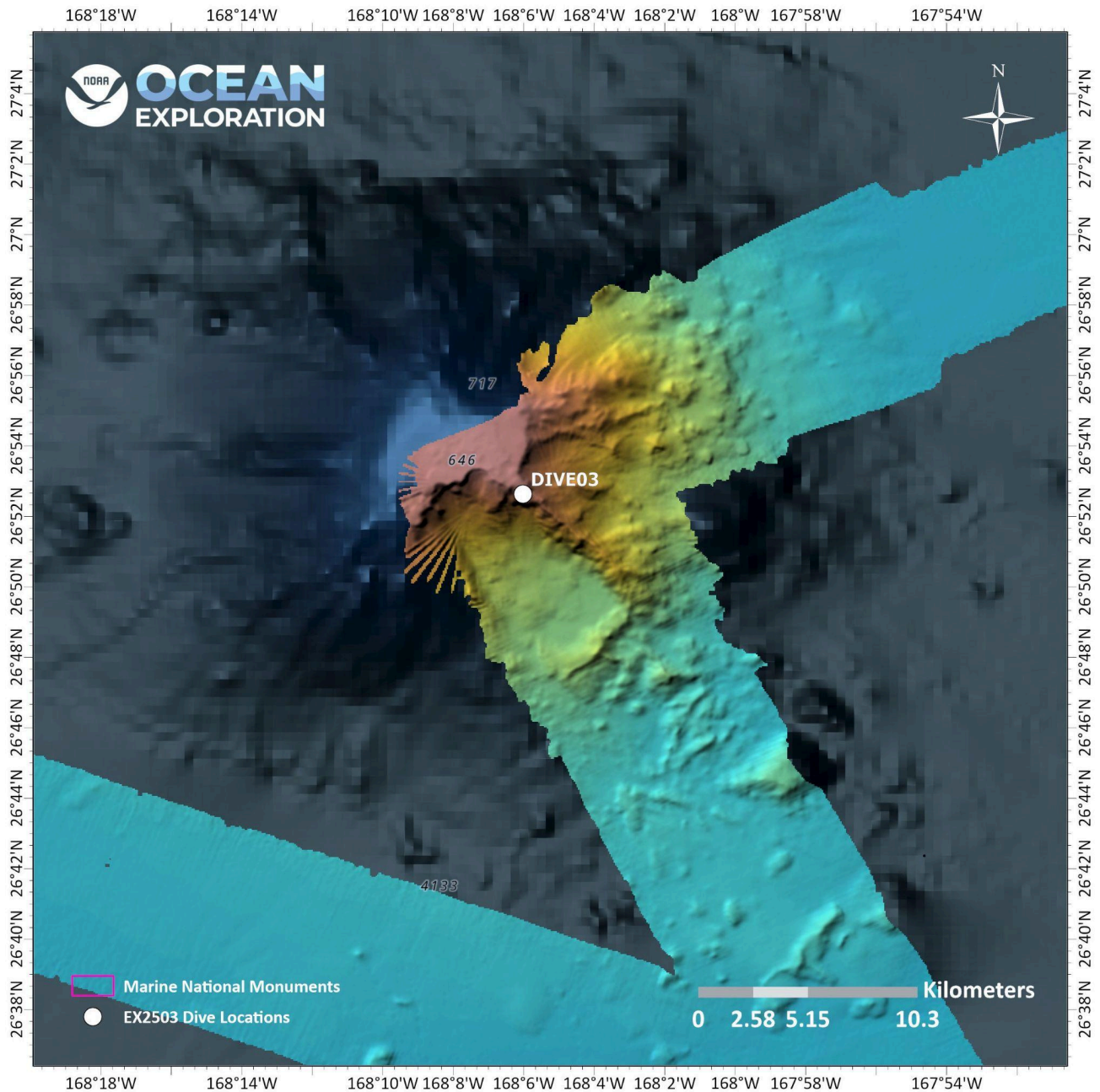


# ROV Dive Summary

## EX2503, Dive 03, April 13, 2025

### General Location Map



## Dive Information

Site Name	Unnamed Guyot 02 (Northeast of Volador Seamount)
General Area Descriptor	Papahānaumokuākea
Science Team Leads	Sara Kahanamoku-Meyer (UH Mānoa/HI Sea Grant) and Brian Kennedy (ODL/BU)
Expedition Coordinator	Sam Cuellar (NOAA Ocean Exploration)
ROV Dive Supervisor	Chris Ritter (GFOE)
Mapping Lead	Neah Baechler (NOAA Ocean Exploration/UCAR)
Sample Data Manager	Anna Lienesch and Jordan Schweizer (NCEI)
Dive Purpose	The goal of EX2503 Dive 03 was to investigate shallower depths of a rift arm that was visited by OET in 2018. The dive was targeted at increasing our understanding of the biological and habitat diversity within this region of Papahānaumokuākea by characterizing communities of sponges, corals, and other taxa along the rift arm and documenting transitions between habitat types towards the guyot summit.
Maritime Heritage Restrictions	No

