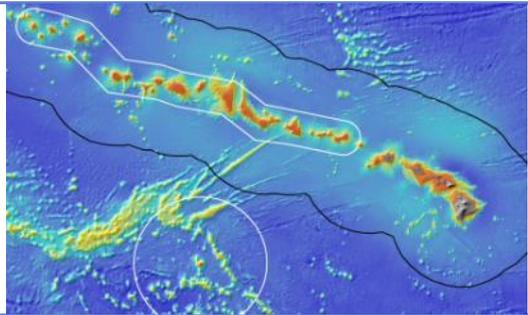


OKEANOS EXPLORER ROV DIVE SUMMARY

| | | | |
|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Site Name | West Nihoa | |  |
| ROV Lead/Expedition Coordinator | Karl McLetchie Kelley 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 | DIVE18 |
| Equipment Deployed | ROV: | Deep Discoverer | |
| | Camera Platform: | Seirios | |
| ROV Measurements | <input checked="" type="checkbox"/> CTD | <input checked="" type="checkbox"/> Depth | <input checked="" type="checkbox"/> Altitude |
| | <input checked="" type="checkbox"/> Scanning Sonar | <input checked="" type="checkbox"/> USBL Position | <input checked="" type="checkbox"/> Heading |
| | <input checked="" type="checkbox"/> Pitch | <input checked="" type="checkbox"/> Roll | <input checked="" type="checkbox"/> HD Camera 1 |
| | <input checked="" type="checkbox"/> HD Camera 2 | <input checked="" type="checkbox"/> Low Res Cam 1 | <input checked="" type="checkbox"/> Low Res Cam 2 |
| | <input checked="" type="checkbox"/> Low Res Cam 3 | <input checked="" type="checkbox"/> Low Res Cam 4 | <input checked="" type="checkbox"/> Low Res Cam 2 |
| Equipment Malfunctions | There were several communications issues between the shore-based and shipboard science team. The conference call was dropped on several occasions, as was the connection to the chat. There were very strong currents at the site that resulted in the dive having to be aborted halfway into the dive. | | |
| ROV Dive Summary (From processed ROV data) | Dive Summary: EX1504L2_DIVE18 ~~~~~ | | |
| | In Water at: | 2015-08-20T18:12:43.031000 23°, 11.103' N ; 162°, 27.560' W | |
| | Out Water at: | 2015-08-21T00:47:58.562000 23°, 10.804' N ; 162°, 26.651' W | |
| | Off Bottom at: | 2015-08-20T23:35:36.687000 23°, 10.848' N ; 162°, 27.129' W | |
| | On Bottom at: | 2015-08-20T19:11:45.343000 23°, 11.048' N ; 162°, 27.420' W | |
| | Dive duration: | 6:35:15 | |
| | Bottom Time: | 4:23:51 | |
| Max. depth: | 1598.6 m | | |
| Special Notes | | | |
| Scientists Involved (please provide name / location / affiliation / email) | Amy Baco-Taylor, HBOI ECC, FSU, abacotaylor@fsu.edu Asako Matsumoto, Fukushima, HNIU, amatsu@gorgonian.jp Bruce Mundy, IRC ECC, NMFS, bruce.mundy@noaa.gov Chris Kelley, EX, UH, ckelley@hawaii.edu Daniel Wagner, EX, PMNM, daniel.wagner@noaa.gov Espirit Saucier, LSU, LSU, heestand.saucier@louisiana.edu John R Smith, UH, UH, jrsmith@hawaii.edu Les Watling, ME, UH, watling@hawaii.edu Mackenzie Gerring, UH, UH, mgerring@hawaii.edu Michael Parke, IRC ECC, NMFS, Michael.Parke@noaa.gov Nicole Morgan, FSU, FSU, nbmorgan11@gmail.com Randal Singer, FL, FLMNH, rsinger@flmnh.ufl.edu Scott France, ULL, ULL, france@louisiana.edu Tina Molodtsova, SI (Washington, DC), PPSIO, tina@ocean.ru | | |
| Purpose of the Dive | This dive site was located in the channel between WestpacBank and Nihoa Island, which creates a constriction point for current flow. The objective of the dive was to survey a completely unexplored area for corals and sponges, testing the hypothesis that high density communities can be found in areas where the surrounding topography accelerates current flow. No previous dives have ever been conducted at this site. Discovery of high density communities will provide valuable information to NOAA's Deep Sea Coral and | | |

Technology Program (DSCTP). The target start point was a flat surface east of Westpac Bank at 1612m. The plan was to then head southwest moving up a pinnacle inside the channel to a final target depth of 1384m.

