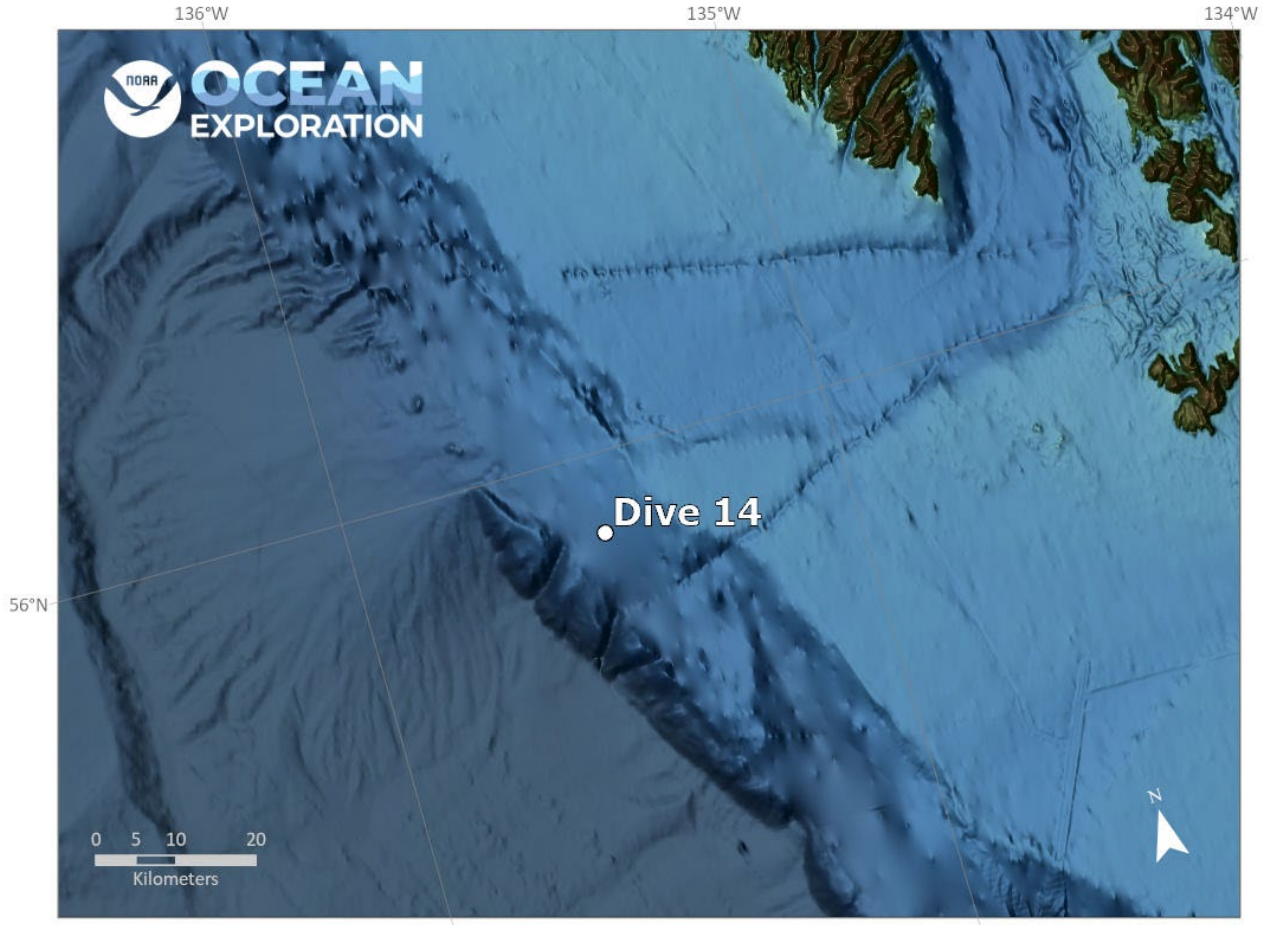
ROV Dive Summary
EX2306, Dive 14, September 7, 2023

