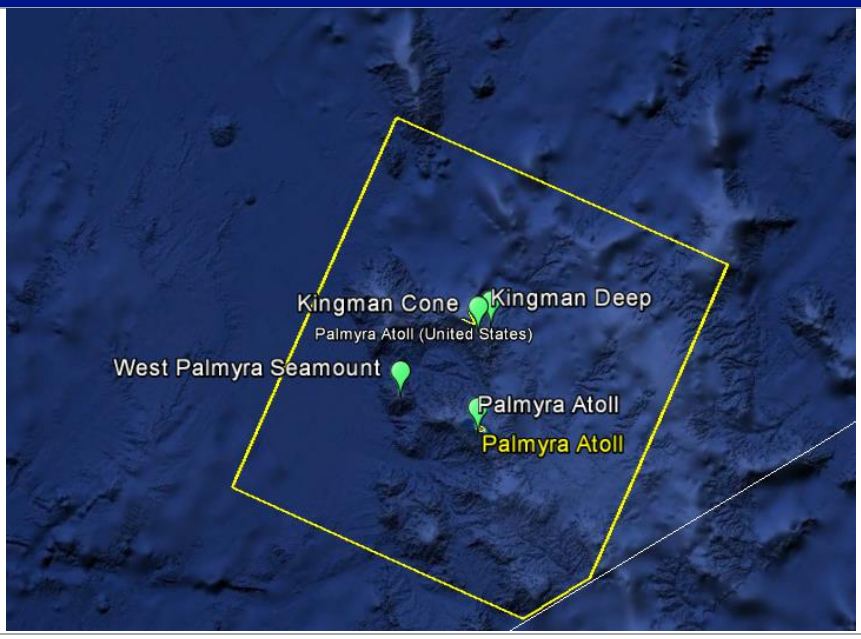
Ocean Exploration and Research

Okeanos Explorer ROV Dive Summary

Dive Information			
General Location			
General Area Descriptor	Kingman Reef and Palmyra Atoll Unit of PRIMNM		
Site Name	West Palmyra Seamount		
Science Team Leads	Scott France/ Del Bohnenstiehl		
Expedition Coordinator	Kasey Cantwell		
ROV Dive Supervisor	Bobby Mohr		
Mapping Lead	Mike White		
ROV Dive Name			
Cruise	EX1705		
Leg	-		
Dive Number	DIVE 09		
Equipment Deployed			
ROV	Deep Discoverer		
Camera Platform	Seirios		
ROV Measurements	☒ CTD	☒ Depth	☒ Altitude

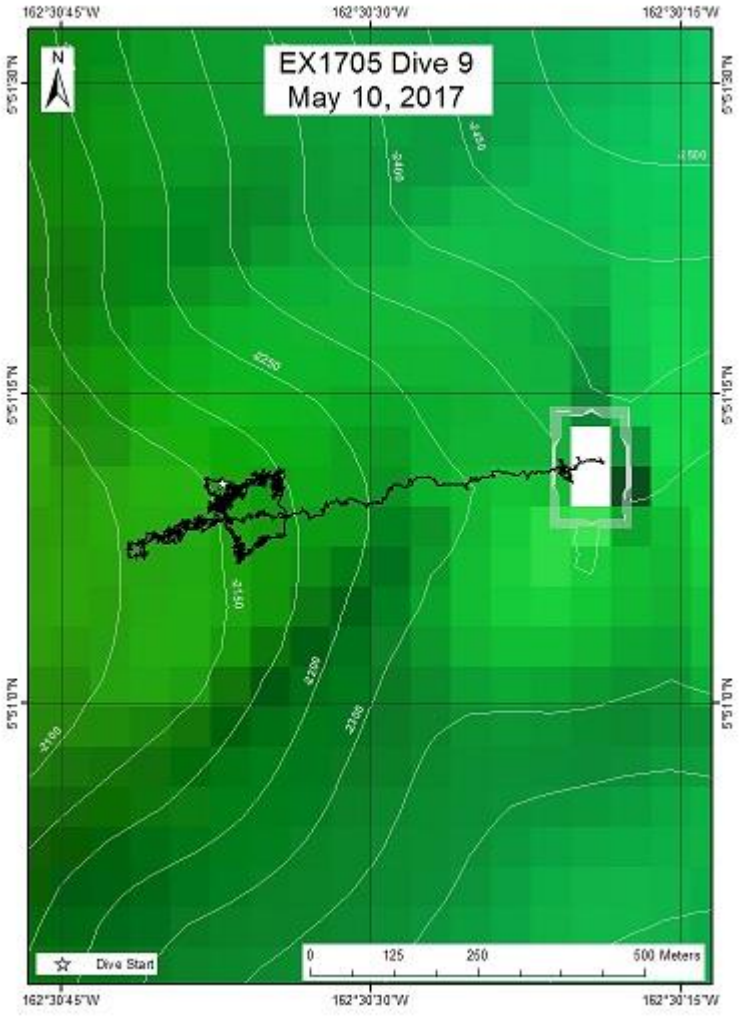
	☒ Scanning Sonar	☒ USBL Position	☒ Heading
	☒ Pitch	☒ Roll	☒ HD Camera 1
	☒ HD Camera 2	☒ Low Res Cam 1	☒ Low Res Cam 2
	☒ Low Res Cam 3	☒ Low Res Cam 4	☒ Low Res Cam 5
Equipment Malfunctions	Only D2's LSS was operational.		
ROV Dive Summary (from processed ROV data)	Dive Summary: EX1705_DIVE09 ^^ In Water: 2017-05-10T19:32:29.805000 05°, 51.161' N ; 162°, 30.631' W Out Water: 2017-05-10T23:52:19.135000 05°, 51.193' N ; 162°, 30.295' W Off Bottom: 2017-05-10T22:37:49.761000 05°, 51.135' N ; 162°, 30.674' W On Bottom: 2017-05-10T20:49:21.073000 05°, 51.173' N ; 162°, 30.572' W Dive duration: 4:19:49 Bottom Time: 1:48:28 Max. depth: 2171.8 m		
Special Notes	Dive ended early due to rising sea state and high winds.		

