ROV Dive Summary
EX2304, Dive 01, July 15, 2023

General Location Map

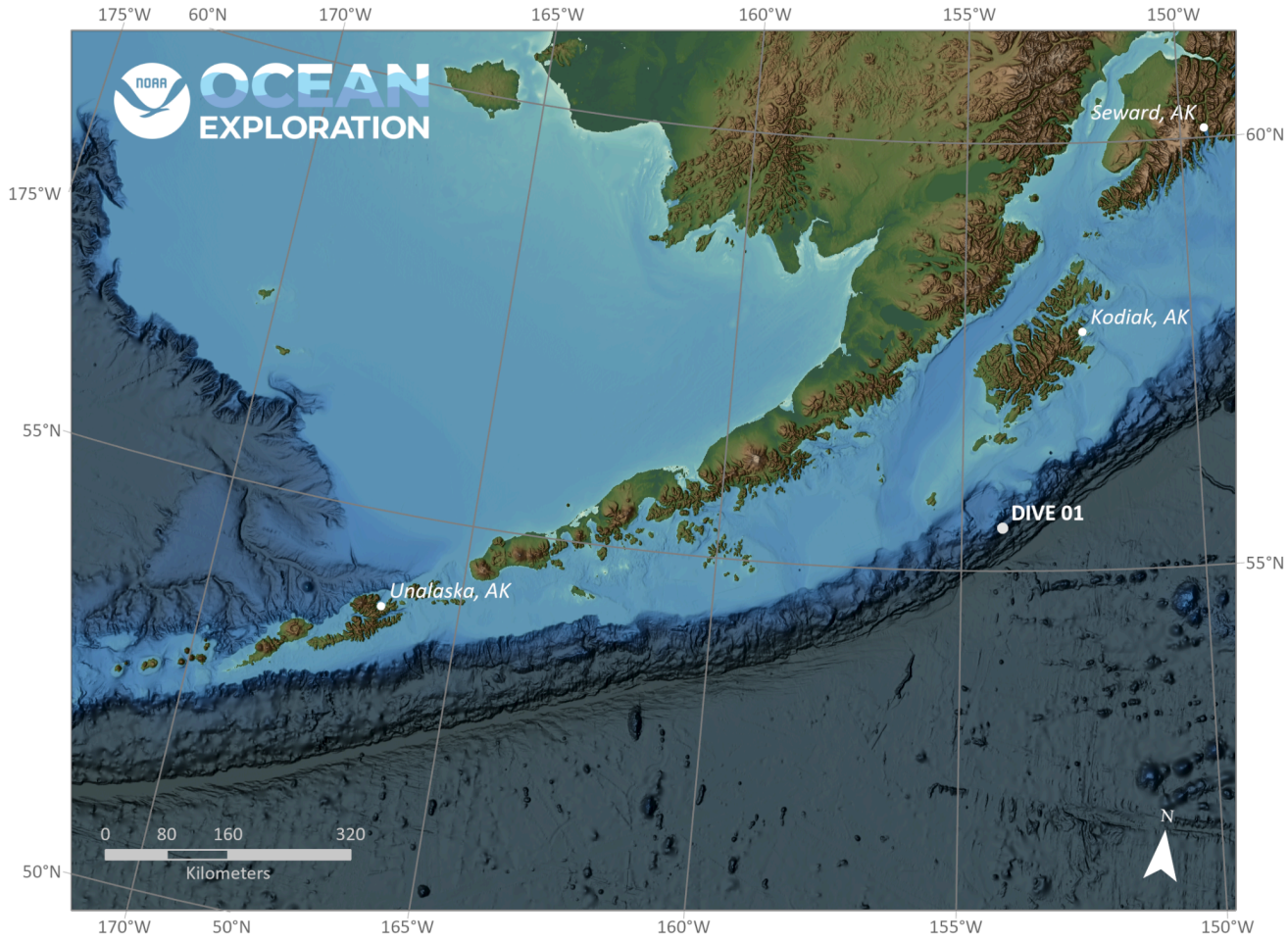


Figure 1. General location of EX2304 Dive 01.

