doi: 10.25923/h61s-0752

# Cruise Report:
# MDBC Expedition R/V *Point Sur*,
# May 31–June 11, 2022

**August 2023**

## DWH MDBC Cruise Report 2023-02

## Suggested Citation

Etnoyer, P., Frometa, J., Salgado, E., and Will, M. (2023). Cruise Report: MDBC Expedition R/V *Point Sur*, May 31–June 11, 2022. National Oceanic and Atmospheric Administration. DWH MDBC Cruise Report 2023-02. https://doi.org/10.25923/h61s-0752

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For more information on MDBC Restoration, please visit:

https://coastalscience.noaa.gov/project/scientific-support-for-mesophotic-and-deep-benthic-community-restoration-in-the-gulf-of-mexico/

and

https://www.fisheries.noaa.gov/southeast/habitat-conservation/mesophotic-and-deep-benthic-communities-restoration

## Disclaimer

# Cruise Report:
# MDBC Expedition R/V *Point Sur*,
# May 31–June 11, 2022

## Coral Propagation Technique Development Project
## and
## Habitat Assessment and Evaluation Project


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**August 2023**

## DWH MDBC Cruise Report 2023-02

## ***Deepwater Horizon* Mesophotic and Deep Benthic Communities Restoration**

This report is part of the NOAA Mesophotic and Deep Benthic Communities (MDBC) Series of publications that share the results of work conducted by the *Deepwater Horizon* MDBC restoration projects.

The 2010 *Deepwater Horizon* oil spill was an unprecedented event. Approximately 3.2 million barrels of oil were released into the deep ocean over nearly three months. The plume of oil moved throughout the water column, formed surface slicks that cumulatively covered an area the size of Virginia, and washed oil onto at least 1,300 miles of shoreline habitats. More than 770 square miles (2,000 square kilometers) of deep benthic habitat were injured by the oil spill, including areas surrounding the *Deepwater Horizon* wellhead and parts of the Pinnacles Trend mesophotic reef complex, located at the edge of the continental shelf.

Under the Oil Pollution Act, state and federal natural resource trustees conducted a Natural Resource Damage Assessment (NRDA). The Trustees assessed damages, quantifying the unprecedented injuries to natural resources and lost services. They also developed a programmatic restoration plan to restore injured resources and compensate the public for lost services.

In April 2016, a settlement was finalized that included up to $8.8 billion in funding for the *Deepwater Horizon* Trustees to restore the natural resource injuries caused by the oil spill as described in their programmatic restoration plan, Final Programmatic Damage Assessment and Restoration Plan and Final Programmatic Environmental Impact Statement. The *Deepwater Horizon* Open Ocean Trustee Implementation Group is responsible for restoring natural resources and their services within the Open Ocean Restoration Area that were injured by the oil spill. The Open Ocean Trustees include NOAA, U.S. Department of the Interior, U.S. Environmental Protection Agency, and U.S. Department of Agriculture.

In 2019, the Open Ocean Trustee Implementation Group committed more than $126 million to implement four restoration projects to address the injury to MDBC. The MDBC projects are: Mapping, Ground-Truthing, and Predictive Habitat Modeling; Habitat Assessment and Evaluation; Coral Propagation Technique Development; and Active Management and Protection. NOAA and the Department of the Interior are implementing the projects, in cooperation with a range of partners, over eight years.

Together, the projects take a phased approach to meet the challenges involved in restoring deep-sea habitats. Challenges to restoration include a limited scientific understanding of these communities, limited experience with restoration at the depths at which these communities occur, and remote locations that limit accessibility.

More information about *Deepwater Horizon* restoration and the MDBC restoration projects is available at: www.gulfspillrestoration.noaa.gov.

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# Acronyms

| | |
|---|---|
| CofC | College of Charleston |
| CPT | Coral Propagation Technique Development project |
| CSS | Consolidated Safety Services, Inc. |
| CTD | Conductivity, Temperature, and Depth |
| CYCLE | Connectivity of Coral Ecosystems Project |
| GoMx | Gulf of Mexico |
| HAE | Habitat Assessment and Evaluation Project |
| HML | Hollings Marine Lab |
| MARE | Marine Applied Research and Exploration |
| MDBC | Mesophotic and Deep Benthic Communities |
| NOAA | National Oceanic and Atmospheric Administration |
| NCCOS | NOAA National Centers for Coastal Ocean Science |
| NCEI | National Centers for Environmental Information |
| SALT | Submerged Acquisition of Living Tissue |
| UNCW | University of North Carolina Wilmington |
| USGS | United States Geological Survey |

# Background

SALT is an acronym for Submerged Acquisition of Living Tissue. The SALT expeditions are generally designed to conduct scientific reconnaissance for deep coral restoration activity in the northern Gulf of Mexico (GoMx). SALT 1 took place in October 2021 (Etnoyer et al., 2022). This document reports on the SALT 2 expedition, which conducted remotely operated vehicle (ROV) operations in the northern GoMx using the ship R/V *Point Sur* with ROV *Mohawk* (University of North Carolina Wilmington) to survey reef-top features (50–100 m) in the Pinnacles Trend (Gardner et al., 2000; Nash and Randall, 2015). SALT 2 (Cruise ID PS-22-22) took place over ten days in fair weather from May 31–June 11. This work is in support of the Open Ocean Restoration Plan's (Open Ocean Trustee Implementation Group, 2019) Mesophotic and Deep Benthic Communities (MDBC) portfolio, co-sponsored by the Coral Propagation Technique Development (CPT) and Habitat Assessment and Evaluation (HAE) projects. The work at sea is focused on visual surveys for habitat assessment, targeted sampling of coral biota, and characterization of the water column to support restoration. The list of participants is provided in Table 1.

The goals of the SALT 2 mission were to survey the seafloor and collect samples of corals for shoreside partners engaged in studies related to octocoral husbandry. The visual surveys were 300-m strip-transect lines conducted over hard and soft bottom habitats. The purpose of the surveys was to characterize habitat, identify sampling targets, and verify existing models of topography (Nash and Randall, 2015) and habitat suitability for corals (Silva and MacDonald, 2017). The purpose of the coral sampling was to support studies of biology for population genetics, microbiology, and reproduction. The primary species targets for population genetics were *Swiftia exserta, Muricea pendula,* and *Thesea nivea.* Secondary targets for barcoding were genera *Bebryce*, *Thesea*, *Muriceides*, *Nicella*, *Placogorgia*, and *Villogorgia,* all from mesophotic depths. No managed species of corals (black corals or scleractinians) were collected.

# Science Team

**Table 1.** Cruise participants for SALT 2. Rows that have a second entry indicate an at-sea transfer of personnel on June 5th aboard R/V *Jim Franks*. ROV = remotely operated vehicle; GIS = geographic information system; NOAA = National Oceanic and Atmospheric Administration; NCCOS = National Centers for Coastal Ocean Science; USGS = United States Geological Survey; NMFS = National Marine Fisheries Service; UNCW = University of North Carolina Wilmington; MARE = Marine Applied Research and Exploration; NCEI = National Centers for Environmental Information; CofC = College of Charleston; CPT = Coral Propagation Technique Development project; HAE = Habitat Assessment and Evaluation project; CYCLE = Connectivity of Coral Ecosystems project funded by NCCOS; CSS = Consolidated Safety Services, Inc; MDBC = Mesophotic and Deep Benthic Communities portfolio.

| Last Name | First Name | Role on Cruise | Affiliation | Funding |
|---|---|---|---|---|
| Etnoyer | Peter | Chief Scientist | NOAA NCCOS | CPT |
| Kellogg | Christina | Biologist - corals | USGS | CPT/HAE |
| Everett | Meredith | Water + eDNA | NMFS | HAE/CPT |
| Herrera | Santiago | Population genetics | Lehigh Univ. | CYCLE |
| Salgado<br>Evans | Enrique<br>James | Aquarist - corals<br>Biologist - corals | NOAA NCCOS<br>USGS | CPT<br>CPT |
| Frometa | Janessy | Data Coordinator | NOAA NCCOS | CPT/HAE |
| Johnstone | Julia | Biologist - corals | NOAA NCCOS | CPT |
| White | Jason | ROV Operator | UNCW | CSS |
| Glidden | Erik | ROV Operator | UNCW | CSS |
| Lauermann | Andy | ROV Integration | MARE | CSS |
| Jackson<br>Cromwell | Lauren<br>Megan | Data Manager<br>Data Manager | NCEI<br>NCEI | MDBC<br>MDBC |
| Will | Morgan | GIS/Data Asst | CofC | CPT |
| Kotronaki | Syrmalenia | Population genetics | Lehigh Univ. | CYCLE |
| Lange<br>Flounders | Kassidy<br>Samantha | Aquarist<br>ROV Trainee | NOAA NCCOS<br>UNCW | CPT<br>CSS |

# Locations

Fieldwork locations were identified through a “gap analysis” supported by literature reviews and database searches, with some additional fieldwork. Data gaps were filled through an ongoing data rescue effort since 2021, working with National Oceanic and Atmospheric Administration (NOAA) partners at Southeast Fisheries Science Center and Flower Garden Banks National Marine Sanctuary, and academic partners working in the GoMx through the University of Florida, Lehigh University, University of Texas Rio Grande Valley, and others. Survey sites were prioritized based on depth (50–300 m), known occurrences of target taxa, extent of hard bottom “reef-top” substrate, the number of days below the oil slick, and proximity to areas of injury. The extent of hard-bottom was determined using a spatial dataset of reef-top features (Nash and Randall, 2015) as a proxy for low-relief rocky habitat, in combination with multibeam topography (Gardner et al., 2000). The cruise surveyed locations are shown in Figure 1 and Table 3.

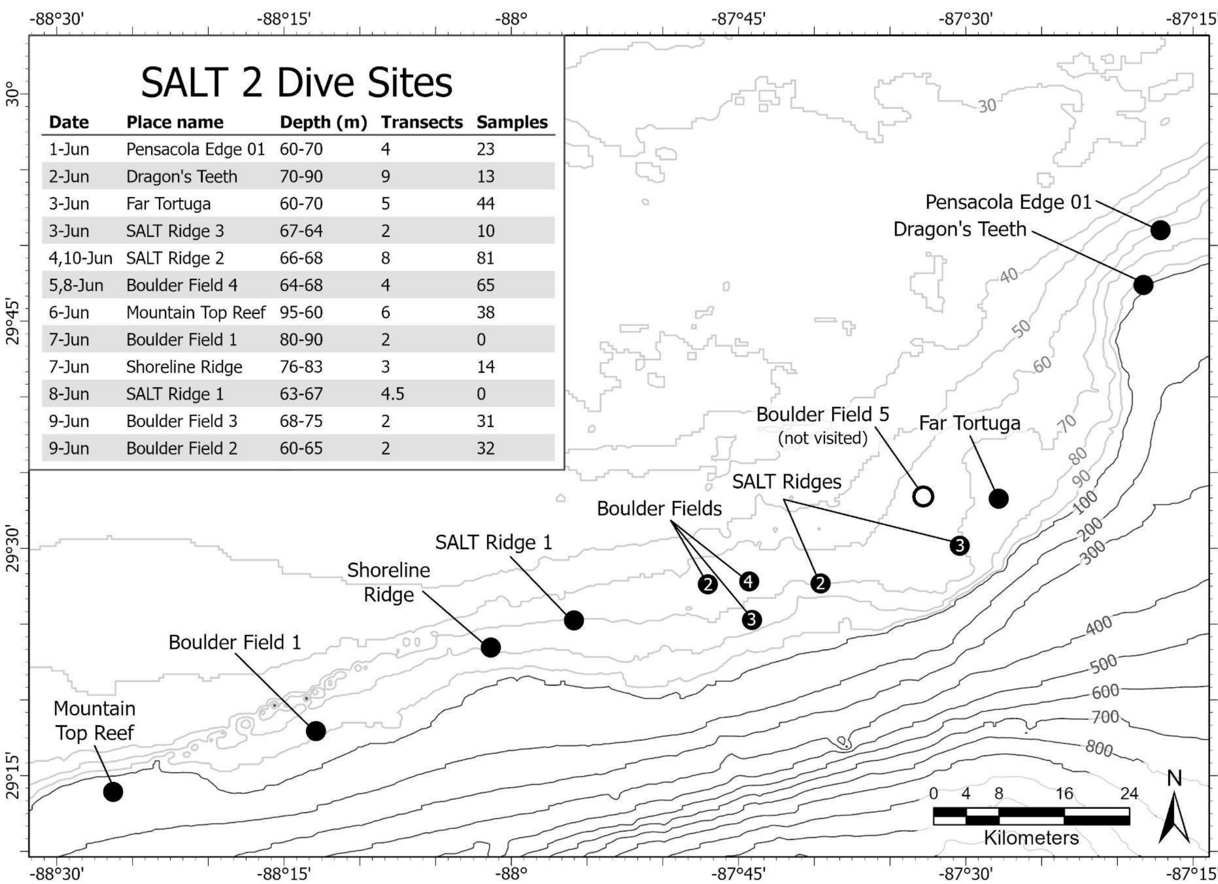


**Figure 1.** SALT 2 expedition targeted deep reef-top features in the Pinnacles Trend in the northern Gulf of Mexico, with two exceptions to the northeast in the Head of DeSoto Canyon area. “Pensacola Edge 01” is a presumed spawning aggregation for corals located 45 miles south of Pensacola, Florida. ROV transects listed in Table 7 were 300 m long, over low-relief rocky habitat. Samples collected were mostly *Swiftia exserta*, *Muricea pendula*, and *Thesea nivea*. One site was not accomplished: Boulder Field 5.

# Operations

The R/V *Point Su*r departed Gulfport, Mississippi, in the evening of May 31 at 1800 hours. The ship arrived on site adjacent to the Pensacola Edge 01 target by June 1 at daylight. Surveys at Dragon's Teeth, Far Tortuga, SALT Ridges, and Boulder Fields occurred over the next few days, with many transects conducted and octocoral samples collected.

On the morning of June 5, three crates of live coral samples (n = 17) and four personnel were transferred to and from the R/V *Jim Franks* at a rendezvous point offshore. Following that, R/V *Point Sur* transited to SALT Ridge and Mountain Top Reef west of Alabama Alps Reef and worked northeasterly toward Roughtongue Reef (Figure 1). Operations continued through June 10. The ship arrived in Gulfport early on June 11, then demobilized and transported samples to partner labs by June 14. See Table 2 for a detailed daily itinerary and Appendix 2 for a list of live coral samples and their destinations.

Daily shipboard operations typically began in the morning at 0730 hours with a conductivity, temperature, and depth (CTD) rosette cast to near bottom depth (66–103 m) to collect water for chemistry analyses, live coral water changes, and eDNA filtration. Near 0800 hours, the ROV *Mohawk* was launched for the first of 2–3 dives that day. The first dives were typically surveying rocky habitat and adjacent sandy areas over 300-m transect intervals. If sampling targets were encountered, the team transitioned to collecting octocoral samples.

Octocoral samples were collected into thermally insulated biological containers aboard the ROV and retrieved on deck for subsampling. Subsample categories were: live corals for husbandry, formalin-fixed and ethanol-preserved corals for reproduction and histology, ethanol-preserved samples for barcoding, RNAlater-preserved and flash frozen subsamples for microbiology, and ethanol-preserved and flash frozen subsamples for genome skimming and population genetics. The ROV had a high sampling success rate, and the wet lab area aboard R/V *Point Sur* was sufficient to support these biological studies.

### Operating Area

- Relatively shallow sites in the 50- to 100-m depth zone in Pinnacles Trend area, and at Pensacola Edge (PE-01) in the DeSoto Rim area
- Reference areas adjacent to injury sites at Alabama Alps Reef and Roughtongue Reef
- Reef-top features from Nash and Randall (2015)

**Table 2.** Cruise itinerary. Full names of localities are provided in Figure 1 and Table 3. CTD = conductivity, temperature, and depth; ROV = remotely operated vehicle.

| Date | Operations Conducted | Brief Description |
|---|---|---|
| 5/31/2022 | Mobilize ROV and science teams, depart at 1800 hr | UNCW ROV team and science team aboard R/V *Point Sur* in Gulfport, Mississippi. Ship departs with 11 science, 3 ROV, and 7 ship crew members. |
| 6/1/2022 | CTD, ROV, logger deployments | 2 ROV dives to survey and sample PE01. CTD cast in the PM. 2 temp loggers and 1 current meter deployed in the AM. |
| 6/2/2022 | CTD, ROV, logger deployments | 2 ROV dives to survey and sample DRG. 2 temp loggers and 1 current meter deployed in the afternoon, and 2 CTD casts, 1 in the AM and one in PM. No samples collected in dive 04. |
| 6/3/2022 | CTD and ROV | 2 ROV dives at FAR and 1 at SR3. CTD casts in the AM and PM. |
| 6/4/2022 | CTD and ROV | 3 ROV dives at SR2. CTD casts in the AM and PM. No samples collected in dive 08. |
| 6/5/2022 | At-sea transfer, CTD and ROV | At-sea transfer with R/V *Jim Franks* - 3 science crew out, 2 science crew and 1 ROV in. One dive at BF4. CTD casts in the AM and PM. |
| 6/6/2022 | CTD and ROV, logger recovery and deployment | 2 dives at MTR. On dive 12, 2 HOBO loggers were recovered (temp, PAR) from an ARMS deployed in 2019 by Herrera (Lehigh Univ, CYCLE project). A new temp logger was deployed in the same location. CTD casts in the AM and PM. |
| 6/7/2022 | CTD and ROV | 1 dive at BF1 and 1 at SHR. CTD casts in the AM and PM. |
| 6/8/2022 | CTD and ROV | 3 dives at SR1 and 2 dives at BF4. CTD casts in the AM and PM. No samples collected in dives 16, 17, or 18 (SR1) due to ROV issues. |
| 6/9/2022 | CTD and ROV | 1 dive at BF3 and 1 at BF2. CTD casts in the AM and PM. |
| 6/10/2022 | CTD and ROV, depart to Gulfport | One dive at SR2. CTD casts in the AM and PM. Ship arrived at Gulfport around 2300 hr. |
| 6/11/2022 | Demobilize ROV, science team returns home | End of expedition. |

# Objectives and Accomplishments

Mission objectives, as stated in the mission plan, and cruise accomplishments are stated below.

1. Conduct ROV operations to sample and survey at least eight sites with goals to acquire live corals for husbandry and find an adjacent gene pool for corals at Roughtongue Reef (Pinnacles Trend)
    a. 23 ROV dives were conducted at 12 sites (Figure 1; Table 3).
    b. 51 video transects were completed (Table 7)

2. Collect up to 50 live coral fragments for husbandry and propagation at partner labs.
    a. Collected 32 live corals for labs in Charleston (n = 15) and Gainesville (n = 17)
    b. New taxa for husbandry - *Thesea nivea, Bebryce* sp., and *Villogorgia* sp.

3. Collect up to 500 coral clippings for microbiology, population genetics, barcoding, and reproduction
    a. Collected 351 total biological samples: 334 octocorals, nine coral associates, and seven others (two algae and five invertebrates)
    b. Preserved all 334 octocorals for population genetics analyses, 102 for reproduction, 50 for microbiology, 74 for barcoding at the Smithsonian, and 23 for barcoding at Hollings Marine Lab (Appendix 2)

4. Conduct two CTD rosette casts daily, with water sampling for husbandry and eDNA.
    a. Conducted 19 CTD casts (Table 4; Figures 3 and 4 provide an example water column profile and PAR and beam transmission levels at SR3)
    b. Collected 241 Niskin bottles and 216 filters for eDNA
    c. Conducted analyses of water chemistry (nitrates, phosphates, ammonia, magnesium, calcium, alkalinity) at each locality (Table 5)

5. Deploy in situ sensor and data loggers for monitoring and laboratory simulation.
    a. Deployed three temperature loggers and two current meters (Table 6)
    b. Recovered one Connectivity of Coral Ecosystems (CYCLE) project data sensor for light and temperature

6. Provide a collaborative experience at-sea for students and project partners
    a. Provided a first time at-sea experience in the GoMx to three graduate students, and two post-docs
    b. Provided training to one new ROV pilot and two data managers at National Centers for Environmental Information (NCEI)

7. New - Collect highlight video for outreach and education
    a. Collected three 3D video surveys for structure from motion
    b. Collected 52 high-quality video segments of seafloor biota with 'lasers off'

**Table 3.** List of ROV dives for PS-22-22. Dive 1 is equivalent to UNCW dive 1009. Coordinates indicate the dive start position. Depth provided is average depth during dive. Duration is from on-bottom to off-bottom. Sample and transect columns indicate the number of samples collected and transects completed over the course of each dive.

| Date | Dive | Locality | ID | Latitude | Longitude | Depth | Duration | Samples | Transects |
|---|---|---|---|---|---|---|---|---|---|
| 6/1 | 1 | Pensacola Edge 01 | PE1 | 29.84878 | −87.28852 | 69 | 05:36 | 14 | 4 |
| 6/1 | 2 | Pensacola Edge 01 | PE1 | 29.85020 | −87.28581 | 60 | 00:54 | 9 | 0 |
| 6/2 | 3 | Dragon's Teeth | DRG | 29.76700 | −87.30848 | 119 | 04:41 | 13 | 3 |
| 6/2 | 4 | Dragon's Teeth | DRG | 29.77329 | −87.32287 | 99 | 03:33 | 0 | 6 |
| 6/3 | 5 | Far Tortuga | FAR | 29.55527 | −87.46725 | 61 | 03:01 | 23 | 2 |
| 6/3 | 6 | Far Tortuga | FAR | 29.55673 | −87.46166 | 69 | 03:56 | 21 | 3 |
| 6/3 | 7 | SALT Ridge 3 | SR3 | 29.50664 | −87.50560 | 66 | 01:56 | 10 | 2 |
| 6/4 | 8 | SALT Ridge 2 | SR2 | 29.45960 | −87.65845 | 72 | 03:29 | 0 | 6 |
| 6/4 | 9 | SALT Ridge 2 | SR2 | 29.46115 | −87.66887 | 69 | 02:36 | 22 | 1 |
| 6/4 | 10 | SALT Ridge 2 | SR2 | 29.46037 | −87.66572 | 70 | 01:40 | 26 | 0 |
| 6/5 | 11 | Boulder Field 4 | BF4 | 29.45711 | −87.73945 | 71 | 04:34 | 28 | 4 |
| 6/6 | 12 | Mountain Top Reef | MTR | 29.23796 | −88.43698 | 96 | 05:36 | 23 | 2 |
| 6/6 | 13 | Mountain Top Reef | MTR | 29.23015 | −88.43857 | 63 | 03:39 | 15 | 4 |
| 6/7 | 14 | Boulder Field 1 | BF1 | 29.29485 | −88.20907 | 92 | 01:51 | 0 | 2 |
| 6/7 | 15 | Shoreline Ridge | SHR | 29.39718 | −88.03453 | 81 | 03:12 | 14 | 3 |
| 6/8 | 16 | SALT Ridge 1 | SR1 | 29.41568 | −87.96457 | 73 | 00:15 | 0 | 0 |
| 6/8 | 17 | SALT Ridge 1 | SR1 | 29.41612 | −87.96505 | 73 | 01:11 | 0 | 4 |
| 6/8 | 18 | SALT Ridge 1 | SR1 | 29.42128 | −87.86210 | 69 | 00:21 | 0 | 1 |
| 6/8 | 19 | Boulder Field 4 | BF4 | 29.45730 | −87.73905 | 71 | 01:02 | 10 | 0 |
| 6/8 | 20 | Boulder Field 4 | BF4 | 29.45779 | −87.73892 | 68 | 02:01 | 27 | 0 |
| 6/9 | 21 | Boulder Field 3 | BF3 | 29.42123 | −87.72917 | 76 | 04:05 | 31 | 2 |
| 6/9 | 22 | Boulder Field 2 | BF2 | 29.45178 | −87.78302 | 70 | 03:59 | 32 | 2 |
| 6/10 | 23 | SALT Ridge 2 | SR2 | 29.45696 | −87.66904 | 75 | 02:46 | 33 | 0 |


**Figure 2.** In situ image showing mounded topography with corals at SALT Ridge 3 at 70 m. These types of images were collected by the ROV and will be annotated for geology and biology.

