*Okeanos Explorer* ROV Dive Summary

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| Dive Information | | | | |
| General Location |  | | | |
| General Area Descriptor | Musicians Seamounts | | | |
| Site Name | Debussy Seamount (attempt 2) | | | |
| Science Team Leads | John R. Smith/Meagan Putts | | | |
| Expedition Coordinator | Kasey Cantwell | | | |
| ROV Dive Supervisor | Karl McLetchie | | | |
| Mapping Lead | Mike White | | | |
| ROV Dive Name | | | | |
| Cruise | EX1708 | | | |
| Leg | - | | | |
| Dive Number | DIVE07 | | | |
| 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 5 |
| Equipment Malfunctions | USBL for D2 pinging less frequently due to running off of battery power versus external power. | | | |
| ROV Dive Summary (from processed ROV data) | Dive Summary: EX1708\_DIVE07  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^  In Water: 2017-09-13T22:59:32.364000  N/A ; N/A  Out Water: 2017-09-14T04:30:02.746000  N/A ; N/A  Off Bottom: 2017-09-14T03:23:02.104000  30°, 20.368' N ; 162°, 03.333' W  On Bottom: 2017-09-14T00:15:17.832000  30°, 20.446' N ; 162°, 03.269' W  Dive duration: 5:30:30  Bottom Time: 3:7:44  Max. depth: 2054.1 m | | | |
| Special Notes | Dive was shortened ahead of deployment because of failed first attempt due to ground faults. Recovery was extended by two hours and planned midwater transects were canceled. | | | |
| Scientists Involved  (please provide name, location, affiliation, email) | |  |  |  | | --- | --- | --- | | Name | Email | Affiliation | | Amanda Netburn | amanda.netburn@noaa.gov | NOAA OER | | Asako Matsumoto | amatsu@gorgonian.jp | Planetary Exploration Research Center, Chiba Institute of Technology | | Bruce Mundy | bruce.mundy@noaa.gov | NOAA NMFS Pacific Islands Fisheries Science Center | | Christopher Kelley | ckelley@hawaii.edu | University of Hawaii | | Christopher Mah | brisinga@gmail.com | Dept. Invertebrate Zoology, NMNH Smithsonian Institution | | Derek Sutcliffe | Derek\_sutcliffe@uri.edu | URI Inner Space Center | | John Smith | jrsmith@hawaii.edu | University of Hawaii | | Les Watling | watling@hawaii.edu | University of Hawaii at Manoa | | Malcolm Clark | malcolm.clark@niwa.co.nz | NIWA | | Mashkoor Malik | mashkoor.malik@noaa.gov | OER | | Meagan Putts | Meagan.putts@noaa.gov | University of Hawaii | | Megan McCuller | mccullermi@gmail.com | Williams-Mystic Maritime Studies Program | | Mike Ford | michael.ford@noaa.gov | NOAA NMFS | | Nolan Barrett | barrettnh@g.cofc.edu | FAU Harbor Branch Oceanographic Institute | | Scott France | france@louisiana.edu | University of Louisiana at Lafayette | | Tara Luke | luket@stockton.edu | Stockton University | | Tim Shank | tshank@whoi.edu | WHOI | | Tina Molodtsova | tina@ocean.ru; tina.molodtsova@gmail.com | P.P.Shirshov Institute of Oceanology RAS | | Tom Hansknecht | tjhansk@comcast.net | Barry Vittor and Associates, Inc. retired | | | | |
| Purpose of the Dive | **This is the first of two dives that will investigate the similarities and differences in community composition between two relatively isolated seamounts (Mussorgsky and Debussy) that occupy the gap between the two main groups of the Musicians Seamounts.** The primary objective for this dive was to characterize the distribution and abundance of benthic fauna, in particular corals, to examine the diversity, biogeography, and connectivity of coral living at Debussy Seamount compared to the isolated Mussorgsky Seamount and to the rest of the sites visited during this expedition. A comparison of the diversity and distribution of coral and sponge communities across the seamounts to the north and to the Hawaiian Ridge and the broader North Pacific will help describe the biogeography and connectivity of communities in the Pacific. The dive satisfies the CAPSTONE science theme to "Identify and map vulnerable marine habitats – particularly high-density deep-sea coral and sponge communities." | | | |
| Description of the Dive | Following a delayed deployment, ROV *Deep Discoverer* (D2) arrived on bottom at a water depth of 2044 m to low relief lava flow outcrop, talus, and light colored sediment. Coral colonies abounded immediately along with some sponges, and showing great diversity. A novel find was a *Asthenactis* sp. sea star predating on a *Acanthogorgia* sp. coral at time stamp 00:47 and 2051 m depth. This was the first time this genus of sea star has been observed predating upon a coral. A large intact lava flow was found at 2047 m and was traversed. Dense corals, including numerous Primnoids, likely in the genus *Narella*, were observed on the nose of a massive rock outcrop forming a ledge. Another unusual sighting was that of a *Bathysaurus mollis* at 2031 m depth, the upper limit of its known depth range. Alternating talus fields, intact lava flow units, and combinations of both were observed from 2030 m until end of the dive. Large, inflated lobate lavas with pillowed toes were the norm, along with thinner flows adjoining them. The slope from beginning to end of the dive was almost negligible, and yet this dive possibly produced the most continuous high density coral and sponge community of the expedition to date, from start to finish. Throughout the dive, two representative rock samples and two unique bamboo coral specimens were collected as described below. D2 left bottom from a depth of 2012 m. | | | |
| Overall Map of the ROV Dive Area | | Close-up Map of Main Dive Site | | |
| O:\cruises\EX1708\DiveSummaries\HypackScreengrabs\DIVE07_Hypack_wide.JPG | | O:\cruises\EX1708\DiveSummaries\HypackScreengrabs\DIVE07_Hypack_zoom.JPG | | |
| Representative Photos of the Dive | | | | |
| N:\EX1708\Imagery\EX1708_DIVE07_20170913\EX1708_IMG_20170914T001717Z_ROVHD.jpg | | N:\EX1708\Imagery\EX1708_DIVE07_20170913\EX1708_IMG_20170914T004805Z_ROVHD.jpg | | |
| Deep-sea coral community on lava flow outcrop that was present right at ROV touchdown site. The fun never stopped. | | *Asthenactis* sp. sea star “keepin’ on truckin’” as it devours an *Acanthogorgia* sp. coral. Note extended stomach and blackened coral stem and polyps inside its translucent gut. | | |
| N:\EX1708\Imagery\EX1708_DIVE07_20170913\EX1708_IMG_20170914T012852Z_ROVHD.jpg | | N:\EX1708\Imagery\EX1708_DIVE07_20170913\EX1708_IMG_20170914T025439Z_PTMAN_COR_ROC.jpg | | |
| White Primnoid coral garden on the edge of an intact lava flow outcrop | | Broken pillow in the process of breaking into talus with coral community along for the ride. Note line of coral trees on edge of outcrop extending into the background. | | |
| Samples Collected | | | | |