ROV Dive Summary  
Data

Dive Type: Normal

In Water: 2025-04-13T18:21:07.815946  
26.8769 ; -168.1006

On Bottom: 2025-04-13T19:06:17.154418  
26.87789 ; -168.0968

Off Bottom: 2025-04-14T02:02:34.722930  
26.8809 ; -168.0998

Out Water: 2025-04-14T02:36:42.037724  
26.8808 ; -168.0974

Dive Duration: 8:15:34

Bottom Time: 6:56:17

Max Vehicle Depth: 1117.4 m

Min Seafloor Depth: 880.7 m

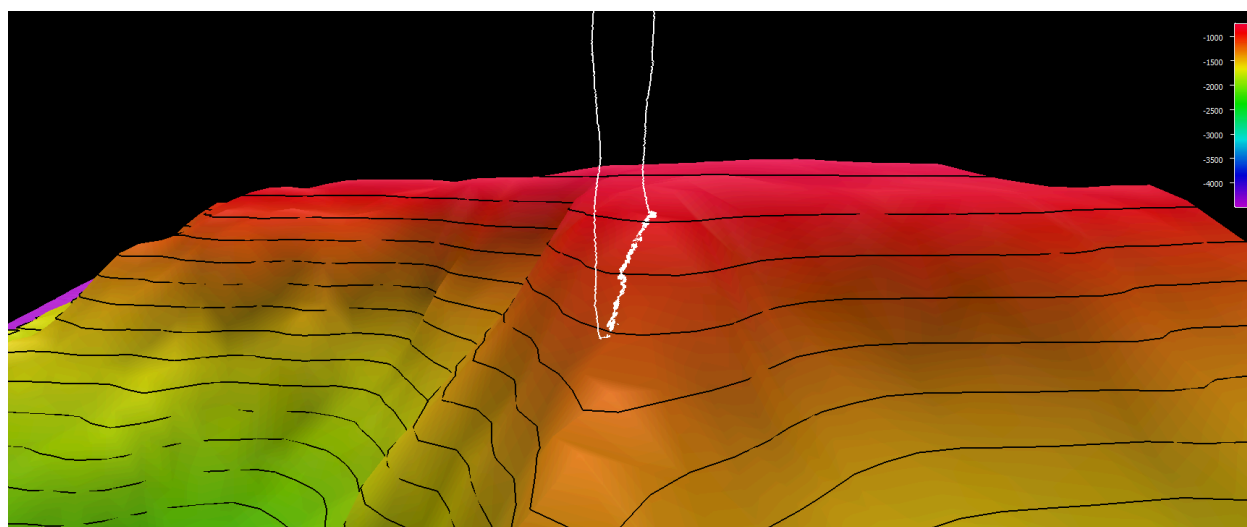
Distance Travelled: 508.4 m

Dive Description	<p>EX2503 Dive 03 explored a rift arm of an unnamed guyot northeast of Volador Seamount that was visited by OET in 2018. This previous dive characterized a deeper area of the rift arm and collected geological specimens that dated the guyot to ~83Mya. Input from shoreside scientist Christopher Kelley suggested that the shallower portion of this seamount would likely cross an oxygen minimum zone (OMZ).</p> <p>Dive 03 began with the visualization of the guyot rift arm at 0905 HST. We very rapidly came across a monospecific field of stalked crinoids. As this species of crinoids is undescribed, we collected an individual for further analysis. Stalked crinoids continued to dominate the fauna between ~1,110 m depth and ~990 m depth and were particularly abundant in the lower-flow, higher oxygen region of the rift arm. As we continued up the arm, we encountered a region of low oxygen (~1 mg/L,) and the current became progressively stronger as we approached the seamount summit. Around ~990 m depth, the dominant fauna shifted towards corals from the genus <i>Chrysogorgia</i>, the