Okeanos Explorer ROV Dive Summary

|  |  |  |
| --- | --- | --- |
| **Site Name** | Unnamed Seamount east of Pearl &Hermes | F:\OKEANOS EXPLORER\2015 CAPSTONE Planning\Web Content\Mission Intro & Plan\MonumentsOverview2(1).jpg |
| **ROV Lead/Expedition Coordinator** | Karl McLetchieKelley Elliott |  |
| **Science Team Leads** | Chris Kelley (Biology)Daniel Wagner (Biology) |  |
| **General Area Descriptor** | Northwestern Hawaiian Islands |  |
| **ROV Dive Name** | Cruise Season | Leg | Dive Number |
|  | EX1504 | 2 | DIVE13 |
| **Equipment Deployed** | ROV: | Deep Discoverer |
|  | Camera Platform: | Seirios |
| **ROV Measurements** | [x]  CTD | [x]  Depth | [x]  Altitude |
|  | [x]  Scanning Sonar | [x]  USBL Position | [x]  Heading |
|  | [x]  Pitch | [x]  Roll | [x]  HD Camera 1 |
|  | [x]  HD Camera 2 | [x]  Low Res Cam 1 | [x]  Low Res Cam 2 |
|  | [x]  Low Res Cam 3 | [x]  Low Res Cam 4 | [x]  Low Res Cam 2 |
| **Equipment Malfunctions** | There were only few communications issues between the shore-based and shipboard science team. Only 1 feed was available to the ECCs, however other than that, all other equipment worked properly. |
| **ROV Dive Summary****(From processed ROV data)** |  Dive Summary: EX1504L2\_DIVE13^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^In Water at: 2015-08-14T18:13:07.609000 27°, 51.135' N ; 175°, 10.007' WOut Water at: 2015-08-15T00:41:11.125000 27°, 50.958' N ; 175°, 09.555' WOff Bottom at: 2015-08-14T23:29:45.515000 27°, 51.293' N ; 175°, 10.200' WOn Bottom at: 2015-08-14T19:38:52.640000 27°, 51.199' N ; 175°, 09.775' WDive duration: 6:28:3Bottom Time: 3:50:52Max. depth: 2306.0 m |
| **Special Notes** |  |
| **Scientists Involved*****(please provide name / location / affiliation / email)*** | Allen Andrews, IRC, NMFS, Allen.Andrews@noaa.govAmy Baco-Taylor, HBOI ECC, FSU, abacotaylor@fsu.eduAndrea Quattrini, Pasadena, CA, USGS, aquattrini@usgs.govAsako Matsumoto, Tokyo, PERC/CIT, amatsu@gorgonian.jpBrendan Roark, TX, TAMU-CC, broark@geos.tamu.edu Bruce Mundy, IRC, NMFS, bruce.mundy@noaa.gov Chris Kelley, EX, UH, ckelley@hawaii.eduChris Mah, SI, SI, mahch@si.eduDaniel Wagner, EX, PMNM, daniel.wagner@noaa.govEspirit Saucier, LSU, LSU, heestand.saucier@louisiana.edu John R Smith, UH, UH, jrsmith@hawaii.eduJonathan Tree, UH, UH, jtree@hawaii.eduLes Watling, Maine, UH, watling@hawaii.edu Mackenzie Garringer, UH, UH, mgerring@hawaii.eduMary Wicksten, TX, TAMU, wicksten@bio.tamu.eduMichael Parke, IRC, NMFS, Michael.Parke@noaa.gov Scott France, ULL, ULL, france@louisiana.eduTina Molodtsova, Washington, DC, PPSIO, tina@ocean.ru  |
| **Purpose of the Dive** |
| This dive was on a ridge that extends to the southeast of an unnamed seamount east of Pearl and Hermes Atoll. The objectives of the dive were to explore the ridge for high density communities of deep-sea corals and sponges. The target start point of the dive was on the crest of the ridge at a depth of 2300m. The plan was to then head up the ridge crest until reaching a depth of 2120m, documenting in particular the abundance of corals and sponges. |