Scientists Involved (please provide name, location, affiliation, email)

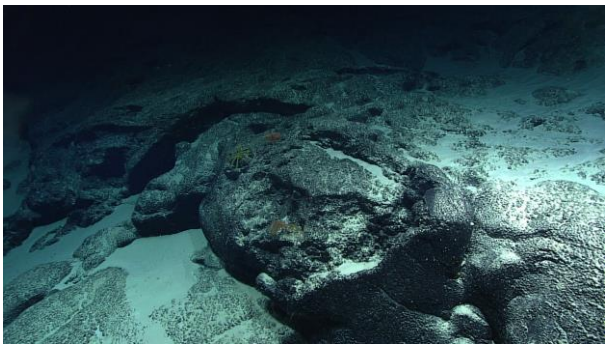
Name	Affiliation	Email
Amanda Netburn	NOAA OER	amanda.netburn@noaa.gov
Asako Matsumoto	Planetary Exploration Research Center (PERC), Chiba Institute of Technology (Chitech)	amatsu@gorgonian.jp
Astrid Leitner	University of Hawaii Manoa	Aleitner245@gmail.com, aleitner@hawaii.edu
Bruce Mundy	NOAA NMFS Pacific Islands Fisheries Science Center	Bruce.Mundy@noaa.gov
Charlie Wilkens	NOAA Ship Okeanos Explorer	charles.e.wilkins@noaa.gov
Chris Mah	Dept. of Invertebrate Zoology, NMNH Smithsonian Institution	brisinga@gmail.com

	Christopher Kelley	University of Hawaii	ckelley@hawaii.edu
	Del Bohnenstiehl	North Carolina State University	drbohnen@ncsu.edu
	Heidi Hirsh	NOAA NMFS PIRO Marine National Monuments Program	heidi.hirsh@noaa.gov
	Jaymes Awbrey	University of Louisiana, Lafayette	jawbrey@louisiana.edu
	Jessica Robinson		
	Kasey Cantwell	OER	kasey.cantwell@noaa.gov
	Kevin Jerram	University of New Hampshire	kjerram@ccom.unh.edu
	Kristen Mello	The Center for Coastal and Ocean Mapping	kmello@ccom.unh.edu
	Les Watling	University of Hawaii at Manoa	watling@hawaii.edu
	Mashkoor Malik	OER	mashkoor.malik@noaa.gov
	Mike White	OER	michael.white@noaa.gov
	Neah Baechler	Contractor	Neah.baechler@gmail.com
	Scott France	University of Louisiana at Lafayette	france@louisiana.edu
	Sonia Rowley	University of Hawai'i at Manoa	srowley@hawaii.edu
	Timothy Shank	Woods Hole Oceanographic Institution	tshank@whoi.edu
	Tina Molodtsova	P.P. Shirshov Institute of Oceanology RAS	tina@ocean.ru; tina.molodtsova@gmail.com
Purpose of the Dive	This dive will investigate the distribution and abundance of benthic fauna, map substrate composition in order to evaluate the relationship between faunal communities and substrate type, collect rock and crust samples to determine their geological and geochemical properties.		
	The dive climbed the eastern flank of an unnamed seamount located to the west of Palmyra Atoll between 2140 m and 2090 m depth. Mn-crusted volcanic rocks were exposed on the seafloor. Light-colored sediments were pooled in small areas with symmetric ripples formed by bottom-currents. The dive was ended early due to weather and no geologic samples were collected. We settled in an area of exposed rock with little sediment cover, but the sessile fauna		

