



Okeanos Explorer ROV Dive Summary

Dive Information	
Dive Map	<p style="text-align: right;">Bathymetry (m)</p> <ul style="list-style-type: none"> -500 -1500 -3500 -4500 -5500 -6500 -8000 <p style="text-align: center;"> EX-17-03 ROV Dive Locations Howland/Baker PRIMNM Phoenix Islands Protected Area (PIPA) </p> <p style="text-align: center;">Nautical Miles 0 50 100 200</p>
Site Name	Titov Seamount 1
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

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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 Titov Seamount in the Howland & Baker Unit of the Pacific Remote Islands Marine National Monument. Titov Seamount will be the first feature surveyed in the Howland & Baker Unit of PRIMNM. Titov is a crescent-shaped flat-topped guyot with a prominent ridge protruding from the western flank. Deep-sea environments around Howland & Baker islands are virtually unexplored leading to poor knowledge of biological resources protected by these reserves. In addition, this feature does not have a geologic age yet assigned to it.</p>		
Description of the Dive	<p>Our first dive within the Pacific Remote Islands Marine National Monument was at Titov Seamount. The ROV descended to 1869m and the seafloor was characterized by steep rocky slope, with sediment channels and small rock debris. The presence of the rounded rock debris piles indicated some type of upper slope failure had occurred some time ago.</p> <p>Several fish were observed at the beginning of the dive around the base of the slope: cusk eels (<i>Bassozetus</i>), rattails (<i>Trachonurus</i> and <i>Coryphaenoides</i>), and spiny eels (<i>Aldrovandia</i>). Given the presence of large patches of sandy sediment, there is likely sufficient infaunal prey for these fish to feed on at the base of the slope. Transiting upslope, we observed several comatulid and stalked crinoids, aspidodiadematid urchins, anemone/corallimorpharian, chiton,</p>		

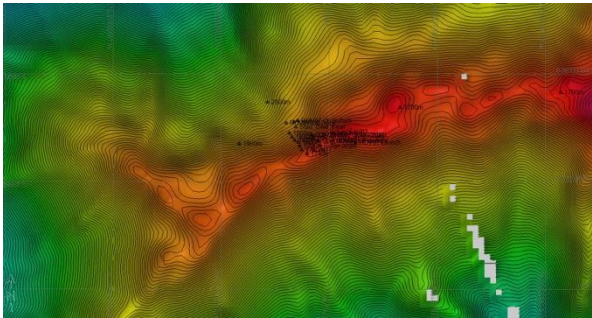
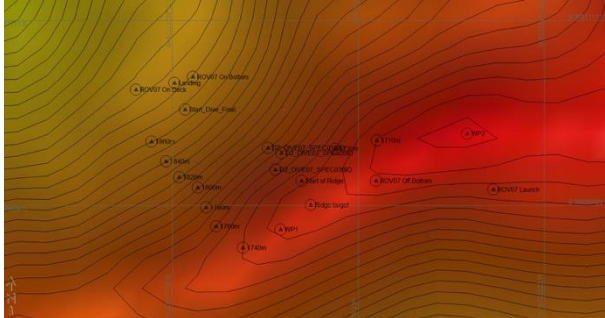



carnivorous tunicate, a cerianthid (with purple polychaete), seastars (*Hymenaster*, *Radiaster*), sponges (large vase-like euplectellids), and a hermit crab with a shiny shell. The stalked red crinoids (*Proisocrinus ruberrimus?*) had myzostomes attached to the arms and hydroids at the base. We also saw a new crinoid (*Paratelecrinus*) for the expedition, which had long arms with no pinnules near the tips. Corals attached to the rocks included *Anthomastus*, an unknown plexaurid, *Victorgorgia*, *Stichopathes*, isidids (whip and nodal branching forms [e.g., *Jasonisis*], *Metallogorgia*, *Iridogorgia magnispiralis*, and a cup coral.



The slope transitioned from large rock features with sediment patches to steep rock slabs with very little sediment. We saw several dead coral bases attached to rock surfaces. Multiple new coral species were observed, including a long bamboo whip (4m, “long bone?”), a few *Callogorgia* (collected), plexaurids (yellow with a white skeleton and red form), *Swiftia?* (collected), *Iridogorgia* (new species only observed at Necker Ridge), unknown chrysogorgiid (collected), *Bathypathes*, and *Paragorgia coralloides?* encrusted with zoanthids.

At ~ 1705m, the dive track transitioned to the ridgeline, which was composed of continuous smooth rock with no sediment drape. While we noticed relatively dense particulate organic matter in the water column throughout the dive, this increased as we progressed up the ridge. Along this track, there were several stalked hexactinellid sponges, *Iridogorgia* new sp., and yellow comatulids. We saw several ophiuroids (*Ophioplinthaca*) leaping off a dead bamboo skeleton onto the rock ridge below.

Toward the end of the dive, the seafloor pavement transitioned to exposed rock boulders and mounds interspersed with large patches of sandy sediment. Here we saw additional colonies of *Callogorgia*, antipatharians (yellow whips and new branched form), *Paragorgia?*, *Victorgorgia*, isidids (candelabra and whip forms), primnoid (*Candidella?*), and juvenile *Metallogorgia*. Holothurians and *Umbellula* seapens were found on the sediments. During the dive, we saw two separate carnivorous seastars (*Calliaster?*) feeding on bamboo coral. Coral associates observed included crinoids, ophiuroids (including *Asteroschema*), barnacles, amphipods, and chirostylid crabs (*Gastroptychus* cf. *iaspis*).

Overall, while the dive had low densities of taxa, we observed a high diversity of corals (26 spp), coral associates, and other invertebrate taxa (32spp.)

Overall Map of the ROV Dive Area	Close-up Map of Main Dive Site	
		
Representative Photos of the Dive		
		
A cup coral on Mn- crusted rocks	One of several <i>Iridogorgias</i> seen during the dive	
Samples Collected		
Sample		
Sample ID	EX1703_20170314T222807_D2_DIVE07_SPEC01BIO	
Date (UTC)	20170314	
Time (UTC)	22:28:07	
Depth (m)	1759.66	
Temperature (°C)	2.58	

Field ID(s)	Callogorgia	
Comments		
Sample		
Sample ID	EX1703_20170314T224756_D2_DIVE07_SPEC02BIO	
Date (UTC)	20170314	
Time (UTC)	22:47:56	
Depth (m)	1747.7	
Temperature (°C)	2.64	
Field ID(s)	Swiftia sp.	
Comments		
Sample		
Sample ID	EX1703_20170314T232337_D2_DIVE07_SPEC03BIO	
Date (UTC)	20170314	
Time (UTC)	23:23:37	
Depth (m)	1719.6	
Temperature (°C)	2.72	
Field ID(s)	Chrysogorgiidae	
Comments		

Please direct inquiries to:

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