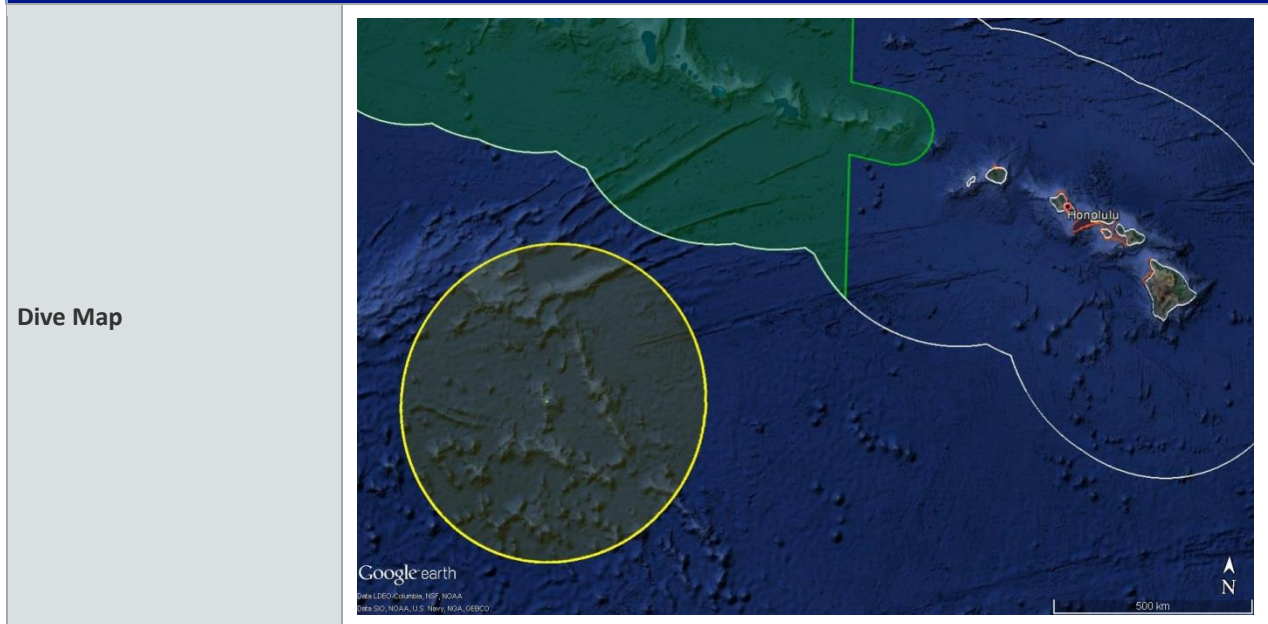




## *Okeanos Explorer* ROV Dive Summary

### Dive Information



<b>Site Name</b>	"Edmondson" Seamount
<b>ROV Lead(s)</b>	Dan Rogers
<b>Expedition Coordinator(s) / Mapping Lead</b>	Kelley Elliott / Mashkooor Malik
<b>Science Team Lead(s)</b>	Chris Kelley & Chris Mah
<b>General Area Descriptor</b>	Johnston Atoll Unit of PRIMNM