# Next Steps and Recommendations

The primary follow-up activities for SALT 2 include image annotation (e.g., see Figure 2), sample processing, data management post-cruise activities (see data accessibility section below), and planning for new activities. Future plans include the following:

- Transects, samples for population genetics, and comparisons of diversity and abundance are still needed at Boulder Field 5 (BF5). This one dive target was missed due to weather. The site was recommended to the HAE team sailing on the RV *Pisces* leg 2, before the ROV team contracted COVID-19 and was taken off the ship.

- A data portal was shared by R/V *Point Sur* first mate J.D. Ellington: GCOOS GANDALF (gandalf.gcoos.org), which shows an upwelling circulation pattern from offshore to onshore. Future sampling designs should account for this pattern.

- The States of Florida and Alabama have offshore fish havens on NOAA nautical charts. These are large managed areas in deep water (> 50 m), already permitted for structures. Alabama Fish Havens (https://www.outdooralabama.com/saltwater-fishing/artificial-reefs) were mapped recently by NOAA Ship *Hassler*. Florida has an area permitted too. The datasets should be added to the MDBC catalogs for future reference.

# Data Accessibility and Management

The data coordinators for NCEI for this cruise were Lauren Jackson and Megan Cromwell. NCEI will be primarily responsible for collation of data products. They were trained in advance to use the MDBC At-Sea Database to log metadata and information about ROV dive targets, waypoints, ROV environmental data, transects conducted, deployments and recoveries, tissue samples, and image samples. Tissue samples included both preserved tissues and live aquaria samples. The data coordinators served as the main points of contact for data transfer and archive activities at NCEI, as well as the outputs from the planned additions to the At-Sea database, including cruise reports and subsequent time-referenced image annotations.

The data coordinator for National Centers for Coastal Ocean Science (NCCOS) was Janessy Frometa. She was also trained in advance to use the MDBC At-Sea Database to log all the basic information mentioned above. She served as the main point of contact for NCCOS to assist in the transfer of records to NCEI. She was supported by Morgan Will for transects and waypoint data and by the biology team for tissue and water samples collected.

The data coordinator for biological samples on this cruise was Dr. Christina Kellogg (United States Geological Survey). The cruise was sampling intensive. Samples and subsamples were processed and stored in multiple ways including live colonies for husbandry, fixed samples in formalin for reproduction analyses, preserved tissue samples in 95% ethanol for DNA barcoding, and flash freezing using liquid nitrogen for population genetic analysis. Dr. Kellogg was able to report the samples for her team and all others to NCEI and NCCOS daily. These records were transcribed in the evenings to the MDBC At-Sea Database.

ROV dive and transect data were also logged by the ROV teams, NCEI, and NCCOS. Video and still images were transferred nightly from a hard drive provided by the ROV team to NCCOS and NCEI hard drives. Sample logs, dive summaries, and dive targets were produced nightly by the science team and organized by Frometa.

Copies of hard drives were maintained by the Chief Scientist upon departure and reconciled ashore for completeness so that the ROV hard drive was populated with all contents. “Small data” (spreadsheets and still images) were made available to NCEI within two weeks of cruise end via Google Drive. “Large data” (video, navigation, and map files) were compiled into hard drives provided and kept by NCEI during the cruise. Image files were renamed by NCEI. Files were organized according to protocol, by Frometa, within two weeks post cruise.

# Post-Cruise Activities

Processing navigation and video data

Navigation and video post-processing will be done by external partner Marine Applied Research and Exploration (MARE). The data products will be consistent with MDBC, NOAA's Deep Sea Coral Research and Technology Program, and Coastal and Marine Ecological Classification Standard protocols. MARE will provide second-by-second positional data with estimates of area and species counts for key taxa of corals, fishes, and invertebrates. These will be formatted in accordance with the data template provided by the MDBC image annotation team.

Processing CTD data

CTD data were processed aboard by the ship's crew and then reprocessed by NCCOS staff with support from College of Charleston student Kassidy Lange. Graphic outputs were provided in JPEG format, included in environmental data summary reports, and submitted to NCEI for archiving. The raw data, processed data, and data summary reports will be archived by NCEI. Temperature logger data will be processed at NCCOS and archived by NCEI.

Processing samples (water, tissue, etc.)

Coral samples (Appendix 2) will be processed by MDBC biologists in CPT and HAE for husbandry, genetics, microbiology, and reproduction. Sub samples were made available to external partners within 3 months. Water samples (Table 4) will be processed by Dr. Meredith Everett (National Marine Fisheries Service) for eDNA analyses.

Voucher specimens will be archived at Hollings Marine Laboratory and Wetland and Aquatic Research Center in the short term and then transferred to the Smithsonian National Museum of Natural History (NMNH) for long-term preservation. NMNH biologists with expertise in fish and mobile and sessile invertebrates will be funded by HAE through an interagency agreement.

# Water Samples

The CTD rosette aboard the RV *Point Sur* had 12 5-L Niskin bottles for water sampling to help establish target levels for mesophotic aquaria systems. A total of 19 CTD casts were made (Table 4), of which 11 casts provided samples for chemical analysis (Table 5) taken from near bottom depth. The water from the Niskins was transferred to 50-mL Nalgene vials and analyzed immediately for phosphates ($PO_4^-$), nitrates ($NO_3^-$), calcium ($Ca^{2+}$), magnesium ($Mg^{2+}$), pH, alkalinity, and oxygen. Nitrites and ammonia were consistently 0.00 at depth, as expected. Data were analyzed by Salgado (leg 1) and Frometa (leg 2) using a Hach DR900 system. Ca, Mg, and alkalinity used Red Sea titration test kits. Oxygen measurements were from CTD data. See parameters in Table 5.

**Table 4.** List of conductivity, temperature, and depth (CTD) rosette casts. Locality names are described in Table 3.

| Cast ID | Locality | Date | Time (CDT) | Latitude (DD) | Longitude (DD) | Max Depth (m) |
|---|---|---|---|---|---|---|
| PS-22-22_CTD001 | PE1 | 6/1/2022 | 1826 | 29.85175 | −87.28688 | 66 |
| PS-22-22_CTD002 | DRG | 6/2/2022 | 0730 | 29.78945 | −87.30455 | 96 |
| PS-22-22_CTD003 | DRG | 6/2/2022 | 1815 | 29.79366 | −87.32203 | 68 |
| PS-22-22_CTD004 | FAR | 6/3/2022 | 0725 | 29.55473 | −87.46358 | 67 |
| PS-22-22_CTD005 | SR3 | 6/3/2022 | 1852 | 29.50307 | −87.50847 | 69 |
| PS-22-22_CTD006 | SR2 | 6/4/2022 | 0731 | 29.46100 | −87.65996 | 68 |
| PS-22-22_CTD007 | SR2 | 6/4/2022 | 1843 | 29.45778 | −87.66881 | 68 |
| PS-22-22_CTD008 | BF4 | 6/5/2022 | 1842 | 29.46694 | −87.73890 | 63 |
| PS-22-22_CTD009 | MTR | 6/6/2022 | 0728 | 29.23821 | −88.43739 | 103 |
| PS-22-22_CTD010 | MTR | 6/6/2022 | 1852 | 29.23026 | −88.43751 | 66 |
| PS-22-22_CTD011 | BF1 | 6/7/2022 | 0738 | 29.30296 | −88.21475 | 92 |
| PS-22-22_CTD012 | SHR | 6/7/2022 | 1731 | 29.39515 | −88.00304 | 66 |
| PS-22-22_CTD013 | SR1 | 6/8/2022 | 0724 | 29.41592 | −87.96420 | 73 |
| PS-22-22_CTD014 | SR1 | 6/8/2022 | 1148 | 29.42273 | −87.86196 | 70 |
| PS-22-22_CTD015 | BF4 | 6/8/2022 | 1745 | 29.45865 | −87.73906 | 66 |
| PS-22-22_CTD016 | BF3 | 6/9/2022 | 0729 | 29.42054 | −87.73185 | 75 |
| PS-22-22_CTD017 | BF2 | 6/9/2022 | 1845 | 29.45328 | −87.78086 | 62 |
| PS-22-22_CTD018 | SR2 | 6/10/2022 | 0713 | 29.46333 | −87.66917 | 66 |
| PS-22-22_CTD019 | SR2 | 6/10/2022 | 1327 | 29.45517 | −87.66700 | 68 |

**Table 5.** Chemistry analysis of water collected by conductivity, temperature, and depth (CTD) casts aboard PS-22-22. For locality and latitude/longitude information, refer to Table 4.

| Cast ID | $NO_3^-$ (mg/L) | $[PO_4]^{3-}$ (mg/L) | $Mg^{2+}$ (mg/L) | $Ca^{2+}$ (mg/L) | pH | $O_2$ (mg/L) | Alkalinity (dKH) |
|---|---|---|---|---|---|---|---|
| PS-22-22_CTD001 | 0.0 | 0.02 | 1550 | 460 | 8.19 | 6.35 | 7.8 |
| PS-22-22_CTD002 | 0.1 | 0.03 | 1550 | 460 | 8.21 | 4.80 | 8.0 |
| PS-22-22_CTD003 | 0.0 | 0.20 | 1550 | 460 | 8.22 | 6.60 | 8.0 |
| PS-22-22_CTD004 | 0.2 | 0.90 | 1600 | 460 | 8.49 | 6.37 | 8.1 |
| PS-22-22_CTD005 | 0.3 | 0.03 | 1550 | 425 | 8.40 | 5.85 | 8.8 |
| PS-22-22_CTD007 | 0.6 | 0.00 | 1550 | 425 | 8.40 | 6.15 | 8.4 |
| PS-22-22_CTD008 | 0.7 | 0.80 | 1440 | 450 | 8.43 | 5.85 | 7.5 |
| PS-22-22_CTD010 | 0.6 | 0.60 | 1400 | 450 | 8.48 | 6.20 | 8.7 |
| PS-22-22_CTD012 | 0.5 | 0.00 | 1460 | 450 | 8.42 | 5.75 | 7.5 |
| PS-22-22_CTD015 | 0.8 | 0.00 | 1480 | 440 | 8.44 | 5.75 | 8.3 |
| PS-22-22_CTD017 | 0.0 | N/A | 1440 | 450 | 8.44 | 5.46 | 8.3 |

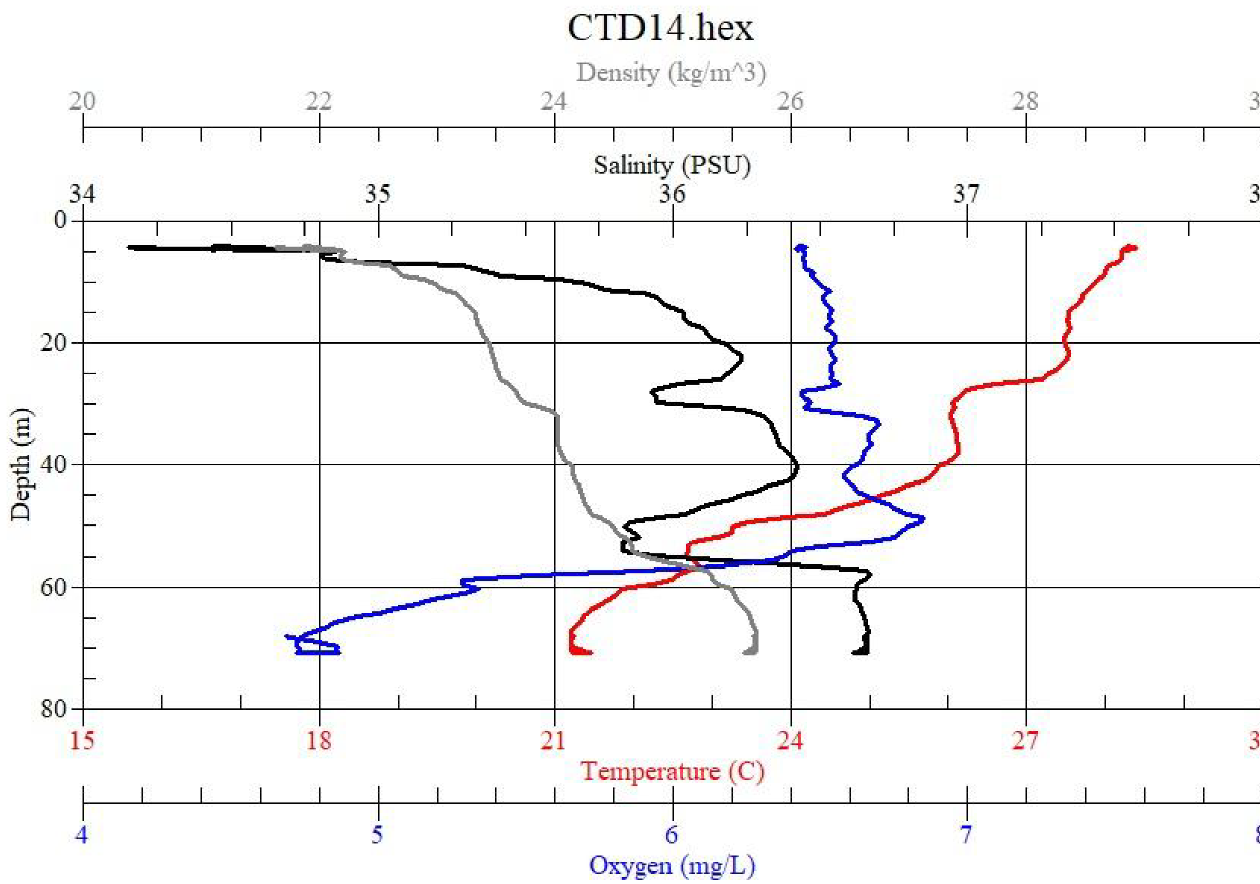


**Figure 3**. Water column profile for salinity (black), temperature (red), oxygen (blue), and density (gray) from conductivity, temperature, and depth (CTD) cast 14 on 06/08/2022 at location SALT Ridge 1 (SR1).

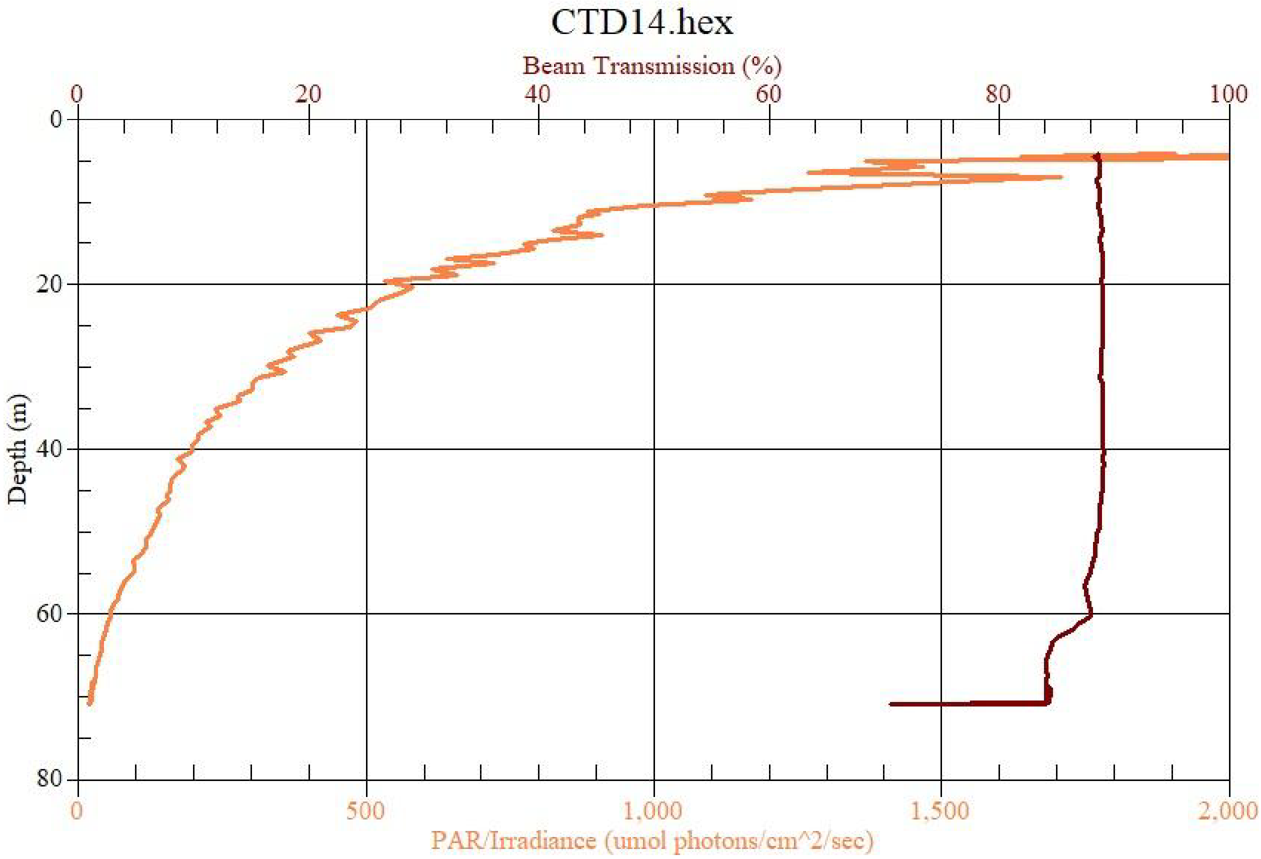


**Figure 4.** Plot showing photosynthetically active radiation (PAR) (orange) and beam transmission (dark red) from conductivity, temperature, and depth (CTD) cast 14 on 06/08/2022 at location SALT Ridge 1 (SR1).

# Data Logger Deployments

**Table 6.** List of data logger deployments. The model is the sensor. “Type” is the variable measured by the sensor. “Label” refers to the name on the marker attached to each logger and relates to locality names in Table 3. Temperature loggers record the temperature every 15 min, and current meters record current every 5 min. UTBI-001 loggers have the capacity to collect data through 7/6/2023, and MX Temp 500 loggers can collect data through 3/20/2025. The TCM current meter has the capacity to collect data for 12–14 months from deployment.

| Date | Time (CDT) | Type | Model | Label | Latitude (DD) | Longitude (DD) | Depth (m) |
|---|---|---|---|---|---|---|---|
| 6/1/2022 | 1135 | Current | TCM-1 | PE01 | 29.85045 | −87.28567 | 66 |
| 6/1/2022 | 1135 | Temperature | UTBI-001 | PE01 | 29.85045 | −87.28567 | 66 |
| 6/1/2022 | 1135 | Temperature | MX TEMP 500 | PE01 | 29.85045 | −87.28567 | 66 |
| 6/2/2022 | 1313 | Current | TCM-1 | DRG 01 | 29.76842 | −87.31568 | 86 |
| 6/2/2022 | 1313 | Temperature | UTBI-001 | DRG 01 | 29.76842 | −87.31568 | 86 |
| 6/2/2022 | 1313 | Temperature | MX TEMP 500 | DRG 01 | 29.76842 | −87.31568 | 86 |
| 6/6/2022 | 1022 | Temperature | UTBI-001 | MTR 01 | 29.23258 | −88.43775 | 66 |
| 6/6/2022 | 1022 | Temperature | UTBI-001 | MTR 01 | 29.23258 | −88.43775 | 66 |

# Video Transects

**Table 7.** List of 51 transects conducted aboard SALT 2. Planned distance was 300 m, duration varied. Dive is the SALT 2 dive number. Transect ID format is the Dive Number_Transect Number (e.g. 1_4 is dive 1, transect number 4). Duration is the time elapsed between start and end of the line.