Dive Information

Site Name	Dive 01: Aleutians Water Column
General Area Descriptor	SW Kodiak
Science Team Leads	Rhian Waller (Bio); Jennifer Aschoff (Geo)
Expedition Coordinator	Shannon Hoy
ROV Dive Supervisor	Christopher Ritter
Sample Data Manager	Anna Lienesch; Jennifer Green
Dive Purpose	Water column transect, samples as appropriate
Maritime Heritage Restrictions	No

ROV Dive Summary Data	**Dive Summary: EX2304_DIVE01** Dive Type: MID WATER ONLY DIVE In Water: 2023-07-15T16:40:07.894369 55.60289339294082 ; -154.0718682707845 On Bottom: N/A N/A ; N/A Off Bottom: N/A N/A ; N/A Out Water: 2023-07-15T22:38:18.609181 55.59186155785241 ; -154.0862504089813 Dive Duration: 5:58:10 Bottom Time: N/A Max Vehicle Depth: 2164.0 m Min Seafloor Depth: N/A m Distance Travelled: N/A m **Mid Water Transects Summary** Number of Transects: 5 **Transect 1** Start: 18:10:42 55.60038211460683 ; -154.07252352191088 End: 18:40:08 55.60050240512825 ; -154.07371741538523 Duration: 0:29:26 Depth: 2160.0 m **Transect 2** Start: 19:29:01 55.60028357627117 ; -154.07427761016953 End: 19:59:13 55.600419 ; -154.07347707239737 Duration: 0:30:12 Depth: 904.0 m **Transect 3** Start: 20:16:53 55.600595553721966 ; -154.07290578511214 End: 20:47:19 55.60010171502465 ; -154.07486673054223 Duration: 0:30:26 Depth: 701.0 m **Transect 4** Start: 21:02:01

	55.59976589049116 ; -154.07602222262278 End: 21:32:05 55.599115608749074 ; -154.0788430425167 Duration: 0:30:03 Depth: 502.0 m **Transect 5** Start: 21:46:01 55.59873829976198 ; -154.08002984892892 End: 22:16:51 55.59775635474124 ; -154.08402593816925 Duration: 0:30:49 Depth: 301.0 m

Dive Description	EX2304 Dive 01 was positioned at a flat area in a broad basin at a water depth of 2310m water depth. Five transects were completed: Benthic Boundary Layer (BBL) (50 m off bottom, 2260 m depth); 900 m; 700 m, 500 m and 300 m. Within the BBL (2260 m) we observed large numbers of cidipid and lobate ctenophores and chaetognaths (potentially a few different species). A larvacean house with an escaping larvacean was observed. Between the BBL and the 900 m transect we saw a large number of lobate ctenophores (ctenophore bloom). Within the 900 m transect Solmissus dinner plate jellyfish dominated; squid, Atolla and "Big Red Jelly" (*Tiburonia* sp.) were observed. At the 700 m transect the amount of marine snow seemed to be high, but diminished from the deeper transects. Siphonophores (Fire Belt - *Marrus orthocana*) were common, along with Solmissus dinner plate jellies. In the 500 m depth transect footage of a glass squid (*Taonius borealis*) was taken with excellent details on eye movements. Water current was higher here making detailed imaging challenging, but *Bolinopsis* sp. ctenophores were observed and siphonophores. The shallowest transect saw Beroe ctenophores which had not been observed deeper, along with salps, chaetognaths and siphonophores. Mysids and regular shrimp were also observed throughout all transects, but swimming away so were difficult to image. A total of 5 Niskin samples for eDNA were taken at the beginning of each transect while the system was stationary. In addition, 5 biologic samples were recovered via suction sampler recovered - 1) *Botrynema* sp. jellyfish; 2) *Solmissus sp.*; 3) *Bolinopsis sp.;* 4) Siphonophore; 4) Siphonophore *(Bargmannia sp.)* Excellent imagery of glass squid, dinner plate jellyfish and larvacean escaping its house were taken. No geologic features were present on this dive.
Notable Observations	Larvacean house with escaping larvacean, many ctenophores (Bolinopsis with black "spots"), large amounts of marine snow, two types of squid.
Community and Habitat Observations	Corals and Sponges — Absent Chemosynthetic Community —Absent High biodiversity Community — Absent Active Seep or Vent —Absent Extinct Seep or Vent — Absent Hydrates — Absent

