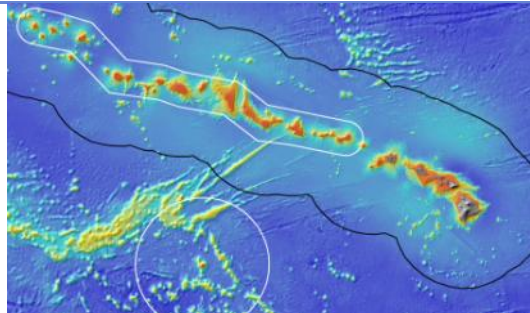


OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	East Necker Seamount (Keoia 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	DIVE01
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 communications issues between the shore-based and shipboard science team of the dive due to Internet connectivity, particularly during the early stages of the dive and also at the end. Other than that all other equipment worked properly.		
ROV Dive Summary (From processed ROV data)	Dive Summary: EX1504L2_DIVE01		
	~~~~~		
	In Water at:	2015-08-02T18:28:14.140000 23°, 13.318' N ; 163°, 31.227' W	
	Out Water at:	2015-08-03T02:27:45.078000 23°, 13.899' N ; 163°, 30.250' W	
	Off Bottom at:	2015-08-03T01:23:22.484000 23°, 13.701' N ; 163°, 31.148' W	
	On Bottom ai888nt:	2015-08-02T20:09:22.093000 23°, 13.303' N ; 163°, 31.060' W	
	Dive duration:	7:59:30	
	Bottom Time:	5:14:0	
Max. depth:	2222.0 m		
<b>Special Notes</b>			
<b>Scientists Involved (please provide name / location / affiliation / email)</b>	<p style="text-align: center;">             Chris Kelley, EX, UH, <a href="mailto:ckelley@hawaii.edu">ckelley@hawaii.edu</a>              Daniel Wagner, EX, PMNM, <a href="mailto:Daniel.wagner@noaa.gov">Daniel.wagner@noaa.gov</a>              Diva Amon, UH, UH, <a href="mailto:divaamon@hawaii.edu">divaamon@hawaii.edu</a>              Amy Baco-Taylor, HBOI, FSU, <a href="mailto:abacotaylor@fsu.edu">abacotaylor@fsu.edu</a>              Scott France, ULL, <a href="mailto:france@louisiana.edu">france@louisiana.edu</a>              Steve Haddock, MBARI, <a href="mailto:haddock@mbari.org">haddock@mbari.org</a>              Santiago Herrera, UT &amp; WHOI, <a href="mailto:sherrera@alum.mit.edu">sherrera@alum.mit.edu</a>              Astrid Leitner, UH, <a href="mailto:aleitner@hawaii.edu">aleitner@hawaii.edu</a>              Chris Mah, SI, <a href="mailto:brisinga@gmail.com">brisinga@gmail.com</a>              Tina Molodtsova, PPSIO, <a href="mailto:tina@ocean.ru">tina@ocean.ru</a>              Andrea Quattrini, USGS, <a href="mailto:aquattrini@usgs.gov">aquattrini@usgs.gov</a>              John R Smith, UH, <a href="mailto:jrsmith@hawaii.edu">jrsmith@hawaii.edu</a>              Jonathan Tree, UH, <a href="mailto:jtree@hawaii.edu">jtree@hawaii.edu</a>              Katherine Woodard, OGSS, <a href="mailto:katharine.woodard@noaa.gov">katharine.woodard@noaa.gov</a>              Nicole Morgan, FSU, HBOI <a href="mailto:nbmorgan11@gmail.com">nbmorgan11@gmail.com</a> </p>		

### **Purpose of the Dive**

This dive, located on the southeast rift zone of Keocea seamount east of Necker Island (Mokumanamana), was carried out to determine the lower depth range of a coral and sponge community found in 2003 during a HURL *Pisces* submersible dive. This was the first of several dives that will be conducted for the purpose of identifying the lower depth limit of known communities of corals and sponges in the region, thereby providing information valuable to NOAA's Deep Sea Coral Research and Technology Program (DSCRTP). The primary objective was to explore the rift zone below the deepest depth reached by the submersible (1720m). The target start point of the dive was on a flat terrace located at a depth of 2221m, which transitions into a steep slope at approximately 2200m. The ROV plan was to survey up the steep slope to a final target depth between 1700-1800m, documenting in particular the abundance of corals and sponges present for comparison to previous finding by the HURL submersible in shallower water.

### **Description of the Dive:**

The ROV landed very close to the wall at 2220m. The bottom was on a slope with rubble and did not contain any animals. The current was coming from the west at about 0.5knots. This current direction and intensity remained consistent throughout the dive. Numerous pillow flows were observed as the ROV moved up the slope and the number of animals started to increase slightly but overall diversity and abundance was still low. One 7.7 kg mn-crusted rock was collected at 2147m. At a depth of 2050m, animal density increased significantly, with the dominant species being gorgonians (isidids and primnoids), and hexactinellid sponges. A second manganese crusted rock was collected at 1836m, shortly before the ROV left the bottom. While the ROV did not quite reach the position of the previous submersible dive conducted in this area (1720m), the higher densities of animals observed during the latter half of the dive indicated that the dense coral and sponge community extends down to a depth of at least 2050m in this area. The ROV covered close to 800m during a total bottom time of 6:13h.

**Animals observed during the dive are listed below.**

#### **Cnidarians:**

Isidella trichotoma  
Isidella sp lyrate  
Cladarisis sp (yellow new species according to S. France)  
"Long bone isidid"  
Acanella weberi  
Keratoisis sp?  
