Okeanos Explorer ROV Dive Summary

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Site Name** | | Southernmost Cone | | | |  | |
| **ROV Lead/Expedition Coordinator** | | Karl Mcletchie/ Brian RC Kennedy | | | |  | |
| **Science Team Leads** | | Scott France and Mackenzie Gerringer | | | |  | |
| **General Area Descriptor** | | Johnston Atoll Pacific Remote Islands Marine National Monument | | | |  | |
| **ROV Dive Name** | | Cruise Season | | Leg | | | Dive Number |
|  | | EX1504 | | 4 | | | DIVE07 |
| **Equipment Deployed** | | ROV: | | Deep Discoverer | | | |
|  | | Camera Platform: | | Seirios | | | |
| **ROV Measurements** | | D2 CTD | | Depth | | | Altitude |
|  | | Scanning Sonar | | USBL Position | | | Heading |
|  | | Pitch | | Roll | | | HD Camera 1 |
|  | | HD Camera 2 | | ROV HD 2 | | | Seirios CTD |
|  | | Temperature Probe | | D2 DO Sensor | | | Seirios DO sensor |
| **Equipment Malfunctions** | | VSAT continues to underperform | | | | | |
| **ROV Dive Summary**  **(From processed ROV data)** | | Dive Summary: EX1504L4\_DIVE07  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^  In Water: 2015-09-20T18:23:47.125000  15°, 12.532' N ; 168°, 03.960' W  Out Water: 2015-09-21T02:33:25.406000  15°, 12.227' N ; 168°, 03.187' W  Off Bottom: 2015-09-21T01:31:36.250000  15°, 12.291' N ; 168°, 03.507' W  On Bottom: 2015-09-20T19:29:46.515000  15°, 12.553' N ; 168°, 03.766' W  Dive duration: 8:9:38  Bottom Time: 6:1:49  Max. depth: 1950.7 m | | | | | |
| **Special Notes** | |  | | | | | |
| **Scientists Involved**  ***(please provide name / location / affiliation / email)*** | | |  |  |  | | --- | --- | --- | | Name | Institution | Email Address | | Abby Lapointe | University of Hawaii Zoology | abbylap@hawaii.edu | | Amy Baco-Taylor | FSU | abacotaylor@fsu.edu | | Asako Matsumoto | University of Tokyo | amatsu@gorgonian.jp | | Chris Kelley | University of Hawaii | ckelley@hawaii.edu | | Mackenzie Garringer | University of Hawaii | mgerring@hawaii.edu | | Scott France | University of Louisiana at Lafayette | france@louisiana.edu | | Steve Auscavitch | Temple | steven.auscavitch@temple.edu | | Tina Molodtsova | P.P.Shirshov Institute of Oceanology | tina.molodtsova@gmail.com tina@ocean.ru | | Andrew Shuler | NOAA/NOS/NCCOS | andrew.shuler@noaa.gov | | Robert McGuinn | NOAA - DSCRTP | robert.mcguinn@noaa.gov | | | | | | |
| **Purpose of the Dive**  To explore the bathyal community of a hard bottom on a pair of joined cone features, with the summit of the second ≈200 m above the plateau the plateau of an unnamed seamount in the Pacific Remote Islands Marine National Monument | | | | | | | |
| **Description of the Dive:** | | | | | | | |
