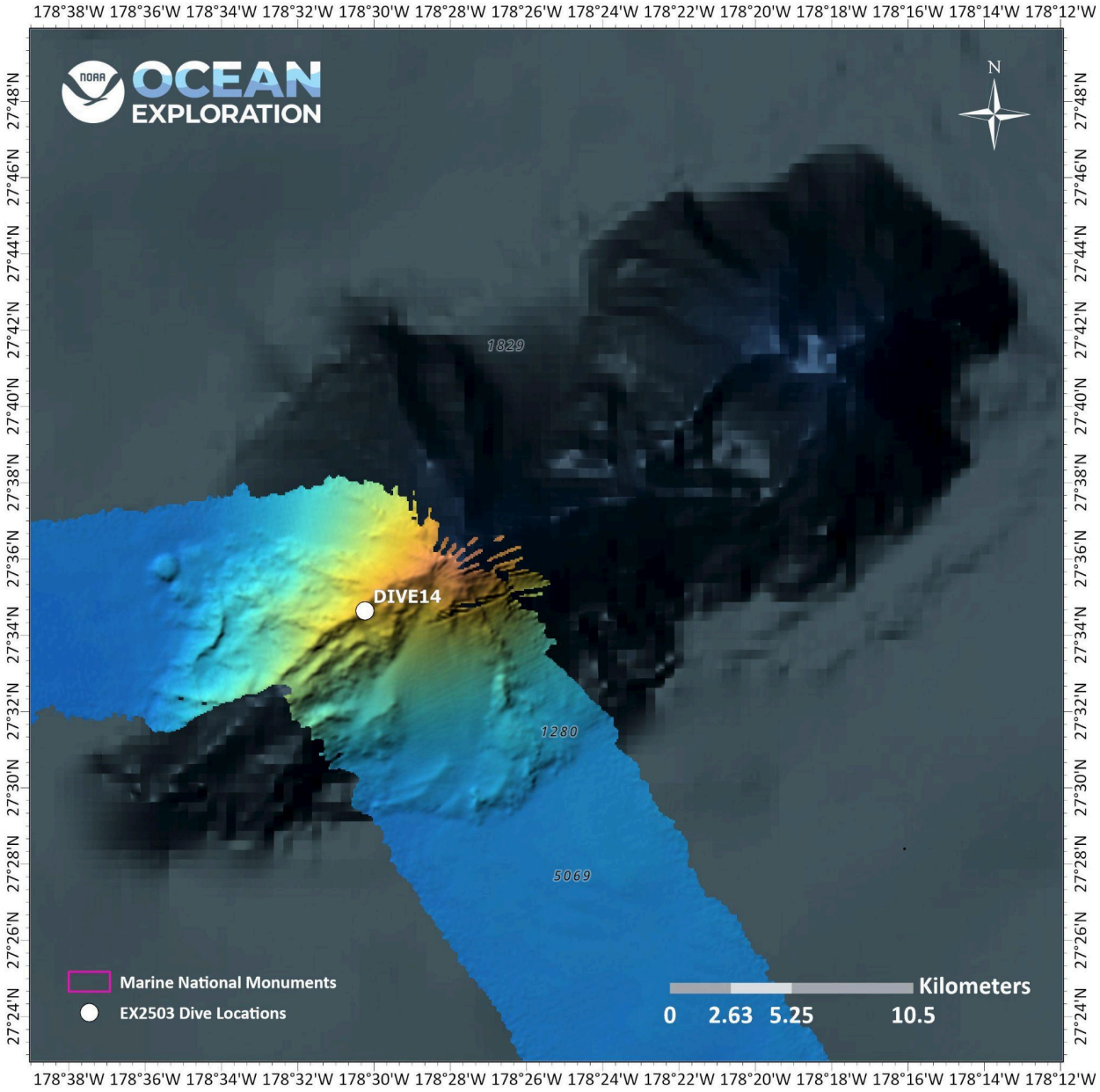
ROV Dive Summary
EX2503, Dive 14, April 27, 2025

General Location Map



Dive Information

Site Name	Unnamed Seamount 06 - South of Holanikū
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 14 was to explore the western ridge arm of an unnamed seamount ~45 nm south of Hōlanikū, and observe whether and how communities transition from the steeper wall of the southern ridge to the top of the ridgeline itself. This dive site was initially suggested by shoreside scientist Chris Kelley, as the age and geological provenance of this feature are unknown.
Maritime Heritage Restrictions	No

ROV Dive Summary Data	Dive Type: Normal In Water: 2025-04-27T18:25:42.788626 27.577427 ; -178.503957 On Bottom: 2025-04-27T19:51:38.440360 27.57960406056469 ; -178.5012453092503 Off Bottom: 2025-04-28T01:19:15.637579 27.58232209397301 ; -178.50130453115443 Out Water: 2025-04-28T02:34:17.365101 27.586963514975395 ; -178.49713101850398 Dive Duration: 8:08:34 Bottom Time: 5:27:37 Max Vehicle Depth: 2397.0 m Min Seafloor Depth: 2229.3 m Distance Travelled: 443.9 m

