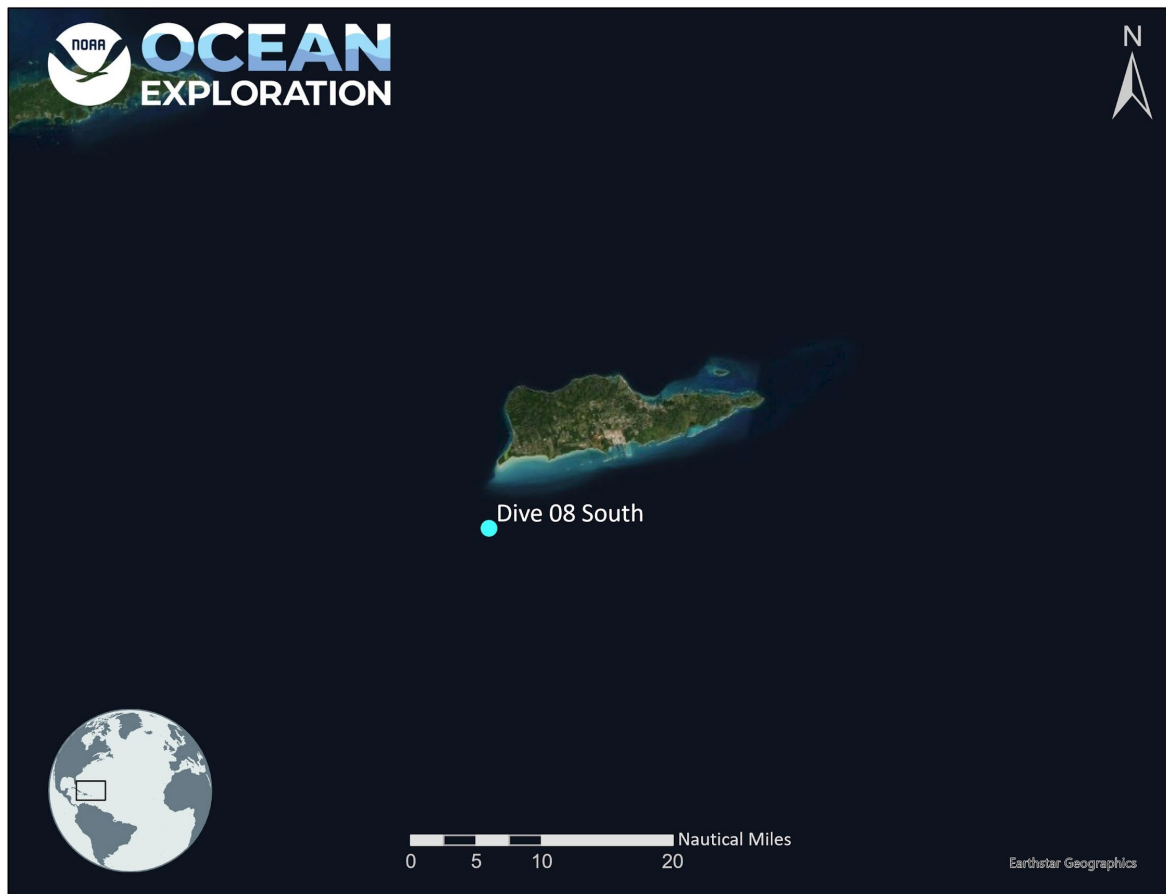


ROV Dive Summary, EX-22-06, Dive 08 August 30, 2022

General Location Map



Dive Information

| | |
|--|--|
| Site Name | Dive 08 - SW St. Croix |
| General Area Descriptor | Puerto Rico and the USVI |
| Science Team Leads | Joana Xavier (Biology), Deb Glickson (Geology) |
| Expedition Coordinator | Thomas Morrow |
| ROV Dive Supervisor | Levi Unema |
| Sample Data Manager | Megan Cromwell |
| Mapping Lead | Sam Candio |
| Dive Purpose | The primary objective of this dive is to explore and characterize essential fish habitats and associated benthic communities on the southwest corner of St. Croix, on a landslide deposit. |
| Was the dive restricted for Underwater Cultural Heritage? | No |
| ROV Dive Summary Data | Dive Summary: EX2206_DIVE08 ^^^ Dive Type: Normal In Water: 2022-08-30T12:22:01.090478 17.579447082078435 ; -64.87560813817643 On Bottom: 2022-08-30T12:58:36.560863 17.580944 ; -64.87284022752496 Off Bottom: 2022-08-30T20:14:35.446077 17.585325614190847 ; -64.86660529756027 Out Water: 2022-08-30T20:31:30.600606 17.585486209058455 ; -64.86459249268184 Dive Duration: 8:09:29 Bottom Time: 7:15:58 Max Vehicle Depth: 611.6 m Min Seafloor Depth: 407.1 m Distance Travelled: 828.4 m |

