Okeanos Explorer ROV Dive Summary

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| **Site Name** | Swordfish Seamount | F:\OKEANOS EXPLORER\2015 CAPSTONE Planning\Web Content\Mission Intro & Plan\MonumentsOverview2(1).jpg |
| **ROV Lead/Expedition Coordinator** | Brian BinghamKelley Elliott |  |
| **Science Team Leads** | Frank Parrish (Biology)Christopher Kelley (Biology) |  |
| **General Area Descriptor** | Main Hawaiian Islands |  |
| **ROV Dive Name** | Cruise Season | Leg | Dive Number |
|  | EX1504 | 3 | DIVE05 |
| **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** | Minor video and audio issues for shore side teams. |
| **ROV Dive Summary****(From processed ROV data)** |  Dive Summary: EX1504L3\_DIVE05^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^In Water: 2015-09-01T18:21:54.968000 18°, 18.684' N ; 158°, 27.399' WOut Water: 2015-09-02T02:26:53.250000 18°, 18.690' N ; 158°, 27.203' WOff Bottom: 2015-09-02T01:50:26.796000 18°, 18.351' N ; 158°, 27.271' WOn Bottom: 2015-09-01T18:59:45.453000 18°, 18.754' N ; 158°, 27.332' WDive duration: 8:4:58Bottom Time: 6:50:41Max. depth: 1077.2 m |
| **Special Notes** |  |
| **Scientists Involved*****(please provide name / location / affiliation / email)*** | Frank Parrish, EX, NOAA, Frank.Parrish@noaa.govChris Kelley, EX, UH, ckelley@hawaii.eduAmy Baco-Taylor, FL, FSU, abacotaylor@fsu.eduAsako Matsumoto, Japan, CIT, amatsu@gorgonian.jpChris Mah, DC, SI, mahch@si.eduNicole Morgan, FL, FSU, nbmorgan11@gmail.com Scott France, LA, ULL, france@louisiana.eduTina Molodtsova, Portugal, PPSIO, tina@ocean.ruRachel Bassett, SC, DSCRTP, rachel.bassett@noaa.govBrendan Roark, TX, TAMU, broark@geos.tamu.eduMichael Garcia, UH ECC, UH, mogarcia@hawaii.eduBruce Mundy, IRC ECC, PIFSC, bruce.mundy@noaa.gov Andrea Quattrini, CA, USGS, aquattrini@usgs.govMike Ford, MD, NMFS, Michael.ford@noaa.gov John Smith, UH ECC, UH, jrsmith@hawaii.edu |
| **Purpose of the Dive** This was the first dive ever conducted on Swordfish Seamount located in the Geologist Seamounts group. The objective of this dive was to survey the ridge shaped summit for corals and sponges, testing the hypothesis that high density communities can be found on ridge topography. Discovery of high density communities at this dive site will provide valuable information to NOAA’s Deep Sea Coral and Technology Program (DSCTP).The dive plan was to survey the upper crest at a depth of approximately 1000m, which is within the Hawaii’s oxygen minimum zone although the islands don’t quite reach the strict definition of below 0.5 ml/l to be an OMZ. The survey employed the standard methodology of the D2 with the objectives of 1) making observations and collecting video and 2) collecting rock and biological samples. |
| **Description of the Dive:** |
| All of the dive objectives were completed. The full planned distance of the dive track was achieved and exceed for a total distance of 800 m travel. The dive started on the west flank of the ridge at 1071m where very few animals were encountered. The ROV then proceeded to the crest, still seeing low abundance. A pinnacle feature was present on the ridge crest and as the ROV proceeded up the northern slope of the pinnacle to its summit at 954m, a high density coral community was encountered. As the ROV came over the summit and proceeded down the southern side to a depth of 1074m, abundance again decreased. A basalt rock was collected at the start point of the survey and an unknown white rock and a basalt rock were collected at the summit. In total 3 biological samples (a mushroom coral, a scleractinian coral, and a sponge) were collected. **Animals observed during the dive are listed below.