Dive Description	EX2503 Dive 14 began with visualization of the steep ridge wall at 0950 HST. We began the dive in a talus field of boulders, with sediment channels that displayed visible bedforms (ripples). A number of corals were present here, including *Bathypathes sp.*, *Iridogorgia*, *Ramuligorgia*, and Stoloniferan corals overgrowing the remains of a stalked coral (likely a primnoid). These Stoloniferans were sampled as this group is exceedingly difficult to sample given their typical growth form of encrusting on the surface of rocks. We also encountered a strange morphotype of Chrysogordigae, which had an unusual mix of morphologies from the genera *Metallogorgia* and *Chrysogorgia* and was particularly large (~80cm in length). This colony was sampled for further analysis. Continuing up the ridge wall, we encountered a likely new species of Porcellanasterid sea star that was sampled for description. As we approached the ridgeline, we began to see large *Poliopogon* sponges and the first Primnoid corals. A large, sheer wall of pillow basalt flows was home to a very diverse community, including corals in the genera *Hemicorallium*, *Narella, Chrysogorgia, Calyptrophora* and bamboo corals of various morphologies; ferreid sponges; Goniasterid sea stars (preying on bamboo corals), and a variety of crustaceans (squat lobsters, shrimps). Upon reaching the ridgeline, we quickly discovered a hummocky ridge that was, as said by the ROV pilot, “less of a ridge and more of a bumpy plateau.” Large mounds of pillow basalts (potentially monogenetic cones) were bordered by sediment-filled tallus piles. The biological community along this “ridgeline” was relatively diverse, comprised of corals (bamboo, Chrysogorgiid, precious, and black corals), sponges (in the genera *Walteria*, *Aspidoscopulia*, *Bolosoma* and *Caulophacus*); and a diversity of mollusks and crustaceans (including a Fissureliid limpet sighting!). We also observed small barnacles arranged in undulating lines along large pillow basalt boulders. The dive ended at 1520 HST with a view of fan and whip coral morphologies scattered among a pillow basalt landscape.
Notable Observations	A new species of sea star in the family Porcellanasteridae; an unusual coral with a mixture of *Metallogorgia* and *Chrysogorgia* morphological characteristics; a community transition between steep ridge wall and ridgeback coral and sponge communities.

Community and Habitat Observations	Corals and Sponges — Present Chemosynthetic Community — Absent High biodiversity Community — Absent Active Seep or Vent — Absent Extinct Seep or Vent — Absent Hydrates — Absent
CMECS Feature Type(s)	Seamount > Boulder Field > Slope > Wall
SeaTube Link (science annotations)	https://data.oceannetworks.ca/app/dive-logs/2205

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

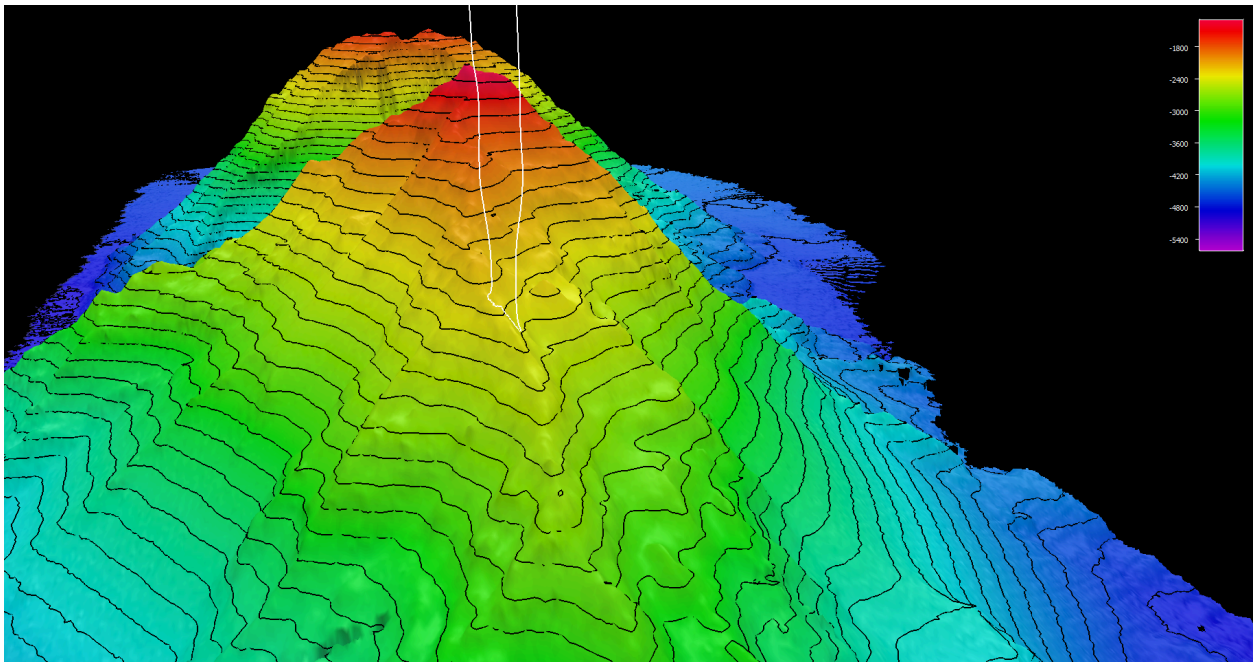


Figure 1: Dive 14 dive site. Shown in 2x vertical exaggeration; smoothed ROV dive track shown in white on 50x50 (interpolated) cell size bathymetry. Depth shown in meters; coloration based on depths with 100-meter contours overlain.

