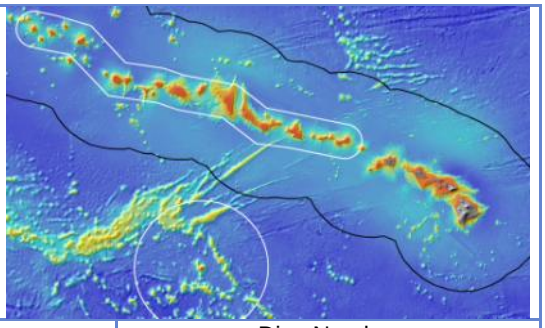
OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	North French Frigate Shoals Seamount (Kanehunamoku Seamount)		
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	DIVE02
Equipment Deployed	ROV:	Deep Discoverer	
	Camera Platform:	Seirios	
ROV Measurements	☒ CTD	☒ Depth	☒ Altitude
	☒ Scanning Sonar	☒ USBL Position	☒ Heading
	☒ Pitch	☒ Roll	☒ HD Camera 1
	☒ HD Camera 2	☒ Low Res Cam 1	☒ Low Res Cam 2
	☒ Low Res Cam 3	☒ Low Res Cam 4	☒ Low Res Cam 2
Equipment Malfunctions	The teleconference call between the shore-based and shipboard science team was dropped on a couple of occasions. All other equipment worked properly.		
ROV Dive Summary (From processed ROV data)	Dive Summary: EX1504L2_DIVE02 In Water at: 2015-08-03T20:11:23.406000 24°, 25.975' N ; 166°, 05.873' W Out Water at: 2015-08-04T04:15:07.718000 N/A ; N/A Off Bottom at: 2015-08-04T02:55:01.796000 24°, 25.733' N ; 166°, 05.484' W On Bottom at: 2015-08-03T21:42:15.437000 24°, 26.114' N ; 166°, 05.700' W Dive duration: 8:3:44 Bottom Time: 5:12:46 Max. depth: 2484.9 m		
Special Notes			
Scientists Involved *(please provide name / location / affiliation / email)*	Chris Kelley, EX, UH, ckelley@hawaii.edu Daniel Wagner, EX, PMNM, Daniel.Wagner@noaa.gov Diva Amon, UH, UH, divaamon@hawaii.edu Amy Baco-Taylor, HBOI, FSU, abacotaylor@fsu.edu Scott France, ULL, ULL, france@louisiana.edu Santiago Herrera, UT & WHOI, sherrera@alum.mit.edu Astrid Leitner, UH, UH, aleitner@hawaii.edu Tina Molodtsova, SI (Washington, DC), PPSIO, tina@ocean.ru Andrea Quattrini, USGS, aquattrini@usgs.gov John R Smith, UH, UH, jrsmith@hawaii.edu Michael Garcia, UH, UH, mogarcia@hawaii.edu Bruce Mundy, IRC, NOAA, bruce.mundy@noaa.gov Jonathan Tree, UH, UH, jtree@hawaii.edu Nicole Morgan, HBOI, FSU, nbmorgan11@yahoo.com		

Purpose of the Dive

This dive was located on Kānehunamoku seamount located north of French Frigate Shoals. Its primary objective was to determine the lower depth range of a known dense coral and sponge community found in 2007. This was the second of several dives on this leg that will be conducted for the purpose of identifying the lower depth limit of important communities of corals and sponges in the region, thereby providing information valuable to NOAA's Deep Sea Coral and Technology Program (DSCTP). The target start point of the dive was on a small relatively flat area located at a depth of 2500m, which transitioned into a steep slope at approximately 2480m. The plan

of the dive was to survey up the steep slope to a final target depth of approximately 2270m, documenting in particular the abundance of corals and sponges.

Description of the Dive:

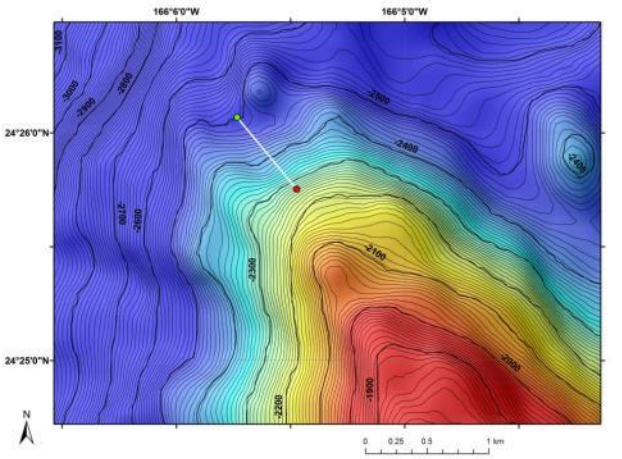
The ROV landed at 2460m on a slope close to the wall. There were pillow flows with some tubes that were covered with a moderate density of primnoids, isidids, antipatharians (*Bathypathes alternata*) and sponges. A modest current was flowing from the west towards the east. A chrysogorgid specimen, which had commensal gooseneck barnacles, was collected close to the ROV landing site at a depth of 2452m. According to Scott France, this specimen resembles *Chrysogorgia pinnata* and if so, is a new record for Hawaiian waters, and if not, is likely a new species. A second biological sample, a black coral of the genus *Parantipathes* sp., was collected close-by at a depth of 2463m. This specimen also represents either a new record or new species. As the ROV moved up the slope, the density of animals remained moderate and was dominated by primnoids, isidids and black corals, with occasional sponges and crinoids. A drift test was performed approximately 2.5h into the dive and the current was minimal. A Mn-crusted pillow basalt was collected at 2407m. The density of animals remained moderate until a depth of 2240m, when high densities of primnoids, isidids and sponges came into view. The density of animals continued to be very high through the end of the dive. A second Mn-crusted basalt was picked up at 2243m, but broke up into two pieces, and only half of it ended up being collected. The ROV left the bottom at 2237 m, having covered approximately 850m in a total bottom time of 5:22. While the ROV did not quite reach the depth of the previous HURL submersible dive conducted in this area (1700m), the very high densities of animals observed during the latter half of the dive, indicate that a dense coral and sponge community extends down to a depth of approximately 2250m in this area, tapering off to a modest density community to at least 2460m. Only a handful of fishes were observed during the dive.

Animals observed during the dive are listed below:

Cnidarians	Gorgonians	Chrysogorgia geniculata
		Chrysogorgia pinnata? (collected)
		Chrysogorgiid sp (unidentified)
		Iridogorgia magnispiralis
		Metallogorgia melanotrichos
		Unbranched isidids
		Unidentified branched isidids
		Isidella sp?
		Keratoisis sp
		Isidella trichotoma
		Isidisis/Jasonisis sp
		Calyptrophora sp
		Parastellata/CAndidella/Paracalytrophora?
		Corallium sp
	Alcyonaceans	Anthomastus fisheri?
	Stoloniferans	Unidentified stoloniferan
	Pennatulaceans	Anthoptilum sp?
	Antipatharians	Bathypathes alternata
		Parantipathes sp. (collected)
		Stauropathes sp
	Actiniarians	Exocoelactis sp
	Hydrozoans	Hydromedusa?
		Hydroids (on crinoid)
Sponges	Hexactinellids	Caulophacus (Caulodiscus) sp
		Poliopogon sp (various)
		Tretopleura sp1A and sp1B
		Farrrea nr occa erecta
		Chonelasmatinae new genus
		Bolosominae
		Bolosoma sp
	Demosponges	
Echinoderms	Asteroids	Unidentified asteroids
	Ophiuroids	Unidentified ophiuroids
	Crinoids	Bathycrinus sp
		Comatulina unidentified
		Sarametra triserialis (id from Nicole Morgan)
Arthropods	Shrimp	Nematocarcinus tenuirostris
	Squat lobsters	Uroptychus sp
		Munididae? unidentified

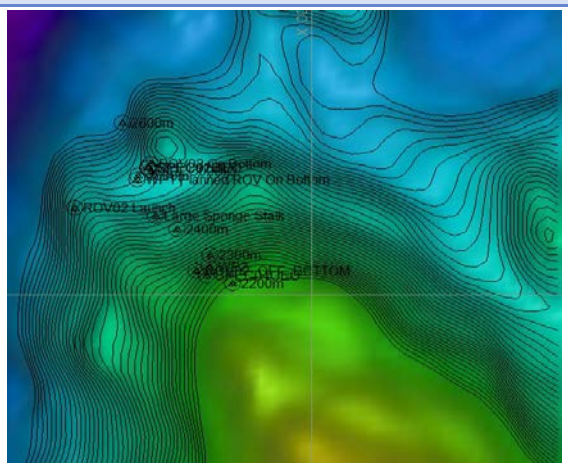
		Munidopsis nitida/subsquamosa
	Barnacles	Scalpellidae unidentified
		Dead barnacle plates
Mollusks	Gastropods	Gastropod unidentified
Fishes	Macrourids	Coryphaenoides sp
		Nezumia or Kumba sp
	Eels	Synaphobranchus brevidorsalis

