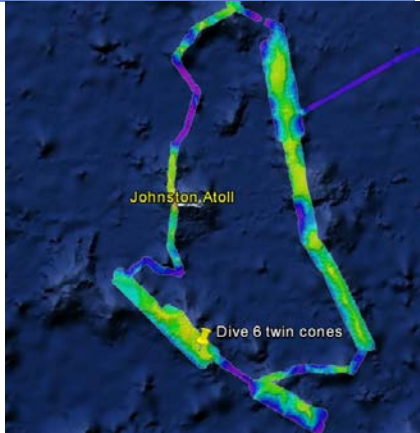


OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Twin Cones		
ROV Lead/Expedition Coordinator	Karl Mcletchie/ Brian RC Kennedy		
Science Team Leads	Scott France and Mackenzie Gerringe		
General Area Descriptors	Johnston Atoll Pacific Remote Islands Marine National Monument		
ROV Dive Name	Cruise Season	Leg	Dive Number
	EX1504	4	DIVE06
Equipment Deployed	ROV:	Deep Discoverer	
	Camera Platform:	Seirios	
ROV Measurements	<input checked="" type="checkbox"/> D2 CTD	<input checked="" type="checkbox"/> Depth	<input checked="" type="checkbox"/> Altitude
	<input checked="" type="checkbox"/> Scanning Sonar	<input checked="" type="checkbox"/> USBL Position	<input checked="" type="checkbox"/> Heading
	<input checked="" type="checkbox"/> Pitch	<input checked="" type="checkbox"/> Roll	<input checked="" type="checkbox"/> HD Camera 1
	<input checked="" type="checkbox"/> HD Camera 2	<input checked="" type="checkbox"/> ROV HD 2	<input checked="" type="checkbox"/> Seirios CTD
	Temperature Probe	<input checked="" type="checkbox"/> D2 DO Sensor	<input type="checkbox"/> Seirios DO sensor
Equipment Malfunctions	VSAT continues to underperform		
ROV Dive Summary (From processed ROV data)	Dive Summary: EX1504L4_DIVE06		
	^.....^		
	In Water:	2015-09-19T18:21:14.156000 15°, 27.781' N ; 169°, 04.404' W	
	Out Water:	2015-09-20T02:27:28.781000 15°, 27.632' N ; 169°, 04.618' W	
	Off Bottom:	2015-09-20T01:36:52.359000 15°, 27.880' N ; 169°, 04.722' W	
	On Bottom:	2015-09-19T19:30:36.546000 15°, 27.941' N ; 169°, 04.242' W	
	Dive duration:	8:6:14	
	Bottom Time:	6:6:15	
Max. depth:	1697.5 m		
Special Notes			
Scientists Involved (please	Name	Institution	Email Address

provide name / location / affiliation / email)	Abby Lapointe	University of Hawaii Zoology	abbylap@hawaii.edu
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	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
	Robert McGuinn	NOAA - DSCRTP	robert.mcguinn@noaa.gov

Purpose of the Dive

To explore the bathyal community of a hard bottom on two of several cones that dot the plateau of Hutchinson Seamount (feature name uncertain) in the Pacific Remote Islands Marine National Monument

Description of the Dive:

During the descent, at about 700 m, a mastigoteuthid squid latched on to the starboard stern of the D2 ROV. The pilots and video team were able to get good video for identification as a 'love heart squid' (*Idioteuthis cordiformis*). The dive explored two (of several) conical features arising 150 m above a broad, mostly flat plateau. On arrival at the dive target we encountered a rocky rubble field with evidence of extensive pillow flows and heavy manganese crusting and light sedimentation. Sessile faunal density was low. A rock was collected from the base of this first cone at 1671 m, and a second rock was collected below the summit, at 1529 m.

Overall on the features coral diversity was pretty high, and we finally on this leg found "gardens" of higher densities of corals at the top of the cones. Antipatharian black corals, particularly in the genus *Umbellapathes*, were noticeably the dominant fauna. In one location on a high point created by a large rock (at 1528 m) were >8 antipatharian colonies from at least 3 different genera. An *Umbellapathes* was collected from here, largely due to the unusual chirostylid crab that was perched on it, thought to be of a new genus. The coral was collected but the squat lobster escaped. Other corals observed included octocorals *Chrysoqorgia*, *Iridigorgia magnispiralis*, *Metallogorgia melanotrichos*, *Candidella gigantea*, *Narella macrocalyx*, *Candidella helminophora*, *Hemicorallium*, *Keratoisis*, *Isidella trichotoma*, several large size colonies of *Jasonisis*; and black corals *Stauropathes*, *Trissopathes*, *Bathypathes*, and *Heteropathes*,

We also had many observations of bare skeletons of bamboo corals and occasionally of sea stars feeding on them, which brought up a discussion of rates of predation in the Pacific vs Atlantic.