### ROV Dive Name

<b>Cruise</b>	EX1706
<b>Leg</b>	
<b>Dive Number</b>	7

### Equipment Deployed

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



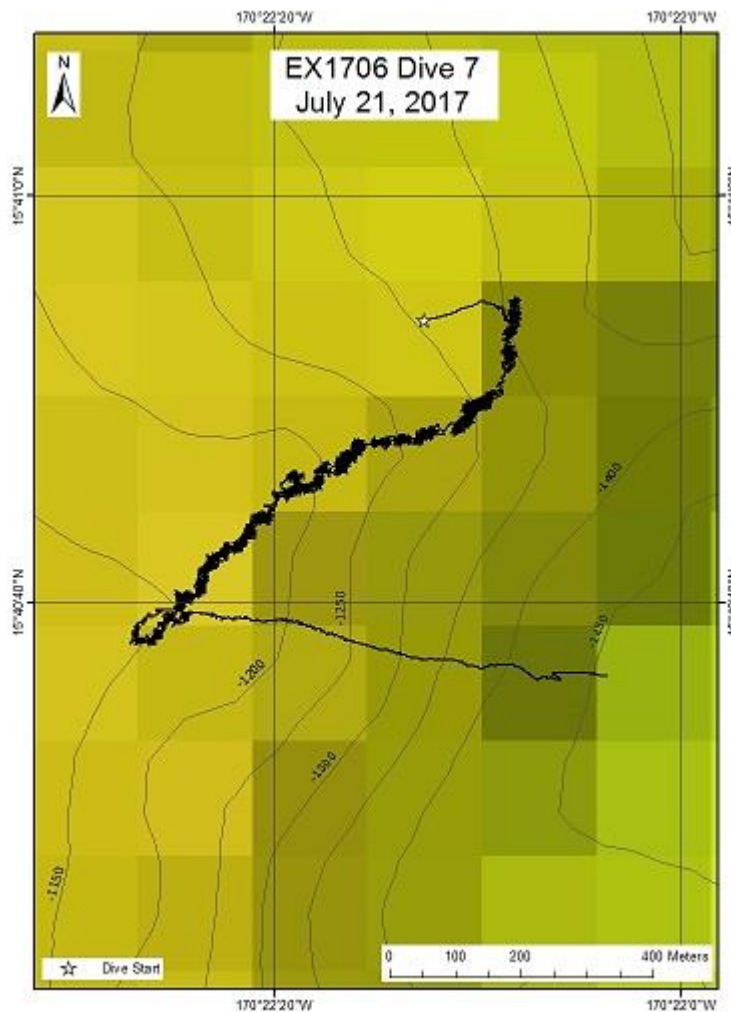
<p><b>Purpose of the Dive</b></p>	<p>This particular site was selected mostly for the unusual geology. This feature is believed to represent secondary volcanism after the guyot it is on sunk well below the surface. While secondary volcanism is common and is seen on many seamounts here in the Johnston Atoll area, this particular example is much larger than any others and is covering a large extent of the summit of the guyot it is on. Collecting a rock on this site would provide valuable information on how and when the feature formed. The exact location of the dive is along a sharp ledge at the top of the feature where deep water corals and sponges may likely be found.</p>
<p><b>Description of the Dive</b></p>	<p>The D2 was deployed today at 8:30 AM and reached bottom depth (1260m) at 9:18 AM. The landing site was primarily rocky composed of Mn crusted basalt bedrock and boulders with 20-50% sediment cover. The benthos observed during the first segment of the dive was sparse and widely distributed. Commonly encountered cnidarian species included the primnoid octocoral <i>Narella</i> sp that was almost always had an orange euryalid ophiuroid associate. A few colonies of the precious coral <i>Hemicorallium</i> sp were also observed. Two other species seen only once were a tall, “whip” bamboo coral (<i>Isididae</i>) with a large flytrap anemone on its tip and a colony of <i>Victorgorgia nuttingi</i> with an ophiuroid and pedunculate barnacles. A synallactid sea cucumber, <i>Hansenothuria</i> was the only echinoderm observed.</p> <p>At approximately 11 am, the D2 encountered a blocky pinnacle region composed of heavy Mn crusted basalt blocks with a high density of colonial cnidarians, stalked sponges, and their associated faunas. This area was composed of steep walls and included several valleys and strikingly acute features where current flow was likely accelerated. The community was dominated by the precious coral <i>Hemicorallium</i> sp which was present in several large and very tall colonies. Some of these were partially or completely overgrown by yellow zoanthids. Other cnidarians were also present in lesser abundance, including the chrysogorgiid <i>Chrysogorgia</i> sp, a white species of <i>Paragorgia</i>, stoloniferans, corallimorpharians, and several occurrences of zoanthids proliferating over a wide rocky surface. The largest colonial cnidarian observed today was a species of hydrozoan (<i>Solanderia</i> sp), one colony being easily over 2 meters tall and 3 meters wide. This colony harbored a number of commensals including a large squat lobster (<i>Munidae</i>) and numerous ophiacanthid brittle stars. Associated fauna on other colonial cnidarians included several species of squat lobsters, stalked and unstalked barnacles, ophiacanthid ophiuroids and in some cases, aplacophorans. Several swimming shrimps and hermit crabs were observed throughout today’s dive.</p> <p>Large echinoderm predators of corals included two large individuals of the goniasterid seastar <i>Hippasteria muscipula</i> (diameter = ~15 cm across) as well as another goniasterid <i>Calliaster</i> ? sp. Both of which were observed in feeding position, with <i>Calliaster</i> having extended its cardiac stomach over its precious coral prey. Other echinoderms included two white echinothuriid urchins in the genus <i>Sperosoma</i>(?), several very large individuals of feather stars, including one dark bodied species with yellow cirri (family <i>Zygometridae</i>?), and numerous ophiacanthid and amphiuroid ophiuroids. Aside from the <i>Hansenothuria</i> sp observed during the early part of the dive, one other species of sea cucumber was encountered that was tentatively identified as being in the family <i>Laetmogonidae</i>. The zygometrid crinoid and a piece of the <i>Hemicorallium</i> coral it was sitting on were collected along with a goniasterid sea star in the genus <i>Bathyceramaster</i>.</p> <p>Sponges included two species of euplectellid glass sponges, several small</p>