majority of which had “bottle brush” morphology. We crossed into the carbonate cap of the guyot at ~895-990 m depth, at which point karst structures were apparent. This region of the guyot was notably sediment-poor. However, we noted that death assemblages of <i>Tretopleura</i> sponges were accumulating in depressions in the manganese-encrusted cap carbonate. As we shallowed up we began to encounter more sediment accumulations, which we sampled at ~880 m.</p>
Notable Observations	<p>A strikingly high density of stalked crinoids were present through much of the dive, gradually giving way towards an assemblage more dominated by <i>Chrysogorgia</i> as we approached the guyot summit. These communities were apparently monospecific yet were of notably high density.</p>
Community and Habitat Observations	<p>Corals and Sponges — Present  Chemosynthetic Community — Absent  High biodiversity Community — Absent  Active Seep or Vent — Absent  Extinct Seep or Vent — Absent  Hydrates — Absent</p>
CMECS Feature Type(s)	<p>Seamount &gt; Ridge &gt; Boulder Field</p>
SeaTube Link (science annotations)	<p><a href="https://data.oceannetworks.ca/app/dive-logs/1105">https://data.oceannetworks.ca/app/dive-logs/1105</a></p>

## Equipment Deployed

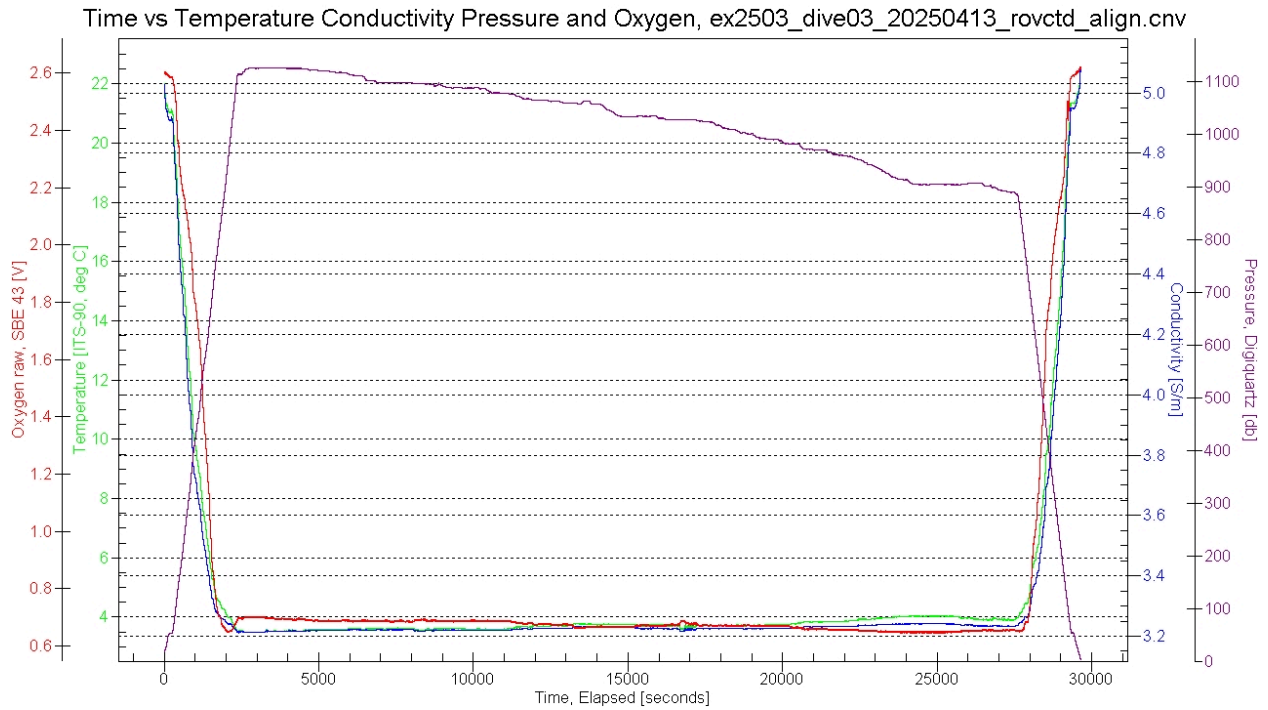
ROV	<i>Deep Discoverer</i>
Camera Platform	<i>Seirios</i>
ROV Measurements	The following ROV measurements, data streams, and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low-resolution cameras, manipulator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



