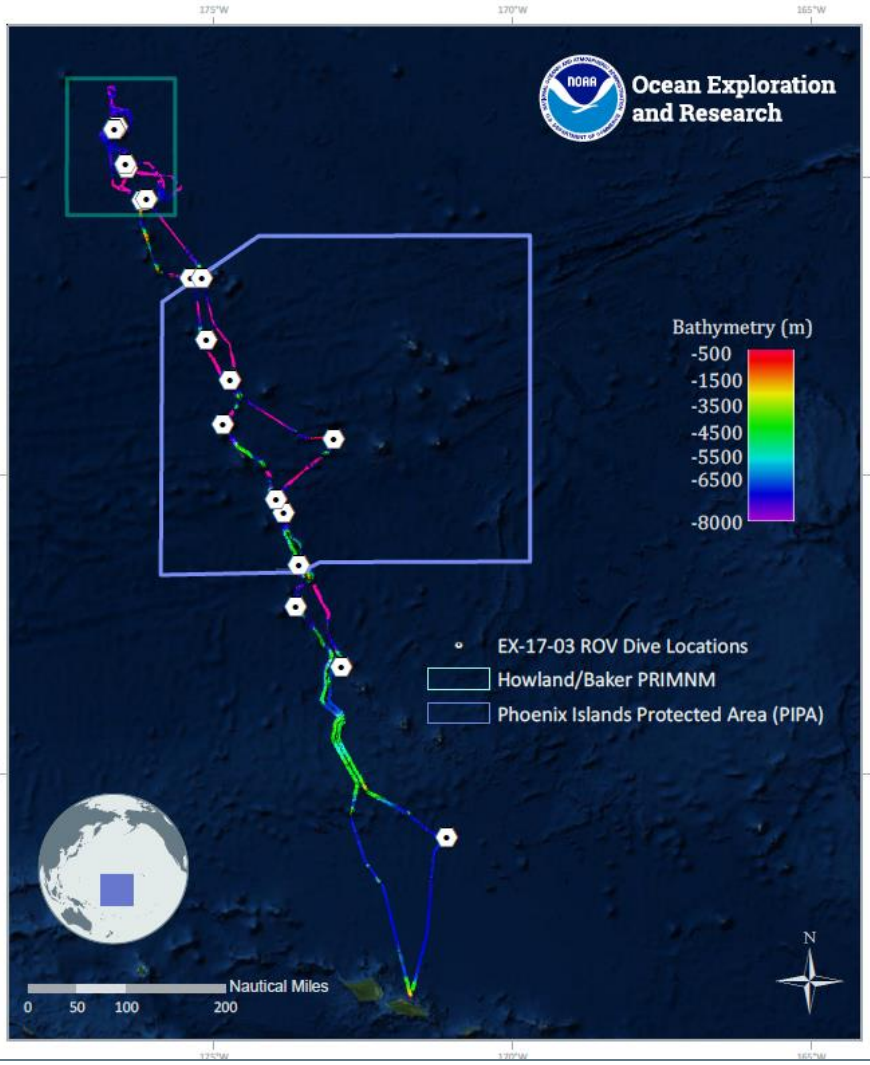
Ocean Exploration and Research

Okeanos Explorer ROV Dive Summary

Dive Information	
Dive Map	
Site Name	Hadal Trough “Kinono”
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	16
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_DIVE16 ^^ In Water: 2017-03-23T18:30:40.309000 04°, 22.525' S ; 172°, 59.763' W Out Water: 2017-03-24T04:21:39.338000 04°, 22.604' S ; 172°, 59.532' W Off Bottom: 2017-03-24T01:09:44.779000 04°, 22.629' S ; 172°, 59.817' W On Bottom: 2017-03-23T21:31:44.681000 04°, 22.512' S ; 172°, 59.870' W Dive duration: 9:50:59 Bottom Time: 3:38:0 Max. depth: 5862.9 m
Special Notes	
Scientists Involved (please provide name, location, affiliation, email)	see below

