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Cruise Report

NOAA Ship *Ron Brown |* ROV *Jason* Expedition RB-1903 April 9 to April 30, 2019

for

DEEP SEARCH

DEEP Sea Exploration to Advance Research on Coral/Canyon/Cold seep Habitats

Deepwater Atlantic Habitats II:
Continued Atlantic Research and Exploration
in Deepwater Ecosystems with Focus on
Coral, Canyon and Seep Communities
Contract - M17PC00009

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Expedition Background

The RB1903 expedition on board the NOAA Ship *Ron Brown* with the ROV *Jason* is the fifth cruise of the project, and the second submersible sampling cruise. The primary goals of this cruise are as follows:

- 1. Exploration of new sites and new areas within known sites
- 2. Sampling of corals and associated fauna for biodiversity and biogeography
- 3. Community sampling at seep and coral habitats
- 4. Sediment sampling at soft sediment sites for biogeochemistry and diversity
- 5. Collections of corals for live coral experiments
- 6. Water sampling for water chemistry and microbial diversity
- 7. Sediment, water, and faunal samples for eDNA work
- 8. Geological observations and sampling for geomorphology
- 9. Lander deployments

Cruise Summary Table

Date	Location	Latitude	Longitude	depth	Jason dive	CTD cast	Activities
5-Apr	Charleston, SC						ROV mobe
6-Apr	Charleston, SC						ROV mobe
7-Apr	Charleston, SC						ROV mobe
8-Apr	Charleston, SC						ROV mobe
	depart Charleston, transit to Stetson Shallow					CTD01	depart 1400, arrive 2200, CTD cast, attempt to hold station but 3 knots current
10-Apr	Richardson Hills	32	-77.43	790	J2-1128	CTD02	arrive 0630, deploy USBL pole, 0700 CTD cast, 0900 deploy elevator for USBL calibration, 2000 ROV launch
11-Apr	Richardson Hills	31.88	-77.374	800		CTD03, 04	1000 recover ROV, 1030 deploy lander, 1100 triangulation, 1300 2x CTD, 1800 turn for port for crew family emergency
12-Apr	Richardson Hills						transit back to Richardson, move on to mapping ops from Richardson to Blake Deep
13-Apr	Richardson Hills	31.985	-77.413		J2-1129	CTD05, 06, 07	0800 recover lander, 1000 CTD cast @ Richardson A4963, 1200 launch Jason
14-Apr	Richardson Hills						0900 recover Jason, 1100 deploy lander, triangulate, transit to Popenoe Mounds, MBES over Hoyt Hills on the way
15-Apr	Blake Mounds	31.079	-79.492	600			arrive 1000, weather conditions forced an early return to port
16-Apr	Charleston - Savanna Banks				J2-1130	CTD08	Arrive Charleston by 08:00, depart Charleston 1200, head to Savannah Banks, CTD on arrival, Dive: 1800
17-Apr	Blake Deep	31.079	-79.492	600	J2-1131		recover: 0800, head to Blake Deep, CTD, dive 2000

Date	Location	Latitude	Longitude	depth	Jason dive	CTD cast	Activities
18-Apr	Blake Deep	31.293	-77.243	1300		CTD09	recover 0800, CTD, level-wind test, transit to Moorehead City
19-Apr	Morehead City						weather issues
20-Apr	Cape Lookout	34.32424	-75.78643	500			18:00-22:00 transit map Lookout deep, transit to Pamlico Canyon
21-Apr	Pamlico Canyon	34.956	-75.224	600	J2-1132	CTD10	triangulate the lander upon arrival (3 hrs), CTD:0800, Dive: 12:00
22-Apr	Pamlico, Pea Island	35.675	-74.797	200		CTD11	recover: 16:00, CTD: 17:00, transit to Pea Island seep ~0000, dive: 0000
23-Apr	Pea Island, Kitty Hawk Seep	35.932	-74.816	285	J2-1133	CTD12, 13	dive: 0:00-12:00, recover: 12 or 16:00, CTD x2 (4hrs), transit to Kitty Hawk (2hrs)
24-Apr	Kitty Hawk, Keller Canyon	35.531	-74.852	300	J2-1134	CTD14	dive: 0:00-12:00, CTD: 13:00, transit to Keller (2hrs), no dive (currents)
25-Apr	Lookout Deep	33.923	-75.812	1200	J2-1135	CTD15	dive 1400-1700, CTD, weather building
26-Apr	Blake Ridge Seep	32.494	-76.199	2200			mapping ops, weather
27-Apr	Blake Ridge Seep	32.494	-76.199	2200	J2-1136	CTD16	dive: 0000-1600, recover, transit to Blake Seep (4 hrs), CTD, dive: 0000
28-Apr	Cape Fear Seep	32.975	-75.933	2600	J2-1137	CTD17	dive: 0000-2359
	Richardson West	31.894	-77.698	700	J2-1138	CTD18	recover: 0400, CTD: 0730-1000, dive start transit to Charleston
30-Apr	return to Charleston						arrive 1200
1-May	Charleston, SC						DEMOB
2-May	Charleston, SC						DEMOB

General Dive Plans

Each dive will have a specific plan based on the type of habitat, the sampling needs at the site, the capacity of the *Jason* "basket," the results of the previous dive(s), and the overall needs of the entire project. Although much of this information will only be available the evening before the dive, there is enough existing information to present generalized dive plans for the three habitats that are the focus of this study: canyons, corals, and cold seeps.

Canyons: The canyon dives will focus on coral diversity, biogeochemistry, macroinfauna, geology, and water sampling. If bubble plumes and seeps are present, they will also be investigated. Dives will begin in the deepest parts of the chosen targets and proceed upslope.

Basket: 11 push cores on port swing arm, 14 push cores on the basket, 8 sample quivers on swing arm, 6 on the basket, 4 niskins, 5-chamber slurp, 1 large biobox, 3 mussel pots (if seeps present), additional sample quivers (if seeps are not present)

Priorities: corals for barcoding, key coral and mussel species with associates for popgen, push cores in canyon axis and near corals and/or mussels (if possible), water samples near scleractinians and large coral colonies, rocks for geology

Corals: These dive plans are primarily focused on the *Lophelia*-dominated habitats in the southern part of the study area.

Basket: 11 push cores on swing arms, 8 sample quivers on swing arms, 4 niskins, 5-chamber slurp, 2 large bioboxes, 3 coral pots, rock boxes, additional sample quivers

Priorities: video survey of distinct geomorphologies identified from new and existing multibeam data, coral community samples, push cores associated with and away from community samples, water samples near the seafloor where live corals are present, rocks (if present), other corals for barcoding, *Lophelia* in bioboxes for live coral experiments

Seeps: The dive plans for the deep seep sites where mussels are present (i.e. Cape Fear) and shallow sites that are dominated by bacterial mats (i.e. Pea Island) will be similar with the replacement of the mussel pots with additional push cores at the shallow sites.

Basket: 25 push cores on swing arms, 14 sample quivers, 8 on swing arms, 6 on the basket, 4 niskins, 5-chamber slurp, 1 large bioboxe, 2 mussel pots (if seeps present), rock boxes, additional push cores and sample quivers (if seeps are not present)

Priorities: Mussel community sampling, push cores associated with community samples and away, mussel sampling into bioboxes for pop gen plus gill/host genomics, water samples associated with all mussel samples, coral samples (if present), carbonates

Expedition Activities

April 5

Jason mobilization begins with the arrival of the four Jason vans plus the rad van on the crane barge. All of these were loaded onto the ship and installation begins. Shipments from the science party including hand-carried packages and pallets are also brought on board using the ship's crane.

Nancy Prouty from USGS reports that she has strep throat, so she is replaced by Lauren Carroll from Mandy Joye's group.

April 6-7

Additional members of the science party arrive and mobilization continues. There are problems encountered with rigging the rad van. Eventually, it is determined that there is

a ground in the power cable coming from the van. Issues with the port ship's crane overheating slow the process, with the lander still on the pier and an inability to move large items on the deck.

April 8

The remaining members of the science party arrive in the morning and everyone moves on board. An electrician is scheduled to address the problem with the rad van. A frayed wire is located on the connection from the van to the ship's power supply and this repair eliminates the ground. Issues with the port crane overheating continue and the lander remains on the pier.

The ship departs at noon for a test of the recently rebuilt generator in the harbor. While this is ongoing, a trip to the NOAA Hollings lab is completed to fill the liquid nitrogen dewars (there is no -80°C freezer on board).

The ship notifies us that the original crew member scheduled for the cruise is now healthy and can sail for the entire length of the cruise. That results in a shuffling of the berthing since that person (a male) is replacing a male on leg 1 and a female on leg 2.

April 9

We are scheduled to depart at 1000, but this is delayed while the crane repairs are finalized and the lander is then loaded onto the ship. The ship finally departs at approximately 1400 hrs.

2200 CTD-01 in Stetson Shallow

We arrive at a location in the Stetson Shallow region with sufficient water depth (> 500 m) to conduct the USBL calibration with the elevator. The USBL pole is deployed and a CTD cast is conducted to generate a sound velocity profile and collect a series of water column samples.

April 10

When the CTD cast is complete at approximately 0130, the ship attempts to hold station, but is not able to in the ~3 knots of current that are present here. The Gulf Stream is significantly further west now than it was in August. We continue on to the Richardson Hills sites on the other side of the Gulf Stream.

0700 CTD-02 Richardson Hills

We arrive and the surface currents are just under 1 knot. We lower the USBL pole and conduct a CTD cast, generating a water-column profile with the CTD and firing niskin bottles near the seafloor (21) and near the surface (3).

0900 Elevator deployment

The elevator is deployed in a flat spot along the eastern edge of the "U" that separates the Stetson Banks sites to the west from the Richardson Hills sites to the east. Then the ship molds station at a series of cardinal points and determines the range and bearing to the elevator to complete the USBL calibration.

1900 Elevator recovery

2000 Launch J2-1128 at Richardson Hills swale site

On the descent, we crossed a clear thermocline at approximately 750m, far deeper than normal, but similar to the water column profile over the other Lophelia mounds at the northern reef track at Richardson Hills.

The ROV landed immediately on coral rubble habitat with abundant live Lophelia colonies. Ivan took the controls to get the camera dialed in. He determined that frequent white balancing of the camera will greatly improve the color temperature of the image, particularly when you go from sitting down to transiting or vice versa. We then began a series of octocoral collections - there were abundant Plumarella and neptheids throughout, and patches of a white plexaurid from time to time. The first swale was mostly this type of habitat with live Lophelia colonies in the "bush" stage with some Madrepora and a few Solenosmilia mixed in. The second swale near WPT 2 was mostly coral rubble with very little live coral consisting of smaller colonies of Lophelia and occasionally Enallopsamia.

The bottom of the swale between WPT 2 and 3 was finer sediments with clear bedforms of sand and small rubble. As we began to climb up towards WPT 3, there was mostly rubble with large numbers of small, white plexaurid colonies. At the top near WPT 3, we encountered another field of standing dead coral with numerous live coral colonies interspersed. We set up for the first coral pot sample here, and then made a live coral collection into the biobox. Leaving WPT 3, the coral cover began to decline on the way to WPT 4.

We continued along the track from WPT 4 to 5, and observed coral rubble in the swales/furrows between the peaks, with dense live Lophelia on the highs. The structure below the live Lophelia appeared to be a dense matrix of dead Lophelia and fine and sandy sediments. We collected MP2, soft coral, Plumarella, and Lophelia into a quiver and biobox during the watch. Fish observations included rattails (e.g., Nezumia), snaphobranchid eels, and a goosefish (Lophiodes). Depth ranged from ~747 to 773 m. There was a noticeable shimmer in the water around these topographic highs, consistent with water temperature changes.

Near WPT5, on the flank close to the top of a small feature at approximately 780 meters, the substrate was mostly coral rubble with white plexurid octocorals plus sponges. We collected one of the white plexurids as a representative of this habitat. As we continued up the feature, we came across occasional Enallopsammia profunda

colonies, most were the yellow morph, but a few were white. We collected some of each. An invertebrate that was conspicuous was the pinkish Echinus urchin. We continued upslope towards WPT 6. At approximately 750 m, the temperature began to climb sharply, from 4.4 to 6.5 degrees C at 760 m, then to about 10 degrees at 730 m. We traversed across a swale with coral rubble/sandy substrate before climbing to WPT6, where there was again a higher abundance of large live coral colonies in the warmer waters. Here we began to see occasional Madrepora oculata. We collected M. oculata and Lophelia, plus Plumarella. Within about 5 minutes, we observed 3 chimeara with black spots.

The transit between 6 and 7 was mainly along the top of a ridge. At WPT 7, there were numerous large live Lophelia colonies. Some of these were approaching the thicket stage, with rings or semi-circles of live coral growing around a center consisting of standing dead skeleton. In some places, these structures were so large that they had tipped over and the live coral continued to grow at the edges.

April 11

ROV was off bottom at 0730, but the level-wind was not functioning and there was a wrap in the winch. The ship moved to the NE into deeper water and the ROV was lowered back to the bottom. Recovery was slow and methodical, but avoided any further mishaps.

1000 recover J2-1128

1030 launch lander @ Richardson Hills

1100 triangulate lander position

The lander was deployed at a site approximately 1 km NE of the area that was just surveyed on the previous dive. The intent is for the lander to stay down for ~48 hours collecting data then we will return to recover and redeploy it in a nearby location.

1330 CTD-03 at Richardson Hills swale site

1500 CTD-04 at Richardson Hills swale site

The first CTD (03) was to collect bottom water for the live coral tanks and buckets in the cold room. The second CTD (04) was for a complete water column profile roughly half way between the lander position and the end of the J2-1128 dive.

The winds and seas were consistently climbing all day, so we moved to mapping operations. A survey was planned to fill the gaps in the bathymetry between the Richardson Hills and Blake Deep sites. However, at this time, one of the crew members had a family emergency, and the ship turned to transit to the nearest port, which is Cape Fear near Wilmington NC.

April 12

We arrived inside the fairway at Cape Fear at 0700 and a Costa Guard boat came out to meet us and transfer the crew member. We then turned and headed back out towards the Richardson sites. The weather continued to be too rough for an ROV deployment, so we ran two mapping lines between Richardson Hills and Blake Deep.

April 13

At 0630, we broke off of the multibeam line and transited over to the lander site. Just after 0800, we triggered the release of the lander. It was successfully recovered around 0900. It seemed to be a successful deployment with plenty of data from all of the instruments, and a large number of amphipods inside of the fish that were deployed with the baited camera.

We then transited to the Richardson Hills site where Alvin dive 4963 took place. We took 3 CTD casts, the first for bottom water and the second and third for a full water column profile. The 2nd cast was to the northeast, downstream from the site, and the 3rd cast was to the southwest, upstream of the site (the current was approximately 1.5 knots at a heading of 060). We then waited until the sea state declined to launch the ROV at this site.

1130 CTD-05 at Richardson Hills A4963 site

1300 CTD-06 at Richardson Hills A4963 site

1600 CTD-07 at Richardson Hills A4963 site

1900 Launch J2-1129 at Richardson Hills A4963

We launched the vehicle about 1.5 nautical miles SW (upstream) of the seafloor target. The Jason group wanted to text their level-wind on the way down so we decided to allow for the drift of the ship in the 1+ knot surface currents. On the descent, the temperature dropped steadily the entire time. At 450 m, it was approximately 16 deg C, and at 650 m it was 11 deg C. On the seafloor at 725 m, it was around 9 deg C. Occasionally during the dive, the shimmering water of the thermocline was observed at depth.

At 2014 local time, the bottom was in sight. We set up on bottom and immediately looked for a place to deploy the McLean pump. We came across the large 3m high marker that was deployed with the coral transplant experiment, but it was in a different location, just down hill from the deployment site. This was a relatively flat area of rubble surrounded by live coral cover on the side of the coral mound, so we set the McLean pump here at 2046 local and used the marker to relocate the pump at the end of the dive.

As we came off the bottom, we turned towards the transplant target and almost immediately found them. The three cement blocks with the stained coral were retrieved into the starboard biobox without incident. However, we had a very hard time closing the box even though it was not apparently fouled in any way. Between 2130 and 2200 hrs, we shot a series of highlight video in this area of large live Lophelia colonies on a fairly steep slope.

We set down at a new location and collected a series of Plumarella, Anthothela, and a few sponges into the quivers. We moved over a bit to a relatively undisturbed location and collected a coral pot sample and a few more collections into the quivers. We then moved again to take another coral pot in a nearby location, and some live Lophelia into the port biobox.

April 14

The ROV picked up and traversed to WPT 2 on the north side of the mound, away from the Alvin dive tracks in the area. We collected Madrepora, Plumarella, unknown white plexaurid, and a cup coral. We also collected an unknown yellow plexaurid and Anthomastus. The area was composed of lots of standing dead Lophelia capped with dense branches of live Lophelia. A few globlular sponges that looked like large golf balls were also observed. There were a few fish observed while transiting up the slope, including Nezumia, Laemonema?, and synaphobranchids. At 0223 we started to head toward the McLane pump to start the multibeam patch test at a known target. The seafloor was visible during the multibeam ops, with dense particulate organic matter visible in the water column. There was a time code issue with the 4K camera, where some of the video was collected with an incorrect time code. The issue was corrected. During the MB patch test, the plan was to run lines at different elevations at particular headings to calibrate pitch and roll. Overall resolution of the MB will be ~ 0.5m. At 0345, the survey began, with 5.5 survey lines completed by 0929. During trackline 6, the current was too fast (0.5 kt to the NE) for the ROV to remain on heading and make way, so the decision to break the line was made. It was not possible to complete the cross line, so the plan changed to head to the seafloor and collect samples.

At 0600 local time, we returned to the seafloor on the SW flank of the mound. We deployed marker 1 at 31d59.051 N, 77d24.675 W and then collected Madrepora, Lophelia, and 3 Plumarella colonies into the biobox. We took some nice highlight video in this area after the collections.

At 0645, the wind had come up to about 20 knots, with gusts to 25, and the weather was predicted to get worse throughout the day, so the dive was given 30 minutes until leaving bottom. We took the last mussel pot sample and deployed marker 2 at this location. We then transited over to the pump deployment site, over some very large, tipped-over, live Lophelia colonies, and set up to retrieve the pump. By 0715, the pump

was on board and secure. We attempted to fire all of the niskins, but only the two smaller niskins actually triggered. At 0730, we left bottom.

0900 Recover J2-1129 from Richardson A4963 site

Recovery took a long time because of the persistent issues with the Jason winch level-wind system. At a number of points, the vehicle had to be lowered again to take wraps out of the winch. After recovery, the weight for the lander was repositioned, and the ship began to transit over to the lander deployment location.

1100 Deploy **Albex lander** at Richardson Hills site.

The lander was deployed from the same surface position as before. It was then triangulated in to get a good fix on it at its resting place on the seafloor. It will remain there until the next cruise, which is not scheduled yet, but should occur some time in September – October 2019. Once we were done with the triangulation, then we transited to the Blake Mounds site overnight.

April 15

We arrived at the Blake Mounds site in the morning after a very rough transit. Once we were set up in position at the site, we tested the ability of the ship to hold station. The currents were up to 3 knots, which made it very difficult for any operations. We then went north to the Savannah Banks sites, where the current was approximately 1.5 knots. However, the seas remained at 5-7 feet and the winds were a sustained 20-25 knots. Therefore, the decision was made to head into port early in the hope that we could get the transfer completed in the morning and get back out to sea early on the 16th when the weather was supposed to be better.

April 16

We transferred 11 new science personnel on board. Headed to Savannah Banks to conduct **CTD08** followed by a long dive, **J2-1130**. The winch level wind was not functioning well so the ROV team did a test to see what adjustments need to be made to the end stop for each wrap. During descent, there was a significant amount of POM in the water column and squid. On the way to WP1, we saw some octocorals (*Pseudodrifa*) and cup corals and some live and dead Lophelia and collected a coral pot. The sediment had too much coral rubble to enable push coring. Other corals observed during the transit upslope included

Throughout the transit from WPT 1 to WPT 2 there was an increase in coral rubble and live coral density as the ROV moved upslope. During the first portion of the transit there was a lot of coral (likely *Lophelia pertusa*) rubble without much live coral except small colonies of stylasterid and nephtheid corals. Then the rubble became denser and the occurrence of live *Lophelia pertusa* thickets increased. As the ROV continued upslope the currents increased to around 1 knot and there were sightings of *Madrepora* and

Enallopsammia (both yellow and white morphs). Around 0630 (depth?) there was a shift in dominant scleractinian coral from Lophelia pertusa to Enallopsammia (white morph). Amongst the coral rubble primnoids (*Plumarella*), cup corals (*Thecapsammia*), Neptheids (Pseudodrifa), and sponges were common. There was also a number (>5) of small shark seen throughout the area. At WPT 2 (511m) there was live Enallopsammia and the diversity of corals listed above. Downslope from WPT2 the coral diversity suddenly halted and there was almost no live scleractinians and much less rubble. There was very high current with a lot of particulate in the water. Throughout this time, we collected two mussel pots of Lophelia, one large live Lophelia collection, Madrepora, Plumarella, Pseudodrifa, cup corals, Enallopsammia (white and yellow), and sponges. One notable observation was of a shark eating a squid while conducting a live lophelia collection. Also noticed that the large urchins are primarily in the rubble areas and not with the live coral. Overall, there were several collections of target corals (e.g., Enallopsammia, Madrepora, Lophelia, etc.). Ultimately, we were able to collect push core in the coral rubble next to the Pseudodrifa and near Enallopsammia. Collected another mussel pot on a small patch of live lophelia with dead coral matrix. Fish observed included catshark, chimaeria, Nezumia, scorpaenids. We tripped all 4 niskins at the end of the dive near Enallopsammia, but the aft niskin didn't close all of the way because it had shifted during the dive. We left bottom at 1138 UTC and saw lots of POM during ascent.

April 17

Recover ROV, transited to Blake Deep, then another dive, **J2-1131**. Reached bottom at 0106 UTC. Observed several coral species including bamboos and anthipatharians. We attempted to push core but were unable to collect at the beginning of the dive due to the substrate. Between WTP 1 and WPT 2 there was sedimented bottom with octocorals and black corals growing on occasional rock outcrops. The slope up to WPT 2 was not very steep and was very sedimented. The transit between WPT 2 and WPT 3 yielded highly sedimented rocks and interesting geology with sediment/rock shelves all the way up the ridge. At the top of the ridge (1314 m) was a rock overhang (~.5-1 meter thick) with Desmophyllum, anthomastus, black corals, anemones, and bamboo corals. At 1311 meters there was a sedimented area below the ridge and four push cores were collected. The ROV came around the "nose" of the ridge at WPT 3 and the community did not change much but there were bigger boulders, however everything was still very sedimented. Starting between WPT 3 and 4 there were sparse corals on small sedimented rocks on a not very steep slope. Headed downslope to WPT 4 to try and do some push cores but there were too many rocks so headed back up slope. Throughout this time, we collected Solenosammilia, Hemicorallium, Iridogorgia, black coral, yellow plexaurids + Astroschema, dead bamboo coral skeleton, Metallogorgia, Desmophyllum, Chrysogorgia, Lethothela, Swiftia, and 4 push cores. Continuing on to WP4, the corals encountered were similar to those found at the first part of the dive, including yellow

plexaurids, Solenosmilia, and unknown bamboo. We collected some nice imagery of a rock with large vase sponges, bamboo, Solenosmilia, Chrysogorgia, and desmophyllum. Also observed a few different types of seapens. Four more push cores were collected. 'Rock samples were collected as well. At 1149 UTC, we reached the top of the feature where we tripped the niskins and observed a fish with several parasites. A few more plexaurids and a Chrysogorgia were collected before coming off bottom at 1433 UTC.

April 18

Recover ROV, **CTD-09**, then transited to 2000 m water depth location for level wind test because of issues with ROV winch. The winch was not wrapping consistently and changing direction prematurely. Test was successful. Transited to Morehead City.

April 19

Transit to Morehead City to wait out the weather.

April 20

Departed Morehead City and transited to mapping site at Cape Lookout, where we collected high resolution multibeam bathymetry for ~4 hours over target area identified from the predictive models. We then started transiting to Pamlico Canyon ~ 2230 local.

April 21

Around 0400 am local, we set up to triangulate the lander. This procedure went well and we were able to locate and triangulate a position of the Pamlico lander. The surface current was ~3kt to the NE. **CTD-10** with monocore started around 0800 local, at a location northwest of our dive target in a gully area at 1300 m. The current was strong and made the CTD cast very challenging. While we were able to collect a bottom sediment sample with the monocore, it likely hit the side of the canyon due to the significant wire angle that occurred throughout the cast. This was due to the fact that the USBL pole made it impossible for the ship to back down in order to straighten the wire.

The ROV launch was ~1200 for ROV dive **J2-1132** at Pamlico Canyon on Easter Sunday and there was chocolate and candy for all. This dive started at the base of the canyon at around ~1800 m and continued upslope. The bottom was heavily sedimented with a steep slope and there were Acesta shells observed. Sediment cores were collected at several locations throughout the dives, on sedimented ledges. At 2049 UTC, we collected some rock samples and Acanthogorgia ~ 1700 m. Transiting from WP1 to WP2, there were a series of rock steps and ledges, mainly populated by sea stars and ophiuroids. Near WP2, at the base of a wall, the second set of push cores (7 total) were collected. While transiting from WP2 to WP3, we began to see lots of brisingid sea stars and small underhang communities of Solenosmilia, Desmophyllum, and some colonies of Acanthogorgia. Two slurp collections were made of Solenosmilia

and Desmophyllum from these communities (blue and black containers). Upon reaching WP3, we took a set of 6 push cores. All equipment on the ROV worked fine, but the vessel was having difficulty holding station on occasion with the wind and current. One occasion we left bottom for a few minutes while the ship stabilized, but otherwise managed to maintain normal operations. The overall dive plan was to work laterally along the northern steep canyon wall in a northwest direction. Dense coral communities were observed under the terrace overhangs. These communities were dominated by Solenosmilia variabilis, Desmophyllum dianthus and Acanthogorgia sp. The fileshell Acesta sp was also commonly observed amongst the corals. We moved upslope to explore a different depth range (~1350-1300m) but despite abundant exposed hard substrate at these depths, the habitat was almost devoid of megafauna. The bathymetry contours were tending to spread further apart as we moved WNW upcanyon, so we decided to move back down-slope to the steeper walls. Throughout the dive, several collections were made of dominant corals, Acesta and other fauna using slurp, quivers and bioboxes. Representative rock samples were also collected. Due to the length of the dive, we were able to make our way through most of the planned waypoints, covering space over a large vertical and lateral gradient, as well as distinct changes in the seafloor geological morphology.