General Location Map



Dive Information

Site Name	Chatham Seep
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	Chatham Seep provides a look at a cold seep site, with the potential for chemosynthetic fauna or megafauna associated with carbonate rock formations.
Maritime Heritage Restrictions	No
ROV Dive Summary Data	Dive Type: Normal In Water: 2023-09-07T16:24:49.313058 55.91093601171246 ; -135.49370219590062 On Bottom: 2023-09-07T17:14:11.799159 55.90944858942692 ; -135.49287405691695 Off Bottom: 2023-09-08T00:05:16.693866 55.91123631889058 ; -135.496816496052 Out Water: 2023-09-08T00:45:50.188626 55.903187288191 ; -135.50916913824693 Dive Duration: 8:21:00 Bottom Time: 6:51:04 Max Vehicle Depth: 742.1 m Min Seafloor Depth: 695.7 m Distance Traveled: 735.7 m

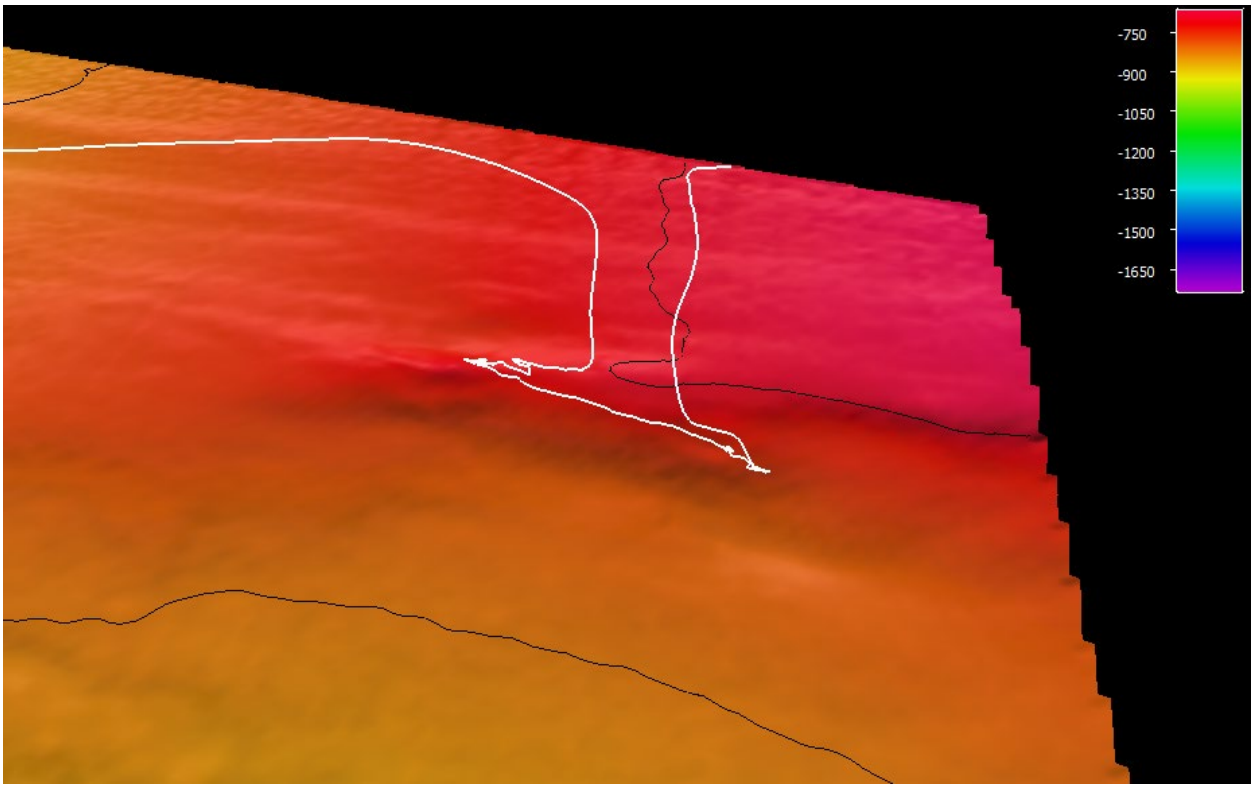
Dive Description	***Geology*** This dive was on a methane seep offshore Chatham Strait in southeastern Alaska. Overnight mapping revealed two main bubble plumes in the water column, emanating from two linear parallel vents (or alignments of vents) spaced about 150 m apart and each about 600-800 m in length. The two vent alignments appear to follow fractures that occur at the headwall of a slide scar. Both seep alignments were visited and encountered abundant methane seepage at numerous vent areas. Thick accumulations (5+ meters) of authigenic carbonate marked the vent areas, with the larger northwestern vent topped by a fracture about 1 m wide and 2-3 m deep from which a variety of continuous, pulsing, intermittent, and sheet-like bubble streams emanated. Small overhangs near one of the bubble streams had accumulations of frozen gas hydrate bubbles, and solid hydrate was visible in the vents of some of the bubble streams. Several samples of authigenic carbonate were collected, as well as a rock away from the vent area that appears to be metavolcanic. ***Biology*** The communities associated with the seep sites and those on the seep periphery were very abundant and diverse. Vesicomyid clams, bacteria mats, gastropods, and occasional tube worms were all seen in close proximity to bubble vents. Sablefish (Anoplopoma fimbria) were seen in high numbers throughout most of the dive, and notably several sightings of fishing gear were made. Some areas were completely covered in encrusting sponges of many different taxa. Rockfish, mushroom corals, cladorhizid sponges, bubblegum corals, and benthopectinid sea stars were also seen.
Notable Observations	Vesicomyid clams, bacteria mats, gastropods, and occasional tube worms.
Community and Habitat Observations	Corals and Sponges — Present Chemosynthetic Community — Present High biodiversity Community — Present Active Seep or Vent — Present Extinct Seep or Vent — Absent Hydrates — Present
CMECS Feature Type(s)	Authigenic Carbonate Outcrops Boulder Field Hole/Pit Ledge Mud Volcano Outcrop/Rock Outcrop Ridge Scarp/Wall Slope Submarine Slide Deposit

