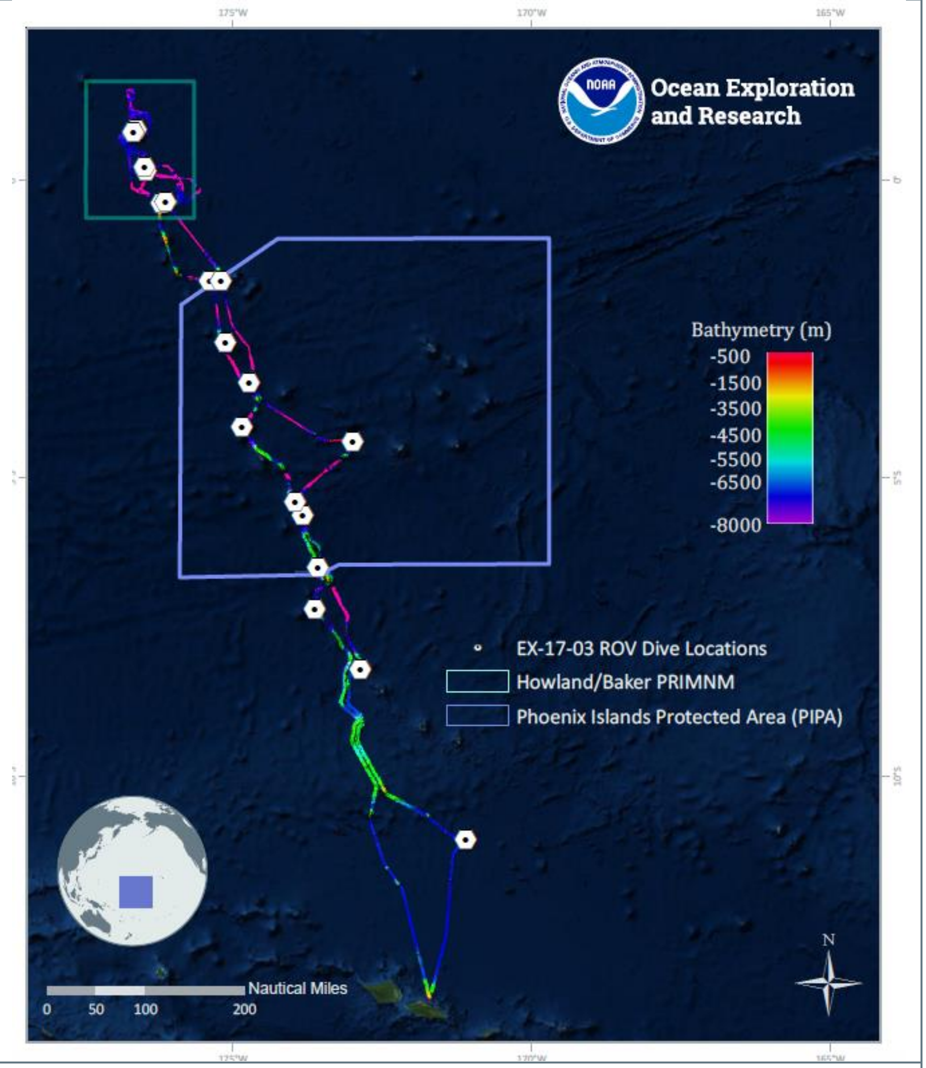
Okeanos Explorer ROV Dive Summary

Dive Information

Dive Map	
Site Name	Titov 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	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
Equipment Malfunctions			
ROV Dive Summary (from processed ROV data)	Dive Summary: EX1703_DIVE13 ^^^		
	In Water:	2017-03-20T18:45:43.299000 00°, 22.695' S ; 176°, 08.077' W	
	Out Water:	2017-03-21T02:40:09.227000 00°, 22.453' S ; 176°, 07.811' W	
	Off Bottom:	2017-03-21T01:52:56.706000 00°, 22.514' S ; 176°, 07.914' W	
	On Bottom:	2017-03-20T19:38:10.227000 00°, 22.680' S ; 176°, 07.972' W	
	Dive duration:	7:54:25	
	Bottom Time:	6:14:46	
	Max. depth:	1226.7 m	
Special Notes			
Scientists Involved (please provide name, location, affiliation, email)	**Name**	**Affiliation**	**Email Address**
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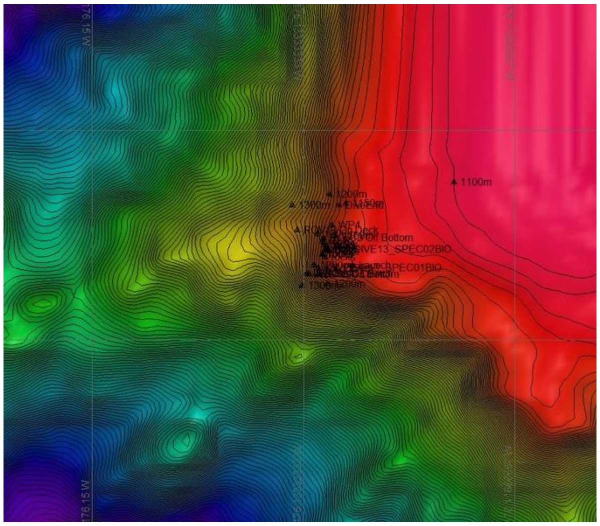
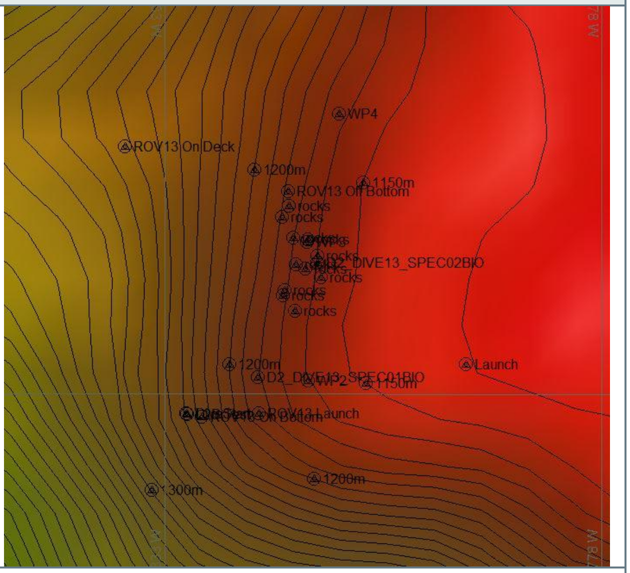
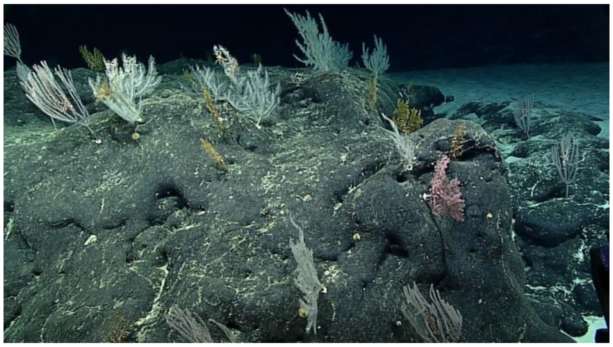
<table>
<tr><td></td><td><table><tr><td>Mike Ford</td><td>NOAA NMFS</td><td>michael.ford@noaa.gov</td></tr></table></td></tr>
<tr><td>Purpose of the Dive</td><td>The general goal of this dive is to acquire baseline information on deep sea habitats, seafloor geology, and biological communities on Titov Seamount in the Howland & Baker Unit of the Pacific Remote Islands Marine National Monument. Deep-sea environments around the Howland & Baker Islands are virtually unexplored leading to poor knowledge of biological resources protected by these reserves. This expedition has already explored the western ridge of Titov Seamount (Dive07) at a depth of 1890-1740m. This dive will provide some perspective on biological resources (fishes, biogenic habitat) as well as geological resources (crust precipitates) of the seamount. Understanding deep-sea coral distribution as well as bathyal fish communities is of great importance to inform management in the area. The age of Titov Seamount is not known.</td></tr>