April 22

Continued dive, delayed recovery until after 1600 local because a storm blew through and the seastate picked up. Notable observations also include trash (e.g., monofilament) throughout the dive. The ROV was off bottom at 1853 UTC, ~1185m.

Planned CTD ops directly after USBL recovery took a few hours because set up and drift required setting up the ship ~3 miles southwest of the 1600m depth target in Pamlico Canyon. While deploying **CTD-11**, it became clear that with the USBL pole in the water, it was not possible for the ship to back down to enable a straight wire angle. The CTD reached the seafloor at ~1130m within the canyon. Camera on CTD confirmed that we reached the seafloor with a clear image of a crab.

April 23

Dive at Pea Island seep, **J2-1133**. The overall plan was to investigate seep targets in the southern cluster (Pea Island C) where we have good Sentry imagery of seep carbonate, mats, and dense fishes. At 0626 UTC, the ROV was headed to the seafloor, with lots of POM and midwater fishes observed on descent. Several seep targets were placed on the underlay to help guide the dive. At 0634 UTC, the ROV reached bottom (354.8 m), and we encountered lots of fish, including black bellied rosefish, and low visibility overall. At 0707, bubbles were observed as well as lots of pits and mounds on the sediment surface. At 0750, cores were collected within mat sediments and bubbles released during the coring (330 m). When collecting a rock sample (0914 UTC), a tubeworm appeared after a piece of rock was broken off of a larger carbonate sample.

The tubeworm and rock sample were collected. This was the first tubeworm that we have observed in the US Atlantic seeps to date. Lots of squid were present, along with long-fined hake?, and anemones. A few more rock samples were collected throughout the dive. All equipment on the vehicle worked fine, there was a moderate current coming from the north that occasionally re-suspended sediment and reduced visibility. Surface current and winds were minimal and the ship held station well. Around WP6, patchy, moderate sized bacterial mats were observed on the flat sedimented periphery, and large discrete authigenic carbonate mounds were common in the center of the feature. These were densely colonized by *Actinoschyphia*, zoanthids and anemones. On one occasion a colony of Lophelia (11.5 deg C, ~ 280 m) was observed and a sample collected. Several Eumunida picta were associated with the coral colony. No seep-endemic megafauna were observed, but this appeared to be a highly productive site, as evidenced by the large number of fishes (Jacks, Blackbelly Rosefish, Lymonema, Cusk-type fish and eels) and crabs. Collections of 16 push cores (in active seep site with bubbles and off-seep), and 4 water samples (1 in bubbles and 3 next to bacterial mats) were made in addition to the coral sample. The cores were covered with an tarp to avoid loss due to degassing during ascent. The ROV was off bottom at 1601 (300m).

CTD casts 12 and 13 were conducted at Pea Island, off seep and on seep, respectively. Following the casts, we transited north to Kitty Hawk seep.

Dive at Kitty Hawk, **J2-1134**: Launch planned at 2000 with a long dive planned (~16hrs). At ~0050 the ROV was 30 m off bottom, with lots of swimmers, dense POM, and mid water fishes observed. At 0054, the ROV lost power, which was returned at 0057 UTC. At 0102, bottom was in site, with lots of quill worms and a scorpaenid on the seafloor (466.8m). Other fish observed included a snipe eel, paralepidid (cf. barracudina), eel pouts, and black bellied rosefish. Other animals included lithodid or spider crabs, flounders, and many squat lobsters. We slurped several of these E. picta, but the slurp chamber wasn't indexted correctly, so they remained mostly in the slurp hose until later in the dive when the chamber was adjusted. Continuing on to WP2, we encountered bubbles and white mat, and a rocky area with a vestimentiferan tube worm (0215 UTC). Following imaging the tube worm and during the collection of the worm's rock, a ground fault occurred (0226 UTC) with the rock in the manipulator. When power was restored (0232UTC), the rock had been dropped, but it didn't take long to find it and collect the worm and the rock (0245). We also saw some sort of ray. As we transitioned over soft sediment (400m), we continued to see spider crabs and swimming shrimp with long antennae.

April 24

At 0442 (UTC), another ground fault occurred, which was resolved by 0447. Upon heading back along the track and while continuing to chase sonar targets, it was noted

that another tubeworm was observed on a large carbonate formation. Throughout the dive, we observed a few tubeworms on rocky substrate. We also found some areas with active bubbling ~360 and collected some good imagery and push cores. Additional cores were collected within mat environments (0849 UTC) at 334 m. As we transited to shallower depths, we also saw some large megafauna, including sharks [e.g., hammerhead], conger?, large manta ray, sea robin, flounder and lobsters. While we were on the lookout for live clams, none were found, but we did see trash and collected a plastic spoon (~220m). Toward the end of the dive, there appeared a series of linear ridge features on the sonar, apparently low profile bed forms. Jason was off bottom at 1550 UTC (213m).

Following recovery, we conducted **CTD-14**, and then transited to Keller. On station at ~1600. Given the 3 back to back dives at Pamlico and the two seep sites, time was needed to turn the basket around and prepare for the next dive. Planned dive at 0000 on the 25th. Current and wind look good, conditions to dive were good throughout the evening until ~2030 when the current picked up to 4.9 kt. At 2200, the bridge, EL, and Chief Sci decided that the conditions were prohibitive for diving, so we set a course for the deep Cape Lookout site, allowing us to test the habitat suitability models developed for the area.

April 25

Dive at cape lookout deep, **J2-1135**. The plan was for a relatively short dive here before the weather started to pick up and push us south. At 1924, the ROV had landed slightly deeper than 1000 m on sediment, with scattered small bacterial mats. Push cores were collected within the mats, as well as suction samples. There were few invertebrate megafauna, but moderately abundant fishes of various types (Nezumia, Coryphaenoides, Synaphobranchid eels). We transited to the NW towards a steeper structure that had been interpreted as a wall. During the transit we came across a pile of boulders of a black material. They were sparsely colonized by sponges, octocorals (Acanthogorgia, bamboo corals, Chrysogorgia) and black corals (Bathypathes?). We collected a Chrysogorgia colony, a small yellow 'plexaurid' (which resembles Acanthogorgia) and a rock with a small single branch bamboo colony from the first rock pile. We headed WNW towards the 'wall' and encountered a series of rocks (sonar showed more), each with a few coral colonies: bamboos, Anthomastus, black coral, Acanthogorgia, small yellow plexaurid. Highlight imagery was collected at the rock features, then the ROV continued WNW. Continuing to the NE along the 950 m contour, we encountered some Nezumia and other rattails. At 2139 UTC, the seas were building and we were told 20 more minutes left to the dive. While several Acanthogoria were collected into quivers, attempts were made to collect the yellow plexaurid, but the ROV was pulled off the area and the collection was aborted. The Niskin bottles were fired and

the ROV was recovered. **CTD-15** was acquired before the weather became too rough for any over the side work.

April 26

Weather picked up, transit mapped Cape Fear, Blake Ridge areas, but data quality are questionable because the sea state was too rough for good acquisition. Conditions continued to be rough throughout the day and no other ops were possible, except for securing gear, catching up on sample processing, Bingo, and sleep.

April 27

We conducted a CTD-16 at Blake Ridge seep while waiting on the sea state to mellow in order to dive. During the cast, the ship drifted ~2.5km to the east, so the USBL pole was recovered so we could transit and get on station quickly. J2-1136 was launched at ~1600 local at Blake Ridge Seep, with a target depth of 2166m. We reached bottom at 2144 UTC at 2164m. The overall plan was to target an area of Blake Seep that had been dived on before, where we could target community collections of mussels and possibly clams, collect sediment cores within mats and adjacent to mussel beds, slurp bacterial mats, sample carbonates and water, and image hydrate. Within the first hour of the dive, we came upon a familiar scene of bucket lid markers (#3) and Bob Carney's old bucket of rabbit food and oyster shells. His name was still clearly visible on the outside of the bucket. In addition, we saw some old Alvin drop weights heavily corroded. Bob's experiment was planted in the middle of an extensive mussel bed (B. heckerae) with mussels of various lengths. There were some great locations for mussel pot collections, and pots were collected in 3 different mussel patch sizes: small, medium, and large. Targeted mussel collections for various analyses also included communities found within different sized patches, and associated holothurians (cf. chirodota). These scoops of mussels proved to be very tricky, due to the varying mussel sizes, but several different patches were collected. Lots of dead clam shells were observed, but no large live clams were collected. However, following ROV recovery, several small clams were present within the mussel collections. Push cores were also collected in mat environments, along with some urchins within the same area. At 0046, we crossed bucket marker #4 near a patch of mostly large B. heckerae. We saw a Bathysaurus and an Antimora with a parasite attached. While transiting to WP4, we came upon an enormous mound. On the bathymetry, we had a target marked hydrate, and here it was (0200UTC)! A huge hydrate mound with cave like features where two Gaidropsarus fish were hanging out. We collected some imagery at the mound, bubbles, and surrounding environment. Many of the rocks observed were either too big or not pliable/breakable, but we were able to collect a rock after all (0258UTC). We found a black coral attached to a mussel shell, so we collected it (2165m). Above a dense mussel bed and adjacent to the large hydrate mound, we tripped the 4 niskins. Several of the mussels were coated in white, fluffy material, not exactly like filamentous mat, similar to what has been observed at the mussel beds to the north (e.g., Norfolk seeps). During the last part of the dive, we encountered a few octopuses in and around the mussels.

April 28

At 0625, a ground fault occurred while the ROV was on bottom, so once power was restored, the ROV came off bottom. Once the ROV was recovered and on deck ~0430, the Jason team used the surface interval to try and track down the source of the fault, which is the same one that has occurred on previous dives. We transited to Cape Fear to conduct CTD-17 to 2600m at 0800 local. The ROV J2-1137 was launched at 1200 (local) for a dive at Cape Fear seep to ~ 2600m for a 12 hour dive. At 1816 UTC, we reached bottom at ~2587m and transited to WP1. Moderate to heavy marine snow was observed, and the seafloor was composed of fine sediment with lots of visible bioturbation and brittle stars. A drift test revealed that the bottom current was fairly swift at ~0.9kt to 160o. Small colonies of "Anthomastus" were observed, so one was collected early on in the dive. Extensive mat was also observed, good for push core collections and slurp sampling. The ROV moved through the WP at a decent pace, transiting through to WP3 by 2000 UTC. We continued to see and sample bacterial mats in various patch sizes, holothurians, and euplectellid sponges. The ROV was definitely being pushed around by the current and sediment scour was observed on the mud. During the dive, several bamboo colonies were observed and a few were collected. Continuing on to WP5, the current was still very strong and there was lots of particulate organic matter in the water column. Other animals observed included Chrysogorgia, gastropods, Umbellula, ophiuroids, and holothrian trails, plus patches of dead sargassum. At ~2241 we observed some odd burrow/rock mud formations and collected some rocks for characterization. The slope was sedimented interspersed with rocky outcrop features. At 0000, we found a beautiful colony of a "Paragorgia" and collected some imagery before sampling a snip. During the latter part of the dive, several xenophyophores were observed. The seafloor features were similar in composition to seamounts to the north, with patches of exposed rock and xenophyophores present on the sediment. AT 0112, we imaged a very large mound feature with tubular concretions, cemented in place (D=2570m). We poked at the rocky ledges and the material appeared very clayey, and broke away easily. Toward the end of the dive, a few more push cores were collected in "background" sediments and the niskins were collected above a rocky feature with some Chrysogorgia colonies. None of the areas observed had dense coral cover nor were they very seepy. At 0220 the ROV was off bottom and headed to the surface. Overall, a very interesting dive, with lots of bacterial mats, strange tubular geological features, and corals!

April 29

We transited to Richardson West for one final CTD cast and dive before heading to the sea buoy. During the **CTD-18** on arrival (~1030), there was an issue with the con file

which delayed the deployment. Following the cast, we launched the ROV (J2-1138) at 1330, with an approximate bottom depth of 727 m. On bottom time was 1855 UTC. The rocky seafloor appeared black, with high amounts of coral rubble and small patches of live Enallopsammia, Plumarella, white plexaurids, other octocorals, and sponges. Crusty features had dense corals growing with on the edges of ledges (several different species observed, including Lophelia, Enallopsammia). Several collections occurred within the first 4 hours of the dive, including plexaurids, primnoids, Enallopsammia, Plumarella, cf. Leiopathes, and crinoids. Push cores were attempted but the sediment was only a fine veneer over hard pavement. Several large Leiopathes were observed throughout the dive. At ~660 m near WP3, we stopped to image the ledges and collect a coral pot a mixture of live and dead Lophelia. There was a great deal of difficulty with the wire angle due to the swift surface current, so after a few hours of collections, the dive transitioned to a observation only dive in order to make way and minimize impact on the wire. This mode enabled the ship to maintain heading and provided an opportunity to cover a great deal of ground and observe the transition from rocky ledges and boulders to pavement with many coral colonies. During the last 3 hours of the dive, Tito took over flying and Mario was on the manipulators so we were able to fly and sample. This allowed us to trip the niskins, collect more corals, and some rock samples. Several fish species were also observed in the latter part of the dive including Nezumia, Chanax (good imagery), many Hoplostethus, and some type of eel, maybe synaphobranchids. We left bottom at 0306 (UTC). Good dive overall, despite the operational limitations. Some of the largest Leiopathes colonies from all the DEEP SEARCH dives were observed at this site.

April 30:

At ~0000 we headed to sea buoy for a 1200 arrival at the pier.

Scientific Personnel Participating

- 1. Erik Cordes Associate Professor, Temple University
- 2. Amanda Demopoulos Research Benthic Ecologist, U.S. Geological Survey
- 3. Alexis Weinnig PhD Candidate, Temple University
- 4. Ryan Gasbarro PhD Candidate, Temple University
- 5. Abby Keller Research Assistant, Temple University
- 6. Jason Chaytor Research Geologist, U.S. Geological Survey, Sediments Laboratory.
- 7. Christina A. Kellogg Research Microbiologist, U.S. Geological Survey
- 8. Jennifer McClain-Counts Biologist, U.S. Geological Survey
- 9. Nancy Prouty Oceanographer, U.S. Geological Survey, coral ecosystems.
- 10. Cheryl Morrison Research Geneticist, U.S. Geological Survey
- 11. Aaron Aunins Biologist, U.S. Geological Survey
- 12. Jill Bourque Marine Benthic Ecologist, U.S. Geological Survey
- 13. Jonathan Quigley Engineering Technician, U.S. Geological Survey
- 14. Brian Andrews Geographer, U.S. Geological Survey

- 15. Allyson Boggess Geologist, U.S. Geological Survey
- 16. Michael Rasser Marine Ecologist, Bureau of Ocean Energy Management
- 17. Kate Segarra Marine Biology, Bureau of Ocean Energy Management
- 18. Dylan Wilford Masters Student, University of New Hampshire
- Furu Mienis Research Scientist, NIOZ Royal Netherlands Institute for Sea Research
- Sofia Ledin PhD Candidate, NIOZ Royal Netherlands Institute for Sea Research
- 21. Charlotte Kollman Graduate Student, Coastal Carolina University
- 22. Hannah Choi PhD Student, University of Georgia
- 23. Josh Parris Research Technician, University of Georgia
- 24. Zachary Marinelli Research Technician, University of Georgia
- 25. Caitlin Adams Operations Coordinator, NOAA Office of Ocean Exploration and Research
- Sandra Brooke Associate Research Faculty, Florida State University Coastal and Marine Lab
- 27. Andrea Quattrini Postdoctoral Researcher, Harvey Mudd College
- 28. Ivan Hurzeler Filmmaker

Master Sample Sheet

A Master Sample sheet is presented in **Appendix A**.

- Columns highlighted in blue include the metadata associated with each sample acquired during the cruise. Positions for samples taken during ROV dives are derived from the post-processed navigation data.
- Columns highlighted in orange indicate the destination sub-samples taken from each of the samples.

Plans of the Day (PODs)

A compilation of Plans of the Day is presented in **Appendix B**.

Dive Plans

All the dive plans from the cruise are presented in **Appendix C**.

Jason Dive Summaries

The dive summaries from the Jason group are presented in **Appendix D**.

Appendix A. - Master Sample Sheet

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Furu Mienis	Hillary Close
	RB1903_CTD01_N01	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	585	Water								Χ		
	RB1903_CTD01_N02	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	585	Water								Х		
	RB1903_CTD01_N03	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	585	Water	EC9801						Х			
	RB1903_CTD01_N04	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	585	Water					Χ				Χ	
	RB1903_CTD01_N05	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	585	Water					X			$\perp \perp$	Х	\vdash
	RB1903_CTD01_N06	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	500	Water	EC9802						Х	$\perp \perp$		
-	RB1903_CTD01_N07	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	500	Water								Х		
	RB1903_CTD01_N08	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	500	Water	500000							\vdash		-
-	RB1903_CTD01_N09	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	400	Water	EC9803						Х		+-	\vdash
	RB1903_CTD01_N10	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	400	Water								Х	+-	\vdash
-	RB1903_CTD01_N11 RB1903_CTD01_N12	CTD01 CTD01	Stetson Shallow	April 9th, 2019	2:50:00 2:50:00	31.89211 31.89211	78.45443 78.45443	400 300	Water Water	EC0004						Х	\vdash	+	
	RB1903_CTD01_N13	CTD01	Stetson Shallow	April 9th, 2019 April 9th, 2019	2:50:00	31.89211	78.45443	300		EC9804						^	Х	+-	
-	RB1903_CTD01_N14	CTD01	Stetson Shallow Stetson Shallow	April 9th, 2019 April 9th, 2019	2:50:00	31.89211	78.45443	300	Water Water								 ^ -	+-	
	RB1903_CTD01_N15	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	152	Water	EC9805						Х	\vdash	+-	
	RB1903_CTD01_N16	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	152	Water	EC7003						^	\vdash	+-	
	RB1903_CTD01_N17	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	152	Water								\vdash		\Box
	RB1903_CTD01_N18	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	64 (chl max)	Water	EC9806						Х	\vdash		\Box
	RB1903_CTD01_N19	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	64 (chl max)	Water	207000								_	
	RB1903_CTD01_N20	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	64 (chl max)	Water								Х	-	
	RB1903_CTD01_N21	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	Surface	Water	EC9807						Х			
	RB1903_CTD01_N22	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	Surface	Water										
	RB1903_CTD01_N23	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	Surface	Water					Х				Х	
	RB1903_CTD01_N24	CTD01	Stetson Shallow	April 9th, 2019	2:50:00	31.89211	78.45443	Surface	Water					Х			Х	Х	
	RB1903_CTD02_N01	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water										
	RB1903_CTD02_N02	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water					Х				х	
	RB1903_CTD02_N03	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water					Х				х	
	RB1903_CTD02_N04	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				Х						
	RB1903_CTD02_N05	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				Х						
	RB1903_CTD02_N06	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				Х				$\sqcup \sqcup$		
	RB1903_CTD02_N07	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				Х				$\sqcup \sqcup$		
	RB1903_CTD02_N08	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				Х				$\perp \perp$		ш.
	RB1903_CTD02_N09	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				Х				$\perp \perp$		\perp
	RB1903_CTD02_N10	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				Х				\vdash		-
-	RB1903_CTD02_N11	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				Х				\vdash		-
-	RB1903_CTD02_N12	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				Х				\vdash		-
_	RB1903_CTD02_N13	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				Х				\vdash		\vdash
	RB1903_CTD02_N14	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				X				\vdash	+-	\vdash
-	RB1903_CTD02_N15 RB1903_CTD02_N16	CTD02 CTD02	Richardson Hills Richardson Hills	April 10th, 2019 April 10th, 2019	8:31:00 8:31:00	32 0.278	77 25.876 77 25.876	813 813	Water Water				X				\vdash	+	
-	RB1903_CTD02_N17	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278 32 0.278	77 25.876	813	Water				Х				\vdash	+	\vdash
	RB1903_CTD02_N17	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				х				\vdash	+-	
-	RB1903_CTD02_N19	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				X				\vdash		-
	RB1903_CTD02_N20	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				х				\vdash	+-	
-	RB1903_CTD02_N21	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	813	Water				х				\vdash	+	
	RB1903_CTD02_N22	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	10	Water				X				\vdash	+-	П
	RB1903 CTD02 N23	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	10	Water				X				\vdash	+	\Box
	RB1903_CTD02_N24	CTD02	Richardson Hills	April 10th, 2019	8:31:00	32 0.278	77 25.876	10	Water					Х				Х	\Box
	RB1903_J2-1128_B1_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:55:00	31.88667	-77.36803	762	Enallopsammia	EC9831	С	M_00272	х	X				† <u>"</u>	П
	RB1903_J2-1128_B1_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:55:00	31.88667	-77.36803	762	Ophiuroid	EC9832				X					
	RB1903_J2-1128_B1_003	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:55:00	31.88667	-77.36803	762	Crinoid	EC9833				X					
	RB1903_J2-1128_B1_004	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:55:00	31.88667	-77.36803	762	Barnacle					X					
	RB1903_J2-1128_B1_005	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:55:00	31.88667	-77.36803	762	Hydroids					X					

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
	RB1903_J2-1128_B1_006	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:55:00	31.88667	-77.36803	762	Eunicid					XX					
	RB1903_J2-1128_B1_007	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:55:00	31.88667	-77.36803	762	Amphipod					XX					
	RB1903_J2-1128_B1_Sieve	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA						X					
	RB1903_J2-1128_B2_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	9:04:00	31.88670	-77.36804	762	White plexaurid	EC9811			Х	X	XX				
	RB1903_J2-1128_B2_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	9:02:00	31.88670	-77.36804	762	Hydroids					Χ	X				
	RB1903_J2-1128_B2_003	J2-1128	Richardson Hills	April 10th - 11th, 2019	9:02:00	31.88670	-77.36804	762	Barnacle					Χ					
	RB1903_J2-1128_B2_004	J2-1128	Richardson Hills	April 10th - 11th, 2019	9:02:00	31.88670	-77.36804	762	Enallopsammia	EC9812		CM_00262	Х						
	RB1903_J2-1128_B2_Sieve	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA						Х				ш	
	RB1903_J2-1128_B3_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	6:58:00	31.88488	-77.37041	757	Lophelia		Х	CM_00265	Х	X				\perp	
	RB1903_J2-1128_B3_002	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA											_
	RB1903_J2-1128_B3_Sieve	J2-1128	Richardson Hills	April 10th - 11th, 2019	0.40.00	NA 21.00(40	NA TRACE	NA 7/4	DI "		\vdash			X	101			+	_
	RB1903_J2-1128_B4_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:42:00	31.88649	-77.36844	764	Plumarella	FOOOSE		OM 00074	Х	X	XX	+	+	+	4
-	RB1903_J2-1128_B4_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:39:00	31.88650	-77.36841	764	Lophelia	EC9835		CM_00274	X	VV			+	+	\dashv
-	RB1903_J2-1128_B4_003 RB1903_J2-1128_B4_004	J2-1128 J2-1128	Richardson Hills Richardson Hills	April 10th - 11th, 2019 April 10th - 11th, 2019		NA NA	NA NA	NA NA	Eunicid Cladorhizid	EC9834	\vdash	CM_00275 CM_00276	Х	XX		++	+	++	
	RB1903_J2-1128_B4_004 RB1903_J2-1128_B4_005	J2-1128 J2-1128	Richardson Hills	April 10th - 11th, 2019 April 10th - 11th, 2019	8:29:00	31.88650	-77.36844	763	Madrepora	EC9834 EC9836		CM_00278		X			+	+	-
-	RB1903_J2-1128_B4_006	J2-1128 J2-1128	Richardson Hills	April 10th - 11th, 2019	8:39:00	31.88650	-77.36841	764	Ophiuroid	EC9852		CIVI_00273		XX			_	+	
	RB1903_J2-1128_B4_007	J2-1128	Richardson Hills	April 10th - 11th, 2019	6.39.00	NA	-//.30041 NA	NA	Hydroids	EU9002				XX			_	+	
	RB1903_J2-1128_B4_008	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA NA	NA NA	NA NA	Annelid					X			$-\!$	+	-
	RB1903_J2-1128_B4_Sieve	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA NA	NA	NA	7 tillicità					X				+	-
	RB1903_J2-1128_B5_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	19:15:00	NA NA	NA	NA	Ophiuroid	EC9809		CM 00270		X			_	+	-
	RB1903_J2-1128_B5_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	19:15:00	NA	NA	NA	Plumarella	EC9810		O.III_00270	х	X	XX		_		-
	RB1903_J2-1128_B5_003	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA	Enallopsammia (white)	EC9830		CM_00271	Х						
	RB1903_J2-1128_B5_004	J2-1128	Richardson Hills	April 10th - 11th, 2019	19:15:00	NA	NA	NA	Dead Enallopsammia									T	
	RB1903_J2-1128_B5_005	J2-1128	Richardson Hills	April 10th - 11th, 2019	19:15:00	NA	NA	NA	Hydroids					Х					
	RB1903_J2-1128_B5_006	J2-1128	Richardson Hills	April 10th - 11th, 2019	19:15:00	NA	NA	NA	Sponge					Х					
	RB1903_J2-1128_B5_Sieve	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA	Sieved					Х					
	RB1903_J2-1128_B6_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:55:00	31.88328	-77.37230	756	Lophelia		Х	CM_00266	Х	Х					
	RB1903_J2-1128_B6_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:55:00	31.88328	-77.37230	756	Annelid			CM_00267		Χ					
	RB1903_J2-1128_B6_Sieve	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA	Sieved					Χ					
	RB1903_J2-1128_Q1_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:12:00	31.88636	-77.36882	752	White plexaurid	EC9813				Χ	XX				
	RB1903_J2-1128_Q1_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:12:00	31.88636	-77.36882	752	Ophiuroid				Х	X					
	RB1903_J2-1128_Q1_003	J2-1128	Richardson Hills	April 10th - 11th, 2019	8:12:00	31.88636	-77.36882	752	Hydroids					X					
	RB1903_J2-1128_Q2_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:10:00	31.88784	-77.36578	755	Plumarella	EC9814			Х	X	XX			\perp	_
	RB1903_J2-1128_Q2_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:15:00	31.88785	-77.36576	755	White plexaurid				Х	X	Х				_
	RB1903_J2-1128_Q2_003	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:08:00	31.88783	-77.36579	755	Enallopsammia	EC9816		CM_00264	Х	X				\perp	_
-	RB1903_J2-1128_Q2_004	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:15:00	31.88785	-77.36576	755	Lophelia	EC9817		CM_00263	Х	X			_	+	_
	RB1903_J2-1128_Q2_005 RB1903_J2-1128_Q2_006	J2-1128 J2-1128	Richardson Hills	April 10th - 11th, 2019 April 10th - 11th, 2019	10:15:00 10:15:00	31.88785 31.88785	-77.36576 -77.36576	755 755	Ophiuroid	EC9815				X			_	+-+	-
-	RB1903_J2-1128_Q2_000 RB1903_J2-1128_Q2_007	J2-1128	Richardson Hills Richardson Hills	April 10th - 11th, 2019	10.15.00	NA	-//.303/0 NA	NA	Eunicid Amphipod					X			_	+	
	RB1903_J2-1128_Q2_007	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA NA	NA NA	NA NA	Annelid					X			+-	+-	_
	RB1903_J2-1128_Q3_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:29:00	31.88803	-77.36576	756	Madrepora	EC9826		CM_00268	х	X			+-	+-	_
	RB1903_J2-1128_Q3_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:32:00	31.88802	-77.36576	756	Lophelia	EC9827		CM_00269	Y Y	X			-	+	-
	RB1903_J2-1128_Q3_003	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:32:00	31.88802	-77.36576	756	Ophiuroid	EC9828		O.II00207		X			_		-
	RB1903_J2-1128_Q4_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	3:05:00	31.88013	-77.37381	792	Plumarella	EC9818			х	X	XX		+	+	\dashv
	RB1903_J2-1128_Q4_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	3:11:00	31.88014	-77.37383	792	Pseudodrifa	EC9819			Х	Х	XX			T	
	RB1903_J2-1128_Q4_003	J2-1128	Richardson Hills	April 10th - 11th, 2019	3:11:00	31.88014	-77.37383	792	Brachiopod	EC9820								T	\dashv
	RB1903_J2-1128_Q5_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	4:46:00	31.88317	-77.37226	759	Plumarella	EC9824			х	X	XX				
	RB1903_J2-1128_Q5_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	3:54:00	31.88179	-77.37337	773	White plexaurid				Х	Χ	Х				
	RB1903_J2-1128_Q5_003	J2-1128	Richardson Hills	April 10th - 11th, 2019	3:57:00	31.88179	-77.37337	773	Pseudodrifa	EC9825			Х		X				
	RB1903_J2-1128_Q5_004	J2-1128	Richardson Hills	April 10th - 11th, 2019	4:48:00	31.88318	-77.37226	759	Bamboo			-		Χ	XX			\Box	
	RB1903_J2-1128_Q5_005	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA	Dead Lophelia					X		\perp		Х	
<u> </u>	RB1903_J2-1128_Q5_006	J2-1128	Richardson Hills	April 10th - 11th, 2019	4:46:00	31.88317	-77.37226	759	Anemone						X			Ш	