CMECS Feature Type(s)	N/A
SeaTube Link (science annotations)	https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=2853

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

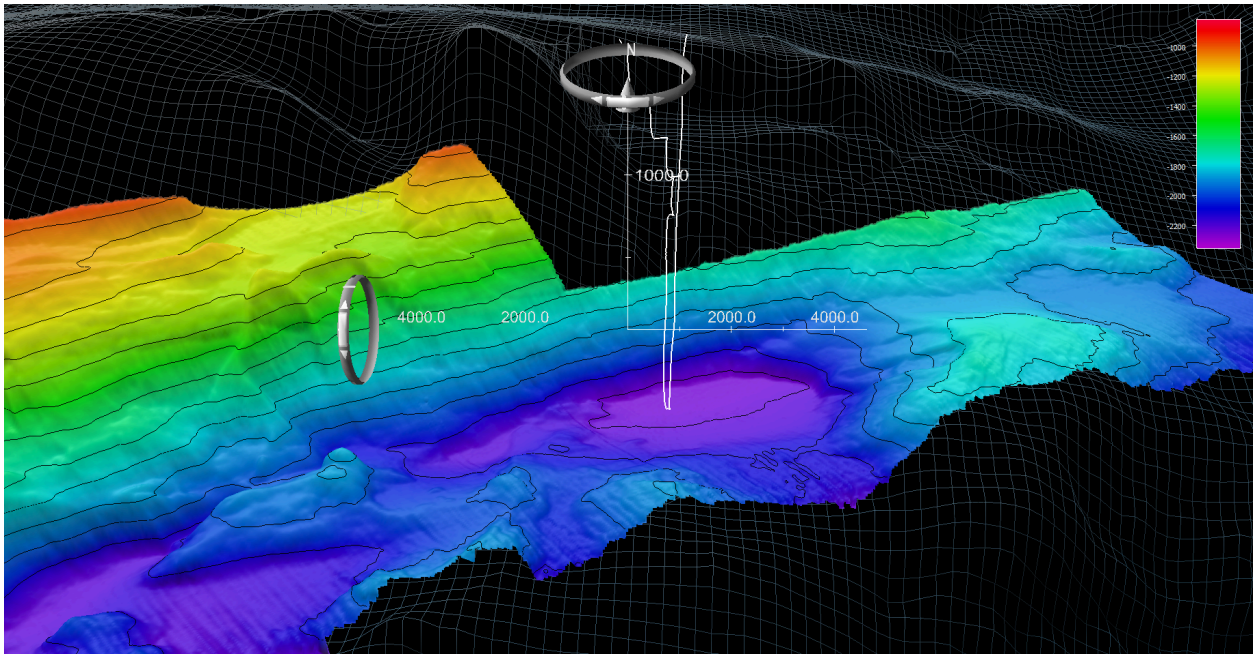


Figure 2: Overview of Dive 01, the Aleutians Water Column dive site. North is oriented toward the top of the image. Depths in meters.

