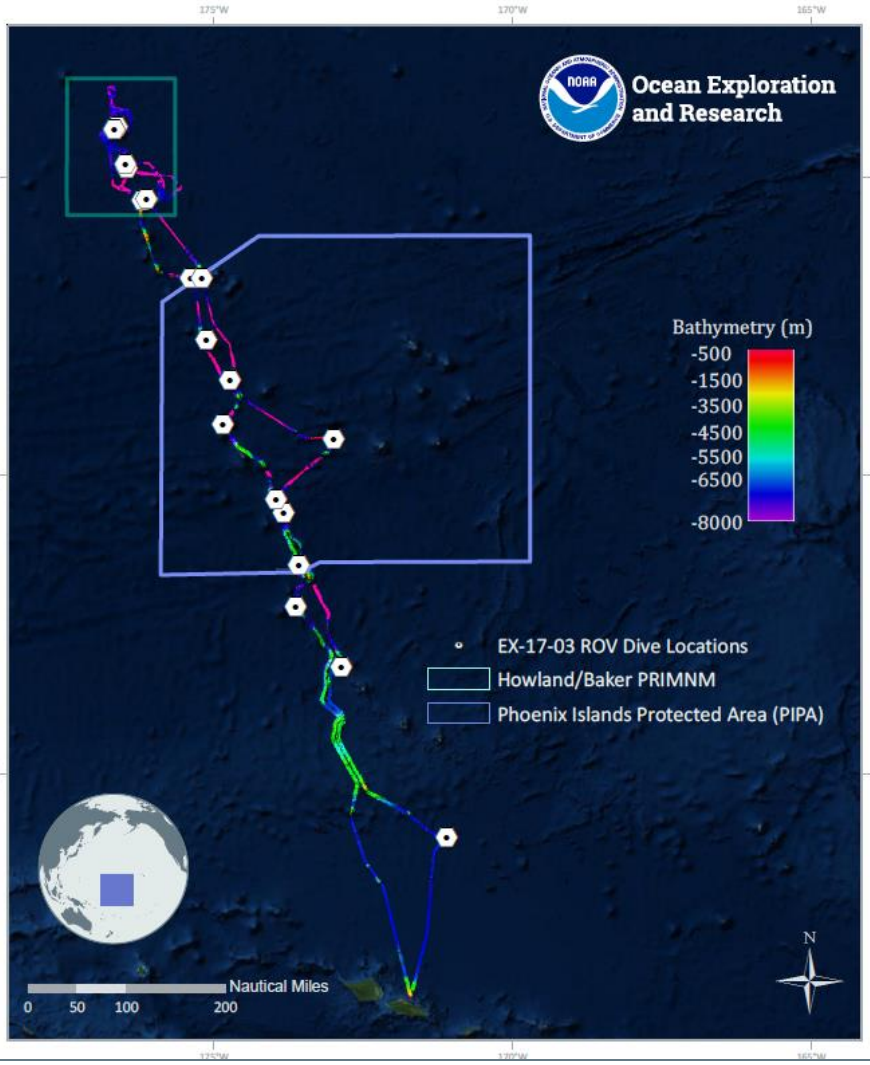
Ocean Exploration and Research

Okeanos Explorer ROV Dive Summary

Dive Information	
Dive Map	
Site Name	unnamed seamount (Maibua in Kiribati meaning “broken in two”)
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

Leg	0		
Dive Number	17		
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_DIVE17 ^^^ In Water: 2017-03-24T18:28:08.581000 05°, 24.113' S ; 173°, 57.769' W Out Water: 2017-03-25T02:29:34.718000 05°, 24.176' S ; 173°, 57.531' W Off Bottom: 2017-03-25T02:08:26.373000 05°, 24.197' S ; 173°, 57.494' W On Bottom: 2017-03-24T18:57:45.415000 05°, 24.081' S ; 173°, 57.690' W Dive duration: 8:1:26 Bottom Time: 7:10:40 Max. depth: 750.9 m		
Special Notes			
Scientists Involved (please provide name, location, affiliation, email)	**Name**	**Affiliation**	**Email Address**
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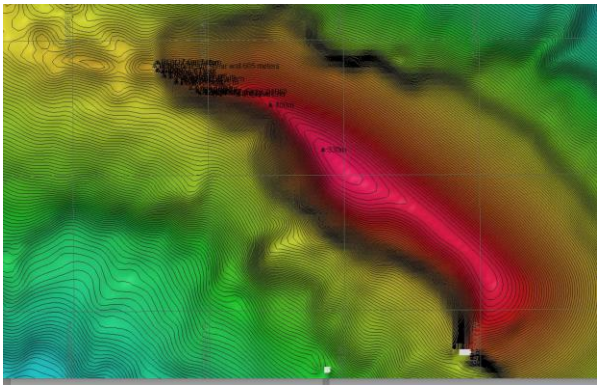
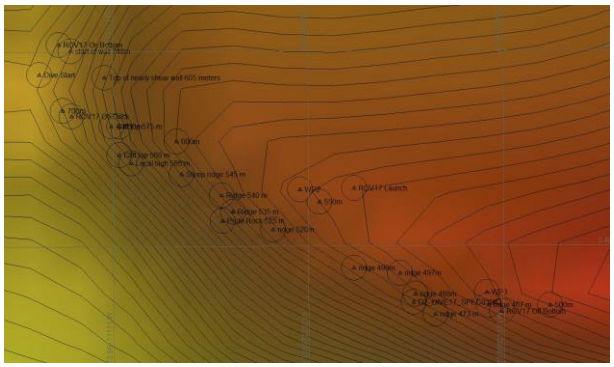
Purpose of the Dive	The general goal of this dive is to acquire baseline information on deep sea habitats, seafloor geology, and biological communities on features around an unnamed seamount (Maibua in Kiribati meaning "broken in two") in the Phoenix Islands Protected Area (PIPA). Assessment of early multibeam bathymetry for this feature indicates a potential mass wasting of one side of the seamount. Our dive will track along a moderate to steep ridge from ~700m to ~400m and will be our shallowest dive to date at a PIPA feature. Deep-sea environments in this area are virtually unexplored leading to poor knowledge of biological resources protected by the reserve. This dive will provide some perspective on biological resources (e.g. fishes, biogenic habitat) as well as geological substrate (crust precipitates) of the seamount. Understanding deep-sea coral and sponge distribution as well as bathyal fish assemblages are of great importance to inform management in the PIPA. The age of seamount is not known.
Description of the Dive	EX1703 dive #17 was on an unnamed seamount within PIPA. The seamount has a dramatically steep slope feature on the western side, with large concavities that may have arisen from a huge mass wasting event some time in its geological history. The ROV descended to 746 m and progressed along a gradual slope composed of loose dead coral rubble covering sandy sediments. Sponges were the dominant fauna encountered early in the dive, with a few different types of tubular, vase-like hexactinellids. Other fauna observed on the sediment surface included a tunicate with red fringe, an echinothuriid urchin, and squat lobsters. Fishes observed along this flatter terrain included alfonsinos (Berycidae: *Beryx*), congrid eels (*Bathycongrus*), and oreo fish (Oreosomatidae: *Neocyttus* cf. *acanthorhynchus*). Around 740 m depth, the dive track transitioned from coral rubble sediment to a steep wall of heavily eroded carbonate. The pilot noted that the current was moving north to south along this track. The wall was covered with high densities of comatulid crinoids. Scattered along the steep wall were different kinds of sponges, including stalked hexactinellids (e.g., *Saccocalyx*), lobate forms, and farreid sponges. Corals encountered on the wall included stony colonial (e.g., *Enallopsammia*) and solitary (e.g., *Javania*?) forms, pink coralliid, primnoids (large tan fans, cf. *Calyptrophora*), yellow plexaurids, and chrysogorgiids with ophiuroid and chirostylid crabs. Other invertebrates observed included large *Heterocarpus* shrimp, hermit and homolid crabs, large purple crinoids with myzostomes

