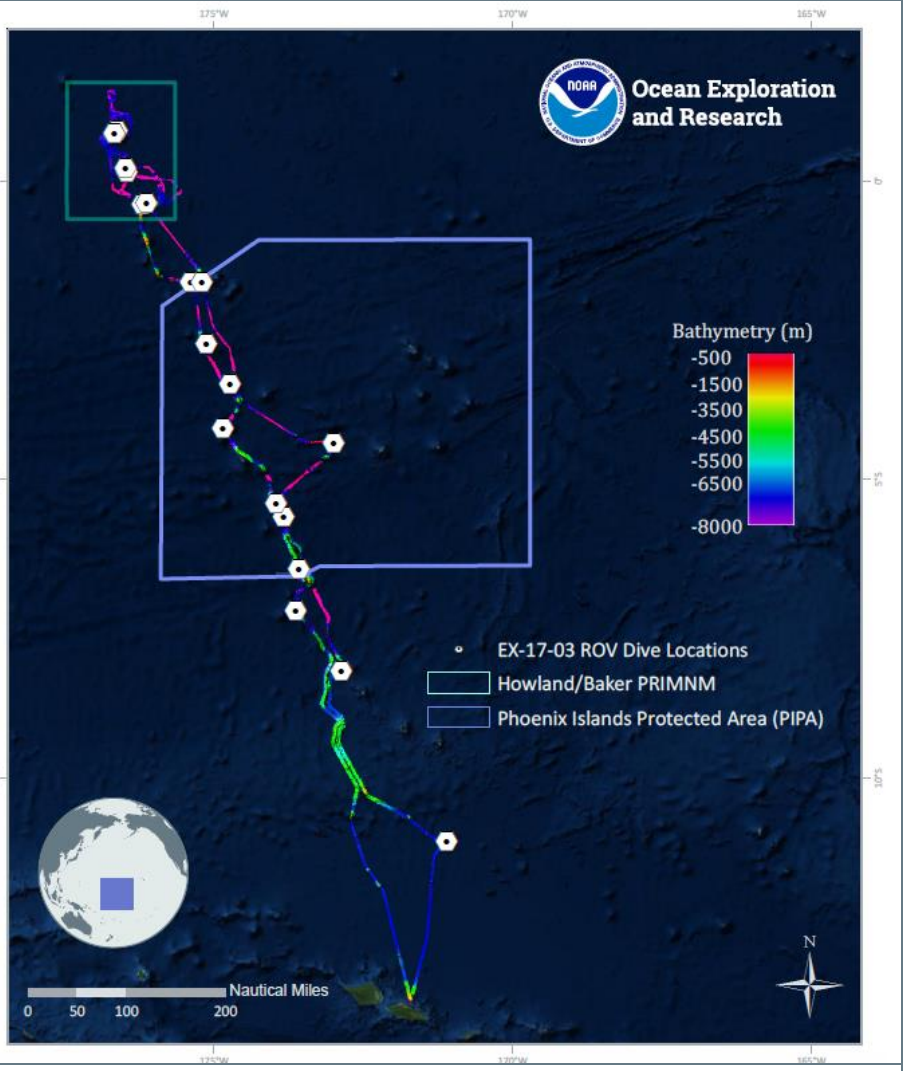
Ocean Exploration and Research

Okeanos Explorer ROV Dive Summary

Dive Information	
Dive Map	
Site Name	Unnamed seamount 1 PIPA (Athena)
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
ROV Dive Name	
Cruise	EX-17-03

Leg	0
Dive Number	04

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_DIVE04 ^^ In Water: 2017-03-11T18:23:57.873000 04°, 09.023' S ; 174°, 51.182' W Out Water: 2017-03-12T02:33:24.656000 04°, 08.814' S ; 174°, 51.198' W Off Bottom: 2017-03-12T01:59:54.675000 04°, 08.815' S ; 174°, 51.126' W On Bottom: 2017-03-11T19:15:59.828000 04°, 09.016' S ; 174°, 51.260' W Dive duration: 8:9:26 Bottom Time: 6:43:54 Max. depth: 1228.2 m
Special Notes	
Scientists Involved (please provide name, location, affiliation, email)	see table below

