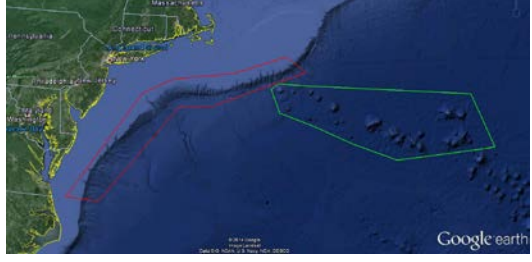


# OKEANOS EXPLORER ROV DIVE SUMMARY

|  |   |  |   |   |
|--|---|--|---|---|
| <b>Site Name</b>   | Phoenix Canyon  |  |   |  |
| <b>ROV Lead/Expedition Coordinator</b>   | Todd Gregory/<br>Brian Kennedy  |  |   |   |
| <b>Science Team Leads</b>  | Scott France and Susan Schnur   |  |   |   |
| <b>General Area Descriptor</b>   | Northwest Atlantic Ocean;<br>Mid Atlantic U.S. Canyons  |  |   |   |
| <b>ROV Dive Name</b>   | Cruise Season   | Leg  | Dive Number                                       |   |
|  | EX1404  | 3  | DIVE01  |   |
| <b>Equipment Deployed</b>  | ROV:  | Deep Discoverer  |   |   |
|  | Camera Platform:  | Seirios  |   |   |
| <b>ROV Measurements</b>  | <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 |   |
| <b>Equipment Malfunctions</b>  | None  |  |   |   |
| <b>ROV Dive Summary<br/>(From processed ROV data)</b>                          | Dive Summary: EX1404L3_DIVE01<br>^^ |  |   |   |
|  | In Water at:  | 2014-09-19T12:29:39.755000<br>N/A ; N/A                        |   |   |
|  | Out Water at:   | 2014-09-19T20:31:22.141000<br>37°, 53.433' N ; 073°, 54.804' W |   |   |
|  | Off Bottom at:  | 2014-09-19T19:34:13.316000<br>37°, 53.359' N ; 073°, 54.877' W |   |   |
|  | On Bottom at:   | 2014-09-19T13:21:06.373000<br>37°, 53.468' N ; 073°, 54.740' W |   |   |
|  | Dive duration:  | 8:1:42   |   |   |
|  | Bottom Time:  | 6:13:6   |   |   |
|  | Max. depth:   | 1172.3 m   |   |   |
| <b>Special Notes</b>   | None  |  |   |   |
| <b>Scientists Involved<br/>(please provide name /<br/>affiliation / email)</b> | Peter Auster  | UConn and SRF  | peter.auster@uconn.edu                            |   |
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|  | Rachel Clostio  | University of Louisiana at Lafayette                           | rclostio@louisiana.edu                            |   |
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|  |                         |  |                                |
|--|-------------------------|--|--------------------------------|
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|  | Christopher (Chris) Mah | Invertebrate Zoology, NMNH, Smithsonian      | brisinga@gmail.com             |
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#### Purpose of the Dive

To explore the geomorphology and biology of the previously unexplored Phoenix Canyon

#### Description of the Dive:

The ROV D2 was deployed at 1225 UTC to a depth of 1172 meters in Phoenix Canyon; D2 reached the bottom at 1322 UTC. The dive began on a flat, sandy-silty, heavily-bioturbated bottom just south of the main canyon thalweg. One or two debris boulders embedded in the thick sand preserved the layering of strata that was later observed higher up on the cliff walls. Several cutthroat eels (*Synaphobranchus* sp.) and northern shortfin squid (*Illex illecebrosus*) were observed at the start site. We made our way toward the south wall of the canyon, continuing to cross soft sediment bottom. We observed several fish, including witch flounder (*Glyptocephalus*), blue hake (*Antimora rostrata*) and black dogfish (*Centroscyllium fabricii*), two species of squid (*Mastigoteuthis magna* and *Brachioteuthis beanii*) and one individual of the solitary scleractinian cup coral *Flabellum*. We encountered a rock on which a hydroid colony was being preyed upon by 5 or more aeolid nudibranchs. The slope transitioned to steeper terrain with tall, laterally-continuous outcrops of siltstone/mudstone hosting abundant biology. Outcrops showed distinct seaward-dipping bedding planes, differential erosion of less resistant layers and iron-staining. Abundant small caves and slide chutes were likely initiated by burrowing, but micro-scale fractures were frequently observed as well. Some overhangs on these walls were densely populated by *Desmophyllum* cup corals, along with occasional colonies of the scleractinian coral *Solenosmilla*, the octocoral *Acanthogorgia*, and scattered individuals of the limid bivalve *Acesta* (or relative).

Above the outcrops the ROV moved into a sandier, flatter area, also highly bioturbated but with isolated larger burrow holes and in places a white veneer thought to be fresher sand ejected from within the cliff by burrowing. In places we observed sharp headwall scarps where thin (~10 cm) slabs of siltstone had detached and slid downslope, leaving behind a fresh surface with exposed burrow casts. After reaching the top of the section the decision was made to move northwestward into a side-canyon, most likely a landslide valley. This area was dominated by a sloped, sandy-silty bottom and minimal in-situ outcrop, especially higher in the section.

