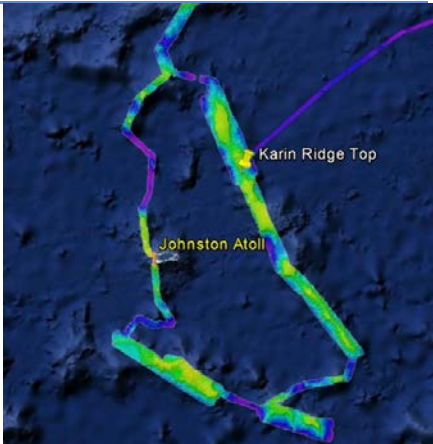


OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Karin Ridge Top			
ROV Lead/Expedition Coordinator	Karl Mcletchie/ Brian RC Kennedy			
Science Team Leads	Scott France and Mackenzie Gerringe			
General Area Descriptor	Johnston Atoll Pacific Remote Islands Marine National Monument			
ROV Dive Name	Cruise Season	Leg	Dive Number	
	EX1504	4	DIVE11	
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_DIVE11			
	~~~~~			
	In Water:	2015-09-24T18:11:30.906000 17°, 29.956' N ; 168°, 44.685' W		
	Out Water:	2015-09-25T02:29:22.890000 17°, 30.357' N ; 168°, 44.238' W		
	Off Bottom:	2015-09-25T01:21:52.468000 17°, 30.296' N ; 168°, 44.666' W		
	On Bottom:	2015-09-24T19:29:46.703000 17°, 29.933' N ; 168°, 44.448' W		
	Dive duration:	8:17:51		
	Bottom Time:	5:52:5		
Max. depth:	2173.0 m			
<b>Special Notes</b>				
<b>Scientists Involved (please provide name / location / affiliation /</b>	Name	Institution	Email Address	
	Abby Lapointe	University of Hawaii Zoology	abbylap@hawaii.edu	
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<b>email)</b>	Andrea Quattrini	USGS	aquattrini@usgs.gov
	Asako Matsumoto	University of Tokyo	amatsu@gorgonian.jp
	Bruce Mundy	NOAA NMFS Pacific Islands Fisheries Science Center	bruce.mundy@noaa.gov
	Chris Kelley	University of Hawaii	ckelley@hawaii.edu
	Chris Mah	Smithsonian	brisinga@gmail.com
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Josh Voss	HBOI	Jvoss2@fau.edu	

**Purpose of the Dive**

To explore the bathyal community of a hard bottom on crest of a ridge extending south from the same seamount feature as did the ridge explored on dive 3 in the Pacific Remote Islands Marine National Monument

**Description of the Dive:**

Upon arrival on bottom, there was considerable rubble over the visible seafloor. Along the dive transect the bottom alternated from fields of small rubble in the saddle features, to several large pillow lava flows with towering boulders. There was also a stretch of sediment that had a light thin layer of manganese crusting. When this was disturbed by the ROV skis, it was apparent that there was a fine-grain sediment below. This appeared to stretch over a considerable area. It appeared that more manganese encrustation was present at the latter portion of the dive. Two rocks were collected, from 2168 m and 2106 m.

As with previous dive sites, the community was extremely patchy. Sponge diversity changed dramatically as we followed along the ridge. As seen on the 3000+ m depth dive about 8 nautical miles northeast of this dive site, we saw an abundance of hexactinellid sponges. These were the most abundant metazoa seen throughout the dive by far. There were many large sponges, likely *Poliopogon* and *Semperella* where we started the dive. Interspersed along the transect were a fair number of stalked sponges – *Caulophacus* and *Bolosoma*. An impressive field of *Monorhaphis* sponges was imaged, with hundreds of individuals at around 2077 m depth. A bit further up the ridge,

the flabellate branched-sponges collected on Dive 9 were in highest abundance. An unknown hexactinellid sponge was sampled from 2084 m. The high abundance of sponges may also explain the presence of a known sponge predator, the asteroid seastar *Pteraster reticulatus*.

At about 2130 m, there was another community transition, with more corals present. At the peak of the local summit on the ridge, coral densities were low. But just below the summit on the southwest slope were many coral colonies. This may suggest long-term current flows moving up the SW slope of the feature. Octocorals observed here included Isididae (?*Eknomisis*, *Keratoisis*, *Isidella trichotoma*, and a *Lepidisis*-like [unbranched] colony), Primnoidae (?*Calytrophora angularis*, *Narella macrocalyx*, ?*Candidella gigantea*), and Chrysogorgiidae (*Chrysogorgia chryseis*, *Chrysogorgia averta*, *Iridigorgia magnispiralis*). Two bamboo corals were sampled, a *Lepidisis*-like colony from 2064 m, and an *Eknomisis*-like colony from 2062 m. Although the first collection fell out of the manipulator arm claw onto the deck and could not be recovered on the bottom, it was collected by the ROV team during ascent of the vehicle.

A notably high abundance of anemones was seen on this dive (Actinostolidae, *Exocoelactis*). As seen on previous dives, hydroid colonies were in relatively high abundance on many of the larger rocks. Several galatheid crabs were imaged, as were many acorn barnacles, and chirostyliid squat lobsters (*Uroptychus*) associated with *Chrysogorgia* coral colonies. A few fish were seen, including one cutthroat eel (Synaphobranchidae), two *Coryphaenoides longicirrhus*, and two *Kumba hebetate*. Two of the macrourids had, as seen before, very large isopod parasites.