| **Description of the Dive:** |
| The ROV landed close to the edge of the ridge at 2305m. The substrate consisted of heavily Mn-crusted and broken pillow lava that was covered with mostly planar bamboo corals (genus Keratoisis sp) and a few Chrysogorgia sp, and mushroom corals (Anthomastus sp). There was a moderate current from the south towards the north. As the ROV moved up along the crest of the ridge, it became evident that the bamboo corals were all densely aggregated on the narrow ridge crest, oriented perpendicular to the current which was moving across the ridge. A Mn-crusted basalt sample was collected at 2286m. As the ROV continued moving upwards along the crest of the ridge, it passed through a couple of patches where the substrate consisted of cobble and did not contain any animals. At 2160m, the ROV collected a sample of the species of bamboo coral, which was the most dominant at the site. A second Mn-crusted basalt sample was collected at 2163m. Further up the ridge, the ROV collected a sea star (possible Pythonaster sp), which appeared to be feeding on a toppled over stalked sponge, at 2163m. The ROV left the bottom at a depth of 2118m after a total bottom time of 3:48h, having covered a linear distance of 700m. |
| **Animals observed during the dive are listed below:**

|  |  |  |
| --- | --- | --- |
| **Phylum** | **Group** | **Species** |
| Arthropod | Crab | Lithodes nintokuae |
| Arthropod | Crab | Unidentified crab |
| Arthropods | Amphipod | Amphipod |
| Arthropods | Shrimp | Aristopenaeus? sp. |
| Arthropods | Shrimp | Nematocarcinus tenuisrostris |
| Arthropods | Squat lobsters | Munidae |
| Arthropods | Squat lobsters | Munidopsis sp. |
| Cnidarians | Actiniarians | Actinostolidae |
| Cnidarians | Actiniarians | Exocoelactis sp. |
| Cnidarians | Alcyonaceans | Anthomastus sp. |
| Cnidarians | Antipatharians | Trissopathes sp. |
| Cnidarians | Corallimorpharian | Corallimorpharian? |
| Cnidarians | Ceriantharian | Ceriantharian? |
| Cnidarians | Gorgonians | Acanella weberi? |
| Cnidarians | Gorgonians | Chrysogorgia geniculata |
| Cnidarians | Gorgonians | Chrysogorgia sp. |
| Cnidarians | Gorgonians | Corallium sp. |
| Cnidarians | Gorgonians | Isidella trichotoma? |
| Cnidarians | Gorgonians | Jasonisis sp. |
| Cnidarians | Gorgonians | Keratoisis/Eknomisis sp. |
| Cnidarians | Gorgonians | Lepidisis sp. |
| Cnidarians | Gorgonians | Paragorgia sp. |
| Echinoderms | Asteroids | Henricia sp. |
| Echinoderms | Asteroids | Pythonaster sp. (collected) |
| Echinoderms | Crinoids | Unidentified comatulids |
| Echinoderms | Holothuria | Unidentified pink holothurian |
| Echinoderms | Holothuria | Unidentified purple holothurian |
| Fishes | Eels | Synaphobranchid |
| Fishes | Macrourids | Trachonurus/Malacocephalus sp. |
| Fishes | Ophidiidiformes | Ophidiidiformes |
| Sponges | Hexactinellids | Bolosoma sp. |
| Sponges | Hexactinellids | Caulophacus (Caulodiscus) sp.  |
