*Okeanos Explorer* ROV Dive Summary

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| Dive Information | | | | |
| General Location |  | | | |
| General Area Descriptor | Musicians Seamounts | | | |
| Site Name | Wagner Seamount | | | |
| 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 | DIVE08 | | | |
| 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 |  | | | |
| ROV Dive Summary (from processed ROV data) | Dive Summary: EX1708\_DIVE08  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^  In Water: 2017-09-14T18:22:42.102000  31°, 50.962' N ; 162°, 53.742' W  Out Water: 2017-09-15T02:30:02.602000  N/A ; N/A  Off Bottom: 2017-09-15T01:17:08.427000  31°, 51.067' N ; 162°, 53.947' W  On Bottom: 2017-09-14T19:50:16.248000  31°, 51.118' N ; 162°, 53.688' W  Dive duration: 8:7:20  Bottom Time: 5:26:52  Max. depth: 2432.4 m | | | |
| Special Notes |  | | | |
| Scientists Involved  (please provide name, location, affiliation, email) | |  |  |  | | --- | --- | --- | | 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 | | Eric Mittelstaedt | emittelstaedt@uidaho.edu | University of Idaho | | George Matsumoto | mage@mbari.org | MBARI | | Heather Coleman | heather.coleman@noaa.gov | NOAA Fisheries | | John Smith | jrsmith@hawaii.edu | University of Hawaii | | Katie Wagner | katie.wagner@noaa.gov | NOAA OER | | Les Watling | watling@hawaii.edu | University of Hawaii at Manoa | | Luke McCartin | lmccartin@whoi.edu | WHOI | | Malcolm Clark | malcolm.clark@niwa.co.nz | NIWA | | Meagan Putts | Meagan.putts@noaa.gov | University of Hawaii | | Megan McCuller | mccullermi@gmail.com | Williams-Mystic Maritime Studies Program | | 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 | One of the main objectives of this dive was to collect representative rock samples of the feature for geochemical analysis and isotopic dating so as to examine the interaction of hot spot and mid-ocean ridge interactions. The other objective for this dive is to characterize the distribution and abundance of benthic fauna, in particular corals, to examine the diversity, biogeography, and connectivity of corals living the northern seamount group compared to those observed in the southern seamount group 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 themes to “investigate the geologic history of Pacific seamounts” and to "identify and map vulnerable marine habitats – particularly high-density deep-sea coral and sponge communities." | | | |
| Description of the Dive | The ROV Deep Discoverer (D2) arrived on bottom near the base of a volcanic pillow cone at a water depth of 2428 m. The seafloor here was composed of talus of various sizes including large boulders and some intact lava flow outcrops. Soon after, contact was made with an extensive sheet flow unit ~one-meter-thick at 2430 m that persisted upslope. An in place rock sample was obtained from the flow edge and does appear to be basalt with a broken edge showing alteration. Regarding biology, the dive started slow with some low density communities. As we transected up the slope of the cone feature, the community increased in density with Chrysogorgid coral, *Anthomastus* sp. mushroom coral, and a diversity of Antipatharians, black coral, along the way. The slope increased to 30-40° at 2024 m and a mix of sheet flow and pillow outcrops with talus were presented. A unique white sea star, likely *Zorroaster* sp., with a single row of upward facing spines was observed at time stamp 20:46 and a depth of 2415 m. Large, isolated boulders with abundant corals were seen atop mostly barren sheet flows at 2235 m on slopes of 40-50°. The slope again steepened at 2310 m to possibly 50-60° where mostly sheet flows were observed and little else. Following a collection of a glass sponge that may be an undescribed species at 2293 m, a contact from a ledge feature to more talus and decreasing slope was observed approximately 200 m laterally from the summit. A contact with a thick ledge of lava outcrop was observed at 2258 m just prior to reaching the summit area. Upon reaching the summit of the cone, we were surrounded by a bamboo coral forest at 2248 m. The high density community was made up of large bamboo colonies all around with numerous black coral, chrysogorgid coral, *Swiftia* sp., paragorgids, glass sponges, and more organisms interspersed between. We were able to collect a new species of Goniasteridae sea star predating upon a *Umbellapathes* sp., a new species of glass sponge, and Stoloniferan coral and Hydrozoans overgrowing a bamboo skeleton. Another contact with a thick flow unit was observed at 2338 m. After completing the planned track, it was realized that we were on a false summit and decided to pursue the real summit based on the Seirios scanning sonar. This area, a local high, was nearly flat with variable rock types and depth of 2232 m. A second rock was collected at 2230 m that turned out to be crumbly and friable and a mix of material including small black phenocrysts that may be basalt amongst a jumbled matrix of yellowish material resembling scrambled eggs, possibly being the remnants of a pyroclastic flow. There was also an attempt to collect the same type of rock occurred on Dive #01 at “Tropic of Cancer” Seamount. Two crabs were seen locking in what was determined as a mating embrace at time stamp 00:30 and 2230 m. ROV D2 moved into a depression at 2234 m that included talus, low relief outcrops, and much less biologic density with smaller organisms. A lobate outcrop with high density coral colonies was observed at 2233 m. A final coral was collected from this depth and ROV D2 left bottom from a depth of 2235 m shortly thereafter. | | | |
| Overall Map of the ROV Dive Area | | Close-up Map of Main Dive Site | | |
| E:\cruises\EX1708\DiveSummaries\HypackScreengrabs\DIVE08_Hypack_wide.JPG | | E:\cruises\EX1708\DiveSummaries\HypackScreengrabs\DIVE08_Hypack_zoom.JPG | | |
| Representative Photos of the Dive | | | | |
| N:\EX1708\Imagery\EX1708_DIVE08_20170914\EX1708_IMG_20170914T201724Z_ROVHD.jpg | | N:\EX1708\Imagery\EX1708_DIVE08_20170914\EX1708_IMG_20170914T225246Z_ROVHD.jpg | | |
| Nearly barren of life, this lava sheet flow with broken downslope edge at the beginning of the dive is a source of talus | | Corals densely populating an isolated boulder resting on a smooth sheet flow unit | | |
| N:\EX1708\Imagery\EX1708_DIVE08_20170914\EX1708_IMG_20170915T003100Z_ROVHD.jpg | | N:\EX1708\Imagery\EX1708_DIVE08_20170914\EX1708_IMG_20170915T011528Z_ROVHD.jpg | | |
| Two crabs (*Paralomis* sp.) locked in a loving embrace, crustacean style | | Dense coral community, with some sponges, on the summit of the pillow cone | | |
| Samples Collected | | | | |