Sound Speed Manager Image of ROV CTD Profile

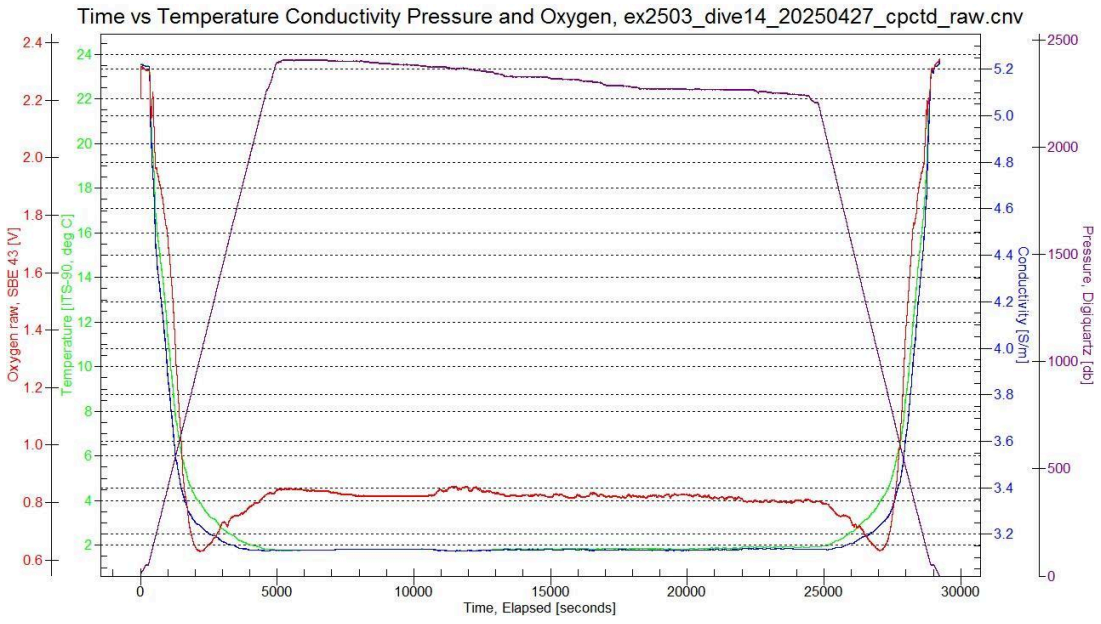