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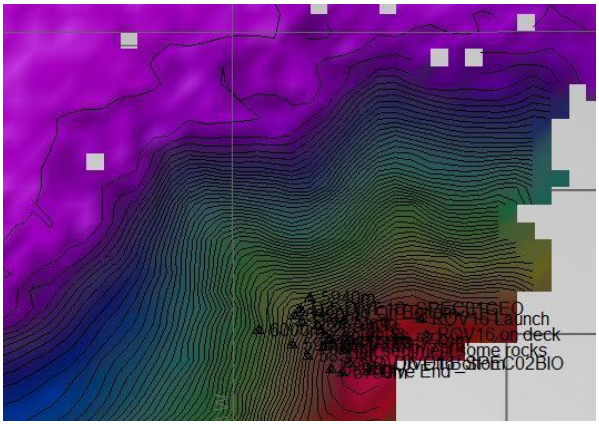
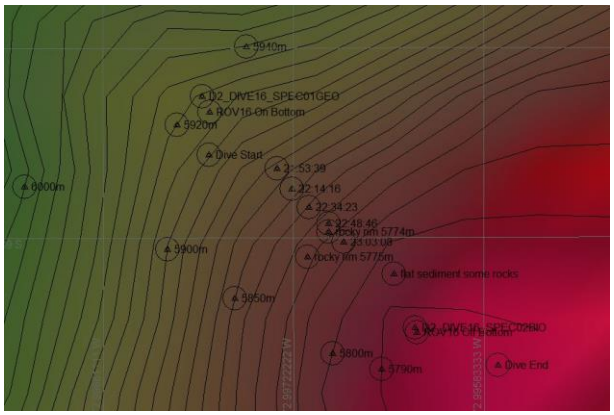
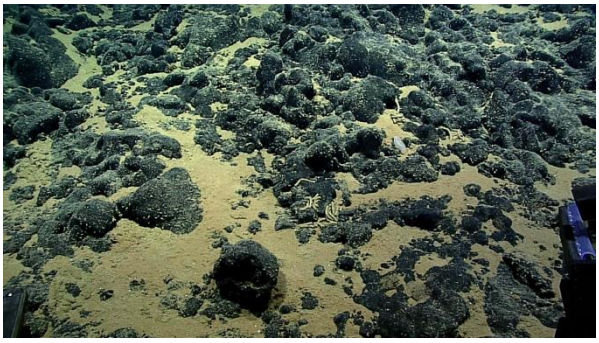
Purpose of the Dive	The general goal of this dive is to acquire baseline information on deep sea habitats, seafloor geology, and biological communities at hadal depths in the Phoenix Islands Protected Area (PIPA). We will be diving in one of the few non-trench associated hadal zones in the Pacific Ocean. Most hadal environments are virtually unexplored and there is little understanding of what resources might be protected at such depths. This dive will provide some perspective on biological resources (e.g. fishes, biogenic structures) as well as seafloor geology at these depths. The geological processes for formation of the Nova-Canton Trough could also be associated with the formation of this this hadal trough in the Phoenix Islands.		
Description of the Dive	EX1703 dive # 16 was our deepest dive for the expedition, descending to 5862m in a deep trough feature, southwest of the Phoenix Islands. The seafloor was composed of scattered and emplaced rocks coated in manganese iron oxide crust, with brown sediment drape occurring in patches. The sediment appeared more organic rich and darker in color than on our previous dives in the region, speckled with calcareous foram tests. This dive should be nicknamed “white house, black market”. Throughout the dive, both on the steep slope and sedimented ledge at the end of the dive, we encountered taxa that lacked pigmentation, which contrasted with the dark color of the seafloor. We observed white anemones, holothurians, brisingids (*Freyastera*- some with swollen arms filled with gonads), cladorhizid sponges (2 species),		

	comatulid crinoids with eggs, solitary hydroid, stalked sponges with amphipod associates (Stegocephalidae), slit shell gastropod (Anatomidae: *Anatoma* sp.), sea pigs (unknown Elpidiidae), pentagonal ophiuroid, and a branching bryozoan. We also saw a large amphipod (e.g., Epimeriidae), red caridean shrimp, carnivorous tunicates, large pink mysid shrimps, fan-shaped xenophyophores, brown globe forams (cf. Komokioidea), long, mud tube with a white polychaete inside (cf. Onuphidae), and a cusk eel (Ophidiidae: *Alcockia rostrata* or *Bathyonus caudalis*). We observed some unexpected fauna, including priapulids feeding on the sediment surface, large purple holothurians (*Psychropotes*), and a rare monoplacophoran mollusc. At the end of the dive, along a sedimented plateau composed of hard pavement, we saw a white seapen (cf. *Umbellula*) and collected the only black coral (cf. *Abyssopathes* sp.) observed on the dive, at ~ 5775 m.

Overall Map of the ROV Dive Area	**Close-up Map of Main Dive Site**
	

Representative Photos of the Dive



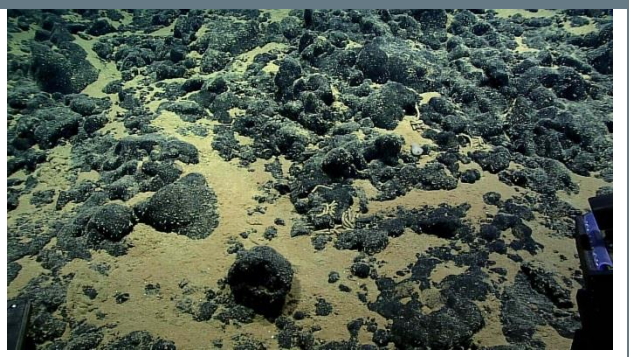
The seafloor was composed of scattered and emplaced rocks coated in manganese iron oxide crust, with brown sediment drape occurring in patches.

Possibly a monoplacophoran mollusc

Samples Collected

Sample

Sample ID	EX1703_20170323T214437_D2_DIVE16_SPEC01GEO
Date (UTC)	20170323
Time (UTC)	21:44:37
Depth (m)	5859.54
Temperature (°C)	1.37
Field ID(s)	Mn-Coated Rock
Comments	



Sample

Sample ID	EX1703_20170324T010307_D2_DIVE16_SPEC02BIO
Date (UTC)	20170324
Time (UTC)	01:03:07
Depth (m)	5772.36
Temperature (°C)	1.35

Field ID(s)	Antipatharia	
Comments		

Please direct inquiries to:
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