*Okeanos Explorer* ROV Dive Summary

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Dive Information | | | | | |
| Dive Map | |  | | | |
| Site Name | | Hadal Trough “Kinono” | | | |
| Expedition Coordinator(s) | | Brian RC Kennedy, Nick Pawlenko | | | |
| ROV Lead(s) | | Karl McLetchie | | | |
| Science Team Lead(s) | | Amanda Demopoulos and Steven Auscavitch | | | |
| General Area Descriptor | | Phoenix Islands Protected Area | | | |
| ROV Dive Name | | | | | |
| Cruise | | EX-17-03 | | | |
| Leg | | 0 | | | |
| Dive Number | | 16 | | | |
| Equipment Deployed | | | | | |
| ROV | | Deep Discoverer (D2) | | | |
| 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: EX1703\_DIVE16  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^  In Water: 2017-03-23T18:30:40.309000  04°, 22.525' S ; 172°, 59.763' W  Out Water: 2017-03-24T04:21:39.338000  04°, 22.604' S ; 172°, 59.532' W  Off Bottom: 2017-03-24T01:09:44.779000  04°, 22.629' S ; 172°, 59.817' W  On Bottom: 2017-03-23T21:31:44.681000  04°, 22.512' S ; 172°, 59.870' W  Dive duration: 9:50:59  Bottom Time: 3:38:0  Max. depth: 5862.9 m | | | |
| Special Notes | |  | | | |
| Scientists Involved  (please provide name, location, affiliation, email) | | |  |  |  | | --- | --- | --- | | **Name** | **Affiliation** | **Email Address** | | Abby Lapointe | University of Hawaii | abbylap@hawaii.edu | | Amanda Demopoulos | USGS | ademopoulos@usgs.gov | | Asako Matsumoto | Chiba Institute of Technology (Chitech), | amatsu@gorgonian.jp | | Benjamin Frable | Scripps Institution of Oceanography | bfrable@ucsd.edu | | Bruce Mundy | NOAA NMFS Pacific Islands Fisheries Science Center | bruce.mundy@noaa.gov | | Christopher Kelley | University of Hawaii | ckelley@hawaii.edu | | Jaymes Awbrey | University of Louisiana, Lafayette | jawbrey@louisiana.edu | | Jill Bourque | US Geological Survey Wetland and Aquatic Research Center | jbourque@usgs.gov | | Les Watling | University of Hawaii at Manoa | watling@hawaii.edu | | Natalie Summers | University of Hawaii at Manoa | nsummers@hawaii.edu | | Nolan Barrett | FAU Harbor Branch Oceanographic Institute | barrettnh@g.cofc.edu | | Peter Auster | Mystic Aquarium & UConn | peter.auster@uconn.edu | | Randi Rotjan | Boston University | rrotjan@bu.edu | | Santiago Herrera | Lehigh University | sherrera@alum.mit.edu | | Scott France | University of Louisiana at Lafayette | france@louisiana.edu | | Steve Auscavitch | Temple University | steven.auscavitch@temple.edu | | Taylor Heyl | WHOI | theyl@whoi.edu | | Timothy Shank | Woods Hole Oceanographic Institution | tshank@whoi.edu | | Tina Molodtsova | P.P.Shirshov Institute of Oceanology RAS | tina.molodtsova@gmail.com | | Witting Jan | Sea Education Association | jwitting@sea.edu | | Brendan Roak | Texas A&M University | broark@geos.tamu.edu | | | | |
| Purpose of the Dive | | The general goal of this dive is to acquire baseline information on deep sea habitats, seafloor geology, and biological communities at hadal depths in the Phoenix Islands Protected Area (PIPA). We will be diving in one of the few non-trench associated hadal zones in the Pacific Ocean. Most hadal environments are virtually unexplored and there is little understanding of what resources might be protected at such depths. This dive will provide some perspective on biological resources (e.g. fishes, biogenic structures) as well as seafloor geology at these depths. The geological processes for formation of the Nova-Canton Trough could also be associated with the formation of this this hadal trough in the Phoenix Islands. | | | |