SeaTube Link (science annotations)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=6770

Equipment Deployed

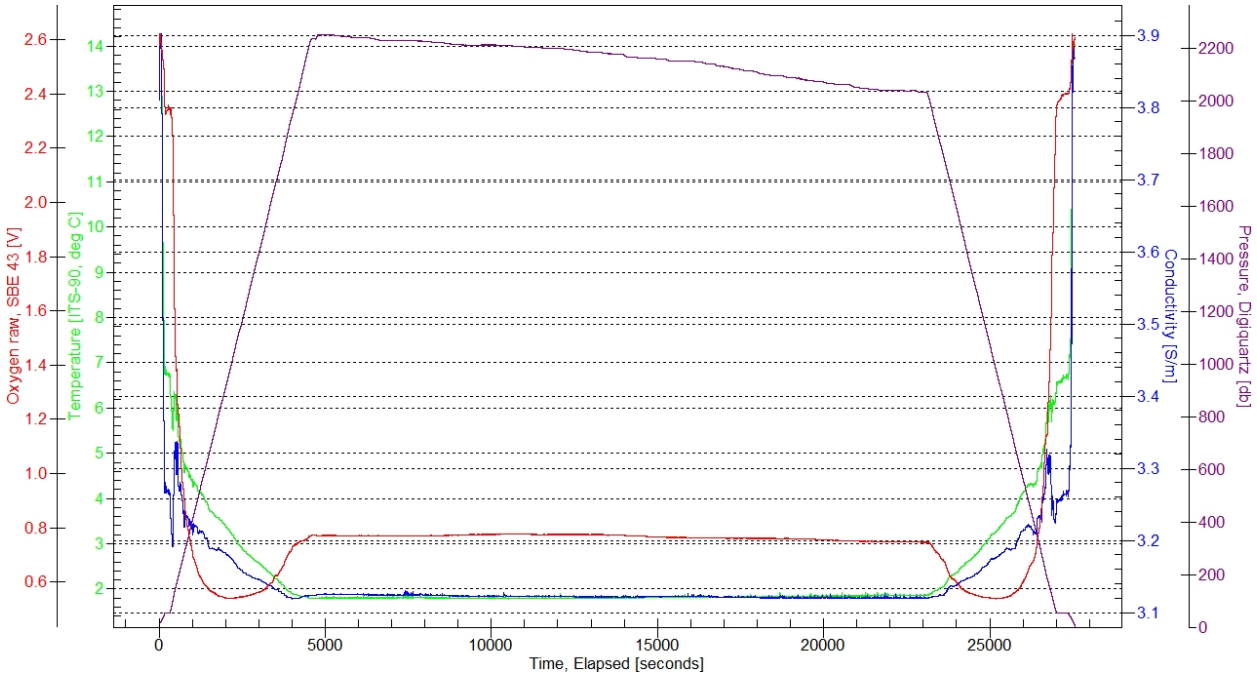
ROV	*Deep Discoverer*
Camera Platform	*Seirios*
ROV Measurements	The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction 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