ROV CTD Profile

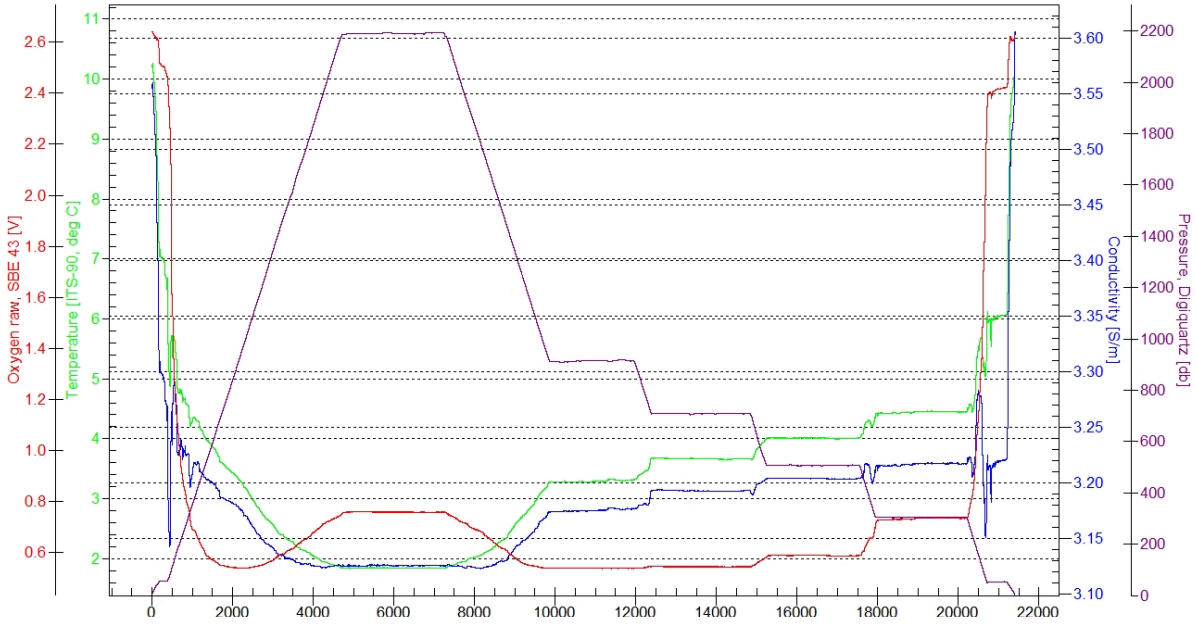


Figure 3. Plot of the ROV CTD profile, showing temperature, conductivity, pressure, and dissolved oxygen over time.

Representative Photos of the Dive

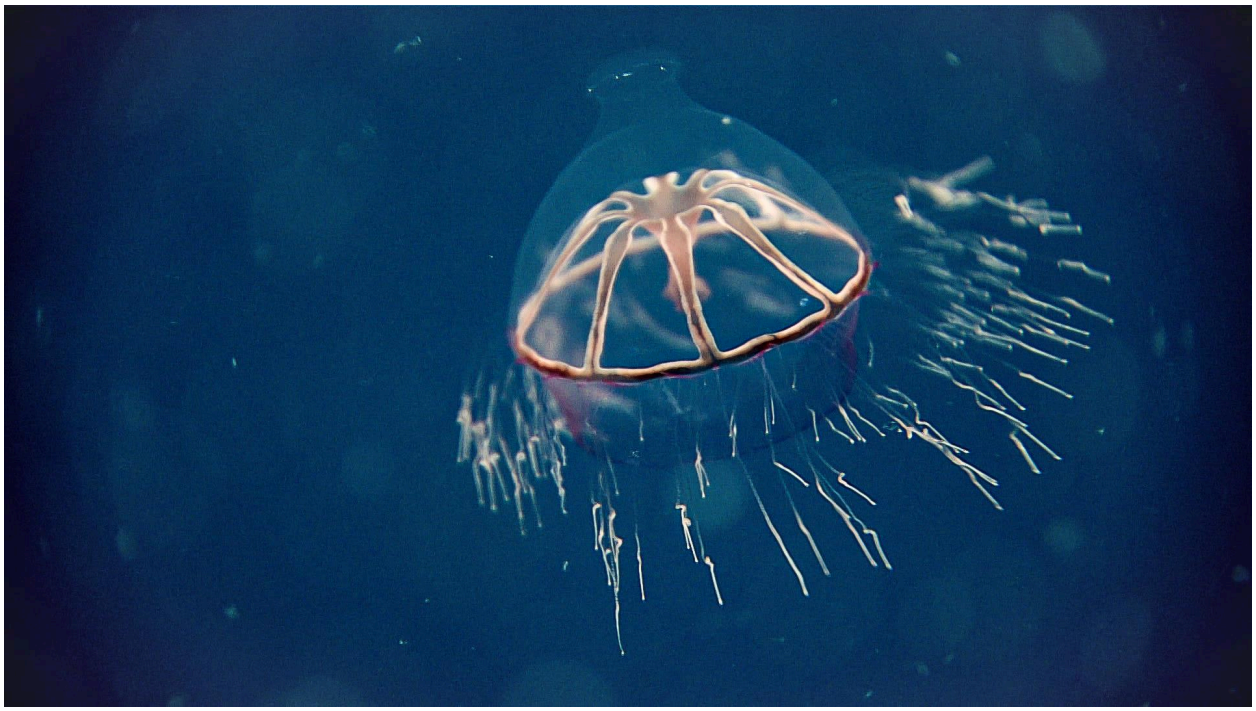


Figure 4. *Botrynema* sp. jellyfish that was collected as EX2304_D01_02B.