Overall Map of Dive Area



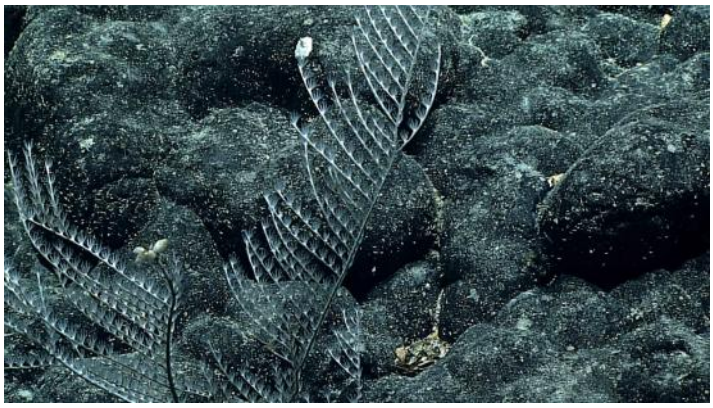
Bathymetry data for the dive site. Planned dive start and end points are shown as green and red dots, respectively.

Actual track of ROV dive



Hypack screen grab showing waypoints dropped during actual ROV dive.

Representative Photos of the Dive

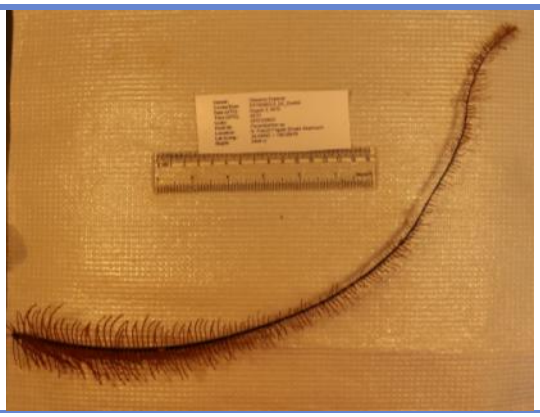


Chrysogorgia cf pinnata collected at the beginning of the dive.

New genus of sponge in the subfamily Chonelasmatinae.

Samples Collected

Sample ID	EX1504L2_20150803220724_D2_Dive02_SPEC01BIO
Date (UTC)	2015/08/03

Time (UTC)	22:07:24	
Depth (m)	2452	
Temperature (°C)	1.71246	
Oxygen (mL/L)	3.35526	
Field ID(s)	*Chrysogorgia pinnata*?	
Comments	Commensal barnacles and an amphipod were on the coral at the time of collection. Only the barnacles remained on the sample when it was brought to the surface.	
Sample ID	EX1504L2_20150803220724_D2_Dive02_SPEC01BIO_C01	
Date (UTC)	2015/08/03	
Time (UTC)	22:07:24	
Depth (m)	2452	
Temperature (°C)	1.71246	
Oxygen (mL/L)	3.35526	
Field ID(s)	Commensal gooseneck barnackles	
Comments	Barnacles attached to branch of *Chrysogorgia pinnata*?	
Sample ID	EX1504L2_20150803225145_D2_Dive02_SPEC02BIO	
Date (UTC)	2015/08/03	
Time (UTC)	22:51:45	
Depth (m)	2464	
Temperature (°C)	1.72883	
Oxygen (mL/L)	3.28626	
Field ID(s)	*Parantipathes* sp.	
Comments	The specimen collected is the top half of a colony.	
Sample ID	EX1504L2_20150804001604_D2_Dive02_SPEC03GEO	
Date (UTC)	2015/08/04	
Time (UTC)	00:16:04	
Depth (m)	2407	
Temperature (°C)	1.69045	
Oxygen (mL/L)	3.33598	
Field ID(s)	Manganese crusted basalt	
Comments	A small ophioroid was on the rock at the time it was collected.	
Sample ID	EX1504L2_20150804022802_D2_Dive02_SPEC04GEO	
Date (UTC)	2015/08/04	

Time (UTC)	02:28:02
Depth (m)	2243
Temperature (°C)	1.9046
Oxygen (mL/L)	2.91523
Field ID(s)	Manganese crusted basalt

Comments	The rock broke in half upon collection, and only one half of the rock ended up being collected.

Please direct inquiries to:	NOAA Office of Ocean Exploration & Research 1315 East-West Highway (SSMC3 10th Floor) Silver Spring, MD 20910 (301) 734-1014