	on cirri, large squat lobsters (cf. *Eumunida*), and sea stars (e.g., *Pseudarchaster*). One homolid crab was observed gleaning material from its anemone hat using its chelipeds. Other fishes included arrow-tooth eels (Synaphobranchidae: cf. *Dysomma*), codlings (Moridae: *Physiculus*), brotulas (Bythitidae: *Diplacanthopoma*, different from those observed on previous dives), and roughy (*Hoplostethus*). At around 600 m depth, the track progressed along a gradually sloped ridge feature, with steep drop offs on either side of the ridge. The current switched from south to north and the wall of crinoids was replaced with a carpet of buried ophiuroids. Along the ridge, we encountered the largest coral colonies observed on the dive including many primnoid fans (cf. *Paracalyptrophora*), a few scattered colonies of scleractinians (cf., *Enallopsammia*), the largest pink coralliid of the dive, and large bamboos (cf. *Jasonisis*). Other corals included pink *Paragorgia* and a white paragorgiid (cf. *Sibogagorgia* sp.), different cup corals, and *Anthomastus*. A few of the large primnoids had large ophiuroid associates (cf. *Astrocerus*) with sinusoidal arms and a bumpy textured disc. Toward the end of the dive, we observed several large gold corals (~1.5 m, colonial zoanthids, cf. *Kulamanamana* sp.), some completely covering the host coral skeleton, and one that half covered a live bamboo colony. On this particular colony, we noted the areas of transition from live bamboo tissue to dead skeleton to live zoanthid polyps. Other invertebrates observed included an octopus with a projection on its head and 2 rows of suckers on each arm, demosponges, a salp, sea stars (*Astroceramus*?), stalked crinoid (*Paratelecrinus*), large vase sponges, and pancake urchins (echinothuriids with parasites). Along the ridge, several oreo fish were observed, plus spike fish (Triacanthodidae: cf. *Hollardia goslinei*), pomfrets (Bramidae: *Eumegistus* cf. *illustris*), rattail (Macrouridae: *Nezumia* sp.), roughy (Trachichthyidae: *Hoplostethus* cf. *crassispinus*), beardfish (Polymixiidae: *Polymixia*), scorpianfish (Scorpaenidae), deep-sea cardinalfish (Epigonidae: *Epigonus* sp.), goosefish (Lophiidae: *Lophiodes* sp.) and a deep-water sting ray (Plesiobatidae: *Plesiobatis daviesi*). Some of the fish observed had gnathiid isopod parasites attached to fins and the scales. Throughout the dive, both along the steep slope and ridge track, we noticed several cidaroid pencil urchins, known coral predators, on large primnoid fans. Multiple areas of bare skeleton was observed in proximity to the urchins.

Overall Map of the ROV Dive Area	**Close-up Map of Main Dive Site**
	
Representative Photos of the Dive	
	
An unknown octopus with a small node on its head was observed crawling along the seafloor around 475 meters.	Several gold coral colonies were observed for the first time on this expedition on this dive within the Phoenix Islands Protected Area (PIPA).

Samples Collected		
Sample		
Sample ID	EX1703_20170325T013010_D2_DIVE17_SPEC01BIO	
Date (UTC)	20170325	
Time (UTC)	01:30:10	
Depth (m)	489.84	
Temperature (°C)	8.26	
Field ID(s)	Zoantharia	
Comments		

Please direct inquiries to:

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