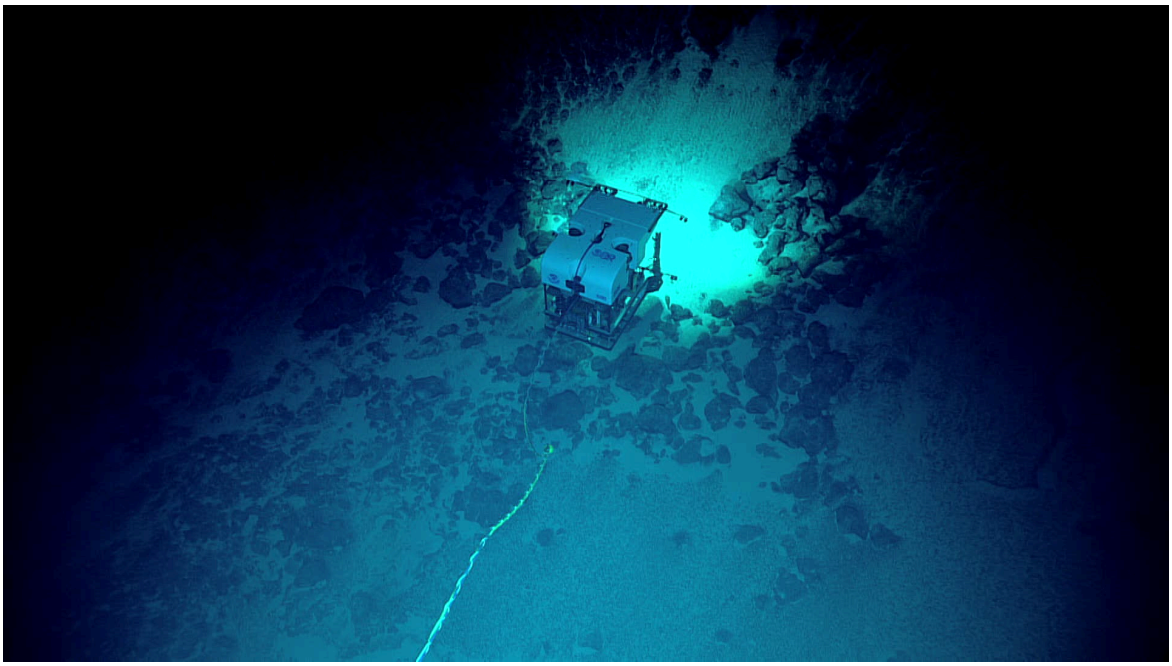
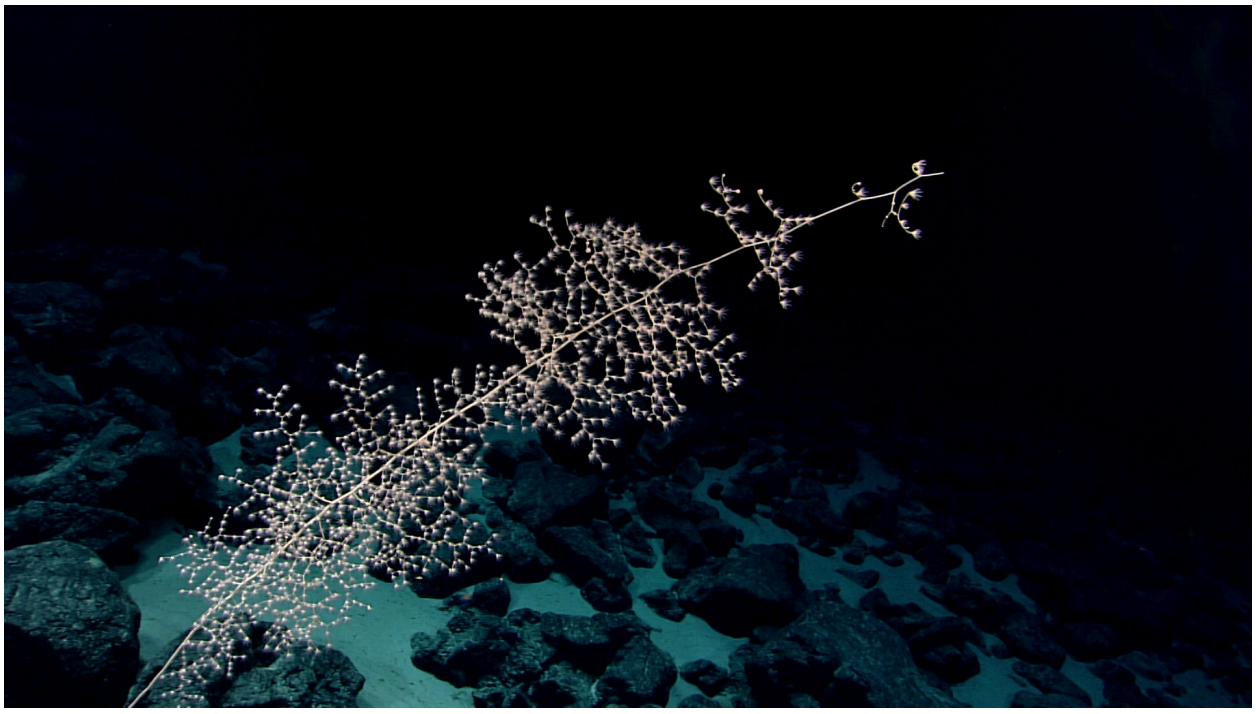


