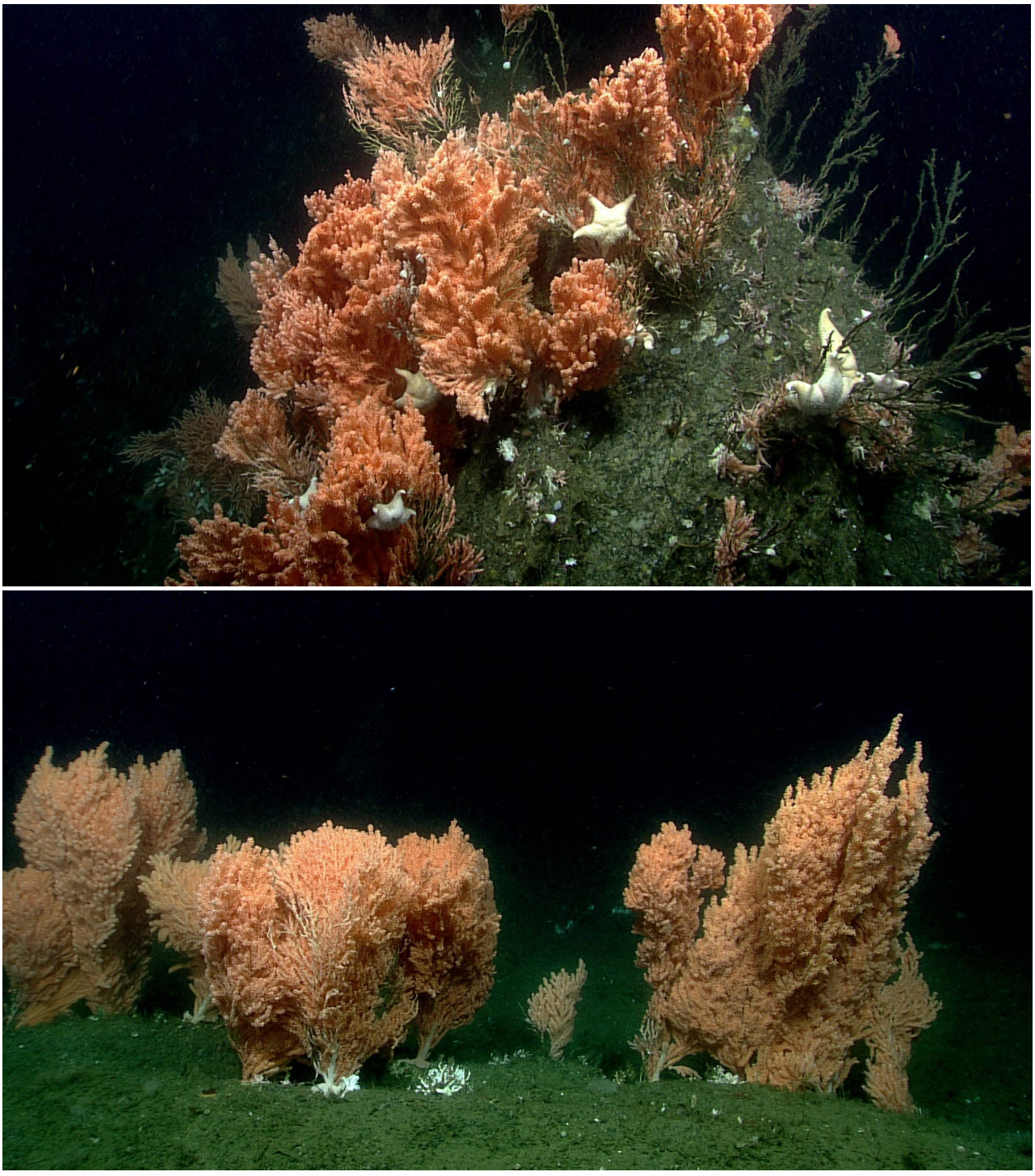
Smoothed ROV dive track in white on 30x30 m cell size bathymetry, 1x vertical exaggeration, depth in meters, 100 meter contours.

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



Large stands of the habitat-forming coral Primnoa pacifica, with Hippasteria sp. sea stars grazing

Samples Collected

Sample ID	EX2306_D11_02G
Date (UTC)	20230904
Time (UTC)	184518
Depth (m)	406.64599609375
Latitude (decimal degrees)	54.7233581542969
Longitude (decimal degrees)	-132.537857055664
Temp. (°C)	6.07100009918213
Field ID(s)	volcanic rock with encrusting bio
Comments	quartz-episode-actinolite schist w/ relict compositional bedding(?)