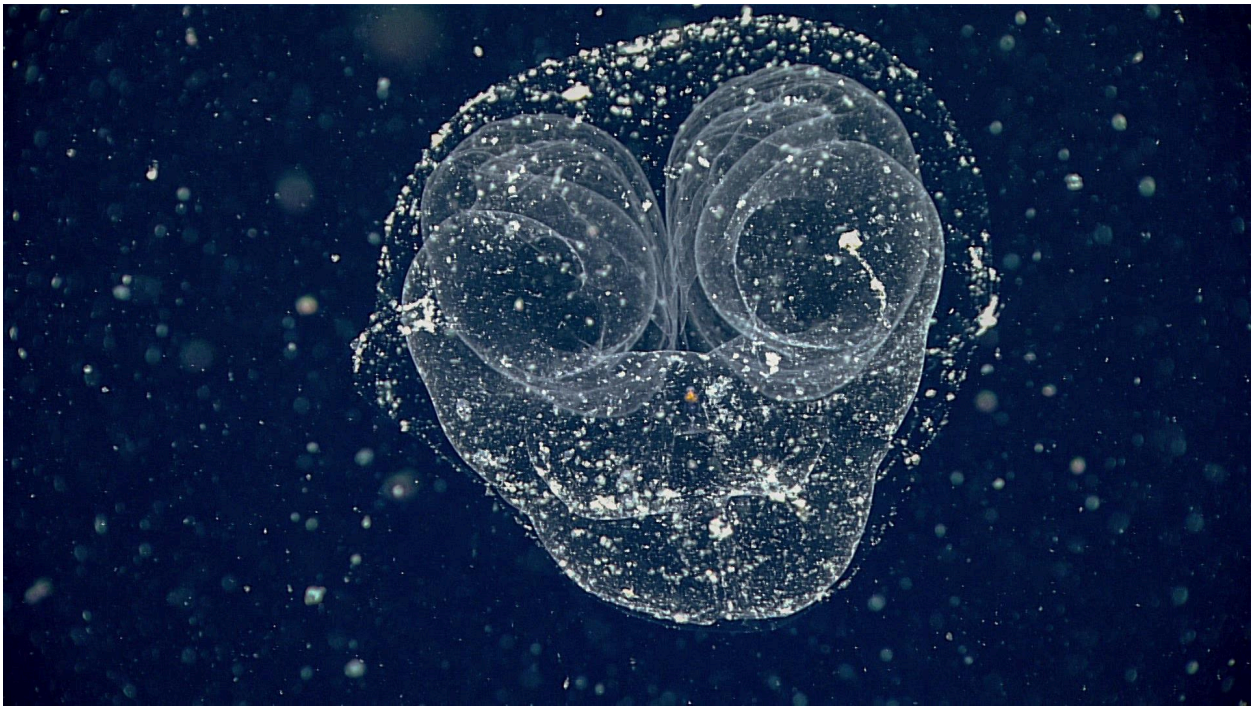


Figure 5. Larvacean house with larvacean present in the center. Video collected showed the larvacean escaping and leaving behind the mucus house.

Figure 6. *Squid* observed during the 900m transect.

