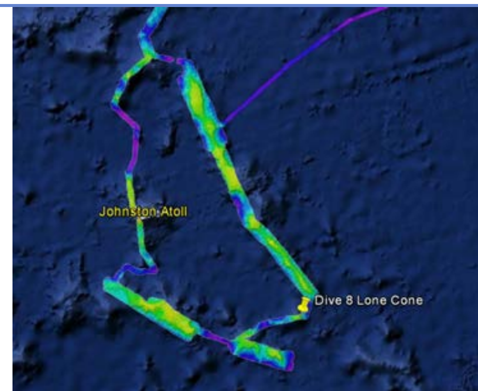
OKEANOS EXPLORER ROV DIVE SUMMARY



Site Name	Lone 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	DIVE08
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_DIVE08

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In Water:	2015-09-21T18:17:38.062000 15°, 35.929' N ; 167°, 44.950' W
Out Water:	2015-09-22T02:28:48.250000 15°, 35.011' N ; 167°, 44.680' W
Off Bottom:	2015-09-22T01:32:33.468000 15°, 35.247' N ; 167°, 44.894' W
On Bottom:	2015-09-21T19:26:40.265000 15°, 35.727' N ; 167°, 44.687' W
Dive duration:	8:11:10
Bottom Time:	6:5:53
Max. depth:	2116.4 m

Special Notes

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

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Purpose of the Dive

To explore the bathyal community of a hard bottom on a cone feature that rises ≈400 m above the surrounding seamount plateau in the Pacific Remote Islands Marine National Monument

Description of the Dive:

The landing site on the gradual slope near the base of the cone showed much sediment accumulation with some outcrops of rock or thick manganese pavement. Some octocorals, black corals, sponges and lepaedomorph barnacles were seen attached to the small outcrops, and a rooted (rhizophorous) stalked crinoid was observed (and collected) in the sediment. As we ascended the cone feature, exposed manganese pavement and possible pillow lavas became more common than the sediment patches, and density and diversity of sessile fauna increased. The sediment was very fine grain and silt-like at times. The top of the cone contained more large boulders with very little sedimentation. Two rock samples were collected, one at 2074 m and one at 1832 m.

Overall, densities of sessile fauna were not very high, certainly when compared to the dives on Leg 2 of this expedition in the Northwestern Hawaiian Islands. Perhaps this relates to low productivity in the overlying surface waters. In the deeper half of the dive, the coral community was dominated by black coral (*Bathypathes*), but closer to the summit the octocoral *Metallogorgia* was most abundant. *Anthomastus* were present from depths around 1800 m to the summit. Evidence suggestive of recent recruitment was seen in the form of a colony of *Anthomastus* with only 2 polyps. Other corals observed included bamboo corals (*Jasonisis, Lepidisis*), primnoid corals (*Candidella gigantea*), chrysogorgiid corals (*Chrysogorgia, Iridigorgia, Metallogorgia*), scleraxonian corals (*Hemicorallium cf. lauense,* Paragorgiidae*, Victorgorgia*), Plexauridae and black corals (*Heteropathes, Umbellapathes, Trissopathes, Stauropathes*). A high number of dead coral and sponge skeletons were seen on this dive, many of them colonized by other fauna, such as barnacles and zoanthids, or overrun with ophiuroids and crinoids. We also observed several incidences of predation on coral by asteroid sea stars.

Very few sponges were seen on this dive, particularly in comparison to some of the densities seen on previous dives. Several dead sponge stalks were present at the base of the feature. One living *Walteria* sponge was seen, as was a *Bolosoma*. A few small sponges were seen, including one thought to be a demosponge (?*Cladorhizidae*). An unrecognized sponge, possibly a euplectellid, was