Dive Summary	were relatively sparse. At the landing site was a patch of >30 anemones on the face of a rock, along with a corallimorph, stalked glass sponge (*Caulophacus*), bryozoans, comatulid crinoid, and *Culeolus* tunicate (Pyuridae) in the immediate area. Several more *Culeolus* were seen as the dive progressed, as well as many individuals of what we believed to be a low-mound solitary ascidean. In no large area could the sessile fauna be described as in high density, but sessile fauna were seen regularly throughout the dive track. Black corals were the dominant sessile fauna on the dive, with *Bathypathes* most common; close-ups of some showed polynoid polychaetes nestled among polyps on the main axis, a common association for this taxon. One colony showed a pinnule (side branch) stripped of 5 or 6 polyps and a small animal adjacent to the live polyps. After some deliberation we identified it as an ascothoracid, a crustacean parasite closely related to cirripede barnacles. Ectoparasitic ascothoracids are considered the more primitive form among the group (ectoparasites being derived and more common). None of the scientists in the chatroom at the time had previously seen an ectoparasitic ascothoracid, let alone one in the deep sea or one that may have been actively preying on a coral. Ascothoracid species in the genus *Synagoga* are known ectoparasites of antipatharians. Other black corals observed were *Stauropathes* (our first of the leg?), *Parantipathes*, *Trissopathes*, and two species of *Stichopathes* (including a colony with what appeared to be a dumbo octopus egg attached to a portion of the axis with the tissue removed). A unique predation event was observed at 2140 m depth: A solasterid sea star (*Lophaster*) was seen perched over and presumably feeding on a comatulid crinoid. According to Chris Mah (NMNH), this is the first record of *Lophaster* from this area, the deepest known record for encountering *Lophaster*, and the first observation of this genus feeding. Other members of the Solasteridae are known predators of echinoderms. Several *Paragorgia* with asteoschematid ophiuroids were seen, all of which were being overgrown by a yellow zoanthid; initially we saw red color morphs of *Paragorgia*, but at 2120 m these were replaced by white morphs. Other corals observed included sea pens - ?*Calibelemnon* (rock pen), *Pennatula* (common in sediment patches among the exposed rock bottom), ?*Protoptilum*; chrysogorgiids - *Chrysogorgia* (with chirostylid), *Pleurogorgia*, and a *Metallogorgia* skeleton overgown with hydroids and stalked barnacles and also with what appeared to be a dumbo octopus egg attached; *Anthomastus*; and unbranched bamboo coral. Sponges were infrequent and only hexactinellids were noted: Pheronemadidae, Farreidae (?*Aspidoscopulia*), and Euplectellidae (?*Amphidiscella*), the latter by a skeleton only. Only a single fish was seen associated with the bottom: a macrourid Rattail, probably *Coryphaenoides armatus*, at 2096 m. Other biology observations included four species of holothurian, a *Plesiodiadema* urchin, a slime star (*Hymenaster*), Myxasteridae (*Asthenactis*), Ophiacanthidae crawling over the rock surface, a solitary giant hydroid (Corymorphidae), and sessile barnacles aligned in linear rows on vertical edge of rock.
Overall Map of the ROV Dive Area	

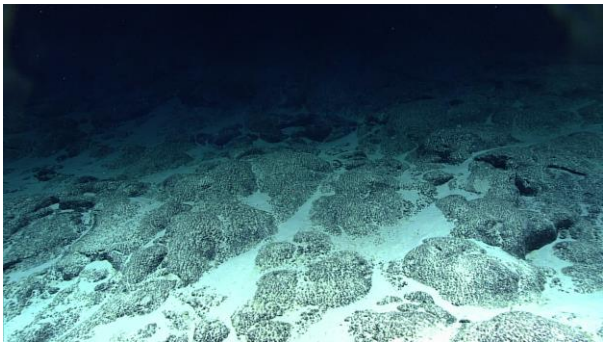


Representative Photos of the Dive



Mn-crusted rocks

Two low-mound solitary ascideans share a rock with black corals *Stauropathes* and *Parantipathes* (with a galatheid squat lobster) and *Chrysogorgia*.)

	
Characteristic geology of the seafloor	A solasterid sea star (*Lophaster*) perched over and presumably feeding on a comatulid crinoid
	
Stichopathes black coral with what appears to be a dumbo octopus egg	Ectoparasitic ascothoracid on black coral Bathypathes
Samples Collected	
No samples were collected during this dive.	

Please direct inquiries to:

NOAA Office of Ocean Exploration & Research
1315 East-West Highway (SSMC3 10th Floor)
Silver Spring, MD 20910
(301) 734-1014