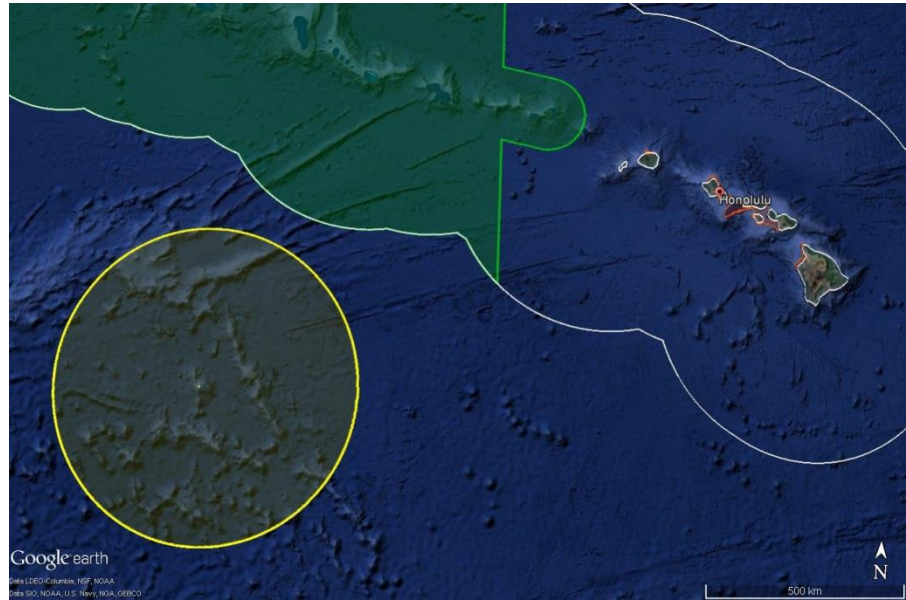




Okeanos Explorer ROV Dive Summary

Dive Information

Dive Map



Site Name	New Seamount Summit Cone
ROV Lead(s)	Dan Rogers
Expedition Coordinator(s) / Mapping Lead	Kelley Elliott / Mashkoor Malik
Science Team Lead(s)	Chris Kelley & Chris Mah
General Area Descriptor	Johnston Atoll Unit of PRIMNM

ROV Dive Name

Cruise	EX1706
Leg	
Dive Number	13

Equipment Deployed

ROV	Deep Discoverer (D2)		
Camera Platform	Seirios		
ROV Measurements	CTD	Depth	Altitude
	Scanning Sonar	USBL Position	Heading
	Pitch	Roll	HD Camera 1
	HD Camera 2	Low Res Cam 1	Low Res Cam 2

	Low Res Cam 3	Low Res Cam 4	Low Res Cam 5
	LSS	ORP	
Equipment Malfunctions	None		
ROV Dive Summary (from processed ROV data)	Dive Summary: EX1706_DIVE13 ^^^ In Water: 2017-07-27T19:00:00.004000 N/A ; N/A Out Water: 2017-07-28T02:30:22.567000 N/A ; N/A Off Bottom: 2017-07-28T01:46:09.176000 14°, 03.648' N ; 169°, 19.212' W On Bottom: 2017-07-27T19:25:55.664000 14°, 03.582' N ; 169°, 18.523' W Dive duration: 7:30:22 Bottom Time: 6:20:13 Max. depth: 1597.9 m		
Special Notes			
Scientists Involved (please provide name, location, affiliation, email)	Abby Lapointe, University of Hawaii, abbylap@hawaii.edu Amanda Netburn, FAU CIOERT/OER, amanda.netburn@noaa.gov Amy Baco Taylor, Florida State University, abacotaylor@fsu.edu Asako Matsumoto, Planetary Exploration Research Center, Chiba Institute of Technology, Japan, amatsu@gorgonian.jp Chris Kelley, UH, ckelley@hawaii.edu Chris Mah, SI NMNH, brisinga@gmail.com Dhugal Lindsay, JAMSTEC, dhugal@jamstec.go.jp Donald Kobayashi, NOAA NMFS PIFSC, donald.kobayashi@noaa.gov Heather Judkins, University of South Florida St. Petersburg, Judkins@mail.usf.edu John Smith, University of Hawaii/SOEST, jrsmith@hawaii.edu Ken Sulak, U.S. Geological Survey, ksulak@usgs.gov Kevin Kocot, The University of Alabama , kmkocot@ua.edu Les Watling, University of Hawaii at Manoa, watling@hawaii.edu Michael Vecchione, NMFS, vecchiom@si.edu Mike Ford, NOAA Fisheries, michael.ford@noaa.gov Nikola Rodriguez, NOAA EPP, nikola.rodriguez@noaa.gov Nolan Barrett, FAU Harbor Branch Oceanographic Institute, barrettmh@g.cofc.edu Scott France, University of Louisiana at Lafayette, france@louisiana.edu Steven Auscavitch, Temple University, steven.auscavitch@temple.edu Tara Harmer-Luke, Stockton University, luket@stockton.edu		