Associates Sample ID:	EX2306_D11_02G_A01B
Field Identification:	Decapoda
Count:	1

Associates Sample ID:	EX2306_D11_02G_A02B
Field Identification:	Brachiopoda
Count:	2

Associates Sample ID:	EX2306_D11_02G_A03B
Field Identification:	Bryozoa
Count:	1

Associates Sample ID:	EX2306_D11_02G_A04B
Field Identification:	Bryozoa
Count:	1

Associates Sample ID:	EX2306_D11_02G_A05B
Field Identification:	Hydrozoa
Count:	1

Associates Sample ID:	EX2306_D11_02G_A06B
Field Identification:	Caprellidea
Count:	4

Associates Sample ID:	EX2306_D11_02G_A07B
Field Identification:	Polyplacophora
Count:	1

Associates Sample ID:	EX2306_D11_02G_A08B
Field Identification:	sabelliae
Count:	1

Associates Sample ID:	EX2306_D11_02G_A09B
Field Identification:	Myidae
Count:	1

Sample ID	EX2306_D11_03B
Date (UTC)	20230904
Time (UTC)	185622
Depth (m)	399.390991210938
Latitude (decimal degrees)	54.7233428955078
Longitude (decimal degrees)	-132.537902832031
Temp. (°C)	6.07000017166138
Field ID(s)	Desmophyllum dianthus
Comments	Important sample for molecular study of this scleractinian coral family

Sample ID	EX2306_D11_04B
Date (UTC)	20230904
Time (UTC)	202023
Depth (m)	335.317993164063
Latitude (decimal degrees)	54.7226028442383
Longitude (decimal degrees)	-132.537933349609
Temp. (°C)	6.06300020217896
Field ID(s)	Cerianthidae

Associates Sample ID:	EX2306_D11_04B_A01B
Field Identification:	Nudibranchia
Count:	1

Associates Sample ID:	EX2306_D11_04B_A02B
Field Identification:	Stylaster
Count:	1

Associates Sample ID:	EX2306_D11_04B_A03B
Field Identification:	Porifera
Count:	1

Associates Sample ID:	EX2306_D11_04B_A04B
Field Identification:	Ophiuroidea
Count:	1

Associates Sample ID:	EX2306_D11_04B_A05B
Field Identification:	calcera
Count:	1

Associates Sample ID:	EX2306_D11_04B_A06B
Field Identification:	Hydrozoa
Count:	1

Associates Sample ID:	EX2306_D11_04B_A07B
Field Identification:	Brachiopoda
Count:	2

Associates Sample ID:	EX2306_D11_04B_A08B
Field Identification:	Polynoidae
Count:	1

Associates Sample ID:	EX2306_D11_04B_A09B
Field Identification:	Other
Count:	1

Associates Sample ID:	EX2306_D11_04B_A10B
Field Identification:	Decapoda
Count:	1

Associates Sample ID:	EX2306_D11_04B_A11B

Field Identification:	Gastropoda
Count:	1


Sample ID	EX2306_D11_06B
Date (UTC)	20230904
Time (UTC)	205222
Depth (m)	336.188995361328
Latitude (decimal degrees)	54.722526550293
Longitude (decimal degrees)	-132.538055419922
Temp. (°C)	6.06500005722046
Field ID(s)	Porifera

Associates Sample ID:	EX2306_D11_06B_A01B
Field Identification:	Polynoidae
Count:	1

Sample ID	EX2306_D11_07G
Date (UTC)	20230904
Time (UTC)	210208
Depth (m)	333.207000732422
Latitude (decimal degrees)	54.7224273681641
Longitude (decimal degrees)	-132.5380859375
Temp. (°C)	6.06500005722046
Field ID(s)	Metavolcanic Schist
Comments	quartz-epidote-actinolite schist w/ relict bedding(?)

Associates Sample ID:	EX2306_D11_07G_A01B
Field Identification:	auletta
Count:	1

Associates Sample ID:	EX2306_D11_07G_A02B
Field Identification:	Ophiuroidea
Count:	1

Associates Sample ID:	EX2306_D11_07G_A03B
Field Identification:	hydrozoa
Count:	4

Associates Sample ID:	EX2306_D11_07G_A04B
Field Identification:	Ascidia
Count:	1

Associates Sample ID:	EX2306_D11_07G_A05B
Field Identification:	Polyplacophora
Count:	3

Associates Sample ID:	EX2306_D11_07G_A06B
Field Identification:	Arcidae
Count:	1

Associates Sample ID:	EX2306_D11_07G_A07B
Field Identification:	Serpulidae
Count:	1

Associates Sample ID:	EX2306_D11_07G_A08B
Field Identification:	Caprellidea
Count:	1