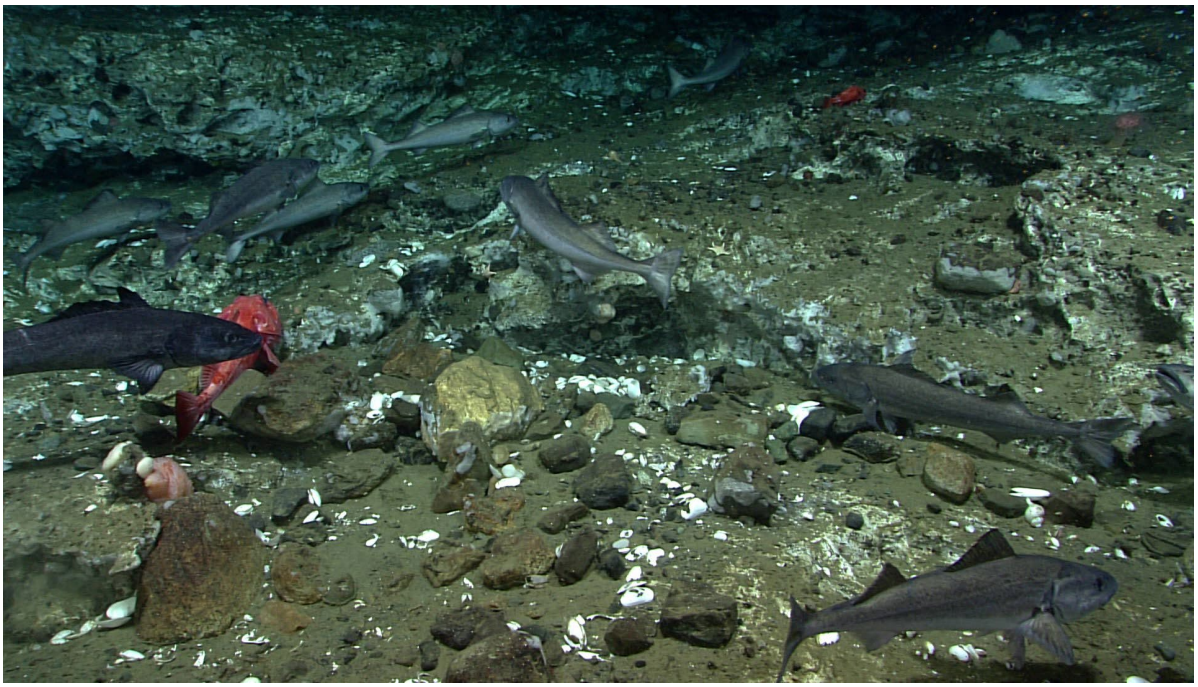
Smoothed ROV dive track in white on 25x25 cell size bathymetry, 1x vertical exaggeration, depth in meters, 10 meter contours.