	<p>Timothy Shank, Woods Hole Oceanographic Institution, tshank@whoi.edu Tina Molodtsova, P.P. Shirshov Institute of Oceanology RAS, tina.molodtsova@gmail.com</p>
<p>Purpose of the Dive</p>	<p>This dive was designed to be one of 4 placeholder sites for exploring seamounts in the southern part of the monument where no previous mapping or ROV surveys have been conducted. This area has a complex distribution of seamounts some of which may be guyots and others conical in shape based on satellite altimetry data. Rocks collected at these sites may help clarify the geologic history of this region of the monument. This seamount was mapped last night and found to be a guyot having volcanic cones on the top of its flat summit. The largest and most shallow cone was selected as the dive site. The dive track had the ROV first landing on the flat summit next to the cone then moving onto its southern flank and proceeding up until it reached its top. The objective was to determine whether a significant community of corals and sponges existed on the cone and if so, where it was located.</p>



Description of the Dive

The ROV arrived on bottom at approximately 9:30 AM at a depth of 1598 m. The guyot summit next to the cone was composed primarily of large, broken pieces of Mn crusted rock and unconsolidated rubble, most of which appeared to be cemented together and was dusted with a light to moderate sediment overlay. This transitioned to more consolidated Mn crusted pillow flows once the ROV began ascending the flank of the cone. The slope increased steadily up the flank, reaching 45 degrees just below the peak. The most rugose topography was found on the peak that had what appeared to be Mn crusted vents, shallow crevices, and blocks.

The community on the flats next to the cone as well as most of the way up the flank showed low diversity and abundance. However, the abundance of animals increased significantly just below the peak, which was found to have a relatively high density of corals, sponges, other invertebrates, as well as a couple of fishes.

Colonial octocorals were the dominant taxon present during today's dive. Initially these colonies were sparse and present in low abundance. This included colonies of *Iridigorgia*, *Metallogorgia*, and several colonies of *Victorgorgia*. Bamboo coral (*Isididae*) colonies were present in abundance with several colonies attaining very large sizes. A small but steady number of antipatharians (*Bathypathes* and *Trissopathes*) as well as flytrap and other anemones were also observed. There were also several observations of the soft coral *Anthomastus*. Several pennatulaceans, including the deep-sea sea pen *Umbellula* and the rock pen *Anthoptilum* were also observed. The latter rock pen species was collected.

As the D2 approached the peak and the adjoining area, the number of sea fans in the family Plexauridae dramatically increased. This area was dominated by a yellow plexaurid sea fan colonies forming a high-density community of this species present on cliff faces, large boulders, etc.

Other notable cnidarians include several sightings of the hydrozoan jellyfish *Aegina*, a small medusae which feeds on the polyps of bamboo corals. Other observations included anemones of different species sitting on rocks and colonial octocorals.

