

OKEANOS EXPLORER ROV DIVE SUMMARY

Site Name	Castellano Seamount			
ROV Lead/Expedition Coordinator	Karl Mcletchie/ Brian RC Kennedy			
Science Team Leads	Daniel Wagner and Jonathan Tree			
General Area Descriptor	US EEZ south of Papahānaumokuākea Marine National Monument			
ROV Dive Name	Cruise Season	Leg	Dive Number	
	EX1603	1	DIVE07	
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 checked="" type="checkbox"/> Seirios DO sensor	
Equipment Malfunctions	The Seirios CTD data had some erroneous spikes in the data.			
ROV Dive Summary (From processed ROV data)	Dive Summary: EX1603_DIVE07			
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	In Water:	2016-03-10T18:33:03.175000 26°, 25.819' N ; 177°, 48.280' W		
	Out Water:	2016-03-11T02:41:15.919000 26°, 26.116' N ; 177°, 47.920' W		
	Off Bottom:	2016-03-11T01:24:44.338000 26°, 25.905' N ; 177°, 48.378' W		
	On Bottom:	2016-03-10T19:51:58.235000 26°, 25.846' N ; 177°, 48.066' W		
	Dive duration:	8:8:12		
	Bottom Time:	5:32:46		
Max. depth:	2020.6 m			
<b>Special Notes</b>				
<b>Scientists Involved (please provide name / location / affiliation / email)</b>	<b>Name</b>	<b>Affiliation</b>	<b>Email Address</b>	
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#### **Purpose of the Dive**

This dive was located on a ridge extending to the southeast of Castellano Seamount. This seamount had never been previously surveyed and therefore its geology and biological communities were completely unknown. The objectives of this dive were to (1) survey for high-density communities of corals and sponges along the ridge, and (2) collect rock samples that could be used to determine the geological age of the seamount. The target start point of the dive was on the ridge of the crest at 2015 m. The plan was for the ROV to head northwest along the ridge crest until a final target depth of 1700 m. The ridge crest was hypothesized to be the lower portion of the crest along a landslide scarp which has over-steepened slopes typical of such features.

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

The ROV landed on the ridge crest at 2013 m. The substrate consisted of large Mn-encrusted volcanics, pebble to boulder in size, that were overgrown with a very high density of corals and sponges. There was little sedimentation at the landing site and the current was moderate from the east towards the west. The ROV collected a 8.9 kg Mn-crusted rock sample very close to the landing site at 2019 m (D2_DIVE07_SPEC01GEO). As the ROV moved up along the ridge crest, the density of corals remained very high and consisted mainly of primnoid, corallid, paragorgid and isid corals. Further up the slope, the ROV maneuvered around a large pinnacle, around which current flow was particularly strong. At 1988 m, the ROV collected a sample of a large primnoid coral (*Paracalythrophora* sp.), which was common throughout the dive. As the ROV continued to move up the slope, the density of animals remained very high, while the substrate was also consistently clean of sediments. At 1914 m, the ROV collected a second Mn-crusted rock sample with a mass of 16.6 kg. The sample is angular in shape and dense. The surface showed little vesicularity with larger oblate spheroidal vesicles indicating the sample was sourced from a higher viscosity flow of a'a' type lava. Along the entire dive track, layering of flows surrounded by volcanic rubble and talus were observed with consistent strikes of NW-SE to W-E and dipping to the SW-S. Fractures that were perpendicular to the ridge axis were interpreted to be propagating weaknesses causing block separation features influenced by the mass wasting taking place on the N-NE side of the ridge axis. The ROV left the

