



Okeanos Explorer ROV Dive Summary

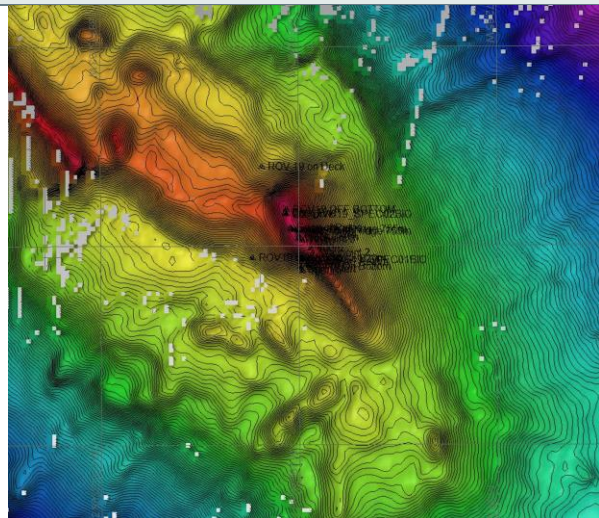
Dive Information	
Dive Map	
Site Name	unnamed seamount "Te Kaitira"
Expedition Coordinator(s)	Brian RC Kennedy, Nick Pawlenko
ROV Lead(s)	Karl McLetchie
Science Team Lead(s)	Amanda Demopoulos and Steven Auscavitch
General Area Descriptor	Phoenix Islands Protected Area (PIPA)
ROV Dive Name	
Cruise	EX-17-03

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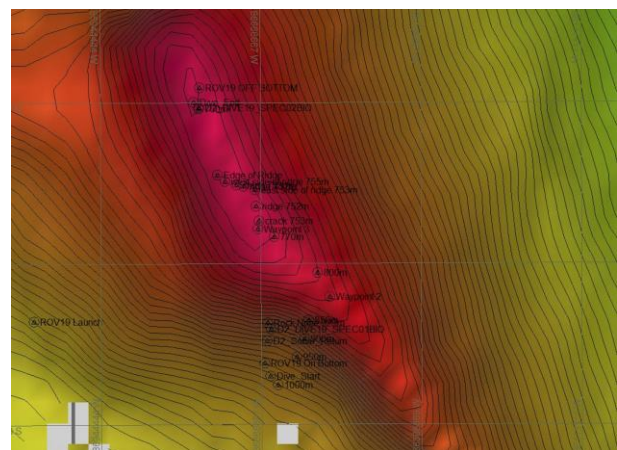
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Purpose of the Dive	<p>The general goal of this dive is to acquire baseline information on deep sea habitats, seafloor geology, and biological communities on Ufiata Seamount in the Tokelau region. The geologic age of this feature is around 57-58Ma. The structure of this seamount might make it suitable for the deposition of cobalt-rich ferromanganese crust. It falls within an area identified by SPC as a zone of crust potential, based on sampling by a joint Japan-SOPAC deep-sea minerals program in the 1990s.</p>		
Description of the Dive	<p>The last dive for EX1703 was at Ufiata Seamount within the Tokelau seamount chain. The dive started at ~990m, at the base of a steep slope. The seafloor was composed of large and small boulders, interspersed with fine sandy sediments. When a MnFe-coated rock was collected, the manipulator scratched a mark on one of the faces, revealing a lighter color, possibly consistent with carbonate composition. The piles of boulders indicated that these might be landslide debris deposits.</p> <p>We saw a few fish at the start of the dive, including an unknown cusk eel (cf., brotula, Bythitidae) and several midwater species (tentative identification: viperfish [<i>Chauliodus</i>], bristlemouths [<i>Cyclothone</i>], and unknown hatchetfish [<i>Sternoptychidae</i>]). Very few invertebrates were found in this area, including chrysogoriids, coralliids, stoloniferans (pale lavender), holothurians (Deimatidae), benthic siphonophore (Rhodaliidae), homolid crabs, and caridean shrimp. We saw a few additional fish before heading upslope, including cutthroat and congeriid eels (e.g., Synaphobranchidae and <i>Bathycongrus</i>, respectively), and an unknown fish with elongated body morphology and distinct caudal fin.</p> <p>As the dive track transitioned to a steep wall, the seafloor changed to more platy morphology, with thick horizontal blocks, covered with manganese iron oxide coating. Along the rock wall, the fauna was very patchy, and included yellow demosponges and euplectellid</p>		