Figure 2. Ambient conditions during Dive 14. Plot shows Temperature (˚C), Conductivity (S/m), Pressure (db), and Oxygen (V; as measured by SBE43).

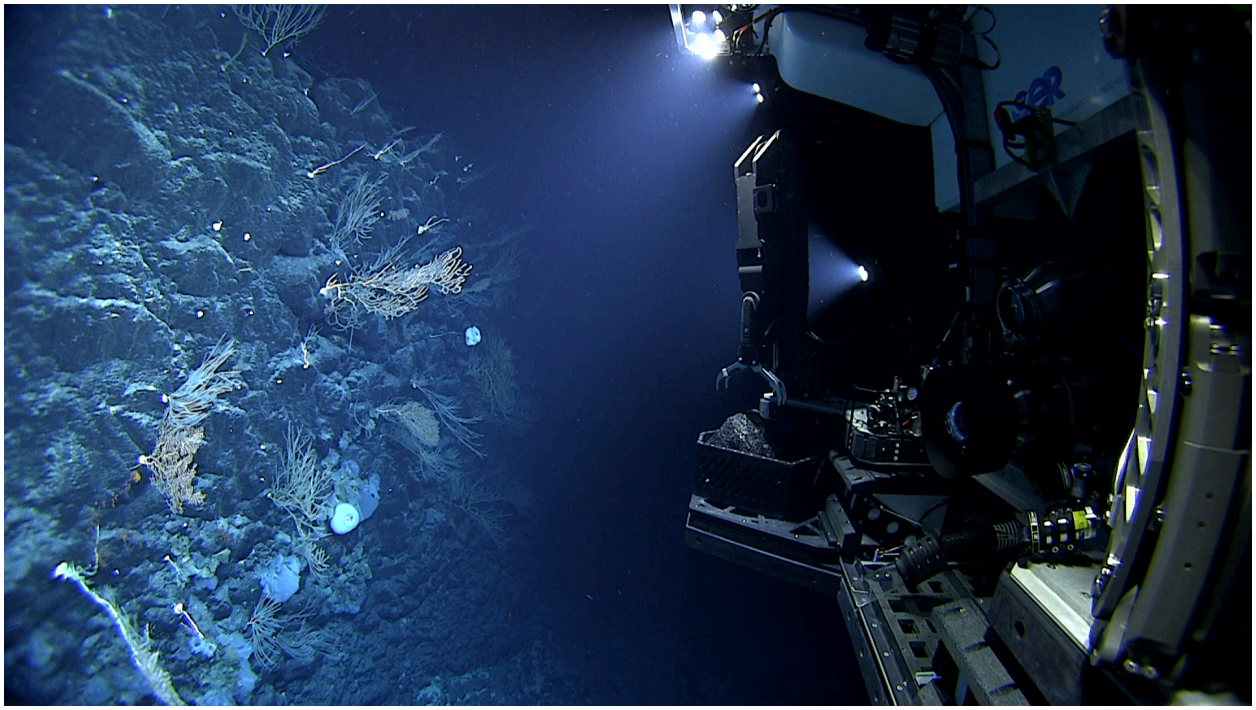
Representative Photos of the Dive



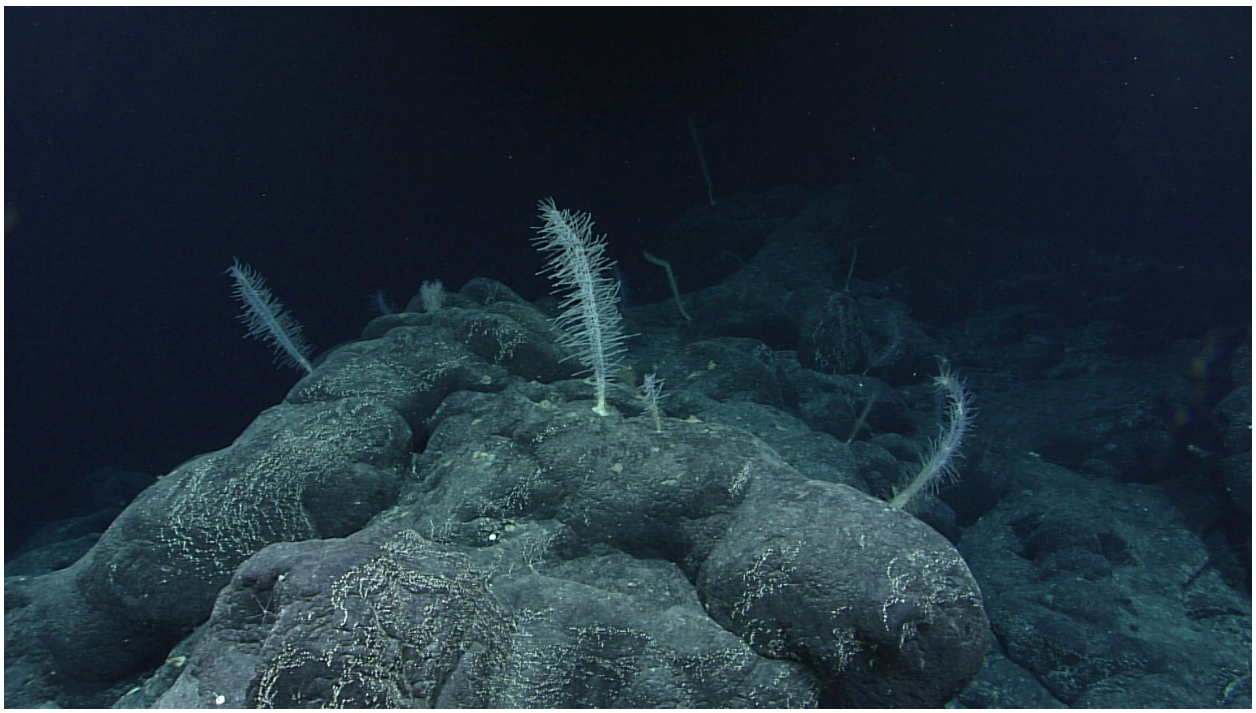
The dive began in a sediment and boulder field bordering a large basalt wall. The tallus field with large boulders visible in this image was home to a variety of coral species.



An unusual coral with a mixture of *Chrysogorgia* and *Metallogorgia* traits. This specimen was sampled for further analysis.

