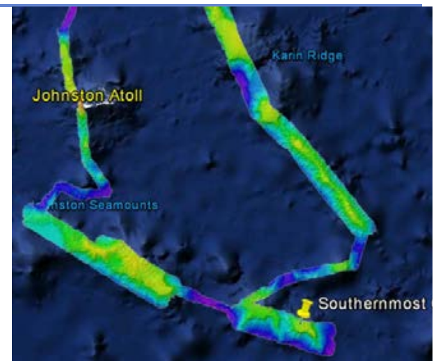
Okeanos Explorer ROV Dive Summary



Site Name	Southernmost Cone
ROV Lead/Expedition Coordinator	Karl Mcletchie/ Brian RC Kennedy
Science Team Leads	Scott France and Mackenzie Gerringer
General Area Descriptor	Johnston Atoll Pacific Remote Islands Marine National Monument

ROV Dive Name	Cruise Season	Leg	Dive Number
	EX1504	4	DIVE07
Equipment Deployed	ROV:	Deep Discoverer	
	Camera Platform:	Seirios	
ROV Measurements	☒ D2 CTD	☒ Depth	☒ Altitude
	☒ Scanning Sonar	☒ USBL Position	☒ Heading
	☒ Pitch	☒ Roll	☒ HD Camera 1
	☒ HD Camera 2	☒ ROV HD 2	☒ Seirios CTD
	Temperature Probe	☒ D2 DO Sensor	☐ Seirios DO sensor
Equipment Malfunctions	VSAT continues to underperform		

ROV Dive Summary (From processed ROV data)

Dive Summary: EX1504L4_DIVE07

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In Water:	2015-09-20T18:23:47.125000 15°, 12.532' N ; 168°, 03.960' W
Out Water:	2015-09-21T02:33:25.406000 15°, 12.227' N ; 168°, 03.187' W
Off Bottom:	2015-09-21T01:31:36.250000 15°, 12.291' N ; 168°, 03.507' W
On Bottom:	2015-09-20T19:29:46.515000 15°, 12.553' N ; 168°, 03.766' W
Dive duration:	8:9:38
Bottom Time:	6:1:49
Max. depth:	1950.7 m

Special Notes

Scientists Involved *(please provide name / location / affiliation / email)*

Name	Institution	Email Address
Abby Lapointe	University of Hawaii Zoology	abbylap@hawaii.edu
Amy Baco-Taylor	FSU	abacotaylor@fsu.edu
Asako Matsumoto	University of Tokyo	amatsu@gorgonian.jp

	Chris Kelley	University of Hawaii	ckelley@hawaii.edu
	Mackenzie Garringer	University of Hawaii	mgerring@hawaii.edu
	Scott France	University of Louisiana at Lafayette	france@louisiana.edu
	Steve Auscavitch	Temple	steven.auscavitch@temple.edu
	Tina Molodtsova	P.P.Shirshov Institute of Oceanology	tina.molodtsova@gmail.com tina@ocean.ru
	Andrew Shuler	NOAA/NOS/NCCOS	andrew.shuler@noaa.gov
	Robert McGuinn	NOAA - DSCRTP	robert.mcguinn@noaa.gov

Purpose of the Dive

To explore the bathyal community of a hard bottom on a pair of joined cone features, with the summit of the second ≈200 m above the plateau the plateau of an unnamed seamount in the Pacific Remote Islands Marine National Monument

Description of the Dive:

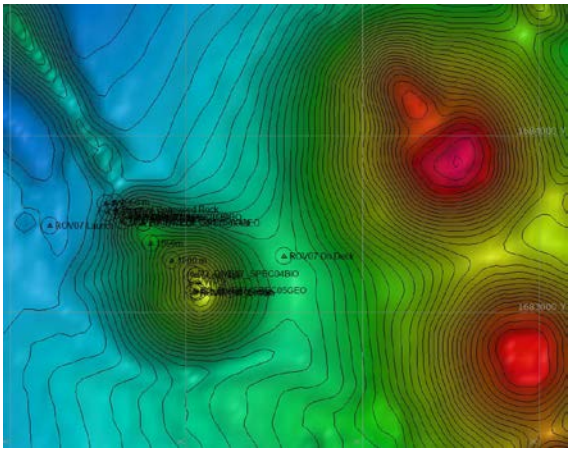
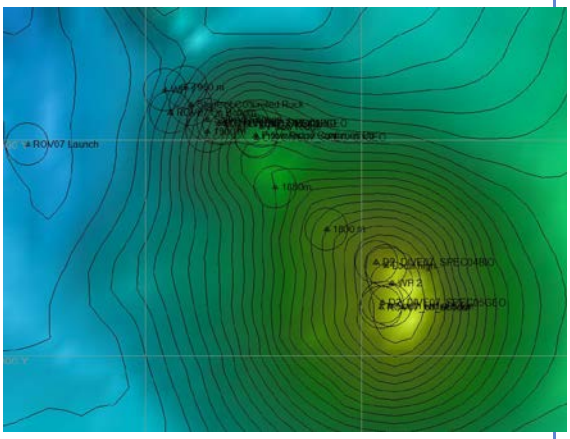
The landing site on the lower broad slope of the cone was well sedimented and with rubble and Mn-encrusted plate-like rock. As we worked up slope, prominent pillow lavas and large, isolated boulders were seen, particularly near the peak of the first cone. Three rocks were collected, from depths 1893, 1843, and 1747 m. The last rock was thin, and may be entirely manganese crust.