| Locality | Date | Transect ID | Start Latitude (DD) | Start Longitude (DD) | Stop Latitude (DD) | Stop Longitude (DD) | Duration (hh:mm) | Min Depth (m) | Max Depth (m) |
|---|---|---|---|---|---|---|---|---|---|
| PE1 | 6/1/2 | Dive1_T1 | 29.84895 | −87.28880 | 29.85000 | −87.28598 | 00:31 | 59 | 67 |
| PE1 | 6/1/2 | Dive1_T2 | 29.84999 | −87.28589 | 29.84885 | −87.28347 | 00:19 | 61 | 69 |
| PE1 | 6/1/2 | Dive1_T3 | 29.84884 | −87.28331 | 29.84874 | −87.28097 | 00:17 | 60 | 71 |
| PE1 | 6/1/2 | Dive1_T4 | 29.84876 | −87.28097 | 29.84836 | −87.27795 | 00:22 | 62 | 71 |
| DRG | 6/2/2 | Dive3_T1 | 29.76746 | −87.30898 | 29.76867 | −87.31160 | 00:29 | 93 | 117 |
| DRG | 6/2/2 | Dive3_T2 | 29.76860 | −87.31165 | 29.77004 | −87.31428 | 00:21 | 84 | 95 |
| DRG | 6/2/2 | Dive3_T3 | 29.77003 | −87.31440 | 29.76790 | −87.31624 | 00:17 | 79 | 92 |
| DRG | 6/2/2 | Dive4_T1 | 29.77397 | −87.32207 | 29.77660 | −87.32242 | 00:19 | 84 | 99 |
| DRG | 6/2/2 | Dive4_T2 | 29.77665 | −87.32241 | 29.77903 | −87.32387 | 00:16 | 77 | 90 |
| DRG | 6/2/2 | Dive4_T3 | 29.77904 | −87.32378 | 29.78159 | −87.32323 | 00:24 | 74 | 88 |
| DRG | 6/2/2 | Dive4_T4 | 29.78925 | −87.32389 | 29.79153 | −87.32537 | 00:14 | 73 | 82 |
| DRG | 6/2/2 | Dive4_T5 | 29.79155 | −87.32541 | 29.79397 | −87.32391 | 00:18 | 75 | 82 |
| DRG | 6/2/2 | Dive4_T6 | 29.79396 | −87.32382 | 29.79305 | −87.32095 | 00:32 | 70 | 81 |
| FAR | 6/3/2 | Dive5_T1 | 29.55492 | −87.46740 | 29.55631 | −87.46479 | 00:19 | 61 | 69 |
| FAR | 6/3/2 | Dive5_T2 | 29.55634 | −87.46474 | 29.55706 | −87.46202 | 00:16 | 60 | 68 |
| FAR | 6/3/2 | Dive6_T1 | 29.55693 | −87.46179 | 29.55388 | −87.46024 | 00:23 | 61 | 70 |
| FAR | 6/3/2 | Dive6_T2 | 29.55357 | −87.46003 | 29.55281 | −87.46295 | 00:17 | 63 | 70 |
| FAR | 6/3/2 | Dive6_T3 | 29.55279 | −87.46300 | 29.55119 | −87.46529 | 00:15 | 62 | 70 |
| SR3 | 6/3/2 | Dive7_T1 | 29.50662 | −87.50545 | 29.50437 | −87.50715 | 00:26 | 60 | 67 |
| SR3 | 6/3/2 | Dive7_T2 | 29.50442 | −87.50723 | 29.50194 | −87.50847 | 00:21 | 62 | 69 |
| SR2 | 6/4/2 | Dive8_T1 | 29.45975 | −87.65874 | 29.46307 | −87.65978 | 00:24 | 58 | 73 |
| SR2 | 6/4/2 | Dive8_T2 | 29.46313 | −87.65983 | 29.46228 | −87.66191 | 00:13 | 65 | 69 |
| SR2 | 6/4/2 | Dive8_T3 | 29.46207 | −87.66263 | 29.45925 | −87.66157 | 00:24 | 59 | 73 |
| SR2 | 6/4/2 | Dive8_T4 | 29.45938 | −87.66167 | 29.45832 | −87.66455 | 00:15 | 67 | 73 |

| Locality | Date | Transect ID | Start Latitude (DD) | Start Longitude (DD) | Stop Latitude (DD) | Stop Longitude (DD) | Duration (hh:mm) | Min Depth (m) | Max Depth (m) |
|---|---|---|---|---|---|---|---|---|---|
| SR2 | 6/4/2 | Dive8_T5 | 29.45827 | −87.66465 | 29.46082 | −87.66544 | 00:27 | 62 | 73 |
| SR2 | 6/4/2 | Dive8_T6 | 29.45683 | −87.66679 | 29.45943 | −87.67151 | 00:49 | 59 | 74 |
| SR2 | 6/4/2 | Dive9_T1 | 29.46129 | −87.66869 | 29.45818 | −87.66936 | 00:20 | 57 | 70 |
| BF4 | 6/5/2 | Dive11_T1 | 29.45721 | −87.73909 | 29.46039 | −87.73876 | 00:20 | 61 | 71 |
| BF4 | 6/5/2 | Dive11_T2 | 29.46042 | −87.73876 | 29.46301 | −87.73872 | 00:17 | 58 | 68 |
| BF4 | 6/5/2 | Dive11_T3 | 29.46309 | −87.73873 | 29.46551 | −87.73799 | 00:20 | 58 | 66 |
| BF4 | 6/5/2 | Dive11_T4 | 29.46562 | −87.73792 | 29.46745 | −87.74015 | 00:21 | 58 | 68 |
| MTR | 6/6/2 | Dive12_T1 | 29.23784 | −88.43710 | 29.23512 | −88.43699 | 00:35 | 60 | 95 |
| MTR | 6/6/2 | Dive12_T2 | 29.23509 | −88.43700 | 29.23279 | −88.43780 | 00:40 | 59 | 68 |
| MTR | 6/6/2 | Dive13_T1 | 29.23007 | −88.43865 | 29.23038 | −88.43569 | 00:26 | 55 | 64 |
| MTR | 6/6/2 | Dive13_T2 | 29.23041 | −88.43564 | 29.23188 | −88.43385 | 00:22 | 53 | 66 |
| MTR | 6/6/2 | Dive13_T3 | 29.23189 | −88.43382 | 29.23432 | −88.43475 | 00:18 | 58 | 65 |
| MTR | 6/6/2 | Dive13_T4 | 29.23434 | −88.43478 | 29.23207 | −88.43638 | 00:19 | 59 | 68 |
| BF1 | 6/7/2 | Dive14_T1 | 29.29531 | −88.20924 | 29.29752 | −88.21006 | 00:40 | 77 | 92 |
| BF1 | 6/7/2 | Dive14_T2 | 29.29789 | −88.21019 | 29.30004 | −88.20827 | 00:25 | 76 | 90 |
| SHR | 6/7/2 | Dive15_T1 | 29.39681 | −88.03449 | 29.39537 | −88.03168 | 00:25 | 66 | 81 |
| SHR | 6/7/2 | Dive15_T2 | 29.39541 | −88.03166 | 29.39576 | −88.02907 | 00:28 | 66 | 77 |
| SHR | 6/7/2 | Dive15_T3 | 29.39577 | −88.02903 | 29.39380 | −88.02743 | 00:26 | 66 | 78 |
| SR1 | 6/8/2 | Dive17_T1 | 29.41635 | −87.96496 | 29.41880 | −87.96552 | 00:10 | 62 | 75 |
| SR1 | 6/8/2 | Dive17_T2 | 29.41891 | −87.96547 | 29.41663 | −87.96304 | 00:19 | 61 | 75 |
| SR1 | 6/8/2 | Dive17_T3 | 29.41666 | −87.96298 | 29.41917 | −87.96357 | 00:15 | 61 | 75 |
| SR1 | 6/8/2 | Dive17_T4 | 29.41921 | −87.96363 | 29.41802 | −87.96431 | 00:15 | 62 | 69 |
| SR1 | 6/8/2 | Dive18_T1 | 29.42131 | −87.86212 | 29.42271 | −87.86236 | 00:08 | 62 | 74 |
| BF3 | 6/9/2 | Dive21_T1 | 29.42127 | −87.73124 | 29.42239 | −87.73418 | 00:48 | 61 | 75 |
| BF3 | 6/9/2 | Dive21_T2 | 29.42239 | −87.73431 | 29.42026 | −87.73612 | 00:27 | 61 | 72 |
| BF2 | 6/9/2 | Dive22_T1 | 29.45272 | −87.78370 | 29.45333 | −87.78049 | 00:21 | 57 | 69 |
| BF2 | 6/9/2 | Dive22_T2 | 29.45345 | −87.78056 | 29.45531 | −87.78216 | 00:27 | 55 | 66 |

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Silva, M., and MacDonald, I. R. (2017). Habitat suitability modeling for mesophotic coral in the northeastern Gulf of Mexico. *Marine Ecology Progress Series*, *583*, 121–136. https://doi.org/10.3354/meps12336

# Appendix 1. Dive Summaries

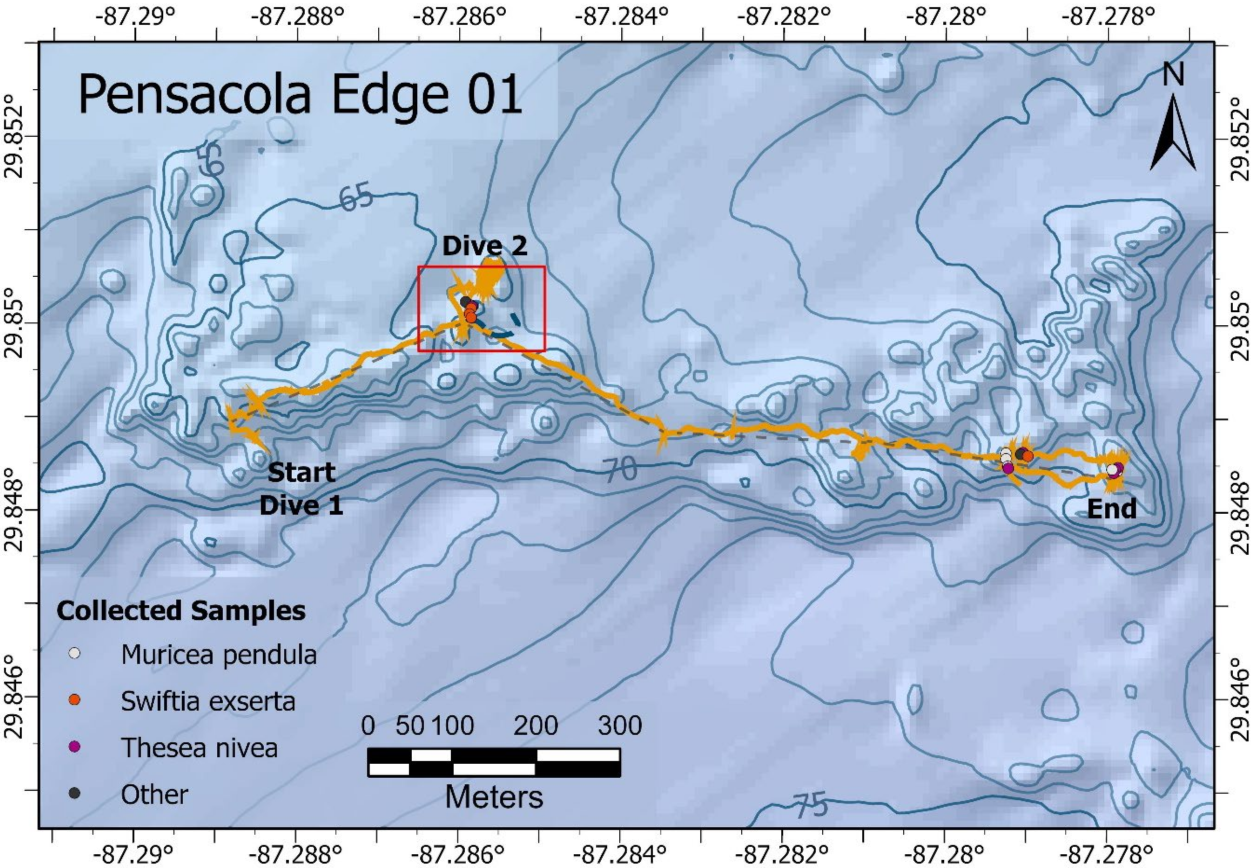


**Figure A1.** A map showing the dive track for dive 1 at Pensacola Edge 01 on the first day of operations, June 1, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters. Red box indicates the extent of the map shown in Figure A2, showing dive 2.

## Dive 01 – Pensacola Edge 01. June 1, 2022

On June 1, 2022 the ROV *Mohawk* descended to a depth of 65 m at the Pensacola Edge 01 site with goals to survey the seafloor, to deploy one TCM-100 current meter and one weighted syntactic foam Marker "PE-01" with two "Tidbit" temperature loggers, and to collect coral samples for biology. Eight transects were planned across the feature, the first four of which were completed. Visibility was very good (at least 15 m).

The ROV was deployed at 1030 hours. It arrived on the seafloor several minutes later, adjacent to low-relief rocky habitat. Transect Dive1_T1 was a 300-m line with abundant *Thesea nivea* and *Antipathes* spp. corals. Fish species observed along the transect included bigeye, amberjacks, and lionfish. Two anchors and a few instances of fishing line were observed on bottom.

At the end of transect 1, a search was initiated for "*Swiftia* Rocks," moderate-sized rocky features encountered during the SALT 1 cruise. The features were reacquired within 30 m of the transect end using SALT 1 dive tracks. Two data loggers were deployed at *Swiftia* Rocks, one TCM-100 current meter recording at a 5-min interval and one weighted syntactic foam Marker "PE-01" recording at a 15-min interval. Depth was 65 m. Location is given in Table 6.

Following that deployment, the ROV conducted a perimeter survey on one rock as a test of concept for 3D video reconstruction using structure from motion. The survey went once around the feature (which was larger than expected at 20 x 23 m), and then twice over the top. Following this, the surveys continued on transects Dive1_T2, Dive1_T3, and Dive1_T4. These transited over sand and rock with intermittent high-density aggregations of *Antipathes* marked with virtual targets A1, A2, and A3. Planned transects 5 and higher were not completed. At 1330 hours, the survey team transitioned to coral sampling. They collected five *Muricea pendula*, one *Swiftia exserta*, one *Villogorgia* sp., and seven *Thesea nivea*. Samples were collected for population genetics, coral husbandry, reproduction, and microbiology.

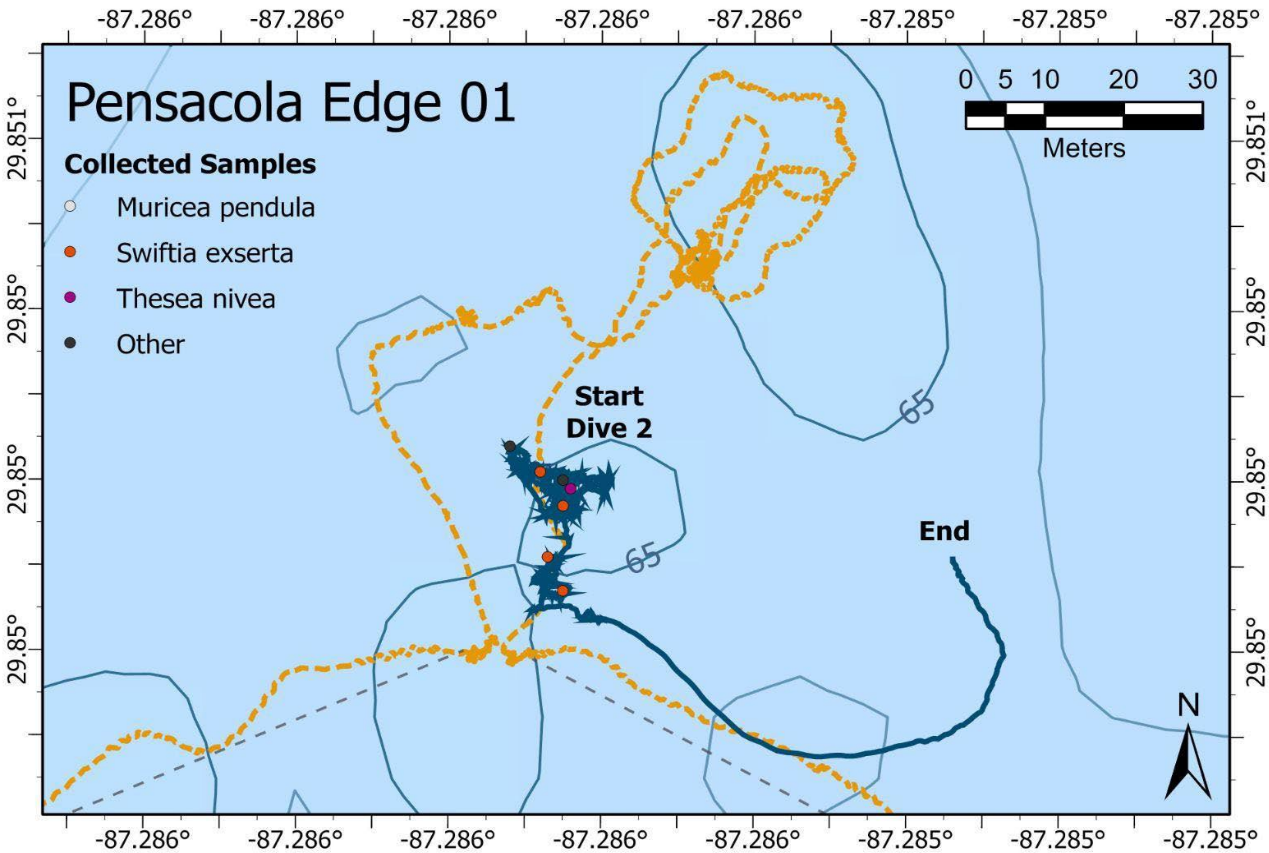


**Figure A2.** A map showing the dive track for dive 2 (blue line) and part of dive 1 (yellow) at Pensacola Edge 01 on June 1, 2022. Samples are symbolized by solid dots, and depths shown are in meters.

## Dive 02 – Pensacola Edge 01. June 1, 2022

For dive 2, the team returned to *Swiftia* Rocks and sampled five *Swiftia exserta* and two *Thesea nivea* for population genetics, coral husbandry, and reproduction. During the transit between samples, some cone-shaped or dome-like geological features were encountered. One of these was uplifted and hollowed out. Sampling continued after the transit. Dive 02 ended when the handle of the slurp gun detached from the hose. Following that, a CTD cast (number PS-22-22_001) was conducted to 65 m for water chemistry and eDNA.

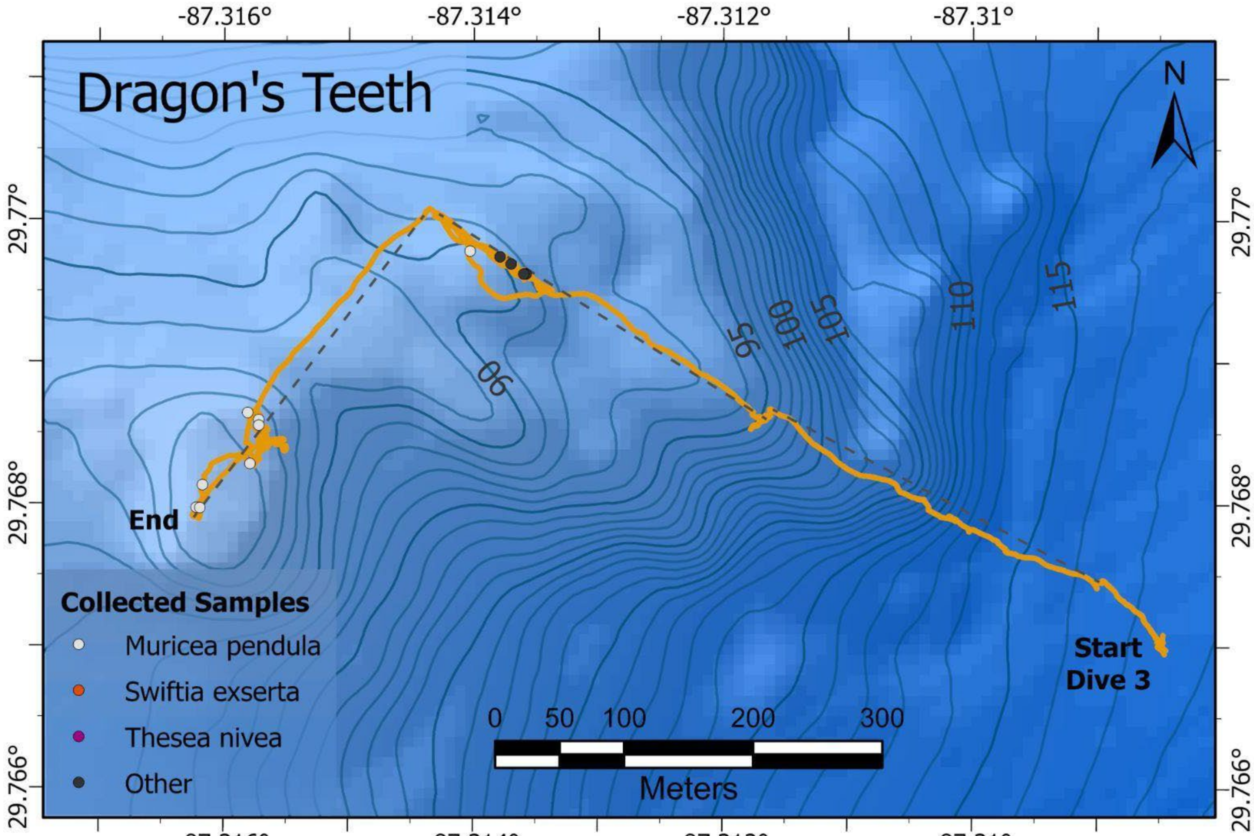


**Figure A3.** A map showing the dive track for dive 3 at Dragon's Teeth on the second day of operations, June 2, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 03 – Dragon's Teeth. June 02, 2022

On June 2, 2022, a CTD cast was conducted to a 100-m depth for eDNA and water chemistry at the Dragon's Teeth location. Two deployments of a Secchi disk were made, still in view as deep as 22 m. Following this, ROV *Mohawk* descended to a depth of 118 m. Four transects were planned, the first three of which were completed. The transects ascended a 30-m promontory-like feature. The dive goals were to survey the seafloor, collect coral samples for biology, deploy one TCM-100 current meter and one weighted syntactic foam marker "DRG" with two "Tidbit" temperature loggers, and collect highlight video for outreach. Visibility was poor in the deep and sedimented areas (< 2 m) but very good on the plateau (at least 15 m).

The ROV was deployed at 0830 hours. It arrived on the seafloor 10 min later, in a muddy sedimented area with occasional small corals and many crinoids. Transect Dive3_T1 was a 300-m line with few taxa present. Transect Dive3_T2 was a 300-m line with more rocky features and better visibility. The abundant corals were *Antipathes* spp., large red and yellow Plexauridae colonies, some *Madrepora* spp., and *Rhizopsammi*a spp. stony corals. Fish species observed along the transect included bigeye, amberjacks, and lionfish. Transect Dive3_T3 was on top of the promontory. This was a flat area with large eroded rocks and abundant soft corals.

The sample team collected nine *Muricea pendula*, three yellow Plexauridae, and one red *Placogorgia* sp. Samples were collected for population genetics, reproduction, and microbiology. The three yellow Plexauridae were each collected using a different sampling container (quiver, bio-box, and slurp) to allow quantification of microbial effects of different collection methods. At the end of transect Dive3_T3, a moderate-sized rocky feature with two large yellow sea fans was identified as a target location for the data loggers. Following that, a 9-min visual survey of the surrounding area was conducted with lasers off as a highlight reel for outreach and education. Two data loggers, one TCM-100 current meter recording at a 5-min interval and one weighted syntactic foam marker "DRG01" recording at a 15 min interval were deployed near "Plex Rock". The depth was 85 m. The location is provided in Table 7 Planned transect 4 was not completed.

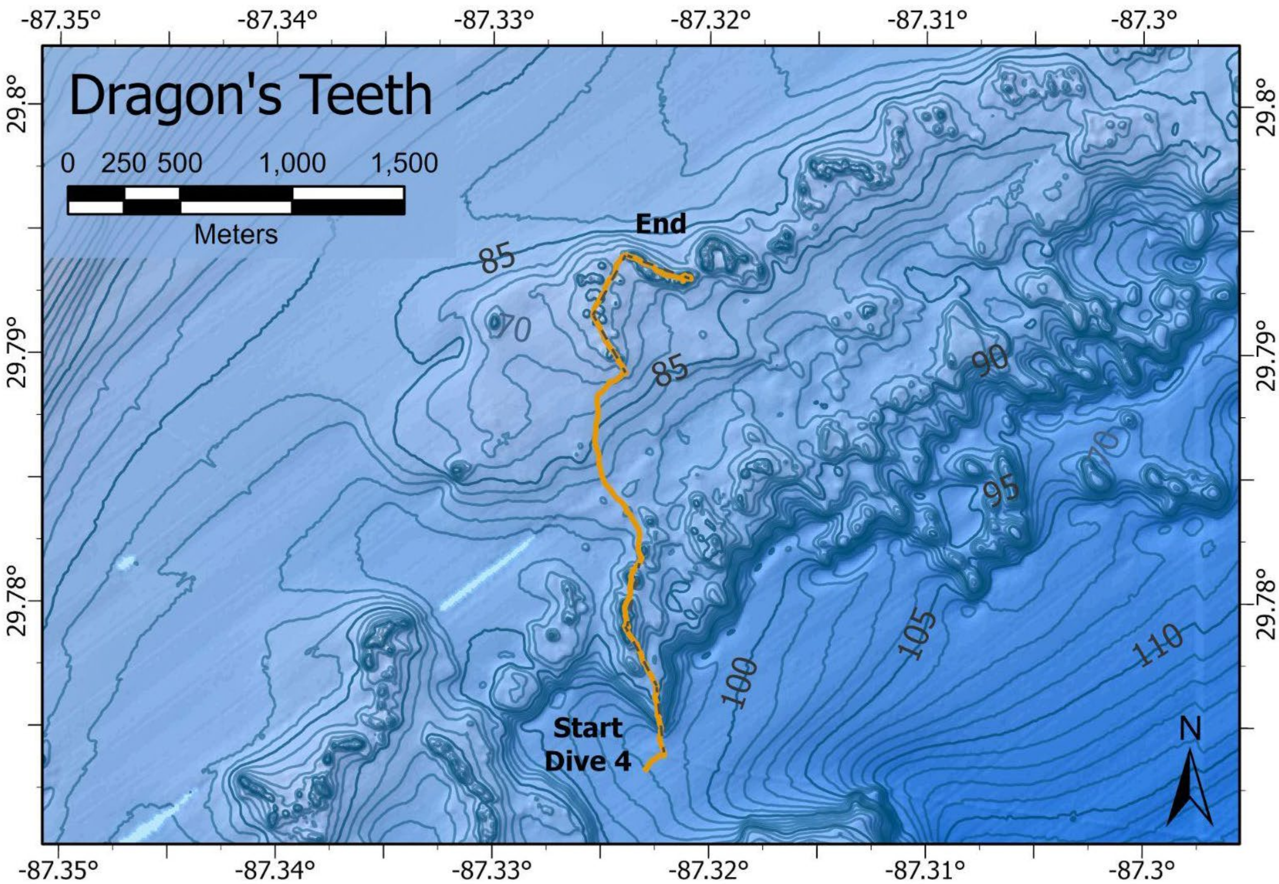


**Figure A4.** A map showing the dive track for dive 4 at Dragon's Teeth on the second day of operations, June 2, 2022. Depths are shown in meters.