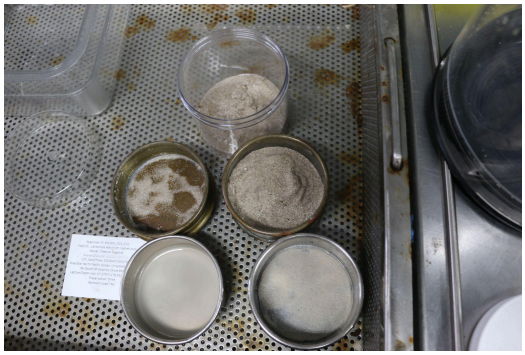


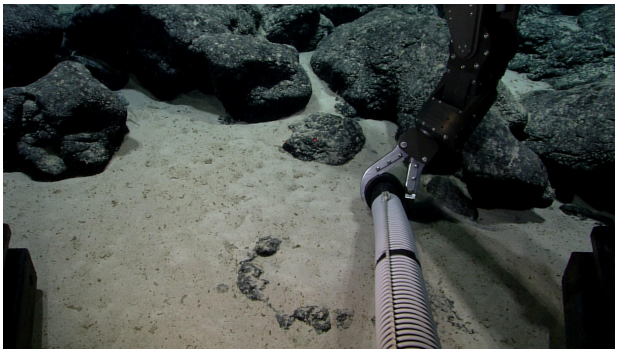
A wall of basalt pillows was home to a diversity of corals, sponges, echinoderms, and crustaceans.



Walteria sponges on barnacle-covered basalt pillows at the shallowest depth of EX2503 Dive 14.

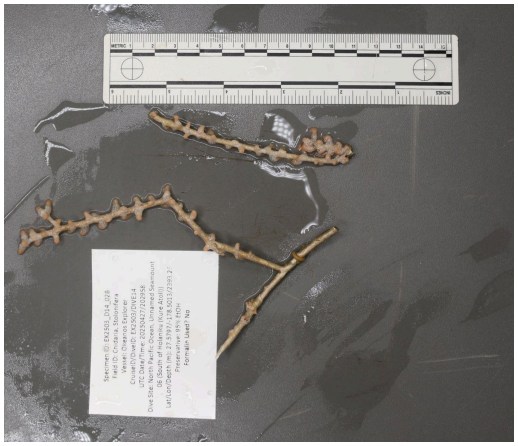
Samples Collected

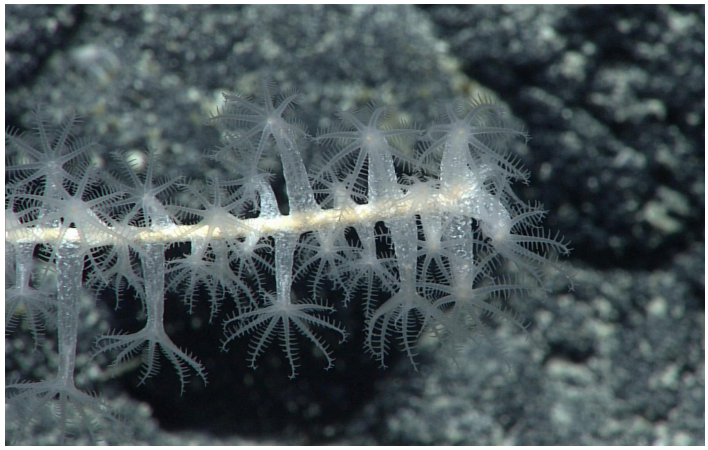




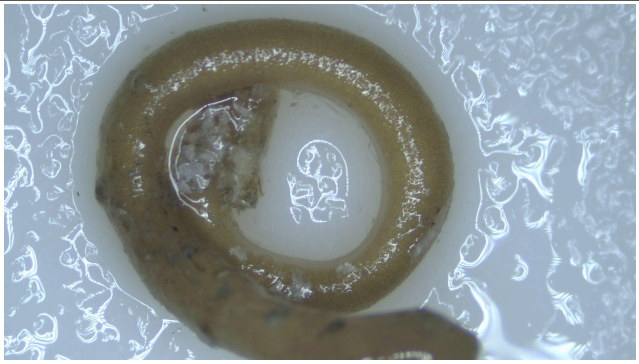
Sample ID	EX2503_D14_01G
Date (UTC)	20250427
Time (UTC)	201726
Depth (m)	2393.94799804688
Latitude (decimal degrees)	27.5796947479248
Longitude (decimal degrees)	-178.501403808594
Temp. (°C)	1.78900003433228
Field ID(s)	carbonate seds from rippled pool
Comments	>500 microns, relatively coarse grained, higher diversity of benthic foraminifera apparent upon cursory inspection relatively little fine grained clays