| The landing site on the lower broad slope of the cone was well sedimented and with rubble and Mn-encrusted plate-like rock. As we worked up slope, prominent pillow lavas and large, isolated boulders were seen, particularly near the peak of the first cone. Three rocks were collected, from depths 1893, 1843, and 1747 m. The last rock was thin, and may be entirely manganese crust.  Density of sessile fauna was low at the landing site. Abundances of sessile organisms increased as we approached both cone peaks, but particularly at the summit of the taller cone. Overall, the most abundant fauna were crinoids, both stalked (red *Proisocrinus*, other unidentified yellow, which was collected at 1894 m) and unstalked forms (*Glyptometra*, plus likely second species). At one point on the dive we observed a rock that held all five classes of echinoderms: comatulid crinoids, a holothurian (synallactallid), ophiuroids, an urchin (Echinosteridae), and a slime star (*Hymenaster*). Other echinoderms on this cone included asteroids (Benthopectinidae: *Chiraster* sp., *Myxaster*, *Hymenaster*, *Henricia*, Brisingida), holothurians (*Benthodytes*, synallactalids, *Amperima*), and several ophiuroids.  Coral abundances were lower than observed on the previous cone dive (Dive 6), though diversity was still relatively high. Corals seen include black corals *Stauropathes, Umbellapathes helioanthes, Bathypathes, Trissopathes, Heteropathes/Hexapathes* and octocorals *Lepidisis, Keratoisis, Candidella, Paragorgia, Hemicorallium, Umbellula, Chrysogorgia, Metallogorgia,* Paragorgiidaeovergrown with zoanthids and with a euryalinid ophiuroid, *Victorgorgia*, Plexauridae anda rock pen, *Anthoptilum.* Another predatory interaction directed at octocorals was observed and recorded: a molluscan aplacophoran feeding on a bamboo coral polyp.Other cnidarians encountered included the anemone *Exocoelactis*,cup corals, *Hydrodendron* or other hydroid fan, and corallimorpharians. One coral sample was collected (*Lepidisis*) in order to get the chirostylid crab on it. Although the crab swam away and the coral drifted away as they were being placed into the Bio Box, both were recovered, the crab was coaxed back onto the branch held in the manipulator arm claw.  A few *Caulophacus* and *Walteria* sponges were seen, but overall sponge abundance and diversity was low. Some interesting associations were again observed during this dive. For example, *Walteria* sponges housing a large number of associates, including a high abundance of ctenophores (Ptatyctenidae), several crinoids (*Glyptometra* and other morph), and gastropods.  Other interesting observations of fauna included a carnivorous tunicate (Octanemidae) with a polychaete inside, a pelagic ctenophore, polynoid polychaetes, isopods (*Munopsidae*), a number of squat lobsters, and a pagurid hermit crab with associated carcinoecium –forming anemone. A few fish were encountered on this dive, including the cutthroat eel (*Synaphobranchus brevidorsalis*), a lophiiform anglerfish (*Chaunocops* *melanostomus* cf), and a small brown cusk eel that no one immediately recognized (*Ophidiidae*), as well as another ophidiid, potentially *Bassozetus*. | | | | | | | |
| **Overall Map of ROV Dive Area** | | | | | **Close-up Map of Main Dive Site** | | |
| \\192.168.4.200\CruiseData\EX1504L4\Products\ROV\EX1504L4_DIVE07_20150920\EX1504L4_DIVE07_HYPAK_WIDE.JPG | | | | | \\192.168.4.200\CruiseData\EX1504L4\Products\ROV\EX1504L4_DIVE07_20150920\EX1504L4_DIVE07_HYPAK_ZOOM.JPG | | |
|  | | | | |  | | |
| **Representative Photos of the Dive** | | | | | | | |