Foraminifera

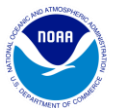
The area around the D2 landing spot in and around the rubble contained several different varieties of sediment tests associated with xenophyophoreans present on sediment ponds. This included a triple spherical mound-like form and frond to leaf like structures.

Porifera

While not dominant, sponges-especially glass sponges were a significant group during today's dive. Initially sponges, glass sponges such as *Acanthascus* and *Atlantisella* were not observed very regularly. Following D2's trek though the Mn zone there were increased observations of more "typical" hard-bottom glass-sponge fauna including genera such as *Bolosoma*, *Poliopogon* and *Dictyalus*. Near the peak and within the peak we also observed many colonies of a new species of Teretodictyidae with commensal zoanthid cnidarians.

Echinodermata

By far the most abundant and frequently encountered echinoderm today was the brilliant red stalked crinoid *Proisocrinus ruberrimus* which was the first species observed by the D2 upon landing and seen throughout the dive. Various species of miscellaneous feather stars (comatulids) were also noted, including a



large *Thaumatoctenus*. Ophiuroids were represented by at least three species of Ophiacanthidae, including at least one species of *Ophioplithaca*. Several snake stars (Euryalida) were observed as commensals on several observed corals.

Sea stars were represented primarily by the Goniasteridae, including *Calliaster*, *Bathyceramus*, and *Plinthaster*. Two examples of the *Benthopectinidae* were observed as well as a single example of the rarely seen *Pythonaster* sp.

Perhaps most striking during today's dive were the sea urchins. Two aspidodiademid sea urchins were observed in the former half of the dive. None were seen until the D2 surveyed the peak of the cone. One very large urchin with elongate spines (10-15 cm diameter), close to the genus *Caenopedina* was observed in addition to three extremely large echinothuriid urchins with diameter ranging from 15-20 cm and height ranging from 10-15 cm tall. (comparable to pumpkins in size!)

Crustacea

Notable among the crustaceans observed today was a lobster in the family Polychelidae, *Homeryon* sp. which demonstrated a pronounced escape response upon being faced by the D2. Other crustaceans included various shrimps, such as *Nematocarcinus*, stalked barnacles, and several chirostylid squat lobsters.

Mollusca

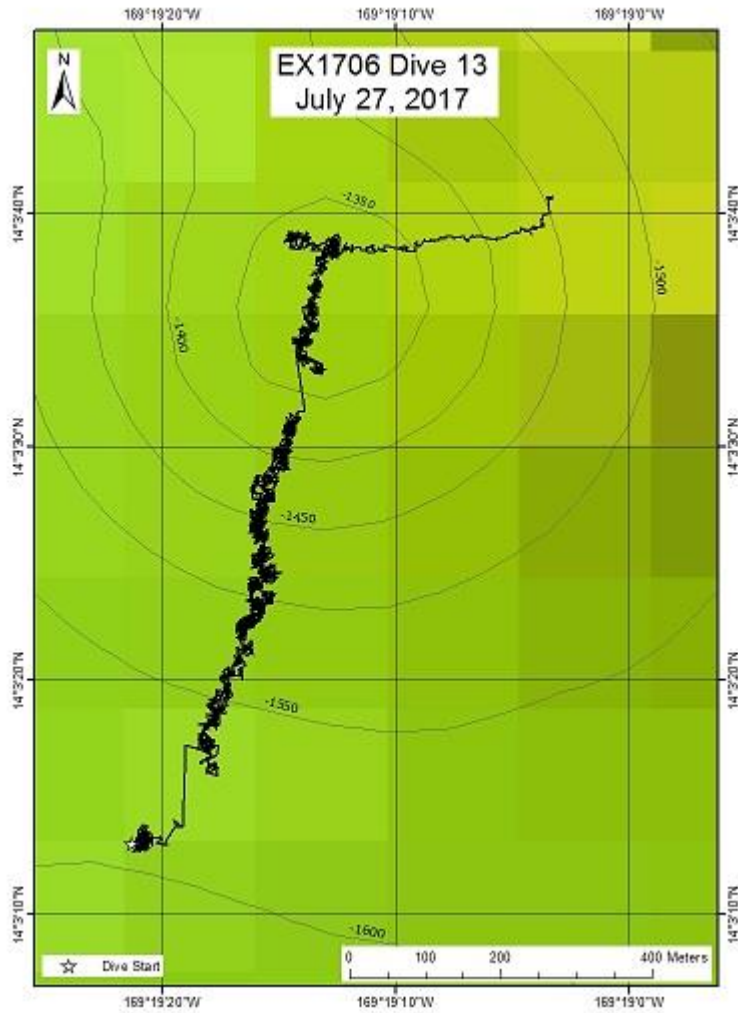
At least two species of snails were observed during the dive today. One species with a whelk-like shell bearing at least two zoanthid cnidarians. There were at least two other morphospecies, including one present as a commensal on a glass sponge and another crawling on basalt rock surface.