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



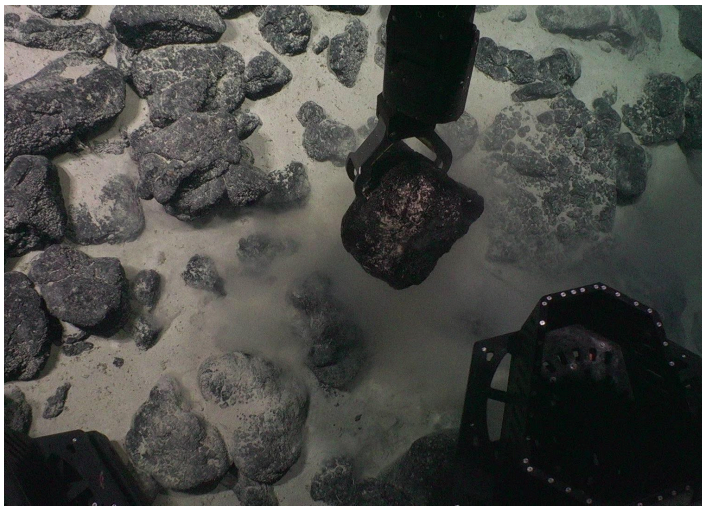


Sample ID	EX2503_D14_02B
Date (UTC)	20250427
Time (UTC)	202958
Depth (m)	2393.2509765625
Latitude (decimal degrees)	27.5797386169434
Longitude (decimal degrees)	-178.501312255859
Temp. (°C)	1.79799997806549
Field ID(s)	Stolonifera
Comments	Likely overgrowing coral stalk from other species, three instances of these were noted on the dive including the one collected



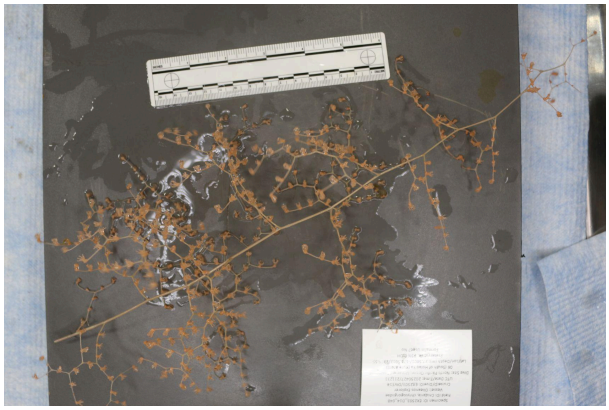
Associates Sample ID:	EX2503_D14_02B_A01B

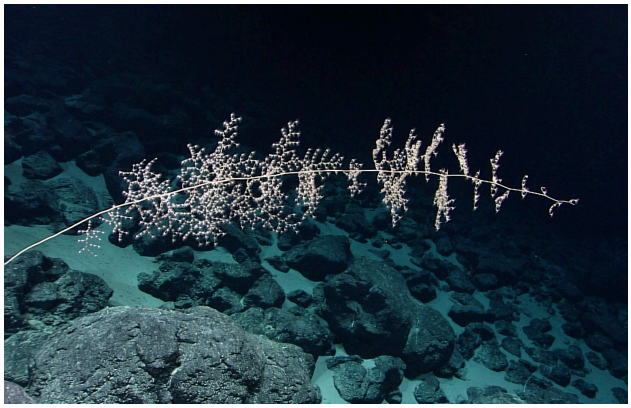
Field Identification:	Aplacophora
Count:	1



Sample ID	EX2503_D14_03G
Date (UTC)	20250427
Time (UTC)	205651
Depth (m)	2378.98608398438
Latitude (decimal degrees)	27.5800361633301
Longitude (decimal degrees)	-178.50129699707
Temp. (°C)	1.83000004291534
Field ID(s)	Large basalt in tallus
Comments	Incredibly large, encrusted basalt pillow, one surface has finer textured crust

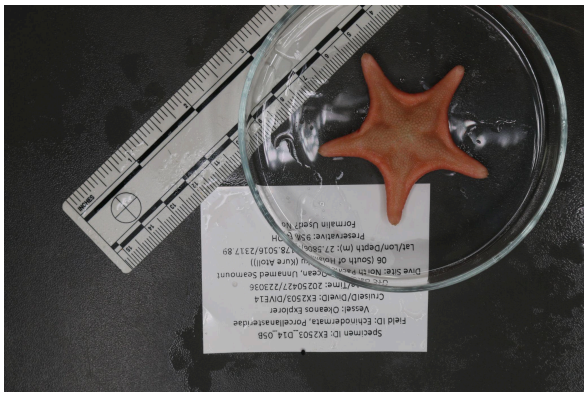
Associates Sample ID:	N/A
Field Identification:	N/A
Count:	N/A





Sample ID	EX2503_D14_04B
Date (UTC)	20250427
Time (UTC)	211231
Depth (m)	2375.55004882813
Latitude (decimal degrees)	27.5800666809082
Longitude (decimal degrees)	-178.501205444336
Temp. (°C)	1.8309999704361
Field ID(s)	chrysogorgiidae
Comments	Polyps not retracting after significant handling