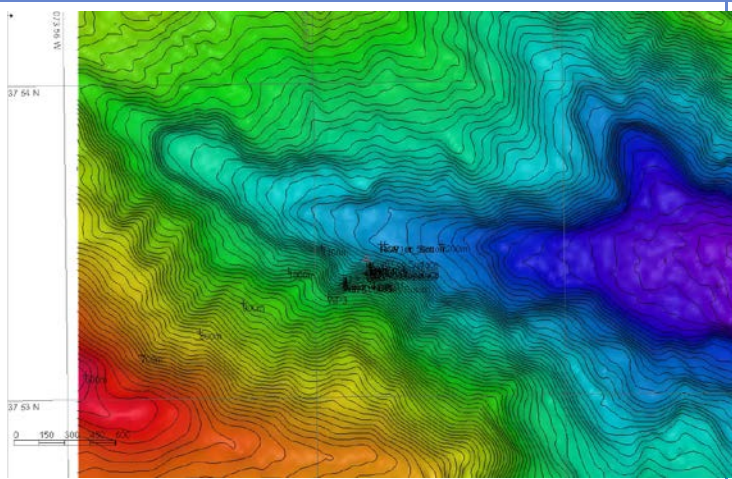
Overall, there was little evidence of recent major mass movement events on the southern walls and floor of Phoenix canyon, at least away from the thalweg; small-scale progressive erosion seemed the dominant physical process modifying the canyon. Throughout the dive we observed many pink sea urchins (cf *Echinus*), several *Graneledone verrucosa* octopi, many xenophyophores, and many skates (*Bathyraja* sp.).

Other species observations: *Neolithodes* sp. king crabs and *Chaceon* red crabs; fish: long-finned hake (*Urophycis chesteri*), roundnose grenadier (*Coryphaenoides*) and marlinspike grenadiers (*Nezumia*), long-finned hake (*Urophycis chesteri*), ghost cat shark (*Apristurus?*) and a cat shark egg case on an *Acanthogorgia* coral, cusk eels (Ophidiidae), fathead (*Cottunculus*) and dragonfish (Stomiidae);

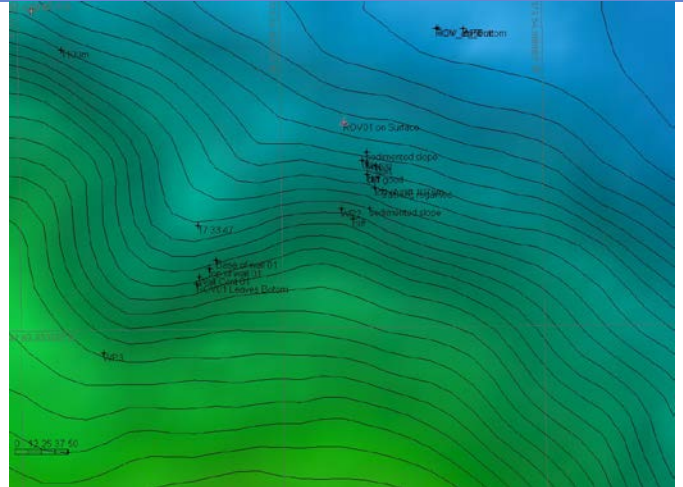
Interesting highlights: an attack by a cutthroat eel (*Synaphobranchus* sp.) on a cranchiid squid, *Teuthowenia megalops*; a marlinspike grenadier (*Nezumia* sp.) infested with parasitic copepods; and an aeolid nudibranch crawling across the muddy seafloor in front of a resting bobtail squid (*Rossia* sp.).

The ROV left the bottom at 1956 UTC from 1035 m.

#### Overall Map of ROV Dive Area

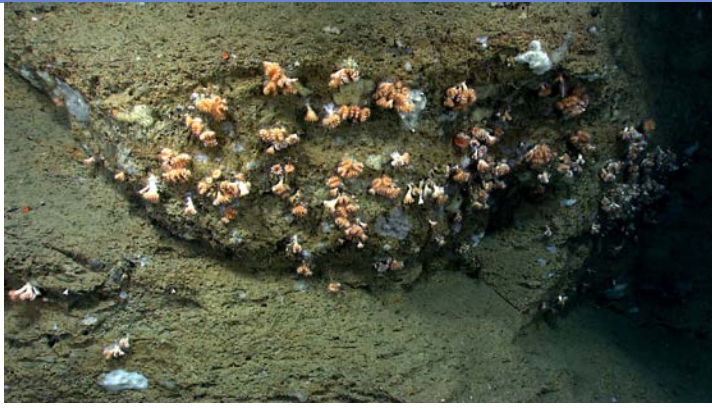


#### Close-up Map of Main Dive Site



#### Representative Photos of the Dive





**Please direct inquiries to:**

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