| C:\Users\Brian.Kennedy\Pictures\Cruises\EX1504L4\EX1504L4_IMG_20150920T202344Z_ROVHD_SPO_SHI_APH.jpg | | | | | C:\Users\Brian.Kennedy\Pictures\Cruises\EX1504L4\EX1504L4_IMG_20150920T211511Z_ROVHD_COR.jpg | | |
| C:\Users\Brian.Kennedy\Pictures\Cruises\EX1504L4\EX1504L4_IMG_20150920T224543Z_ROVHD_FSH.jpg | | | | | C:\Users\Brian.Kennedy\Pictures\Cruises\EX1504L4\EX1504L4_IMG_20150921T013345Z_ROVHD_SUMMIT_SURVEY.jpg | | |
| **Samples Collected** | | | | | | | |
| **Sample ID** | EX1504L4\_20150920T204336\_D2\_DIVE07\_SPEC01BIO | | | | **\\192.168.4.200\CruiseData\EX1504L4\Sample\EX1504L4_DIVE07_20150920\Imagery\D2_DIVE07_SPEC01BIO\EX1504L4_IMG_20150920T203708Z_D2_DIVE07_SPEC01BIO_01.jpg** | | |
| **Date (UTC)** | 20150920 | | | |  | | |
| **Time (UTC)** | 204336 | | | |  | | |
| **Depth (m)** | 1894.39 | | | |  | | |
| **Temperature (oC)** | 2.32 | | | |  | | |
| **Field ID(s)** | Stalked crinoid | | | |  | | |
| **Comments** |  | | | | | | |
| **Sample ID** | EX1504L4\_20150920T210406\_D2\_DIVE07\_SPEC02GEO | | | | *\\192.168.4.200\CruiseData\EX1504L4\Sample\EX1504L4_DIVE07_20150920\Imagery\D2_DIVE07_SPEC02GEO\EX1504L4_IMG_20150920T210919Z_D2_DIVE07_SPEC02GEO_01.jpg* | | |
| **Date (UTC)** | 20150920 | | | |  | | |
| **Time (UTC)** | 210406 | | | |  | | |
| **Depth (m)** | 1893.92 | | | |  | | |
| **Temperature (oC)** | 2.31 | | | |  | | |
| **Field ID(s)** | Mn-encrusted basalt | | | |  | | |
| **Comments** |  | | | | | | |
| **Sample ID** | EX1504L4\_20150920T221401\_D2\_DIVE07\_SPEC03GEO | | | | *\\192.168.4.200\CruiseData\EX1504L4\Sample\EX1504L4_DIVE07_20150920\Imagery\D2_DIVE07_SPEC03GEO\EX1504L4_IMG_20150920T221152Z_D2_DIVE07_SPEC03GEO_01.jpg* | | |
| **Date (UTC)** | 20150920 | | | |  | | |
| **Time (UTC)** | 221401 | | | |  | | |
| **Depth (m)** | 1843.43 | | | |  | | |
| **Temperature (oC)** | 2.34 | | | |  | | |
| **Field ID(s)** | Mn-encrusted basalt | | | |  | | |
| **Comments** |  | | | | | | |
| **Sample ID** | EX1504L4\_20150920T235711\_D2\_DIVE07\_SPEC04BIO | | | | *\\192.168.4.200\CruiseData\EX1504L4\Sample\EX1504L4_DIVE07_20150920\Imagery\D2_DIVE07_SPEC04BIO\EX1504L4_IMG_20150920T234206Z_D2_DIVE07_SPEC04BIO_01.jpg* | | |
| **Date (UTC)** | 20150920 | | | |  | | |
| **Time (UTC)** | 235711 | | | |  | | |
| **Depth (m)** | 1744.66 | | | |  | | |
| **Temperature (oC)** | 2.6 | | | |  | | |
| **Field ID(s)** | Lepidisis | | | |  | | |
| **Comments** |  | | | | | | |
| **Sample ID** | EX1504L4\_20150921T010732\_D2\_DIVE07\_SPEC05GEO | | | | *\\192.168.4.200\CruiseData\EX1504L4\Sample\EX1504L4_DIVE07_20150920\Imagery\D2_DIVE07_SPEC05GEO\EX1504L4_IMG_20150921T010754Z_D2_DIVE07_SPEC05GEO_01.jpg* | | |
| **Date (UTC)** | 20150921 | | | |  | | |
| **Time (UTC)** | 010732 | | | |  | | |
| **Depth (m)** | 1747.09 | | | |  | | |
| **Temperature (oC)** | 2.53 | | | |  | | |
| **Field ID(s)** | Mn-encrusted basalt | | | |  | | |
| **Comments** | Broken during transport to surface. | | | | | | |
| **Please direct inquiries to:** | | | NOAA Office of Ocean Exploration & Research 1315 East-West Highway (SSMC3 10th Floor)  Silver Spring, MD 20910  (301) 734-1014 | | | | |