| Sponges | Hexactinellids | Caulophacus (Oxydiscus) sp.  |
| Sponges | Hexactinellids | Euplectellidae sp. |
| Sponges | Hexactinellids | Farrrea nr occa erecta |
| Sponges | Hexactinellids | Uncinateridae new genus sp. |
| Sponges | Hexactinellids | Walteria cf. leukarti |
| Tunicate | Ascidacea | Culeolus sp. |
| Tunicate | Ascidacea | Larvacean |

 |
| **Overall Map of Dive Area** | **Actual track of ROV dive** |
| **L2-d2-Dive13_bty.jpg** | \\192.168.4.200\CruiseData\EX1504L2\Products\ROV\EX1504L2_DIVE13_20150814\EX1504L2_DIVE13_HYPACK_MAP_ZOOM.JPG |
| Bathymetry data for the dive site. Planned dive start and end points are shown as green and red dots, respectively. | Hypack screen grab showing waypoints dropped during actual ROV dive. |
| **Representative Photos of the Dive** |
| **EX1504L2_IMG_20150814T200648Z_ROVHD_CORAL_FOREST.jpg** | EX1504L2_IMG_20150814T202711Z_D2_DIVE13_SPEC01GEO_01.jpg |
| Dense forest of bamboo coral (Keratoisis sp) encountered at touchdown. The forest continued throughout the dive, diminishing only when in areas of sediment and cobbles. | Sample of what we suspect is very old basalt that will help determine if this seamount is Cretaceous or not. |
| **Samples Collected** |
| **Sample ID** | EX1504L2\_20150814202148\_D2\_Dive13\_SPEC01GEO | **C:\Users\Daniel\Desktop\Okeanos\Specimen photos\Dive13\IMG_0285.JPG** |
| **Date (UTC)** | 2015/08/14 |  |
| **Time (UTC)** | 20:21:48 |  |
| **Depth (m)** | 2286 |  |
| **Temperature (oC)** | 1.80698 |  |
| **Oxygen (mL/L)** | 2.99612 |  |
| **Field ID(s)** | Mn-crusted basalt |  |
| **Comments** |  |
| **Sample ID** | EX1504L2\_20150814215719\_D2\_Dive13\_SPEC02BIO | **C:\Users\Daniel\Desktop\Okeanos\Specimen photos\Dive13\IMG_0274.JPG** |
| **Date (UTC)** | 2015/08/14 |  |
| **Time (UTC)** | 21:57:19 |  |
| **Depth (m)** | 2149 |  |
| **Temperature (oC)** | 1.86554 |  |
| **Oxygen (mL/L)** | 2.88004 |  |
| **Field ID(s)** | Keratoisis/Eknomisis sp. |  |
| **Comments** | This species was by far the most abundant at the dive site. |
| **Sample ID** | EX1504L2\_20150814220810\_D2\_Dive13\_SPEC03GEO | C:\Users\Daniel\Desktop\Okeanos\Specimen photos\Dive13\IMG_0288.JPG |
| **Date (UTC)** | 2015/08/14 |  |
| **Time (UTC)** | 22:08:10 |  |
| **Depth (m)** | 2161 |  |
| **Temperature (oC)** | 1.88578 |  |
| **Oxygen (mL/L)** | 2.87054 |  |
| **Field ID(s)** | Mn-crusted basalt |  |
| **Comments** |  |
| **Sample ID** | EX1504L2\_20150814223849\_D2\_Dive13\_SPEC04BIO | **C:\Users\Daniel\Desktop\Okeanos\Specimen photos\Dive13\IMG_0278.JPG** |
| **Date (UTC)** | 2015/08/14 |  |
| **Time (UTC)** | 22:38:49 |  |
| **Depth (m)** | 2160 |  |
| **Temperature (oC)** | 1.76615 |  |
| **Oxygen (mL/L)** | 2.97893 |  |
| **Field ID(s)** | Pythonaster sp. |  |
| **Comments** | Specimen collected was feeding on a topped over Caulophacus (Oxydiscus) sp. sponge. |
| **Please direct inquiries to:** | NOAA Office of Ocean Exploration & Research1315 East-West Highway (SSMC3 10th Floor)Silver Spring, MD 20910(301) 734-1014 |