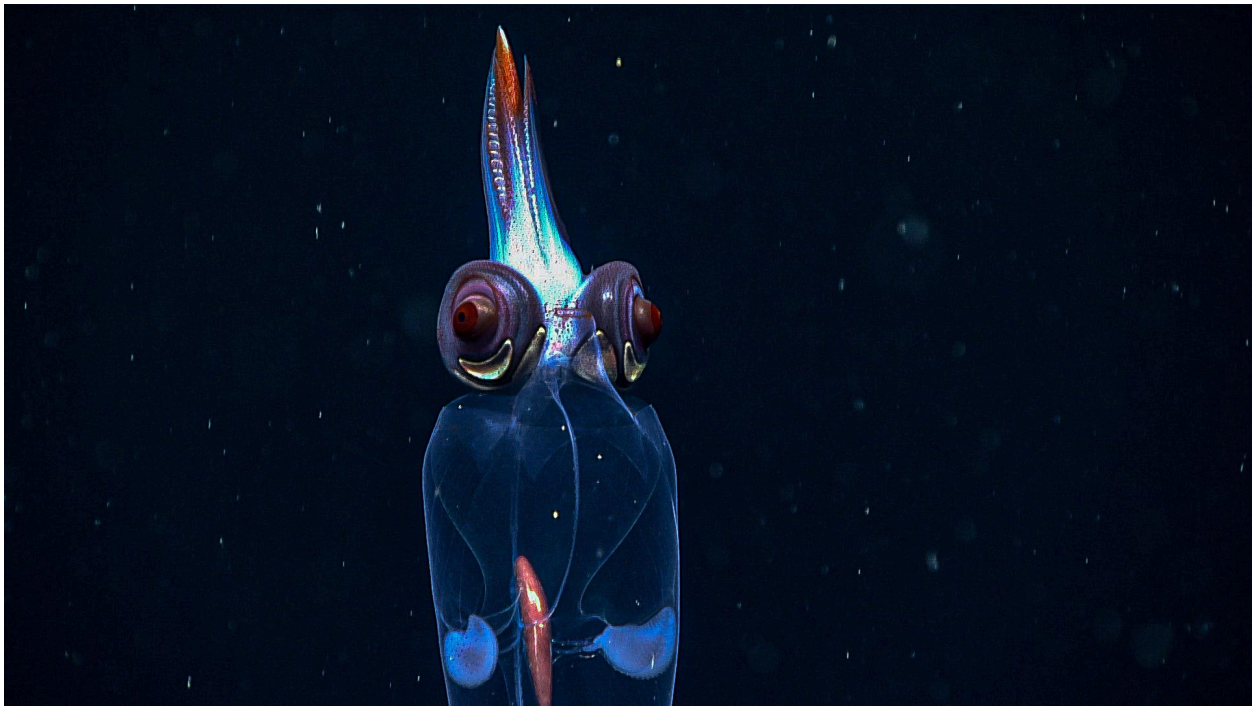
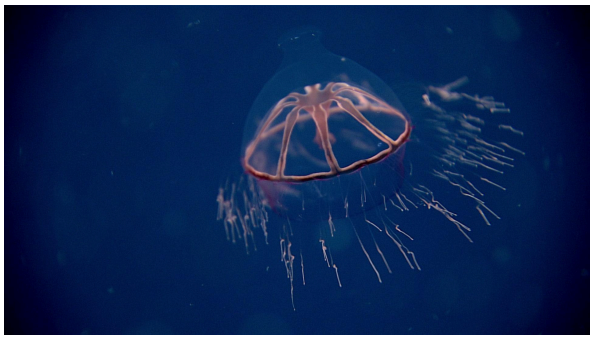
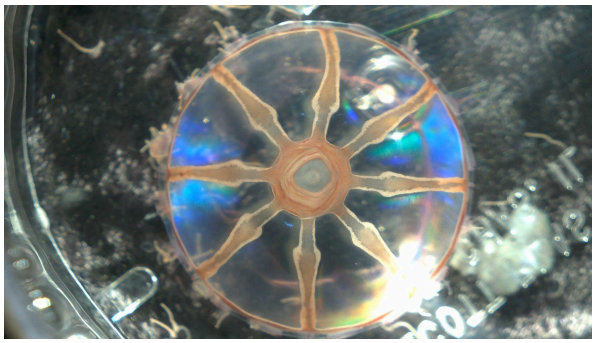


Figure 7: Glass squid *Taonius borealis* observed in the 500m depth transect.