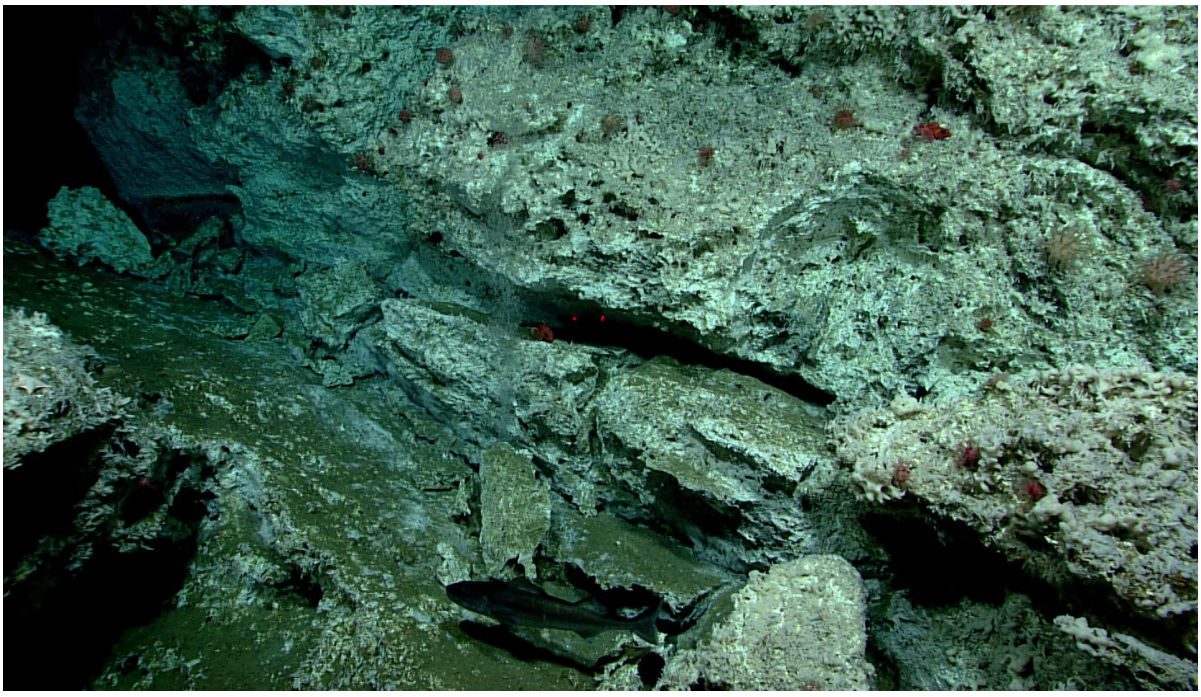
Sound Speed Manager Image of ROV CTD Profile



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

Representative Photos of the Dive





Top: abundant Anoplopoma fimbria with some carbonate rock in the background, also Sebastolobus sp., vesicomyid clam shells, and sponges; Bottom: carbonate rock with methane bubbles, A. fimbria, and Anthomastus sp.

Samples Collected

Sample ID	EX2306_D14_01B
Date (UTC)	20230907
Time (UTC)	201004
Depth (m)	705.260986328125
Latitude (decimal degrees)	55.9101104736328
Longitude (decimal degrees)	-135.499114990234
Temp. (°C)	4.11299991607666
Field ID(s)	Porifera
Comments	DNA subsample mislabeled A03B_S01. Was original primary specimen but confusion in sample processing caused it to be labeled A03B.

Associates Sample ID:	EX2306_D14_01B_A01B
Field Identification:	Porifera
Count:	1

Associates Sample ID:	EX2306_D14_01B_A02B
Field Identification:	Porifera
Count:	1

Associates Sample ID:	EX2306_D14_01B_A04B
Field Identification:	Porifera
Count:	1

Associates Sample ID:	EX2306_D14_01B_A05B
Field Identification:	Porifera
Count:	1

Associates Sample ID:	EX2306_D14_01B_A06G
Field Identification:	volcanic rock with carbonate crust
Count:	1

Sample ID	EX2306_D14_03G
Date (UTC)	20230907
Time (UTC)	202234
Depth (m)	705.182006835938
Latitude (decimal degrees)	55.9100761413574
Longitude (decimal degrees)	-135.499206542969
Temp. (°C)	4.10599994659424
Field ID(s)	Authigenic carbonate
Comments	authigenic carbonate with shelly debris

Associates Sample ID:	EX2306_D14_03G_A01B
Field Identification:	nemertea
Count:	1

Associates Sample ID:	EX2306_D14_03G_A02B
Field Identification:	Hirudinea
Count:	1

Associates Sample ID:	EX2306_D14_03G_A03B
Field Identification:	Polychaeta
Count:	2

