



Okeanos Explorer ROV Dive Summary

Dive Information	
Dive Map	<p>The map displays the dive track for EX-17-03 in the Pacific Remote Islands Marine National Monument. The track starts near Phoenix Island and proceeds southward through several other islands. Bathymetry is shown in shades of blue and purple, indicating depths from 500m to over 8000m. Key areas like Howland/Baker PRIMNM and the Phoenix Islands PIPA are outlined in white and blue respectively. A scale bar shows 0 to 200 nautical miles.</p>
Site Name	Howland Deep 2
Expedition Coordinator(s)	Brian RC Kennedy, Nick Pawlenko
ROV Lead(s)	Karl McLetchie
Science Team Lead(s)	Amanda Demopoulos and Steven Auscavitch
General Area Descriptor	Pacific Remote Islands Marine National Monument
ROV Dive Name	
Cruise	EX-17-03

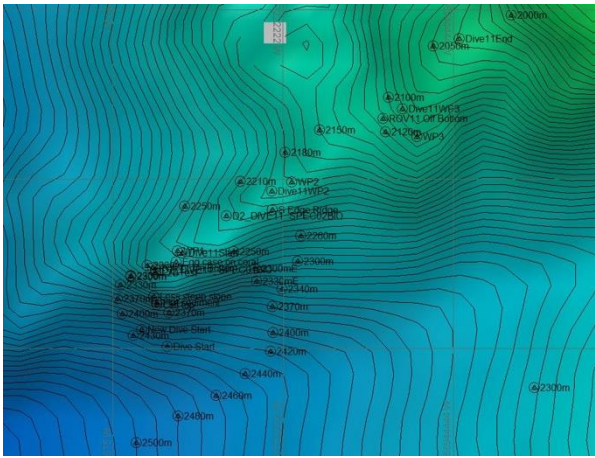
Leg	0		
Dive Number	11		
Equipment Deployed			
ROV	Deep Discoverer (D2)		
Camera Platform	Seirios		
ROV Measurements	<input checked="" type="checkbox"/> CTD	<input checked="" type="checkbox"/> Depth	<input checked="" type="checkbox"/> Altitude
	<input checked="" type="checkbox"/> Scanning Sonar	<input checked="" type="checkbox"/> USBL Position	<input checked="" type="checkbox"/> Heading
	<input checked="" type="checkbox"/> Pitch	<input checked="" type="checkbox"/> Roll	<input checked="" type="checkbox"/> HD Camera 1
	<input checked="" type="checkbox"/> HD Camera 2	<input checked="" type="checkbox"/> Low Res Cam 1	<input checked="" type="checkbox"/> Low Res Cam 2
	<input checked="" type="checkbox"/> Low Res Cam 3	<input checked="" type="checkbox"/> Low Res Cam 4	<input checked="" type="checkbox"/> Low Res Cam 5
Equipment Malfunctions			
ROV Dive Summary (from processed ROV data)	<p style="text-align: center;">Dive Summary: EX1703_DIVE11 ^^^</p> <p>In Water: 2017-03-18T18:33:46.437000 00°, 48.032' N ; 176°, 40.513' W</p> <p>Out Water: 2017-03-19T02:41:14.323000 00°, 48.441' N ; 176°, 40.048' W</p> <p>Off Bottom: 2017-03-19T01:25:50.371000 00°, 48.390' N ; 176°, 40.238' W</p> <p>On Bottom: 2017-03-18T19:56:33.804000 00°, 48.247' N ; 176°, 40.452' W</p> <p>Dive duration: 8:7:27</p> <p>Bottom Time: 5:35:16</p> <p>Max. depth: 2226.9 m</p>		
Special Notes			
Scientists Involved (please provide name, location, affiliation, email)	Name	Affiliation	Email Address
	Abby Lapointe	University of Hawaii	abbylap@hawaii.edu

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	Steve Auscavitch	Temple University	steven.auscavitch@temple.edu
Purpose of the Dive	<p>The goal of this dive is to acquire baseline information on deep sea habitats, seafloor geology, and biological communities on Howland Island in the Howland & Baker Unit of the Pacific Remote Islands Marine National Monument. Deep-sea environments around Howland & Baker Islands are virtually unexplored leading to poor knowledge of biological resources protected by these reserves. Previous Dive09 (this cruise) explored a steep slope downslope from this large ridge. This dive will carry on where the previous dive left off to survey the remainder of the ridge crest, including taking a closer look at a diversity of octocorals at the dive start location. Understanding deep-sea coral biological resources as well as bathyal fish communities is of great importance to inform management in</p>		

