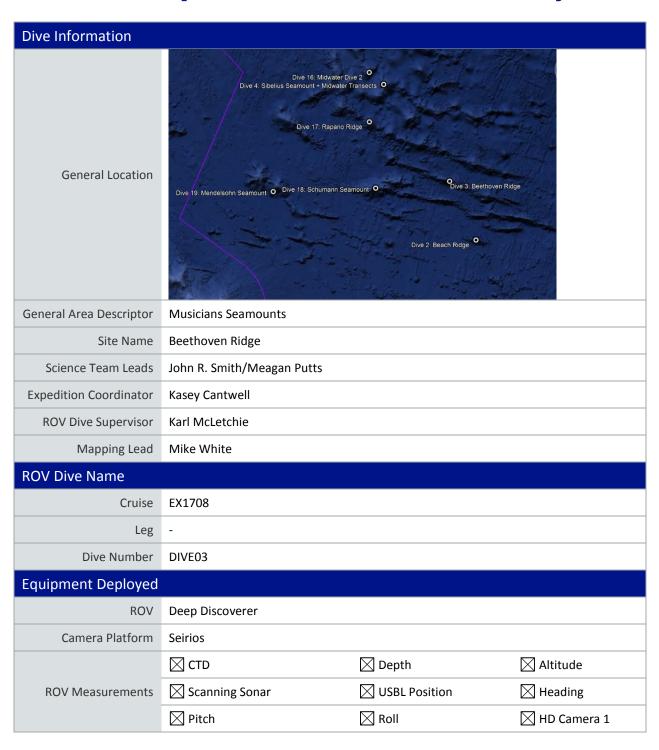


# Okeanos Explorer ROV Dive Summary



	X HD Camera 2		
	Low Res Cam 3	B Low Res Cam 4	Low Res Cam 5
Equipment Malfunctions	The DO sensor on Seirios has a grounding issue. The ground fault monitoring device o Seirios causes small spikes of noise in the data. These have been present in Dives 01, 02, & 03. The DO sensor on D2 records large and unnatural fluctuations during descent to 550m then behaves normally for the rest of the dive.  Dive Summary: EX1708_DIVE03		
ROV Dive Summary (from processed ROV data)	In Water:	2017-09-09T18:24:09.181000 26°, 13.363' N; 159°, 08.830' W	
	Out Water:	2017-09-10T02:30:02.712000 N/A ; N/A	
	Off Bottom:	2017-09-10T01:13:17.372000 26°, 13.431' N ; 159°, 08.527' W	
	On Bottom:	2017-09-09T19:52:42.319000 26°, 13.373' N ; 159°, 08.793' W	
	Dive duration:	8:5:53	
	Bottom Time:	5:20:35	
	Max. depth: 2534.5 m		
Special Notes			
	Name	Email	Affiliation
Scientists Involved (please provide name, location, affiliation, email)	Asako Matsumoto	amatsu@gorgonian.jp	Planetary Exploration Research Center, Chiba Institute of Technology
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	Christopher Mah	brisinga@gmail.com	Dept. Invertebrate Zoology, NMNH Smithsonian Institution
	John Smith	jrsmith@hawaii.edu	University of Hawaii
	Katie Musser	katielynnmusser@gmail.com	University of Louisiana a
	Les Watling	watling@hawaii.edu	University of Hawaii at Manoa
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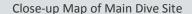
#### Purpose of the Dive

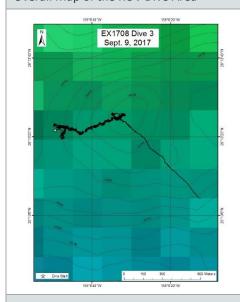
The primary objective for this dive was to characterize the distribution and abundance of benthic fauna. A comparison of the diversity and distribution of coral and sponge communities across the seamounts to the north, the Hawaiian Ridge, and the broader North Pacific is of particular importance to understanding biogeography and connectivity of communities in the Pacific. Sharp elongate ridge features have been shown to harbor large-scale, high-density coral communities on the NW Hawaiian Ridge. As such, the elongate ridges in these areas have a high potential to host similar communities. The priorities were to complete a videographic survey along the transect and collect unique or representative biological and geological samples while covering as much of the feature as possible.

