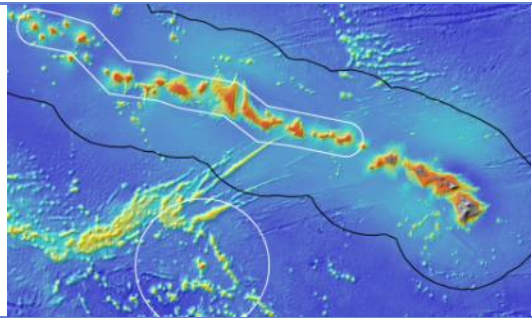


OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Bank 9 North		
ROV Lead/Expedition Coordinator	Karl McLetchie Kelley Elliott		
Science Team Leads	Chris Kelley (Biology) Daniel Wagner (Biology)		
General Area Descriptor	Northwestern Hawaiian Islands		
ROV Dive Name	Cruise Season	Leg	Dive Number
	EX1504	2	DIVE11
Equipment Deployed	ROV:	Deep Discoverer	
	Camera Platform:	Seirios	
ROV Measurements	<input checked="" type="checkbox"/> 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"/> Low Res Cam 1	<input checked="" type="checkbox"/> Low Res Cam 2
	<input checked="" type="checkbox"/> Low Res Cam 3	<input checked="" type="checkbox"/> Low Res Cam 4	<input checked="" type="checkbox"/> Low Res Cam 2
Equipment Malfunctions	There were only few communications issues between the shore-based and shipboard science team. Other than that, all other equipment worked properly.		
ROV Dive Summary (From processed ROV data)	Dive Summary: EX1504L2_DIVE11 ~~~~~		
	In Water at:	2015-08-12T18:16:31.625000 27°, 08.103' N ; 175°, 34.514' W	
	Out Water at:	2015-08-13T02:17:58.421000 27°, 07.542' N ; 175°, 33.954' W	
	Off Bottom at:	2015-08-13T01:13:55.625000 27°, 07.699' N ; 175°, 34.242' W	
	On Bottom at:	2015-08-12T19:34:32.734000 27°, 07.982' N ; 175°, 34.251' W	
	Dive duration:	8:1:26	
	Bottom Time:	5:39:22	
	Max. depth:	2158.3 m	
Special Notes			
Scientists Involved (please provide name / location / affiliation / email)	Abby Lapointe, UH, UH, abbylap@hawaii.edu Amanda Ziegler, UH, UH, aziegler802@gmail.com Amy Baco-Taylor, HBOI ECC, FSU, abacotaylor@fsu.edu Andrea Quattrini, Pasadena, CA, USGS, aquattrini@usgs.gov Astrid Leitner, UH, UH, aleitner@hawaii.edu Brendan Roark, TX, TAMU-CC, broark@geos.tamu.edu Bruce Mundy, IRC, NMFS, bruce.mundy@noaa.gov Chris Kelley, EX, UH, ckelley@hawaii.edu Chris Mah, SI, SI, mahch@si.edu Daniel Wagner, EX, PMNM, daniel.wagner@noaa.gov Diva Amon, UH, UH, divaamon@hawaii.edu Espirit Saucier, LSU, LSU, heestand.saucier@louisiana.edu Les Watling, UH, UH, watling@hawaii.edu Mackenzie Garringer, UH, UH, mgerring@hawaii.edu Mary Wicksten, TX, TAMU, wicksten@bio.tamu.edu Michael Parke, IRC, NMFS, Michael.Parke@noaa.gov Nicole Morgan, HBOI ECC, FSU, nbmorgan11@gmail.com Randal Singer, FL, FLMNH, rsinger@flmnh.ufl.edu Randall Kosaki, IRC, PMNM, Randall.kosaki@noaa.gov Scott France, ULL, ULL, france@louisiana.edu		

Purpose of the Dive

This dive was located on a modest ridge that extends north from the northern half of Bank 9. The objectives of the dive were to explore for high density communities of deep-sea corals and sponges along the ridge. The target start point of the dive was the top of the ridge at 2201m. The plan was to survey over to the east side of the ridge top to the break in slope, then turn south and survey along the edge to a final target depth of approximately 2091m, documenting in particular the abundance of corals and sponges.

Description of the Dive:

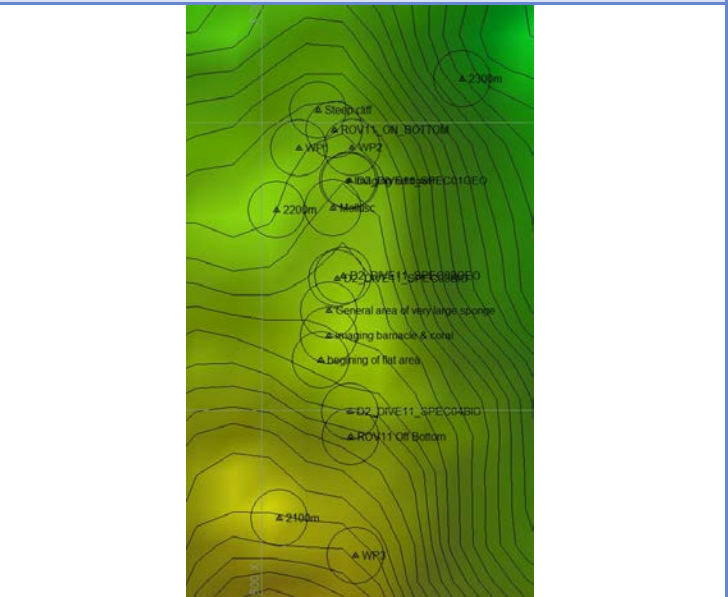
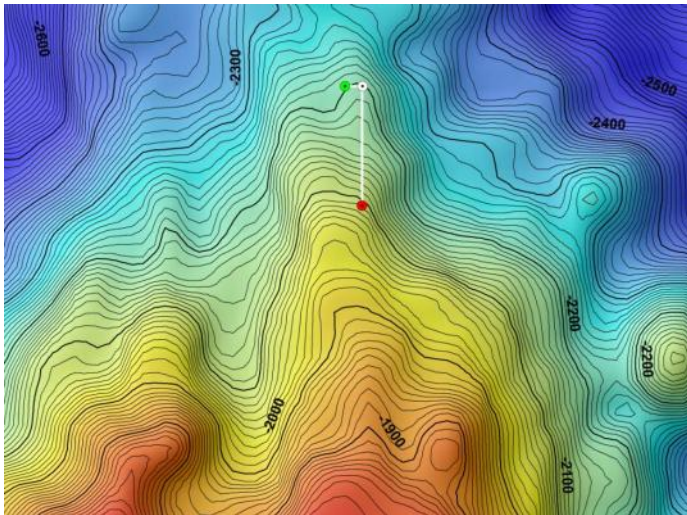
The ROV landed very close to the western drop-off of the ridge at 2147m. The substrate consisted of well defined, Mn-crusting pillows, which were covered with a low density of sponges and corals. There was a strong current from the west towards the east. As a result, the ROV had to adjust its course moving up the slope of the ridge towards the south. A Mn-crusting rock sample was collected close to the ROV landing site at 2144m. As the ROV surveyed up the slope of the ridge, there were several patches that were dominated by sponges, others by stylasterid corals, and still others by bamboo corals. A second Mn-crusting rock sample was collected at 2120m and a stylasterid coral sample at 2117m. Shortly after collecting the stylasterid sample, the ROV encountered an enormous sponge that was over 3.5m long and 2.5m high. This was the same species as one collected two dives ago and its identity is still unknown. As the ROV continued its survey, a sample of another sponge was collected further up the ridge at 2112m, that similar to the sponge collected the day before, had a large number of commensal anemones living throughout its tissue. Towards the end of the dive, the ROV moved towards the east side of the ridge, where there was a marked increase in the density of corals and sponges close to the edge of the cliff. The ROV left the bottom at a depth of 2100m after a total bottom time of 5:49h, having covered a linear distance of 650m.

Animals observed during the dive are listed below:

Phylum	Group	Species
Arthropods	Barnacles	Scalpellidae
Arthropods	Barnacles	Poecilasmatidae
Arthropods	Shrimp	Amphipod
Arthropods	Shrimp	Nematocarcinus tenuistrostris
Arthropods	Polychelid	Polychelidae
Arthropods	Squat lobsters	Munidopsis sp.
Bryozoans	Bryozoan	Bryozoan
Cnidarians	Actinarians	Actinernus nobilis
Cnidarians	Actinarians	Actinoscyphia sp.
Cnidarians	Actinarians	Exocoelactis sp.
Cnidarians	Actinarians	Hormathiidae
Cnidarians	Alcyonaceans	Anthomastus sp.
Cnidarians	Alcyonaceans	Stoloniferous octocoral
Cnidarians	Antipatharians	Bathypathes alternata
Cnidarians	Antipatharians	Stauropathes stauocrada
Cnidarians	Antipatharians	Trissopathes sp.
Cnidarians	Gorgonians	Chrysogorgia geniculata
Cnidarians	Gorgonians	Chrysogorgia stellata
Cnidarians	Gorgonians	Corallium sp.
Cnidarians	Gorgonians	Iridogorgia magnispiralis
Cnidarians	Gorgonians	Isidella sp.
Cnidarians	Gorgonians	Isidella sp. lyrate
Cnidarians	Gorgonians	Isidella trichotoma
Cnidarians	Gorgonians	Jasonisis sp.
Cnidarians	Gorgonians	Keratoisis sp.
Cnidarians	Gorgonians	Narella sp.
Cnidarians	Hydrozoans	Hydromedusae
Cnidarians	Hydrozoans	Stylasterid
Cnidarians	Hydrozoans	Unidentified hydroids
Ctenophores	Ctenophores	Benthic ctenophore