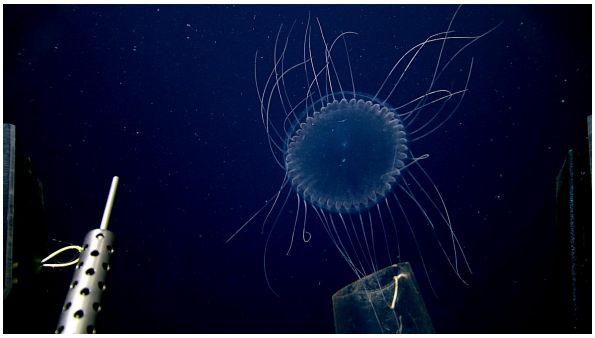
Samples Collected





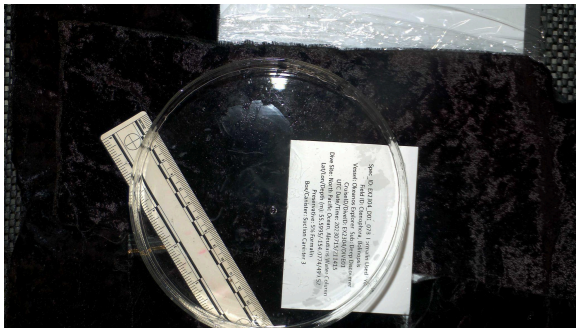
Sample ID	EX2304_D01_02B
Date (UTC)	20230715
Time (UTC)	181926
Depth (m)	2161.6811
Latitude (decimal degrees)	55.600385
Longitude (decimal degrees)	-154.072702
Temp. (°C)	1.84213
Field ID(s)	Botrynema brucei
Comments	3cm diameter, 2cm high at bell, bright red stripes, shedding tentacles, clear conical bell on top, looks like a volcano.

Associates Sample ID	Field Identification	Count
N/A	N/A	N/A



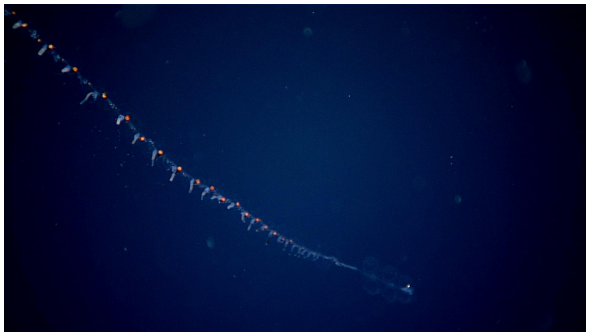
Sample ID	EX2304_D01_04B
Date (UTC)	20230715
Time (UTC)	193214
Depth (m)	899.8354
Latitude (decimal degrees)	55.600273
Longitude (decimal degrees)	-154.074350
Temp. (°C)	34.30904
Field ID(s)	Solmissus
Comments	almost perfectly in half, 13cm

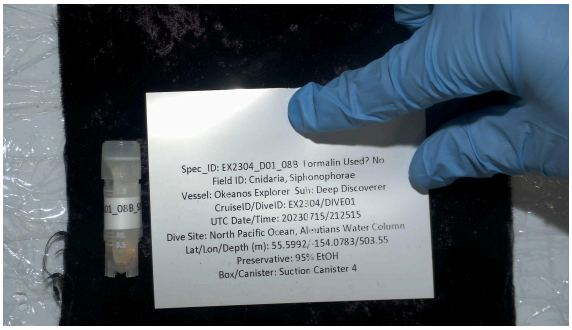
Associates Sample ID	Field Identification	Count
N/A	N/A	N/A



Sample ID	EX2304_D01_07B
Date (UTC)	20230715
Time (UTC)	211415
Depth (m)	499.5211
Latitude (decimal degrees)	55.599483
Longitude (decimal degrees)	-154.077356
Temp. (°C)	4.01385
Field ID(s)	Bolinopsis
Comments	disintegrated, very little to sample, half is seawater from suction sample jar and half is 10% formalin to make 5% final.