Associates Sample ID:	EX2306_D14_03G_A04B
Field Identification:	Porifera
Count:	3

Associates Sample ID:	EX2306_D14_03G_A05B
Field Identification:	turbellaria
Count:	1

Associates Sample ID:	EX2306_D14_03G_A06B
Field Identification:	Anthozoa
Count:	1

Sample ID	EX2306_D14_05B
Date (UTC)	20230907
Time (UTC)	211131
Depth (m)	700.323974609375
Latitude (decimal degrees)	55.9100608825684
Longitude (decimal degrees)	-135.499328613281
Temp. (°C)	4.13199996948242
Field ID(s)	Porifera

Associates Sample ID:	EX2306_D14_05B_A01B
Field Identification:	corallidae
Count:	1

Associates Sample ID:	EX2306_D14_05B_A02B
Field Identification:	Crustacea

Count:	20


Sample ID	EX2306_D14_06B
Date (UTC)	20230907
Time (UTC)	221059
Depth (m)	706.197021484375
Latitude (decimal degrees)	55.9102821350098
Longitude (decimal degrees)	-135.498962402344
Temp. (°C)	4.12400007247925
Field ID(s)	Provanna

Associates Sample ID:	EX2306_D14_06B_A01B
Field Identification:	Amphipoda
Count:	6


Sample ID	EX2306_D14_07B
Date (UTC)	20230907
Time (UTC)	223441
Depth (m)	705.232971191406
Latitude (decimal degrees)	55.9104423522949
Longitude (decimal degrees)	-135.498809814453
Temp. (°C)	4.125
Field ID(s)	Cladorhizidae
Comments	strong methane seep odor. Was original primary specimen but confusion in sample processing caused it to be labeled A01B.

Associates Sample ID:	EX2306_D14_07B_A02B
Field Identification:	Porifera
Count:	5

Associates Sample ID:	EX2306_D14_07B_A03B
Field Identification:	Polychaeta
Count:	2

Associates Sample ID:	EX2306_D14_07B_A04B
Field Identification:	Hydrozoa
Count:	1

Associates Sample ID:	EX2306_D14_07B_A05B

Field Identification:	Ceriantharia
Count:	1

Associates Sample ID:	EX2306_D14_07B_A06B
Field Identification:	priapulida
Count:	1

Associates Sample ID:	EX2306_D14_07B_A07B
Field Identification:	Gastropoda
Count:	2

Associates Sample ID:	EX2306_D14_07B_A08B
Field Identification:	tubularia
Count:	1

Associates Sample ID:	EX2306_D14_07B_A09B
Field Identification:	Hydrozoa
Count:	1

Associates Sample ID:	EX2306_D14_07B_A10B
Field Identification:	Other
Count:	1

Associates Sample ID:	EX2306_D14_07B_A11G
Field Identification:	pebble and cobbles with authigenic

	carbonate cement
Count:	1

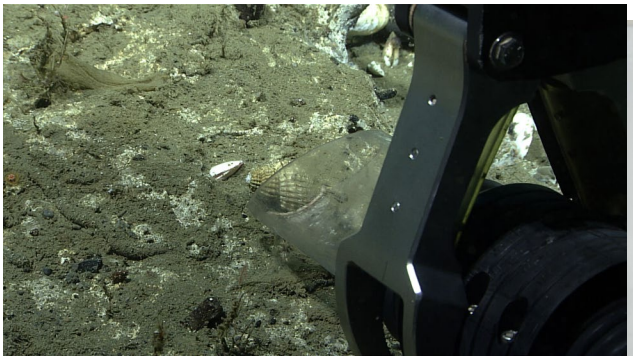
Sample ID	EX2306_D14_09B
Date (UTC)	20230907
Time (UTC)	231958
Depth (m)	708.435974121094
Latitude (decimal degrees)	55.9106330871582
Longitude (decimal degrees)	-135.498413085938
Temp. (°C)	4.1399998664856
Field ID(s)	Pedicellasteridae

Associates Sample ID:	EX2306_D14_09B_A01B
Field Identification:	Vesicomyidae
Count:	6