## Dive 04 – Dragon's Teeth. June 2, 2022

This dive surveyed two other areas within the Dragon's Teeth site. Four transects were planned within each area (transects 6–9 at the first, and transects 11–14 at the second). Transects 6–8 (Dive4_T1, Dive4_T2, and Dive4_T3) and 11–13 (Dive4_T4, Dive4_T5, and Dive4_T6) were completed. No samples were collected on this dive.

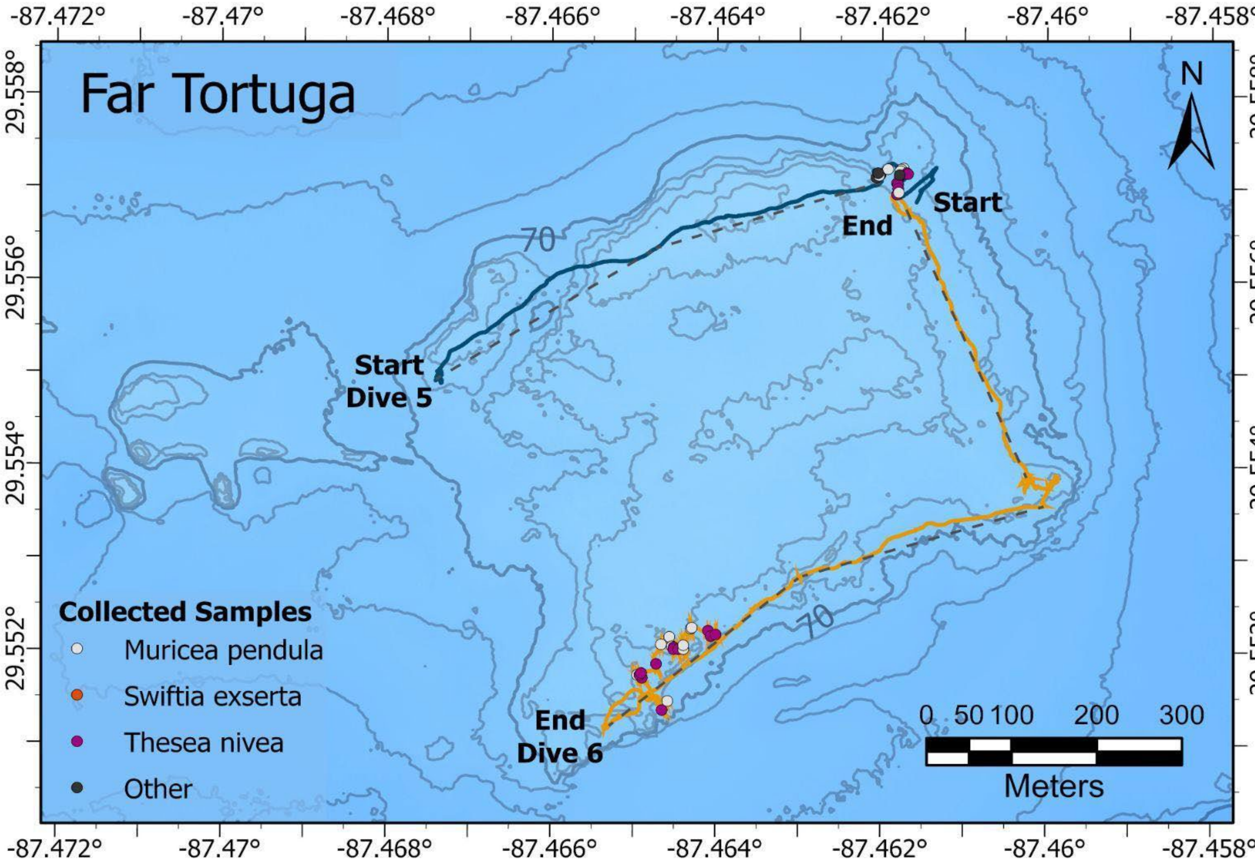


**Figure A5.** A map showing the dive tracks for dive 5 (blue line) and dive 6 (orange line) at Far Tortuga on the third day of operations, June 3, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 05 – Far Tortuga. June 3, 2022

The dive conducted two 300-m transects over low-relief rocky habitat with very abundant corals. Samples were collected of *Muricea pendula* (n = 8), *Thesea nivea* (n = 9), red *Scleracis* sp. (n = 2), white *Scleracis* sp. (n = 1), and yellow *Scleracis* sp. (n = 1) The latter *Scleracis* sp. IDs are tentative pending verification. Video highlights were collected for outreach.

## Dive 06 – Far Tortuga. June 3, 2022

The dive conducted one 400-m and two 300-m transects over low-relief rocky habitat with very abundant corals. Samples were collected of nine *Muricea pendula*, eleven *Thesea nivea*, and one red *Scleracis* sp. Large *Muricea* colonies were observed in some areas with heights of 1 m and more. These were photographed with 10-cm lasers for scale. Video highlights were collected for outreach and “tests of concept” for structure from motion. One large *Muricea* coral had fishing line wrapped around the base.

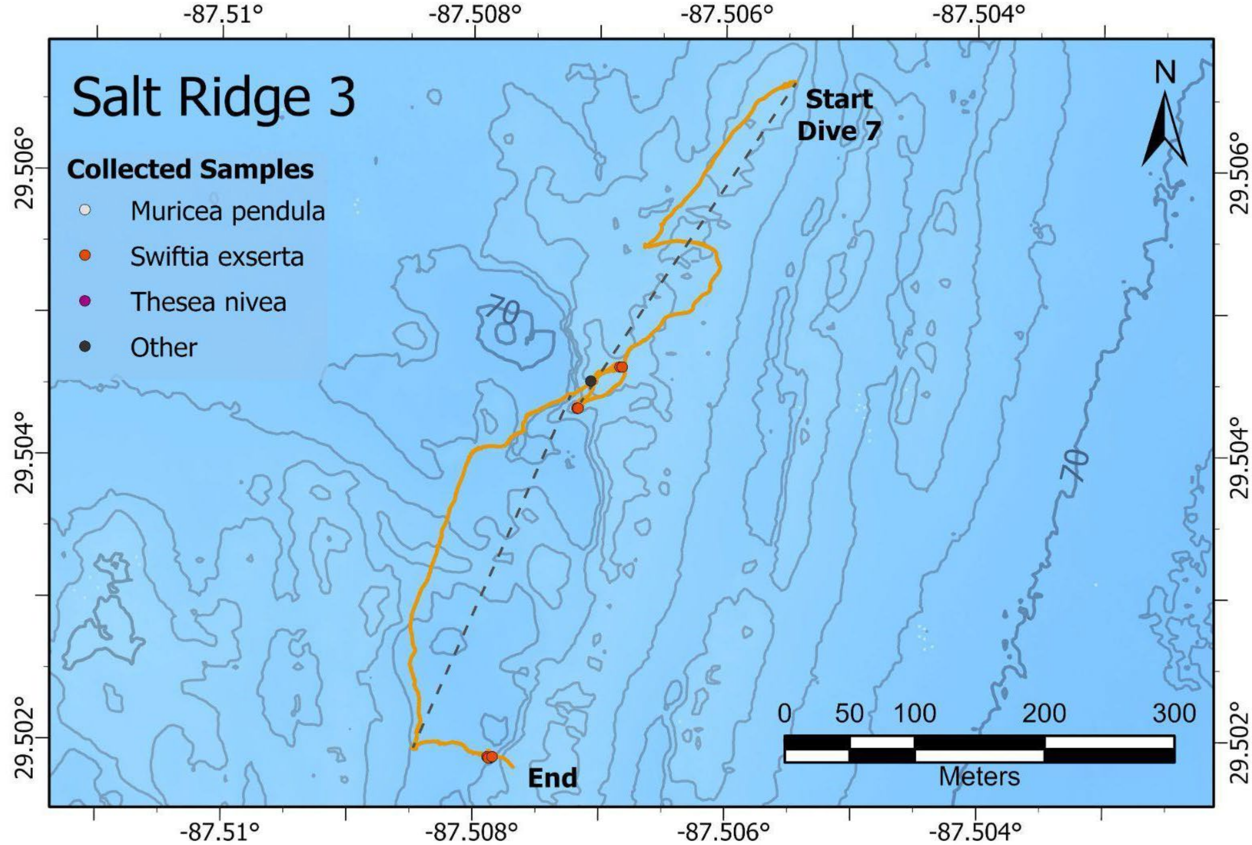


**Figure A6.** A map showing the dive track for dive 7 at SALT Ridge 3 on the third day of operations, June 3, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 07 – SALT Ridge 3. June 3, 2022

The dive conducted two 300-m transects over and between two low-relief rocky ridge features with a sand channel in between. The first transect stayed on line for the large majority of the time. The second transect may have limited utility. It was pulled off the line by the vessel, redirected to the end point in the south, and traversed over sand. At the end of the second line, the team redirected toward the original line where the rocky ridge was reacquired.

Coral abundance and diversity were exceptionally high. The most common coral genera were *Antipathes*, *Stichopathes*, *Scleracis*, and *Ellisella*. *Leptogorgia hebes*, *Muricea pendula*, and *Swiftia exserta* were also present. Sponges were common and included small white clusters (*Ircinia felix*?), large white vases, purple and yellow pillars with large oscula, and tall pale pillars with tapered finger-like extensions. Nine samples of *Swiftia exserta* and one associated ophiuroid were collected.

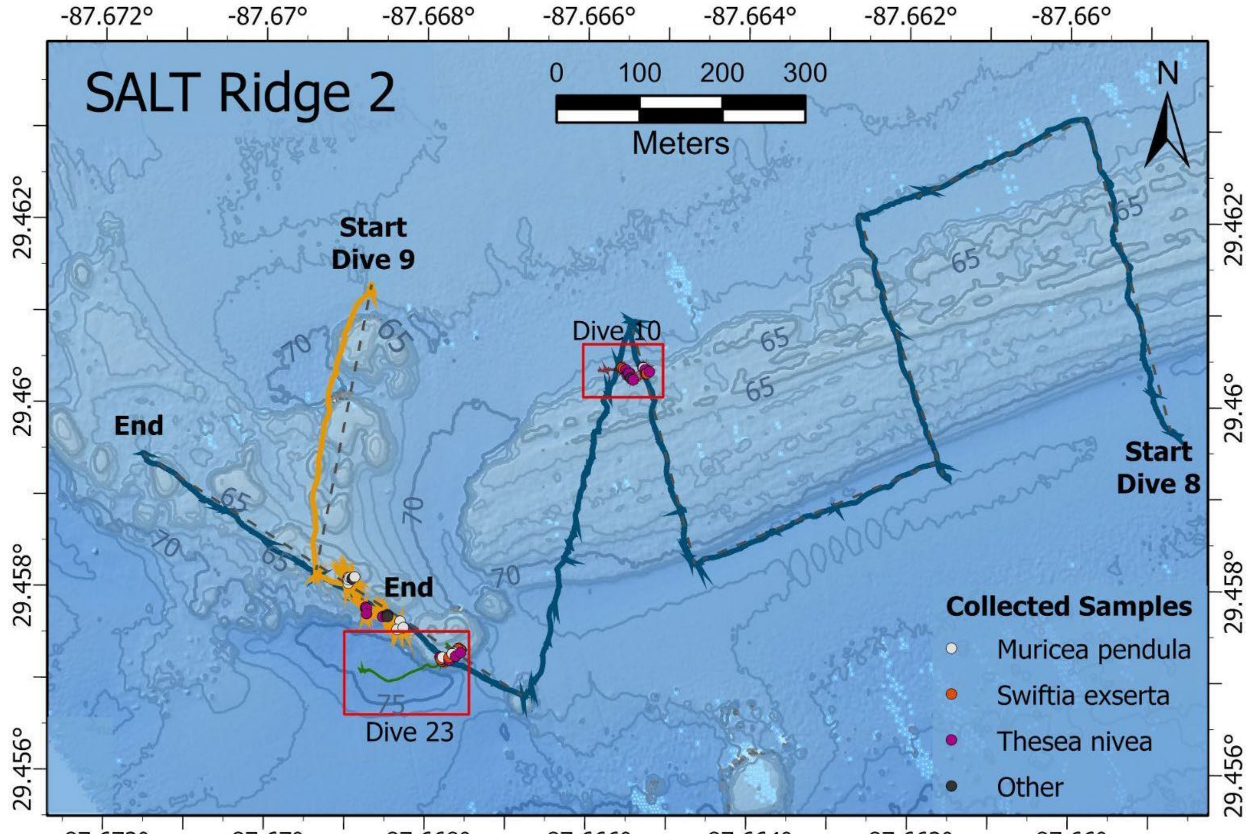


**Figure A7.** A map showing the dive tracks for dive 8 (blue line) and dive 9 (orange line) at SALT Ridge 2 on the fourth day of operations, June 4, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 08 – SALT Ridge 2. June 4, 2022

One June 4, three dives occurred. The first conducted six 300-m transects over a large high-relief rocky ridge feature with intermittent sand channels. Coral abundance and diversity were exceptionally high. The most common coral taxa were *Stichopathes* spp., yellow Plexauridae, *Thesea nivea, Antipathes* spp., *Madrepora* sp., *Bebryce* spp., *Swiftia exserta*, *and Nicella* spp. Sponges were also common but not abundant until the end of the transects at 1330 hours. At that time, the ROV was recovered to clear whip corals from the rotors and download nearly 650 images from the still camera. No samples were collected.

## Dive 09 – SALT Ridge 2. June 4, 2022

The second dive conducted one transect before collecting 21 coral samples from a large high-relief rocky ridge feature with intermittent sand channels. Coral abundance and diversity were exceptionally high. The corals collected were *Thesea nivea* (n = 10), *Muricea pendula* (n =10), and *Bebryce* sp. (n = 1). There were some observations of overgrown "holdfast shapes" suggestive of large dead or remnant gorgonian colonies. The video should be reviewed to verify these. Several large *Muricea pendula* colonies with hydroids and yellow-green algae on branches were also observed.

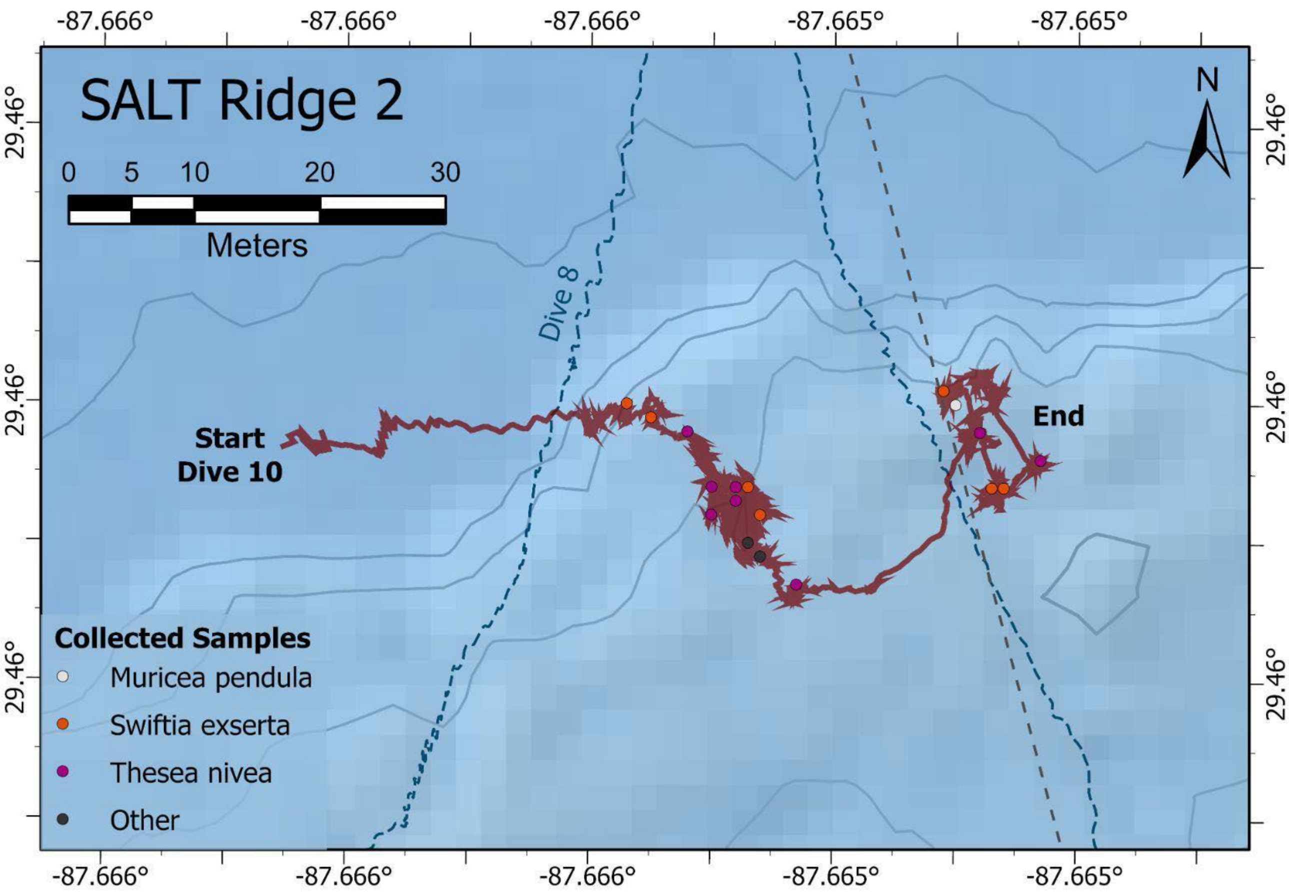


**Figure A8.** A map showing the dive track for dive 10 at SALT Ridge 2 on the fourth day of operations, June 4, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 10 – SALT Ridge 2. June 4, 2022

The dive collected 21 coral samples from a large high-relief rocky ridge feature with intermittent sand channels. Coral abundance and diversity were exceptionally high. The corals collected were *Swiftia exserta* (n = 11), *Thesea nivea* (n = 9), and *Muricea pendula* (n =1). There were more observations of overgrown holdfast shapes suggestive of large dead or remnant gorgonian colonies, which may be overgrown by white sponges. The video should be reviewed to verify these sponges and these holdfasts.

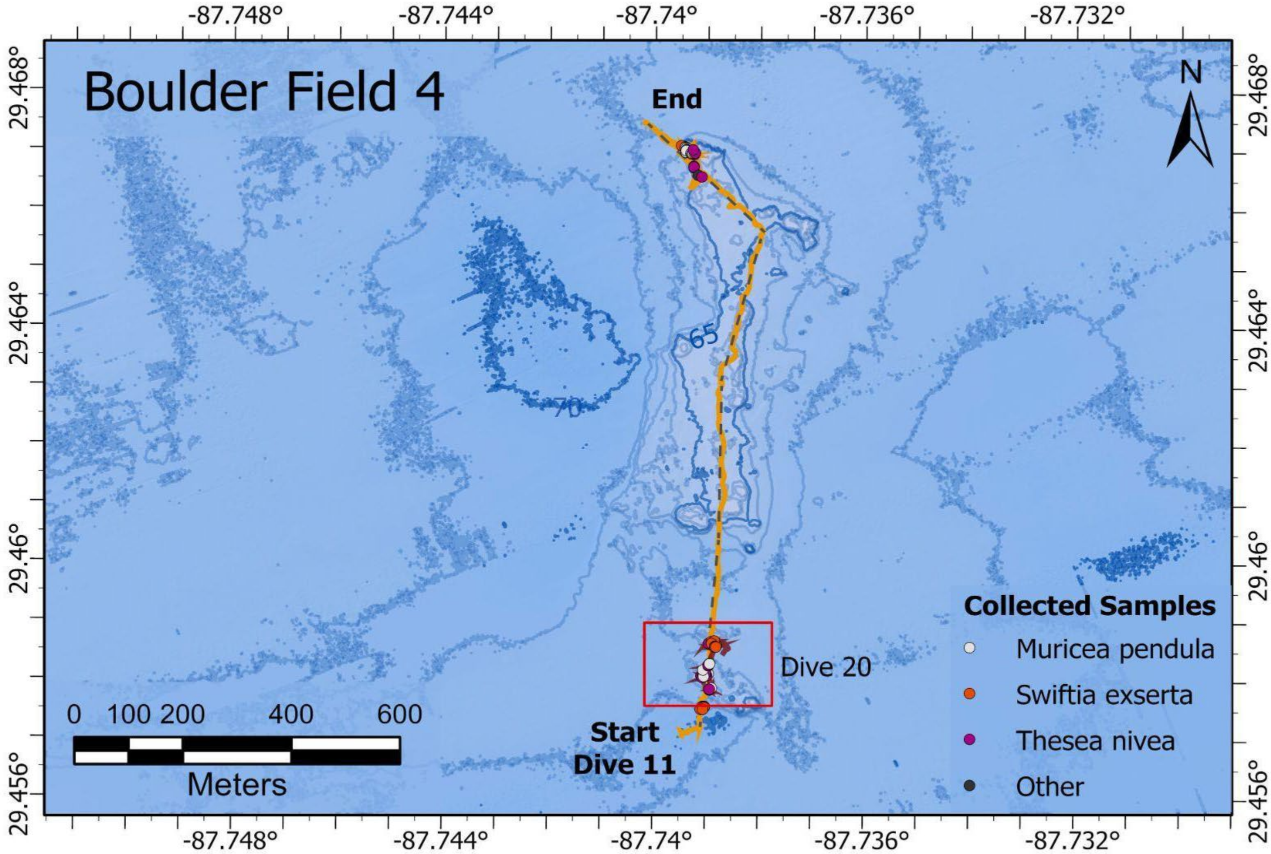


**Figure A9.** A map showing the dive track for dive 11 at Boulder Field 4 on the fifth day of operations, June 5, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 11 – Boulder Field 4 (BF4). June 5, 2022

June 5 had only one dive that launched at 1307 hours in the first of the planned Boulder Field sites, after an at-sea transfer with R/V *Jim Franks*. The dive collected 26 coral samples from low- and moderate-relief outcrops of 3–5 m that trended toward higher relief near the end of a 1-km feature. Coral abundance was high. Sponges were diverse. Some sessile organisms had brown flocculent material. Large *Swiftia exserta* and *Muricea pendula* colonies were observed, as well as numerous *Stichopathes* spp. and *Antipathes* spp. Some colonies had white spiky worm colonies (*Filograna* sp.) in their branches.