unidentified spherical sponges and several observations of an undescribed glass sponge collected during dive 6 and tentatively identified as a tretodictyid species (*Tretodictyum* sp). This latter species had commensal sea anemones or zoanthids growing throughout its branches. Fish included several cusk eels, two species of grenadiers, and a large angler fish in the genus *Sladenia*.

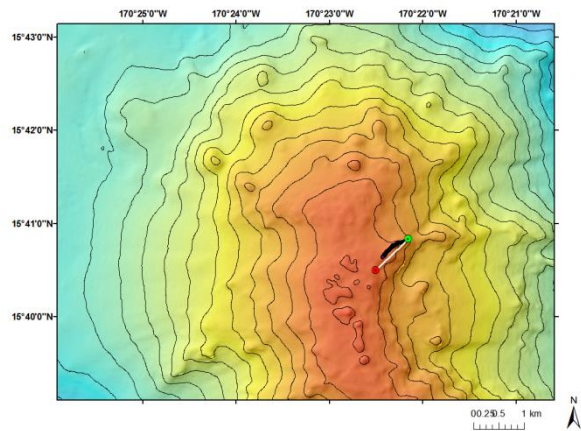
In spite of this highly dense cnidarian community, there were several notable absences, specifically that of antipatharians (black corals), bamboo corals and plexaurids. Finally, the high current/basalt pinnacle region gave way to a more gradual sloping mixed substrate of Mn crusted blocks, boulders, cobbles, and sediment as the ROV moved further away from the edge of the escarpment. Colonies of *Hemicorallium* sp and primnoids persisted in this area but in much lower abundance.

### Overall Map of the ROV Dive Area



### Close-up Map of Main Dive Site





**Representative Photos of the Dive**



High topography with a dense invertebrate community dominated by the precious coral *Hemicorallium* sp was encountered during the first part of the dive.



Lower relief with a more sparse community was encountered away from the edge of the escarpment toward the summit of the seamount.

**Samples Collected**

**Sample**

Sample ID	D2_DIVE_SPEC01GEO
Date (UTC)	20170721
Time (UTC)	193657
Depth (m)	1275
Temperature (°C)	
Field ID(s)	Mn crusted rock




Comments	
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### Sample

Sample ID	D2_DIVE_SPEC02GEO	
Date (UTC)	20170721	
Time (UTC)	232044	
Depth (m)	1157	
Temperature (°C)		
Field ID(s)	Mn crusted rock	
Comments		

### Sample

Sample ID	D2_DIVE_SPEC03BIO	
Date (UTC)	20170722	
Time (UTC)	000816	
Depth (m)	1165	
Temperature (°C)		
Field ID(s)	Hemicorallium sp	
Comments		

### Sample

Sample ID	D2_DIVE_SPEC03BIO_A01	
Date (UTC)	20170722	
Time (UTC)	000816	
Depth (m)	1165	
Temperature (°C)		
Field ID(s)	Thalassometridae ? (crinoid)	
Comments	Other associates included ophiuroidea, a polychaete worm, and a barnacle.	



Sample	
Sample ID	D2_DIVE_SPEC04BIO
Date (UTC)	20170722
Time (UTC)	001757
Depth (m)	1165
Temperature (°C)	
Field ID(s)	Bathyceramus sp? (seastar)
Comments	



**Please direct inquiries to:**

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