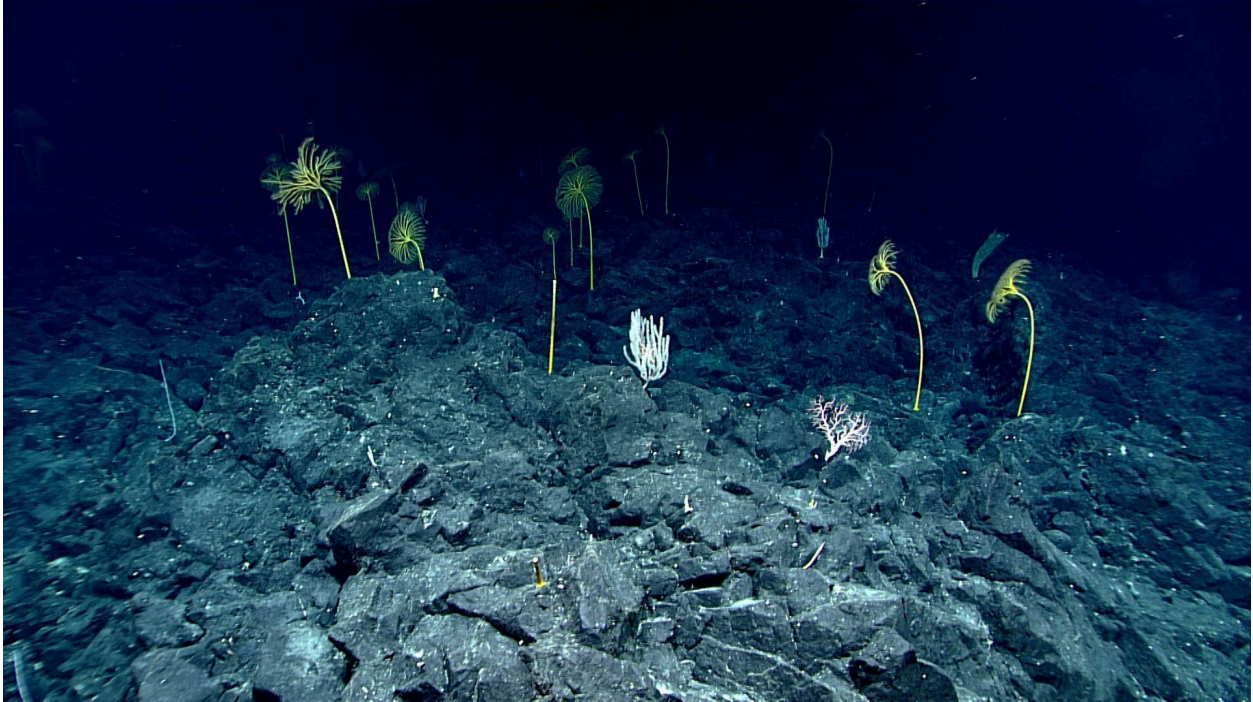
**Figure 1: Dive 03 dive site.** Smoothed ROV dive track in white on 25x25 cell size bathymetry, 3x vertical exaggeration, depth in meters, 10 meter contours.

## Sound Speed Manager Image of ROV CTD Profile



**Figure 2. Ambient conditions during Dive 03.** Plot shows Temperature (°C), Conductivity (S/m), Pressure (db), and Oxygen (V; as measured by SBE43).

## Representative Photos of the Dive



Phrynocrinidae stalked crinoids were the dominant benthic fauna through the majority of the dive.