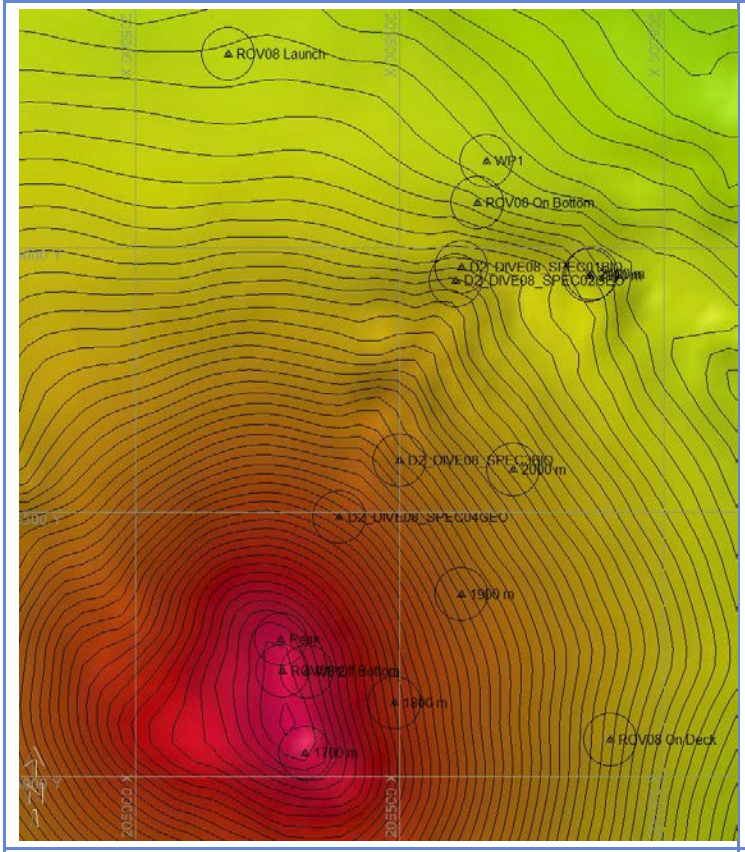
collected from a depth of 1924 m.

Echinoderm diversity was high. Many ophiuroids were seen, both on rocks and associated with the sessile fauna, including the characteristic *Ophiocreas oedipus* that makes its home on *Metallogorgia*. A *Circeaster* sea star was seen feeding on what was thought to be a *Victorgorgia* colony and a Hippasterid sea star was seen feeding on the coral *Jasonisis*. Other seastars seen included *Acthenactis papyraceus,* what may have been a second *Asthenactis* species, and a brisingid. A few urchins were seen, including *Araeosoma* and *Aspiodiadema hawaiiensis*. Crinoids increased in density as we approached the summit, although not in the densities seen for *Commatulina* crinoids on Dive 7. Several stalked crinoids (*Proisocrinus ruberrimus*) were seen near the summit, as was a *Bathycrinus*, and another stalked crinoid that was not recognized, possibly of the genus *Naumachocrinus*; the latter was collected from 2083 m.

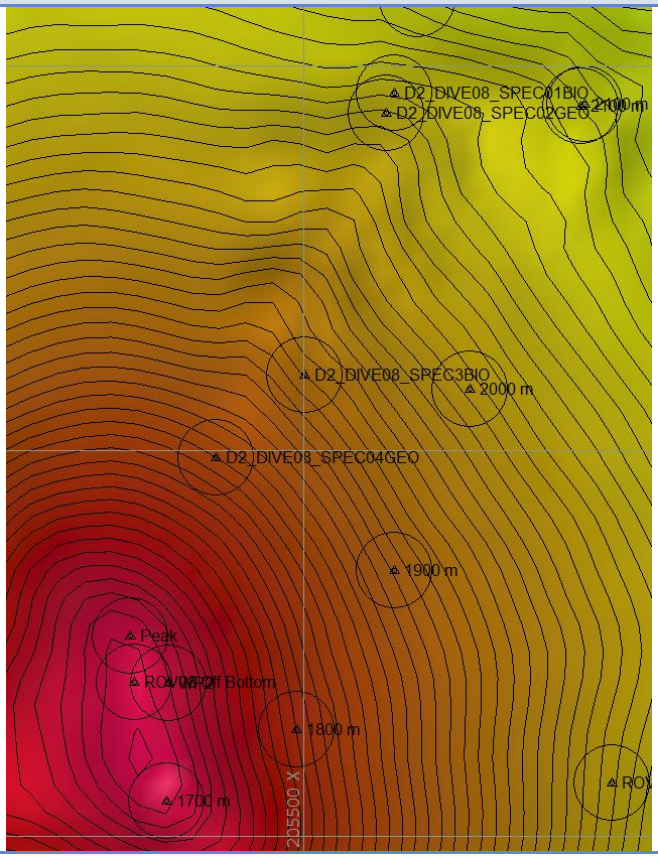
Among the fish observed, one of the highlights was the sighting of what is believed to be a juvenile *Synaphobranchus brevidorsalis* near the summit of the cone feature. Other fish encountered included a cusk eel (Ophidiidae: *Bassozetus?*), a relative of the tripod fish (*Bathytyphops marionae*), and an adult *Synaphobranchus brevidorsalis*.