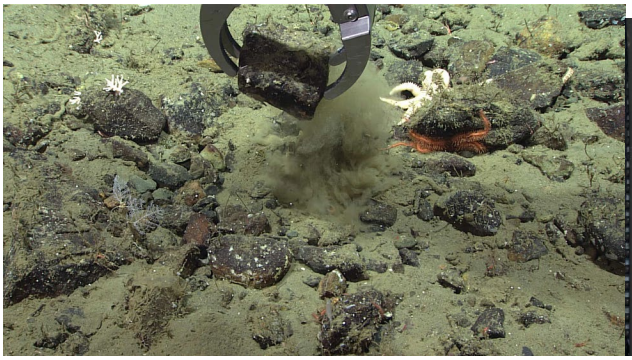
Associates Sample ID:	EX2306_D14_09B_A02B
Field Identification:	Amphipoda

Count:	1

Associates Sample ID:	EX2306_D14_09B_A03B
Field Identification:	Hydrozoa
Count:	1



Sample ID	EX2306_D14_10B
Date (UTC)	20230907
Time (UTC)	232622
Depth (m)	709.164978027344
Latitude (decimal degrees)	55.9106712341309
Longitude (decimal degrees)	-135.49870300293
Temp. (°C)	4.14300012588501
Field ID(s)	Fusitriton oregonensis



Sample ID	EX2306_D14_11G
Date (UTC)	20230907
Time (UTC)	235849
Depth (m)	707.114990234375
Latitude (decimal degrees)	55.9109764099121
Longitude (decimal degrees)	-135.496963500977
Temp. (°C)	4.12200021743774
Field ID(s)	Unknown rock
Comments	dark gray to black fine-grained metavolcanic rock(?)

Associates Sample ID:	EX2306_D14_11G_A01B
Field Identification:	Hydrozoa
Count:	1

Niskin Sampling Summary

Sample ID	EX2306_D14_02W
Date (UTC)	20230907
Time (UTC)	201047
Depth (m)	705.262023925781
Latitude (decimal degrees)	55.9101028442383
Longitude (decimal degrees)	-135.499130249023
Bottle Number	Niskin Bottle 1
Temperature	4.10900020599365
Dissolved Oxygen (mg/L)	0.634999990463257
Treatment	DNA/RNA Shield

Sample ID	EX2306_D14_04W
Date (UTC)	20230907
Time (UTC)	204456
Depth (m)	699.242004394531
Latitude (decimal degrees)	55.9100608825684
Longitude (decimal degrees)	-135.499328613281
Bottle Number	Niskin Bottle 2
Temperature	4.11899995803833
Dissolved Oxygen (mg/L)	0.635999977588654
Treatment	DNA/RNA Shield

Sample ID	EX2306_D14_08W
Date (UTC)	20230907
Time (UTC)	225853
Depth (m)	708.650024414063
Latitude (decimal degrees)	55.9105796813965
Longitude (decimal degrees)	-135.498107910156
Bottle Number	Niskin Bottle 3
Temperature	4.12400007247925
Dissolved Oxygen (mg/L)	0.649999976158142
Treatment	DNA/RNA Shield

Sample ID	EX2306_D14_12W
Date (UTC)	20230908
Time (UTC)	000130
Depth (m)	706.825988769531
Latitude (decimal degrees)	55.9111366271973
Longitude (decimal degrees)	-135.496994018555
Bottle Number	Niskin Bottle 4
Temperature	4.12599992752075
Dissolved Oxygen (mg/L)	0.629999995231628
Treatment	DNA/RNA Shield

Sample ID	EX2306_D14_13W
Date (UTC)	20230908
Time (UTC)	001537
Depth (m)	371.651000976563
Latitude (decimal degrees)	55.9113883972168
Longitude (decimal degrees)	-135.497192382813
Bottle Number	Niskin Bottle 5
Temperature	5.07499980926514
Dissolved Oxygen (mg/L)	1.76999998092651
Treatment	DNA/RNA Shield

Scientists Involved

Name	Affiliation
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Ashley Marranzino	NOAA
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Christina Conrath	NOAA
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Emily Ashe	NOAA
Erica Burton	NOAA
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Jamie Conrad	USGS
Jane Rudebusch	USGS
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