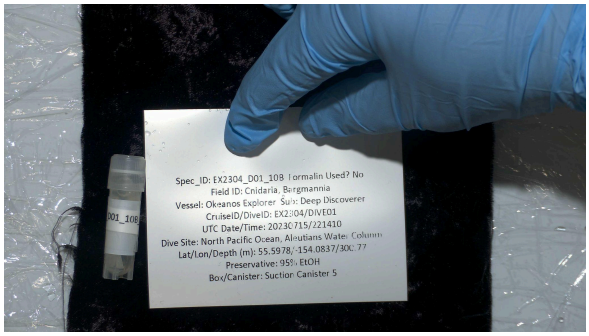
Associates Sample ID	Field Identification	Count
N/A	N/A	N/A





Sample ID	EX2304_D01_08B
Date (UTC)	20230715
Time (UTC)	212515
Depth (m)	503.5522
Latitude (decimal degrees)	55.599193
Longitude (decimal degrees)	-154.078332
Temp. (°C)	3.99913
Field ID(s)	Siphonophorae
Comments	Sample is in pieces, no DNA subsample possible. Use whole sample for DNA. Label inside of the vial says Subsample but disregard as it was before we knew how impossible it was going to be to get the primary.

Associates Sample ID	Field Identification	Count
N/A	N/A	N/A



Sample ID	EX2304_D01_10B
Date (UTC)	20230715
Time (UTC)	22:14:10
Depth (m)	300.7713
Latitude (decimal degrees)	55.597823
Longitude (decimal degrees)	-154.083718
Temp. (°C)	4.45372
Field ID(s)	Bargmannia
Comments	Sample is only in pieces, no subsample. Label inside of the vial says Subsample but disregard as it was before we knew how impossible it was going to be to get the primary.

Associates Sample ID	Field Identification	Count
N/A	N/A	N/A

Niskin Sampling Summary

Sample ID	EX2304_D01_01W
Date (UTC)	20230715
Time (UTC)	180907
Depth (m)	2159.26709
Latitude (decimal degrees)	55.60041046
Longitude (decimal degrees)	-154.0725098
Bottle Number	NISKIN 1
Temperature (°C)	1.835999966
Dissolved Oxygen (mg/L)	2.148000002
Treatment	DNA/RNA Shield

Sample ID	EX2304_D01_03W
Date (UTC)	20230715
Time (UTC)	193011
Depth (m)	898.8029785
Latitude (decimal degrees)	55.60027313
Longitude (decimal degrees)	-154.0742645
Bottle Number	NISKIN 2
Temperature (°C)	3.279999971
Dissolved Oxygen (mg/L)	0.428000003
Treatment	DNA/RNA Shield

Sample ID	EX2304_D01_05W
Date (UTC)	20230715
Time (UTC)	201613
Depth (m)	701.382019
Latitude (decimal degrees)	55.60056686
Longitude (decimal degrees)	-154.0729828
Bottle Number	NISKIN 3

Temperature (°C)	3.667999983
Dissolved Oxygen (mg/L)	0.495000005
Treatment	DNA/RNA Shield

Sample ID	EX2304_D01_06W
Date (UTC)	20230715
Time (UTC)	210208
Depth (m)	502.1480103
Latitude (decimal degrees)	55.59976196
Longitude (decimal degrees)	-154.0760193
Bottle Number	NISKIN 4
Temperature (°C)	4.012000084
Dissolved Oxygen (mg/L)	0.68599999
Treatment	DNA/RNA Shield

Sample ID	EX2304_D01_09W
Date (UTC)	20230715
Time (UTC)	214439
Depth (m)	301.4509888
Latitude (decimal degrees)	55.5987854
Longitude (decimal degrees)	-154.0799103
Bottle Number	NISKIN 5
Temperature (°C)	4.421000004
Dissolved Oxygen (mg/L)	1.401000023
Treatment	DNA/RNA Shield

Scientists Involved

First Name	Last Name	Affiliation
Emily	Crum	NOAA Ocean Exploration
Elaina	Jorgensen	NOAA
Dhugal	Lindsay	JAMSTEC
Kelly	Markello	California Academy of Sciences
George	Matsumoto	MBARI
Michael	Vecchione	NOAA and Smithsonian

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