

Okeanos Explorer ROV Dive Summary

| Dive Information | |
|-------------------------|--|
| General Location Map | |
| General Area Descriptor | Gulf of Mexico |
| Site Name | Southern West Florida Escarpment Ridge |
| Science Team Leads | Daniel Wagner (Biology) Adam Skarke (Geology) |
| Expedition Coordinator | Nikolai Pawlenko |
| ROV Dive Supervisor | Karl McLetchie |
| Mapping Lead | Mike White |
| ROV Dive Name | |
| Cruise | EX1803 |
| Dive Number | DIVE14 |
| Equipment Deployed | |
| ROV | Deep Discoverer |
| Camera Platform | Seirios |

| | | | | |
|-------------------------|--|------------|--|--------------------------|
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| Purpose of the Dive | <p>The purpose of Dive 14 was to survey the biology and geology of a narrow ridge feature at depths between 2200-2400 m. This narrow ridge feature is located off a system of canyons on the southern end of the West Florida Escarpment. This area is completely unexplored, with the closest historical dive being conducted over 24 km away. Additionally, this dive explored ridge feature that was similar in shape to many ridges surveyed during the CAPSTONE efforts in the Pacific Ocean. Therefore, this dive would also provide insights into how the faunas of these two ocean basins compare to one another in similar environments.</p> | | | |
| Description of the Dive | <p>The ROV landed on the ridge crest at a depth of 2363 m at 15:06 UTC. There were several exposed rocks near the landing spot, but these did not have any encrusting organisms growing on them. As the ROV moved up along the ridge crest, it encountered numerous patches with exposed rocks and boulders, which hosted corals and sponges. A majority of the dive was characterized by large rock outcrops intermittently separated by areas of sediment cover. The observed rock outcrops hosted isolated corals and sponges as well as denser clumped communities of benthic organisms. Periodically the rock outcrops displayed clear layering with beds dipping at varying angles in a southeasterly direction. Most observed rocks displayed a black oxide crust. At approximately 18:00 UTC pronounced scour pits were observed around some rocks indicating previous excavation by rapid currents. Beginning at approximately 19:30 UTC the relief of the terrain increased, and vertical rock walls were observed. Additionally, the ridge crest narrowed to only a few meters across. At 19:55, the ROV encountered a large rocky outcrop with vertical relief of >10 m at a depth of 2240 m. Very high densities of bamboo corals and <i>Hyalonema</i> sp. glass sponges were recorded on this feature.</p> <p>The most commonly encountered animals included bamboo corals (<i>Isidella</i> sp., <i>Keratoisis</i> sp., <i>Jasonisis</i> sp., <i>Lepidisis</i> sp., <i>Bathygorgia</i> sp., <i>Acanella</i> sp.), black corals (<i>Bathypathes</i> spp., <i>Stichopathes</i> sp., <i>Stauropathes</i> sp., <i>Telopathes</i> sp., <i>Heteropathes</i> cf. <i>americana</i>), plexaurid corals (<i>Paramuricea biscaya</i>), and glass sponges (<i>Hyalonema</i> sp., <i>Farrea</i> sp., Euplectellidae, and various other unidentified Hexactenellida). Other animals observed during the dive included chrysogorgid corals (<i>Chrysogorgia</i> sp., <i>Iridogorgia magnispiralis</i>, <i>Metallogorgia melanotrichos</i>), corallids (<i>Corallium niobe</i>), stoloniferan corals (two different species of unidentified Stolonifera), anthothelid corals (<i>Anthothela</i> sp.),</p> | | | |



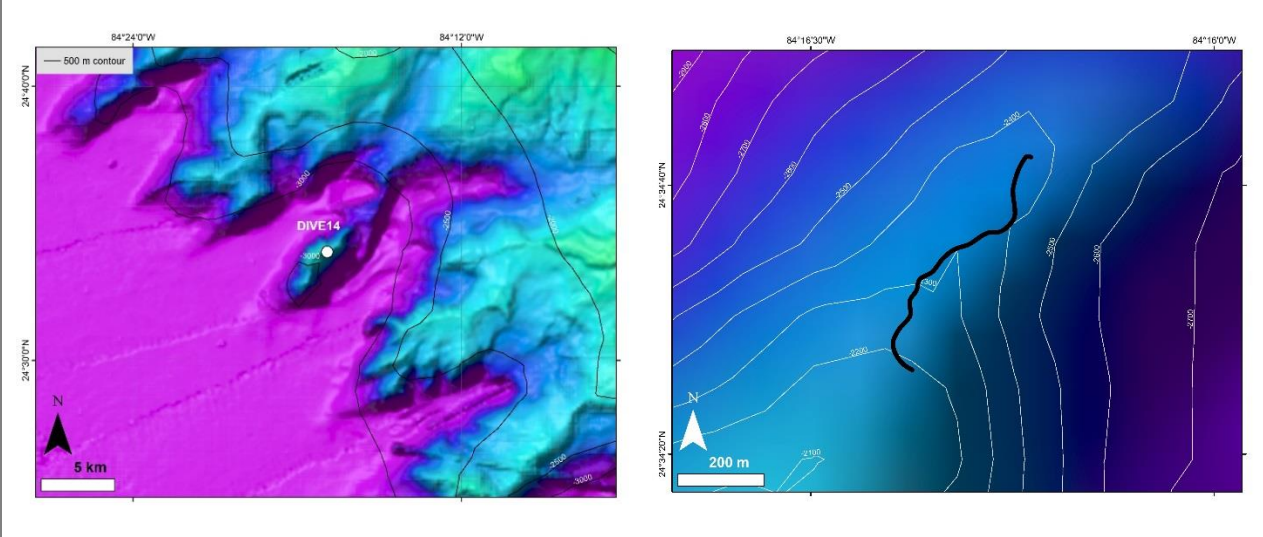
seapens (Pennatulacea), anemones (Actinaria), tube-dwelling anemones (Ceriantharia), demosponges (Cladorhizidae, unidentified Demospongia), seastars (Goniasteridae, *Freyestera* sp.), zoanths (Zoantharia), crinoids (stalked and unstalked), bryozoans (Bryozoa), benthic ctenophores (Platyctenida), barnacles (Scalpellidae, unidentified Scalpellidae), shrimp (*Nematocarcinus ensifer*), and a sea cucumber (Deimatidae).