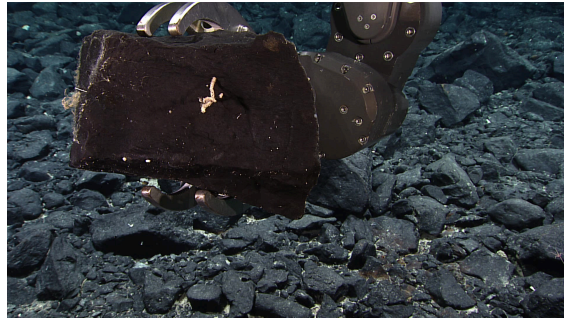
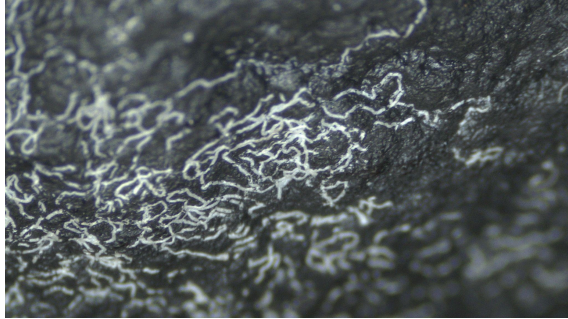
Later in the dive the community shifted to bottle brush *Chrysogorgias* and Phrynocrinidae

## Samples Collected



Sample ID	EX2503_D03_01B
Date (UTC)	20250413
Time (UTC)	192117
Depth (m)	1115.04296875
Latitude (decimal degrees)	26.8778896331787
Longitude (decimal degrees)	-168.096832275391
Temp. (°C)	3.51799988746643
Field ID(s)	Phrynocrinidae
Comments	Moderate mucus, mouth seems swollen

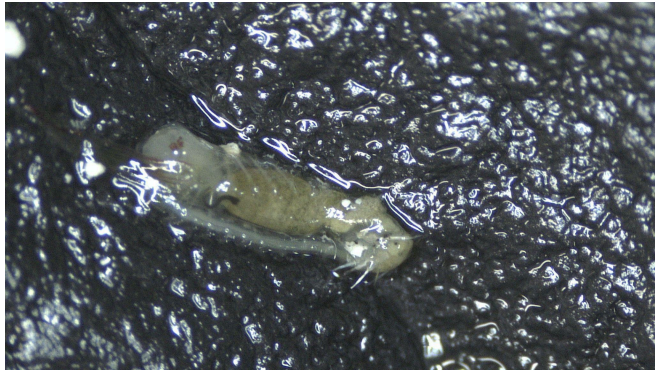
Associates Sample ID:	N/A
Field Identification:	N/A
Count:	N/A



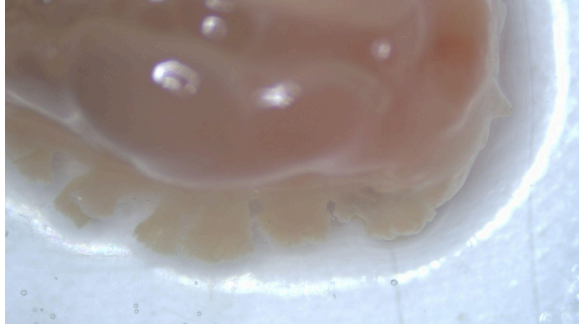
Sample ID	EX2503_D03_02G
Date (UTC)	20250413
Time (UTC)	192945
Depth (m)	1114.75903320313
Latitude (decimal degrees)	26.8778991699219
Longitude (decimal degrees)	-168.096862792969
Temp. (°C)	3.57699990272522
Field ID(s)	Rock with forams
Comments	Lightly encrusted basalt, manganese nodules visible at 20x magnification, attached rhizammina-type foraminifera observed two "adult" specimens on dive video, recovered one intact adult specimen and noted three traces/attachment points. Also attached is a gelatinous blob with apparent spicules, don't know what it is, potentially larval sponge or juvenile foraminifera. Note also two small barnacles



Associates Sample ID:	EX2503_D03_02G_A01B
Field Identification:	Rhizammina
Count:	1