Description of the Dive:

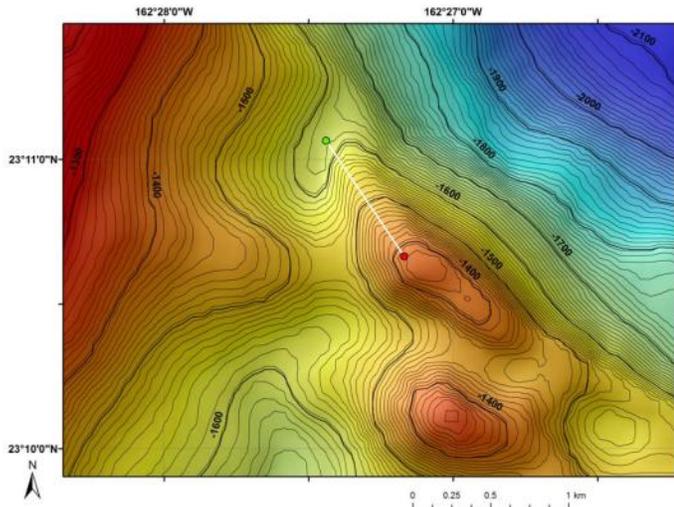
The ROV landed on an unsedimented, sloped heavily Mn-crust surface consisting of pillows, boulders and rubble at 1597m. The substrate did not contain any sediment and was covered with high densities of large tunicates (*Styela* sp) as well as smaller unidentified stoloniferous tunicates. There was a slight current from the east towards the west. As the ROV moved up the slope of the ridge, the substrate continued to be covered with high densities of tunicates, which contained occasional pockets of debris consisting of barnacle plates. Several stalked sponges, live large sessile barnacles (*Chirona* sp), chrysogorgid and primnoid corals were also observed, but only one bamboo coral. At 1530m, there was a sudden increase in the density of chrysogorgid corals. A Mn-crust rock was collected at 1516m. As the ROV continued moving up the slope, it encountered very strong currents from the southwest to the northeast that impeded forward movement. As a result, the dive was aborted prematurely without reaching the planned endpoint. The ROV left the bottom at a depth of 1515m after a total bottom time of 2:59h, having covered a linear distance of 280m.

Animals observed during the dive are listed below:

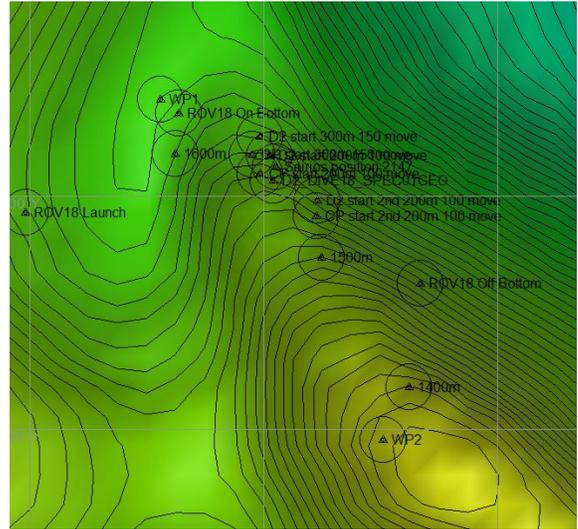
| Phylum | Group | Species |
|---------------|----------------|-----------------------------------------------|
| Arthropods | Barnacles | <i>Chirona amaryllis</i> |
| Arthropods | Barnacles | Scalpellidae |
| Arthropods | Squat lobsters | <i>Europtychus</i> sp. |
| Cnidarians | Actinarians | <i>Liponema</i> sp. |
| Cnidarians | Actinarians | <i>Sycionis?</i> sp. |
| Cnidarians | Actinarians | Unidentified anemone |
| Cnidarians | Alcyonaceans | Clavularidae sp. |
| Cnidarians | Antipatharians | <i>Trissopathes</i> cf. <i>pseudotrística</i> |
| Cnidarians | Gorgonians | <i>Calyptrophora angularis?</i> |
| Cnidarians | Gorgonians | <i>Calyptrophora?</i> sp. |
| Cnidarians | Gorgonians | <i>Chrysogorgia geniculata</i> |
| Cnidarians | Gorgonians | <i>Chrysogorgia</i> sp. |
| Cnidarians | Gorgonians | <i>Iridogorgia magnispiralis</i> |
| Cnidarians | Gorgonians | <i>Narella?</i> sp. |
| Cnidarians | Gorgonians | <i>Narella/Calyptrophora</i> sp. |
| Cnidarians | Gorgonians | Unbranched primnoid |
| Cnidarians | Gorgonians | Unidentified branched isidid |
| Cnidarians | Gorgonians | <i>Victorgorgia nuttingi</i> |
| Cnidarians | Hydrozoans | Anthecate hydroids |
| Cnidarians | Hydrozoans | <i>Brachyocerianthus imperator?</i> |
| Cnidarians | Hydrozoans | Hydromedusae |
| Cnidarians | Scleractinians | <i>Polymyces wellsii?</i> |
| Cnidarians | Zoanthid | Unidentified zoanthid overgrowing dead coral |
| Echinoderms | Asteroids | <i>Henricia pauperrima</i> |
| Echinoderms | Asteroids | <i>Plinthaster/Ceramaster</i> sp. |
| Echinoderms | Crinoids | Unidentified comatulids |
| Fishes | Eels | <i>Synaphobranchus brevidorsalis</i> |
| Fishes | Ophidiidae | Ophidiid |
| Mollusks | Aplocophoran | <i>Solenogastres</i> sp. |
| Sponges | Demosponges | <i>Poecillastra</i> sp. |
| Sponges | Hexactinellids | <i>Bolosoma</i> sp. A |
| Sponges | Hexactinellids | <i>Bolosoma</i> sp. B |
| Sponges | Hexactinellids | <i>Caulophacus (Oxydiscus)</i> sp. |
| Sponges | Hexactinellids | <i>Farrea</i> nr <i>occa erecta</i> |
| Sponges | Hexactinellids | <i>Poliopogon</i> sp.B |
| Sponges | Hexactinellids | <i>Tretopleura</i> sp. |
| Tunicate | Ascidacea | <i>Styela</i> sp. |
| Tunicate | Ascidacea | Yellow colonial tunicate? |

Overall Map of Dive Area

Actual track of ROV dive



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



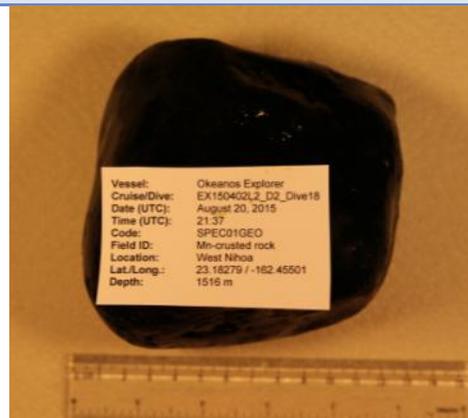
Large *Styela* sp. tunicates interspersed with smaller yellow stoloniferous tunicates seen throughout most of the dive.



Heavily Mn-crusted pillow lava flows with several hexactinellid sponges (*Poliopogon* sp.).

Samples Collected

| | |
|------------------|---------------------------------------------|
| Sample ID | EX1504L2_20150820213709_D2_Dive18_SPEC01GEO |
| Date (UTC) | 2015/08/20 |
| Time (UTC) | 21:37:09 |
| Depth (m) | 1516 |
| Temperature (°C) | 3.01591 |
| Oxygen (mL/L) | 2.08227 |
| Field ID(s) | Mn-crusted rock |
| Comments | |



Please direct inquiries to:

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 Silver Spring, MD 20910
 (301) 734-1014