After surveying the top of the first cone, the ROV D2 transited to the slope of a second cone through the midwater. The transit at 1495 m took approximately an hour, and D2 reached the new site at a depth of 1630 m. The substrate at this landing site was rugged, with little sedimentation, and there were several large boulders on this cone. A third rock was collected near the peak of this feature. As seen on the first cone, the density and diversity of the community increased greatly as we approached the summit. The highest point on this cone was at 1500 m depth. Many of the same coral species seen on the first cone were also present at this second feature. More fish were encountered on the second cone. This second cone also housed several deep- red, stalked crinoids (*Proisocrinus ruberrimus*) not seen at the first feature. There were several observations of strangely branched bamboo corals (Isidiidae). These colonies appeared to be of the unbranched genus *Lepidisis*, but they showed one or scattered branches off the main axis; one individual had a blossom of many curling branches arising from a single point, at the center of which was an anemone. These observations elicited a discussions that the bamboo coral stalk had been damaged at some point in the past, causing a response of this growth morphology to occur.

A few fish, *Aldrovandia sp.*, *Synaphobranchus affinis*, *Synaphobranchus brevidorsalis*, and an ophidiid, possibly

Bassozetus, were seen. Other interesting encounters included a polychaelid lobster (*Homeryon*) and a *Caulophacus* sponge with two sponge bodies. One of the final sessile fauna imaged was a large actinarian sea anemone (about 30 cm diameter column) that had two species of polynoid polychaetes crawling over the oral disk and tentacles.

Metazoa observed

Cnidarians: Octocorallia: *Chrysogorgia*, *Metallogorgia melanotrichos* (with *Ophiocreas* ophiuroid), *Hemicorallium*, primnoid, *Narella macrocalyx*, *Candidella gigantea*, *Candidella helminophora*, *Iridogorgia magnispiralis*, *Keratoisis*, *Jasonisis*, *Isidella trichotoma*; Hexacorallia: *Heteropathes*, *Bathypathes*, *Umbellapathes*, *Stauropathes*, *Trissopathes*, tube anemone (Actiniaria, Edwardsiidae), Hormathiidae, scleractinian coral, Hydrozoa: hydroids (associated with sponges), in water column siphonophores, *Aegina*-like narcomedusae

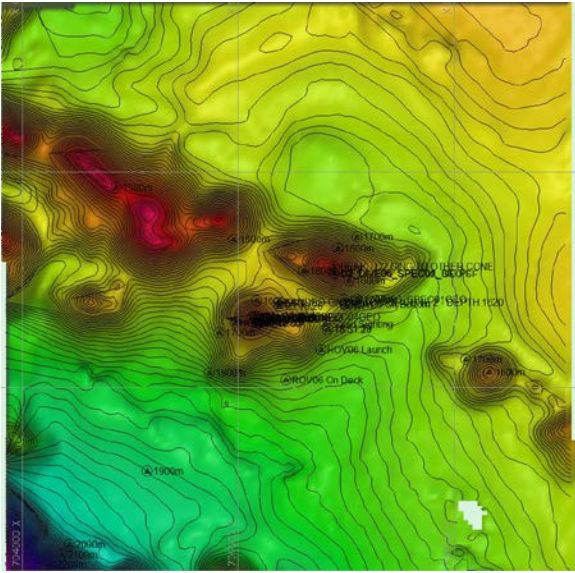
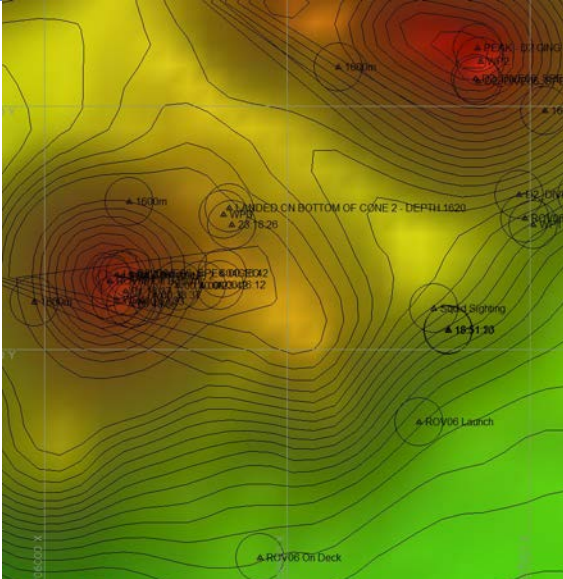
Sponges: ?*Amphidiscophora*, Euplectellinae, *Dictyaulus cf starmeri*, Farreidae, *Caulophacus* – including on withtwo heads, *Tretopleura*