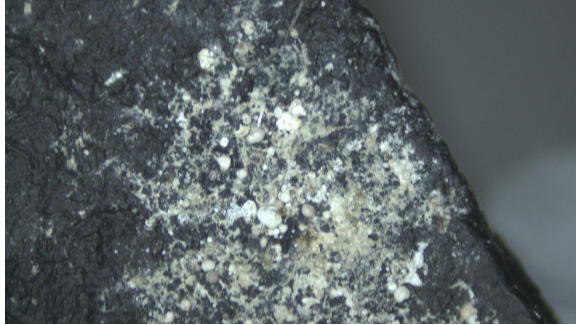


Associates Sample ID:	EX2503_D03_02G_A02B
Field Identification:	Annelida
Count:	1



Sample ID	EX2503_D03_04B
Date (UTC)	20250413
Time (UTC)	202722
Depth (m)	1088.19604492188
Latitude (decimal degrees)	26.8783073425293
Longitude (decimal degrees)	-168.097305297852
Temp. (°C)	3.61299991607666
Field ID(s)	Tritonia
Comments	Many pseudopodia, pseudopodia on rear right side removed for genetics

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



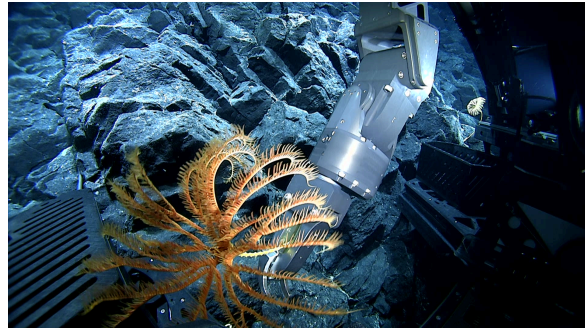
Sample ID	EX2503_D03_05G
Date (UTC)	20250413
Time (UTC)	221743
Depth (m)	1047.50500488281
Latitude (decimal degrees)	26.8787937164307
Longitude (decimal degrees)	-168.098098754883
Temp. (°C)	3.73900008201599
Field ID(s)	basalt with little to no encrustation
Comments	Basalt with little to no encrustation and attached ophiurid

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



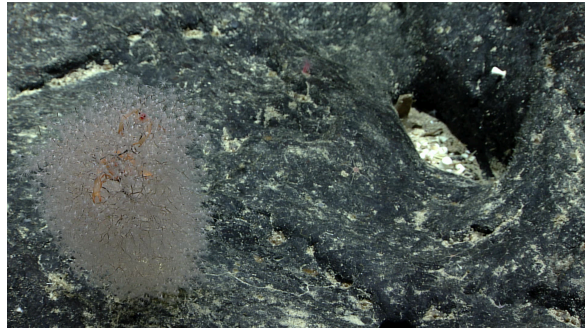
Sample ID	EX2503_D03_07B
Date (UTC)	20250413
Time (UTC)	224141
Depth (m)	1024.75903320313
Latitude (decimal degrees)	26.8789958953857
Longitude (decimal degrees)	-168.098205566406
Temp. (°C)	3.71300005912781
Field ID(s)	lophaster
Comments	Tip of one arm removed for genetic molecular preservation, very spikey

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

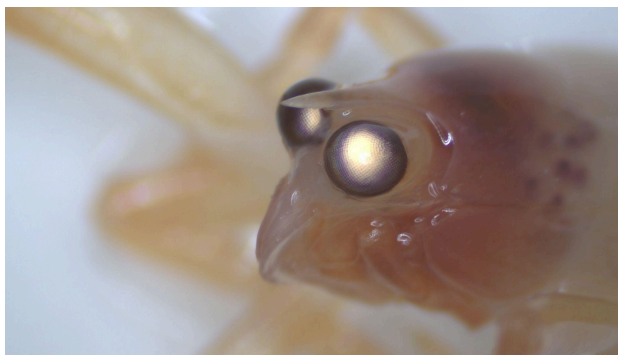


Sample ID	EX2503_D03_08B
Date (UTC)	20250413
Time (UTC)	224331
Depth (m)	1024.626953125
Latitude (decimal degrees)	26.8789443969727
Longitude (decimal degrees)	-168.098205566406
Temp. (°C)	3.72499990463257
Field ID(s)	Phrynoscrinidae
Comments	Area around the mouth seems swollen, multi bifurcating arms, moderate mucus production