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

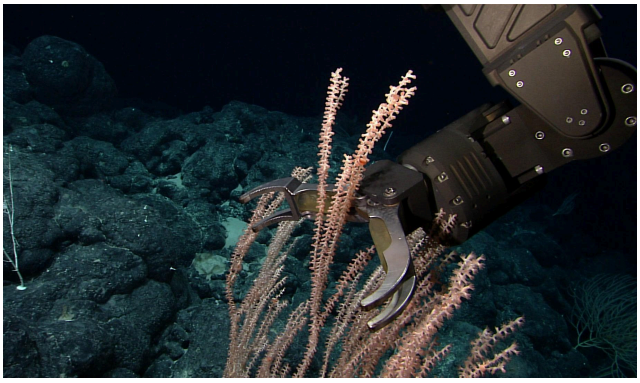


Sample ID	EX2503_D14_05B
Date (UTC)	20250427
Time (UTC)	223036
Depth (m)	2317.88891601563
Latitude (decimal degrees)	27.5806484222412
Longitude (decimal degrees)	-178.50163269043
Temp. (°C)	1.7610000371933
Field ID(s)	Porcellanasteridae
Comments	Barbie pink in color, tube feet retracted, likely dead upon recovery but well preserved

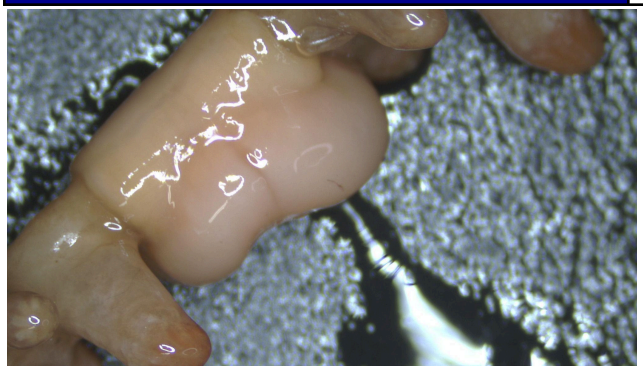
Associates Sample ID:	N/A
Field Identification:	N/A
Count:	N/A

Sample ID	EX2503_D14_06G
Date (UTC)	20250427
Time (UTC)	234338
Depth (m)	2263.625
Latitude (decimal degrees)	27.58131980896
Longitude (decimal degrees)	-178.501708984375
Temp. (°C)	1.80799996852875
Field ID(s)	pillow from saddle point
Comments	Very large, likely pillow basalt, thick crust on multiple faces, thin crust on other faces suggests that's where fracture point is

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



Sample ID	EX2503_D14_07B
Date (UTC)	20250428
Time (UTC)	000212
Depth (m)	2261.7958984375
Latitude (decimal degrees)	27.5816974639893
Longitude (decimal degrees)	-178.501770019531
Temp. (°C)	1.81299996376038
Field ID(s)	Keratoisididae
Comments	Excreting more mucus upon handling, fleshy pink in color with light pink stalk and brown nodes, club like sclerites visible under microscope, anemone associate removed by cutting out the stalk



Associates Sample ID:	EX2503_D14_07B_A01B

Field Identification:	Actiniaria
Count:	3

Niskin Sampling Summary

Sample ID	EX2503_D14_08W
Date (UTC)	20250428
Time (UTC)	022035
Depth (m)	302.286987304688
Latitude (decimal degrees)	27.5843963623047
Longitude (decimal degrees)	-178.499572753906
Bottle Number	Niskin Bottle 1
Temperature	13.8929996490479
Dissolved Oxygen (mg/L)	6.50400018692017
Treatment	DNA/RNA Shield

Sample ID	EX2503_D14_09W
Date (UTC)	20250428
Time (UTC)	022305
Depth (m)	227.253997802734
Latitude (decimal degrees)	27.5848541259766
Longitude (decimal degrees)	-178.499130249023
Bottle Number	Niskin Bottle 2
Temperature	15.7259998321533

Dissolved Oxygen (mg/L)	6.61999988555908
Treatment	DNA/RNA Shield

Sample ID	EX2503_D14_10W
Date (UTC)	20250428
Time (UTC)	022537
Depth (m)	151.811004638672
Latitude (decimal degrees)	27.5853424072266
Longitude (decimal degrees)	-178.498550415039
Bottle Number	Niskin Bottle 3
Temperature	17.8020000457764
Dissolved Oxygen (mg/L)	6.8439998626709
Treatment	DNA/RNA Shield

Sample ID	EX2503_D14_11W
Date (UTC)	20250428
Time (UTC)	022722
Depth (m)	101.129997253418
Latitude (decimal degrees)	27.5857162475586
Longitude (decimal degrees)	-178.49821472168
Bottle Number	Niskin Bottle 4
Temperature	20.5979995727539
Dissolved Oxygen (mg/L)	6.94000005722046

Treatment	DNA/RNA Shield

Sample ID	EX2503_D14_12W
Date (UTC)	20250428
Time (UTC)	022906
Depth (m)	51.0270004272461
Latitude (decimal degrees)	27.5866622924805
Longitude (decimal degrees)	-178.497756958008
Bottle Number	Niskin Bottle 5
Temperature	23.1040000915527
Dissolved Oxygen (mg/L)	6.8439998626709
Treatment	DNA/RNA Shield

Scientists Involved

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