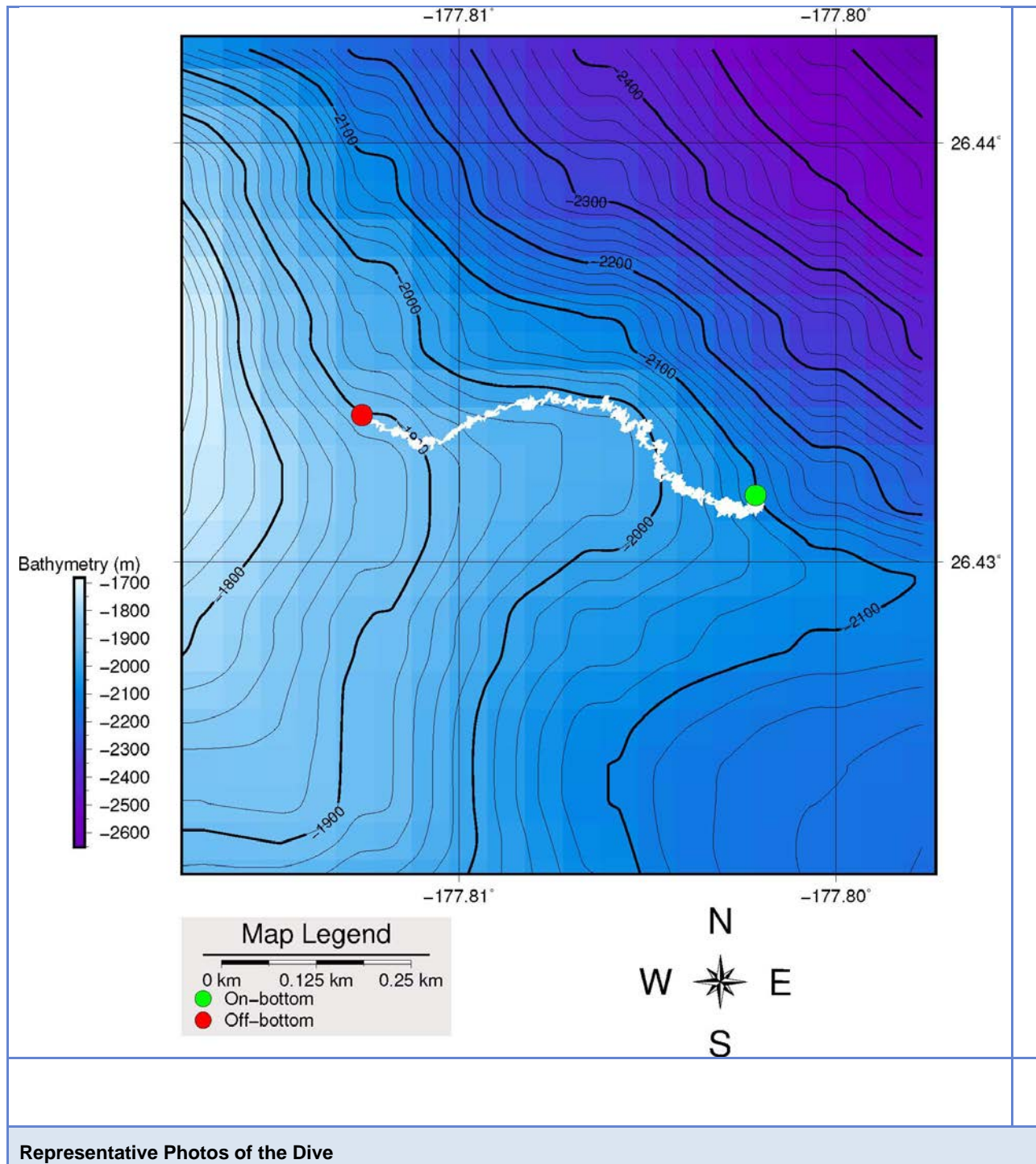
bottom at a depth of 1838 m after a total bottom time of 5:40 hrs. The biological community documented during dive was continuous and of a very high density.

### Animals observed during dive

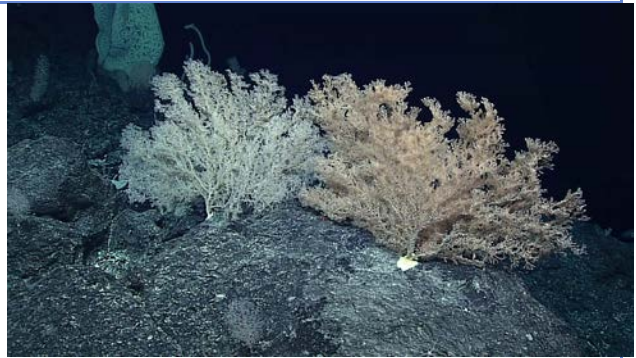
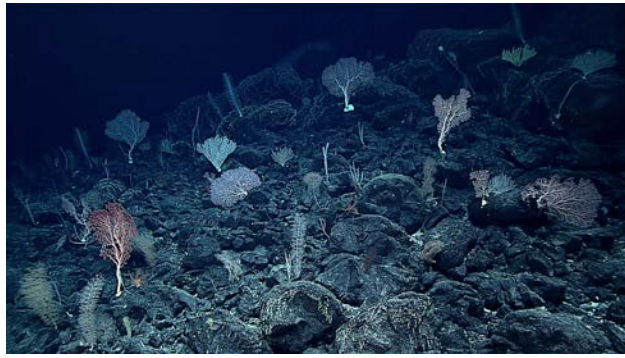
Phylum	Group	Species
Anellida	Polychaetes	Polynoid
Anellida	Polychaetes	Sabellida
Arthropods	Polychelid	Homeryon asper
Arthropods	Shrimp	Lebbeus sp.
Arthropods	Shrimp	Nematocarcinus tenuisrostris
Arthropods	Squat lobsters	Gastroptychus cf. iaspis
Arthropods	Squat lobsters	Uroptychus sp.
Cnidarians	Amphipod	Caprellidae
Cnidarians	Actinarians	Phelliactis sp.
Cnidarians	Alcyonaceans	Anthomastus sp.
Cnidarians	Corallimorpharia n	Corallimorpharian
Cnidarians	Gorgonians	Acanella weberi?
Cnidarians	Gorgonians	Branched Chrysogorgia sp.
Cnidarians	Gorgonians	Candidella gigantea?
Cnidarians	Gorgonians	Candidella helminthophora
Cnidarians	Gorgonians	Chrysogorgia chryseis
Cnidarians	Gorgonians	Chrysogorgia geniculata
Cnidarians	Gorgonians	Chrysogorgia tricaulis
Cnidarians	Gorgonians	Chrysogorgia stellata
Cnidarians	Gorgonians	Hemicorallium sp.
Cnidarians	Gorgonians	Iridogorgia magnispiralis
Cnidarians	Gorgonians	Isidella sp. lyrate
Cnidarians	Gorgonians	Isidella trichotoma
Cnidarians	Gorgonians	Keratoisidinae sparsely branched
Cnidarians	Gorgonians	Keratoisis sp.
Cnidarians	Gorgonians	Lepidisis sp.
Cnidarians	Gorgonians	Narella dichotoma?
Cnidarians	Gorgonians	Narella sp.
Cnidarians	Gorgonians	Paracalyptrophora? sp.
Cnidarians	Gorgonians	Paragorgia sp.
Cnidarians	Gorgonians	Rhodanirigorgia sp.
Cnidarians	Gorgonians	Unbranched Isididae
Cnidarians	Gorgonians	Unbranched primnoid
Cnidarians	Hydrozoans	Hydroidolina
Cnidarians	Hydrozoans	Hydromedusa
Cnidarians	Pennatulaceans	Anthoptilum sp.
Cnidarians	Pennatulaceans	Halipteris sp.
Cnidarians	Zoanthids	Bullagummizoanthus emilyacadiaarum
Echinoderms	Asteroids	Circeaster arandae
Echinoderms	Asteroids	Henrecia pauperrima