<tr><td>Description of the Dive</td><td>EX1703 dive # 13 was our second dive at Titov Seamount. The dive track started at the base of a steep, sedimented slope at 1227 m. Immediately, we encountered a rattail previously unobserved on the expedition (Macrouridae/Bathygadinae: <i>Gadomus</i>) and also observed synaphobranchid eels (e.g., <i>Synaphobranchus affinis</i>). Other fish observed on the dive included several cusk eels (Ophidiidae: <i>Spectrunculus</i> sp., <i>Dicrolene</i> sp.), rattails (<i>Coryphaenoides</i> sp.; <i>Nezumia</i>?), goosefish (Lophiidae: <i>Sladenia</i> cf. <i>zhui)</i>, brotula (Bythitidae: <i>Diplacanthopoma</i>), oreo fish (Oreosomatidae: <i>Neocyttus</i> cf. <i>acanthorhynchus</i>), tripod fish (Ipnopidae: <i>Bathypterois</i> cf. <i>atricolor</i>), deep-sea spiny eels (Halosauridae: <i>Aldrovandia</i>), and bristlemouths (Gonostomatidae). On the scattered manganese iron oxide coated boulders and rock substrate, we observed primnoids (cf. <i>Narella</i>) and plexaurids, generally oriented perpendicular to the current flow, which was north to south at the base of the slope.
As the ROV progressed upslope, the sedimented seafloor was bordered by exposed rock, and several coral colonies were observed attached to the hard substrate. On the rock fringe, we saw large primnoids (<i>Callogorgia</i>, <i>Thouarella</i>?), chrysogorgiids (<i>Iridogorgia</i> spp., <i>Metallogorgia</i>, and unknown), <i>Anthomastus</i>, <i>Paragorgia</i>, Isididae, Coralliidae, <i>Victorgorgia</i>, <i>Bathypathes, Stichopathes</i>, cf. <i>Enallopsammia</i>, stoloniferans, cup corals, and pennatulids. Other fauna included crinoids (Atelecrinidae), holothurians (Laetmogonidae?, Elpidiidae), sponges (Euplectellidae, Euretidae: <i>Lefroyella</i>, unknown demosponges, encrusting sponges), seastars (Zoroasteridae<i>: Zoroaster</i>, Benthopectinidae: <i>Cheiraster</i>?,</td></tr>
</table>