Chordata

Fish were among the first animals observed during the dive today. At least six observations of halosaurs were made today (genus *Aldrovandia*), in addition to two observations of cutthroat eels (genus *Synaphobranchus*), three genera of cusk eels (Ophidiidae), and approximately four genera of grenadiers (Macouridae).

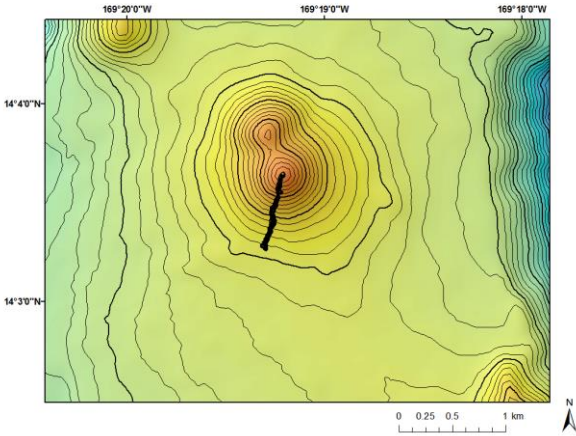


Overall Map of the ROV Dive Area

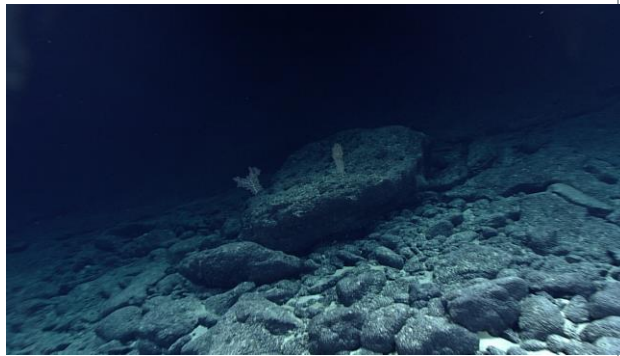


Close-up Map of Main Dive Site





Representative Photos of the Dive



Two colonial octocorals on boulder before cone ridge.

Coral rich community on cone ridge (Plexauridae and Antipatharians shown).

Samples Collected


Sample

Sample ID	D2_DIVE13_SPEC01GEO
Date (UTC)	20170727
Time (UTC)	210810
Depth (m)	1569
Temperature (°C)	
Field ID(s)	Mn Encrusted Rock
Comments	




Sample



Sample ID	D2_DIVE13_SPEC02BIO	
Date (UTC)	20170727	
Time (UTC)	224154	
Depth (m)	1515	
Temperature (°C)		
Field ID(s)	Anthoptilum sp?	
Comments		

Sample

Sample ID	D2_DIVE_SPEC03GEO	
Date (UTC)	20170727	
Time (UTC)	230408	
Depth (m)	1501	
Temperature (°C)		
Field ID(s)	Mn crusted rock	
Comments		

Please direct inquiries to:

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 (301) 734-1014