The primary corals collected were *Swiftia exserta* (n = 3), *Thesea nivea* (n = 9), and *Muricea pendula* (n =13, including two golden yellow colonies). One medium sized “mustard yellow” coral was found to have a purple colored coenenchyme with no central axis. This was identified as Spongiodermidae. Four transects were conducted. Dive duration was long, at 4 hr and 50 min.

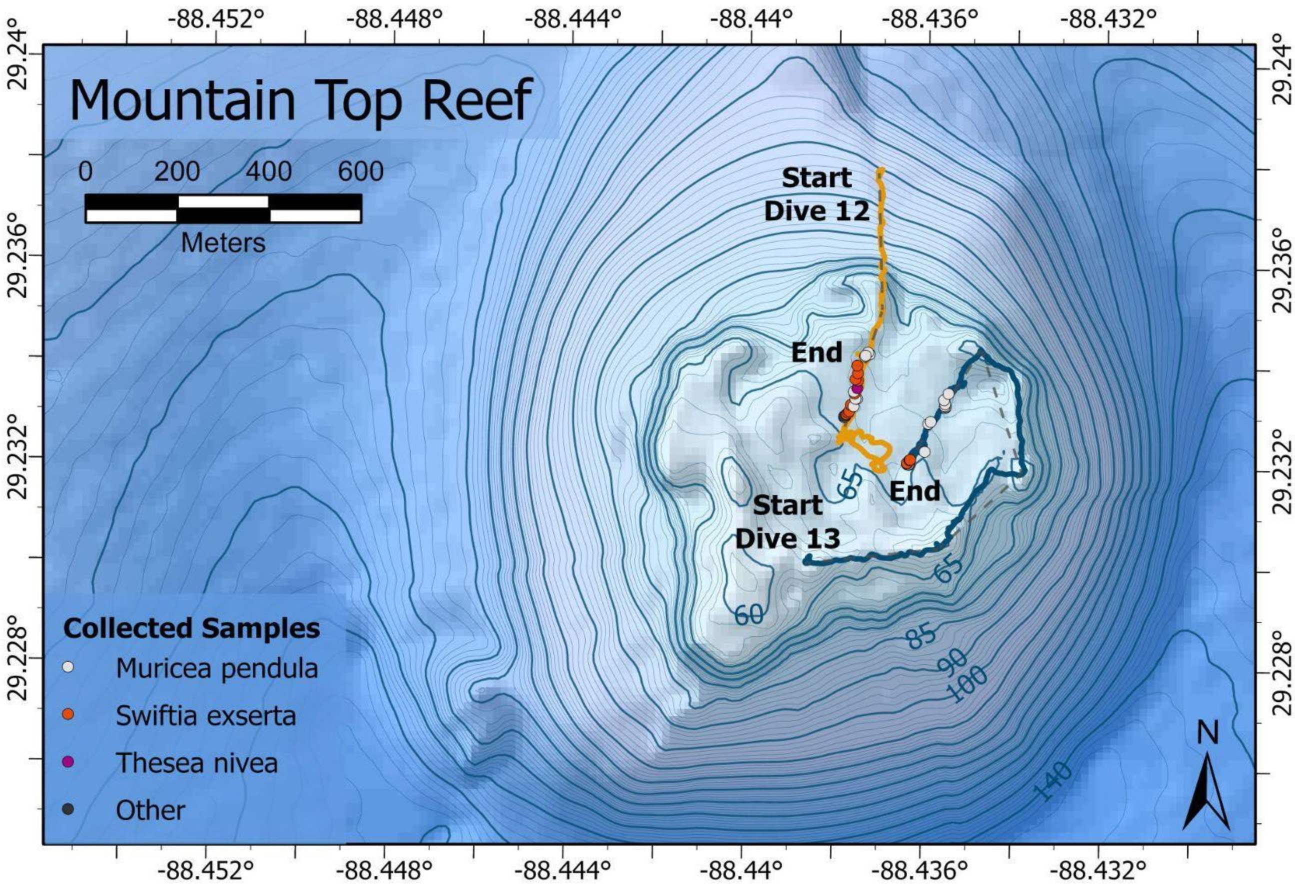


**Figure A10.** A map showing the dive tracks for dive 12 (orange line) and dive 13 (blue line) at Mountain Top Reef on the sixth day of operations, June 6, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 12 – Mountain Top Reef. June 6, 2022

June 6 began with a CTD cast to 100 m on the slope of Mountain Top Reef. Following this, ROV *Mohawk* was deployed at 0810 hours. Two transects were completed, tracking up the side of Mountain Top Reef, then to the relative center of the feature. The water at this site had a greener cast and the CTD cast confirmed a large freshwater lens indicative of influence from the Mississippi River. The side of the feature was sedimented, with small *Stichopathes* sp. After reaching the ridge, the substrate was mostly rocky, with abundant black coral colonies (rough IDs: *Stichopathes* sp., *Antipathes* sp., *Tanacetipathes* sp., and *Plumapathes* sp.). Large colonies of target species *Muricea pendula* and *Swiftia exserta* were also observed regularly, as well as many fish varieties (bigeye, angelfish, and wrasse to name a few).

After the two transects were completed, two HOBO loggers were collected. These were one HOBO Tidbit 5000 temperature logger and one HOBO pendant temperature and light sensor, originally deployed on May 11, 2019 aboard the R/V *Pelican* (for the CYCLE project). After collection, two new HOBO Tidbit 5000 temperature loggers were deployed in the same location (see Table 6 for location details).

Following deployment of loggers, coral samples were collected for population genetics, microbiology, reproduction, and husbandry. In total, eleven *Swiftia exserta*, nine *Muricea pendula*, and one *Thesea nivea* were sampled.

## Dive 13 – Mountain Top Reef. June 6, 2022

At 1447 hours, ROV *Mohawk* was redeployed on the Mountain Top Reef site. Following deployment, four transects were completed for model validation. Fissures and channels were observed in the rock, leading to a seep location with bubble streams and a gray filamentous bacterial mat consistent with *Beggiatoa*. Outside of this seep area, large fields of *Stichopathes* sp. and *Antipathes* sp. were observed, with *Swiftia exserta* interspersed. A large field of *Muricea pendula* was observed during transect Dive 13_T4. Following completion of four transects, five *Swiftia exserta* and 10 *Muricea pendula* were collected. The day ended with a CTD deployment to 65 m, over the field of *Muricea pendula* observed during transect Dive13_T4.

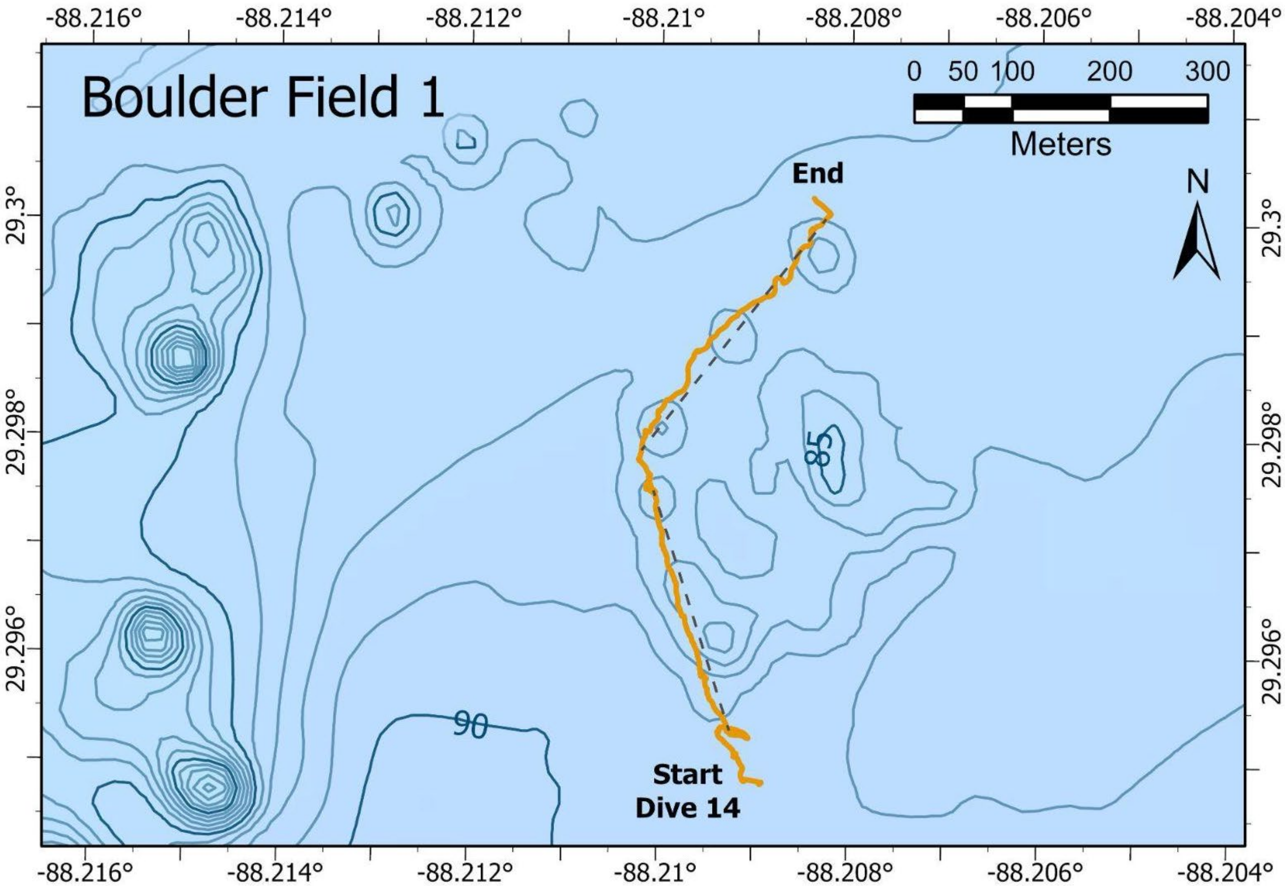


**Figure A11.** A map showing the dive track for dive 14 at Boulder Field 1 on the seventh day of operations, June 7, 2022. Depths shown are in meters.

## Dive 14 – Boulder Field 1. June 7, 2022

June 7 began at 0730 hours with a CTD cast down to 91 m at Boulder Field 1. At 0855 hours, ROV *Mohawk* was deployed to a 90-m depth in a muddy sedimented area with low visibility that eventually transitioned to moderate-relief rocky substrate with low visibility. Green water at the surface suggested some Mississippi River influence at this site. Lots of marine snow contributed to the poor visibility. Two transects were completed for model validation. The duration of transects was long (25–31 min) due to the habitat complexity, visibility, and currents. An unsuccessful attempt was made to collect *Thesea rubra*. The sample was dropped due to high currents and low visibility. No further attempts were made to sample corals at this location. Having sonar on the ROV would have helped to navigate the steep rocks in this mission and is a recommended consideration for similar endeavors in the future.

Clusters of two genera of stony corals were abundant on the rocky pinnacles—*Madrepora* spp. and *Rhizopsammia* spp. Purple octocorals—presumably *Thesea nivea*—were common, and many small white octocorals were present—presumably *Villogorgia* sp. or *Scleracis* sp. A few colonies of *Muricea pendula* were observed. *Stichopathes* sp. was present. A thin pipeline was seen. Fishing line was also observed. The dive was recovered to check an oil leak, and no samples were collected. Thrusters were fouled with *Stichopathes* wire corals. One thruster was removed.

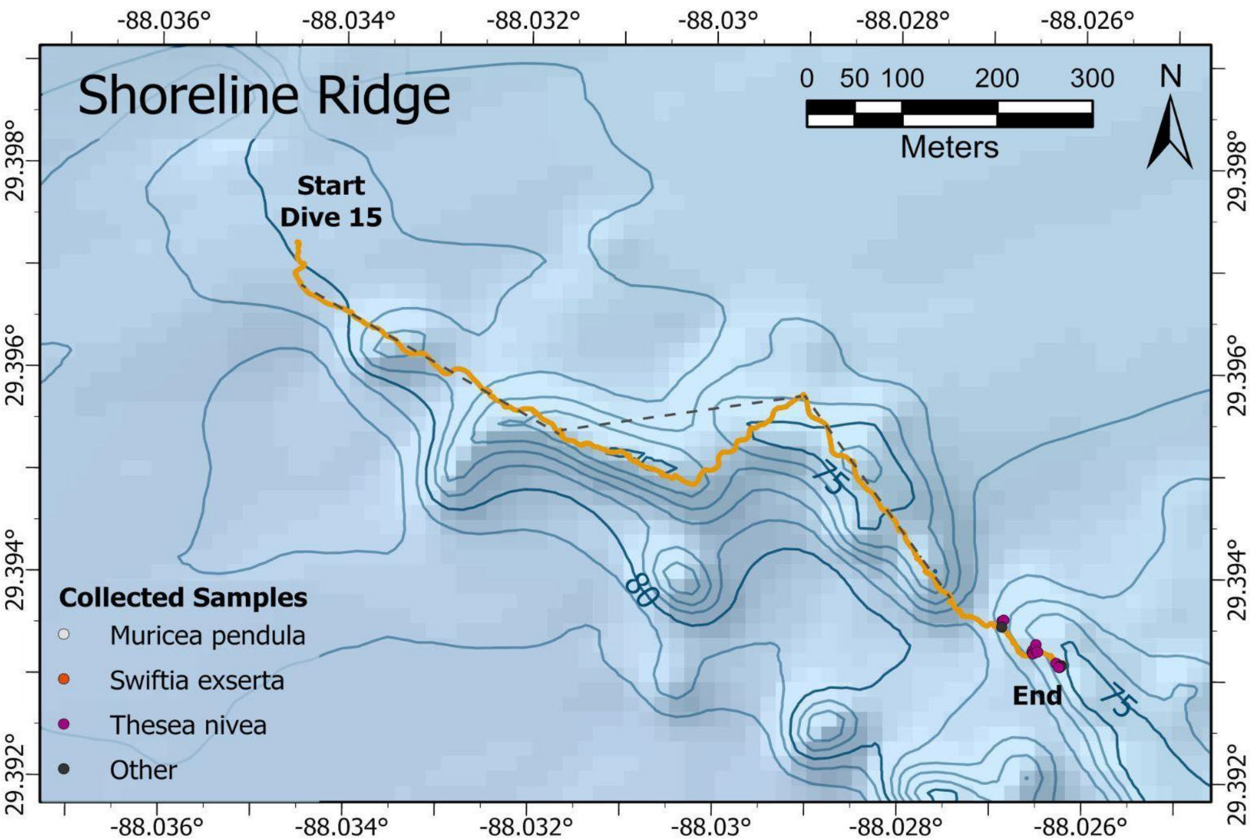


**Figure A12.** A map showing the dive track for dive 15 at Shoreline Ridge on the seventh day of operations, June 7, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 15 – Shoreline Ridge. June 7, 2022

At 1349 hours, ROV *Mohawk* was deployed to an 80-m depth in a sedimented area with burrows. The visibility was poor to moderate and eventually transitioned to moderate- (3–5 m) and high-relief (> 5 m) rocky substrate with better visibility. Three transects traversed the habitat. The duration of transects ranged from 25–28 min. ROV steering was adequate for transects, despite the loss of a thruster.

Clusters of three species of stony corals were abundant on the rocky pinnacles—*Madrepora*, *Rhizopsammia, and Madracis/Oculina (?)*. The latter colonies were pink with white tips. Yellow Plexauridae, *Thesea nivea,* and *Bebryce* spp. were common. Colonies of *Muricea pendula* were observed in large fissures between the rocks. Fish were common, including schools of *Anthia* spp.

and almaco jacks. One draped fishing line and one large metal anchor were observed. Currents were strong in some areas.

At 1530 hours, the operations transitioned to the sampling team to collect one small red Holaxonian, 11 *Thesea nivea*, and two *Bebryce* sp. colonies. The day ended with a CTD deployment to 65 m, over the sighting of *Muricea pendula* observed during transect Dive 15_T2.

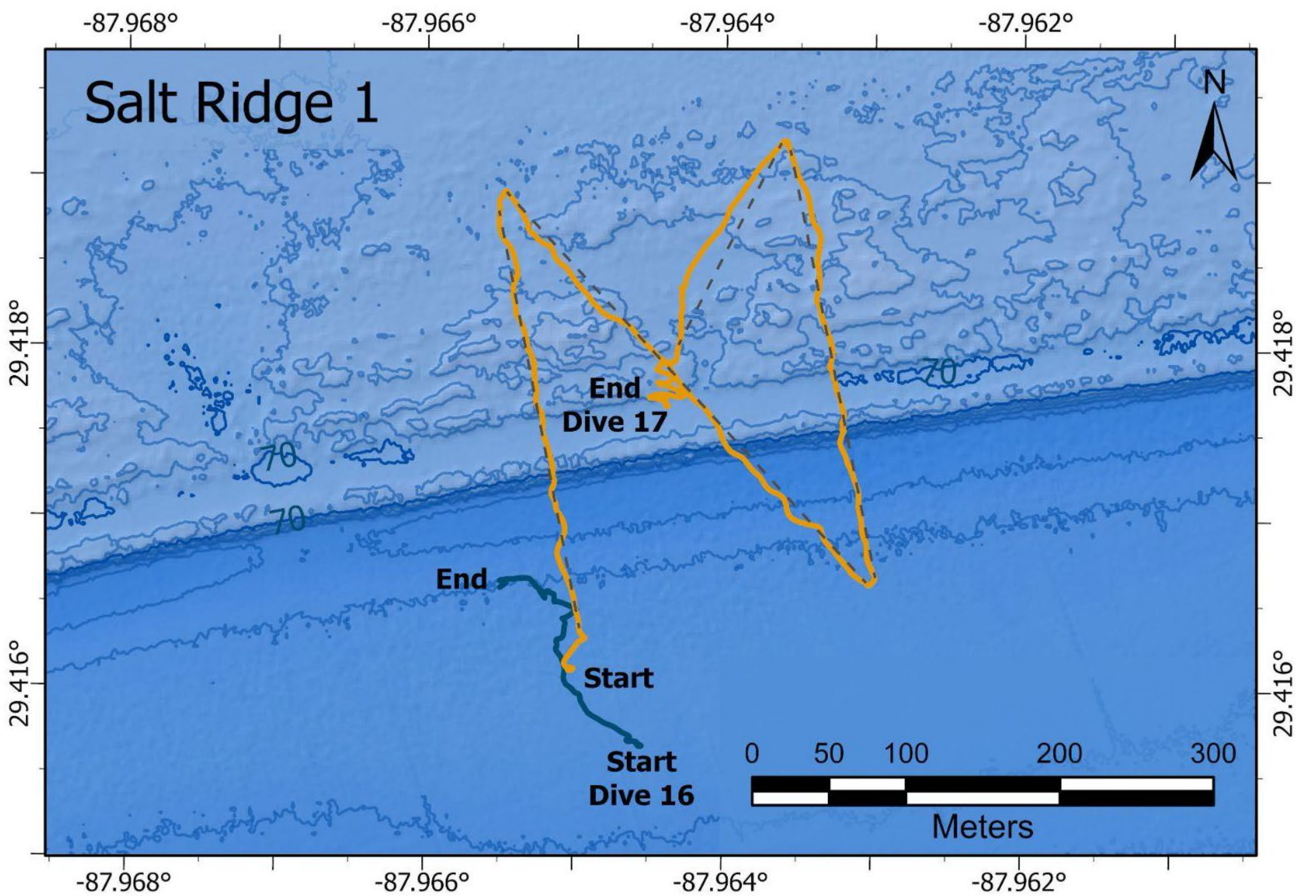


**Figure A13.** A map showing the dive tracks for dive 16 (blue line) and dive 17 (orange line) at SALT Ridge 1 on the eighth day of operations, June 8, 2022. Depths shown are in meters.

## Dive 16 – SALT Ridge 1. June 8, 2022

At 0730 hours on June 8, a CTD cast was conducted at the SALT Ridge 1 location. The ROV splashed at 0800 hours. The ROV operated poorly on the muddy bottom due to a misplaced thruster. The dive was aborted and recovered at 0825 hours. The ROV CTD file was not terminated, so it ran through dive 17.

## Dive 17 – SALT Ridge 1. June 8, 2022

At 0835 hours on June 8, at SALT Ridge 1 location, the ROV was redeployed. Three transects were conducted—two parallel lines of 300 m perpendicular to the ridge, and one diagonal line between them. A fourth transect was intended to connect to a sampling location, but the ROV lost video partway through. The rocky features near 70 m of depth had abundant *Thesea nivea* octocorals, and *Madracis* sp. and *Rhizopsammia* sp. stony corals near the deep end of the transect at the start. As the ROV ascended the low-relief feature, many *Antipathes* sp. and *Stichopathes* sp. black corals were observed. There were few *Muricea pendula*, and a moderate number of yellow Plexauridae corals. Near the top, the community shifted to scattered rocks with black crinoids. The feature was stepped, with sediment between the rocky features. No samples were collected.

The ROV was recovered and repositioned. The second set of transects was passed over to expedite coverage of the ridge feature. The team moved west 9 miles to the third set of transects.

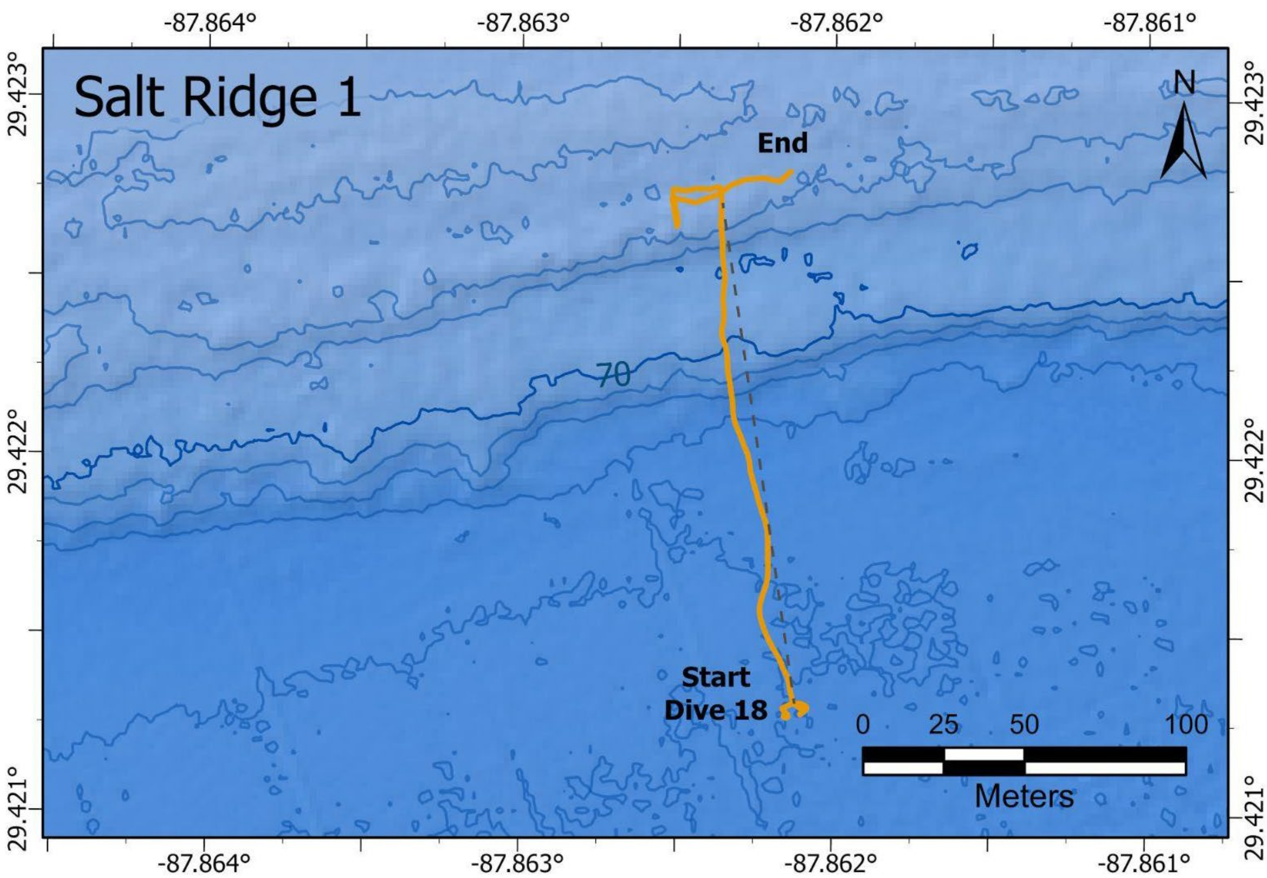


**Figure A14.** A map showing the dive track for dive 18 at SALT Ridge 1 on Day 8 of operations, June 8, 2022.

## Dive 18 – SALT Ridge 1. June 8, 2022

At 1048 hours on June 8, the ROV was redeployed at SALT Ridge 1 location. One transect was attempted. It started out over sand and then transitioned to rocky habitat with *Madracis* sp. and *Antipathes* sp. corals. A longnose butterfly fish was seen. The ROV lost power at 1104 hours and was recovered dead in the water. The ship repositioned for a second CTD cast at the east end of the SALT Ridge 1 feature.