| Description of the Dive | | EX1703 dive # 16 was our deepest dive for the expedition, descending to 5862m in a deep trough feature, southwest of the Phoenix Islands. The seafloor was composed of scattered and emplaced rocks coated in manganese iron oxide crust, with brown sediment drape occurring in patches. The sediment appeared more organic rich and darker in color than on our previous dives in the region, speckled with calcareous foram tests.  This dive should be nicknamed “white house, black market”. Throughout the dive, both on the steep slope and sedimented ledge at the end of the dive, we encountered taxa that lacked pigmentation, which contrasted with the dark color of the seafloor. We observed white anemones, holothurians, brisingids (*Freyastera-* some with swollen arms filled with gonads), cladorhizid sponges (2 species), comatulid crinoids with eggs, solitary hydroid, stalked sponges with amphipod associates (Stegocephalidae), slit shell gastropod (Anatomidae: *Anatoma* sp.), sea pigs (unknown Elpidiidae), pentagonal ophiuroid, and a branching bryozoan. We also saw a large amphipod (e.g., Epimeriidae), red caridean shrimp, carnivorous tunicates, large pink mysid shrimps, fan-shaped xenophyophores, brown globe forams (cf. Komokioidea), long, mud tube with a white polychaete inside (cf. Onuphidae), and a cusk eel (Ophidiidae: *Alcockia rostrata* or *Bathyonus caudalis*).  We observed some unexpected fauna, including priapulids feeding on the sediment surface, large purple holothurians (*Psychropotes*), and a rare monoplacophoran mollusc. At the end of the dive, along a sedimented plateau composed of hard pavement, we saw a white seapen (cf. *Umbellula*) and collected the only black coral (cf. *Abyssopathes* sp.) observed on the dive, at ~ 5775 m. | | | |
| Overall Map of the ROV Dive Area | | | **Close-up Map of Main Dive Site** | | |
| /Volumes/PublicData/cruises/EX1703/DiveSummaries/HypackScreengrabs/Dive16_Hypack_wide.JPG | | | /Volumes/PublicData/cruises/EX1703/DiveSummaries/HypackScreengrabs/Dive16_Hypack_zoom.JPG | | |
|  | | |  | | |
| Representative Photos of the Dive | | | | | |
| /Volumes/CruiseData/EX1703/Imagery/EX1703_DIVE16_20170323/EX1703_IMG_20170323T213352Z_ROVHD.jpg | | | /Volumes/CruiseData/EX1703/Imagery/EX1703_DIVE16_20170323/EX1703_IMG_20170323T235541Z_ROVHD.jpg | | |
| The seafloor was composed of scattered and emplaced rocks coated in manganese iron oxide crust, with brown sediment drape occurring in patches. | | | Possibly a monoplacophoran mollusc | | |
| Samples Collected | | | | | |
| Sample | | | | | |
| Sample ID | EX1703\_20170323T214437\_D2\_DIVE16\_SPEC01GEO | |  | | |
| Date (UTC) | 20170323 | |  | | |
| Time (UTC) | 21:44:37 | |  | | |
| Depth (m) | 5859.54 | |  | | |
| Temperature (°C) | 1.37 | |  | | |
| Field ID(s) | Mn-Coated Rock | |  | | |
| Comments |  | | | | |
| ****Sample**** | | | | | |
| Sample ID | EX1703\_20170324T010307\_D2\_DIVE16\_SPEC02BIO | |  | | |
| Date (UTC) | 20170324 | |  | | |
| Time (UTC) | 01:03:07 | |  | | |
| Depth (m) | 5772.36 | |  | | |
| Temperature (°C) | 1.35 | |  | | |
| Field ID(s) | Antipatharia | |  | | |
| Comments |  | | | | |

**Please direct inquiries to:**

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