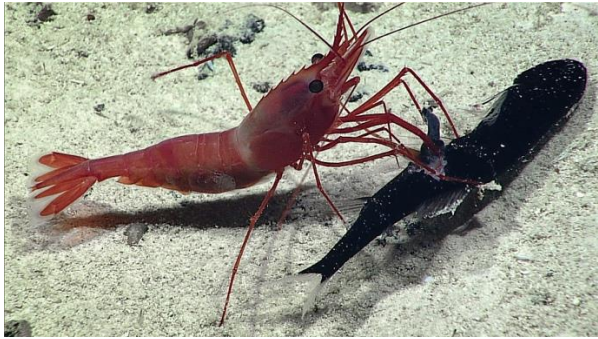



sponges, homolid crabs holding plexaurids, anemones, and some were empty handed, a 2-tone cusk eel, and *Echinus*-like urchins. Corals included purple *Victorgorgia*, yellow cf. *Acanthogorgia*, yellow plexaurids, coralliids, primnoids, and a bamboo whip. Once we arrived at the ridge and progressed up to the summit, yellow sponges and white *Narella* primnoids dominated the seafloor, although in low abundance. All attached fauna were found in MnFe coated cracks in the seafloor pavement. Fine sandy sediment was present within the cracks of the seafloor. Other fauna included a rattail (cf. *Nezumia*), squat lobsters (cf. *Eumunida*), scattered colonies of purple *Victorgorgia*, pink coralliids (collected), one bamboo whip, and scleractinians (e.g., unknown cup corals and colonial *Enallopsammia* and *Madrepora*). Homolid crabs and caridean shrimp (e.g., *Heterocarpus*) were the dominant megafaunal crustaceans observed throughout the dive. Some of the shrimp were > 10 cm long. Gelatinous invertebrates observed at or near the summit included a maroon colored scyphozoan jellyfish, a trachymedusa (cf. *Benthocodon*), and ctenophores. We saw one seastar (*Astroceramus*) on the pavement at the summit. We observed the most impressive display of predatory behavior when we saw a caridean shrimp impaling and consuming a type of midwater dragonfish (cf. Stomiidae or [stareater, Astronesthinae: *Astronesthes* sp.]) while the fish was still alive. The shrimp removed several pieces of fish tissue and stomach contents, including a smaller fish and a worm. It was incredible to watch the feeding activity and we wondered how this shrimp was able to trap the fish in the first place.

Overall Map of the ROV Dive Area



Close-up Map of Main Dive Site



Representative Photos of the Dive		
		
A caridean shrimp, <i>Heterocarpus</i> , was observed feeding on a type of mid-water dragonfish, possibly a stareater, at around 998 meters.	Two homolid crabs were observed holding claws at around 757 meters depth. It was unclear whether this was potentially aggressive or pre-mating behavior.	
Samples Collected		
Sample		
Sample ID	EX1703_20170326T204307_D2_DIVE19_SPEC01GEO	
Date (UTC)	20170326	
Time (UTC)	20:43:07	
Depth (m)	954.04	
Temperature (°C)	4.56	
Field ID(s)	Fe-Mn crusted rock	
Comments		
Sample		
Sample ID	EX1703_20170327T014445_D2_DIVE19_SPEC02BIO	
Date (UTC)	20170327	

Time (UTC)	01:44:45	
Depth (m)	751.03	
Temperature (°C)	01:44:45	
Field ID(s)	Coralliidae	
Comments		

Please direct inquiries to:

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