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| Sample | | |
| Sample ID | EX1708\_D2\_DIVE07\_SPEC01GEO | C:\Users\putts\AppData\Local\Microsoft\Windows\INetCache\Content.Word\EX1708_IMG_20170914T011408Z_ROVHD.JPG |
| Date (UTC) | 9/14/2017 |
| Time (UTC) | 01:17 |
| Depth (m) | 2050.8 |
| Temperature (°C) | 2.0 |
| Field ID(s) | Manganese encrusted basalt |
| Commensal ID and Field Identification | EX1708\_D2\_DIVE07\_SPEC01GEO\_A01 Ascidian tunicate  EX1708\_D2\_DIVE07\_SPEC01GEO\_A02 Stolonifera "purple"  EX1708\_D2\_DIVE07\_SPEC01GEO\_A03 Primnoidae  EX1708\_D2\_DIVE07\_SPEC01GEO\_A04 Octocoral | |
| Comments |  | |
| **Sample** | | |
| Sample ID | EX1708\_D2\_DIVE07\_SPEC02GEO | C:\Users\putts\AppData\Local\Microsoft\Windows\INetCache\Content.Word\EX1708_IMG_20170914T020956Z_ROVHD.JPG |
| Date (UTC) | 9/14/2017 |
| Time (UTC) | 02:11 |
| Depth (m) | 2023.9 |
| Temperature (°C) | 2.1 |
| Field ID(s) | Manganese encrusted basalt |
| Commensal ID and Field Identification | EX1708\_D2\_DIVE07\_SPEC02GEO\_A01 Hexactinellida 1  EX1708\_D2\_DIVE07\_SPEC02GEO\_A02 Hexactinellida 2  EX1708\_D2\_DIVE07\_SPEC02GEO\_A03 Ascidian tunicate  EX1708\_D2\_DIVE07\_SPEC02GEO\_A04 Primnoidae  EX1708\_D2\_DIVE07\_SPEC02GEO\_A05 Isididae  EX1708\_D2\_DIVE07\_SPEC02GEO\_A06 Octocoral | |
| Comments |  | |
| **Sample** | | |
| Sample ID | EX1708\_D2\_DIVE07\_SPEC03BIO | C:\Users\putts\AppData\Local\Microsoft\Windows\INetCache\Content.Word\EX1708_IMG_20170914T023950Z_ROVHD.JPG |
| Date (UTC) | 9/14/2017 |
| Time (UTC) | 02:42 |
| Depth (m) | 2018.7 |
| Temperature (°C) | 2.1 |
| Field ID(s) | Keratoisidinae “Nodal” |
| Commensal ID and Field Identification |  | |
| Comments |  | |
| **Sample** | | |
| Sample ID | EX1708\_D2\_DIVE07\_SPEC04BIO | C:\Users\putts\AppData\Local\Microsoft\Windows\INetCache\Content.Word\EX1708_IMG_20170914T030608Z_ROVHD.JPG |
| Date (UTC) | 9/14/2017 |
| Time (UTC) | 03:11 |
| Depth (m) | 2013.2 |
| Temperature (°C) | 2.0 |
| Field ID(s) | Keratoisidinae “Internodal” |
| Commensal ID and Field Identification |  | |
| Comments |  | |

# Please direct inquiries to:

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