Echinoderms	Asteroids	Brisingid
Echinoderms	Asteroids	Henricia sp.
Echinoderms	Asteroids	Hymenodiscus/Brisinga sp.
Echinoderms	Asteroids	Pteraster sp.
Echinoderms	Crinoids	Comatulid crinoid
Echinoderms	Holothuria	Holothurians
Echinoderms	Ophiuroids	Ophomusium? sp.
Fishes	Moridae	Antimora microlepis
Fishes	Eels	Synaptobranchid
Fishes	Macrourids	Trachonurus/Malacocephalus sp.
Mollusks	Aplocophoran	Solenogastres
Mollusks	Polycophora	Chiton
Mollusks	Gastropods	Gastropod
Sponges	Hexactinellids	Bathydorus? sp.
Sponges	Hexactinellids	Bolosoma sp.
Sponges	Hexactinellids	Caulophacus sp.
Sponges	Hexactinellids	Euretinae new genus sp.
Sponges	Hexactinellids	Euretinae sp.
Sponges	Hexactinellids	Farrea sp.
Sponges	Hexactinellids	Farrea nr occa erecta
Sponges	Hexactinellids	Walteria cf. leukarti
Sponges	Demosponges	Poecillastra sp.

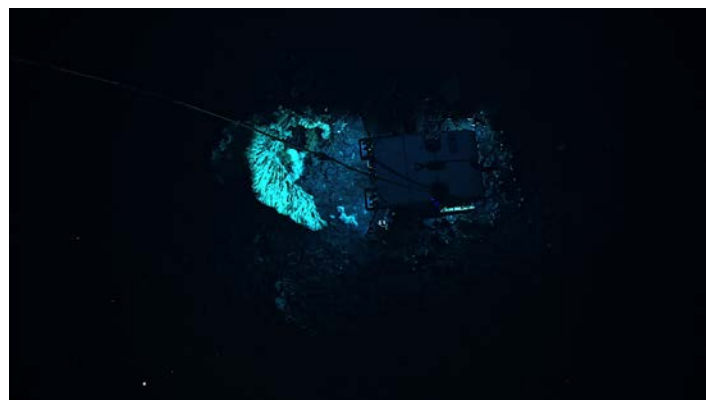
Overall Map of Dive Area	Actual track of ROV dive
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Bathymetry data for the dive site. Planned dive start and end points are shown as green and red dots, respectively.

Hypack screen grab showing waypoints dropped during actual ROV dive.

Representative Photos of the Dive



Stylasterid corals observed as soon as the ROV touched bottom. The species showed localized changes in abundance, disappearing in abundance then reappearing throughout the dive.

Gigantic hexactinellid sponge (either euptectellid or rossellid) that was encountered during the dive. This view is from the Seirios vehicle looking down at the ROV to show the size.

Samples Collected

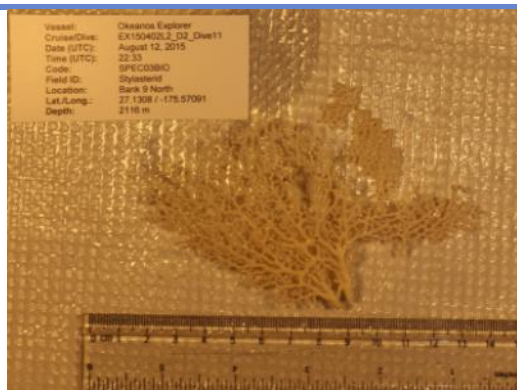
Sample ID	EX1504L2_20150812205035_D2_Dive11_SPEC01GEO
Date (UTC)	2015/08/12
Time (UTC)	20:50:35
Depth (m)	2144
Temperature (°C)	1.72837
Oxygen (mL/L)	3.15195
Field ID(s)	Mn-crusted rock




Sample ID	EX1504L2_20150812221207_D2_Dive11_SPEC02GEO
Date (UTC)	2015/08/12
Time (UTC)	22:12:07
Depth (m)	2120
Temperature (°C)	1.75726
Oxygen (mL/L)	3.05488
Field ID(s)	Mn-crusted basalt



Sample ID	EX1504L2_20150812223321_D2_Dive11_SPEC03BIO
Date (UTC)	2015/08/12
Time (UTC)	22:33:21
Depth (m)	2116
Temperature (°C)	1.794
Oxygen (mL/L)	2.9719
Field ID(s)	Stylasterid



Species was very common at dive site

Sample ID	EX1504L2_20150813002031_D2_Dive11_ SPEC04BIO	
Date (UTC)	2015/08/13	
Time (UTC)	00:20:31	
Depth (m)	2112	
Temperature (°C)	1.80351	
Oxygen (mL/L)	2.9826	
Field ID(s)	Euretinae with commensal anemone	
Comments	Sponge collected had commensal cnidarians which were also collected. The commensal cnidarians were not separated out; they were placed in same vial as sponge.	
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	