Associates Sample ID:	EX2306_D11_07G_A09B

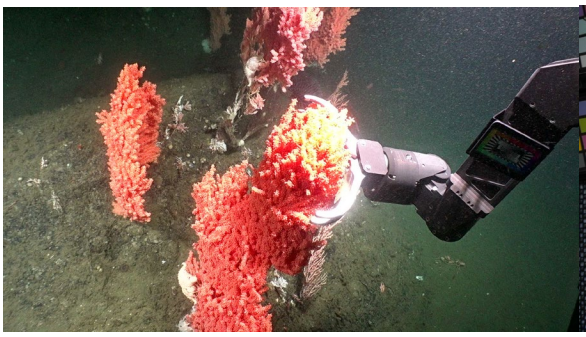
Field Identification:	Scalpellidae
Count:	1

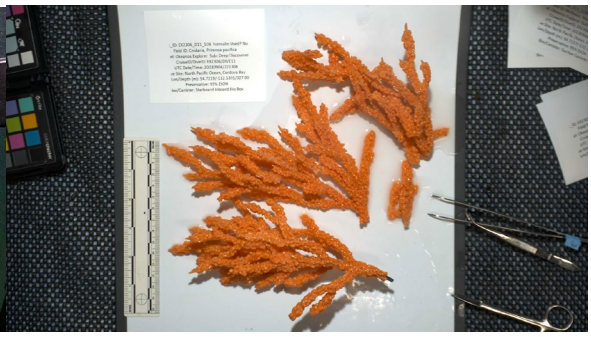
Associates Sample ID:	EX2306_D11_07G_A10B
Field Identification:	Anemone
Count:	1

Associates Sample ID:	EX2306_D11_07G_A11B
Field Identification:	Pectinidae
Count:	1

Associates Sample ID:	EX2306_D11_07G_A12B
Field Identification:	Bryozoa
Count:	1

Associates Sample ID:	EX2306_D11_07G_A13B
Field Identification:	Other
Count:	1



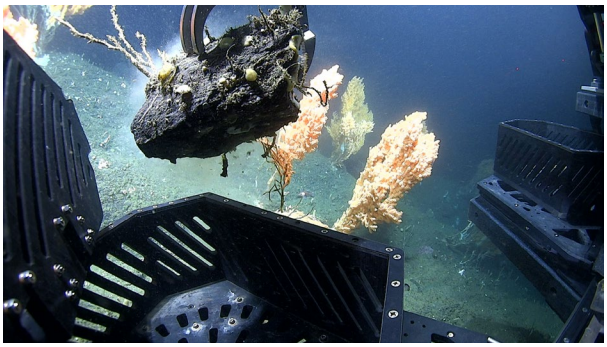


Sample ID	EX2306_D11_10B
Date (UTC)	20230904
Time (UTC)	221308
Depth (m)	326.998992919922
Latitude (decimal degrees)	54.7219200134277
Longitude (decimal degrees)	-132.539077758789
Temp. (°C)	6.06799983978271
Field ID(s)	Primnoa pacifica

Associates Sample ID:	EX2306_D11_10B_A01B
Field Identification:	Pandalidae
Count:	1

Sample ID	EX2306_D11_11B
Date (UTC)	20230904
Time (UTC)	232656
Depth (m)	321.7919921875
Latitude (decimal degrees)	54.7226600646973
Longitude (decimal degrees)	-132.540100097656
Temp. (°C)	6.08599996566772
Field ID(s)	Akoya platinum

Associates Sample ID:	EX2306_D11_11B_A01B
Field Identification:	Amphipoda
Count:	1



Sample ID	EX2306_D11_12G
Date (UTC)	20230904
Time (UTC)	233423
Depth (m)	320.986999511719
Latitude (decimal degrees)	54.7226448059082
Longitude (decimal degrees)	-132.540191650391
Temp. (°C)	6.08400011062622
Field ID(s)	metavolcanic schist?
Comments	quartz-epidote-actinolite schist

Associates Sample ID:	EX2306_D11_12G_A01B
Field Identification:	Primnoa
Count:	1

Associates Sample ID:	EX2306_D11_12G_A02B
Field Identification:	Eunicidae
Count:	2

Associates Sample ID:	EX2306_D11_12G_A03B

Field Identification:	Caryophyllia
Count:	1

Associates Sample ID:	EX2306_D11_12G_A04B
Field Identification:	Serpulidae
Count:	2

Associates Sample ID:	EX2306_D11_12G_A05B
Field Identification:	Polyplacophora
Count:	5

Associates Sample ID:	EX2306_D11_12G_A06B
Field Identification:	Gastropoda
Count:	1