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
	RB1903_J2-1128_Q5_007	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA	Ophiuroid					Х					
	RB1903_J2-1128_Q5_008	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA	Barnacle					XX					
	RB1903_J2-1128_Q5_009	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA	Hydroids					X					
	RB1903_J2-1128_Q5_010	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA	Sponge					X					
	RB1903_J2-1128_Q5_011	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA	Amphipods					Х					
	RB1903_J2-1128_Q6_001	J2-1128	Richardson Hills	April 10th - 11th, 2019	6:34:00	31.88488	-77.37042	756	Plumarella	EC9821				Х	XX				
	RB1903_J2-1128_Q6_002	J2-1128	Richardson Hills	April 10th - 11th, 2019	6:41:00	31.88489	-77.37041	757	Pseudodrifa	EC9822, EC929			х	Х	XX				
	RB1903_J2-1128_Q6_003	J2-1128	Richardson Hills	April 10th - 11th, 2019	6:41:00	31.88489	-77.37041	757	Orange Sponge	EC9823									
	RB1903_J2-1128_Q6_004	J2-1128	Richardson Hills	April 10th - 11th, 2019	6:41:00	31.88489	-77.37041	757	Hydroids					X					
	RB1903_J2-1128_Q6_005	J2-1128	Richardson Hills	April 10th - 11th, 2019	6:41:00	31.88489	-77.37041	757	Dead Lophelia					X					
	RB1903_J2-1128_Q6_006	J2-1128	Richardson Hills	April 10th - 11th, 2019		NA	NA	NA	Amphipod					Χ					
	RB1903_J2-1128_N1	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:58:00	31.88915	-77.36568	732	Water	EC9872								\perp	
	RB1903_J2-1128_N2	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:58:00	31.88915	-77.36568	732	Water									\perp	
	RB1903_J2-1128_N3	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:58:00	31.88915	-77.36568	732	Water	х	Х								
	RB1903_J2-1128_N4	J2-1128	Richardson Hills	April 10th - 11th, 2019	10:58:00	31.88915	-77.36568	732	Water	х	Х								
	RB1903_J2-1228_M2-1	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:11:00	31.88319	-77.37231	757	Live lophelia	EC9837									
	RB1903_J2-1228_M2-2	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:11:00	31.88319	-77.37231	757	Dead lophelia	EC9838								\perp	
	RB1903_J2-1228_M2-3	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:11:00	31.88319	-77.37231	757	Hydroid	EC9839								\perp	
	RB1903_J2-1228_M2-4	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:11:00	31.88319	-77.37231	757	Plumarella	EC9840					XX			\perp	
	RB1903_J2-1228_M2-5	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:11:00	31.88319	-77.37231	757	Eunice	EC9841								\perp	
	RB1903_J2-1228_M2-6	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:11:00	31.88319	-77.37231	757	Ophiacantha bidentata	EC9842								\perp	
_	RB1903_J2-1228_M2-7	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:11:00	31.88319	-77.37231	757	Cup coral	EC9843								\perp	_
	RB1903_J2-1228_M2-8	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:11:00	31.88319	-77.37231	757	Stylasterid	EC9844			-					+	
	RB1903_J2-1228_M2-Sieved	J2-1128	Richardson Hills	April 10th - 11th, 2019	5:11:00	31.88319	-77.37231	757	P. d. d. P.	E0004E				Х				+	
-	RB1903_J2-1228_M1-1	J2-1128	Richardson Hills	April 10th - 11th, 2019	7:09:00	31.88490	-77.37041	755	Live Lophelia	EC9845								+	
	RB1903_J2-1228_M1-2	J2-1128	Richardson Hills	April 10th - 11th, 2019	7:09:00	31.88490	-77.37041	755	Dead Lophelia	EC9846								+	
	RB1903_J2-1228_M1-3	J2-1128	Richardson Hills	April 10th - 11th, 2019	7:09:00	31.88490	-77.37041	755	Ophiacantha bidentata	EC9847								+	
	RB1903_J2-1228_M1-4	J2-1128	Richardson Hills	April 10th - 11th, 2019	7:09:00	31.88490	-77.37041	755	Hydroid	EC9848								+	
	RB1903_J2-1228_M1-5 RB1903 J2-1228 M1-Sieved	J2-1128 J2-1128	Richardson Hills Richardson Hills	April 10th - 11th, 2019	7:09:00 7:09:00	31.88490	-77.37041	755 755	Anemone	EC9849							-	+	
	RB1903_J2-1228_M3-1	J2-1128		April 10th - 11th, 2019 April 10th - 11th, 2019	11:29:00	31.88490 31.88913	-77.37041 -77.36576	732	Live lanhelia	EC9850				Х				+	_
	RB1903_J2-1228_M3-2	J2-1128 J2-1128	Richardson Hills Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Live lophelia	EC9851							-	+	
-	RB1903_J2-1228_M3-3	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Dead lophelia Ophiacantha bidentata	EC9853								+	-
	RB1903_J2-1228_M3-4	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Anemone	EC9854								+	
-	RB1903_J2-1228_M3-5	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Annelid	EC9855						+	-	+	\neg
-	RB1903_J2-1228_M3-6	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Hydroid1	EC9856	+		+		1	+	1	+	=
-	RB1903_J2-1228_M3-7	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Urchin1	EC9857	+		+		1	+	+	+	\exists
	RB1903_J2-1228_M3-8	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Eunice	EC9858						+		+	
	RB1903_J2-1228_M3-9	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Crinoid	EC9859						+	\neg	+	
	RB1903_J2-1228_M3-10	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Hexactenellid	EC9860								+	\Box
	RB1903_J2-1228_M3-11	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Urchin2	EC9861								\top	\Box
	RB1903_J2-1228_M3-12	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732	Hydroid2	EC9862								\top	\Box
	RB1903_J2-1228_M3-Sieved	J2-1128	Richardson Hills	April 10th - 11th, 2019	11:29:00	31.88913	-77.36576	732						Х					
	RB1903_CTD03_N01	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water					Х				Х	
	RB1903_CTD03_N02	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Х			Х	Х				T	
	RB1903_CTD03_N03	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Χ			Х						
	RB1903_CTD03_N04	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Х			Х						
	RB1903_CTD03_N05	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Х			Х	·					
	RB1903_CTD03_N06	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Х			Х	·					
	RB1903_CTD03_N07	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Х			Χ					\perp	
	RB1903_CTD03_N08	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Х			Х			\perp		<u> </u>	
<u> </u>	RB1903_CTD03_N09	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	X			Χ					\perp	

	Sample Number	Sample Type	S. S	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Furu Mienis	Hillary Close
	RB1903_CTD03_N10	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Х			Х						
	RB1903_CTD03_N11	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Χ			Χ						
	RB1903_CTD03_N12	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Х			Х						
	RB1903_CTD03_N13	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Х			Х						
	RB1903_CTD03_N14	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	X			Х						
-	RB1903_CTD03_N15	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	X			Х			_			
<u> </u>	RB1903_CTD03_N16	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	X			X						_
-	RB1903_CTD03_N17	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	X			X			-			
-	RB1903_CTD03_N18 RB1903_CTD03_N19	CTD03	Richardson Hills Richardson Hills	April 10th, 2019 April 10th, 2019	18:02:00 18:02:00	31 53.576 31 53.576	77 21. 8972 77 21. 8972	790 790	Water Water	X			X					+	-
-	RB1903_CTD03_N20	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	X			X					+-	-
	RB1903_CTD03_N21	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	X			X					+	
-	RB1903_CTD03_N22	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	X			X						-
	RB1903_CTD03_N23	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	X			X					_	
	RB1903_CTD03_N24	CTD03	Richardson Hills	April 10th, 2019	18:02:00	31 53.576	77 21. 8972	790	Water	Х			Х						
	RB1903_CTD04_N01	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	813	Water			Х		Х		х		Х	
	RB1903_CTD04_N02	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	813	Water	EC9869		Х		Х				Х	
	RB1903_CTD04_N03	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	813	Water			Х		Х				Х	
	RB1903_CTD04_N04	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	813	Water								х		
	RB1903_CTD04_N05	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	707	Water			Х					х		
	RB1903_CTD04_N06	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	707	Water			Х				Х	х		
	RB1903_CTD04_N07	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	707	Water	EC9870		Х							
	RB1903_CTD04_N08	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	501	Water			Х					х		
	RB1903_CTD04_N09	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	501	Water			Х				Х	х		
L	RB1903_CTD04_N10	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	501	Water	EC9871		Х							
	RB1903_CTD04_N11	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	340	Water			Х					Х		
-	RB1903_CTD04_N12	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	340	Water			Х				Х	Х		
-	RB1903_CTD04_N13	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	340	Water	E00010									
<u> </u>	RB1903_CTD04_N14	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	340	Water	EC9863		Х							_
-	RB1903_CTD04_N15	CTD04 CTD04	Richardson Hills Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	260 175	Water Water	EC9864 EC9865			-				X X	+	
-	RB1903_CTD04_N16 RB1903_CTD04_N17	CTD04	Richardson Hills	April 10th, 2019 April 10th, 2019	19:42:00 19:42:00	31 53.6742 31 53.6742	77 21.9046 77 21.9046	79	Water	EC9000						Х	X	+	\vdash
	RB1903_CTD04_N18	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	79	Water	EC9866						v	Х	+-	-
	RB1903_CTD04_N19	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	50	Water	EC9867		Х				^	^	+	
	RB1903_CTD04_N20	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	50	Water	207007		X				х			
	RB1903_CTD04_N21	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	50	Water			X	\dagger				х	+	\Box
	RB1903_CTD04_N22	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	Surface	Water								Х	\top	
	RB1903_CTD04_N23	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	Surface	Water					Х		х		Х	
	RB1903_CTD04_N24	CTD04	Richardson Hills	April 10th, 2019	19:42:00	31 53.6742	77 21.9046	Surface	Water	EC9868				Х				Х	
	RB1903_Albex01_01	Albex01	Richardson Hills	04/13/19					Amphipods			CM_00277							
	RB1903_CTD05_N01	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water										Х
	RB1903_CTD05_N02	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water										Х
	RB1903_CTD05_N03	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water								Х		
L	RB1903_CTD05_N04	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				Х						
	RB1903_CTD05_N05	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				Х			-		_	\sqcup
<u> </u>	RB1903_CTD05_N06	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water		+		Х						\vdash
-	RB1903_CTD05_N07	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				Х			-		+	\vdash
<u> </u>	RB1903_CTD05_N08	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				Х					+-	\vdash
-	RB1903_CTD05_N09 RB1903_CTD05_N10	CTD05	Richardson Hills Richardson Hills	April 13th, 2019 April 13th, 2019	14:30:00 14:30:00	31 59.0998 31 59.0998	77 24.5122 77 24.5122	737 737	Water Water	-	++		X			-		+	\vdash
\vdash	RB1903_CTD05_N10	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				X			-		+-	\vdash
-	RB1903_CTD05_N12	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water	 			Х			1		+	\vdash
	RB1903_CTD05_N13	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				X					+	\vdash

Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Jason Cnaytor Furu Mienis	Hillary Close
RB1903_CTD05_N14	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				Х						
RB1903_CTD05_N15	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				х						
RB1903_CTD05_N16	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				Х						
RB1903_CTD05_N17	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				Х				$\sqcup \sqcup$		
RB1903_CTD05_N18	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				Х				$\perp \perp$	_	
RB1903_CTD05_N19	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				Х				$\perp \perp$		\perp
RB1903_CTD05_N20	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				Х						_
RB1903_CTD05_N21	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	737	Water				X				\vdash	-	+
RB1903_CTD05_N22 RB1903_CTD05_N23	CTD05 CTD05	Richardson Hills Richardson Hills	April 13th, 2019 April 13th, 2019	14:30:00 14:30:00	31 59.0998 31 59.0998	77 24.5122 77 24.5122	737 Surface	Water Water				Х				\vdash	-	х
RB1903_CTD05_N24	CTD05	Richardson Hills	April 13th, 2019	14:30:00	31 59.0998	77 24.5122	Surface	Water								\vdash	-	X
RB1903_CTD06_N01	CTD05	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	774	Water	EC9873		Х		Х			\vdash		
RB1903_CTD06_N02	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	774	Water	LC7073		X		X		х	++	_	+
RB1903_CTD06_N03	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	774	Water			X					х		$\overline{}$
RB1903_CTD06_N04	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	702	Water	EC9874		Х							\Box
RB1903_CTD06_N05	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	702	Water			Х				х			
RB1903_CTD06_N06	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	702	Water			Х					х		П
RB1903_CTD06_N07	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	559	Water	EC9875		Х							
RB1903_CTD06_N08	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	559	Water			Х				Х			
RB1903_CTD06_N09	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	559	Water			Х					х		
RB1903_CTD06_N10	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	399	Water	EC9876		Х							
RB1903_CTD06_N11	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	399	Water			Х				Х			
RB1903_CTD06_N12	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	399	Water			Х					х		
RB1903_CTD06_N13	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	299	Water	EC9877							$\bot \bot$		
RB1903_CTD06_N14	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	299	Water							Х	$\perp \perp$	_	
RB1903_CTD06_N15	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	299	Water								Х		_
RB1903_CTD06_N16	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	200	Water	500070									_
RB1903_CTD06_N17	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	200	Water	EC9878						Х			_
RB1903_CTD06_N18	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	200	Water								Х		\perp
RB1903_CTD06_N19	CTD06	Richardson Hills Richardson Hills	April 13th, 2019	16:30:00 16:30:00	31 59.4825	77 23.8062 77 23.8062	101 101	Water Water	EC9879						х	\vdash	-	+
RB1903_CTD06_N20 RB1903_CTD06_N21	CTD06	Richardson Hills	April 13th, 2019 April 13th, 2019	16:30:00	31 59.4825 31 59.4825	77 23.8062	101	Water	EC90/9				X X		Х	\vdash	-	+
RB1903_CTD06_N22	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	5	Water			Х		X			\vdash	-	+
RB1903_CTD06_N23	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	5	Water	EC9880		X		X		х	\vdash		+-1
RB1903_CTD06_N24	CTD06	Richardson Hills	April 13th, 2019	16:30:00	31 59.4825	77 23.8062	5	Water	207000		X		Α			х		
RB1903_CTD07_N01	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	821	Water					Х				х	$\overline{}$
RB1903_CTD07_N02	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	821	Water					Х			х	х	
RB1903_CTD07_N03	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	821	Water	EC9881								х	
RB1903_CTD07_N04	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	821	Water										Х
RB1903_CTD07_N05	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	821	Water										Х
RB1903_CTD07_N06	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	821	Water										Х
RB1903_CTD07_N07	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	821	Water										Х
RB1903_CTD07_N08	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	750	Water	EC9882							Х		
RB1903_CTD07_N09	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	649	Water	EC9883							$\perp \perp$		$\perp \perp \downarrow$
RB1903_CTD07_N10	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	551	Water	EC9884							$\perp \perp$		$\perp \perp$
RB1903_CTD07_N11	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	449	Water	EC9885	+		+				\vdash		+
RB1903_CTD07_N12	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	349	Water	EC9886	-		1				\vdash		+
RB1903_CTD07_N13	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	250	Water	EC9887	+		+				\vdash	-	+
RB1903_CTD07_N14 RB1903_CTD07_N15	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53 31 56.53	77 29.37 77 29.37	100 100	Water Water	EC9888	+		+				++	х	+
RB1903_CTD07_N16	CTD07	Richardson Hills Richardson Hills	April 13th, 2019 April 13th, 2019	20:11:00 20:11:00	31 56.53	77 29.37	100	water Water		+		+	X X			++	X	+
RB1903_CTD07_N17	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	100	Water		+		+	Х			х	+	+
RB1903_CTD07_N18	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	100	Water		+		+					у у	+
KB1703_C1D07_N10	CIDUI	Nicialuson i illis	April 1301, 2017	20.11.00	31 30.33	11 27.31	100	water	1						_1		^	

Sample.Number	Sample Type	Sie	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg Cheryl Morrison	Sandra Brooke	Am	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	<u>, </u>	Hillary Close
RB1903_CTD07_N19	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	Surface	Water				Х				Х	\vdash
RB1903_CTD07_N20	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	Surface	Water				Х				х	
RB1903_CTD07_N21	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	Surface	Water	EC9889							Х	\vdash
RB1903_CTD07_N22	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	Surface	Water									Х
RB1903_CTD07_N23	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	Surface	Water								-	Х
RB1903_CTD07_N24	CTD07	Richardson Hills	April 13th, 2019	20:11:00	31 56.53	77 29.37	Surface	Water	500010						Х	-	\vdash
RB1903_J2-1129_M1_01	J2-1129	Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Live lophelia	EC9919							_	\vdash
RB1903_J2-1129_M1_02	J2-1129	Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Dead lophelia	EC9920							-	\vdash
RB1903_J2-1129_M1_03	J2-1129	Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Ophiacantha bidentata	EC9921						-	+-	\vdash
RB1903_J2-1129_M1_04	J2-1129	Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Hexactenellid 1	EC9922						-	+-	\vdash
RB1903_J2-1129_M1_05	J2-1129	Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Shrimp	EC9923						-	+-	\vdash
RB1903_J2-1129_M1_06	J2-1129	Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Hexactenelid 2	EC9924							+-	\vdash
RB1903_J2-1129_M1_07	J2-1129 J2-1129	Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Brittle Star	EC9925						-	+	\vdash
RB1903_J2-1129_M1_08 RB1903_J2-1129_M1_09	J2-1129 J2-1129	Richardson A4963	April 13th-14th, 2019 April 13th-14th, 2019	3:30:00 3:30:00	31.98416 31.98416	-77.41138 -77.41138	705 705	Hydroid 1	EC9926 EC9927						-	+	\vdash
RB1903_J2-1129_M1_09	J2-1129 J2-1129	Richardson A4963 Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Hydroid 2	EC9927 EC9928						-	+	\vdash
RB1903_J2-1129_M1_11	J2-1129 J2-1129	Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Anemone 1	EC9929							+-	-
RB1903_J2-1129_M1_11	J2-1129	Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Anemone 2 Annelid	EC9930							+-	-
RB1903_J2-1129_M1_Sieved	J2-1129 J2-1129	Richardson A4963	April 13th-14th, 2019	3:30:00	31.98416	-77.41138	705	Alliellu	LC7730			X			-	+	
RB1903_J2-1129_M1_3leved	J2-1129 J2-1129	Richardson A4963	April 13th-14th, 2019	4:20:00	31.98397	-77.41131	703	Live lophelia	EC9931			^				+-	-
RB1903_J2-1129_M2_01	J2-1129 J2-1129	Richardson A4963	April 13th-14th, 2019	4:20:00	31.98397	-77.41131	704	Dead lophelia	EC9932							+-	-
RB1903_J2-1129_M2_03	J2-1129	Richardson A4963	April 13th-14th, 2019	4:20:00	31.98397	-77.41131	704	Hydroid 1	EC9933						+	+	
RB1903_J2-1129_M2_04	J2-1129	Richardson A4963	April 13th-14th, 2019	4:20:00	31.98397	-77.41131	704	Thecopsammia	EC9934						-	+-	\Box
RB1903_J2-1129_M2_05	J2-1129	Richardson A4963	April 13th-14th, 2019	4:20:00	31.98397	-77.41131	704	Eunice	EC9935						_	+	
RB1903_J2-1129_M2_06	J2-1129	Richardson A4963	April 13th-14th, 2019	4:20:00	31.98397	-77.41131	704	Shrimp	EC9936						_	+	
RB1903_J2-1129_M2_07	J2-1129	Richardson A4963	April 13th-14th, 2019	4:20:00	31.98397	-77.41131	704	Crinoid	EC9937						-	+-	\Box
RB1903_J2-1129_M2_08	J2-1129	Richardson A4963	April 13th-14th, 2019	4:20:00	31.98397	-77.41131	704	Hydroid 2	EC9938							+	
RB1903_J2-1129_M2_09	J2-1129	Richardson A4963	April 13th-14th, 2019	4:20:00	31.98397	-77.41131	704	Ophiuroid	EC9939							+	
RB1903_J2-1129_M2_Sieved	J2-1129	Richardson A4963	April 13th-14th, 2019	4:20:00	31.98397	-77.41131	704	- p				х				+	
RB1903 J2-1129 M3 01	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Live lophelia	EC9940							+	
RB1903_J2-1129_M3_02	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Dead lophelia	EC9941							+	
RB1903_J2-1129_M3_03	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Limpet	EC9942				X			+	
RB1903_J2-1129_M3_04	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Asteroid	EC9943								
RB1903_J2-1129_M3_05	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Eunice	EC9944								
RB1903_J2-1129_M3_06	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Ophiacantha bidentata	EC9945								
RB1903_J2-1129_M3_07	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Gastropod	EC9946								
RB1903_J2-1129_M3_08	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Shrimp	EC9947								
RB1903_J2-1129_M3_09	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Hexac (saccocalyx)	EC9948								
RB1903_J2-1129_M3_10	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Nethed	EC9949								
RB1903_J2-1129_M3_11	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Annelid	EC9950								
RB1903_J2-1129_M3_12	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Anemone	EC9951								
RB1903_J2-1129_M3_13	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709	Hydroid	EC9952								
RB1903_J2-1129_M3_Sieved	J2-1129	Richardson A4963	April 13th-14th, 2019	11:07:00	31.98419	-77.41154	709					Х					
RB1903_J2-1129_N01	J2-1129	Richardson A4963	April 13th-14th, 2019	11:27:01	31.98465	-77.41157	698	Water				Х					
RB1903_J2-1129_N02	J2-1129	Richardson A4963	April 13th-14th, 2019	11:27:01	31.98465	-77.41157	698	Water	EC9918			Х					ш
RB1903_J2-1129_B1_01	J2-1129	Richardson A4963	April 13th-14th, 2019	5:20:00	31.98410	-77.41107	693	Madrepora	EC9914	CM_00		X,XX					ш
RB1903_J2-1129_B1_02	J2-1129	Richardson A4963	April 13th-14th, 2019	5:20:00	31.98410	-77.41107	693	Lophelia	EC9915	CM_00		X,X					ш
RB1903_J2-1129_B1_03	J2-1129	Richardson A4963	April 13th-14th, 2019	5:20:00	31.98410	-77.41107	693	Eunicid		CM_00		XX,X					
RB1903_J2-1129_B2_01	J2-1129	Richardson A4963	April 13th-14th, 2019	4:35:00	31.98408	-77.41112	696	Lophelia		CM_00	286 x						ш
RB1903_J2-1129_B2_Sieved	J2-1129	Richardson A4963	April 13th-14th, 2019	4:35:00	31.98408	-77.41112	696					Х		\perp	\perp	4	ш
RB1903_J2-1129_B3_01	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Madrepora		CM_00	278 x	X,X		\perp	\bot	4	ш
RB1903_J2-1129_B3_02	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Plumarella			Х	Х	XX	+	+	4—	ш
RB1903_J2-1129_B3_03	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Plumarella				Х	X			Ш_	ш