Unbranched primnoid  
Calyptrophora angularis  
Narella or Candidella sp  
Chrysogorgia geniculata  
Chrysogorgia stellata  
Metallogorgia melanotrichos  
Bathypathes alternata  
Exocoelactis sp  
Unidentified anemone on coral, possibly hormathiid  
Unidentified colonial anemone or zoanthid overgrowing dead sponge

#### **Sponges**

Poliopogon spB  
Tretopleura sp1B  
Farrea nr occa erecta  
Bolosoma sp  
Caulophacus sp (couldn't tell subgenus)  
Regadrella sp  
Possible Dictyaulus sp  
Walteria flemmingi  
Walteria cf leukarti  
Corbitellinae new genus  
Small unidentified globular sponge

#### **Echinoderms**

Hymenaster pentagonalis  
Hymenodiscus sp? (tentative id by C. Mah)  
Unidentified seastars (no close-ups)  
Synallactidae  
Unidentified ophiuroids

*Glyptometra lateralis*  
Unidentified commatulina  
Unidentified yellow stalked crinoid (at least 8 arms)

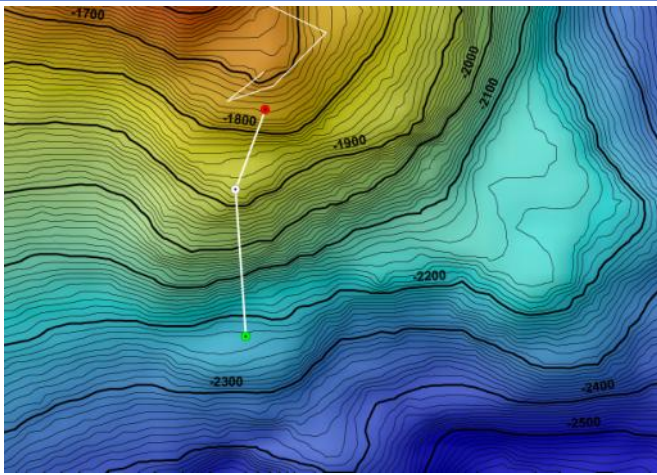
**Arthropods**

*Nematocarcinus tenuirostris*  
Unidentified shrimp in water column  
Unidentified Eumunidae or Munidae  
Unidentified gooseneck barnacle (*Scalpellidae?*)

**Fishes**

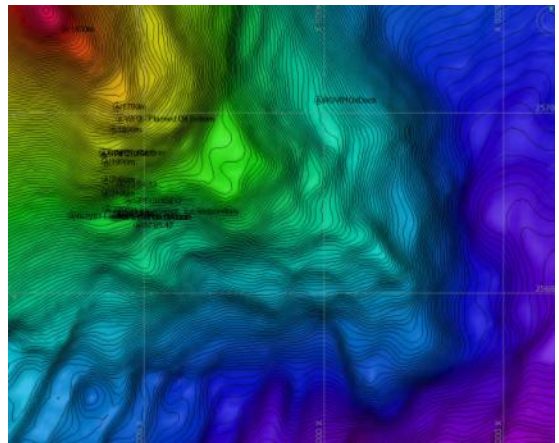
*Synphobranchus brevidorsalis*  
*Synphobranchus affinis?* (dorsal origin over pectorals)  
*Luciobrotula bartschi*  
Unidentified Ophidiidae  
*Aldrovandia phalacra*

**Overall Map of Dive Area**



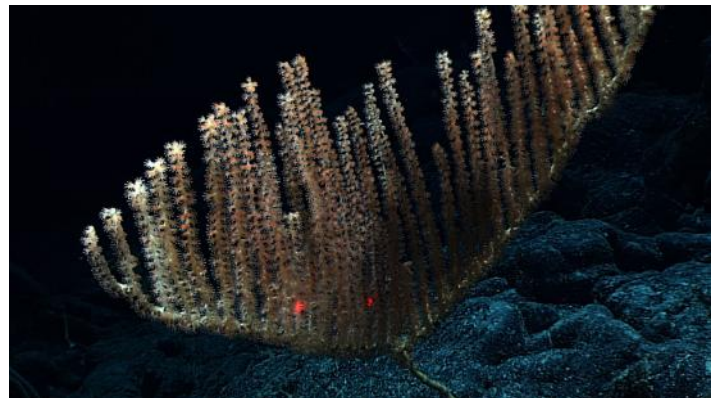
Bathymetry data for the dive site. Planned dive start and end points are shown as green and red dots, respectively. Upper white line is previous submersible dive track

**Actual track of ROV dive**



Bathymetry data for the dive site showing tracking positions

**Representative Photos of the Dive**







Photos showing the barren terrain observed during the first half of the dive (upper) and the first sample ever collected by the Okeanos Explorer (lower).

Photos showing one of the bamboo corals observed (upper), and the clear increase in the abundance of sponges and corals in the second half of the dive (lower).

**Samples Collected**

<b>Sample ID</b>	EX1504L2_20150802223100_D2_Dive01_SPEC01GEO
<b>Date (UTC)</b>	2015/08/02
<b>Time (UTC)</b>	22:32:05
<b>Depth (m)</b>	2147
<b>Temperature (°C)</b>	1.80619
<b>Oxygen (mL/L)</b>	3.15692
<b>Field ID(s)</b>	Manganese crusted basalt



**Comments** This rock sample was only loosely attached to the substrate, and therefore could be collected rather easily.

<b>Sample ID</b>	EX1504L2_20150803011405_D2_Dive01_SPEC02GEO
<b>Date (UTC)</b>	2015/08/03
<b>Time (UTC)</b>	01:14:05
<b>Depth (m)</b>	1836
<b>Temperature (°C)</b>	2.14056
<b>Oxygen (mL/L)</b>	2.61755
<b>Field ID(s)</b>	Manganese crusted basalt



**Comments** This rock came off the substrate after forcing it with the manipulator arm.

**Please direct inquiries to:**

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