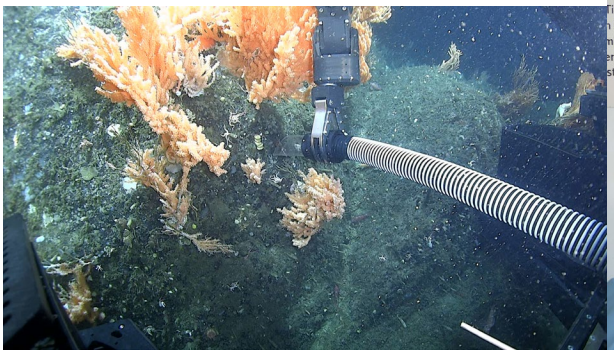
Associates Sample ID:	EX2306_D11_12G_A07B
Field Identification:	Primnoa
Count:	1

Associates Sample ID:	EX2306_D11_12G_A08B
Field Identification:	Brachiopoda
Count:	7

Associates Sample ID:	EX2306_D11_12G_A10B
Field Identification:	Ascidia

Count:	4

Associates Sample ID:	EX2306_D11_12G_A11B
Field Identification:	Other
Count:	1



Sample ID	EX2306_D11_14B
Date (UTC)	20230905
Time (UTC)	000831
Depth (m)	321.015991210938
Latitude (decimal degrees)	54.7232093811035
Longitude (decimal degrees)	-132.540649414063
Temp. (°C)	6.11100006103516
Field ID(s)	Unidentified
Comments	Unidentified, probably egg cases

Associates Sample ID:	EX2306_D11_14B_A02B
Field Identification:	Gastropoda
Count:	12

Associates Sample ID:	EX2306_D11_14B_A03B
Field Identification:	Ophiuroidea
Count:	1

Associates Sample ID:	EX2306_D11_14B_A04B
Field Identification:	Other
Count:	1

Niskin Sampling Summary

Sample ID	EX2306_D11_01W
Date (UTC)	20230904
Time (UTC)	172342
Depth (m)	483.236999511719
Latitude (decimal degrees)	54.7243843078613
Longitude (decimal degrees)	-132.537109375
Bottle Number	Niskin Bottle 1
Temperature	6.0789999961853
Dissolved Oxygen (mg/L)	3.02099990844727
Treatment	DNA/RNA Shield

Sample ID	EX2306_D11_05W
Date (UTC)	20230904

Time (UTC)	203702
Depth (m)	331.906005859375
Latitude (decimal degrees)	54.722469329834
Longitude (decimal degrees)	-132.537902832031
Bottle Number	Niskin Bottle 2
Temperature	6.06300020217896
Dissolved Oxygen (mg/L)	3.04699993133545
Treatment	DNA/RNA Shield

Sample ID	EX2306_D11_08W
Date (UTC)	20230904
Time (UTC)	214222
Depth (m)	321.697998046875
Latitude (decimal degrees)	54.7219619750977
Longitude (decimal degrees)	-132.538497924805
Bottle Number	Niskin Bottle 3
Temperature	6.06599998474121
Dissolved Oxygen (mg/L)	3.08500003814697
Treatment	DNA/RNA Shield

Sample ID	EX2306_D11_09W
Date (UTC)	20230904

Time (UTC)	221210
Depth (m)	327.140014648438
Latitude (decimal degrees)	54.721923828125
Longitude (decimal degrees)	-132.539077758789
Bottle Number	Niskin Bottle 4
Temperature	6.06799983978271
Dissolved Oxygen (mg/L)	3.07800006866455
Treatment	DNA/RNA Shield

Sample ID	EX2306_D11_13W
Date (UTC)	20230905
Time (UTC)	000032
Depth (m)	314.670013427734
Latitude (decimal degrees)	54.7231140136719
Longitude (decimal degrees)	-132.540649414063
Bottle Number	Niskin Bottle 5
Temperature	6.11700010299683
Dissolved Oxygen (mg/L)	3.15499997138977
Treatment	DNA/RNA Shield

Scientists Involved

Name	Affiliation
Amanda Maxon	NOAA
Arvind Shantharam	NCEI
Asako Matsumoto	Chiba Institute of Technology
Christopher Mah	NMNH, Smithsonian Institute
Cindy Van Dover	Duke University
Dhugal Lindsay	JAMSTEC
Elaina Jorgensen	NOAA
Emily Ashe	NOAA
George Matsumoto	MBARI
Jamie Conrad	USGS
Jennifer Aschoff	University of Alaska, Anchorage
Kelly Markello	California Academy of Sciences
Lara Beckmann	University of Gothenburg
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Michael Vecchione	NOAA
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