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
F	RB1903_J2-1129_B3_04	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Plumarella				Х	Х	XX				
F	RB1903_J2-1129_B3_05	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Lophelia			CM_00279		Х					
	RB1903_J2-1129_B3_06	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Pseudodrifa					Х	X				
	RB1903_J2-1129_B3_07	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Pseudodrifa				Х	Х	Х				
	RB1903_J2-1129_B3_08	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Sponge					Х				'	
	RB1903_J2-1129_B3_09	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Hydroid					Х	X				
	RB1903_J2-1129_B3_10	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Anemone						X			<u> </u>	
	RB1903_J2-1129_B3_11	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Anemone						X			4	
	RB1903_J2-1129_B3_12	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Eunicid					XX,X			-	+	
	RB1903_J2-1129_B3_13	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Eunicid	EC00E2				XX,X			-	+	
	RB1903_J2-1129_B3_14 RB1903_J2-1129_B3_15	J2-1129 J2-1129	Richardson A4963	April 13th-14th, 2019 April 13th-14th, 2019	10:33:22 10:33:22	31.98418 31.98418	-77.41124 -77.41124	698 698	Crinoid Stylasterid	EC9953 EC9954							+	+	_
	RB1903_J2-1129_B3_16	J2-1129 J2-1129	Richardson A4963 Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Cup coral	EC9954 EC9955								+'	_
	RB1903_J2-1129_B3_17	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Carnivorous Sponge	EC9956							_	+	_
	RB1903_J2-1129_B3_18	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Plumarella	EC9957								+	_
	RB1903_J2-1129_B3_19	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Pseudodrifa	EC9958							_	+	
	RB1903_J2-1129_B3_20	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Pseudodrifa	EC9959							_	+	_
	RB1903_J2-1129_B3_21	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Eunicid	207707				XX			_	+	_
	RB1903_J2-1129_B3_22	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Hydroid					Х				+	
	RB1903_J2-1129_B3_23	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Eunicid					XX				\top	
	RB1903_J2-1129_B3_24	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Pseudodrifa					Х					
F	RB1903_J2-1129_B3_25	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Sponge - Yellow					Х					
F	RB1903_J2-1129_B3_26	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Sponge -White					Х					
RB	1903_J2-1129_B3_Sieved	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698						Х					
RB1	1903_J2-1129_B3_Polynoid	J2-1129	Richardson A4963	April 13th-14th, 2019	10:33:22	31.98418	-77.41124	698	Polynoid					Х					
	RB1903_J2-1129_Q1_01	J2-1129	Richardson A4963	April 13th-14th, 2019	2:58:00	31.98426	-77.41138	700	Plumarella	EC9911			Х	X	XX				
	RB1903_J2-1129_Q1_02	J2-1129	Richardson A4963	April 13th-14th, 2019	2:58:00	31.98426	-77.41138	700	Plumarella	EC9912				Х	XX				
	RB1903_J2-1129_Q1_03	J2-1129	Richardson A4963	April 13th-14th, 2019	2:58:00	31.98426	-77.41138	700	Plumarella	EC9913				Х	XX				
	RB1903_J2-1129_Q1_04	J2-1129	Richardson A4963	April 13th-14th, 2019	2:58:00	31.98426	-77.41138	700	Hydroid					XX				'	
	1903_J2-1129_Q1_Annelid	J2-1129	Richardson A4963	April 13th-14th, 2019	2:58:00	31.98426	-77.41138	700	Annelid					Х					
	903_J2-1129_Q1_Capetellid	J2-1129	Richardson A4963	April 13th-14th, 2019	2:58:00	31.98426	-77.41138	700	Capetellid					Х				<u> </u>	
	1903_J2-1129_Q1_Sieved	J2-1129	Richardson A4963	April 13th -14th, 2019	2:58:00	31.98426	-77.41138	700						Х				<u> </u>	
	RB1903_J2-1129_Q2_01	J2-1129	Richardson A4963	April 13th -14th, 2019	5:03:00	31.98408	-77.41112	696	Plumarella	EC9909		011 00000	Х	Х	XX			4	
	RB1903_J2-1129_Q2_02	J2-1129	Richardson A4963	April 13th -14th, 2019	5:06:00	31.98408	-77.41113	696	Cup coral	EC9910		CM_00288	+	Х			-	+	
	RB1903_J2-1129_Q4_01	J2-1129	Richardson A4963	April 13th -14th, 2019	6:10:00	31.98489	-77.41077	690	Lophelia		Х	CM_00287	Х	X			-	+	
	RB1903_J2-1129_Q4_02 RB1903_J2-1129_Q4_03	J2-1129 J2-1129	Richardson A4963 Richardson A4963	April 13th -14th, 2019 April 13th -14th, 2019	6:10:00 6:10:00	31.98489 31.98489	-77.41077 -77.41077	690 690	Hydroid Ophiuroid					Х			-	+	
	RB1903_J2-1129_Q4_04	J2-1129	Richardson A4963	April 13th -14th, 2019	6:10:00	31.98489	-77.41077	690	Anemone								-	+	_
	RB1903_J2-1129_Q4_04	J2-1129	Richardson A4963	April 13th -14th, 2019	5:46:00	31.98458	-77.41077	691	Plumarella					X	Х		-	+	
	RB1903 J2-1129 Q5 02	J2-1129	Richardson A4963	April 13th -14th, 2019	5:46:00	31.98458	-77.41075	691	White plexaurid				×	X	XX			+	_
	RB1903_J2-1129_Q5_03	J2-1129	Richardson A4963	April 13th -14th, 2019	5:48:00	31.98457	-77.41075	691	Cup coral			CM 00280	-	X	7.01		_	+	
	RB1903_J2-1129_Q5_04	J2-1129	Richardson A4963	April 13th -14th, 2019	5:55:00	31.98458	-77.41074	691	Yellow plexaurid	EC9898		0111_00200		Х	XX		_	+	=
	RB1903_J2-1129_Q5_05	J2-1129	Richardson A4963	April 13th -14th, 2019	5:55:00	31.98458	-77.41074	691	Plumarella					Х	X		_	+	_
	RB1903_J2-1129_Q5_06	J2-1129	Richardson A4963	April 13th -14th, 2019	5:48:00	31.98457	-77.41075	691	Anthomastus	EC9900				Х	XX			+	
	RB1903_J2-1129_Q5_07	J2-1129	Richardson A4963	April 13th -14th, 2019	5:55:00	31.98458	-77.41074	691	Thecapsammia			CM_00281					\neg		\Box
	RB1903_J2-1129_Q5_08	J2-1129	Richardson A4963	April 13th -14th, 2019	5:55:00	31.98458	-77.41074	691	Plumarella	EC9901			Х	Х	XX			T	
F	RB1903_J2-1129_Q5_09	J2-1129	Richardson A4963	April 13th -14th, 2019	5:55:00	31.98458	-77.41074	691	Ophiuruid on Plumarella	EC9903									
F	RB1903_J2-1129_Q5_10	J2-1129	Richardson A4963	April 13th -14th, 2019	5:55:00	31.98458	-77.41074	691	White plexaurid				Х	Х	XX				
F	RB1903_J2-1129_Q5_11	J2-1129	Richardson A4963	April 13th -14th, 2019	5:55:00	31.98458	-77.41074	691	White plexaurid			-		Х	Х				
F	RB1903_J2-1129_Q5_12	J2-1129	Richardson A4963	April 13th -14th, 2019	5:55:00	31.98458	-77.41074	691	White plexaurid	EC9905		-	Х	Х	XX				
	RB1903_J2-1129_Q5_13	J2-1129	Richardson A4963	April 13th -14th, 2019	5:55:00	31.98458	-77.41074	691	Hydroid					X,XX					
	1903_J2-1129_Q5_Sieved	J2-1129	Richardson A4963	April 13th -14th, 2019	5:55:00	31.98458	-77.41074	691						Х				'	
F	RB1903_J2-1129_Q6_01	J2-1129	Richardson A4963	April 13th -14th, 2019	3:01:00	31.98426	-77.41139	700	Plumarella					X	XX				

	Sample Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Jason Chaylor Furu Mienis	Hillary Close
	B1903_J2-1129_Q7_01	J2-1129	Richardson A4963	April 13th -14th, 2019	3:55:00	31.98416	-77.41137	705	Plumarella	EC9899			Х	X	XX				
	B1903_J2-1129_Q7_02	J2-1129	Richardson A4963	April 13th -14th, 2019	3:56:00	31.98416	-77.41138	705	White plexaurid	EC9902			х	Х	Х				
	B1903_J2-1129_Q7_03	J2-1129	Richardson A4963	April 13th -14th, 2019	3:45:00	31.98416	-77.41139	705	Sponge	EC9906		CM_00283		XX	XX				
	B1903_J2-1129_Q7_04	J2-1129	Richardson A4963	April 13th -14th, 2019	3:45:00	31.98416	-77.41139	705	Zooanthids	EC9907		CM_00284		XX	XX				
	B1903_J2-1129_Q7_05	J2-1129	Richardson A4963	April 13th -14th, 2019	3:59:00	31.98415	-77.41137	705	Round Sponge	EC9908		CM_00285		XX	Х				
	B1903_J2-1129_Q7_06	J2-1129	Richardson A4963	April 13th -14th, 2019	3:59:00	31.98415	-77.41137	705	Hydroids					XX					
	903_J2-1129_Q7_Sieved	J2-1129	Richardson A4963	April 13th -14th, 2019	3:59:00	31.98415	-77.41137	705						X					
	B1903_J2-1129_Q8_01	J2-1129	Richardson A4963	April 13th -14th, 2019	2:46:00	31.98425	-77.41138	700	Plumarella	EC9916			х	XX	XX				
	B1903_J2-1129_Q8_02	J2-1129	Richardson A4963	April 13th -14th, 2019	2:53:00	31.98425	-77.41137	700	Latothela	EC9917		CM_00290	Х	XX	XX				
	B1903_J2-1129_Q8_03	J2-1129	Richardson A4963	April 13th -14th, 2019	2:53:00	31.98425	-77.41137	700	Eunicid			CM_00292		XX,X					
	B1903_J2-1129_Q8_04	J2-1129	Richardson A4963	April 13th -14th, 2019	2:53:00	31.98425	-77.41137	700	Hydroids					XX,X					
	903_J2-1129_Q8_Annelid	J2-1129	Richardson A4963	April 13th -14th, 2019	2:53:00	31.98425	-77.41137	700	Annelid					X					
	03_J2-1129_Q8_Amphipod	J2-1129	Richardson A4963	April 13th -14th, 2019	2:53:00	31.98425	-77.41137	700	Amphipod					X				_	
	903_J2-1129_Q8_Sieved	J2-1129	Richardson A4963	April 13th -14th, 2019	2:53:00	31.98425	-77.41137	700						X				_	
	903_J2-1129_Q8_Annelid	J2-1129	Richardson A4963	April 13th -14th, 2019	2:53:00	31.98425	-77.41137	700	Annelid					X				_	
RB190	03_J2-1129_Q8_Amphipod	J2-1129	Richardson A4963	April 13th -14th, 2019	2:53:00	31.98425	-77.41137	700	Amphipod					Х					_
RB190	03_J2-1129_Swing Arm_066	J2-1129	Richardson A4963	April 13th -14th, 2019	Came up on swing arm	Came up on swing arm	Came up on swing arm	Came up on swing arm	Lophelia					Х					
RB190	03_J2-1129_Swing Arm_067	J2-1129	Richardson A4963	April 13th -14th, 2019	Came up on swing arm	Came up on swing arm	Came up on swing arm	Came up on swing arm	Latothela					Х					
RB190	03_J2-1129_Swing Arm_068	J2-1129	Richardson A4963	April 13th -14th, 2019	Came up on swing arm	Came up on swing arm	Came up on swing arm	Came up on swing arm	Yellow Sponge					Х					
RE	B1903_Albex01_Isopod	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Isopod					Х					
RB190	03_Albex01_Amphipod_01	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					Х					
	03_Albex01_Amphipod_02	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					Х					
RB190	03_Albex01_Amphipod_03	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					Х					
RB190	03_Albex01_Amphipod_04	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					Х					
RB190	03_Albex01_Amphipod_05	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					Х					
RB190	03_Albex01_Amphipod_06	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					X					
RB190	03_Albex01_Amphipod_07	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					Х					
RB190	03_Albex01_Amphipod_08	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					Х					
RB190	03_Albex01_Amphipod_09	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					Х					
RB190	03_Albex01_Amphipod_10	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					Х					
	03_Albex01_Amphipod_11	Albex01	Richardson Hills	April 13th, 2019	14:43:00	31 53.970	77 21.222	815	Amphipod					Х					
	RB1903_CTD08_N01	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	535	Water			Х				Х			
	RB1903_CTD08_N02	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	535	Water			Х				Х		\perp	$\perp \perp \mid$
	RB1903_CTD08_N03	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	535	Water		+	Х				Х		-	\sqcup
	RB1903_CTD08_N04	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	535	Water		+					Х		+	\vdash
	RB1903_CTD08_N05	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	535	Water	E000E0	+					-	Х	+	\vdash
	RB1903_CTD08_N06	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	535	Water	EC9953	+-+					Х		-	\vdash
	RB1903_CTD08_N07	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	535	Water	E000E4	+-+			Х				-	\vdash
	RB1903_CTD08_N08	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	488	Water	EC9954	+	X				Х		+	\vdash
	RB1903_CTD08_N09	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	488	Water		+	X		Х		-		+	\vdash
	RB1903_CTD08_N10 RB1903_CTD08_N11	CTD08	Savannah Banks	April 16th, 2019	22:37:00 22:37:00	31 44.6662	79 12.5975	488 382	Water	ECONEE	+	X				.,	Х	+	\vdash
	RB1903_CTD08_N11 RB1903_CTD08_N12	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662 31 44.6662	79 12.5975	382	Water Water (DID NOT FIRE)	EC9955	+	Х				Х		+	+
	RB1903_CTD08_N12 RB1903_CTD08_N13	CTD08	Savannah Banks	April 16th, 2019 April 16th, 2019	22:37:00	31 44.6662	79 12.5975 79 12.5975	382	Water (DID NOT FIRE) Water		+	v				-	x	+	+
	RB1903_CTD08_N13	CTD08	Savannah Banks Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	240	Water	EC9956		X X				х	۸	+-	+-
	RB1903_CTD08_N15	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	240	Water	LC7730	+	X		X		^	\vdash	+	+-
	RB1903_CTD08_N16	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	240	Water		++	X		Α		+	х	+	+
	RB1903_CTD08_N17	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	80	Water	EC9957	+	^				Х	^	+	+
	RB1903_CTD08_N18	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	80	Water	207707				Х		_ ^		+	\forall
P										1	1 1						1 1	-	+

Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Jason Chaytor Furu Mienis	Hillary Close
RB1903_CTD08_N20	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	surface	Water			Х				Х			
RB1903_CTD08_N21	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	surface	Water			Х				Х			
RB1903_CTD08_N22	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	surface	Water			Х		X					\perp
RB1903_CTD08_N23	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	surface	Water	EC9958				Х					4
RB1903_CTD08_N24	CTD08	Savannah Banks	April 16th, 2019	22:37:00	31 44.6662	79 12.5975	surface	Water	E01000E							Х		+
RB1903_J2_1130_M1-1 RB1903_J2_1130_M1-2	J2-1130 J2-1130	Savannah Banks	April 17th, 2019 April 17th, 2019	3:39:00 3:39:00	31.75279 31.75279	-79.19600 -79.19600	541 541	Live lophelia	EC10025 EC10026							-+	+	+
RB1903_J2_1130_M1-3	J2-1130 J2-1130	Savannah Banks Savannah Banks	April 17th, 2019	3:39:00	31.75279	-79.19600	541	Dead Lophelia Ophiacantha bidentata	EC10026 EC10027								+-	+
RB1903_J2_1130_M1-4	J2-1130	Savannah Banks	April 17th, 2019	3:39:00	31.75279	-79.19600	541	Eunice	EC10027							_	-	+
RB1903_J2_1130_M1-5	J2-1130	Savannah Banks	April 17th, 2019	3:39:00	31.75279	-79.19600	541	Cidaris	EC10029									+
RB1903_J2_1130_M1-6	J2-1130	Savannah Banks	April 17th, 2019	3:39:00	31.75279	-79.19600	541	Amphipod	EC10030									
RB1903_J2_1130_M1-7	J2-1130	Savannah Banks	April 17th, 2019	3:39:00	31.75279	-79.19600	541	Annelid	EC10031								_	\Box
RB1903_J2_1130_M1-8	J2-1130	Savannah Banks	April 17th, 2019	3:39:00	31.75279	-79.19600	541	Hydroid1	Ec10032								1	
RB1903_J2_1130_M1-9	J2-1130	Savannah Banks	April 17th, 2019	3:39:00	31.75279	-79.19600	541	Hydroid2	EC10033									
RB1903_J2_1130_M1-10	J2-1130	Savannah Banks	April 17th, 2019	3:39:00	31.75279	-79.19600	541	Sargassum	EC10034									
RB1903_J2_1130_M2-1	J2-1130	Savannah Banks	April 17th, 2019	4:52:00	31.75386	-79.19471	524	Live lophelia	EC10035			Х	x (sieve)					
RB1903_J2_1130_M2-2	J2-1130	Savannah Banks	April 17th, 2019	4:52:00	31.75386	-79.19471	524	Dead Lophelia	EC10036									
RB1903_J2_1130_M2-3	J2-1130	Savannah Banks	April 17th, 2019	4:52:00	31.75386	-79.19471	524	Crinoid	EC10037									\perp
RB1903_J2_1130_M2-4	J2-1130	Savannah Banks	April 17th, 2019	4:52:00	31.75386	-79.19471	524	Urchin (Echinus)	EC10038									4
RB1903_J2_1130_M2-5	J2-1130	Savannah Banks	April 17th, 2019	4:52:00	31.75386	-79.19471	524	Gooseneck barnacle	EC10039									4
RB1903_J2_1130_M2-6	J2-1130	Savannah Banks	April 17th, 2019	4:52:00	31.75386	-79.19471	524	Eunice	EC10040									+
RB1903_J2_1130_M2-7 RB1903_J2_1130_M2-8	J2-1130 J2-1130	Savannah Banks Savannah Banks	April 17th, 2019 April 17th, 2019	4:52:00 4:52:00	31.75386 31.75386	-79.19471 -79.19471	524 524	Ophiuroid1 Ophiacantha bidentata	EC10041 ECE10042							-+	+	+
RB1903_J2_1130_M2-9	J2-1130	Savannah Banks	April 17th, 2019	4:52:00	31.75386	-79.19471	524	Galatheid	EC10042							_	+-	+
RB1903_J2_1130_M2-10	J2-1130	Savannah Banks	April 17th, 2019	4:52:00	31.75386	-79.19471	524	Amphipod	EC10043								+-	+
RB1903 J2 1130 M2-11	J2-1130	Savannah Banks	April 17th, 2019	4:52:00	31.75386	-79.19471	524	Hydroid	EC10045									+
RB1903_J2_1130_M3-1	J2-1130	Savannah Banks	April 17th, 2019	9:54:00	31.75925	-79.19118	519	Dead Lophelia	EC10046				x (sieve)				_	T
RB1903_J2_1130_M3-2	J2-1130	Savannah Banks	April 17th, 2019	9:54:00	31.75925	-79.19118	519	Galatheid1	EC10047				(****)				_	tt
RB1903_J2_1130_M3-3	J2-1130	Savannah Banks	April 17th, 2019	9:54:00	31.75925	-79.19118	519	Galatheid2	EC10048									
RB1903_J2_1130_M3-4	J2-1130	Savannah Banks	April 17th, 2019	9:54:00	31.75925	-79.19118	519	Ophiacantha bidentata	EC10049									m
RB1903_J2_1130_M3-5	J2-1130	Savannah Banks	April 17th, 2019	9:54:00	31.75925	-79.19118	519	Hydroid1	EC10050									
RB1903_J2_1130_M3-6	J2-1130	Savannah Banks	April 17th, 2019	9:54:00	31.75925	-79.19118	519	Hydroid2	EC10051									
RB1903_J2_1130_M3-7	J2-1130	Savannah Banks	April 17th, 2019	9:54:00	31.75925	-79.19118	519	Crinoid	EC10052									
RB1903_J2_1130_M3-8	J2-1130	Savannah Banks	April 17th, 2019	9:54:00	31.75925	-79.19118	519	Hexactinellid	EC10053									
RB1903_J2_1130_B1_01	J2-1130	Savannah Banks	April 17th, 2019	4:57:00	31.75385	-79.19472	523	Plumarella	EC9975			Х	x, whirlpak	RB-19-051xx				4
RB1903_J2_1130_B1_02	J2-1130	Savannah Banks	April 17th, 2019	4:57:00	31.75385	-79.19472	523	Lophelia	E0007/		CM_00307		X					
RB1903_J2_1130_B1_03	J2-1130	Savannah Banks	April 17th, 2019	4:57:00	31.75385	-79.19472	523	Hexactinellid	EC9976			\vdash	x, whirlpak		+ +	-+	+	\vdash
RB1903_J2_1130_B1_04 RB1903_J2_1130_B1_05	J2-1130 J2-1130	Savannah Banks	April 17th, 2019	4:57:00 4:57:00	31.75385	-79.19472 70.10472	523 523	Cladhorizid Eunicid	EC9977		CM_00335		X X				+-	+
RB1903_J2_1130_B1_05 RB1903_J2_1130_B2_01	J2-1130 J2-1130	Savannah Banks Savannah Banks	April 17th, 2019 April 17th, 2019	3:49:00	31.75385 31.75279	-79.19472 -79.19600	541	Alcyonacea	EC9980		CINI_00333	×	x (sieve)x	RB-19-052xx	+	+	+	++
RB1903_J2_1130_B2_01	J2-1130 J2-1130	Savannah Banks	April 17th, 2019	3:55:00	31.75281	-79.19601	540	Stylasterid	EC9981		CM_00310	^	x, whirlpak	ND 17-032AA	+ +		+	+
RB1903_J2_1130_B2_03	J2-1130	Savannah Banks	April 17th, 2019	3:49:00	31.75279	-79.19600	541	Alcyonacea	EC9982	+	00010	х	X X	RB-19-053x	+		+	\vdash
RB1903_J2_1130_B2_04	J2-1130	Savannah Banks	April 17th, 2019	3:49:00	31.75279	-79.19600	541	Hydroid					x, whirlpak				_	T
RB1903_J2_1130_B2_05	J2-1130	Savannah Banks	April 17th, 2019	3:49:00	31.75279	-79.19600	541	Hydroid					X				1	
RB1903_J2_1130_B2_06	J2-1130	Savannah Banks	April 17th, 2019	3:49:00	31.75279	-79.19600	541	Brittle Star	EC9983				Х					П
RB1903_J2_1130_B2_07	J2-1130	Savannah Banks	April 17th, 2019	3:49:00	31.75279	-79.19600	541	Sponge	EC9984				Х					
RB1903_J2_1130_B3_01	J2-1130	Savannah Banks	April 17th, 2019	5:17:00	31.75420	-79.19443	515	Lophelia	EC10024		-	Х	x (sieve)					Ш
RB1903_J2_1130_B3_02	J2-1130	Savannah Banks	April 17th, 2019	5:35:00	31.75420	-79.19443	515	Hexactinellid (Saccocalyx?)										igsquare
RB1903_J2_1130_B3_03	J2-1130	Savannah Banks	April 17th, 2019	5:35:00	31.75420	-79.19443	515	Polynoid					Х					ш
RB1903_J2_1130_B3_04	J2-1130	Savannah Banks	April 17th, 2019	5:35:00	31.75420	-79.19443	515	Sargasum					X					Ш
RB1903_J2_1130_B3_05	J2-1130	Savannah Banks	April 17th, 2019	5:35:00	31.75420	-79.19443	515	Ophiuroid		+			x, whirlpak					\vdash
RB1903_J2_1130_B3_06	J2-1130	Savannah Banks	April 17th, 2019	5:35:00	31.75420	-79.19443	515	Ophiuroid					Х		+	_	+	+
RB1903_J2_1130_B3_07	J2-1130	Savannah Banks	April 17th, 2019	5:35:00	31.75420	-79.19443	515	Ophiuroid	<u> </u>				Х				ш	ш