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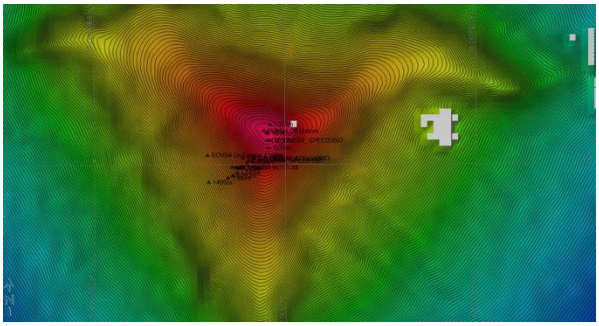
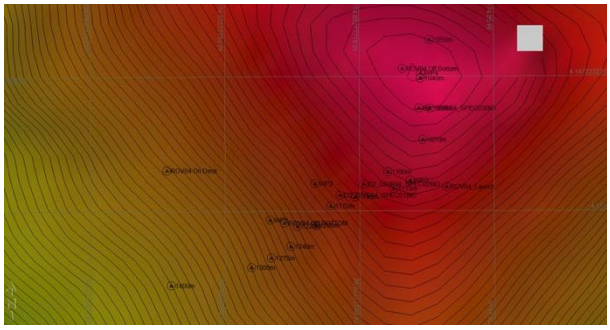
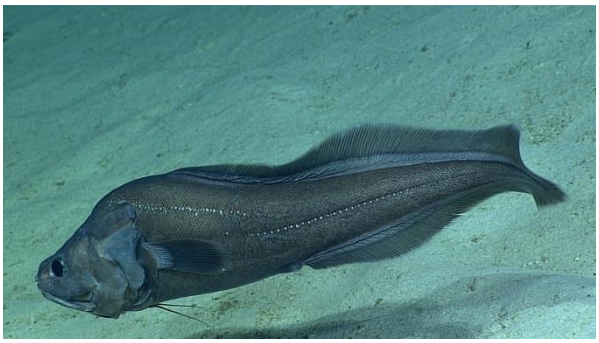
Purpose of the Dive	The goal of this dive is to acquire baseline information on deep sea habitats, seafloor geology, and biological communities on seamounts in the Phoenix Islands Protected Area (PIPA). This will be the second feature in the EX1703 expedition that will lie within the boundaries of PIPA. Deep-sea environments in PIPA are virtually unexplored leading to poor knowledge of biological resources protected by the MPA. This feature has a summit depth of ~1050m with three prominent ridges to the east, west, and south. The summit cap is approx. 250m in diameter.		
Description of the Dive	EX1703 dive number 4 was at an unnamed seamount in the Tokelau Seamount Chain, and our second dive within the Phoenix Islands Protected Area. The dive started at 1228 m and continued up a steep slope. We noticed a fair amount of particulate organic matter in the water column on the descent, which was also observed during the previous dive at Carondelet Reef. At the base of the slope (1228m), the pilots noted a weak current to the southeast, and the dominant substrate was steep exposed manganese-coated rock with patches of sediment. Periodically, we saw xenophyophores on the sediment surface. We also immediately encountered several corals attached to rocks (*Iridogorgia magnispiralis*, plexaurid [*Paramuricea*?], branched and unbranched chrysogorgiids) and sea pens within the sediment (*Umbellula*, *Protoptilum*?, and halipterid). Heading upslope, we added a few more coral species to our roster, including a bamboo whip, at least 2 different primnoids, *Victorgorgia*?, numerous white octocorals (Coralliidae: cf. *Pleurocorallium kishinouye*), *Paragorgia?*, stoloniferans, and *Anthomastus*. Numerous colonies of a suspected coralliid, cf. *Pleurocorallium kishinouye,* a known precious coral, were observed on the rock slabs. Several species of fish were observed along the steep slope: synaphobranchids, ophidiids (e.g., *Lamprogrammus*, *Monomitopus*?), bythidiids (*Diplacanthopoma*), chiasmodontid		