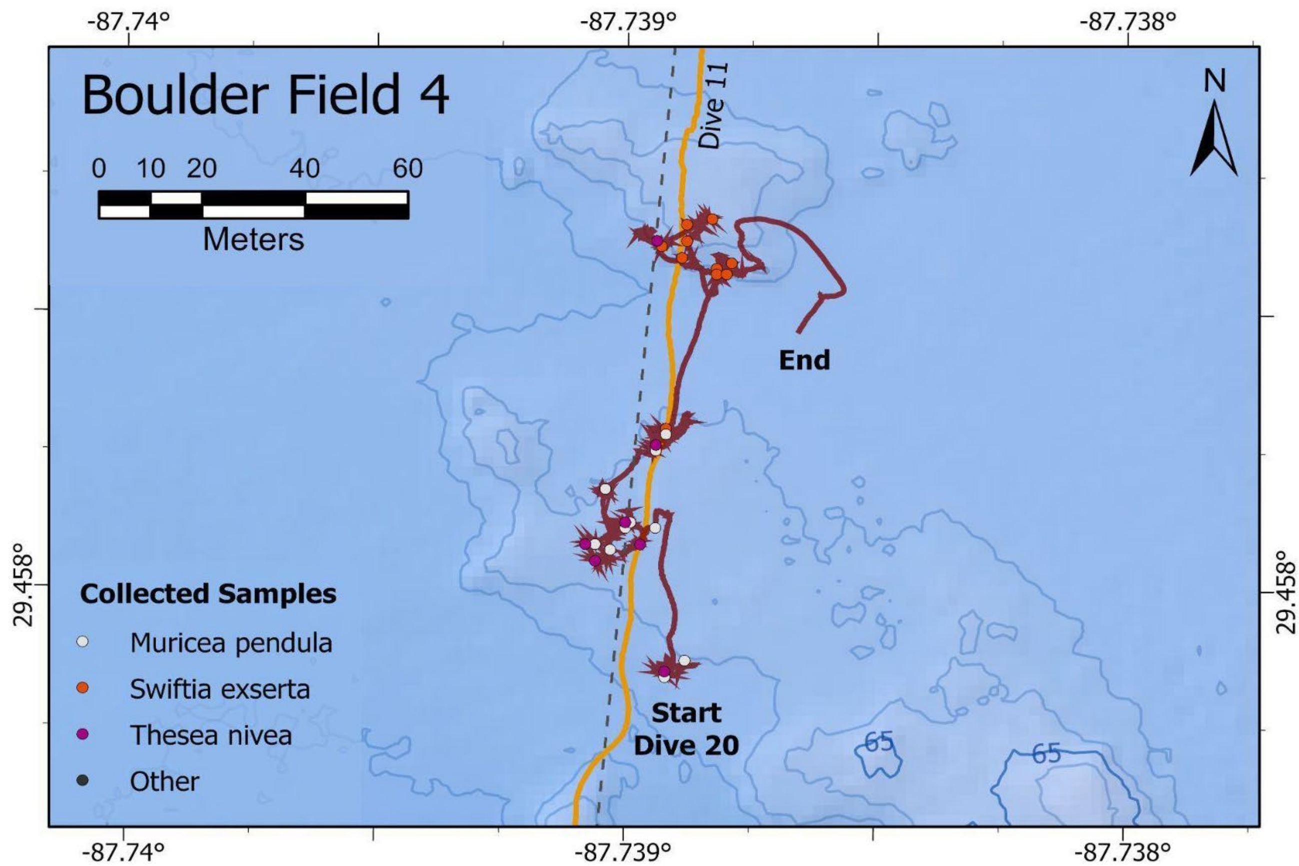


**Figure A15.** A map showing the dive track for dive 20 at Boulder Field 4 on the eighth day of operations, June 8, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 19 – Boulder Field 4. June 8, 2022

The ROV was deployed at 1351 hours on June 8 at BF4 location with coordinates 29.4573, −87.73903. No dive track is available for this dive. The purpose of the dive was to collect corals for population genetics and associated studies of biology. Ten *Swiftia exserta* corals were collected into the bio-boxes, quiver, and slurps over a period of 45 min. Very little distance was covered in this time. Four samples (in the bio-box) were acquired for live coral husbandry and three were collected for microbiology. The ROV recovered these samples with no trouble, after losing power and video signal. The problem with the video signal is thought to be independent of the circuit board.

## Dive 20 – Boulder Field 4. June 8, 2022

The ROV deployed at 1525 hours on June 8 at BF4 location to collect corals for population genetics and associated studies of biology. Ten *Swiftia exserta* corals, seven *Thesea nivea*, and ten *Muricea pendula* colonies were collected into the bio-boxes, quiver, and slurps. Three of the samples (one *Muricea* and three *Swiftia*) were acquired for live coral husbandry. The ROV recovered these samples with no trouble.

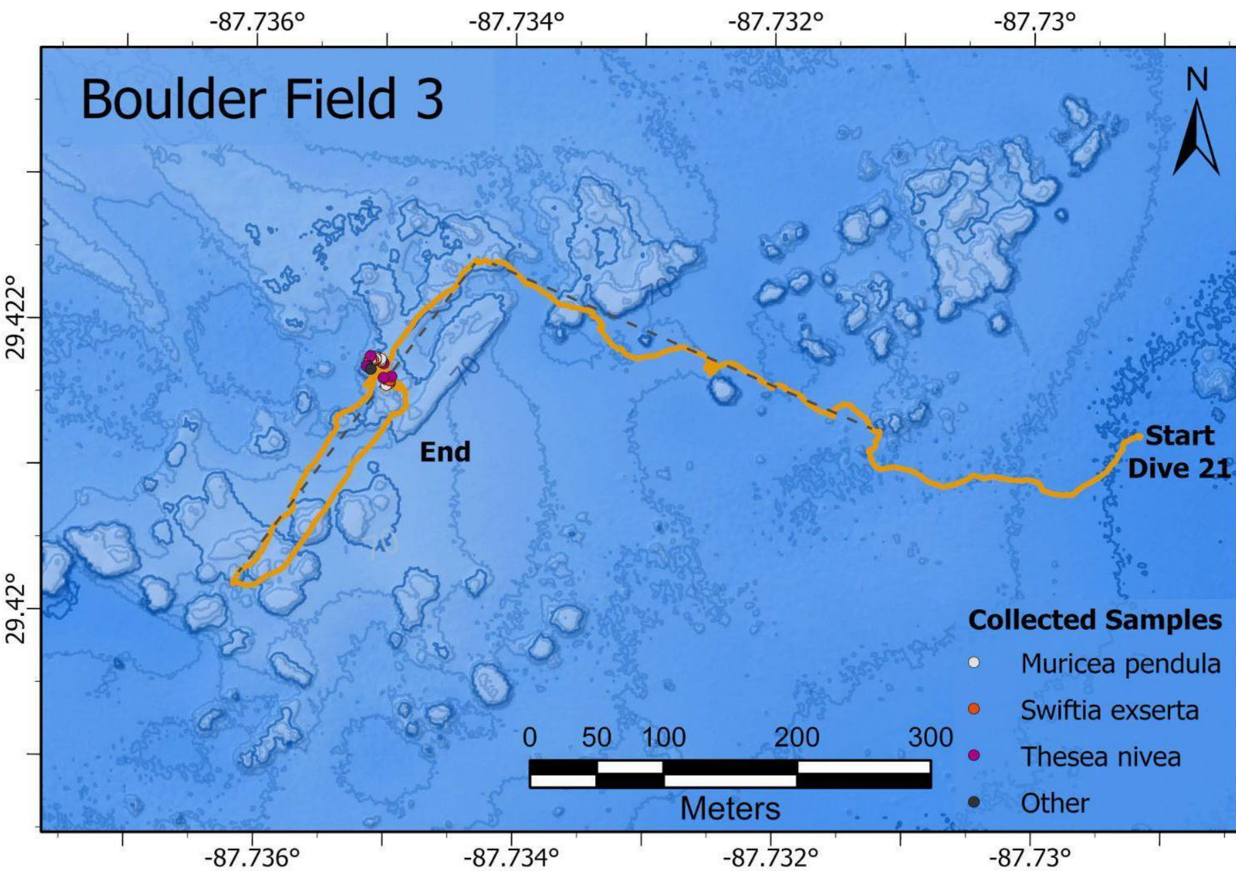


**Figure A16.** A map showing the dive track for dive 21 at Boulder Field 3 on the ninth day of operations, June 9, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 21 – Boulder Field 3. June 9, 2022

At 0815 hours on June 9, the ROV was deployed into a moderate surface current with light winds. Two transects were conducted over low-relief rocky habitat with abundant corals. The dive started over sand, then progressed into a boulder area with intermittent large rocks of 1–2 m relief. Virtual targets were dropped into the HYPACK system to mark promising targets for sampling.

Transect Dive21_T1 had an extended duration (58 min vs. 20+ min) to allow for video highlights and one 3D video segment for structure from motion. Transect Dive21_T2 occurred over higher-relief rocky habitat (2–3 m relief) also notable for high abundance and biodiversity. This latter transect moved more quickly (30 min). At 1010 hours, the survey team transitioned to a sampling protocol at virtual target SM 5 (i.e., *Swiftia + Muricea*, virtual target number 5). Samples were collected from nine *Swiftia exserta*, 10 *Muricea pendula*, nine *Thesea nivea*, and two *Ellisella* sp. for multiple biological objectives.

The ROV was recovered and repositioned. The team moved northwest 3.5 miles to the Boulder Field 2 location.

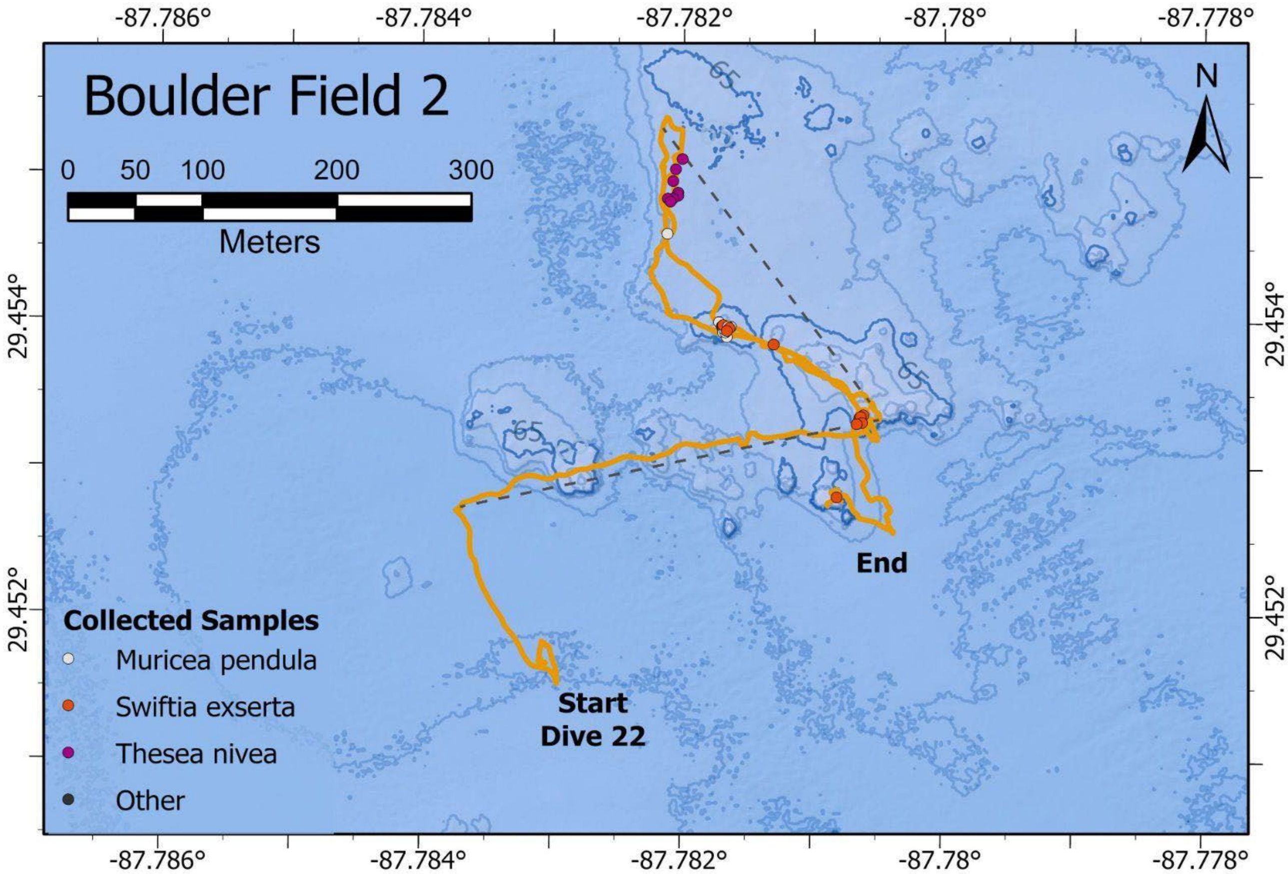


**Figure A17.** A map showing the dive track for dive 22 at Boulder Field 2 on the ninth day of operations, June 9, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 22 – Boulder Field 2. June 9, 2022

At 1417 hours on June 9, the ROV was deployed into a moderate surface current with light winds. Two transects were conducted over low-relief rocky habitat with abundant corals. The dive started over sand, then progressed into a boulder area with intermittent large rocks of 1–2 m relief. Virtual targets were dropped into the HYPACK system to mark promising targets for sampling.

Transects Dive22_T1 and Dive22_T2 had a moderate duration (21 and 27 min, respectively). This site was notable for high abundance and biodiversity, relatively clear water, and the presence of colorful fish (e.g., angelfish, hogfish, wrasse, and scamp). At 1535 hours, the survey team transitioned to a sampling protocol at virtual target S2 (i.e., *Swiftia*, virtual target number 2). Samples were collected from 11 *Swiftia exserta*, 10 *Muricea pendula*, and 10 *Thesea nivea*. Notable on this dive were a large purple *Muricea* with white branches, a large *Muricea* with two trumpetfish in the branches, and the largest aggregation of *Swiftia* colonies observed to date. The Boulder Field sites have proven to be exceptional.

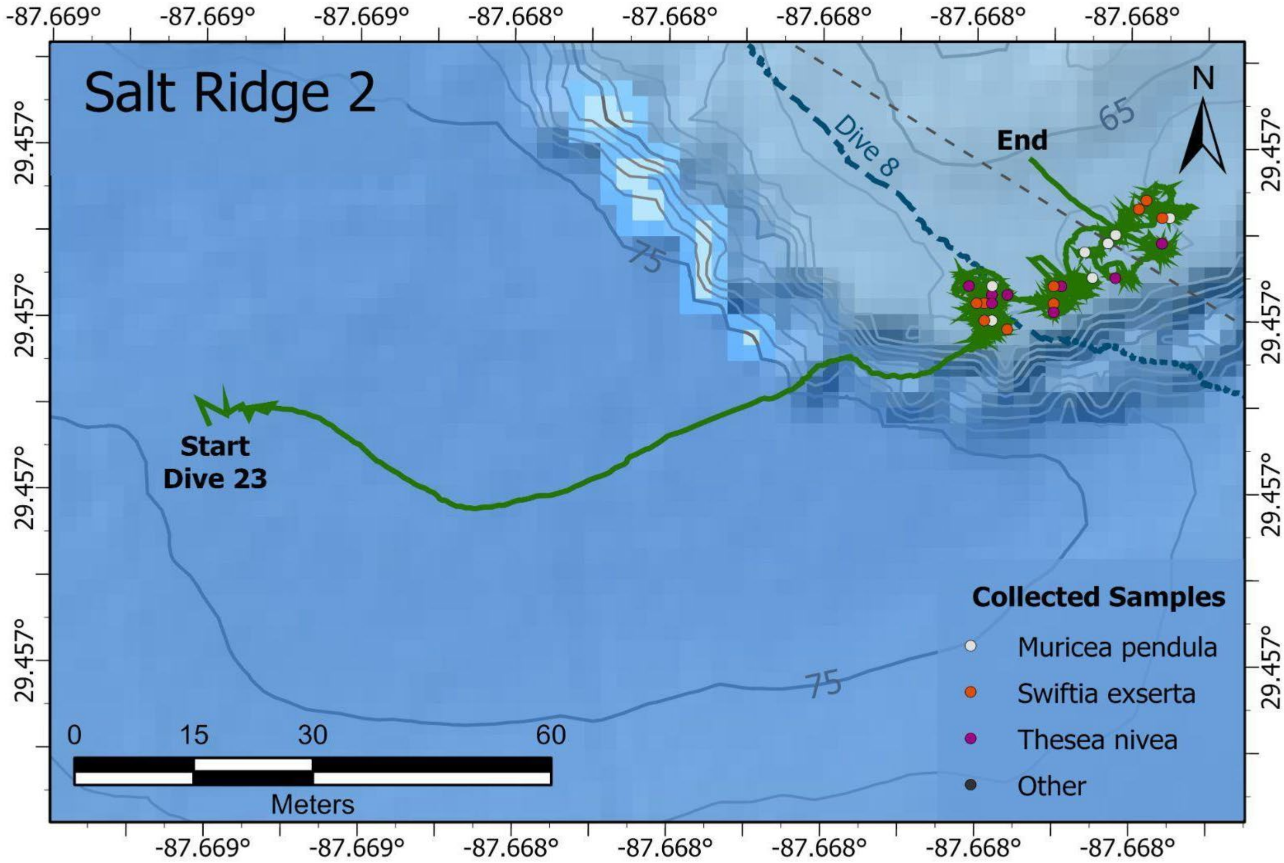


**Figure A18.** A map showing the dive track for dive 23 at SALT Ridge 2 on the last of operations, June 10, 2022. Collected samples are symbolized by solid dots, and depths shown are in meters.

## Dive 23 – SALT Ridge 2. June 10, 2022

The team woke to a lightning storm in the early morning. ROV deployment was delayed by wind gusts > 20 knots and short-period waves. By 1016 hours, the winds had dropped to 15 knots, and seas lay down enough to launch safely. The ROV was on bottom at 1020 hours with a sole objective to collect sufficient samples for population genetics. Samples were collected from 10 *Swiftia exserta*, *11 Muricea pendula*, *10 Thesea nivea*, one *Ellisella* sp., and one yellow Plexauridae for a total of 33. The ROV was back on deck by 1315 hours. One final CTD cast was conducted to collect water from 10 m off the bottom for live coral husbandry.

# Appendix 2. Tissue Samples

**Table A1.** A list of tissue samples for PS-22-22 in June 2022. ID is the sample number (n = 342). An "A" in the ID column denotes a coral associate. "NA" in the columns for Time, Latitude, Longitude, and Depth indicates an opportunistic sample that arrived on deck on the ROV. Column labels indicate these types of analysis: microbiology (MB), population genetics (PG), barcoding (BC), reproduction (RP), husbandry (live). The preservation process and destination are different for each. Labs are HML (Hollings Marine Laboratory in Charleston, SC), GNV (Wetland and Aquatic Research Center in Gainesville, FL), and SI (Smithsonian Institution).