	Sample.Number	Sample Type	Sile	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
	RB1903_J2_1130_B3_08	J2-1130	Savannah Banks	April 17th, 2019	5:35:00	31.75420	-79.19443	515	Ophiuroid					Х					
	RB1903_J2_1130_B3_09	J2-1130	Savannah Banks	April 17th, 2019	5:35:00	31.75420	-79.19443	515	Snail					x, whirlpak					
	RB1903_J2_1130_B3_10	J2-1130	Savannah Banks	April 17th, 2019	5:35:00	31.75420	-79.19443	515	Lophelia					Х					
	RB1903_J2_1130_B3_11	J2-1130	Savannah Banks	April 17th, 2019	5:35:00	31.75420	-79.19443	515	Plumarella					Х					
-	RB1903_J2_1130_B4_01	J2-1130	Savannah Banks	April 17th, 2019	5:53:00	31.75448	-79.19417	510	Hexactinellid	EC9985				x (sieve)x					\perp
L	RB1903_J2_1130_B4_02	J2-1130	Savannah Banks	April 17th, 2019	5:54:00	31.75448	-79.19417	510	Madrepora	EC9986	(CM_00313	Х	X					
-	RB1903_J2_1130_B4_03	J2-1130	Savannah Banks	April 17th, 2019	5:54:00	31.75448	-79.19417	510	Alyconacean	EC9987				X	RB-19-054x				
-	RB1903_J2_1130_B4_04	J2-1130	Savannah Banks	April 17th, 2019	5:54:00	31.75448	-79.19417	510	Squat Lobster	EC9988	(CM_00312		x, whirlpak					
-	RB1903_J2_1130_B4_05 RB1903_J2_1130_B4_06	J2-1130 J2-1130	Savannah Banks Savannah Banks	April 17th, 2019 April 17th, 2019	5:54:00 5:54:00	31.75448 31.75448	-79.19417 -79.19417	510 510	Hydroid Eunicid			CM_00334		x, whirlpak			\rightarrow	+	
H	RB1903_J2_1130_B4_07	J2-1130 J2-1130	Savannah Banks	April 17th, 2019 April 17th, 2019	5:54:00	31.75448	-79.19417	510	Glass Sponge		- '	CIVI_00334		X X				+	-
H	RB1903_J2_1130_B4_08	J2-1130	Savannah Banks	April 17th, 2019	5:54:00	31.75448	-79.19417	510	Polynoid				-	X			-		
H	RB1903_J2_1130_B4_09	J2-1130	Savannah Banks	April 17th, 2019	5:54:00	31.75448	-79.19417	510	Amphipod				-	X			-		
H	RB1903_J2_1130_B4_10	J2-1130	Savannah Banks	April 17th, 2019	5:54:00	31.75448	-79.19417	510	Brittle Star					X			-	_	1
F	RB1903_J2_1130_B4_11	J2-1130	Savannah Banks	April 17th, 2019	5:54:00	31.75448	-79.19417	510	Snail					x, whirlpak				+	
	RB1903_J2_1130_B5_01	J2-1130	Savannah Banks	April 17th, 2019	8:39:00	31.75877	-79.19135	520	Yellow Enallopsammia	EC9995	(CM_00314	х	x (sieve)x, whirlpak					
	RB1903_J2_1130_B5_02	J2-1130	Savannah Banks	April 17th, 2019	8:41:00	31.75877	-79.19135	520	White Enallopsammia	EC9996	(CM_00315	Х	x, whirlpak					
	RB1903_J2_1130_B5_03	J2-1130	Savannah Banks	April 17th, 2019	8:50:00	31.75877	-79.19135	520	Alyconacean	EC9997			Х	Х	RB-19-055x				
	RB1903_J2_1130_B5_04	J2-1130	Savannah Banks	April 17th, 2019	8:39:00	31.75877	-79.19135	520	Crinoid	EC9998				Х					
	RB1903_J2_1130_B5_05	J2-1130	Savannah Banks	April 17th, 2019	8:39:00	31.75877	-79.19135	520	Brittle Star	EC9999									
	RB1903_J2_1130_B5_06	J2-1130	Savannah Banks	April 17th, 2019	8:39:00	31.75877	-79.19135	520	Squat Lobster					X					
	RB1903_J2_1130_B5_07	J2-1130	Savannah Banks	April 17th, 2019	8:39:00	31.75877	-79.19135	520	Brittle Star					Х					
L	RB1903_J2_1130_B6_01	J2-1130	Savannah Banks	April 17th, 2019	10:09:00	31.75960	-79.19103	516	Plumarella	EC10000			Х	x (sieve)x	RB-19-056xx				
L	RB1903_J2_1130_B6_02	J2-1130	Savannah Banks	April 17th, 2019	10:09:00	31.75960	-79.19103	516	Plumarella	EC10001			Х	X	RB-19-057xx		_		
L	RB1903_J2_1130_B6_03	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Lophelia	EC10002		CM_00317	Х						
H	RB1903_J2_1130_B6_04	J2-1130	Savannah Banks	April 17th, 2019	10:47:00	31.76051	-79.19060	509	Yellow Enallopsammia	EC10003	(CM_00318	Х				_	_	
H	RB1903_J2_1130_B6_05	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Crinoid	EC10004				Х					
-	RB1903_J2_1130_B6_06	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Crinoid	EC10005				X		\vdash	-	+	
H	RB1903_J2_1130_B6_07 RB1903_J2_1130_B6_08	J2-1130 J2-1130	Savannah Banks	April 17th, 2019 April 17th, 2019	10:10:00 10:10:00	31.75960 31.75960	-79.19103 -79.19103	516 516	Crinoid Squat Labeter	EC10006 EC10007		CM_00316		X			\rightarrow	+	
H	RB1903_J2_1130_B6_09	J2-1130 J2-1130	Savannah Banks Savannah Banks	April 17th, 2019 April 17th, 2019	10:10:00	31.75960	-79.19103	516	Squat Lobster Barnacle	EC10007	+ + '	CIVI_UU310		X X			-+	+	-
H	RB1903_J2_1130_B6_10	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Stylasterid	EC10009			-	^			-		
H	RB1903_J2_1130_B6_11	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Hydroid	2010007				Х					-
H	RB1903_J2_1130_B6_12	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Anemone					X	RB-19-058x		-	_	1
F	RB1903_J2_1130_B6_13	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Sponge	EC10010				Х				+	
	RB1903_J2_1130_B6_14	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Eunicid					Х					
T	RB1903_J2_1130_B6_15	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Brittle Star	EC10011				Х					
	RB1903_J2_1130_B6_16	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Brittle Star					Х					
	RB1903_J2_1130_B6_17	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Hydroid					x, whirlpak					
L	RB1903_J2_1130_B6_18	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Hydroid					X					Ш
L	RB1903_J2_1130_B6_19	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Sponge					Х					Ш
L	RB1903_J2_1130_B6_20	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Enallopsammia					x, whirlpak			\perp	_	Ш
L	RB1903_J2_1130_B6_21	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Crinoid					Х					
H	RB1903_J2_1130_B6_22	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Hydroid					X				—	\vdash
F	RB1903_J2_1130_B6_23	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103	516	Lophelia	-	+			x, whirlpak			+	+	Ш
F	RB1903_J2_1130_B6_24	J2-1130	Savannah Banks	April 17th, 2019	10:10:00	31.75960	-79.19103 70.10103	516	Hydorid		+ +			x, whirlpak		\vdash	+	+	\vdash
F	RB1903_J2_1130_B6_25 RB1903_J2_1130_Q1_01	J2-1130 J2-1130	Savannah Banks Savannah Banks	April 17th, 2019 April 17th, 2019	10:10:00 6:38:00	31.75960 31.75482	-79.19103 -79.19398	516 509	Hydroid Enallonsammia	EC9992	х (CM_00309	v	x x (sieve)x, whirlpak		\vdash	+	+	\vdash
H	RB1903_J2_1130_Q1_01 RB1903_J2_1130_Q1_02	J2-1130 J2-1130	Savannah Banks	April 17th, 2019 April 17th, 2019	6:38:00	31.75482	-79.19398	509	Enallopsammia Crinoid	EC9993	1	OIVI_00307	^	v (Sieveja, Willipak		\vdash	+	+-	\vdash
H	RB1903_J2_1130_Q1_03	J2-1130 J2-1130	Savannah Banks	April 17th, 2019	6:38:00	31.75482	-79.19398	509	Brittle Star	EC9994	+ +			X			+	+	\vdash
H	RB1903_J2_1130_Q1_04	J2-1130	Savannah Banks	April 17th, 2019	6:38:00	31.75482	-79.19398	509	Worm?	23///4	+			X			+	+	\vdash
Ħ	RB1903_J2_1130_Q1_05	J2-1130	Savannah Banks	April 17th, 2019	6:38:00	31.75482	-79.19398	509	Annelid					X			\neg	\top	\Box
T	RB1903_J2_1130_Q2_01	J2-1130	Savannah Banks	April 17th, 2019	8:17:00	31.75874	-79.19134	519	White Enallopsammia	EC9989	х (CM_00308	х	x (sieve)x, whirlpak					

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chavtor	Furu Mienis	Hillary Close
	RB1903_J2_1130_Q2_02	J2-1130	Savannah Banks	April 17th, 2019	8:17:00	31.75874	-79.19134	519	Crinoid	EC9990				Х					
	RB1903_J2_1130_Q2_03	J2-1130	Savannah Banks	April 17th, 2019	8:17:00	31.75874	-79.19134	519	Brittle Star	EC9991				Х					
	RB1903_J2_1130_Q2_04	J2-1130	Savannah Banks	April 17th, 2019	8:17:00	31.75874	-79.19134	519	Hydroid					x, whirlpak					
	RB1903_J2_1130_Q2_05	J2-1130	Savannah Banks	April 17th, 2019	8:17:00	31.75874	-79.19134	519	Anemone					Х					
	RB1903_J2_1130_Q3_01	J2-1130	Savannah Banks	April 17th, 2019	6:03:00	31.75452	-79.19415	510	Enallopsammia	EC9973	Х	CM_00303	Х	x (sieve)x		\sqcup			\perp
-	RB1903_J2_1130_Q3_02	J2-1130	Savannah Banks	April 17th, 2019	6:03:00	31.75452	-79.19415	510	Cladhorizid	EC9974		011 00011		/		1	_		-
	RB1903_J2_1130_Q4_01	J2-1130	Savannah Banks	April 17th, 2019	6:25:00	31.75464	-79.19408	509	Enallopsammia	EC9987	Х	CM_00311	Х	x (sieve)whirlpak		$\perp \perp \downarrow$	_	_	_
	RB1903_J2_1130_Q4_02	J2-1130	Savannah Banks	April 17th, 2019	6:25:00	31.75464	-79.19408	509	Crinoid	EC9979		014 00007		X		+	+	-	_
	RB1903_J2_1130_Q5_01 RB1903_J2_1130_Q6_01	J2-1130 J2-1130	Savannah Banks Savannah Banks	April 17th, 2019 April 17th, 2019	8:26:00 7:10:00	31.75873 31.75522	-79.19134 -79.19377	519 507	Yellow Enallopsammia Hexactinellid	EC9972	Х	CM_00306		x (sieve)x		+	+	+	+
	RB1903_J2_1130_Q6_02	J2-1130 J2-1130	Savannah Banks	April 17th, 2019	7:08:00	31.75522	-79.19377	507	Pseudodrifa	EC9969			v	x, whirlpak	RB-19-050xx	++	+	+-	+
-	RB1903_J2_1130_Q6_03	J2-1130	Savannah Banks	April 17th, 2019	7:06:00	31.75522	-79.19377	507	Plumarella	EC9968		CM 00302	· ·	X X	RB-19-030XX	+	+	+	+
	RB1903_J2_1130_Q6_04	J2-1130	Savannah Banks	April 17th, 2019	7:06:00	31.75522	-79.19377	507	Thecapsammia	EC9970		CM_00302	^	X	IND 17 OT 7AX	++	+	+	-
-	RB1903_J2_1130_Q6_05	J2-1130	Savannah Banks	April 17th, 2019	7:06:00	31.75522	-79.19377	507	Squat Lobster	EC9971		CM_00301				T	_	_	$\overline{}$
	RB1903_J2_1130_Q6_06	J2-1130	Savannah Banks	April 17th, 2019	7:06:00	31.75522	-79.19377	507	Hydroid					Х		H	+	_	\Box
	RB1903_J2_1130_Q6_07	J2-1130	Savannah Banks	April 17th, 2019	7:06:00	31.75522	-79.19377	507	Isopod					Х					
	RB1903_J2_1130_Q7_01	J2-1130	Savannah Banks	April 17th, 2019	6:15:00	31.75452	-79.19416	510	Cup coral			CM_00298		x (sieve)					
	RB1903_J2_1130_Q7_02	J2-1130	Savannah Banks	April 17th, 2019	6:11:00	31.75453	-79.19415	510	Plumarella	EC9966			Х	x, whirlpak	RB-19-048xx				
	RB1903_J2_1130_Q7_03	J2-1130	Savannah Banks	April 17th, 2019	6:08:00	31.75453	-79.19415	510	Lophelia	EC9967		CM_00299		Х					
	RB1903_J2_1130_Q7_04	J2-1130	Savannah Banks	April 17th, 2019	6:08:00	31.75453	-79.19415	510	Hydroid					Х					
	RB1903_J2_1130_Q7_05	J2-1130	Savannah Banks	April 17th, 2019	6:08:00	31.75453	-79.19415	510	Annelid			CM_00304		Х					
	RB1903_J2_1130_Q7_06	J2-1130	Savannah Banks	April 17th, 2019	6:08:00	31.75453	-79.19415	510	Sponge					Х					
	RB1903_J2_1130_Q7_07	J2-1130	Savannah Banks	April 17th, 2019	6:08:00	31.75453	-79.19415	510	Sponge					Х		ш			
	RB1903_J2_1130_Q7_08	J2-1130	Savannah Banks	April 17th, 2019	6:08:00	31.75453	-79.19415	510	Sponge					Х		\sqcup			\perp
-	RB1903_J2_1130_Q7_09	J2-1130	Savannah Banks	April 17th, 2019	6:08:00	31.75453	-79.19415	510	Hydroid					Х		$\perp \perp \downarrow$	_	_	_
-	RB1903_J2_1130_Q7_10	J2-1130	Savannah Banks	April 17th, 2019	6:08:00	31.75453	-79.19415	510	Hydroid			014 00005		Х		+	+	-	_
-	RB1903_J2_1130_Q8_01	J2-1130	Savannah Banks	April 17th, 2019	6:36:00	31.75482	-79.19398	509	Enallopsammia	FC1001/	Х	CM_00305	Х	(=:==)		+-+	-	-	
-	RB1903_J2_1130_SBlack_01 RB1903_J2_1130_SBlack_02	J2-1130 J2-1130	Savannah Banks	April 17th, 2019	9:12:00 9:12:00	31.75871 31.75871	-79.19135 -79.19135	520 520	Crinoid Crinoid	EC10016 EC10017	-			x (sieve)x		++	+	+	+
	RB1903_J2_1130_SBlack_03	J2-1130 J2-1130	Savannah Banks Savannah Banks	April 17th, 2019 April 17th, 2019	9:12:00	31.75871	-79.19135	520	Crinoid	EC10017				X		+	+	+	+
	RB1903_J2_1130_SBlack_04	J2-1130 J2-1130	Savannah Banks	April 17th, 2019	9:12:00	31.75871	-79.19135	520	Alcyonacea	EC10018			х		RB-19-059x	+	+	+	+
-	RB1903_J2_1130_SBlack_05	J2-1130	Savannah Banks	April 17th, 2019	9:12:00	31.75871	-79.19135	520	Alcyonacea	EC10020			Х		RB-19-060x	++	+	+	-
	RB1903_J2_1130_SBlack_06	J2-1130	Savannah Banks	April 17th, 2019	9:12:00	31.75871	-79.19135	520	Alcyonacea	EC10021			X		RB-19-061x	+	+	+	
	RB1903_J2_1130_SBlack_07	J2-1130	Savannah Banks	April 17th, 2019	9:12:00	31.75871	-79.19135	520	Thecapsammia	EC10022		CM_00329				T	_	_	$\overline{}$
	RB1903_J2_1130_SBlack_08	J2-1130	Savannah Banks	April 17th, 2019	9:12:00	31.75871	-79.19135	520	Thecapsammia	EC10023		CM_00330				T			
	RB1903_J2_1130_SBlack_09	J2-1130	Savannah Banks	April 17th, 2019	9:12:00	31.75871	-79.19135	520	Thecapsammia			CM_00331							
	RB1903_J2_1130_SBlack_10	J2-1130	Savannah Banks	April 17th, 2019	9:12:00	31.75871	-79.19135	520	Thecapsammia			CM_00332							
	RB1903_J2_1130_SBlack_11	J2-1130	Savannah Banks	April 17th, 2019	9:12:00	31.75871	-79.19135	520	Brittle Star	EC10024									
	RB1903_J2_1130_SBlack_12	J2-1130	Savannah Banks	April 17th, 2019	9:12:00	31.75871	-79.19135	520	Juvenile Crinoid	EC10025						igsquare			\perp
	RB1903_J2_1130_SBlack_13	J2-1130	Savannah Banks	April 17th, 2019	9:12:00	31.75871	-79.19135	520	Thecapsammia			CM_00333				$\perp \perp \downarrow$			Ш
	RB1903_J2_1130_SBlue_01	J2-1130	Savannah Banks	April 17th, 2019	6:47:00	31.75479	-79.19402	509	Thecapsammia	EC10012		CM_00319		x (sieve)x, whirlpak					
	RB1903_J2_1130_SBlue_02	J2-1130	Savannah Banks	April 17th, 2019	6:47:00	31.75479	-79.19402	509	Thecapsammia	EC10013		CM_00320		Х		ш			
	RB1903_J2_1130_SBlue_03	J2-1130	Savannah Banks	April 17th, 2019	6:47:00	31.75479	-79.19402	509	Thecapsammia			CM_00321		x, whirlpak		+	_		_
-	RB1903_J2_1130_SBlue_04	J2-1130	Savannah Banks	April 17th, 2019	6:47:00	31.75479	-79.19402	509	Thecapsammia	-	1	CM_00322		x, whirlpak		++	+	+	+
\vdash	RB1903_J2_1130_SBlue_05	J2-1130	Savannah Banks	April 17th, 2019	6:47:00	31.75479	-79.19402	509	Thecapsammia		1	CM_00323		X	+	+	-		+
-	RB1903_J2_1130_SBlue_06 RB1903_J2_1130_SBlue_07	J2-1130 J2-1130	Savannah Banks Savannah Banks	April 17th, 2019 April 17th, 2019	6:47:00 6:47:00	31.75479 31.75479	-79.19402 -79.19402	509 509	Thecapsammia		1	CM_00324 CM 00325	\vdash	X X		++	+	+	+
\vdash	RB1903_J2_1130_SBlue_07 RB1903_J2_1130_SBlue_08	J2-1130 J2-1130	Savannah Banks	April 17th, 2019 April 17th, 2019	6:47:00	31.75479	-79.19402	509	Thecapsammia Thecapsammia		1	CM_00326		Х		++	+	+	+
	RB1903_J2_1130_SBlue_09	J2-1130 J2-1130	Savannah Banks	April 17th, 2019	6:47:00	31.75479	-79.19402	509	Small Shrimp	 	1	OW_00320			<u> </u>	+	+	+	+
	RB1903_J2_1130_SBlue_10	J2-1130	Savannah Banks	April 17th, 2019	6:47:00	31.75479	-79.19402	509	Alcyonacea	EC10014	1		х			+	+	+	+
	RB1903_J2_1130_SBlue_11	J2-1130	Savannah Banks	April 17th, 2019	6:47:00	31.75479	-79.19402	509	Crinoid	EC10015	1			Х		+	-	1	\Box
	RB1903_J2_1130_SBlue_12	J2-1130	Savannah Banks	April 17th, 2019	6:47:00	31.75479	-79.19402	509	Thecapsammia			CM_00327							
	RB1903_J2_1130_SBlue_13	J2-1130	Savannah Banks	April 17th, 2019	6:47:00	31.75479	-79.19402	509	Thecapsammia			CM_00328						1	

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Furu Mienis	Hillary Close
	RB1903_J2_1130_PC_06	J2-1130	Savannah Banks	April 17th, 2019		NA	NA	NA	Sediment					Х			Х		
	RB1903_J2_1130_PC_07	J2-1130	Savannah Banks	April 17th, 2019		NA	NA	NA	Sediment					X					
	RB1903_J2_1130_PC_08	J2-1130	Savannah Banks	April 17th, 2019	9:04:00	31.75872	-79.19133	520	Sediment					XX					
	RB1903_J2_1130_PC_09	J2-1130	Savannah Banks	April 17th, 2019	9:02:00	31.75872	-79.19133	520	Sediment					Х					
	RB1903_J2_1130_PC_10	J2-1130	Savannah Banks	April 17th, 2019	10:37:00	31.76051	-79.19061	509	Sediment								Х	—	\perp
	RB1903_J2_1130_PC_11	J2-1130	Savannah Banks	April 17th, 2019	10:38:00	31.76051	-79.19061	509	Sediment					Х				—	+
	RB1903_J2_1130_PC_12 RB1903_J2_1130_PC_13	J2-1130 J2-1130	Savannah Banks	April 17th, 2019 April 17th, 2019	10:42:00 10:43:00	31.76051 31.76051	-79.19060 -79.19060	509 509	Sediment Sediment					X			-	+	+
	RB1903_J2_1130_PC_13	J2-1130 J2-1130	Savannah Banks Savannah Banks	April 17th, 2019	11:29:00	31.76121	-79.19059	516	Water		×			Х				+	+-
	RB1903_J2_1130_N_02	J2-1130	Savannah Banks	April 17th, 2019	11:29:00	31.76121	-79.19059	516	Water		^						_	+	+
	RB1903_J2_1130_N_03	J2-1130	Savannah Banks	April 17th, 2019	11:29:00	31.76121	-79.19059	516	Water								_	_	$\overline{}$
	RB1903_J2_1130_N_04	J2-1130	Savannah Banks	April 17th, 2019	11:29:00	31.76121	-79.19059	516	Water									\top	
	RB1903_CTD09_N01	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	1386	Water			Х							
	RB1903_CTD09_N02	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	1386	Water			Х							
	RB1903_CTD09_N03	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	1386	Water			Х							
	RB1903_CTD09_N04	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	1386	Water										
	RB1903_CTD09_N05	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	1386	Water					Х					
	RB1903_CTD09_N06	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	1386	Water	5040004	1						Х	_	_
	RB1903_CTD09_N07	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	1386	Water	EC10094								—	+
	RB1903_CTD09_N08	CTD09 CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	1200	Water Water	EC10095 EC10096	+					х	Х	—	
	RB1903_CTD09_N09 RB1903_CTD09_N10	CTD09	Blake Deep Blake Deep	April 18th, 2019 April 18th, 2019	17:09:00 17:09:00	31 18.8044 31 18.8044	77 13.2781 77 13.2781	1050 1050	Water	EC 10096		X X				Х	х	+	+
	RB1903_CTD09_N11	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	1050	Water			X				Х		+	+
	RB1903_CTD09_N12	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	840	Water	EC10097		^				^	х	+	+
	RB1903_CTD09_N13	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	600	Water	EC10098							Х	+	$\overline{}$
	RB1903_CTD09_N14	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	500	Water	EC10100						Х	х	\top	
	RB1903_CTD09_N15	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	400	Water	EC10101						Х	Х		
	RB1903_CTD09_N16	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	300	Water	EC10102						Х	х		
	RB1903_CTD09_N17	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	200	Water	EC10103							_		
	RB1903_CTD09_N18	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	90	Water	EC10105						Х	Х		
	RB1903_CTD09_N19	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	Surface	Water	EC10106						Х			
	RB1903_CTD09_N20	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	Surface	Water								Х	+	
	RB1903_CTD09_N21 RB1903_CTD09_N22	CTD09 CTD09	Blake Deep	April 18th, 2019	17:09:00 17:09:00	31 18.8044 31 18.8044	77 13.2781 77 13.2781	Surface	Water		+			Х				—	
	RB1903_CTD09_N23	CTD09	Blake Deep Blake Deep	April 18th, 2019 April 18th, 2019	17:09:00	31 18.8044	77 13.2781	Surface Surface	Water Water			X X				Х		+	+
	RB1903_CTD09_N24	CTD09	Blake Deep	April 18th, 2019	17:09:00	31 18.8044	77 13.2781	Surface	Water			X						+	+
	RB1903_J2_1131_B1_01	J2-1131	Blake Deep	April 18th, 2019	9:52:24	31.29021	-77.23391	1333	Solenosmilia	EC10058		CM_00343	х	x (sieve)whirlpak				_	+
	RB1903_J2_1131_B1_02	J2-1131	Blake Deep	April 18th, 2019	5:47:00	31.28802	-77.23610	1318	White plexaurid	EC10059		CM_00347		230x, whirlpak	RB-19-065xx				
	RB1903_J2_1131_B1_03	J2-1131	Blake Deep	April 18th, 2019	4:33:00	31.28772	-77.23673	1331	Metallogorgia	EC10060		CM_00346		235x, whirlpak	RB-19-066xx				
	RB1903_J2_1131_B1_04	J2-1131	Blake Deep	April 18th, 2019	5:44:00	31.28802	-77.23610	1318	Yellow Plexaurid	EC10061		CM_00345	Х	232x	RB-19-067xx				
	RB1903_J2_1131_B1_05	J2-1131	Blake Deep	April 18th, 2019	4:33:00	31.28772	-77.23673	1331	Asteroschema	EC10062				237x	RB-19-068x				
	RB1903_J2_1131_B1_06	J2-1131	Blake Deep	April 18th, 2019	9:52:24	31.29021	-77.23391	1333	Bamboo Coral	EC10063		CM_00344	Х	236x	RB-19-069xx				
	RB1903_J2_1131_B1_07	J2-1131	Blake Deep	April 18th, 2019	9:52:24	31.29021	-77.23391	1333	Anemone		1			000	RB-19-070xx				+
	RB1903_J2_1131_B1_08	J2-1131	Blake Deep	April 18th, 2019	9:52:24	31.29021	-77.23391	1333	Eunicid	-	1 1	CM 00242		238x	1		-	+	++
	RB1903_J2_1131_B1_09	J2-1131 J2-1131	Blake Deep	April 18th, 2019	9:52:24 9:52:24	31.29021 31.29021	-77.23391	1333 1333	Eunicid	EC10044		CM_00348		239x 245x		\vdash		+	++
	RB1903_J2_1131_B1_10 RB1903_J2_1131_B1_11a	J2-1131 J2-1131	Blake Deep Blake Deep	April 18th, 2019 April 18th, 2019	9:52:24	31.29021	-77.23391 -77.23391	1333	Sponge Asteroschema	EC10064				245X 241x	1	\vdash	-+	+	+
	RB1903_J2_1131_B1_11b	J2-1131 J2-1131	Blake Deep	April 18th, 2019	9:52:24	31.29021	-77.23391	1333	Sponge carniverous					246x			+	+	+
	RB1903_J2_1131_B1_12	J2-1131	Blake Deep	April 18th, 2019	9:52:24	31.29021	-77.23391	1333	Sponge					244x				\top	+
	RB1903_J2_1131_B1_13	J2-1131	Blake Deep	April 18th, 2019	9:52:24	31.29021	-77.23391	1333	Sponge (yellow)		1 1			247x				\top	
	RB1903_J2_1131_B1_14	J2-1131	Blake Deep	April 18th, 2019	9:52:24	31.29021	-77.23391	1333	Hydroid					249x					
	RB1903_J2_1131_B2_01	J2-1131	Blake Deep	April 18th, 2019	9:34:30	31.29023	-77.23389	1334	Chrysogorgia	EC10065		CM_00349		240x	RB-19-071xx			\perp	
<u> </u>	RB1903_J2_1131_B2_02	J2-1131	Blake Deep	April 18th, 2019	9:39:33	31.29022	-77.23389	1334	Bamboo Coral	EC10066		CM_00350	Х	242x	RB-19-072xx		L	Ш.	Ш