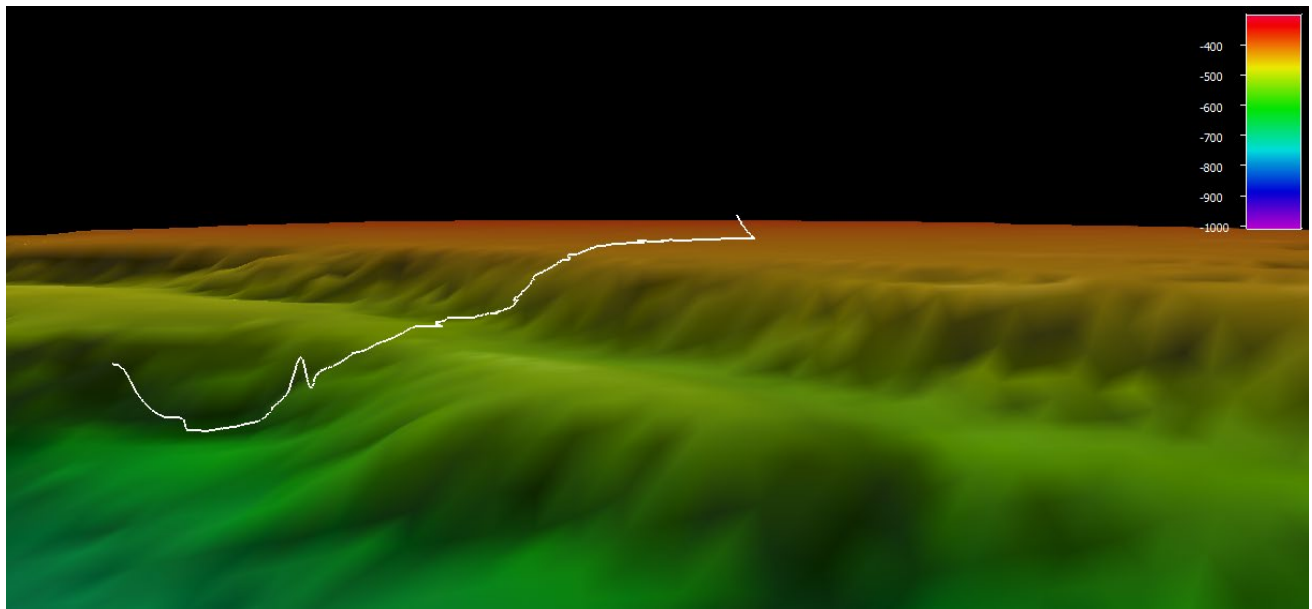
| | |
|----------------------|---|
| Dive Description | <p>The bottom came into sight at 1257 UTC. It was heavily sedimented with pieces of sargassum throughout. We took a water sample (01W) here at 1300. The sediment was very bioturbated, with burrows, disturbances, mounds, and tracks/traces. We soon saw several fish (green-eyed fish, hatchetfish, a beardfish (<i>Polymixia barber</i>) exhibiting feeding behavior, and a white filefish with an elongate snout). We also saw a holothurian.</p> <p>At 1335/603 m we reached our first rocky outcrop, which was highly sedimented but still provided a surface for glass sponges and a cookie star. There was not much current on this flat plain. The rocky outcrops in this area appeared to be fossiliferous limestone, probably old reefs, due to the presence of scleractinian corals embedded in the matrix of the rock. This outcrop also had a diversity of biota, including a glass sponge with a lot of mucus and a predatory tunicate (1350-1352/593 m). As we continued on this low slope, we encountered a solitary scleractinian coral and a xenophyophore.</p> <p>D2 was pulled off the bottom briefly so the ship could deal with some sargassum in the strainers, and when we reacquired bottom, we were at about 574 m. At this depth, we saw a Tremaster sea star.</p> <p>At 1422/555 m, we found a much larger rocky outcrop, where the rocks were incredibly weathered and also very smooth and domed. It was unclear what types of rock these were, although carbonate seemed most likely. Further inspection found corals, snails, and other fossils in the outcrop. Around this time, we saw a carrier crab with possible chrysogorgia. Upon transitioning back to sediment, we saw a goosefish (<i>Lophiodes miancanthus</i>, 1429) and a frogfish (1435). Soon after this (1444/530 m), we followed some tracks to an irregular urchin that was very pale in color and appeared to be covered in sediment. Soon after, we saw a <i>Formosoma placenta</i> urchin and a <i>Radicipes</i> octocoral, zoanthids on a dead coral(?), and a spinning, twisting vertically oriented fish. The sediment in this area continued to be heavily bioturbated, with many traces and tracks, tall pointy mounds, and burrows.</p> <p>At 1554/511 m, we reached another rocky outcrop with a diversity of biota – a feather star, a stalked crinoid, black coral whips, a squat lobster, rock sponge, tunicate, and several shrimp. 20 minutes later (495 m), we encountered a sparse colony of bamboo coral with long branches and then reached an outcrop of highly sedimented, weathered carbonates. These rocks looked out of place, like they had fallen from a higher slope. We saw a slime star, a goniasterid cookie star, an anthomastus octocoral, a fish, glass sponge, and a demosponge (bright yellow). We took a water sample (02W) at this outcrop. Soon after, we saw a bamboo coral with intermodal branching, although many of the polyps were stripped. We passed through an area of layered rocks with alternating resistant and eroded bands – the tops were domed and very smooth. We saw stoloniferan corals (1703) on a large out of place block of fossiliferous limestone, which was dipping in multiple directions. At 1717/457 m we encountered an <i>Epigonus</i>, a burrow guarded by a shrimp, and a <i>Pterasterid</i> slime star.</p> <p>At 1730/443 m, we reached the landslide scarp wall, with horizontal layering and a fairly steep face. As we moved up the wall, we encountered a <i>Palaeopneustes</i> sea urchin, sediment that looked to be composed mostly of shell hash, and an <i>Odontaster</i> sea star. At 1813/428 m, we saw a <i>sticopathes</i>. Soon after this, we reached another flat area with well-developed ripples that coincided with a slightly higher current. At 1825/416 m, we saw a <i>Henricia</i> that was predated a sponge or sargassum. As we continued on the flat plain, at 1901 we came upon a very interesting behavioral moment – over 35 <i>Conolampas</i> sea urchins and their tracks, wearing hats made of debris. This might have been an aggregation for the purpose of spawning. At 1947/409 m, we followed a stingray for as long as possible, and at 1959 we found a shortfin squid that was resting on its tentacles at the seafloor.</p> |
| Notable Observations | Aggregation of over 35 <i>Conolampas</i> sea urchins, stingray, squid, well-developed layered limestones. |