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *01* | *Thesea nivea* | 6/1 | 13:49 | PE1 | 29.84846 | −87.27788 | 68 | | X | | X | HML |
| *02* | *Muricea pendula* | 6/1 | 14:01 | PE1 | 29.84844 | −87.27788 | 67 | | X | | | |
| *03* | *Thesea nivea* | 6/1 | 14:08 | PE1 | 29.84848 | −87.27787 | 67 | X | X | | | HML |
| *04* | *Thesea nivea* | 6/1 | 14:15 | PE1 | 29.84846 | −87.27792 | 68 | | X | | X | HML |
| *05* | *Thesea nivea* | 6/1 | 14:21 | PE1 | 29.84846 | −87.27790 | 68 | | X | | X | HML |
| *06* | *Thesea nivea* | 6/1 | 14:26 | PE1 | 29.84842 | −87.27792 | 68 | X | X | | | |
| *07* | *Muricea pendula* | 6/1 | 14:39 | PE1 | 29.84846 | −87.27794 | 67 | | X | | | |
| *08* | *Thesea nivea* | 6/1 | 15:01 | PE1 | 29.84864 | −87.27904 | 69 | X | X | | X | |
| *09* | *Villogorgia* sp. | 6/1 | 15:06 | PE1 | 29.84862 | −87.27907 | 69 | | X | HML | X | HML |
| *10* | *Swiftia exserta* | 6/1 | 15:15 | PE1 | 29.84860 | −87.27898 | 69 | | X | SI | X | |
| *11* | *Muricea pendula* | 6/1 | 15:31 | PE1 | 29.84863 | −87.27925 | 68 | | X | | X | |
| *12* | *Muricea pendula* | 6/1 | 15:39 | PE1 | 29.84857 | −87.27925 | 68 | | X | SI | | |
| *13* | *Muricea pendula* | 6/1 | 15:49 | PE1 | 29.84849 | −87.27923 | 69 | | X | SI | | |
| *14* | *Thesea nivea* | 6/1 | 15:57 | PE1 | 29.84847 | −87.27922 | 69 | | X | | X | |
| *15* | *Swiftia exserta* | 6/1 | 17:01 | PE1 | 29.85020 | −87.28585 | 66 | | X | | X | HML |
| *15A* | Caridea | 6/1 | 17:01 | PE1 | 29.85020 | −87.28585 | 66 | | X | | | |
| *16* | *Swiftia exserta* | 6/1 | 17:07 | PE1 | 29.85021 | −87.28588 | 66 | | X | HML | X | HML |
| *17* | *Thesea nivea* | 6/1 | 17:17 | PE1 | 29.85024 | −87.28592 | 66 | | X | HML | X | HML |
| *17A* | Chirostyloidea | 6/1 | 17:17 | PE1 | 29.85024 | −87.28592 | 66 | | X | | | |
| *18* | *Thesea nivea* | 6/1 | 17:23 | PE1 | 29.85019 | −87.28584 | 65 | | X | HML | X | HML |
| *19* | *Swiftia exserta* | 6/1 | 17:28 | PE1 | 29.85017 | −87.28585 | 65 | | X | SI | X | |
| *20* | *Swiftia exserta* | 6/1 | 17:34 | PE1 | 29.85011 | −87.28587 | 64 | | X | | X | HML |
| *21* | *Swiftia exserta* | 6/1 | 17:41 | PE1 | 29.85007 | −87.28585 | 64 | | X | SI | X | |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *22* | yellow Plexauridae | 6/2 | 10:13 | DRG | 29.76962 | −87.31358 | 91 | X | X | SI, HML | X | |
| *23* | *Muricea pendula* | 6/2 | 10:37 | DRG | 29.76962 | −87.31360 | 91 | | X | | | |
| *24* | *Placogorgia* sp. | 6/2 | 10:44 | DRG | 29.76962 | −87.31360 | 91 | | X | SI, HML | X | |
| *25* | yellow Plexauridae | 6/2 | 10:58 | DRG | 29.76969 | −87.31370 | 91 | X | X | HML | X | |
| *26* | yellow Plexauridae | 6/2 | 11:10 | DRG | 29.76974 | −87.31379 | 91 | X | X | SI, HML | X | |
| *27* | *Muricea pendula* | 6/2 | 11:23 | DRG | 29.76978 | −87.31403 | 91 | | X | | | |
| *28* | *Muricea pendula* | 6/2 | 12:03 | DRG | 29.76797 | −87.31622 | 86 | | X | SI | X | |
| *29* | *Muricea pendula* | 6/2 | 12:13 | DRG | 29.76797 | −87.31619 | 86 | | X | SI | X | |
| *30* | *Muricea pendula* | 6/2 | 12:20 | DRG | 29.76813 | −87.31617 | 86 | | X | SI | X | |
| *31* | *Muricea pendula* | 6/2 | 12:28 | DRG | 29.76828 | −87.31579 | 86 | | X | SI | X | |
| *32* | *Muricea pendula* | 6/2 | 12:38 | DRG | 29.76859 | −87.31572 | 87 | | X | SI | X | |
| *33* | *Muricea pendula* | 6/2 | 12:45 | DRG | 29.76855 | −87.31572 | 87 | | X | SI | X | |
| *34* | *Muricea pendula* | 6/2 | 12:52 | DRG | 29.76864 | −87.31581 | 87 | | X | | X | |
| *35* | yellow *Scleracis* | 6/3 | 8:57 | FAR | 29.55711 | −87.46207 | 68 | | X | HML | | |
| *36* | red *Scleracis* | 6/3 | 9:01 | FAR | 29.55714 | −87.46202 | 68 | | X | HML | | |
| *37* | *Muricea pendula* | 6/3 | 9:06 | FAR | 29.55713 | −87.46204 | 68 | | X | | X | |
| *38* | *Thesea nivea* | 6/3 | 9:11 | FAR | 29.55716 | −87.46205 | 68 | X | X | HML | X | HML |
| *39* | *Muricea pendula* | 6/3 | 9:25 | FAR | 29.55720 | −87.46193 | 69 | | X | | X | |
| *40* | *Muricea pendula* | 6/3 | 9:32 | FAR | 29.55719 | −87.46176 | 69 | | X | | X | |
| *41* | *Muricea pendula* | 6/3 | 9:37 | FAR | 29.55721 | −87.46174 | 68 | | X | | | |
| *42* | *Muricea pendula* | 6/3 | 9:44 | FAR | 29.55720 | −87.46177 | 69 | | X | | | |
| *43* | *Muricea pendula* | 6/3 | 9:49 | FAR | 29.55717 | −87.46176 | 69 | | X | | X | |
| *44* | *Muricea pendula* | 6/3 | 10:11 | FAR | 29.55718 | −87.46178 | 69 | | X | | X | |
| *45* | *Thesea nivea* | 6/3 | 10:14 | FAR | 29.55714 | −87.46179 | 69 | | X | | X | HML |
| *46* | *Thesea nivea* | 6/3 | 10:20 | FAR | 29.55713 | −87.46179 | 69 | | X | | X | |
| *47* | *Thesea nivea* | 6/3 | 10:25 | FAR | 29.55716 | −87.46170 | 69 | X | X | | X | |