Density of sessile fauna was low at the landing site. Abundances of sessile organisms increased as we approached both cone peaks, but particularly at the summit of the taller cone. Overall, the most abundant fauna were crinoids, both stalked (red *Proisocrinus*, other unidentified yellow, which was collected at 1894 m) and unstalked forms (*Glyptometra*, plus likely second species). At one point on the dive we observed a rock that held all five classes of echinoderms: comatulid crinoids, a holothurian (synallactallid), ophiuroids, an urchin (Echinosteridae), and a slime star (*Hymenaster*). Other echinoderms on this cone included asteroids (Benthopectinidae: *Chiraster* sp., *Myxaster*, *Hymenaster*, *Henricia*, Brisingida), holothurians (*Benthodytes*, synallactalids, *Amperima*), and several ophiuroids.

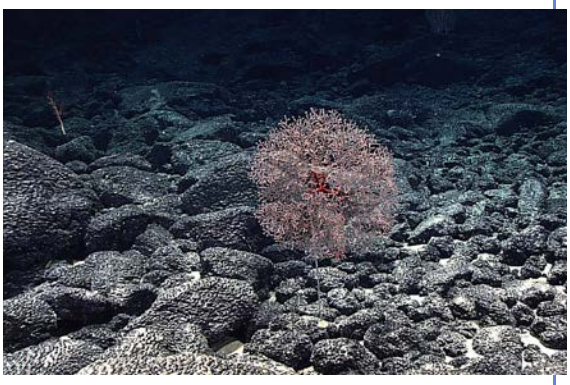
Coral abundances were lower than observed on the previous cone dive (Dive 6), though diversity was still relatively high. Corals seen include black corals *Stauropathes*, *Umbellapathes helioanthes, Bathypathes, Trissopathes, Heteropathes/Hexapathes* and octocorals *Lepidisis*, *Keratoisis, Candidella, Paragorgia, Hemicorallium, Umbellula, Chrysogorgia, Metallogorgia,* Paragorgiidae overgrown with zoanthids and with a euryalinid ophiuroid, *Victorgorgia*, Plexauridae and a rock pen, *Anthoptilum.* Another predatory interaction directed at octocorals was observed and recorded: a molluscan aplacophoran feeding on a bamboo coral polyp. Other cnidarians encountered included the anemone *Exocoelactis*, cup corals, *Hydrodendron* or other hydroid fan, and corallimorpharians. One coral sample was collected (*Lepidisis*) in order to get the chirostylid crab on it. Although the crab swam away and the coral drifted away as they were being placed into the Bio Box, both were recovered, the crab was coaxed back onto the branch held in the manipulator arm claw.

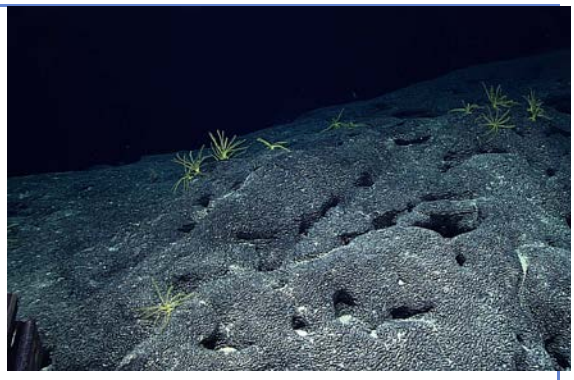
A few *Caulophacus* and *Walteria* sponges were seen, but overall sponge abundance and diversity was low. Some interesting associations were again observed during this dive. For example, *Walteria* sponges housing a large number of associates, including a high abundance of ctenophores (Ptatyctenidae), several crinoids (*Glyptometra* and other morph), and gastropods.

Other interesting observations of fauna included a carnivorous tunicate (Octanemidae) with a polychaete inside, a pelagic ctenophore, polynoid polychaetes, isopods (*Munopsidae*), a number of squat lobsters, and a pagurid hermit crab with associated carcinoecium –forming anemone. A few fish were encountered on this dive, including the cutthroat eel (*Synaphobranchus brevidorsalis*), a lophiiform anglerfish (*Chaunocops melanostomus* cf), and a small brown cusk eel that no one immediately recognized (*Ophidiidae*), as well as another ophidiid, potentially *Bassozetus*.

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

Representative Photos of the Dive





Samples Collected	
Sample ID	EX1504L4_20150920T204336_D2_DIVE07_SPEC01BIO
Date (UTC)	20150920
Time (UTC)	204336
Depth (m)	1894.39
Temperature (^{o}C)	2.32
Field ID(s)	Stalked crinoid
Comments	

Sample ID	EX1504L4_20150920T210406_D2_DIVE07_SPEC02GEO
Date (UTC)	20150920
Time (UTC)	210406
Depth (m)	1893.92
Temperature (^{o}C)	2.31
Field ID(s)	Mn-encrusted basalt
Comments	

Sample ID	EX1504L4_20150920T221401_D2_DIVE07_SPEC03GEO
Date (UTC)	20150920
Time (UTC)	221401
Depth (m)	1843.43
Temperature (^{o}C)	2.34
Field ID(s)	Mn-encrusted basalt

Comments		
Sample ID	EX1504L4_20150920T235711_D2_DIVE07_SPEC04BIO	
Date (UTC)	20150920	
Time (UTC)	235711	
Depth (m)	1744.66	
Temperature (^{o}C)	2.6	
Field ID(s)	Lepidisis	
Comments		
Sample ID	EX1504L4_20150921T010732_D2_DIVE07_SPEC05GEO	
Date (UTC)	20150921	
Time (UTC)	010732	
Depth (m)	1747.09	
Temperature (^{o}C)	2.53	
Field ID(s)	Mn-encrusted basalt	
Comments	Broken during transport to surface.	
Please direct inquiries to:	NOAA Office of Ocean Exploration & Research 1315 East-West Highway (SSMC3 10th Floor) Silver Spring, MD 20910 (301) 734-1014	