| | |
|--|---|
| Community and habitat observations | Corals and Sponges - Present Chemosynthetic Community - Absent High biodiversity Community - Absent Active Seep or Vent - Absent Extinct Seep or Vent - Absent Hydrates - Absent |
| CMECS Feature Type(s) | Submarine Slide Deposit Flat Slope Scarp/Wall |
| SeaTube Link (science annotation system) | https://data.oceannetworks.ca/SeaTubeV3?resourceTypeId=600&resourceId=2723 |

Equipment Deployed

| | |
|------------------------|--|
| ROV | <i>Deep Discoverer</i> |
| Camera Platform | <i>Seirios</i> |
| ROV Measurements | The following ROV measurements, data streams and equipment are used on each ROV deployment: CTD, depth, scanning sonar, USBL position, altitude, heading, attitude, high-resolution cameras, low resolution cameras, manipulator arms, suction sampler, sample drawers and thrusters. The section below notes if any of these sensors were malfunctioning or not operational |
| Equipment Malfunctions | None. |

Close-up Map of Main Dive Site



Smoothed ROV dive track in white on a 32 m resolution bathymetric grid, 1x vertical exaggeration, depth in meters.

Representative Photos of the Dive



Beardfish (*Polymixia*) exhibiting feeding behavior.



Filefish.



Anglerfish.



Frogfish.



Sea urchin.



Blue encrusting organism. It was unclear whether this was a soft coral, a sponge, or a tunicate.



Part of a large aggregation of Conolampas (over 35 individuals).

Samples Collected

None except water samples, as we were within the 12nm boundary of St. Croix's territorial waters and did not have a permit to sample.

Niskin Sampling Summary

| | |
|-----------------------------|----------------|
| Sample ID | EX2206_D08_01W |
| Date (UTC) | 20220830 |
| Time (UTC) | 130015 |
| Depth (m) | 610.713 |
| Latitude (decimal degrees) | 17.58096 |
| Longitude (decimal degrees) | -64.872830 |
| Bottle number | NISKIN 1 |
| Temperature (°C) | 10.008 |
| Dissolved Oxygen (ml/L) | 4.118 |
| Treatment | eDNA |

| | |
|-----------------------------|----------------|
| Sample ID | EX2206_D08_02W |
| Date (UTC) | 20220830 |
| Time (UTC) | 163818 |
| Depth (m) | 492.958 |
| Latitude (decimal degrees) | 17.58406 |
| Longitude (decimal degrees) | -64.869740 |
| Bottle number | NISKIN 2 |
| Temperature (°C) | 12.678 |
| Dissolved Oxygen (ml/L) | 4.297 |
| Treatment | eDNA |

| | |
|------------|----------------|
| Sample ID | EX2206_D08_03W |
| Date (UTC) | 20220830 |
| Time (UTC) | 190650 |
| Depth (m) | 412.64 |

| | |
|-----------------------------|------------|
| Latitude (decimal degrees) | 17.58501 |
| Longitude (decimal degrees) | -64.868080 |
| Bottle number | NISKIN 3 |
| Temperature (°C) | 14.261 |
| Dissolved Oxygen (ml/L) | 4.491 |
| Treatment | eDNA |

Scientists Involved

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|-------------------|--------------------------------|--|
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