| *ID* | **Scientific Name** | **Date** | **Time (CDT)** | **Locality** | **Latitude (DD)** | **Longitude (DD)** | **Depth (m)** | **MB** | **PG** | **BC** | **RP** | **Live** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *48* | *Thesea nivea* | 6/3 | 10:32 | FAR | 29.55715 | −87.46169 | 69 | X | X | | X | |
| *49* | *Thesea nivea* | 6/3 | 10:40 | FAR | 29.55705 | −87.46182 | 69 | | X | | X | |
| *50* | *Thesea nivea* | 6/3 | 10:44 | FAR | 29.55704 | −87.46181 | 69 | | X | | X | |
| *51* | *Thesea nivea* | 6/3 | 10:49 | FAR | 29.55699 | −87.46181 | 69 | | X | | | |
| *52* | *Thesea nivea* | 6/3 | 10:53 | FAR | 29.55693 | −87.46182 | 69 | | X | | X | |
| *53* | *Muricea pendula* | 6/3 | 11:00 | FAR | 29.55695 | −87.46180 | 69 | | X | | | |
| *54* | red *Scleracis* | 6/3 | 10:14 | FAR | 29.55714 | −87.46179 | 69 | | X | SI, HML | | |
| *55* | Demospongiae | 6/3 | 10:14 | FAR | 29.55714 | −87.46179 | 69 | | X | | | |
| *56* | white *Scleracis* | 6/3 | NA | FAR | NA | NA | NA | | X | HML | | |
| *57* | Comatulida arms | 6/3 | 9:11 | FAR | 29.55716 | −87.46205 | 68 | | X | | | |
| *58* | *Muricea pendula* | 6/3 | 13:20 | FAR | 29.55146 | −87.46458 | 69 | | X | | X | |
| *59* | *Thesea nivea* | 6/3 | 13:26 | FAR | 29.55136 | −87.46465 | 70 | | X | | X | HML |
| *60* | *Thesea nivea* | 6/3 | 13:39 | FAR | 29.55171 | −87.46489 | 69 | | X | | X | |
| *61* | *Muricea pendula* | 6/3 | 13:50 | FAR | 29.55174 | −87.46495 | 68 | | X | | X | |
| *62* | *Thesea nivea* | 6/3 | 13:56 | FAR | 29.55174 | −87.46492 | 68 | X | X | | X | |
| *63* | *Thesea nivea* | 6/3 | 14:01 | FAR | 29.55176 | −87.46490 | 68 | | X | | | |
| *64* | *Thesea nivea* | 6/3 | 14:10 | FAR | 29.55186 | −87.46472 | 69 | | X | | X | |
| *65* | *Muricea pendula* | 6/3 | 14:20 | FAR | 29.55207 | −87.46466 | 67 | | X | | X | |
| *66* | *Muricea pendula* | 6/3 | 14:26 | FAR | 29.55215 | −87.46456 | 67 | | X | | X | |
| *67* | *Muricea pendula* | 6/3 | 14:31 | FAR | 29.55205 | −87.46453 | 67 | | X | | X | |
| *68* | *Thesea nivea* | 6/3 | 14:37 | FAR | 29.55204 | −87.46451 | 67 | X | X | SI, HML | X | HML |
| *69* | *Thesea nivea* | 6/3 | 14:42 | FAR | 29.55202 | −87.46451 | 67 | | X | SI, HML | X | |
| *70* | *Thesea nivea* | 6/3 | 14:46 | FAR | 29.55202 | −87.46445 | 67 | X | X | | X | |
| *71* | *Muricea pendula* | 6/3 | 14:56 | FAR | 29.55202 | −87.46439 | 67 | | X | | X | |
| *72* | *Muricea pendula* | 6/3 | 15:02 | FAR | 29.55206 | −87.46439 | 68 | | X | | X | |
| *73* | *Muricea pendula* | 6/3 | 15:08 | FAR | 29.55224 | −87.46430 | 68 | | X | | | |
| *74* | *Muricea pendula* | 6/3 | 15:11 | FAR | 29.55225 | −87.46429 | 69 | | X | | | |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *75* | *Thesea nivea* | 6/3 | 15:17 | FAR | 29.55222 | −87.46409 | 68 | | X | | X | |
| *76* | *Thesea nivea* | 6/3 | 15:22 | FAR | 29.55216 | −87.46406 | 69 | | X | | X | |
| *77* | *Thesea nivea* | 6/3 | 15:28 | FAR | 29.55218 | −87.46400 | 69 | | X | SI | X | |
| *78* | red *Scleracis* | 6/3 | NA | FAR | NA | NA | NA | | X | HML | | |
| *79* | *Swiftia exserta* | 6/3 | 17:20 | SR3 | 29.50433 | −87.50718 | 67 | | X | | X | HML |
| *80* | *Swiftia exserta* | 6/3 | 17:25 | SR3 | 29.50433 | −87.50717 | 67 | | X | | X | HML |
| *81* | *Swiftia exserta* | 6/3 | 17:31 | SR3 | 29.50452 | −87.50707 | 66 | | X | SI | | HML |
| *81A* | Ophiuroidea | 6/3 | 17:31 | SR3 | 29.50452 | −87.50707 | 66 | | X | SI | | |
| *82* | *Swiftia exserta* | 6/3 | 17:40 | SR3 | 29.50462 | −87.50684 | 66 | X | X | SI | X | |
| *83* | *Swiftia exserta* | 6/3 | 17:50 | SR3 | 29.50462 | −87.50682 | 66 | | X | | X | |
| *84* | *Swiftia exserta* | 6/3 | 18:26 | SR3 | 29.50187 | −87.50786 | 69 | | X | | X | |
| *85* | *Swiftia exserta* | 6/3 | 18:29 | SR3 | 29.50188 | −87.50788 | 69 | | X | | X | |
| *86* | *Swiftia exserta* | 6/3 | 18:32 | SR3 | 29.50187 | −87.50787 | 69 | X | X | | X | |
| *87* | *Swiftia exserta* | 6/3 | 18:37 | SR3 | 29.50188 | −87.50784 | 69 | X | X | SI | X | |
| *88* | *Muricea pendula* | 6/4 | 13:51 | SR2 | 29.45804 | −87.66896 | 62 | | X | SI | X | |
| *89* | *Muricea pendula* | 6/4 | 13:58 | SR2 | 29.45808 | −87.66893 | 62 | | X | SI | X | |
| *90* | *Muricea pendula* | 6/4 | 14:05 | SR2 | 29.45810 | −87.66896 | 62 | | X | SI | X | |
| *91* | *Muricea pendula* | 6/4 | 14:12 | SR2 | 29.45808 | −87.66896 | 62 | | X | | | |
| *92* | *Muricea pendula* | 6/4 | 14:21 | SR2 | 29.45810 | −87.66894 | 62 | | X | | X | |
| *93* | yellow *Muricea pendula* | 6/4 | 14:27 | SR2 | 29.45809 | −87.66891 | 62 | | X | | X | |
| *94* | *Muricea pendula* | 6/4 | 14:32 | SR2 | 29.45811 | −87.66888 | 63 | | X | | | |
| *95* | *Thesea nivea* | 6/4 | 14:41 | SR2 | 29.45777 | −87.66873 | 69 | | X | | | |
| *96* | *Thesea nivea* | 6/4 | 14:45 | SR2 | 29.45777 | −87.66874 | 69 | | X | | | |
| *97* | *Thesea nivea* | 6/4 | 14:48 | SR2 | 29.45778 | −87.66874 | 69 | | X | SI | X | |
| *98* | *Thesea nivea* | 6/4 | 14:52 | SR2 | 29.45777 | −87.66873 | 69 | X | X | | X | |
| *99* | *Thesea nivea* | 6/4 | 14:57 | SR2 | 29.45771 | −87.66873 | 69 | | X | | | |
| *100* | *Thesea nivea* | 6/4 | 15:02 | SR2 | 29.45768 | −87.66853 | 69 | | X | | X | |
| *101* | *Thesea nivea* | 6/4 | 15:07 | SR2 | 29.45769 | −87.66849 | 69 | | X | SI | X | |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *102* | *Thesea nivea* | 6/4 | 15:11 | SR2 | 29.45769 | −87.66847 | 69 | X | X | | | |
| *103* | *Thesea nivea* | 6/4 | 15:19 | SR2 | 29.45769 | −87.66847 | 68 | | X | | X | |
| *104* | *Bebryce* sp. | 6/4 | 15:21 | SR2 | 29.45770 | −87.66847 | 68 | | X | SI, HML | | |
| *105* | *Thesea nivea* | 6/4 | 15:26 | SR2 | 29.45768 | −87.66847 | 68 | X | X | SI | X | |
| *105A* | Ophiuroidea | 6/4 | 15:26 | SR2 | 29.45768 | −87.66847 | 68 | | X | SI | | |
| *106* | *Muricea pendula* | 6/4 | 15:31 | SR2 | 29.45763 | −87.66831 | 69 | | X | | X | |
| *107* | *Muricea pendula* | 6/4 | 15:39 | SR2 | 29.45754 | −87.66835 | 70 | | X | | X | |
| *108* | *Muricea pendula* | 6/4 | 15:45 | SR2 | 29.45756 | −87.66827 | 68 | | X | | X | |
| *109* | *Swiftia exserta* | 6/4 | 16:39 | SR2 | 29.46040 | −87.66557 | 67 | | X | | X | |
| *110* | *Swiftia exserta* | 6/4 | 16:43 | SR2 | 29.46039 | −87.66555 | 67 | | X | | X | |
| *111* | *Thesea nivea* | 6/4 | 16:47 | SR2 | 29.46038 | −87.66552 | 67 | | X | SI | | |
| *112* | *Swiftia exserta* | 6/4 | 16:53 | SR2 | 29.46034 | −87.66550 | 67 | | X | | X | |
| *113* | *Thesea nivea* | 6/4 | 16:53 | SR2 | 29.46034 | −87.66550 | 67 | | X | | | |
| *114* | *Thesea nivea* | 6/4 | 16:56 | SR2 | 29.46032 | −87.66550 | 66 | | X | SI | | |
| *115* | *Swiftia exserta* | 6/4 | 17:11 | SR2 | 29.46034 | −87.66547 | 66 | | X | | X | |
| *116* | *Thesea nivea* | 6/4 | 17:06 | SR2 | 29.46030 | −87.66547 | 66 | | X | | | |
| *116A1* | hydroids | 6/4 | 17:06 | SR2 | 29.46030 | −87.66547 | 66 | | X | | | |
| *116A2* | Gastropoda | 6/4 | 17:06 | SR2 | 29.46030 | −87.66547 | 66 | | X | | | |
| *117* | *Swiftia exserta* | 6/4 | 17:15 | SR2 | 29.46034 | −87.66548 | 66 | X | X | | X | |
| *118* | *Thesea nivea* | 6/4 | 17:20 | SR2 | 29.46033 | −87.66548 | 66 | | X | | | |
| *119* | *Swiftia exserta* | 6/4 | 17:26 | SR2 | 29.46032 | −87.66546 | 66 | | X | SI | X | |
| *120* | *Thesea nivea* | 6/4 | 17:30 | SR2 | 29.46034 | −87.66548 | 66 | | X | | | |
| *121* | *Swiftia exserta* | 6/4 | 17:33 | SR2 | 29.46029 | −87.66546 | 66 | | X | SI | X | |
| *121A* | *Cyphoma Gibbosum* | 6/4 | 17:33 | SR2 | 29.46029 | −87.66546 | 66 | | X | SI | | |
| *122* | *Thesea nivea* | 6/4 | 17:39 | SR2 | 29.46027 | −87.66543 | 66 | | X | | | |
| *123* | *Swiftia exserta* | 6/4 | 17:44 | SR2 | 29.46038 | −87.66528 | 65 | | X | | X | |
| *124* | *Swiftia exserta* | 6/4 | 17:55 | SR2 | 29.46041 | −87.66531 | 65 | X | X | SI | X | |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *125* | *Muricea pendula* | 6/4 | 17:57 | SR2 | 29.46040 | −87.66530 | 65 | | X | | X | |
| *126* | *Thesea nivea* | 6/4 | 18:02 | SR2 | 29.46038 | −87.66528 | 66 | | X | SI | | |
| *127* | *Swiftia exserta* | 6/4 | 18:05 | SR2 | 29.46034 | −87.66527 | 65 | X | X | SI | X | |
| *128* | *Swiftia exserta* | 6/4 | 18:08 | SR2 | 29.46034 | −87.66526 | 65 | | X | SI | X | |
| *129* | *Thesea nivea* | 6/4 | 18:11 | SR2 | 29.46036 | −87.66523 | 66 | | X | | | |
| *130* | Schizoporella | 6/4 | NA | SR2 | NA | NA | NA | | X | | | |
| *131* | Schizoporella | 6/4 | NA | SR2 | NA | NA | NA | | X | | | |
| *132* | *Swiftia exserta* | 6/5 | 14:59 | BF4 | 29.46708 | −87.73951 | 66 | | X | SI | X | |
| *133* | *Muricea pendula* | 6/5 | 15:07 | BF4 | 29.46706 | −87.73943 | 64 | | X | SI | | |
| *134* | yellow Spongiodermidae | 6/5 | 15:10 | BF4 | 29.46704 | −87.73941 | 64 | | X | SI, HML | | |
| *135* | *Muricea pendula* | 6/5 | 15:14 | BF4 | 29.46705 | −87.73944 | 64 | | X | | | |
| *136* | *Muricea pendula* | 6/5 | 15:22 | BF4 | 29.46704 | −87.73941 | 64 | | X | | | |
| *137* | *Muricea pendula* | 6/5 | 15:30 | BF4 | 29.46703 | −87.73943 | 64 | | X | SI | X | |
| *138* | *Muricea pendula* | 6/5 | 15:38 | BF4 | 29.46701 | −87.73942 | 63 | | X | | | |
| *139* | *Muricea pendula* | 6/5 | 15:46 | BF4 | 29.46699 | −87.73940 | 63 | | X | | | |
| *140* | *Swiftia exserta* | 6/5 | 15:53 | BF4 | 29.46699 | −87.73939 | 64 | | X | | X | |
| *141* | yellow *Muricea pendula* | 6/5 | 16:00 | BF4 | 29.46698 | −87.73940 | 63 | | X | | | |
| *142* | *Muricea pendula* | 6/5 | 16:12 | BF4 | 29.46697 | −87.73942 | 63 | | X | | | |
| *143* | *Muricea pendula* | 6/5 | 16:19 | BF4 | 29.46700 | −87.73942 | 63 | X | X | SI | | |
| *144* | *Muricea pendula* | 6/5 | 16:31 | BF4 | 29.46695 | −87.73933 | 63 | X | X | | | |
| *145* | *Thesea nivea* | 6/5 | 16:40 | BF4 | 29.46693 | −87.73927 | 63 | | X | | | |
| *146* | *Swiftia exserta* | 6/5 | 16:45 | BF4 | 29.46694 | −87.73931 | 63 | | X | SI | X | |
| *147* | *Muricea pendula* | 6/5 | 16:53 | BF4 | 29.46695 | −87.73930 | 63 | | X | | | |
| *148* | *Thesea nivea* | 6/5 | 17:01 | BF4 | 29.46696 | −87.73927 | 63 | | X | | | |
| *149* | *Thesea nivea* | 6/5 | 17:06 | BF4 | 29.46696 | −87.73926 | 63 | | X | SI | | |
| *150* | *Muricea pendula* | 6/5 | 17:14 | BF4 | 29.46695 | −87.73927 | 63 | X | X | | | |
| *151* | *Thesea nivea* | 6/5 | 17:17 | BF4 | 29.46696 | −87.73925 | 63 | | X | | | |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *152* | *Thesea nivea* | 6/5 | 17:25 | BF4 | 29.46701 | −87.73929 | 63 | | X | | | |
| *153* | yellow *Muricea pendula* | 6/5 | 17:30 | BF4 | 29.46673 | −87.73927 | 64 | | X | SI, HML | | |
| *154* | *Thesea nivea* | 6/5 | 17:34 | BF4 | 29.46671 | −87.73927 | 64 | | X | | | |
| *155* | *Thesea nivea* | 6/5 | 17:36 | BF4 | 29.46672 | −87.73927 | 64 | | X | | | |
| *156* | *Thesea nivea* | 6/5 | 17:40 | BF4 | 29.46658 | −87.73919 | 64 | | X | | | |
| *157* | Goniasteridae | 6/5 | 17:40 | BF4 | 29.46658 | −87.73919 | 64 | | X | SI | | |
| *158* | *Thesea nivea* | 6/5 | 17:45 | BF4 | 29.46655 | −87.73912 | 64 | | X | | | |
| *159* | Bryozoa | 6/5 | NA | BF4 | NA | NA | NA | | X | | | |
| *160* | *Swiftia exserta* | 6/6 | 11:07 | MTR | 29.23300 | −88.43779 | 66 | X | X | | | |
| *161* | *Muricea pendula* | 6/6 | 11:13 | MTR | 29.23298 | −88.43782 | 66 | | X | | | |
| *162* | *Swiftia exserta* | 6/6 | 11:19 | MTR | 29.23300 | −88.43782 | 66 | X | X | | | |
| *162A* | Ophiuroidea | 6/6 | 11:19 | MTR | 29.23300 | −88.43782 | 66 | | X | | | |
| *163* | *Swiftia exserta* | 6/6 | 11:36 | MTR | 29.23304 | −88.43777 | 66 | | X | SI | X | |
| *164* | *LOST* | - | - | - | - | - | - | - | - | - | - | - |
| *165* | *Swiftia exserta* | 6/6 | 11:56 | MTR | 29.23310 | −88.43771 | 66 | | X | | | |
| *166* | *Swiftia exserta* | 6/6 | 12:04 | MTR | 29.23320 | −88.43762 | 66 | | X | | | GNV |
| *167* | *Swiftia exserta* | 6/6 | 12:14 | MTR | 29.23323 | −88.43767 | 66 | X | X | | | |
| *168* | *Muricea pendula* | 6/6 | 12:23 | MTR | 29.23320 | −88.43761 | 66 | | X | SI | | |
| *169* | *Muricea pendula* | 6/6 | 12:28 | MTR | 29.23335 | −88.43754 | 66 | | X | | | |
| *170* | *Muricea pendula* | 6/6 | 12:33 | MTR | 29.23335 | −88.43757 | 66 | | X | SI | | |
| *171* | *Swiftia exserta* | 6/6 | 12:47 | MTR | 29.23345 | −88.43759 | 66 | | X | | X | |
| *172* | *Muricea pendula* | 6/6 | 12:54 | MTR | 29.23349 | −88.43761 | 66 | | X | | | |
| *173* | *Thesea nivea* | 6/6 | 13:01 | MTR | 29.23356 | −88.43753 | 67 | | X | | | |
| *174* | *Swiftia exserta* | 6/6 | 13:12 | MTR | 29.23371 | −88.43752 | 66 | | X | | | |
| *175* | *Swiftia exserta* | 6/6 | 13:17 | MTR | 29.23374 | −88.43757 | 66 | | X | | | |
| *176* | *Swiftia exserta* | 6/6 | 13:23 | MTR | 29.23386 | −88.43752 | 66 | | X | | | |
| *177* | *Swiftia exserta* | 6/6 | 13:29 | MTR | 29.23401 | −88.43754 | 66 | | X | | | |
| *178* | *Muricea pendula* | 6/6 | 13:37 | MTR | 29.23419 | −88.43737 | 67 | | X | | | |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *179* | *Muricea pendula* | 6/6 | 13:43 | MTR | 29.23424 | −88.43726 | 67 | | X | | | |
| *180* | *Muricea pendula* | 6/6 | 13:48 | MTR | 29.23427 | −88.43730 | 67 | | X | | | |
| *181* | *Muricea pendula* | 6/6 | 13:53 | MTR | 29.23421 | −88.43735 | 67 | | X | | | |
| *182* | *Swiftia exserta* | 6/6 | 16:48 | MTR | 29.23205 | −88.43635 | 65 | | X | | | GNV |
| *183* | *Muricea pendula* | 6/6 | 16:53 | MTR | 29.23205 | −88.43638 | 65 | | X | | | |
| *184* | *Swiftia exserta* | 6/6 | 16:57 | MTR | 29.23207 | −88.43640 | 66 | | X | | | |
| *185* | *Swiftia exserta* | 6/6 | 17:01 | MTR | 29.23208 | −88.43640 | 65 | | X | SI | | GNV |
| *186* | *Swiftia exserta* | 6/6 | 17:16 | MTR | 29.23214 | −88.43634 | 65 | | X | | | |
| *187* | *Swiftia exserta* | 6/6 | 17:21 | MTR | 29.23215 | −88.43633 | 65 | | X | | | GNV |
| *188* | *Muricea pendula* | 6/6 | 17:30 | MTR | 29.23231 | −88.43601 | 65 | | X | SI | | |
| *189* | *Muricea pendula* | 6/6 | 17:41 | MTR | 29.23287 | −88.43593 | 66 | X | X | | | |
| *190* | *Muricea pendula* | 6/6 | 17:46 | MTR | 29.23291 | −88.43588 | 66 | | X | | | |
| *191* | *Muricea pendula* | 6/6 | 17:51 | MTR | 29.23319 | −88.43555 | 67 | | X | | | |
| *192* | *Muricea pendula* | 6/6 | 17:55 | MTR | 29.23321 | −88.43554 | 67 | | X | | | |
| *193* | *Muricea pendula* | 6/6 | 17:59 | MTR | 29.23322 | −88.43557 | 67 | | X | | | |
| *194* | *Muricea pendula* | 6/6 | 18:13 | MTR | 29.23326 | −88.43556 | 67 | X | X | SI | | |
| *195* | *Muricea pendula* | 6/6 | 18:19 | MTR | 29.23334 | −88.43558 | 67 | X | X | | | |
| *196* | *Muricea pendula* | 6/6 | 18:26 | MTR | 29.23347 | −88.43549 | 67 | | X | | | |
| *197* | *Thesea nivea* | 6/7 | 15:37 | SHR | 29.39358 | −88.02687 | 75 | | X | SI | | |
| *198* | *Thesea nivea* | 6/7 | 15:42 | SHR | 29.39359 | −88.02685 | 75 | X | X | | | |
| *199* | pink octocoral | 6/7 | 15:48 | SHR | 29.39352 | −88.02687 | 75 | | X | SI, HML | | |
| *200* | *Thesea nivea* | 6/7 | 16:02 | SHR | 29.39328 | −88.02654 | 77 | | X | | | |
| *201* | *Thesea nivea* | 6/7 | 16:09 | SHR | 29.39330 | −88.02653 | 76 | | X | | | |
| *202* | *Thesea nivea* | 6/7 | 16:14 | SHR | 29.39326 | −88.02653 | 76 | X | X | | | |
| *203* | *Thesea nivea* | 6/7 | 16:19 | SHR | 29.39330 | −88.02650 | 76 | | X | | | |
| *204* | *Thesea nivea* | 6/7 | 16:24 | SHR | 29.39335 | −88.02650 | 76 | | X | | | GNV |
| *205* | *Thesea nivea* | 6/7 | 16:30 | SHR | 29.39328 | −88.02648 | 76 | X | X | | | GNV |
| *206* | *Thesea nivea* | 6/7 | 16:39 | SHR | 29.39317 | −88.02628 | 73 | | X | | | GNV |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *207* | *Thesea nivea* | 6/7 | 16:50 | SHR | 29.39315 | −88.02623 | 73 | X | X | | | |
| *208* | *Bebryce* sp. | 6/7 | 17:00 | SHR | 29.39313 | −88.02624 | 73 | | X | HML | | GNV |
| *209* | *Bebryce* sp. | 6/7 | 17:04 | SHR | 29.39314 | −88.02623 | 73 | | X | SI, HML | | |
| *210* | *Thesea nivea* | 6/7 | 17:08 | SHR | 29.39313 | −88.02625 | 73 | | X | | | |
| *211* | *Swiftia exserta* | 6/8 | 14:02 | BF4 | 29.45753 | −87.73907 | 67 | X | X | | X | GNV |
| *212* | *Swiftia exserta* | 6/8 | 14:06 | BF4 | 29.45756 | −87.73905 | 67 | | X | | X | GNV |
| *213* | *Swiftia exserta* | 6/8 | 14:18 | BF4 | 29.45755 | −87.73901 | 67 | X | X | | | |
| *214* | *Swiftia exserta* | 6/8 | 14:23 | BF4 | 29.45756 | −87.73901 | 67 | | X | | X | GNV |
| *215* | *Swiftia exserta* | 6/8 | 14:27 | BF4 | 29.45756 | −87.73903 | 67 | X | X | | | |
| *216* | *Swiftia exserta* | 6/8 | 14:33 | BF4 | 29.45755 | −87.73904 | 67 | | X | | | |
| *217* | *Swiftia exserta* | 6/8 | 14:40 | BF4 | 29.45754 | −87.73906 | 67 | | X | | | GNV |
| *218* | *Swiftia exserta* | 6/8 | 14:44 | BF4 | 29.45751 | −87.73909 | 66 | | X | | | |
| *219* | *Swiftia exserta* | 6/8 | 14:52 | BF4 | 29.45754 | −87.73902 | 67 | | X | | | |
| *220* | *Swiftia exserta* | 6/8 | 14:56 | BF4 | 29.45751 | −87.73904 | 67 | | X | | | |
| *221* | *Muricea pendula* | 6/8 | 15:38 | BF4 | 29.45784 | −87.73892 | 68 | | X | | | |
| *222* | *Muricea pendula* | 6/8 | 15:41 | BF4 | 29.45787 | −87.73888 | 68 | | X | | | |
| *223* | *Thesea nivea* | 6/8 | 15:44 | BF4 | 29.45785 | −87.73892 | 68 | | X | SI | | |
| *224* | *Muricea pendula* | 6/8 | 15:50 | BF4 | 29.45811 | −87.73894 | 67 | X | X | | | |
| *225* | *Thesea nivea* | 6/8 | 15:55 | BF4 | 29.45808 | −87.73897 | 67 | | X | | | |
| *226* | *Muricea pendula* | 6/8 | 15:58 | BF4 | 29.45811 | −87.73900 | 67 | | X | | | |
| *227* | *Muricea pendula* | 6/8 | 16:04 | BF4 | 29.45812 | −87.73899 | 67 | | X | | | |
| *228* | *Thesea nivea* | 6/8 | 16:08 | BF4 | 29.45812 | −87.73900 | 67 | | X | | | |
| *229* | *Muricea pendula* | 6/8 | 16:13 | BF4 | 29.45808 | −87.73906 | 67 | X | X | | | |
| *230* | *Thesea nivea* | 6/8 | 16:15 | BF4 | 29.45808 | −87.73908 | 67 | | X | | | |
| *231* | *Thesea nivea* | 6/8 | 16:20 | BF4 | 29.45805 | −87.73906 | 67 | | X | SI | | |
| *232* | *Muricea pendula* | 6/8 | 16:25 | BF4 | 29.45807 | −87.73903 | 67 | | X | | | GNV |
| *233* | *Muricea pendula* | 6/8 | 16:30 | BF4 | 29.45818 | −87.73904 | 68 | | X | | | |
| *234* | *Muricea pendula* | 6/8 | 16:35 | BF4 | 29.45825 | −87.73894 | 67 | X | X | | | |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *235* | *Swiftia exserta* | 6/8 | 16:41 | BF4 | 29.45829 | −87.73892 | 68 | | X | | | |
| *236* | *Thesea nivea* | 6/8 | 16:45 | BF4 | 29.45826 | −87.73894 | 67 | | X | | | |
| *237* | *Muricea pendula* | 6/8 | 16:53 | BF4 | 29.45828 | −87.73892 | 67 | | X | | | |
| *238* | *Swiftia exserta* | 6/8 | 16:57 | BF4 | 29.45859 | −87.73879 | 67 | | X | | X | GNV |
| *239* | *Swiftia exserta* | 6/8 | 17:01 | BF4 | 29.45860 | −87.73889 | 66 | | X | SI | X | GNV |
| *240* | *Swiftia exserta* | 6/8 | 17:05 | BF4 | 29.45862 | −87.73893 | 66 | | X | | X | GNV |
| *241* | *Thesea nivea* | 6/8 | 17:09 | BF4 | 29.45863 | −87.73894 | 66 | | X | | | |
| *242* | *Swiftia exserta* | 6/8 | 17:12 | BF4 | 29.45866 | −87.73888 | 66 | | X | | | |
| *243* | *Swiftia exserta* | 6/8 | 17:16 | BF4 | 29.45867 | −87.73883 | 66 | | X | | | |
| *244* | *Swiftia exserta* | 6/8 | 17:19 | BF4 | 29.45863 | −87.73888 | 66 | | X | | | |
| *245* | *Swiftia exserta* | 6/8 | 17:22 | BF4 | 29.45858 | −87.73882 | 66 | | X | | | |
| *246* | *Swiftia exserta* | 6/8 | 17:24 | BF4 | 29.45857 | −87.73882 | 66 | | X | | | |
| *247* | *Swiftia exserta* | 6/8 | 17:28 | BF4 | 29.45857 | −87.73880 | 66 | | X | | | |
| *248* | *Swiftia exserta* | 6/9 | 10:20 | BF3 | 29.42157 | −87.73496 | 68 | | X | SI | | |
| *249* | *Swiftia exserta* | 6/9 | 10:23 | BF3 | 29.42156 | −87.73497 | 67 | | X | | | |
| *250* | *Swiftia exserta* | 6/9 | 10:27 | BF3 | 29.42158 | −87.73497 | 67 | | X | | | |
| *251* | *Muricea pendula* | 6/9 | 10:33 | BF3 | 29.42155 | −87.73499 | 67 | | X | | | |
| *252* | *Swiftia exserta* | 6/9 | 10:37 | BF3 | 29.42159 | −87.73499 | 67 | | X | | | |
| *253* | *Swiftia exserta* | 6/9 | 10:43 | BF3 | 29.42158 | −87.73496 | 68 | | X | | | |
| *254* | *Thesea nivea* | 6/9 | 10:47 | BF3 | 29.42161 | −87.73495 | 68 | | X | | | |
| *255* | *Thesea nivea* | 6/9 | 10:51 | BF3 | 29.42160 | −87.73501 | 68 | | X | | | |
| *256* | *Thesea nivea* | 6/9 | 10:56 | BF3 | 29.42170 | −87.73501 | 68 | | X | SI | | |
| *257* | *Swiftia exserta* | 6/9 | 11:08 | BF3 | 29.42171 | −87.73503 | 67 | | X | | | |
| *258* | *Muricea pendula* | 6/9 | 11:04 | BF3 | 29.42172 | −87.73503 | 67 | | X | | | |
| *259* | *Swiftia exserta* | 6/9 | 11:12 | BF3 | 29.42174 | −87.73505 | 67 | | X | | | |
| *260* | *Muricea pendula* | 6/9 | 11:18 | BF3 | 29.42173 | −87.73503 | 67 | X | X | SI | | |
| *260A* | Ophiuroidea | 6/9 | 11:18 | BF3 | 29.42173 | −87.73503 | 67 | | X | SI | | |
| *261* | *Muricea pendula* | 6/9 | 11:22 | BF3 | 29.42173 | −87.73503 | 67 | X | X | | | |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *262* | *Muricea pendula* | 6/9 | 11:30 | BF3 | 29.42173 | −87.73503 | 67 | X | X | | | |
| *263* | *Thesea nivea* | 6/9 | 11:39 | BF3 | 29.42172 | −87.73507 | 67 | | X | SI | | |
| *264* | *Muricea pendula* | 6/9 | 11:43 | BF3 | 29.42174 | −87.73507 | 67 | | X | | | |
| *265* | *Muricea pendula* | 6/9 | 11:46 | BF3 | 29.42173 | −87.73507 | 67 | | X | SI | | |
| *266* | *Muricea pendula* | 6/9 | 11:51 | BF3 | 29.42173 | −87.73510 | 67 | | X | | | |
| *267* | *Swiftia exserta* | 6/9 | 11:54 | BF3 | 29.42172 | −87.73509 | 67 | | X | | | GNV |
| *268* | *Swiftia exserta* | 6/9 | 11:57 | BF3 | 29.42172 | −87.73512 | 67 | | X | | | |
| *269* | *Muricea pendula* | 6/9 | 11:59 | BF3 | 29.42172 | −87.73511 | 67 | | X | SI | | |
| *270* | *Thesea nivea* | 6/9 | 12:02 | BF3 | 29.42175 | −87.73511 | 67 | | X | SI | | |
| *271* | *Thesea nivea* | 6/9 | 12:07 | BF3 | 29.42168 | −87.73512 | 67 | | X | | | |
| *272* | *Muricea pendula* | 6/9 | 12:10 | BF3 | 29.42168 | −87.73512 | 67 | | X | | | |
| *273* | *Thesea nivea* | 6/9 | 12:14 | BF3 | 29.42168 | −87.73513 | 67 | | X | | | |
| *274* | *Thesea nivea* | 6/9 | 12:18 | BF3 | 29.42168 | −87.73514 | 67 | | X | | | |
| *275* | *Thesea nivea* | 6/9 | 12:28 | BF3 | 29.42166 | −87.73511 | 67 | | X | | | |
| *276* | *Ellisella* sp. | 6/9 | 12:28 | BF3 | 29.42166 | −87.73511 | 67 | | X | HML | | |
| *277* | *Ellisella* sp. | 6/9 | NA | BF3 | NA | NA | NA | | X | HML | | |
| *278* | *Thesea nivea* | 6/9 | 15:40 | BF2 | 29.45510 | −87.78201 | 65 | | X | | | |
| *279* | *Thesea nivea* | 6/9 | 15:43 | BF2 | 29.45503 | −87.78206 | 65 | | X | | | |
| *280* | *Thesea nivea* | 6/9 | 15:48 | BF2 | 29.45495 | −87.78208 | 65 | | X | SI | | |
| *281* | *Thesea nivea* | 6/9 | 15:53 | BF2 | 29.45487 | −87.78204 | 65 | | X | | | |
| *282* | *Thesea nivea* | 6/9 | 15:55 | BF2 | 29.45485 | −87.78204 | 65 | | X | | | |
| *283* | *Thesea nivea* | 6/9 | 15:59 | BF2 | 29.45483 | −87.78208 | 65 | | X | | | |
| *284* | *Thesea nivea* | 6/9 | 16:03 | BF2 | 29.45483 | −87.78208 | 65 | | X | | | |
| *285* | *Thesea nivea* | 6/9 | 16:07 | BF2 | 29.45481 | −87.78210 | 65 | | X | | | |
| *286* | *Thesea nivea* | 6/9 | 16:10 | BF2 | 29.45483 | −87.78212 | 65 | | X | | | |
| *287* | *Thesea nivea* | 6/9 | 16:14 | BF2 | 29.45481 | −87.78210 | 65 | | X | | | |
| *288* | *Muricea pendula* | 6/9 | 16:21 | BF2 | 29.45459 | −87.78212 | 66 | | X | | | |
| *289* | *Muricea pendula* | 6/9 | 16:29 | BF2 | 29.45399 | −87.78172 | 65 | | X | | | |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *290* | *Swiftia exserta* | 6/9 | 16:33 | BF2 | 29.45396 | −87.78170 | 63 | | X | | | |
| *291* | purple *Muricea* | 6/9 | 16:39 | BF2 | 29.45396 | −87.78170 | 63 | | X | SI | | |
| *292* | *Muricea pendula* | 6/9 | 16:42 | BF2 | 29.45394 | −87.78169 | 63 | | X | | | |
| *293* | *Muricea pendula* | 6/9 | 16:48 | BF2 | 29.45392 | −87.78169 | 63 | | X | | | |
| *294* | *Muricea pendula* | 6/9 | 16:52 | BF2 | 29.45389 | −87.78166 | 63 | | X | | | |
| *295* | *Muricea pendula* | 6/9 | 17:04 | BF2 | 29.45392 | −87.78167 | 63 | | X | | | |
| *296* | *Muricea pendula* | 6/9 | 17:10 | BF2 | 29.45394 | −87.78168 | 63 | | X | | | |
| *297* | *Swiftia exserta* | 6/9 | 17:14 | BF2 | 29.45397 | −87.78169 | 63 | | X | | | |
| *298* | *Muricea pendula* | 6/9 | 17:21 | BF2 | 29.45396 | −87.78163 | 63 | | X | | | |
| *299* | *Muricea pendula* | 6/9 | 17:27 | BF2 | 29.45396 | −87.78165 | 62 | | X | | | |
| *300* | *Swiftia exserta* | 6/9 | 17:31 | BF2 | 29.45395 | −87.78164 | 63 | | X | | | |
| *301* | *Swiftia exserta* | 6/9 | 17:35 | BF2 | 29.45393 | −87.78166 | 63 | | X | | | |
| *302* | *Swiftia exserta* | 6/9 | 17:40 | BF2 | 29.45384 | −87.78130 | 64 | X | X | | | |
| *303* | *Swiftia exserta* | 6/9 | 17:53 | BF2 | 29.45334 | −87.78064 | 64 | X | X | | | |
| *304* | *Swiftia exserta* | 6/9 | 17:59 | BF2 | 29.45336 | −87.78061 | 63 | | X | | | |
| *305* | *Swiftia exserta* | 6/9 | 18:03 | BF2 | 29.45335 | −87.78063 | 63 | | X | | | |
| *306* | *Swiftia exserta* | 6/9 | 18:07 | BF2 | 29.45331 | −87.78062 | 63 | X | X | SI | | |
| *307* | *Swiftia exserta* | 6/9 | 18:10 | BF2 | 29.45330 | −87.78066 | 63 | | X | | | |
| *308* | *Swiftia exserta* | 6/9 | 18:24 | BF2 | 29.45280 | −87.78081 | 63 | | X | | | |
| *309* | Comatulida arms | 6/9 | NA | BF2 | NA | NA | NA | | X | | | |
| *310* | *Muricea pendula* | 6/10 | 10:33 | SR2 | 29.45720 | −87.66779 | 68 | | X | | | |
| *311* | *Swiftia exserta* | 6/10 | 10:36 | SR2 | 29.45719 | −87.66776 | 67 | | X | | | |
| *312* | *Swiftia exserta* | 6/10 | 10:41 | SR2 | 29.45720 | −87.66778 | 67 | | X | | | |
| *313* | *Muricea pendula* | 6/10 | 10:45 | SR2 | 29.45720 | −87.66778 | 67 | | X | | | |
| *314* | *Thesea nivea* | 6/10 | 10:49 | SR2 | 29.45722 | −87.66778 | 66 | | X | | | |
| *315* | yellow Plexauridae | 6/10 | 10:55 | SR2 | 29.45722 | −87.66779 | 66 | X | X | SI, HML | | |
| *316* | *Swiftia exserta* | 6/10 | 11:04 | SR2 | 29.45722 | −87.66779 | 66 | | X | | | |

| *ID* | Scientific Name | Date | Time (CDT) | Locality | Latitude (DD) | Longitude (DD) | Depth (m) | MB | PG | BC | RP | Live |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *317* | *Muricea pendula* | 6/10 | 11:08 | SR2 | 29.45722 | −87.66778 | 66 | X | X | | | |
| *318* | *Thesea nivea* | 6/10 | 11:13 | SR2 | 29.45723 | −87.66776 | 66 | | X | | | |
| *319* | *Thesea nivea* | 6/10 | 11:17 | SR2 | 29.45723 | −87.66778 | 66 | | X | | | |
| *320* | *Thesea nivea* | 6/10 | 11:24 | SR2 | 29.45724 | −87.66781 | 66 | | X | SI | | |
| *321* | *Muricea pendula* | 6/10 | 11:32 | SR2 | 29.45722 | −87.66780 | 66 | | X | | | |
| *322* | *Swiftia exserta* | 6/10 | 11:36 | SR2 | 29.45720 | −87.66779 | 67 | | X | | | |
| *323* | *Thesea nivea* | 6/10 | 11:41 | SR2 | 29.45722 | −87.66778 | 66 | | X | | | |
| *324* | *Swiftia exserta* | 6/10 | 11:45 | SR2 | 29.45722 | −87.66780 | 66 | | X | | | |
| *325* | *Muricea pendula* | 6/10 | 11:48 | SR2 | 29.45724 | −87.66778 | 66 | X | X | | | |
| *326* | *Swiftia exserta* | 6/10 | 11:54 | SR2 | 29.45722 | −87.66770 | 66 | | X | | | |
| *327* | *Muricea pendula* | 6/10 | 11:57 | SR2 | 29.45724 | −87.66770 | 66 | | X | | | |
| *328* | *Thesea nivea* | 6/10 | 12:00 | SR2 | 29.45724 | −87.66769 | 66 | | X | | | |
| *329* | *Thesea nivea* | 6/10 | 12:05 | SR2 | 29.45721 | −87.66770 | 66 | | X | | | |
| *330* | *Muricea pendula* | 6/10 | 12:09 | SR2 | 29.45725 | −87.66765 | 66 | | X | | | |
| *331* | *Swiftia exserta* | 6/10 | 12:15 | SR2 | 29.45724 | −87.66770 | 66 | | X | | | |
| *332* | *Swiftia exserta* | 6/10 | 12:25 | SR2 | 29.45734 | −87.66758 | 66 | | X | | | |
| *333* | *Muricea pendula* | 6/10 | 12:28 | SR2 | 29.45732 | −87.66755 | 66 | | X | | | |
| *334* | *Swiftia exserta* | 6/10 | 12:34 | SR2 | 29.45732 | −87.66756 | 66 | | X | | | |
| *335* | *Swiftia exserta* | 6/10 | 12:38 | SR2 | 29.45733 | −87.66759 | 66 | | X | | | |
| *336* | *Muricea pendula* | 6/10 | 12:42 | SR2 | 29.45730 | −87.66762 | 66 | X | X | | | |
| *337* | *Muricea pendula* | 6/10 | 12:45 | SR2 | 29.45729 | −87.66763 | 66 | | X | | | |
| *338* | *Muricea pendula* | 6/10 | 12:47 | SR2 | 29.45728 | −87.66766 | 66 | | X | | | |
| *339* | *Thesea nivea* | 6/10 | 12:53 | SR2 | 29.45725 | −87.66762 | 67 | | X | | | |
| *340* | *Thesea nivea* | 6/10 | 12:58 | SR2 | 29.45729 | −87.66756 | 66 | | X | | | |
| *341* | *Thesea nivea* | 6/10 | 13:05 | SR2 | 29.45729 | −87.66756 | 66 | | X | SI | | |
| *342* | *Ellisella* sp. | 6/10 | NA | SR2 | NA | NA | NA | | X | | | |

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