	the area.
Description of the Dive	<p>EX1703 dive #11 continued our dive tract remaining from dive #9, transiting a ridge feature from 2227 to 2084 m depth. The seafloor at the start of the dive was a sedimented plateau surrounded by exposed, high profile rock features. Along the ridge track, we observed a sedimented slope with a perimeter of rocky ledges, which was interspersed by rock boulders. There were areas toward the end of the dive with continuous hard-rock pavement and with high profile, exposed rocky substrate.</p> <p>We started the dive at the base of the ridge, on a plateau with several large coral colonies. We collected a piece from an unknown chrysogorgiid that had a width of 1.5m. Other corals encountered along the ridge included chrysogorgiids (<i>Chrysogorgia</i>, <i>Iridogorgia</i>, and unknown), primnoids (cf. <i>Calyptrophora</i>, <i>Narella</i>), seapens (<i>Anthoptilum</i> or <i>Kophobelemnion</i>), black corals (cf. <i>Stichopathes</i>, <i>Heteropathes</i>, <i>Umbellapathes</i>), bamboos (cf. <i>Jasonisis</i> [large colonies], <i>Orstomisis</i>, whip, unknown internodal branching form), <i>Anthomastus</i> cf. <i>tahinodus</i>, <i>Paragorgia</i> cf. <i>coralloides</i>, plexaurids, and <i>Victorgorgia</i>. We observed typical coral and sponge associates, including crinoids (e.g., <i>Paratelecrinus</i>), ophiuroids, ctenophores (<i>Tjalfiella</i> sp.), shrimp, unknown worms, and aplacophorans. One new “associate” observed was a cirrate octopod egg case attached to a paragorgiid octocoral. The case was cracked open, revealing the chorion, which may expand as the octopus embryo develops. We noted that other empty brown cases were observed on dive 9 at a similar depth, attached to a colonial hydroid (<i>Solanderia</i>). Other invertebrates observed, either attached to the rocks or on the sediment surface, included a few different types of holothurians (e.g., <i>Mesothuria</i> or <i>Pseudostichopus</i>), sea stars (Goniasteridae: cf. <i>Calliaster</i> sp., new species [collected], brisingids), solitary hydroid, hexactinellid sponges (Euplectellidae: <i>Dictyaulus</i> or <i>Regadrella</i>, unknown Corbitellinae with shrimp within the vase, <i>Walteria</i> sp., <i>Heterorete</i>, <i>Chonelasma</i>), a hermit crab with a zoanthid house, nematocarcinid shrimp with stilt-like legs, xenophyophores, stalked crinoids (cf. <i>Bathycrinus</i>), an asteroschema on the rock surface without a host (unusual), sea urchins (aspidodiadematids,</p>

echinothuriids), a gastropod (*Gaza* sp.) and a sea spider (cf. *Colossendeis* sp.). Along the ridge, we observed at least 3 fish species, including a few individuals of Halosaurs (Halosauridae: cf. *Halosaurus*) and cusk eels (Ophediidae: *Porogadus* cf. *miles*, *Bassozetus*).

Overall Map of the ROV Dive Area Close-up Map of Main Dive Site



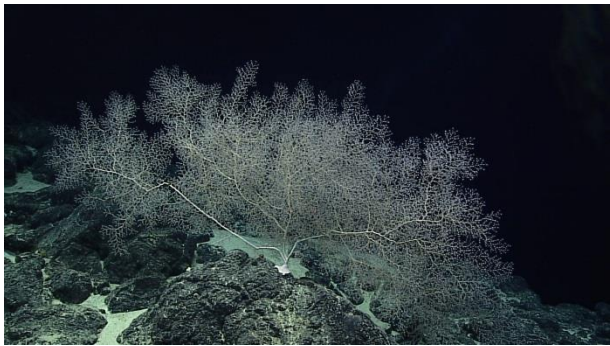

Representative Photos of the Dive



A partially hatched octopus egg

An octocoral and several sponges that were characteristic on the dive

Samples Collected

Sample		
Sample ID	EX1703_20170318T204428_D2_DIVE11_SPEC01BIO	
Date (UTC)	20170318	
Time (UTC)	20:44:28	
Depth (m)	2226.58	
Temperature (°C)	2.14	
Field ID(s)	Chrysogorgiidae	
Comments		
Sample		
Sample ID	EX1703_20170318T231238_D2_DIVE11_SPEC02BIO	
Date (UTC)	20170318	
Time (UTC)	23:12:38	
Depth (m)	2175.43	
Temperature (°C)	2.15	
Field ID(s)	Goniasteridae	
Comments		

Please direct inquiries to:

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