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| --- | --- | --- |
| Sample | | |
| Sample ID | EX1708\_D2\_DIVE08\_SPEC01GEO | C:\Users\putts\AppData\Local\Microsoft\Windows\INetCache\Content.Word\EX1708_IMG_20170914T202755Z_ROVHD.JPG |
| Date (UTC) | 9/14/2017 |
| Time (UTC) | 20:29 |
| Depth (m) | 2425.12 |
| Temperature (°C) | 1.7 |
| Field ID(s) | Manganese encrusted rock in place sheet flow |
| Commensal ID and Field Identification |  | |
| Comments |  | |
| **Sample** | | |
| Sample ID | EX1708\_D2\_DIVE08\_SPEC02BIO | C:\Users\putts\AppData\Local\Microsoft\Windows\INetCache\Content.Word\EX1708_IMG_20170914T222307Z_ROVHD.JPG |
| Date (UTC) | 9/14/2017 |
| Time (UTC) | 22:33 |
| Depth (m) | 2352.5 |
| Temperature (°C) | 1.8 |
| Field ID(s) | *Umbellapathes* sp. |
| Commensal ID and Field Identification | EX1708\_D2\_DIVE08\_SPEC02BIO\_A01 Manganese encrusted rock  EX1708\_D2\_DIVE08\_SPEC02BIO\_A02 Hydrozoa  EX1708\_D2\_DIVE08\_SPEC02BIO\_A03 Goniasteridae | |
| Comments |  | |
| **Sample** | | |
| Sample ID | EX1708\_D2\_DIVE08\_SPEC03BIO | C:\Users\putts\AppData\Local\Microsoft\Windows\INetCache\Content.Word\EX1708_IMG_20170914T231459Z_ROVHD.JPG |
| Date (UTC) | 9/14/2017 |
| Time (UTC) | 23:21 |
| Depth (m) | 2292.1 |
| Temperature (°C) | 1.8 |
| Field ID(s) | Euplectellidae |
| Commensal ID and Field Identification | EX1708\_D2\_DIVE08\_SPEC03BIO\_A01 Gastropoda  EX1708\_D2\_DIVE08\_SPEC03BIO\_A02 Stolonifera  EX1708\_D2\_DIVE08\_SPEC03BIO\_A03 Polychaeta  EX1708\_D2\_DIVE08\_SPEC03BIO\_A04 Amphipoda | |
| Comments | Portion of dead sponge was collected with specimens | |
| **Sample** | | |
| Sample ID | EX1708\_D2\_DIVE08\_SPEC04GEO | C:\Users\putts\AppData\Local\Microsoft\Windows\INetCache\Content.Word\EX1708_IMG_20170915T000231Z_D2_DIVE08_SPEC04GEO_04.jpg |
| Date (UTC) | 9/15/2017 |
| Time (UTC) | 00:04 |
| Depth (m) | 2230.5 |
| Temperature (°C) | 1.8 |
| Field ID(s) | Manganese encrusted rock |
| Commensal ID and Field Identification |  | |
| Comments | Associate corals were lost between collection and ROV recovery; no associates were collected with the rock sample | |
| **Sample** | | |
| Sample ID | EX1708\_D2\_DIVE08\_SPEC05BIO | C:\Users\putts\AppData\Local\Microsoft\Windows\INetCache\Content.Word\EX1708_IMG_20170915T005412Z_ROVHD.JPG |
| Date (UTC) | 9/15/2017 |
| Time (UTC) | 01:07 |
| Depth (m) | 2233.2 |
| Temperature (°C) | 1.8 |
| Field ID(s) | Stolonifera on bamboo |
| Commensal ID and Field Identification | EX1708\_D2\_DIVE08\_SPEC05BIO\_A01 Hydrozoa  EX1708\_D2\_DIVE08\_SPEC05BIO\_A02 Isididae skeleton  EX1708\_D2\_DIVE08\_SPEC05BIO\_A03 Polychaeta? | |
| Comments |  | |

# Please direct inquiries to:

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