Echinoderms	Asteroids	Hypasteria municepula
Echinoderms	Crinoids	Antedonidae
Echinoderms	Crinoids	Comatulid crinoid
Echinoderms	Crinoids	Glyptometra lateralis
Echinoderms	Crinoids	Sarametra triserialis
Echinoderms	Ophiuroids	Asteroschematidae
Echinoderms	Ophiuroids	Ophiocantidae
Echinoderms	Urchin	Caenopedina sp.
Echinoderms	Urchin	Sperosoma obscurum
Fishes	Eels	Synaphobranchus brevidorsalis
Fishes	Eels	Synaphobranchus sp.
Fishes	Macrourids	Kumba sp.
Mollusks	Aplocophoran	Aplocophoran
Mollusks	Gastropods	Gastropod
Mollusks	Polycophora	Chiton
Sponges	Hexactinellids	Caulophacus (New subgenus) sp.
Sponges	Hexactinellids	Caulophacus (unknown subgenus) sp.
Sponges	Hexactinellids	Corbitellinae new genus
Sponges	Hexactinellids	Farrea sp.
Sponges	Hexactinellids	Farrea nr occa
Sponges	Hexactinellids	Lyssacinosida
Sponges	Hexactinellids	Pheronematidae
Sponges	Hexactinellids	Poliopogon sp. 4
Sponges	Hexactinellids	Poliopogon sp.A
Sponges	Hexactinellids	Poliopogon sp.B
Sponges	Hexactinellids	Tretopleura sp.
Sponges	Hexactinellids	Walteria cf. leukarti

Map of ROV Dive Area



Representative Photos of the Dive



**Samples Collected**

<b>Sample ID</b>	SPEC01GEO
<b>Date (UTC)</b>	20160310
<b>Time (UTC)</b>	20:05:48
<b>Depth (m)</b>	2017.5
<b>Temperature (°C)</b>	1.9
<b>Field ID(s)</b>	Mn-encrusted volcanic



**Comments**

<b>Sample ID</b>	SPEC02BIO	
<b>Date (UTC)</b>	20160310	
<b>Time (UTC)</b>	22:26:43	
<b>Depth (m)</b>	1984.8	
<b>Temperature (°C)</b>	2.08	
<b>Field ID(s)</b>	Paracalyptophora sp.	
<b>Comments</b>		
<b>Sample ID</b>	SPEC03GEO	
<b>Date (UTC)</b>	20160311	
<b>Time (UTC)</b>	00:14:24	
<b>Depth (m)</b>	1911.9	
<b>Temperature (°C)</b>	2.04	
<b>Field ID(s)</b>	Mn-encrusted volcanic	
<b>Comments</b>		
<b>Please direct inquiries to:</b>	NOAA Office of Ocean Exploration & Research 1315 East-West Highway (SSMC3 10 th Floor) Silver Spring, MD 20910 (301) 734-1014	