Okeanos Explorer ROV Dive Summary

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Site Name** | | Karin Ridge Top | | | |  | |
| **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 | | | DIVE11 |
| **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\_DIVE11  ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^  In Water: 2015-09-24T18:11:30.906000  17°, 29.956' N ; 168°, 44.685' W  Out Water: 2015-09-25T02:29:22.890000  17°, 30.357' N ; 168°, 44.238' W  Off Bottom: 2015-09-25T01:21:52.468000  17°, 30.296' N ; 168°, 44.666' W  On Bottom: 2015-09-24T19:29:46.703000  17°, 29.933' N ; 168°, 44.448' W  Dive duration: 8:17:51  Bottom Time: 5:52:5  Max. depth: 2173.0 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 | | Andrea Quattrini | USGS | aquattrini@usgs.gov | | Asako Matsumoto | University of Tokyo | amatsu@gorgonian.jp | | Bruce Mundy | NOAA NMFS Pacific Islands Fisheries Science Center | bruce.mundy@noaa.gov | | Chris Kelley | University of Hawaii | ckelley@hawaii.edu | | Chris Mah | Smithsonian | brisinga@gmail.com | | Dennis Hanisak | FAU/HBOI | dhanisak@fau.edu | | Jeff Drazen | University of Hawaii | jdrazen@hawaii.edu | | John Smith | University of Hawaii | jrsmith@hawaii.edu | | Mackenzie Garringer | University of Hawaii | mgerring@hawaii.edu | | Scott France | University of Louisiana at Lafayette | france@louisiana.edu | | Steve Haddock | MBARI | haddock@mbari.org | | Steve Auscavitch | Temple | steven.auscavitch@temple.edu | | Tina Molodtsova | P.P.Shirshov Institute of Oceanology | tina.molodtsova@gmail.com tina@ocean.ru | | Rachael Bassett | NOAA | rachel.bassett@noaa.gov | | John Reed | FAU Harbor Branch Oceanographic | jreed12@fau.edu | | Jim Masterson | FAU Harbor Branch Oceanographic | jmaster7@fau.edu | | Kimberly Galvez | University of Miami - RSMAS CSL-Center for Carbonate Research | kgalvez@rsmas.miami.edu | | Bill Clancey | IHMC | wclancey@ihmc.us | | Josh Voss | HBOI | Jvoss2@fau.edu | | | | | | |
| **Purpose of the Dive**  To explore the bathyal community of a hard bottom on crest of a ridge extending south from the same seamount feature as did the ridge explored on dive 3 in the Pacific Remote Islands Marine National Monument | | | | | | | |
| **Description of the Dive:** | | | | | | | |
| Upon arrival on bottom, there was considerable rubble over the visible seafloor. Along the dive transect the bottom alternated from fields of small rubble in the saddle features, to several large pillow lava flows with towering boulders. There was also a stretch of sediment that had a light thin layer of manganese crusting. When this was disturbed by the ROV skis, it was apparent that there was a fine-grain sediment below. This appeared to stretch over a considerable area. It appeared that more manganese encrustation was present at the latter portion of the dive. Two rocks were collected, from 2168 m and 2106 m.  As with previous dive sites, the community was extremely patchy. Sponge diversity changed dramatically as we followed along the ridge. As seen on the 3000+ m depth dive about 8 nautical miles northeast of this dive site, we saw an abundance of hexactinellid sponges. These were the most abundant metazoa seen throughout the dive by far. There were many large sponges, likely *Poliopogon* and *Semperella* where we started the dive. Interspersed along the transect were a fair number of stalked sponges – *Caulophacus* and *Bolosoma*. An impressive field of ?*Monorhaphis* sponges was imaged, with hundreds of individuals at around 2077 m depth. A bit further up the ridge, the flabellate branched-sponges collected on Dive 9 were in highest abundance. An unknown hexactinellid sponge was sampled from 2084 m. The high abundance of sponges may also explain the presence of a known sponge predator, the asteroid seastar *Pteraster reticulatus*.  At about 2130 m, there was another community transition, with more corals present. At the peak of the local summit on the ridge, coral densities were low. But just below the summit on the southwest slope were many coral colonies. This may suggest long-term current flows moving up the SW slope of the feature. Octocorals observed here included Isididae(?*Eknomisis, Keratoisis, Isidella trichotoma,* and a *Lepidisis-*like [unbranched] colony),Primnoidae(?*Calytrophora angularis, Narella macrocalyx,*?*Candidella gigantea*), and Chrysogorgiidae (*Chrysogorgia chryseis, Chrysogorgia averta, Iridigorgia magnispiralis*). Two bamboo corals were sampled, a *Lepidisis*-like colony from 2064 m, and an *Eknomisis*-like colony from 2062 m. Although the first collection fell out of the manipulator arm claw onto the deck and could not be recovered on the bottom, it was collected by the ROV team during ascent of the vehicle.  