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
	RB1903_J2_1131_B2_03	J2-1131	Blake Deep	April 18th, 2019	9:39:33	31.29022	-77.23389	1334	Desmophyllum	EC10072	CM_0035	3 x		RB-19-075xx				
	RB1903_J2_1131_B2_04	J2-1131	Blake Deep	April 18th, 2019	11:03:30	31.29010	-77.23400	1327	Paramuricea	EC10067	CM_0035	2 x	243x	RB-19-073xx				
	RB1903_J2_1131_B2_05	J2-1131	Blake Deep	April 18th, 2019	10:56:57	31.29010	-77.23401	1327	Solenosmilia	EC10068	CM_0035	1 x	whirlpak					
	RB1903_J2_1131_B2_06	J2-1131	Blake Deep	April 18th, 2019	9:34:30	31.29023	-77.23389	1334	Brittle Star	EC10069			248x					
L	RB1903_J2_1131_B2_07	J2-1131	Blake Deep	April 18th, 2019	11:03:30	31.29010	-77.23400	1327	Aplacophoran	EC10070			250x				'	
	RB1903_J2_1131_B2_08	J2-1131	Blake Deep	April 18th, 2019	11:03:30	31.29010	-77.23400	1327	Aplacophoran	EC10071			251x					
	RB1903_J2_1131_B2_09	J2-1131	Blake Deep	April 18th, 2019	11:03:30	31.29010	-77.23400	1327	Crinoid	EC10073		_	252x				'	
-	RB1903_J2_1131_B3_01	J2-1131	Blake Deep	April 18th, 2019	2:20:32	31.28605	-77.23728	1363	Solenosmilia	EC10078	CM_0035	_	258x, whirlpak	DD 40 07/				
-	RB1903_J2_1131_B3_02	J2-1131	Blake Deep	April 18th, 2019	2:36:42	31.28604	-77.23729	1363	Corallidae	EC10079	CM_0035		259x, whirlpak	RB-19-076xx				
-	RB1903_J2_1131_B3_03	J2-1131	Blake Deep	April 18th, 2019	3:56:13	31.28701	-77.23748	1350	Yellow Plexaurid	EC10080	CM_0036	JX	260x	RB-19-077xx		_	-	
H	RB1903_J2_1131_B3_04 RB1903_J2_1131_B3_05	J2-1131 J2-1131	Blake Deep	April 18th, 2019	2:20:32 11:00:30	31.28605 31.29010	-77.23728 -77.23401	1363 1327	Eunicid		CM 003E	7	xwhirlpak				+	
-	RB1903_J2_1131_B3_06	J2-1131 J2-1131	Blake Deep	April 18th, 2019 April 18th, 2019	3:56:13	31.29010	-77.23748	1350	Desmophyllum	EC10081	CM_0035	'	whirlpak			-+	+	_
H	RB1903_J2_1131_B3_07	J2-1131 J2-1131	Blake Deep Blake Deep	April 18th, 2019	3:56:13	31.28701	-77.23748	1350	Astroschema Aplacophoran	EC10081 EC10082			261x 262x			-		_
H	RB1903_J2_1131_B3_08	J2-1131	Blake Deep	April 18th, 2019	3:56:13	31.28701	-77.23748	1350	Aplacophoran	EC10002			263x			-	+	_
H	RB1903_J2_1131_B3_09	J2-1131	Blake Deep	April 18th, 2019	11:00:30	31.29010	-77.23401	1327	Bamboo Base	EC10003			265x			-	+	_
F	RB1903_J2_1131_B4_01	J2-1131	Blake Deep	April 18th, 2019	8:23:09	31.29006	-77.23362	1342	Solenosmilia	EC10054	CM_0033	9 x	x (sieve)whirlpak			-	+	_
F	RB1903_J2_1131_B4_02	J2-1131	Blake Deep	April 18th, 2019	8:14:00	31.29006	-77.23360	1343	Isididae	EC10055	OW_0033	, х	225x	RB-19-062xx		-	+	_
	RB1903_J2_1131_B4_03	J2-1131	Blake Deep	April 18th, 2019	8:54:27	31.29013	-77.23375	1338	Paramuricea	EC10056	CM_0034) x	226x	RB-19-063xx		_	+	=
F	RB1903_J2_1131_B4_04	J2-1131	Blake Deep	April 18th, 2019	8:54:27	31.29013	-77.23375	1338	Astroschema	EC10057	CM_0034	_	224x, centrifuge tube	RB-19-064xx			_	
F	RB1903_J2_1131_B4_05	J2-1131	Blake Deep	April 18th, 2019	8:23:09	31.29006	-77.23362	1342	Eunicid		CM 0033	_	.,					
	RB1903_J2_1131_B4_06	J2-1131	Blake Deep	April 18th, 2019	2:36:42	31.28604	-77.23729	1363	Hydroid				228x					
	RB1903_J2_1131_B4_07	J2-1131	Blake Deep	April 18th, 2019	2:36:42	31.28604	-77.23729	1363	Sponge (carniverous)				229x					
	RB1903_J2_1131_B4_08	J2-1131	Blake Deep	April 18th, 2019	2:36:42	31.28604	-77.23729	1363	Hydroid				231x					
	RB1903_J2_1131_B4_09	J2-1131	Blake Deep	April 18th, 2019	2:36:42	31.28604	-77.23729	1363	Sponge				233x					
	RB1903_J2_1131_B4_10	J2-1131	Blake Deep	April 18th, 2019	2:36:42	31.28604	-77.23729	1363	Hydroid				234x					
	RB1903_J2_1131_B5_01	J2-1131	Blake Deep	April 18th, 2019	8:08:00	31.29007	-77.23362	1342	Solenosmilia	EC10074	CM_0035	4 x	x (sieve)whirlpak					
	RB1903_J2_1131_B5_02	J2-1131	Blake Deep	April 18th, 2019	9:12:50	31.29011	-77.23375	1337	Bamboo Coral	EC10075	CM_0035	5 x	253x	RB-19-074xx				
	RB1903_J2_1131_B5_03	J2-1131	Blake Deep	April 18th, 2019	12:30:04	31.29004	-77.23412	1321	Paramuricea	EC10076	CM_0035	5 x	254x					
	RB1903_J2_1131_B5_04	J2-1131	Blake Deep	April 18th, 2019	8:08:00	31.29007	-77.23362	1342	Cladhorizid	EC10077			255x					
	RB1903_J2_1131_B5_05	J2-1131	Blake Deep	April 18th, 2019	8:08:00	31.29007	-77.23362	1342	Cladhorizid				256x					
L	RB1903_J2_1131_B5_06	J2-1131	Blake Deep	April 18th, 2019	8:08:00	31.29007	-77.23362	1342	Cladhorizid				257x				'	
	RB1903_J2_1131_B5_07	J2-1131	Blake Deep	April 18th, 2019	9:12:50	31.29011	-77.23375	1337	Hydroid								'	
L	RB1903_J2_1131_B5_08	J2-1131	Blake Deep	April 18th, 2019	9:12:50	31.29011	-77.23375	1337	Amphipod				vial				'	
-	RB1903_J2_1131_B5_09	J2-1131	Blake Deep	April 18th, 2019	9:12:50	31.29011	-77.23375	1337	Annelid				285x				'	
H	RB1903_J2_1131_B6_01	J2-1131	Blake Deep	April 18th, 2019	8:52:20	31.29013	-77.23375	1338	Paramuricea	EC10084	014 000		272x (sieve)x	RB-19-078xx	+	+	+'	\dashv
\vdash	RB1903_J2_1131_B6_02	J2-1131	Blake Deep	April 18th, 2019	8:41:34 11:21:51	31.29013	-77.23372	1339	Solenosmilia	EC10085	CM_0036	ı X	whirlpak	1		+	+'	\dashv
-	RB1903_J2_1131_B6_03 RB1903_J2_1131_B6_04	J2-1131 J2-1131	Blake Deep	April 18th, 2019 April 18th, 2019	11:21:51	31.29010 31.29010	-77.23416 -77.23416	1320 1320	Sponge	EC10086 EC10087			270x 271x			-+	+	_
-	RB1903_J2_1131_B6_05	J2-1131 J2-1131	Blake Deep		11.21.31	NA	-77.23410 NA	NA	Sponge Primnoid	EC10087 EC10088			267x	RB-19-079xx		-	+	
H	RB1903_J2_1131_B6_06	J2-1131 J2-1131	Blake Deep Blake Deep	April 18th, 2019 April 18th, 2019		NA NA	NA NA	NA NA	Primnoid	EC10088			268x	RB-19-079XX		+	+-	-
-	RB1903_J2_1131_B6_07	J2-1131	Blake Deep	April 18th, 2019	11:21:51	31.29010	-77.23416	1320	Bamboo Coral	EC10007			269x	RB-19-080xx	v	-+	+	_
H	RB1903_J2_1131_B6_08	J2-1131 J2-1131	Blake Deep	April 18th, 2019	11:21:51	31.29010	-77.23416	1320	Ophiuroid		 		2078	ND-17-001X	^	+	+-	=
H	RB1903_J2_1131_B6_09	J2-1131	Blake Deep	April 18th, 2019	11:21:51	31.29010	-77.23416	1320	Hydroid				273x		+	+	+	\dashv
-	RB1903_J2_1131_B6_10	J2-1131	Blake Deep	April 18th, 2019		NA NA	NA NA	NA	Primnoid				274x	RB-19-082x	+	+	+	\exists
 	RB1903_J2_1131_B6_11	J2-1131	Blake Deep	April 18th, 2019	8:52:20	31.29013	-77.23375	1338	Anemone				-7.05	RB-19-083x		+	+	=
	RB1903 J2 1131 B6 12	J2-1131	Blake Deep	April 18th, 2019	8:52:20	31.29013	-77.23375	1338	Barnacle	EC10091			275x			\top	+	=
	RB1903_J2_1131_B6_13	J2-1131	Blake Deep	April 18th, 2019	8:52:20	31.29013	-77.23375	1338	Annelid				266, 276x			\top	\top	\Box
F	RB1903_J2_1131_B6_14	J2-1131	Blake Deep	April 18th, 2019	8:52:20	31.29013	-77.23375	1338	Sponge (yellow)				277x			\neg	\top	
	RB1903_J2_1131_B6_15	J2-1131	Blake Deep	April 18th, 2019	8:52:20	31.29013	-77.23375	1338	Sponge (Blue)				278x				1	\Box
	RB1903_J2_1131_B6_16	J2-1131	Blake Deep	April 18th, 2019	8:52:20	31.29013	-77.23375	1338	Hydroid				280x			\top	1	\Box
	RB1903_J2_1131_B6_17	J2-1131	Blake Deep	April 18th, 2019	8:52:20	31.29013	-77.23375	1338	Annelid				vial			\neg		\Box
	RB1903_J2_1131_B6_18	J2-1131	Blake Deep	April 18th, 2019	8:52:20	31.29013	-77.23375	1338	Ophiuroid				289				1	

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
	RB1903_J2_1131_Q1_01	J2-1131	Blake Deep	April 18th, 2019	5:15:00	31.28796	-77.23654	1320	Chrysogorgia	EC10107				287, 316x (sieve)x	RB-19-088xx				
	RB1903_J2_1131_Q1_02	J2-1131	Blake Deep	April 18th, 2019	5:15:00	31.28796	-77.23654	1320	Bamboo Coral	EC10108				286x	RB-19-089x				
	RB1903_J2_1131_Q2_01	J2-1131	Blake Deep	April 18th, 2019	13:50:55	31.29017	-77.23447	1318	Chrysogorgia	EC10109				319x (sieve)x	RB-19-090xx				
	RB1903_J2_1131_Q3_01	J2-1131	Blake Deep	April 18th, 2019	3:15:39	31.28646	-77.23734	1359	Iridogorgia					290x (sieve)x	RB-19-091x				
	RB1903_J2_1131_Q3_02	J2-1131	Blake Deep	April 18th, 2019	3:25:48	31.28645	-77.23734	1359	Orange antipatharian	EC10110				291x				4	
	RB1903_J2_1131_Q4_01	J2-1131	Blake Deep	April 18th, 2019	4:56:00	31.28790	-77.23670	1321	Desmophyllum		Х	CM_00336						4	
-	RB1903_J2_1131_Q5_01	J2-1131	Blake Deep	April 18th, 2019	7:08:00	31.28863	-77.23419	1317	Swiftia	EC10092				283x	RB-19-086x			!	
-	RB1903_J2_1131_Q5_02	J2-1131	Blake Deep	April 18th, 2019	12:54:26	31.29018	-77.23429	1320	Plexaurid	EC10091		011 00000	Х	284x	RB-19-087x			4	
-	RB1903_J2_1131_Q6_01	J2-1131	Blake Deep	April 18th, 2019	5:28:00	31.28795	-77.23655	1320	Desmophyllum	F010000	Х	CM_00338		004	DD 10 001			+	_
	RB1903_J2_1131_Q7_01	J2-1131	Blake Deep	April 18th, 2019	1:37:27	31.28566	-77.23726	1365	Isididae	EC10090				281x	RB-19-084x			+	_
	RB1903_J2_1131_Q7_02 RB1903_J2_1131_Q7_03	J2-1131 J2-1131	Blake Deep	April 18th, 2019	10:39:38 10:39:38	31.29012 31.29012	-77.23395 -77.23395	1330	Primnoid	EC10091				282x	RB-19-085x		-	+	_
-	RB1903_J2_1131_Q8_01	J2-1131 J2-1131	Blake Deep	April 18th, 2019 April 18th, 2019	5:01:00	31.29012	-77.23670	1330 1321	Desmophyllum			CM 00242	Х				-+		
	RB1903_J2_1131_Q8_01 RB1903_J2_1131_Q9_01	J2-1131 J2-1131	Blake Deep Blake Deep	April 18th, 2019	5.01.00	NA	-77.23670 NA	NA	Desmophyllum Desmophyllum		Х	CM_00342	v				-	+	_
-	RB1903_J2_1131_Q9_02a	J2-1131	Blake Deep	April 18th, 2019		NA NA	NA NA	NA NA	Desmophyllum Desmophyllum	EC10127			^				-	+	
	RB1903_J2_1131_Q9_02b	J2-1131	Blake Deep	April 18th, 2019		NA NA	NA NA	NA NA	Desmophyllum	LC10127							-	+	
-	RB1903_J2_1131_Q9_03a	J2-1131	Blake Deep	April 18th, 2019		NA	NA	NA	Desmophyllum	EC10128								+	-
	RB1903_J2_1131_Q9_03b	J2-1131	Blake Deep	April 18th, 2019		NA	NA	NA	Desmophyllum	2010120								+	-
	RB1903_J2_1131_Q9_04	J2-1131	Blake Deep	April 18th, 2019		NA	NA	NA	Desmophyllum								_	+	=
	RB1903_J2_1131_Sblack_01	J2-1131	Blake Deep	April 18th, 2019	9:44:14	31.29022	-77.23389	1334	Solenosmilia	EC10112		CM_00366	х	x (sieve)whirlpak				+	
	RB1903_J2_1131_Sblack_02	J2-1131	Blake Deep	April 18th, 2019	9:44:14	31.29022	-77.23389	1334	Sponge	EC10113				(* * * *)				+	
	RB1903_J2_1131_Sblack_03	J2-1131	Blake Deep	April 18th, 2019	9:44:14	31.29022	-77.23389	1334	Chrysogorgia					306x					
	RB1903_J2_1131_Sblack_04	J2-1131	Blake Deep	April 18th, 2019	9:44:14	31.29022	-77.23389	1334	Cladhorizid					309x					
	RB1903_J2_1131_Sblue_01	J2-1131	Blake Deep	April 18th, 2019	8:55:00	31.29013	-77.23375	1338	Desmophyllum			CM_00367	х	300x (sieve)x					
	RB1903_J2_1131_Sblue_02	J2-1131	Blake Deep	April 18th, 2019	8:55:00	31.29013	-77.23375	1338	Desmophyllum	EC10114		CM_00368		303x, whirlpak					
	RB1903_J2_1131_Sblue_03	J2-1131	Blake Deep	April 18th, 2019	8:55:00	31.29013	-77.23375	1338	Desmophyllum	EC10115		CM_00369		whirlpak					
	RB1903_J2_1131_Sblue_04-1	J2-1131	Blake Deep	April 18th, 2019	8:55:00	31.29013	-77.23375	1338	Hermit crab eggs					302x					
	RB1903_J2_1131_Sblue_04-2	J2-1131	Blake Deep	April 18th, 2019	8:55:00	31.29013	-77.23375	1338	Hermit crab					305x					
	RB1903_J2_1131_Sblue_05	J2-1131	Blake Deep	April 18th, 2019	8:55:00	31.29013	-77.23375	1338	Cup coral	EC10116									
	RB1903_J2_1131_Sblue_06	J2-1131	Blake Deep	April 18th, 2019	8:55:00	31.29013	-77.23375	1338	Sponge					308x					
	RB1903_J2_1131_Sblue_08	J2-1131	Blake Deep	April 18th, 2019	8:55:00	31.29013	-77.23375	1338	Annelid					307x					
	RB1903_J2_1131_Sred_01	J2-1131	Blake Deep	April 18th, 2019	10:28:42	31.29013	-77.23395	1330	Desmophyllum			CM_00362	Х	296x (sieve)x				!	
	RB1903_J2_1131_Sred_02	J2-1131	Blake Deep	April 18th, 2019	10:28:42	31.29013	-77.23395	1330	Desmophyllum	EC10111		CM_00363		297x, whirlpak					
	RB1903_J2_1131_Sred_03	J2-1131	Blake Deep	April 18th, 2019	10:28:42	31.29013	-77.23395	1330	Desmophyllum			CM_00364		298x, whirlpak				!	
	RB1903_J2_1131_Sred_04	J2-1131	Blake Deep	April 18th, 2019	10:28:42	31.29013	-77.23395	1330	Desmophyllum			CM_00365		299x, whirlpak				!	_
	RB1903_J2_1131_Sred_05	J2-1131	Blake Deep	April 18th, 2019	10:28:42	31.29013	-77.23395	1330	Desmophyllum									4	
	RB1903_J2_1131_Sred_07	J2-1131	Blake Deep	April 18th, 2019	10:28:42	31.29013	-77.23395	1330	Hermit crab					vial			$-\!\!\!\!\!+\!\!\!\!\!-$	_	_
-	RB1903_J2_1131_Sred_08	J2-1131	Blake Deep	April 18th, 2019	10:28:42	31.29013	-77.23395	1330	Annelid					293x			-	+	_
	RB1903_J2_1131_Sred_09 RB1903_J2_1131_Sred_10	J2-1131 J2-1131	Blake Deep Blake Deep	April 18th, 2019 April 18th, 2019	10:28:42 10:28:42	31.29013 31.29013	-77.23395 -77.23395	1330 1330	Hydroid					292x 294x			-	+	_
-		J2-1131 J2-1131			10:28:42	31.29013	-77.23395	1330	Gastropod					295x			-+		
	RB1903_J2_1131_Sred_11 RB1903_J2_1131_Sred_12	J2-1131 J2-1131	Blake Deep Blake Deep	April 18th, 2019 April 18th, 2019	10:28:42	31.29013	-77.23395	1330	Sponge Amphipod					vial			+	+	\dashv
	RB1903_J2_1131_Sred_13	J2-1131	Blake Deep	April 18th, 2019	10:28:42	31.29013	-77.23395	1330	Amphipod					301x				+	
-	RB1903_J2_1131_Sied_13 RB1903_J2_1131_RockBox_01	J2-1131 J2-1131	Blake Deep	April 18th, 2019	7:43:00	31.28947	-77.23403	1316	Felled Bamboo coral					JUIA		х	+	+	\dashv
-	RB1903_J2_1131_RockBox_01-1	J2-1131	Blake Deep	April 18th, 2019	7:43:00	31.28947	-77.23403	1316	Sponge					333x		- "	+	+	\dashv
	RB1903_J2_1131_RockBox_01-2	J2-1131	Blake Deep	April 18th, 2019	7:43:00	31.28947	-77.23403	1316	Sponge					334x			+	+	\dashv
	RB1903_J2_1131_RockBox_01-3	J2-1131	Blake Deep	April 18th, 2019	7:43:00	31.28947	-77.23403	1316	Stylasterid					335x			+	+	\dashv
	RB1903_J2_1131_RockBox_01-4	J2-1131	Blake Deep	April 18th, 2019	7:43:00	31.28947	-77.23403	1316	Glass sponge					336x			\top	+	\neg
	RB1903_J2_1131_RockBox_01-5	J2-1131	Blake Deep	April 18th, 2019	7:43:00	31.28947	-77.23403	1316	sponge w/green growth					337x			\neg		\neg
	RB1903_J2_1131_RockBox_01-6	J2-1131	Blake Deep	April 18th, 2019	7:43:00	31.28947	-77.23403	1316	crinoid					338x					
	RB1903_J2_1131_RockBox_01-7	J2-1131	Blake Deep	April 18th, 2019	7:43:00	31.28947	-77.23403	1316	glass sponge					339x					
	RB1903_J2_1131_RockBox_02	J2-1131	Blake Deep	April 18th, 2019	4:23:00	31.28759	-77.23678	1337	Bamboo coral										
	RB1903_J2_1131_RockBox_02-1	J2-1131	Blake Deep	April 18th, 2019	4:23:00	31.28759	-77.23678	1337	Anemone					312x		Х			

Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Jason Chaylor Furu Mienis	Hillary Close
RB1903_J2_1131_RockBox_02-2	J2-1131	Blake Deep	April 18th, 2019	4:23:00	31.28759	-77.23678	1337	Tunicate					313x					
RB1903_J2_1131_RockBox_02-3	J2-1131	Blake Deep	April 18th, 2019	4:23:00	31.28759	-77.23678	1337	Tunicate					314x					
RB1903_J2_1131_RockBox_02-4	J2-1131	Blake Deep	April 18th, 2019	4:23:00	31.28759	-77.23678	1337	Sponge					315x					
RB1903_J2_1131_RockBox_02-5	J2-1131	Blake Deep	April 18th, 2019	4:23:00	31.28759	-77.23678	1337	Sponge					317x					
RB1903_J2_1131_RockBox_02-6	J2-1131	Blake Deep	April 18th, 2019	4:23:00	31.28759	-77.23678	1337	Sponge					318x					
RB1903_J2_1131_RockBox_02-7	J2-1131	Blake Deep	April 18th, 2019	4:23:00	31.28759	-77.23678	1337	Hydroid					320x					
RB1903_J2_1131_RockBox_02-8	J2-1131	Blake Deep	April 18th, 2019	4:23:00	31.28759	-77.23678	1337	Hydoird					321x					
RB1903_J2_1131_RockBox_03	J2-1131	Blake Deep	April 18th, 2019	12:59:27	31.29018	-77.23428	1320	Medium rock										
RB1903_J2_1131_RockBox_03-1	J2-1131	Blake Deep	April 18th, 2019	12:59:27	31.29018	-77.23428	1320	cup coral					310x				_	_
RB1903_J2_1131_RockBox_03-2	J2-1131	Blake Deep	April 18th, 2019	12:59:27	31.29018	-77.23428	1320	hydroid					311x				_	_
RB1903_J2_1131_RockBox_03-3	J2-1131	Blake Deep	April 18th, 2019	12:59:27	31.29018	-77.23428	1320	chrysogorgia					322x				_	\perp
RB1903_J2_1131_RockBox_03-4	J2-1131	Blake Deep	April 18th, 2019	12:59:27	31.29018	-77.23428	1320	glass sponge					323x				_	
RB1903_J2_1131_RockBox_03-5	J2-1131	Blake Deep	April 18th, 2019	12:59:27	31.29018	-77.23428	1320	polychaete					324x				—	
RB1903_J2_1131_RockBox_03-6	J2-1131	Blake Deep	April 18th, 2019	12:59:27	31.29018	-77.23428	1320	glass sponge					325x			_	_	-
RB1903_J2_1131_RockBox_03-7	J2-1131 J2-1131	Blake Deep	April 18th, 2019	12:59:27 12:59:27	31.29018	-77.23428 -77.23428	1320	Glass sponge					326x 327x			_	_	-
RB1903_J2_1131_RockBox_03-8 RB1903_J2_1131_RockBox_03-9	J2-1131 J2-1131	Blake Deep Blake Deep	April 18th, 2019 April 18th, 2019	12:59:27	31.29018 31.29018	-77.23428	1320 1320	hydroid					328x			-+	—	
RB1903_J2_1131_R0ckB0x_03-10	J2-1131 J2-1131	Blake Deep	April 18th, 2019	12:59:27	31.29018	-77.23428	1320	glass sponge					329x			-+	—	+
RB1903_J2_1131_RockBox_03-10	J2-1131	Blake Deep	April 18th, 2019	12:59:27	31.29018	-77.23428	1320	sponge polychaete					330x			-+	+	+
RB1903_J2_1131_RockBox_03-12	J2-1131	Blake Deep	April 18th, 2019	12:59:27	31.29018	-77.23428	1320	glass sponge					332x			-+	+	+
RB1903_J2_1131_RockBox_04	J2-1131	Blake Deep	April 18th, 2019	14:17:56	31.29020	-77.23495	1319	Rock					OULA				+	+
RB1903_J2_1131_RockBox_05	J2-1131	Blake Deep	April 18th, 2019	7117100	NA NA	NA	NA	Bamboo coral					331x					
RB1903_J2_1131_RockBox_06	J2-1131	Blake Deep	April 18th, 2019		NA	NA	NA	rock									_	\Box
RB1903_J2_1131_RockBox_07	J2-1131	Blake Deep	April 18th, 2019		NA	NA	NA	Desmophyllum			CM_00370	х	whirlpak				+	\Box
RB1903_J2_1131_RockBox_08	J2-1131	Blake Deep	April 18th, 2019		NA	NA	NA	Desmophyllum				х	whirlpak					
RB1903_J2_1131_RockBox_09	J2-1131	Blake Deep	April 18th, 2019		NA	NA	NA	rock					264x					
RB1903_J2_1131_RockBox_10	J2-1131	Blake Deep	April 18th, 2019		NA	NA	NA	Desmophyllum				Х						
RB1903_J2_1131_N01	J2-1131	Blake Deep	April 18th, 2019	11:51:36	31.28987	-77.23404	1318	Water							Х			
RB1903_J2_1131_N02	J2-1131	Blake Deep	April 18th, 2019	11:52:15	31.28987	-77.23403	1318	Water										
RB1903_J2_1131_N03	J2-1131	Blake Deep	April 18th, 2019	11:57:10	31.28987	-77.23402	1318	Water		Х								
RB1903_J2_1131_N04	J2-1131	Blake Deep	April 18th, 2019	11:55:57	31.28987	-77.23402	1318	Water		Х								
RB1903_J2_1131_PC_06	J2-1131	Blake Deep	April 18th, 2019	6:26:00	31.28797	-77.23473	1318	Sediment					Х					
RB1903_J2_1131_PC_07	J2-1131	Blake Deep	April 18th, 2019	6:28:00	31.28798	-77.23473	1318	Sediment								Х		
RB1903_J2_1131_PC_08	J2-1131	Blake Deep	April 18th, 2019	6:30:00	31.28798	-77.23473	1318	Sediment									_	
RB1903_J2_1131_PC_09	J2-1131	Blake Deep	April 18th, 2019	6:32:00	31.28798	-77.23473	1318	Sediment					Х				_	
RB1903_J2_1131_PC_11	J2-1131	Blake Deep	April 18th, 2019	10:11:16	31.29020	-77.23391	1334	Sediment								Х	—	_
RB1903_J2_1131_PC_12 RB1903_J2_1131_PC_15	J2-1131	Blake Deep	April 18th, 2019	10:10:16	31.29020 31.29020	-77.23391 -77.23391	1334	Sediment		\vdash						-+	-	+-
RB1903_J2_1131_PC_16	J2-1131 J2-1131	Blake Deep	April 18th, 2019 April 18th, 2019	10:09:04 10:07:49	31.29020	-77.23391	1334 1334	Sediment Sediment					X X			-+	—	-
RB1903_J2_1131_PC_16 RB1903_J2_1132_M3_01	J2-1131 J2-1132	Blake Deep Pamlico Canyon		5:20:00	34.93119	-75.15139	1584	Dead Solenosamellia	EC10183				X			-+	—	+
RB1903_J2_1132_M3_01 RB1903_J2_1132_M3_02	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	5:20:00	34.93119	-75.15139	1584	Dead Solenosamelia Dead Desmophyllum	EC10183 EC10184	\vdash					х	-+	+-	+-
RB1903_J2_1132_M3_03	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019	5:20:00	34.93119	-75.15139	1584	Bivalve	EC10185						^	-+	+	+
RB1903_J2_1132_M3_04	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019	5:20:00	34.93119	-75.15139	1584	Gastropod	EC10186	+						-+	+	+
RB1903_J2_1132_M3_05	J2-1132	Pamlico Canyon	April 21-22, 2019	5:20:00	34.93119	-75.15139	1584	Ophiuroid	EC10187	1 1							+	+
RB1903_J2_1132_B1_01	J2-1132	Pamlico Canyon	April 21-22, 2019	1:08:45	34.93120	-75.14975	1610	Solenosamellia	EC10177		CM-00445	х				=	+	+
RB1903_J2_1132_B1_02	J2-1132	Pamlico Canyon	April 21-22, 2019	1:08:45	34.93120	-75.14975	1610	Acesta			CM-00443		412x				-	\Box
RB1903_J2_1132_B1_03	J2-1132	Pamlico Canyon	April 21-22, 2019	1:08:45	34.93120	-75.14975	1610	Acesta	EC10178				413x				\top	
RB1903_J2_1132_B1_04	J2-1132	Pamlico Canyon	April 21-22, 2019	1:08:45	34.93120	-75.14975	1610	Desmophyllum			CM-00444		435x					
RB1903_J2_1132_B1_05	J2-1132	Pamlico Canyon	April 21-22, 2019	1:08:45	34.93120	-75.14975	1610	Sipunculid			CM-00449		446x					
RB1903_J2_1132_B1_06	J2-1132	Pamlico Canyon	April 21-22, 2019	1:08:45	34.93120	-75.14975	1610	Sipunculid					whirlpak					
RB1903_J2_1132_B1_07	J2-1132	Pamlico Canyon	April 21-22, 2019	1:08:45	34.93120	-75.14975	1610	Peanut Worm					450x					
RB1903_J2_1132_B1_08	J2-1132	Pamlico Canyon	April 21-22, 2019	1:08:45	34.93120	-75.14975	1610	Peanut Worm					451x					Ш
RB1903_J2_1132_B1_09	J2-1132	Pamlico Canyon	April 21-22, 2019	1:08:45	34.93120	-75.14975	1610	Peanut Worm					452x				Ш.	ш

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chavtor	Furu Mienis	Hillary Close
	RB1903_J2_1132_B1_10	J2-1132	Pamlico Canyon	April 21-22, 2019	1:08:45	34.93120	-75.14975	1610	Peanut Worm					453x					
	RB1903_J2_1132_B2_01	J2-1132	Pamlico Canyon	April 21-22, 2019	7:50:00	34.93216	-75.15230	1512	Acesta	EC10180		CM-00448		432x				_	-
	RB1903_J2_1132_B2_02	J2-1132	Pamlico Canyon	April 21-22, 2019	8:08:40	34.93301	-75.15279	1511	Black Coral	EC10181, EC10182				433x					
	RB1903_J2_1132_B2_03	J2-1132	Pamlico Canyon	April 21-22, 2019	11:13:55	34.93446	-75.15359	1405	Solenosamellia	EC10179		CM-00447	Х	whirlpak					-
-	RB1903_J2_1132_B2_04 RB1903_J2_1132_B2_05	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019		NA NA	NA NA	NA NA	Acesta					443x 442x		Х		_	+
	RB1903_J2_1132_B2_06	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019		NA NA	NA NA	NA NA	Acesta Scale Worm					442x 444x				-	+
	RB1903_J2_1132_B2_07	J2-1132	Pamlico Canyon	April 21-22, 2019		NA NA	NA NA	NA NA	Desmophyllum					445x			-+		+-
	RB1903_J2_1132_B4_01	J2-1132	Pamlico Canyon	April 21-22, 2019	7:34:00	34.93216	-75.15230	1513	Solenosamellia	EC10162		CM-00438	х	whirlpak					
	RB1903_J2_1132_B4_02	J2-1132	Pamlico Canyon	April 21-22, 2019	8:31:10	34.93368	-75.15318	1479	Acanthogorgia	EC10163			х	430x	RB-19-107xx				
	RB1903_J2_1132_B4_03	J2-1132	Pamlico Canyon	April 21-22, 2019	8:31:10	34.93368	-75.15318	1479	Scale Worm					431x					
	RB1903_J2_1132_B5_01	J2-1132	Pamlico Canyon	April 21-22, 2019	4:51:00	34.93102	-75.15101	1583	Solenosamellia	EC10173		CM-00446	Х	whirlpak					
	RB1903_J2_1132_B5_02	J2-1132	Pamlico Canyon	April 21-22, 2019	4:51:00	34.93102	-75.15101	1583	Desmophyllum	EC10174		CM-00439	Х	427x					
	RB1903_J2_1132_B5_03	J2-1132	Pamlico Canyon	April 21-22, 2019	4:51:00	34.93102	-75.15101	1583	Desmophyllum			CM-00440	Х	448x					
	RB1903_J2_1132_B5_04	J2-1132	Pamlico Canyon	April 21-22, 2019	4:51:00	34.93102	-75.15101	1583	Desmophyllum			CM-00441	Х	440x				_	-
-	RB1903_J2_1132_B5_05 RB1903_J2_1132_B5_06	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	4:51:00 4:51:00	34.93102 34.93102	-75.15101 -75.15101	1583 1583	Desmophyllum			CM-00442		437x 438x				_	+
	RB1903_J2_1132_B5_07	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	4:51:00	34.93102	-75.15101	1583	Eunicid	EC10175				430X			_		+-
	RB1903_J2_1132_B5_08	J2-1132	Pamlico Canyon	April 21-22, 2019	4:51:00	34.93102	-75.15101	1583	Acesta	LC10173				421x			-+		+-
	RB1903_J2_1132_B5_09	J2-1132	Pamlico Canyon	April 21-22, 2019	4:51:00	34.93102	-75.15101	1583	Acesta					422x			_	_	
	RB1903_J2_1132_B5_10	J2-1132	Pamlico Canyon	April 21-22, 2019	4:51:00	34.93102	-75.15101	1583	Sponge	EC10176				whirlpak					
	RB1903_J2_1132_B5_11	J2-1132	Pamlico Canyon	April 21-22, 2019	4:51:00	34.93102	-75.15101	1583	Hydroid					436x					
	RB1903_J2_1132_B5_12	J2-1132	Pamlico Canyon	April 21-22, 2019	4:51:00	34.93102	-75.15101	1583	Hydroid					447x					
	RB1903_J2_1132_Q1_01	J2-1132	Pamlico Canyon	April 21-22, 2019	8:50:19	34.93369	-75.15318	1476	Acanthogorgia	EC10144	Х	CM-00404	Х	369x	RB-19-095xx				
	RB1903_J2_1132_Q1_02	J2-1132	Pamlico Canyon	April 21-22, 2019	8:50:19	34.93369	-75.15318	1476	Annelid					346x					
	RB1903_J2_1132_Q2_01	J2-1132	Pamlico Canyon	April 21-22, 2019	2.21.27	NA 24 02104	NA 75.1507/	NA 1577	Acanthogorgia		Х	CM-00377		347x				_	\vdash
	RB1903_J2_1132_Q3_01 RB1903_J2_1132_Q3_02	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	3:21:26 3:21:26	34.93104 34.93104	-75.15076 -75.15076	1567 1567	Desmophyllum		Х	CM-00379	Х	342, 351xx 341x					+
	RB1903_J2_1132_Q3_02	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	3:21:26	34.93104	-75.15076	1567	Desmophyllum Desmophyllum					343x			_		+-
	RB1903_J2_1132_Q3_04	J2-1132	Pamlico Canyon	April 21-22, 2019	3:21:26	34.93104	-75.15076	1567	Desmophyllum					344x				_	1
	RB1903_J2_1132_Q4_01	J2-1132	Pamlico Canyon	April 21-22, 2019	3:25:51	34.93104	-75.15077	1567	Desmophyllum		Х	CM-00380		356x					
	RB1903_J2_1132_Q5_01	J2-1132	Pamlico Canyon	April 21-22, 2019		NA	NA	NA	Acanthogorgia	EC10145	Х	CM-00403	х	373, 434xx	RB-19-096xx				
	RB1903_J2_1132_Q5_02	J2-1132	Pamlico Canyon	April 21-22, 2019		NA	NA	NA	Polychaete			CM-00407		372x					
	RB1903_J2_1132_Q6_01	J2-1132	Pamlico Canyon	April 21-22, 2019	11:26:32	34.93464	-75.15372	1403	Acanthogorgia	EC10146	Х	CM-00408	Х	378x	RB-19-097xx				
	RB1903_J2_1132_Q6_02	J2-1132	Pamlico Canyon	April 21-22, 2019	11:26:32	34.93464	-75.15372	1403	Scale Worm			CM-00409		379x					
	RB1903_J2_1132_Q7_01	J2-1132	Pamlico Canyon	April 21-22, 2019	2:48:59	34.93105	-75.15071	1564	Yellow Plexaurid	EC10135		CM-00392		050	RB-19-093x				
-	RB1903_J2_1132_Q7_02	J2-1132	Pamlico Canyon	April 21-22, 2019	2:48:59	34.93105	-75.15071	1564	Ophiuroid	EC10136		CM-00391	v	358x 364x	RB-19-094x			_	+
	RB1903_J2_1132_Q7_03 RB1903_J2_1132_Q7_04	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	15:01:00 15:01:00	34.93613 34.93613	-75.15631 -75.15631	1427 1427	Desmophyllum Desmophyllum	EC10137		CM-00388 CM-00393	X	359x			_		+-
\vdash	RB1903_J2_1132_Q7_05	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	15:01:00	34.93613	-75.15631	1427	Desmophyllum	EG1013/		CM-00393	х	360x			+	+	+
	RB1903_J2_1132_Q7_06	J2-1132	Pamlico Canyon	April 21-22, 2019	15:01:00	34.93613	-75.15631	1427	Desmophyllum			CM-00389	х	357x			_	_	
	RB1903_J2_1132_Q7_07a	J2-1132	Pamlico Canyon	April 21-22, 2019	15:01:00	34.93613	-75.15631	1427	Desmophyllum	EC10138		CM-00394	х					+	\Box
	RB1903_J2_1132_Q7_07b	J2-1132	Pamlico Canyon	April 21-22, 2019	15:01:00	34.93613	-75.15631	1427	Desmophyllum					371x					
	RB1903_J2_1132_Q7_08	J2-1132	Pamlico Canyon	April 21-22, 2019	15:01:00	34.93613	-75.15631	1427	Solenosamellia	EC10139		CM-00387	Х	whirlpak					
L	RB1903_J2_1132_Q7_09	J2-1132	Pamlico Canyon	April 21-22, 2019	15:01:00	34.93613	-75.15631	1427	Acesta	EC10140				365x					
<u> </u>	RB1903_J2_1132_Q7_10	J2-1132	Pamlico Canyon	April 21-22, 2019	15:01:00	34.93613	-75.15631	1427	Sponge					361x					\perp
<u> </u>	RB1903_J2_1132_Q8_01	J2-1132	Pamlico Canyon	April 21-22, 2019	3:33:19	34.93104	-75.15077	1567	Desmophyllum		Х	CM-00381		367x					$\perp \perp \mid$
<u> </u>	RB1903_J2_1132_Q9_01 RB1903_J2_1132_Q9_02	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019	3:46:00 3:46:00	34.93104	-75.15077	1567 1567	Desmophyllum		\vdash	CM-00373	Х		+		+	+	\vdash
 	RB1903_J2_1132_Q9_02 RB1903_J2_1132_Q9_03	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	3:46:00	34.93104 34.93104	-75.15077 -75.15077	1567	Desmophyllum Desmophyllum			CM-00374 CM-00375	X				+	+	+-
-	RB1903_J2_1132_Q9_04	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	3:46:00	34.93104	-75.15077	1567	Desmophyllum Desmophyllum			CM-00375	X		+		+	+	+
	1101100_02_1102_01_01	32 1132	i diliiloo odiliyoti	, will 21 22, 2017	3.40.00	34.73104	73.13077	1507	Desirioprignant	1	1 1	SIVI 00370	^		1	11	1		

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	(w) yadəQ	Tentative.ID	Erik Cordes	Chris Kellogg Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
	RB1903_J2_1132_Q9_07	J2-1132	Pamlico Canyon	April 21-22, 2019	3:46:00	34.93104	-75.15077	1567	Acanthogorgia		CM-00372							
	RB1903_J2_1132_Q10_01	J2-1132	Pamlico Canyon	April 21-22, 2019	7:16:00	34.93214	-75.15227	1511	Flabellum	EC10147	CM-00405		374x					
	RB1903_J2_1132_Q10_02	J2-1132	Pamlico Canyon	April 21-22, 2019	9:42:00	34.93369	-75.15318	1476	Solenosamellia	EC10148	CM-00406	х	whirlpak					
	RB1903_J2_1132_Q11_01	J2-1132	Pamlico Canyon	April 21-22, 2019	6:27:00	34.93204	-75.15220	1557	Acanthogorgia	EC10149	CM-00411	х	383x	RB-19-098x				
	RB1903_J2_1132_Q11_02	J2-1132	Pamlico Canyon	April 21-22, 2019	6:35:00	34.93204	-75.15220	1557	Swiftia	EC10150	CM-00410		384x	RB-19-099xx				
	RB1903_J2_1132_Q11_03	J2-1132	Pamlico Canyon	April 21-22, 2019		NA	NA	NA	Anemone					RB-19-100x				
	RB1903_J2_1132_Q11_04	J2-1132	Pamlico Canyon	April 21-22, 2019		NA	NA	NA	Amphipod				382x				\perp	
-	RB1903_J2_1132_Q12_01	J2-1132	Pamlico Canyon	April 21-22, 2019	20:52:00	34.92872	-75.14800	1701	Acanthogorgia	EC10152		Х	393x	RB-19-102xx		_		
	RB1903_J2_1132_Q13_01	J2-1132	Pamlico Canyon	April 21-22, 2019	4:00:00	34.93104	-75.15077	1567	Paragorgia	EC10151			394x	RB-19-101xx			₩	
	RB1903_J2_1132_SBlue_01	J2-1132	Pamlico Canyon	April 21-22, 2019	23:09:00	34.93084	-75.14946	1661	Solenosamellia	EC10141	CM-00395	Х	whirlpak				₩	
	RB1903_J2_1132_SBlue_02	J2-1132	Pamlico Canyon	April 21-22, 2019	23:09:00	34.93084	-75.14946	1661	Desmophyllum	5040440	CM-00396		381x				\longrightarrow	
	RB1903_J2_1132_SBlue_03	J2-1132	Pamlico Canyon	April 21-22, 2019	23:09:00	34.93084	-75.14946	1661	Brittle Star	EC10142	011.0000		370x				+-	
	RB1903_J2_1132_SBlue_04	J2-1132	Pamlico Canyon	April 21-22, 2019	23:09:00	34.93084	-75.14946	1661	Desmophyllum		CM-00399		380x			+	+-+	
	RB1903_J2_1132_SBlue_05	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	23:09:00 23:09:00	34.93084 34.93084	-75.14946 -75.14946	1661	Desmophyllum Seele Worm		CM-00401 CM-00397		375x 362x			+	+	
	RB1903_J2_1132_SBlue_06 RB1903_J2_1132_SBlue_07	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	23:09:00	34.93084	-75.14946	1661 1661	Scale Worm	EC10143	CM-00397 CM-00402		362X 376x			+	+	
	RB1903_J2_1132_SBlue_08	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	23:09:00	34.93084	-75.14946	1661	Desmophyllum Scale Worm	EC10143	CM-00402		363x			-	+	_
	RB1903_J2_1132_SBlue_09	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	23:09:00	34.93084	-75.14946	1661			CIVI-00376		377x				+-+	
	RB1903_J2_1132_SBlue_10	J2-1132	Pamlico Canyon	April 21-22, 2019	23:09:00	34.93084	-75.14946	1661	Sponge Feather Worm		CM-00400		366x			+	+	
	RB1903_J2_1132_SBlackYellow_01	J2-1132	Pamlico Canyon	April 21-22, 2019	23.07.00	NA NA	NA NA	NA	Desmophyllum		CM-00412	v	300%				+	
	RB1903_J2_1132_SBlackYellow_02	J2-1132	Pamlico Canyon	April 21-22, 2019		NA	NA	NA	Desmophyllum		OW 00412	^				-	+-+	_
	RB1903_J2_1132_SBlackYellow_03	J2-1132	Pamlico Canyon	April 21-22, 2019		NA	NA	NA	Solenosamellia		CM-00413					_	+	_
	RB1903_J2_1132_SBlackYellow_04	J2-1132	Pamlico Canyon	April 21-22, 2019		NA	NA	NA	Acanthogorgia								t	_
	RB1903_J2_1132_SBlack_01	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Solenosamellia	EC10130	CM-00378	х	whirlpak				t	_
	RB1903_J2_1132_SBlack_02a	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Desmophyllum		CM-00382		348x				t	_
	RB1903_J2_1132_SBlack_02b	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Desmophyllum	EC10133	CM-00383	х						
	RB1903_J2_1132_SBlack_02c	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Desmophyllum								T	
	RB1903_J2_1132_SBlack_03a	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Desmophyllum		CM-00385							
	RB1903_J2_1132_SBlack_03b	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Desmophyllum		CM-00384		349x					
	RB1903_J2_1132_SBlack_04	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Desmophyllum		CM-00386		354x					
	RB1903_J2_1132_SBlack_05	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Sponge	EC10131			352x					
	RB1903_J2_1132_SBlack_06	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Brisingid	EC10132			350x					
	RB1903_J2_1132_SBlack_07	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Acesta				353x					
	RB1903_J2_1132_SBlack_08	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Acesta	EC10134								
	RB1903_J2_1132_SBlack_09	J2-1132	Pamlico Canyon	April 21-22, 2019	23:34:00	34.93087	-75.14960	1646	Sponge				355x				\perp	
_	RB1903_J2_1132_SWhite_01	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum	EC10156	CM-00414	Х	386x				ш	
	RB1903_J2_1132_SWhite_02	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum	EC10157	CM-00415	Х	387x			—	$\perp \perp$	
-	RB1903_J2_1132_SWhite_03	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum	E046150	CM-00416	Х	385x			\perp	+	
-	RB1903_J2_1132_SWhite_04	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum	EC10158	CM-00417	Х	429x			-	+	
-	RB1903_J2_1132_SWhite_05	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum		CM-00418	X	390x			—	+	
-	RB1903_J2_1132_SWhite_06	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum		CM-00419	X	395x			+	++	
-	RB1903_J2_1132_SWhite_07	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30 1:37:30	34.93118	-75.14998 75.14000	1592 1592	Desmophyllum		CM-00420	Х	396x			—	+	
-	RB1903_J2_1132_SWhite_08 RB1903_J2_1132_SWhite_09	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	1:37:30	34.93118 34.93118	-75.14998 -75.14998	1592	Desmophyllum Desmophyllum	EC10159	CM-00421 CM-00422	X	402x			+	++	
-	RB1903_J2_1132_SWhite_10	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum	EC10139	CM-00422 CM-00423	X	403x 392x			+	+	-
-	RB1903_J2_1132_SWhite_11	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum Desmophyllum		CM-00423	X	392x 391x			+-	++	
-	RB1903_J2_1132_SWhite 12	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum Desmophyllum		CM-00424	X	405x			+-	+	
	RB1903_J2_1132_SWhite_13	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum		CM-00425	X	406x			+-	+	-
	RB1903_J2_1132_SWhite_14	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum	EC10160	CM-00427	х	397x			+-	+	-
	RB1903_J2_1132_SWhite_15	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum	20.0100	CM-00427	х	408x			+	+	
	RB1903_J2_1132_SWhite_16	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum	EC10161	CM-00431	X	409x			+	+	-
	RB1903_J2_1132_SWhite_17	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum		CM-00432	х	410x			\top	+	
	RB1903_J2_1132_SWhite_18	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum		CM-00433	х	404x				+	