**Other Metazoa observed**

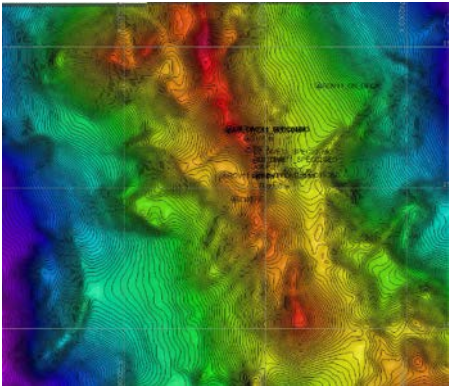
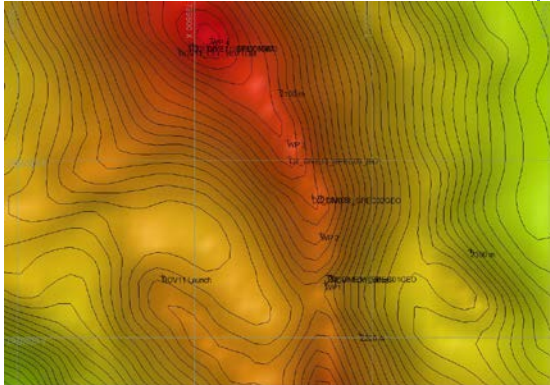
**Echinoderms:** Crinoids, *Lophaster*, *Pteraster reticulatus*

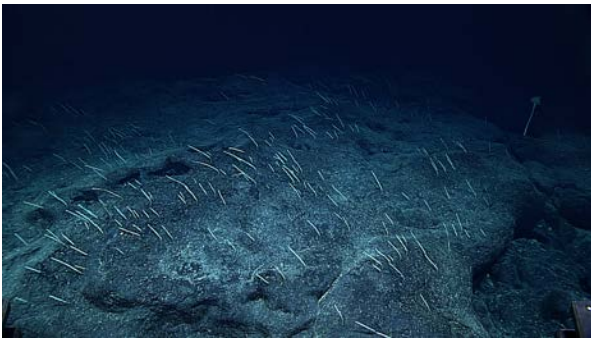
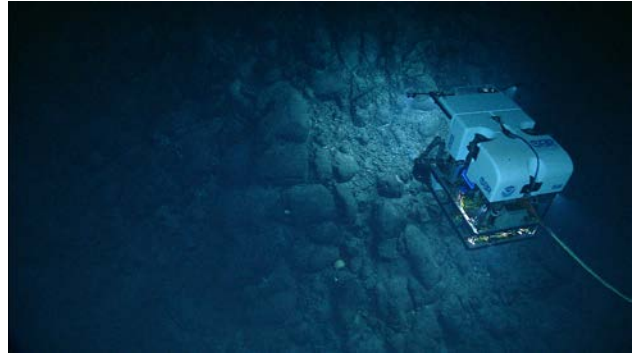
**Cnidarians:** “Dandelion” siphonophore (?*Thermopalia*), cup coral (Scleractinia)

**Crustaceans:** *Nematocarcinus* shrimp, amphipods, shrimp (*Plesiopenaeus armatus*)

**Sponges:** *Poecilastra*, *Tretopleura*, *Farrea* nr. *Occa erecta*, small cladorhizid, unknown Phoronematidae

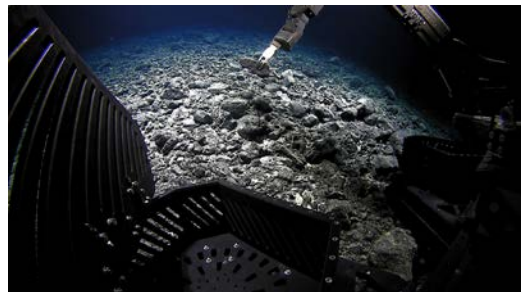
**Other:** polychaete fan worm, arboreal foraminifera, snail

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



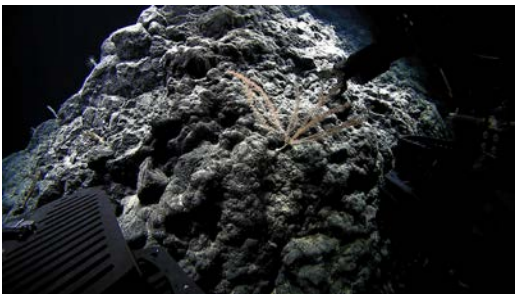


**Samples Collected**

<b>Sample ID</b>	EX1504L4_20150924T194238_D2_DIVE11_SPEC01GEO
<b>Date (UTC)</b>	20150924
<b>Time (UTC)</b>	194238
<b>Depth (m)</b>	2168.45
<b>Temperature (°C)</b>	1.88
<b>Field ID(s)</b>	Mn-encrusted basalt
<b>Comments</b>	
<b>Sample ID</b>	EX1504L4_20150924T214653_D2_DIVE11_SPEC02GEO
<b>Date (UTC)</b>	20150924
<b>Time (UTC)</b>	214653
<b>Depth (m)</b>	2106.37





Temperature (°C)	2.11	
Field ID(s)	Basalt	
Comments		
Sample ID	EX1504L4_20150924T222851_D2_DIVE11_SPEC03BIO	
Date (UTC)	20150924	
Time (UTC)	222851	
Depth (m)	2084.21	
Temperature (°C)	2.05	
Field ID(s)	Hexactinellida	
Comments	Another sponge growing on specimen.	
Sample ID	EX1504L4_20150925T010032_D2_DIVE11_SPEC04BIO	
Date (UTC)	20150925	
Time (UTC)	010032	
Depth (m)	2063.74	
Temperature (°C)	1.98	
Field ID(s)	Lepidisis sp.	
Comments		
Sample ID	EX1504L4_20150925T012012_D2_DIVE11_SPEC05BIO	
Date (UTC)	20150925	
Time (UTC)	012012	
Depth (m)	2061.54	
Temperature (°C)	1.95	
Field ID(s)	Eknomisis sp.	
Comments		
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