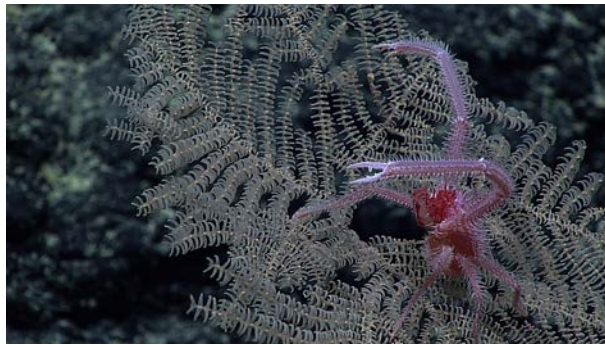
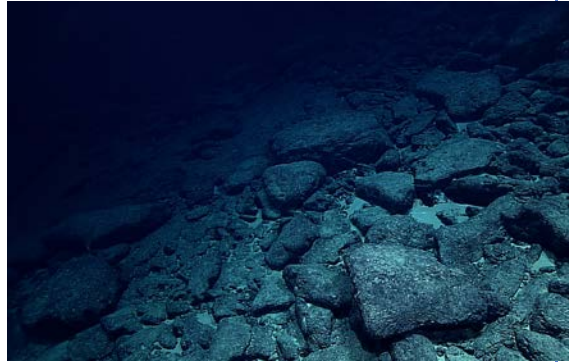
Echinoderms: Asteroidea: *Hymenodiscus* (Brisingida), asteroid feeding on *Isidella*, Goniasteridae; Holothuroidea: Elaspodids – Elpidiidae (Amperima/Peniogone?); Ophiuroidea: *Ophiocreas* (on *Metallogorgia*), stalked crinoids (red morph *Proisocrinus ruberrimus*, and yellow morph)

Crustaceans: Chirostylidae (associate with *Chrysogorgia*), ?*Gastroptychus*/new genus (perched on *Umbellapathes*), Paguridae hermit crab in gastropod shell, gooseneck barnacle, mysids, decapod shrimp, polychaelid lobster (?*Homeryon*)

Fishes: Halosaur, *Synphobranchus brevidorsalis*, *Synphobranchus affinis*, Ophidiid (*Bassozetus*?)

Other: Squid Mastigoteuthidae *Idiotueuthis cordiformis*, benthic ctenophores Platyctenida

Overall Map of ROV Dive Area	Close-up Map of Main Dive Site
	
<p>Representative Photos of the Dive</p>	



Samples Collected

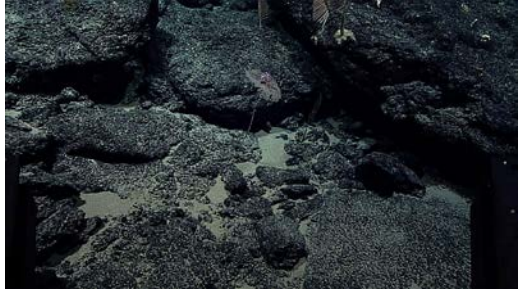


Sample ID	EX1504L4_20150919T200939_D2_DIVE06_SPE C01GEO
Date (UTC)	20150919
Time (UTC)	200939
Depth (m)	1671.94
Temperature (°C)	2.67
Field ID(s)	Mn-encrusted Basalt



Comments

Sample ID	EX1504L4_20150919T221151_D2_DIVE06_SPE C02GEO
Date (UTC)	20150919



Time (UTC)	221151	
Depth (m)	1529.99	
Temperature (°C)	3.01	
Field ID(s)	Mn-encrusted basalt	
Comments		
Sample ID	EX1504L4_20150919T223721_D2_DIVE06_SPE C03BIO	
Date (UTC)	20150919	
Time (UTC)	223721	
Depth (m)	1528.62	
Temperature (°C)	3.03	
Field ID(s)	Umbellapathes	
Comments		
Sample ID	EX1504L4_20150920T005409_D2_DIVE06_SPE C04GEO	
Date (UTC)	20150920	
Time (UTC)	005409	
Depth (m)	1508.02	
Temperature (°C)	2.74	
Field ID(s)	Mn-encrusted basalt	
Comments		
Sample ID	EX1504L4_20150920T005409_D2_DIVE06_SPE C05GEO	
Date (UTC)	20150920	
Time (UTC)	005400	
Depth (m)	1508.02	
Temperature (°C)	2.74	
Field ID(s)	Mn-encrusted basalt	
Comments	Found in starboard rock box, may be part of SPEC04	
Please direct inquiries to:	NOAA Office of Ocean Exploration & Research 1315 East-West Highway (SSMC3 10 th Floor) Silver Spring, MD 20910 (301) 734-1014	