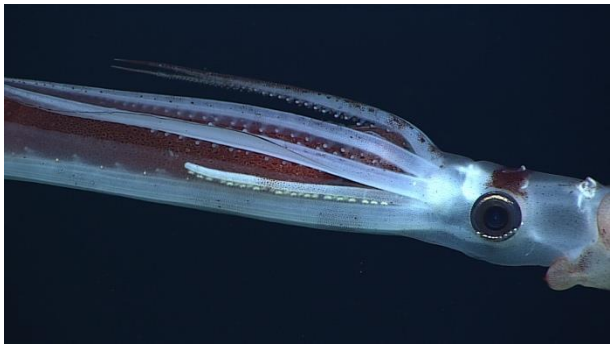
	(*Chiasmodon*?), and a goosefish (*Sladenia*). Coral and sponge associates included chirostylids, ophiuroids (e.g., *Asteroschema*), crinoids, amphipods, polychaetes, and shrimp. Other invertebrates observed on the steep slope included seastars (brisingids, *Asthenactis*?, *Zoroaster*?, *Tremaster mirabilis*, *Mediaster*?, purple form buried in the sediment), long-spined urchins (*Aspidodiadema*?), echinothurids, hexactinellid sponges (e.g., euplectellids), stalked crinoids (Phrynocrinidae, collected, and at least one other species), and *Relicanthus* sp. "anemones". Pelagic organisms were more abundant on this dive, and included ctenophores, siphonophores, black medusae (*Vampyrocrossota childressi*?), pelagic holothurian (*Pelagothuria natatrix*?), 2 *Chiroteuthis* squids (one holding on to another squid), plus several midwater fish (gonostomatids?). We also collected a rock with at least 1 colony of the abundant white coral (cf. *Pleurocorallium kishinouye*) and a snip from the purple coral (*Victorgorgia*?). The south approach to the summit revealed large pavement blocks that were very fragmented, with little sediment drape. We moved around the east, north, and west sectors of the summit, and also turned out the ROV lights to see if that revealed any fishes. The lights-out experiment was not productive, but we did see a few more fishes (tripodfish [ipnopid: *Bathypterois atricolor*], *Holcomycteronus* sp.?, synaphobranchids), another *Chrysogorgia* sp. with associates, blind lobster (polychelid), isopods (cirolanids), and a *Phormosoma* urchin with puffy spines. Notable observations included homolid crabs gripping sponges, hydroids, or anemones, and *Chrysogorgia* with possible squid egg cases (at least 3 colonies observed). Overall, we observed several taxa similar to our dive on Swains Island, plus a few new species. Several fish observations represent new records for Kiribati and overall, we improved understanding of deep-sea corals, sponges, and fishes found within PIPA.
Overall Map of the ROV Dive Area	**Close-up Map of Main Dive Site**





Representative Photos of the Dive





Cusk Eel

Squid (*Chiroteuthis* sp.) holding onto another squid; it remains unclear whether this is active predation or mating behavior

Samples Collected

Sample

Sample ID	EX1703_20170311T212533_D2_DIVE04_SPEC01BIO
Date (UTC)	20170311
Time (UTC)	21:25:33
Depth (m)	1154.07

Temperature (°C)	3.93	
Field ID(s)	Phrynocrinidae	
Comments		
Sample		
Sample ID	EX1703_20170311T220523_D2_DIVE04_SPEC02BIO	
Date (UTC)	20170311	
Time (UTC)	22:05:23	
Depth (m)	1126.99	
Temperature (°C)	4.15	
Field ID(s)	Sibogagorgia sp.	
Comments		
Sample		
Sample ID	EX1703_20170312T001022_D2_DIVE04_SPEC03BIO	
Date (UTC)	20170312	
Time (UTC)	00:10:22	
Depth (m)	1043.3	
Temperature (°C)	4.32	
Field ID(s)	Victorgorgia sp.	
Comments		

Please direct inquiries to:

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