	Goniasteridae: *Rosaster*?), urchins (Echinothuriidae, Aspidodiadematidae), red crabs (*Chaceon*), tunicate, squat lobster (Eumunididae: *Eumunida*, Munididae: *Munida*), xenophyophores, nematocarcinids, and a benthic colonial siphonophore. Along the crest of the seamount, several large boulders and rock features looked like coral gardens, with multiple colonies of deep-sea corals, some sponges, and associates. The hard substrate was dominated by yellow plexaurids (cf. *Paramuricea*-collected) and primnoids (*Thouarella*?). Throughout the dive, suspended particulate material was observed, possibly indicative of sufficient food supply to sustain these corals. Coral and sponge associates included euryalid serpent stars (ophiuroids), barnacles (verrucamorphs), anemones, polychaetes, amphipods, shrimp (*Bathypalaemonella*), and egg cases (cf. cephalopods).
Overall Map of the ROV Dive Area	**Close-up Map of Main Dive Site**
	
Representative Photos of the Dive	

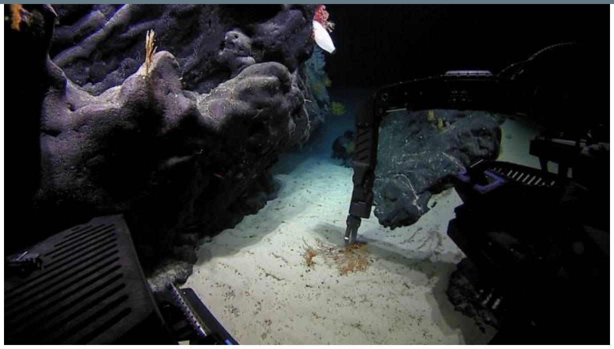
	
Cusk Eel swims over a sedimented slope	Sessile fauna growing on a Mn crusted rock.

Samples Collected

Sample

Sample ID	EX1703_20170320T211059_D2_DIVE13_SPEC01BIO	
Date (UTC)	20170320	
Time (UTC)	01:33:44	
Depth (m)	1179.89	
Temperature (°C)	4	
Field ID(s)	Thouarella sp	
Comments		

Sample

Sample ID	EX1703_20170321T003156_D2_DIVE13_SPEC02BIO	
Date (UTC)	20170320	
Time (UTC)	21:10:59	
Depth (m)	1142.22	
Temperature (°C)	4.18	
Field ID(s)	Plexauridae	
Comments		

Please direct inquiries to:
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