Fish observed during the dive included tripodfishes (*Ipnops murrayi*, *Bathypterois grallator*), halosaurs (*Aldrovandia* sp.), and a cusk eel (Unidentified Bythitidae). The ROV left the seafloor at 20:16 UTC at a final depth of 2237 m.

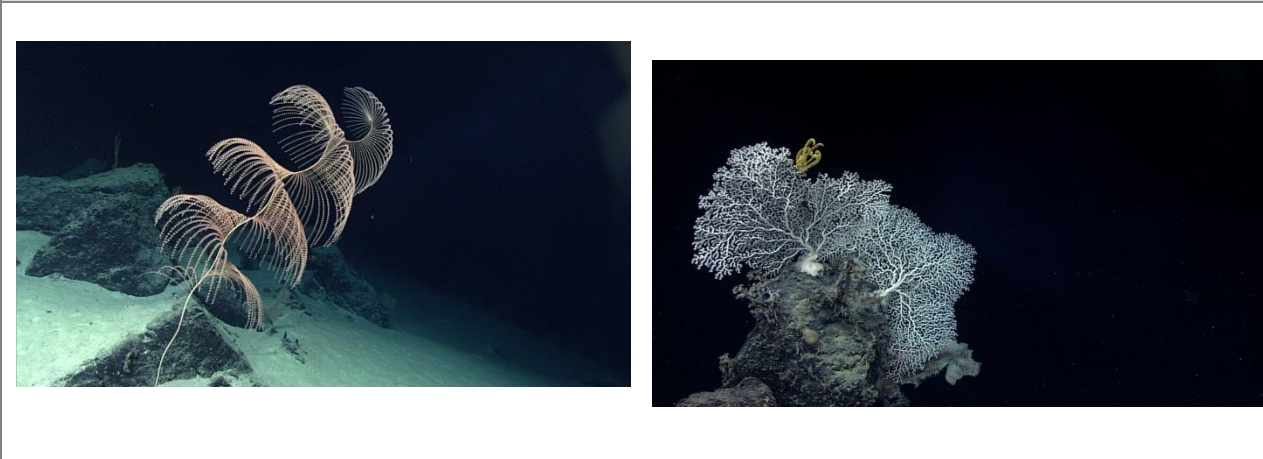
Notable Observations
Towards the end of the dive (20:07 UTC) the ROV came across a very high density of bamboo corals and glass sponges, which are among the deepest high-density communities recorded in the Gulf of Mexico to date.

| | | |
|--|---|---|
| Community Presence/ Absence <i>(community is defined as more than two species)</i> | <input checked="" type="checkbox"/> Corals and Sponges Present | <input type="checkbox"/> Active Seep or Vent |
| | <input type="checkbox"/> Chemosynthetic Community Present | <input type="checkbox"/> Extinct Seep or Vent |
| | <input checked="" type="checkbox"/> High biodiversity Community Present | <input type="checkbox"/> Hydrates Present |

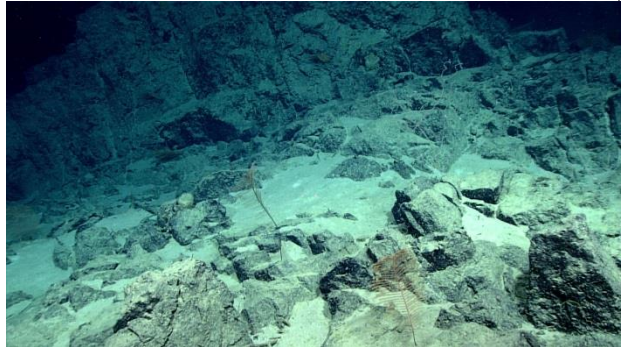
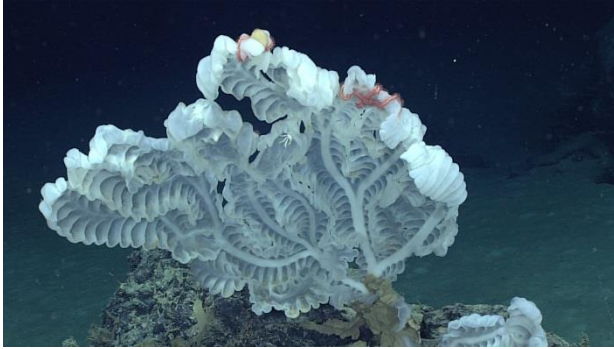
Overall Map of the ROV Dive Area **Close-up Map of Main Dive Site**