A notably high abundance of anemones was seen on this dive (Actinostolidae, *Exocoelactis*). As seen on previous dives, hydroid colonies were in relatively high abundance on many of the larger rocks. Several galatheid crabs were imaged, as were many acorn barnacles, and chirostylid squat lobsters (*Uroptychus*) associated with *Chrysogorgia* coral colonies. A few fish were seen, including one cutthroat eel (Synaphobranchidae), two *Coryphaenoides longicirrhus*, and two *Kumba hebetate*. Two of the macrourids had, as seen before, very large isopod parasites.  **Other Metazoa observed**  **Echinoderms**: Crinoids, *Lophaster*, *Pteraster reticulatus*  **Cnidarians**: “Dandelion” siphonophore (?*Thermopalia*), cup coral (Scleractinia)  **Crustaceans**: *Nematocarcinus* shrimp, amphipods, shrimp (*Plesiopenaeus armatus*)  **Sponges**: *Poecilastra*, *Tretopleura*, Farrea nr. *Occa errecta*, small cladorhizid, unknown Pheronematidae  **Other**: polychaete fan worm, arboreal foraminifera, snail | | | | | | | |
| **Overall Map of ROV Dive Area** | | | | | **Close-up Map of Main Dive Site** | | |
| **\\192.168.4.200\CruiseData\EX1504L4\Products\ROV\EX1504L4_DIVE11_20150924\EX1504L4_DIVE11_HYPACK_WIDE.jpg** | | | | | \\192.168.4.200\CruiseData\EX1504L4\Products\ROV\EX1504L4_DIVE11_20150924\EX1504L4_DIVE11_HYPACK_ZOOM.jpg | | |
|  | | | | |  | | |
| **Representative Photos of the Dive** | | | | | | | |
| **C:\Users\Brian.Kennedy\Pictures\Cruises\EX1504L4\EX1504L4_IMG_20150924T201531Z_ROVHD_ACN.jpg** | | | | C:\Users\Brian.Kennedy\Pictures\Cruises\EX1504L4\EX1504L4_IMG_20150924T202314Z_CPHD_ROV_ON_SLOPE.jpg | | | |
| C:\Users\Brian.Kennedy\Pictures\Cruises\EX1504L4\EX1504L4_IMG_20150924T232641Z_ROVHD_SPO_GROUP.jpg | | | | C:\Users\Brian.Kennedy\Pictures\Cruises\EX1504L4\EX1504L4_IMG_20150925T001521Z_ROVHD_SPO_COR_UNK.jpg | | | |
| **Samples Collected** | | | | | | | |
| **Sample ID** | EX1504L4\_20150924T194238\_D2\_DIVE11\_SPEC01GEO | | | | **\\192.168.4.200\CruiseData\EX1504L4\Sample\EX1504L4_DIVE11_20150924\Imagery\D2_DIVE11_SPEC01GEO\EX1504L4_IMG_20150924T194719Z_D2_DIVE11_SPEC01GEO_04.jpg** | | |
| **Date (UTC)** | 20150924 | | | |  | | |
| **Time (UTC)** | 194238 | | | |  | | |
| **Depth (m)** | 2168.45 | | | |  | | |
| **Temperature (oC)** | 1.88 | | | |  | | |
| **Field ID(s)** | Mn-encrusted basalt | | | |  | | |
| **Comments** |  | | | | | | |
| **Sample ID** | EX1504L4\_20150924T214653\_D2\_DIVE11\_SPEC02GEO | | | | *\\192.168.4.200\CruiseData\EX1504L4\Sample\EX1504L4_DIVE11_20150924\Imagery\D2_DIVE11_SPEC02GEO\EX1504L4_IMG_20150924T214642Z_D2_DIVE11_SPEC02GEO_02.jpg* | | |
| **Date (UTC)** | 20150924 | | | |  | | |
| **Time (UTC)** | 214653 | | | |  | | |
| **Depth (m)** | 2106.37 | | | |  | | |
| **Temperature (oC)** | 2.11 | | | |  | | |
| **Field ID(s)** | Basalt | | | |  | | |
| **Comments** |  | | | | | | |
| **Sample ID** | EX1504L4\_20150924T222851\_D2\_DIVE11\_SPEC03BIO | | | | *\\192.168.4.200\CruiseData\EX1504L4\Sample\EX1504L4_DIVE11_20150924\Imagery\D2_DIVE11_SPEC03BIO\EX1504L4_IMG_20150924T223014Z_D2_DIVE11_SPEC03BIO_01.jpg* | | |
| **Date (UTC)** | 20150924 | | | |  | | |
| **Time (UTC)** | 222851 | | | |  | | |
| **Depth (m)** | 2084.21 | | | |  | | |
| **Temperature (oC)** | 2.05 | | | |  | | |
| **Field ID(s)** | Hexactinellida | | | |  | | |
| **Comments** | Another sponge growing on specimen. | | | | | | |
| **Sample ID** | EX1504L4\_20150925T010032\_D2\_DIVE11\_SPEC04BIO | | | | *\\192.168.4.200\CruiseData\EX1504L4\Sample\EX1504L4_DIVE11_20150924\Imagery\D2_DIVE11_SPEC04BIO\EX1504L4_IMG_20150925T010003Z_D2_DIVE11_SPEC04BIO_01.jpg* | | |
| **Date (UTC)** | 20150925 | | | |  | | |
| **Time (UTC)** | 010032 | | | |  | | |
| **Depth (m)** | 2063.74 | | | |  | | |
| **Temperature (oC)** | 1.98 | | | |  | | |
| **Field ID(s)** | Lepidisis sp. | | | |  | | |
| **Comments** |  | | | | | | |
| **Sample ID** | EX1504L4\_20150925T012012\_D2\_DIVE11\_SPEC05BIO | | | | *\\192.168.4.200\CruiseData\EX1504L4\Sample\EX1504L4_DIVE11_20150924\Imagery\D2_DIVE11_SPEC05BIO\EX1504L4_IMG_20150925T011827Z_D2_DIVE11_SPEC05BIO_04.jpg* | | |
| **Date (UTC)** | 20150925 | | | |  | | |
| **Time (UTC)** | 012012 | | | |  | | |
| **Depth (m)** | 2061.54 | | | |  | | |
| **Temperature (oC)** | 1.95 | | | |  | | |
| **Field ID(s)** | Eknomisis sp. | | | |  | | |
| **Comments** |  | | | | | | |
| **Please direct inquiries to:** | | | NOAA Office of Ocean Exploration & Research 1315 East-West Highway (SSMC3 10th Floor)  Silver Spring, MD 20910  (301) 734-1014 | | | | |