Other notable observations recorded in some detail on this dive included a chaetognath apparently caught on a filament near a sponge stalk, perhaps a tentacle of a benthic ctenophore (Platyctenida) on the far side of the sponge; a second sighting of the evidently rare, spiky-legged squat lobster (Chirostylidae) seen on dive 6 to Two Cones that possibly represents a new genus; a hermit crab (Parapaguridae) with attached anemone; a sea pen (?*Kophobelemnon*); several solitary corallimorphs (*Corallimorphus pilatus*), and a pelagic ctenophore.

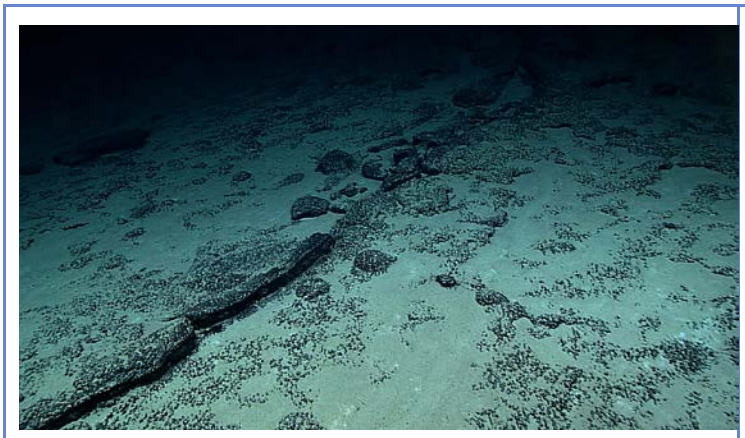
Overall Map of ROV Dive Area

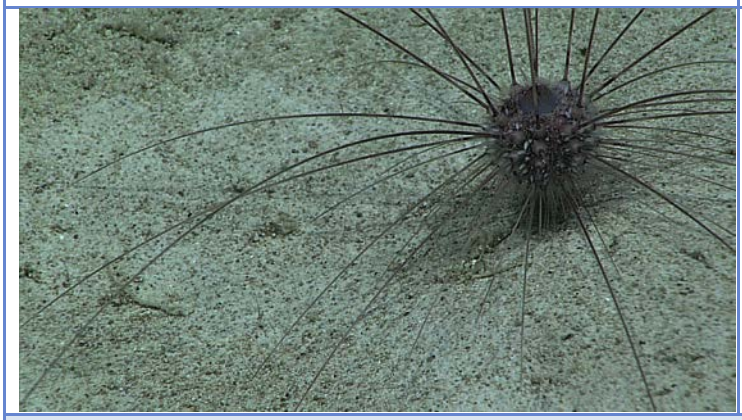


Close-up Map of Main Dive Site



Representative Photos of the Dive

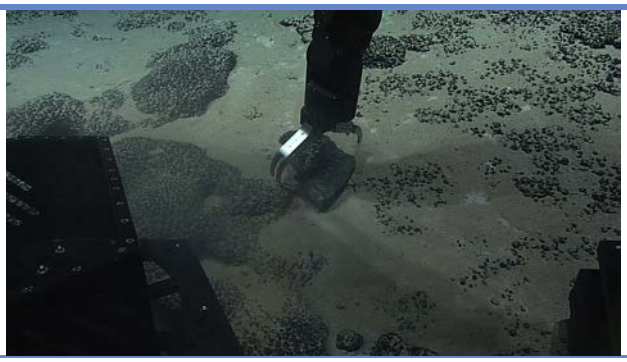




Samples Collected

Sample ID	EX1504L4_20150921T202731_D2_DIVE08_SPEC01BIO
Date (UTC)	20150921
Time (UTC)	202731
Depth (m)	2083.53
Temperature (°C)	2.2
Field ID(s)	Stalked Crinoid (Naumachocrinus)
Comments	

Sample ID	EX1504L4_20150921T204528_D2_DIVE08_SPEC02GEO
Date (UTC)	20150921
Time (UTC)	204528
Depth (m)	2074.5
Temperature (°C)	2.18
Field ID(s)	Mn-encrusted basalt
Comments	



Sample ID	EX1504L4_20150921T225230_D2_DIVE08_SPEC03BIO
Date (UTC)	20150921

Time (UTC)	225230	
Depth (m)	1922.97	
Temperature (°C)	2.31	
Field ID(s)	Bolosominae	
Comments		
Sample ID	EX1504L4_20150921T234946_D2_DIVE08_SPEC04GEO	
Date (UTC)	20150921	
Time (UTC)	234946	
Depth (m)	1832.53	
Temperature (°C)	2.37	
Field ID(s)	Mn-encrusted basalt	
Comments		
Please direct inquiries to:	NOAA Office of Ocean Exploration & Research 1315 East-West Highway (SSMC3 10th Floor) Silver Spring, MD 20910 (301) 734-1014	