Representative Photos of the Dive



Iridogorgia magnispinalis. *Corallium niobe* and crinoid.



Glass sponge.

Bathypathes sp. black corals

Samples Collected

Sample

| | |
|------------------|--|
| Sample ID | EX1803_20180501T152631_D2_DIVE14_S PEC01BIO |
| Date (UTC) | 20180501 |
| Time (UTC) | 152631 |
| Depth (m) | 2360.6 |
| Temperature (°C) | 4.3 |
| Field ID(s) | <i>Bathygorgia</i> sp. |

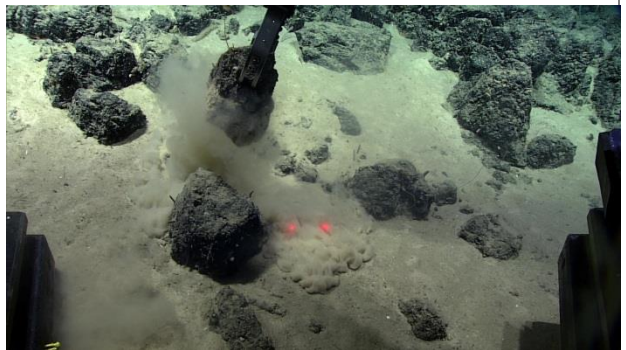


| Commensals | Commensal ID | Field Identification | Notes |
|------------|--------------|----------------------|-------|
| | none | | |
| | | | |
| | | | |

Comments

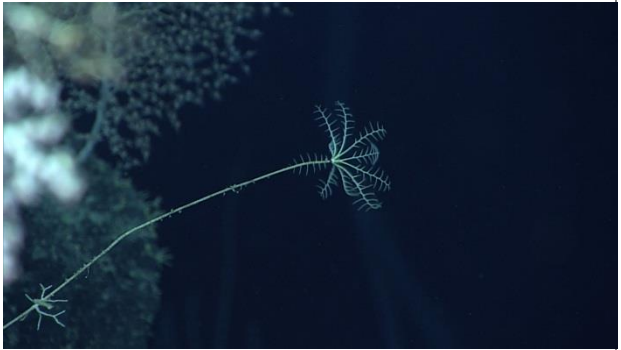
Sample

| | |
|------------------|--|
| Sample ID | EX1803_20180501T160818_D2_DIVE14_S PEC02GEO |
| Date (UTC) | 20180501 |
| Time (UTC) | 160818 |
| Depth (m) | 2344.64 |
| Temperature (°C) | 4.31 |
| Field ID(s) | Carbonate rock |



| Commensals | Commensal ID | Field Identification | Notes |
|------------|--|----------------------|-------------------|
| | EX1803_20180501T160818_D2_DIVE14_SPEC02GEO_A01 | Crinoid | stalk only N=1 |
| | EX1803_20180501T160818_D2_DIVE14_SPEC02GEO_A02 | Hexactinellida | 1 live and 2 dead |
| | EX1803_20180501T160818_D2_DIVE14_SPEC02GEO_A03 | Polychaeta | N=2 |
| Comments | | | |


Sample

| | | |
|------------------|--|--|
| Sample ID | EX1803_20180501T175005_D2_DIVE14_SPECO3BIO |  |
| Date (UTC) | 20180501 | |
| Time (UTC) | 175005 | |
| Depth (m) | 2283.59 | |
| Temperature (°C) | 4.31 | |
| Field ID(s) | <i>Monanicrinus</i> sp. | |

| Commensals | Commensal ID | Field Identification | Notes |
|------------|--|----------------------|-------|
| | EX1803_20180501T175005_D2_DIVE14_SPECO3BIO_A01 | Bryozoa | N=3 |
| | | | |

Comments

Sample

| | | |
|------------------|--|--|
| Sample ID | EX1803_20180501T194849_D2_DIVE14_SPECO4BIO |  |
| Date (UTC) | 20180501 | |
| Time (UTC) | 194849 | |
| Depth (m) | 2274.52 | |
| Temperature (°C) | 4.3 | |



| | | | |
|-------------|------------------------|----------------------|-------|
| Field ID(s) | <i>Isidella kerl2c</i> | | |
| Commensals | Commensal ID | Field Identification | Notes |
| | none | | |
| | | | |
| | | | |
| Comments | | | |

Please direct inquiries to:

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