****Cnidarians:**Corallium kishinouyeiHemicorallium c.f. lauuenseAcanthogorgiidaeEnallopsammia rostrataCerianthidae redScleractinian single polypVictorgorgia nuttingiPrimnoidIsididae unbranchedPlexauridae variousAnthomastus sp. redCalyptrophora wyvilleiMadrepora? spClavularia spAnthomuricea tenuispinaParagorgia spNarella alataActinoscyphia spMetallogorgia melanotrichos**Sponges**HexactinellidaFarrea sp3 nr occa erectaBathydorus sp.Dictyaulus cf starmeriTretopleura sp**Echinoderms**Sperosoma obscurumTarsastrocles verrilliAsthenactis papyraceusMyxasteridae sea starHippasteria lateralisCaenopedina sp?PedinidaeOphiuroidsGlyptometra lateralis **Arthropods**Heterocarpus laevigatusAmphipodsMunida squat lobsterNematocarcinus tenuirostrisLamoha williamsiHomeryon asper?**Fishes**Ophidiidae Ogcocephalidae batfishSladenia remigerSynaphabranchid / Histobranchus eelUnidentified eel in water column**Other**Polychaete |
| **Overall Map of ROV Dive Area** | **Close-up Map of Main Dive Site** |
| **L3-d2-Dive05_bty2.jpg** | \\192.168.4.200\CruiseData\EX1504L3\Products\ROV\EX1504L3_DIVE05_20150901\EX1504L3_DIVE05_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** |
| **EX1504L3_IMG_20150901T192034Z_D2_DIVE05_SPEC01GEO_01.jpg** | EX1504L3_IMG_20150902T004007Z_ROVHD_COR_PSD.jpg |
| Collecting a rock along the flank of the ridge crest where very few animals were observed. | High density coral community encountered as the ROV proceeded up the slope of a pinnacle feature located on the ridge crest. |
| **Samples Collected** |
| **Sample ID** | EX1504L3\_D2\_DIVE05\_SPEC01GEO | **IMG_0456.JPG** |
| **Date (UTC)** | September 1, 2015 |  |
| **Time (UTC)** | 19:17:27 |  |
| **Depth (m)** | 1071 |  |
| **Temperature (oF)** | *3.69* |  |
| **Field ID(s)** | Basalt sample w/ commensals |  |
| **Comments** |  |
| **Sample ID** | EX1504L3\_D2\_DIVE05\_SPEC02BIO | *IMG_0440.JPG* |
| **Date (UTC)** | September 1, 2015 |  |
| **Time (UTC)** | 20:43:48 |  |
| **Depth (m)** | 1013 |  |
| **Temperature (oF)** | 3.93 |  |
| **Field ID(s)** | Anthomastus sp. |  |
| **Comments** |  |
| **Sample ID** | EX1504L3\_ D2\_DIVE05\_SPEC03BIO | *IMG_0441.JPG* |
| **Date (UTC)** | September 1, 2015 |  |
| **Time (UTC)** | 22:34:00 |  |
| **Depth (m)** | 970 |  |
| **Temperature (oF)** | N/A |  |
| **Field ID(s)** | Madrepora sp |  |
| **Comments** | Server was down so no environmental data accompanies this record. Depths and positions manually acquired from monitor displays. |
| **Sample ID** | EX1504L3\_ D2\_DIVE05\_SPEC04GEO | *IMG_0457.JPG* |
| **Date (UTC)** | September 1, 2015 |  |
| **Time (UTC)** | 22:45:05 |  |
| **Depth (m)** | 969 |  |
| **Temperature (oF)** | 4.01 |  |
| **Field ID(s)** | Carbonate? |  |
| **Comments** | Some type of white conglomerate. |
| **Sample ID** | EX1504L3\_ D2\_DIVE05\_SPEC05BIO | *IMG_0449.JPG* |
| **Date (UTC)** | September 1, 2015 |  |
| **Time (UTC)** | 23:44:15 |  |
| **Depth (m)** | 953 |  |
| **Temperature (oF)** | 4.34 |  |
| **Field ID(s)** | Rossellidae vase |  |
| **Comments** |  |
| **Sample ID** | EX1504L3\_D2\_DIVE05\_SPEC06GEO | IMG_0437.JPG |
| **Date (UTC)** | September 2, 2015 |  |
| **Time (UTC)** | 0:18:27 |  |
| **Depth (m)** | 973 |  |
| **Temperature (oF)** | 4.33 |  |
| **Field ID(s)** | Basalt |  |
| **Comments** |  |
| **Please direct inquiries to:** | NOAA Office of Ocean Exploration & Research1315 East-West Highway (SSMC3 10th Floor)Silver Spring, MD 20910(301) 734-1014 |