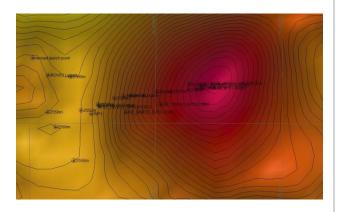
#### Description of the Dive

The ROV arrived on bottom at 2525 m water depth near the base of the volcanic cone on a cobble field of variable sized rocks and few biological organisms. As the vehicle moved upslope, we saw numerous transitions from talus fields to intact volcanic outcrops of various morphologies including intact and fractured pillows, lobate flows, along with possible sheet flows and massive lava forms. Eventually, the density, diversity, and size of biologics increased, leading us to consider that steeper and more stable substrate may be the influencing factors as seen at other sites. A unique relatively dense community of *Anthomastus* sp., Primnoids, and glass sponges was observed ~2400 m and upward. After alternating between talus and outcrops, we came across a dense coral and sponge community at ~2300 m that continued to intensify and diversify toward the summit. The topography began flattening out at ~2312 m and the dense biological community was found to persist all throughout the summit area we investigated. The final rock sample with numerous biological associates was collected just prior to leaving bottom at 2303 m.

#### Overall Map of the ROV Dive Area







Representative Photos of the Dive







Anthomastus sp. and Primnoidae coral community of massive lava outcrop

Glass sponge dominated community along with *Anthomastus* sp. and Primnoidae coral located on a talus pile





High density coral and sponge community on talus and outcrop near summit of cone. Note that most coral fans are similarly oriented, presumably facing the dominant current.

Hexactinellida vase sponge in a field of Primnoids and *Anthomastus* sp. and other glass sponges.

### Samples Collected Sample EX1708\_D2\_DIVE03\_SPEC01GE Sample ID Date (UTC) 9/10/2017 Time (UTC) 20:03 Depth (m) 2531.1 Temperature (°C) 1.6 Field ID(s) Manganese crusted basalt Commensal ID and Field Identification



Community		
Comments		
Sample		
Sample ID	EX1708_D2_DIVE03_SPEC02BIO	
Date (UTC)	9/10/2017	
Time (UTC)	21:19	
Depth (m)	2472.6	
Temperature (°C)	1.6	
Field ID(s)	Ceriantharia	
Commensal ID and	EX1708_D2_DIVE03_SPEC02BIO_/	
Field Identification	EX1708_D2_DIVE03_SPEC02BIO_/	402
Comments	Three individuals in sponge stalk	
Sample		
Sample ID	EX1708_D2_DIVE03_SPEC03BIO	
Date (UTC)	9/10/2017	
Time (UTC)	22:42	
Depth (m)	2393.9	
Temperature (°C)	1.7	
Field ID(s)	Anthomastus sp.	
Commensal ID and Field Identification	EX1708_D2_DIVE03_SPEC03BIO_/	A01 Rock
Comments	Two individuals on rock	
Sample		
Sample ID	EX1708_D2_DIVE03_SPEC04BIO	
Date (UTC)	9/11/2017	
Time (UTC)	00:11	
Depth (m)	2321.8	
Temperature (°C)	1.7	
Field ID(s)	Chrysogorgia sp.	
Commensal ID and Field Identification		
Comments		



Sample	
Sample ID	EX1708_D2_DIVE03_SPEC05BIO
Date (UTC)	9/11/2017
Time (UTC)	01:01
Depth (m)	2308.7
Temperature (°C)	1.7
Field ID(s)	Hexactinellida "vase"
Commensal ID and Field Identification	
Comments	
Sample	
Sample ID	EX1708_D2_DIVE03_SPEC06GEO
Date (UTC)	9/11/2017
Time (UTC)	01:11
Depth (m)	2303.8
Temperature (°C)	1.7
Field ID(s)	Manganese crusted basalt
_	EX1708_D2_DIVE03_SPEC06GEO_A01 Hexactinellida sp.
Commensal ID and Field Identification	EX1708_D2_DIVE03_SPEC06GEO_A02 Anthomastus sp.
	EX1708_D2_DIVE03_SPEC06GEO_A03 Ophiuroidea
	EX1708_D2_DIVE03_SPEC06GEO_A04 Hexactinellida sp.
Comments	

## Please direct inquiries to:

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