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



Sample ID	EX2503_D03_11B
Date (UTC)	20250414
Time (UTC)	012255
Depth (m)	896.617004394531
Latitude (decimal degrees)	26.8805389404297
Longitude (decimal degrees)	-168.099227905273
Temp. (°C)	4.03800010681152
Field ID(s)	Chrysogorgia
Comments	Bottle brush morphology chrysogorgia, four uroptychodes squat lobster, lobsters are still alive, repetitive branching every 4 branches



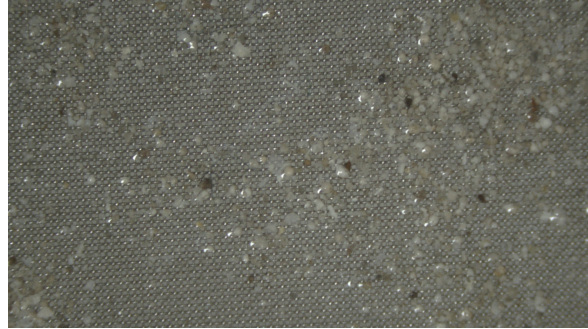
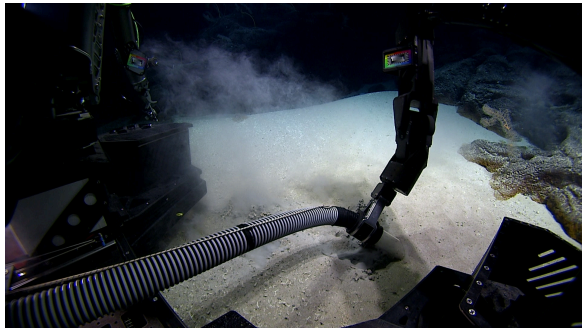
Associates Sample ID:	EX2503_D03_11B_A01B
Field Identification:	Uroptychodes

Count:	4
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Sample ID	EX2503_D03_12G
Date (UTC)	20250414
Time (UTC)	014215
Depth (m)	899.588989257813
Latitude (decimal degrees)	26.8808403015137
Longitude (decimal degrees)	-168.099227905273
Temp. (°C)	3.91199994087219
Field ID(s)	carbonate sed - coarse?
Comments	>250microns. Infaunal brachiapods

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



Sample ID	EX2503_D03_13G
Date (UTC)	20250414
Time (UTC)	014234
Depth (m)	898.616027832031
Latitude (decimal degrees)	26.8808135986328
Longitude (decimal degrees)	-168.099212646484
Temp. (°C)	3.92000007629395
Field ID(s)	carbonate seds - fine?
Comments	Notably no brachiopods.

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

## Niskin Sampling Summary

Sample ID	EX2503_D03_03W
Date (UTC)	20250413
Time (UTC)	193600

Depth (m)	1113.94201660156
Latitude (decimal degrees)	26.877893447876
Longitude (decimal degrees)	-168.09684753418
Bottle Number	Niskin Bottle 1
Temperature	3.52300000190735
Dissolved Oxygen (mg/L)	1.30599999427795
Treatment	DNA/RNA Shield

Sample ID	EX2503_D03_06W
Date (UTC)	20250413
Time (UTC)	222129
Depth (m)	1037.30895996094
Latitude (decimal degrees)	26.8788814544678
Longitude (decimal degrees)	-168.098022460938
Bottle Number	Niskin Bottle 2
Temperature	3.75399994850159
Dissolved Oxygen (mg/L)	1.1599999666214
Treatment	DNA/RNA Shield

Sample ID	EX2503_D03_09W
Date (UTC)	20250413
Time (UTC)	235928
Depth (m)	972.010986328125

Latitude (decimal degrees)	26.8795757293701
Longitude (decimal degrees)	-168.098495483398
Bottle Number	Niskin Bottle 3
Temperature	3.74799990653992
Dissolved Oxygen (mg/L)	1.16199994087219
Treatment	DNA/RNA Shield

Sample ID	EX2503_D03_10W
Date (UTC)	20250414
Time (UTC)	010946
Depth (m)	895.781982421875
Latitude (decimal degrees)	26.8804912567139
Longitude (decimal degrees)	-168.099060058594
Bottle Number	Niskin Bottle 4
Temperature	4.02299976348877
Dissolved Oxygen (mg/L)	1
Treatment	DNA/RNA Shield

## Scientists Involved

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