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Furu Mienis	Hillary Close
	RB1903_J2_1132_SWhite_19	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum		CM-00434	Х	399x					
	RB1903_J2_1132_SWhite_20	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum		CM-00435	х	400x					
	RB1903_J2_1132_SWhite_21	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Desmophyllum		CM-00436	Х	whirlpak					
	RB1903_J2_1132_SWhite_22	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Solenosamellia	EC10153		Х						
-	RB1903_J2_1132_SWhite_23	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Hydroid				441x					
-	RB1903_J2_1132_SWhite_24	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Acesta				449x					
-	RB1903_J2_1132_SWhite_25	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Acanthogorgia	EC10154	011.00107			RB-19-106x				
	RB1903_J2_1132_SWhite_26a	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Squat Lobster		CM-00437		398x					
-	RB1903_J2_1132_SWhite_26b	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Squat Lobster eggs	FOADAFF			401x					
	RB1903_J2_1132_SWhite_27	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Acesta	EC10155	CM 00420		200				+-+	
-	RB1903_J2_1132_SWhite_28a RB1903_J2_1132_SWhite_28b	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30 1:37:30	34.93118 34.93118	-75.14998 -75.14998	1592 1592	Eunicid		CM-00429		388x				+	
-		J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	1:37:30	34.93118	-75.14998 -75.14998	1592	Eunicid				439x				+	
-	RB1903_J2_1132_SWhite_29 RB1903_J2_1132_SWhite_30	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Acesta Anemone					RB-19-103x			+-+	_
-	RB1903_J2_1132_SWhite_31	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Anemone					RB-19-104x			+	-
-	RB1903_J2_1132_SWhite_32	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Anemone		+ +			RB-19-105x			+	
-	RB1903_J2_1132_SWhite_33	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Acesta				407x	100 17 100%			+	_
	RB1903_J2_1132_SWhite_34	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Annelid		CM-00430		389x				+	-
	RB1903_J2_1132_SWhite_35	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Limpet		Siii 56 166		411x				+	-
	RB1903_J2_1132_SWhite_36	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Sponge				414x				_	
	RB1903_J2_1132_SWhite_37	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Sponge				415x					
	RB1903_J2_1132_SWhite_38	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Sponge				416x					
	RB1903_J2_1132_SWhite_39	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Sponge				417x					
	RB1903_J2_1132_SWhite_40	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Sponge				418x					
	RB1903_J2_1132_SWhite_41	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Red annelid				419x					
	RB1903_J2_1132_SWhite_42	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Green annelid				420x					
	RB1903_J2_1132_SWhite_43	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Green annelid				423x					
	RB1903_J2_1132_SWhite_44	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Sponge				424x					
	RB1903_J2_1132_SWhite_45	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Hydroid				425x					
	RB1903_J2_1132_SWhite_46	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Acesta				426x					
	RB1903_J2_1132_SWhite_47	J2-1132	Pamlico Canyon	April 21-22, 2019	1:37:30	34.93118	-75.14998	1592	Red Annelid				428x					
	RB1903_J2_1132_PC_01	J2-1132	Pamlico Canyon	April 21-22, 2019	13:04:00	34.93549	-75.15431	1350	Sediment				Х					
	RB1903_J2_1132_PC_02	J2-1132	Pamlico Canyon	April 21-22, 2019	13:07:00	34.93548	-75.15431	1350	Sediment				Х					
L	RB1903_J2_1132_PC_03	J2-1132	Pamlico Canyon	April 21-22, 2019	12:58:00	34.93550	-75.15430	1350	Sediment							Х	\perp	
-	RB1903_J2_1132_PC_04	J2-1132	Pamlico Canyon	April 21-22, 2019	0:27:07	34.93104	-75.14961	1629	Sediment				Х					
-	RB1903_J2_1132_PC_05	J2-1132	Pamlico Canyon	April 21-22, 2019	13:00:00	34.93549	-75.15430	1350	Sediment							Х		
-	RB1903_J2_1132_PC_06	J2-1132	Pamlico Canyon	April 21-22, 2019	13:02:00	34.93549	-75.15431	1350	Sediment				Х				\rightarrow	
-	RB1903_J2_1132_PC_07	J2-1132	Pamlico Canyon	April 21-22, 2019	0:36:16	34.93104	-75.14962	1630	Sediment							Х	+-+	
\vdash	RB1903_J2_1132_PC_08	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	0:30:58	34.93104 34.93104	-75.14961 -75.14961	1630 1629	Sediment Sediment						-	X	+	-
-	RB1903_J2_1132_PC_09 RB1903_J2_1132_PC_10	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	0:29:06	34.93104	-75.14961	1630	Sediment							х	+	_
-	RB1903_J2_1132_PC_11	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	0:33:40	34.93104	-75.14962	1630	Sediment				Х				+	
-	RB1903_J2_1132_PC_11	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	12:54:00	34.93550	-75.14961	1350	Sediment		+ +		Х			v	+-	
\vdash	RB1903_J2_1132_PC_13	J2-1132 J2-1132	Pamlico Canyon Pamlico Canyon	April 21-22, 2019 April 21-22, 2019	21:49:00	34.93930	-75.13429	1664	Sediment		1					X	++	\dashv
H	RB1903_J2_1132_PC_14	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019	21:51:00	34.92949	-75.14809	1664	Sediment	1	+ +			 		^ x	+	=
H	RB1903_J2_1132_PC_15	J2-1132 J2-1132	Pamlico Canyon	April 21-22, 2019	12:56:00	34.93550	-75.14609	1350	Sediment		+ +					+	+	\dashv
\vdash	RB1903 J2 1132 PC 16	J2-1132	Pamlico Canyon	April 21-22, 2019	21:54:00	34.92950	-75.13427	1664	Sediment							x	+	\dashv
H	RB1903_J2_1132_PC_17	J2-1132	Pamlico Canyon	April 21-22, 2019	21:48:00	34.92949	-75.14808	1663	Sediment				Х				+	\neg
F	RB1903_J2_1132_PC_18	J2-1132	Pamlico Canyon	April 21-22, 2019	21:50:00	34.92949	-75.14809	1664	Sediment				X				+	\exists
	RB1903_J2_1132_PC_19	J2-1132	Pamlico Canyon	April 21-22, 2019	21:53:00	34.92950	-75.14809	1664	Sediment				Х				\top	
	RB1903_J2_1132_PC_20	J2-1132	Pamlico Canyon	April 21-22, 2019	21:52:00	34.92949	-75.14809	1664	Sediment				Х				\top	
	RB1903_J2_1132_PC_21	J2-1132	Pamlico Canyon	April 21-22, 2019	20:01:00	34.92824	-75.14786	1763	Sediment							х	+	
t	RB1903_J2_1132_PC_22	J2-1132	Pamlico Canyon	April 21-22, 2019	20:02:00	34.92824	-75.14786	1763	Sediment				Х				\top	\neg

BROWN D. 110 P. N. P. 10 Prints Compon April 20, 2019 Scott	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chavtor	Furu Mienis	Hillary Close
B9980_2_F112_F_2_S	RB1903_J2_1132_PC_23	J2-1132	Pamlico Canyon	April 21-22, 2019	19:59:00	34.92824	-75.14786	1763	Sediment					Х					
BRINDLE DETAIL P.C. D. 1.132 Parksto Compre April 1.27, 2018 2006,000 3.4 60071 7.5 1,000 7.5 1,00		J2-1132	Pamlico Canyon	April 21-22, 2019	20:03:00	34.92821		1763	Sediment								У	í	
BSSSQ_2_112_2_0_0																			
Service 11														Х		$\perp \perp \perp$			
BRINDL_P. 1132 A. B. 2-1132 Partico Corpon April 2-12-2099 9-12-30 34-1399 7-5-1538 1477 Water																	Х		
Selfond_2_F112_M_Cell																Х	_		_
B8990_12_1132_Mode_00_00_00_1132_ Particle Carpon April 122_2019 929-20 M9192-00_17-17-00 Separa bit vice Mode M9192_17-17-00 Separa bit vice M9192_17-17-00 M9192_17-00 M919																+	$-\!\!+\!\!\!-$		_
BRINDL_CFITE_Recision_CFITE_																+	$-\!\!+\!\!\!-$		_
BRINGL_PLINE_Residue_CD																+	-+	+	+-1
REPRING_CTION_REPORTS_CTION_																+	-+	_	+-1
BRINDLD_1102_Residence AI Del 1112 Pereitor Compen April 122_2019 16:10-00 34:50-35 75:15/0.0 16:80 Americane Restrict Compen April 22_2019 17:22-36 34:50-36 75:15/0.0 16:80 Americane Amer																+	-+	_	+-
BF990_CF100_P1 27-132 Postfox Cargon Agri 17 2-2799 \$10.00 34.90.05 75.156.3 17.8 Aprenous Agri 17 2-2799 \$10.00 Agri 17 2-2799 Ag																+-	-	+	+-
BRINDS_CTODO_PA															RR-19-108v	+	+	_	+
Re19/03_C1700_A1															NB 17 100X	×	-		+
BRIVING_CITION_NI																		_	+
B8196_CT0010_N2												Х				+		_	
RB1902_CT0010_MS												Х				T		_	
RB1902_CT0010_MS				04/21/19	8:18:00				Water										
RBH901_CTD010_N		CTD010		04/21/19	8:18:00			1308	Water										
R81902 CT0010_NP	RB1903_CTD010_N5	CTD010		04/21/19	8:18:00		75 08.5864	1308	Water	EC10117							х		
R81903_CTD010_N8	RB1903_CTD010_N6	CTD010	North of Pamlico Canyon	04/21/19	8:18:00	34 56.3425	75 08.5864	1308	Water					Х					
RB1903_CTD010_NP		CTD010	North of Pamlico Canyon	04/21/19	8:18:00	34 56.3425	75 08.5864	1308	Water					Х					
R81903_CTD010_N10	RB1903_CTD010_N8	CTD010	North of Pamlico Canyon	04/21/19	8:18:00	34 56.3425	75 08.5864	1100	Water	EC10118							х		
R81903_CT0010_N11			North of Pamlico Canyon									Х					Х		
R81903_CTD010_N12										EC10119						$\perp \perp \downarrow$			
R81903_CTD010_N13												Х				$\perp \perp \perp$			
R81903_CTD010_N14																\perp			\perp
R81903_CTD010_N16																\perp			\perp
RB1903_CTD010_N16										EC10122						\perp			\perp
R81903_CTD010_N17										E040400						+	X		_
R81903_CTD010_N18										EC10123						+-			+
RB1903_CTD010_N19										FC10124		Х				+		+	+
RB1903_CTD010_N20																+-		+	+
RB1903_CTD010_N21										LOTOTZJ				Y		+		_	+
RB1903_CTD010_N22										FC10126				, A		+	x		+
RB1903_CTD010_N23												Х				+		_	
RB1903_CTD010_N24																T		_	
RB1903_CTD011_N1																			
RB1903_CTD011_N3	RB1903_CTD011_N1	CTD011		04/22/19	18:08:00	34 54.4109	75 11.8746	1134	Water			Х				х			
RB1903_CTD011_N4 CTD011 Pamlico Caryon 04/22/19 18:08:00 34:54:4109 75:11.8746 1134 Water	RB1903_CTD011_N2	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	1134	Water			Х				Х			
RB1903_CTD011_N5									Water							Х			
RB1903_CTD011_N6 CTD011 Pamlico Carryon 04/22/19 18:08:00 34:54:4109 75:11.8746 1134 Water	RB1903_CTD011_N4	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	1134	Water							Х			
RB1903_CTD011_N7	RB1903_CTD011_N5	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	1134	Water					х					
RB1903_CTD011_N8 CTD011 Pamlico Canyon 04/22/19 18:08:00 34 54:4109 75 11.8746 1000 Water EC10165 X X RB1903_CTD011_N9 CTD011 Pamlico Canyon 04/22/19 18:08:00 34 54:4109 75 11.8746 850 Water X X X RB1903_CTD011_N10 CTD011 Pamlico Canyon 04/22/19 18:08:00 34 54:4109 75 11.8746 850 Water EC10166 X RB1903_CTD011_N11 CTD011 Pamlico Canyon 04/22/19 18:08:00 34 54.4109 75 11.8746 850 Water EC10166 X			Pamlico Canyon											Х		Х			$oldsymbol{ol}}}}}}}}}}}}}}}}}}}}}$
RB1903_CTD011_N9															1	$\perp \perp \downarrow$			Ш
RB1903_CTD011_N10										EC10165			$\perp \perp$		1	$\perp \perp \mid$	Х	\perp	Ш
RB1903_CTD011_N11													+		1	$\perp \perp \downarrow$	_		ш
										EC10166	1		+			+		—	+
KB1903_C10011_N1Z										F0404/7	1	Х	+		+	+		+	+
RB1903_CTD011_N13										ECIUI6/			+		+	+	X	-	+

Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chavtor	Furu Mienis	Hillary Close
RB1903_CTD011_N14	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	554	Water	EC10168		Х							
RB1903_CTD011_N15	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	554	Water			Х					Х		
RB1903_CTD011_N16	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	400	Water	EC10169							Х		
RB1903_CTD011_N17	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	251	Water	EC10170							Х		
RB1903_CTD011_N18	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	150	Water	EC10171							Х		
RB1903_CTD011_N20	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	surface	Water	EC10173							Х		<u> </u>
RB1903_CTD011_N21	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	surface	Water					Х					\vdash
RB1903_CTD011_N22	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	surface	Water			Х				Х			-
RB1903_CTD011_N23	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	surface	Water			Х				Х		-	_
RB1903_CTD011_N24	CTD011	Pamlico Canyon	04/22/19	18:08:00	34 54.4109	75 11.8746	surface	Water			Х				Х		-	_
RB1903_CTD012_N1	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	381	Water			Х						+	
RB1903_CTD012_N2	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	381	Water			X						+-	-
RB1903_CTD012_N3 RB1903_CTD012_N4	CTD012 CTD012	Pea Island Off-Seep	04/23/19 04/23/19	16:56:00 16:56:00	35 54.4977	74 47.7714 74 47.7714	381 381	Water Water			Х						+	-
RB1903_CTD012_N4 RB1903_CTD012_N5	CTD012	Pea Island Off-Seep Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977 35 54.4977	74 47.7714	381	Water					X				+-	-
RB1903_CTD012_N6	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	381	Water					X X				+-	-
RB1903_CTD012_N0	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	381	Water	EC10189				^			х	+	
RB1903_CTD012_N8	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	370	Water	EC10107							X	+	
RB1903_CTD012_N9	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	360	Water	EC10191							X	+-	_
RB1903_CTD012_N10	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	320	Water	EC10192							х	+	
RB1903_CTD012_N11	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	280	Water	EC10193							Х	+	
RB1903_CTD012_N12	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	240	Water	EC10194							Х	+	
RB1903_CTD012_N13	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	200	Water			Х					х		
RB1903_CTD012_N14	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	200	Water	EC10195		Х							
RB1903_CTD012_N15	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	200	Water			Х							
RB1903_CTD012_N16	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	160	Water	EC10196							Х		
RB1903_CTD012_N17	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	120	Water	EC10197							Х		
RB1903_CTD012_N18	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	80	Water	EC10198							Х		
RB1903_CTD012_N19	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	45	Water	EC10199							Х		
RB1903_CTD012_N20	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	surface	Water	EC10200							Х		
RB1903_CTD012_N21	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	surface	Water					Х					
RB1903_CTD012_N22	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	surface	Water			Х		Х					—
RB1903_CTD012_N23	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	surface	Water			Х							\vdash
RB1903_CTD012_N24	CTD012	Pea Island Off-Seep	04/23/19	16:56:00	35 54.4977	74 47.7714	surface	Water			Х							-
RB1903_CTD013_N1	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	289	Water			Х				Х		_	_
RB1903_CTD013_N2	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	289	Water			Х				Х		-	_
RB1903_CTD013_N3	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	289	Water			Х				Х		+	
RB1903_CTD013_N4 RB1903_CTD013_N5	CTD013 CTD013	Pea Island Seep	04/23/19 04/23/19	19:05:00 19:05:00	35 40.4228 35 40.4228	74 47.9031 74 47.9031	289 289	Water Water							Х		+	-
RB1903_CTD013_N5	CTD013	Pea Island Seep Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	289	Water					X X		х		+-	-
RB1903_CTD013_N7	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	289	Water					^		^	х	+	
RB1903_CTD013_N/ RB1903_CTD013_N8	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	289	Water	EC10206							X	+	
RB1903_CTD013_N9	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	280	Water	EC10200							X	+-	
RB1903_CTD013_N10	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	270	Water	EC10208							Х	+	
RB1903_CTD013_N11	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	240	Water	EC10209	+						х	+	-1
RB1903_CTD013_N12	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	210	Water			Х					Х	1	
RB1903_CTD013_N13	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	210	Water	EC10210		х						1	\Box
RB1903_CTD013_N14	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	210	Water			Х							
RB1903_CTD013_N15	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	180	Water	EC10211							Х		
RB1903_CTD013_N16	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	150	Water	EC10212							Х		
RB1903_CTD013_N17	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	120	Water	EC10213				·			Х		П
RB1903_CTD013_N18	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	80	Water	EC10214							Х	\perp	الب
RB1903_CTD013_N19	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	37	Water	EC10215							Х		Ш

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Jason Chaytor	Furu Mienis Hillary Close
	RB1903_CTD013_N20	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	surface	Water	EC10216				Х			Х		
	RB1903_CTD013_N21	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	surface	Water					Х					
	RB1903_CTD013_N22	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	surface	Water			Х				Х			
	RB1903_CTD013_N23	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	surface	Water			Х				Х			
	RB1903_CTD013_N24	CTD013	Pea Island Seep	04/23/19	19:05:00	35 40.4228	74 47.9031	surface	Water			Х				Х			
	RB1903_J2_1133_B1_01	J2-1133	Pea Island	April 22-23, 2019	10:42:00	35.67533	-74.79430	323	rock							Х			
	RB1903_J2_1133_B2_01	J2-1133	Pea Island	April 22-23, 2019	11:39:00	35.67544	-74.79688	306	rock							Х		_	_
	RB1903_J2_1133_B2_04	J2-1133	Pea Island	April 22-23, 2019	9:08:22	35.67410	-74.79357	328	Tubeworm Vestimentum	EC10202								_	_
	RB1903_J2_1133_B2_04	J2-1133	Pea Island	April 22-23, 2019	9:08:22	35.67410	-74.79357	328	Remains of tubeworm	EC10204							\vdash		
	RB1903_J2_1133_B2_04	J2-1133	Pea Island	April 22-23, 2019	9:08:22	35.67410	-74.79357	328	Tubeworm Trophosome	EC10203								-	—
	RB1903_J2_1133_B2_04	J2-1133	Pea Island	April 22-23, 2019	9:08:22	35.67410	-74.79357	328	Tubeworm tube	EC10205			+				+	-	-
	RB1903_J2_1133_B4_01.1	J2-1133	Pea Island	April 22-23, 2019	9:08:22	35.67410	-74.79357	328	Anemone						X			_	
	RB1903_J2_1133_B4_02.1	J2-1133	Pea Island	April 22-23, 2019	9:08:22	35.67410	-74.79357	328 328	Anemone						Х		+-+	+	-
	RB1903_J2_1133_B4_05 RB1903_J2_1133_B4_06	J2-1133 J2-1133	Pea Island Pea Island	April 22-23, 2019 April 22-23, 2019	9:08:22 9:08:22	35.67410 35.67410	-74.79357 -74.79357	328	rock								+-+	+	-
	RB1903_J2_1133_B4_07	J2-1133 J2-1133	Pea Island	April 22-23, 2019 April 22-23, 2019	9:08:22	35.67410	-74.79357	328	rock				+				+	+	+
	1903_J2_1133_B4_01 (rock)	J2-1133	Pea Island	April 22-23, 2019	9:08:22	35.67410	-74.79357	328	fuzzy rock							х	+-+	-	_
	1903_J2_1133_B4_02 (rock)	J2-1133 J2-1133	Pea Island	April 22-23, 2019	9:08:22	35.67410	-74.79357	328	rock							X	+		+
	RB1903_J2_1133_B5_01	J2-1133	Pea Island	April 22-23, 2019	7:25:50	35.67500	-74.79238	333	fuzzy rock							X		+	+
	RB1903_J2_1133_B5_02	J2-1133	Pea Island	April 22-23, 2019	7:25:50	35.67500	-74.79238	333	fly trap anemone						Х	^	+-+	+	+
	RB1903_J2_1133_Q3_01	J2-1133	Pea Island	April 22-23, 2019	13:01:00	35.67358	-74.79777	296	Lophelia	EC10188	х	CM-00450	v		^		+	-	+
	RB1903_J2_1133_N01	J2-1133	Pea Island	April 22-23, 2019	14:51:00	35.67351	-74.79731	299	Water	2010100	^	OW 00430				х	\vdash	_	+
	RB1903_J2_1133_N02	J2-1133	Pea Island	April 22-23, 2019	14:54:00	35.67352	-74.79719	298	Water							Х	\vdash		_
	RB1903_J2_1133_N03	J2-1133	Pea Island	April 22-23, 2019	14:57:00	35.67352	-74.79719	298	Water		х					Х	\vdash		_
	RB1903_J2_1133_N04	J2-1133	Pea Island	April 22-23, 2019	15:01:00	35.67352	-74.79719	299	Water	EC10201	Х					Х			\top
R	B1903_J2_1133_SBlue_01	J2-1133	Pea Island	April 22-23, 2019	8:13:13	35.67522	-74.79268	330	bacterial mat - white										\top
	B1903_J2_1133_SBlue_02	J2-1133	Pea Island	April 22-23, 2019	10:20:30	35.67472	-74.79405	320	bacterial mat										
R	B1903_J2_1133_Basket_01	J2-1133	Pea Island	April 22-23, 2019		NA	NA	NA	cancer crab	EC10217									
	RB1903_J2_1133_PC01	J2-1133	Pea Island	April 22-23, 2019	8:06:56	35.67521	-74.79268	331	Sediment (write pacterial								х		
	RB1903_J2_1133_PC02	J2-1133	Pea Island	April 22-23, 2019	8:06:10	35.67520	-74.79268	331	Seument (White pacterial					Х					
	RB1903_J2_1133_PC03	J2-1133	Pea Island	April 22-23, 2019	8:04:45	35.67521	-74.79269	331	Segiment (White pacterial								Х		
	RB1903_J2_1133_PC04	J2-1133	Pea Island	April 22-23, 2019	8:05:55	35.67520	-74.79268	331	Segiment (White pacterial								Х		
	RB1903_J2_1133_PC05	J2-1133	Pea Island	April 22-23, 2019	8:04:11	35.67521	-74.79269	331	Seument (Wille pacterial					Х					
	RB1903_J2_1133_PC06	J2-1133	Pea Island	April 22-23, 2019	8:02:52	35.67521	-74.79269	331	Seament (Withle pacterial					Х					
	RB1903_J2_1133_PC07	J2-1133	Pea Island	April 22-23, 2019	8:02:07	35.67521	-74.79269	331	Seaimeni (White bacienai Seaimeni (White bacienai					Х					
	RB1903_J2_1133_PC08	J2-1133	Pea Island	April 22-23, 2019	8:00:44	35.67521	-74.79269	331	Seuiment (Wille bacterial								х	Х	
	RB1903_J2_1133_PC09	J2-1133	Pea Island	April 22-23, 2019	10:12:44	35.67470	-74.79403	320	Seuiment (Wittle bacterial					Х			$\perp \perp$		
	RB1903_J2_1133_PC10	J2-1133	Pea Island	April 22-23, 2019	10:13:37	35.67470	-74.79403	320	Seament (White pacterial					Х			$\perp \perp$		
	RB1903_J2_1133_PC11	J2-1133	Pea Island	April 22-23, 2019	10:14:24	35.67470	-74.79403	320	mat)					Х			+-+	_	
	RB1903_J2_1133_PC12	J2-1133	Pea Island	April 22-23, 2019	15:42:00	35.67337	-74.79730	301	Sediment (non seep)								Х	_	
<u> </u>	RB1903_J2_1133_PC13	J2-1133	Pea Island	April 22-23, 2019	15:39:00	35.67337	-74.79730	301	Sediment (non seep)		+			Х	1	_	++	-	+
-	RB1903_J2_1133_PC14	J2-1133	Pea Island	April 22-23, 2019	15:37:00	35.67337	-74.79730	301	Sediment (non seep)				1-1	X			++	+	—
	RB1903_J2_1133_PC15	J2-1133	Pea Island	April 22-23, 2019	15:44:00	35.67337	-74.79730	301	Sediment (non seep)		+		1	Х			++		+
	RB1903_J2_1133_PC16	J2-1133	Pea Island	April 22-23, 2019	15:48:00	35.67337	-74.79730	301 301	Sediment (non seep)		+							Х	+
	RB1903_J2_1133_PC17 RB1903_J2_1133_PC18	J2-1133 J2-1133	Pea Island Pea Island	April 22-23, 2019 April 22-23, 2019	15:40:00 14:14:00	35.67337 35.67362	-74.79730 -74.79722	299	Sediment (non seep) Sediment (in bubble near carbonate)								x	х	+
	RB1903_J2_1133_PC19	J2-1133	Pea Island	April 22-23, 2019	14:19:00	35.67362	-74.79722	299	Sediment (in bubble near carbonate)					Х					
	RB1903_J2_1133_PC20	J2-1133	Pea Island	April 22-23, 2019	15:49:00	35.67337	-74.79730	301	Sediment (non seep)				1 1				Х		\top
									Sediment (in bubble near				1 1					-	\top
1	RB1903_J2_1133_PC21	J2-1133	Pea Island	April 22-23, 2019	14:10:00	35.67362	-74.79722	299	carbonate)				1				Х		

Sample.Number	Sample Type	Site	Date Collected	Time	Laiitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Furu Mienis	Hillary Close
RB1903_J2_1133_PC22	J2-1133	Pea Island	April 22-23, 2019	14:15:00	35.67362	-74.79721	299	Sediment (in bubble near carbonate)								х		
RB1903_J2_1133_PC23	J2-1133	Pea Island	April 22-23, 2019	15:35:00	35.67337	-74.79730	301	Sediment (non seep)					х				+	
RB1903_J2_1133_PC24	J2-1133	Pea Island	April 22-23, 2019	14:12:00	35.67363	-74.79721	299	Sediment (in bubble near carbonate)					х					
RB1903_J2_1133_PC25	J2-1133	Pea Island	April 22-23, 2019	14:24:00	35.67362	-74.79722	299	Sediment (in bubble near carbonate)					х					
RB1903_J2_1133_PC26	J2-1133	Pea Island	April 22-23, 2019	14:17:00	35.67362	-74.79722	299	Sediment (in bubble near carbonate)								х		
RB1903_J2_1133_PC27	J2-1133	Pea Island	April 22-23, 2019	14:21:00	35.67362	-74.79722	299	Sediment (in bubble near carbonate)					х					
RB1903_J2_1133_PC28	J2-1133	Pea Island	April 22-23, 2019	10:20:27	35.67472	-74.79405	320	зештені (wnite растена)							Х	х	_	
RB1903_J2_1133_PC29	J2-1133	Pea Island	April 22-23, 2019	10:09:25	35.67469	-74.79403	320	зештет (Wille растепа)								х	+	
RB1903_J2_1133_PC30	J2-1133	Pea Island	April 22-23, 2019	10:08:28	35.67469	-74.79403	320	Seaimeni (White bacienai								х		
RB1903_J2_1133_PC31	J2-1133	Pea Island	April 22-23, 2019	10:07:24	35.67469	-74.79403	320	Seament (White pacterial								х		
RB1903_J2_1133_PC32	J2-1133	Pea Island	April 22-23, 2019	10:11:43	35.67470	-74.79403	320	Seument (Wille pactenal					Х					
RB1903_J2_1133_R1	J2-1133	Pea Island	April 22-23, 2019	9:33:41	35.67379	-74.79361	332	rock							Х			
RB1903_CTD014_N01	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	230	Water							Х			
RB1903_CTD014_N02	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	230	Water							Х			
RB1903_CTD014_N03	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	230	Water							х	ı		
RB1903_CTD014_N04	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	230	Water							Х			
RB1903_CTD014_N05	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	230	Water								Х		
RB1903_CTD014_N06	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	230	Water								х		
RB1903_CTD014_N07	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	230	Water	EC10236							х		
RB1903_CTD014_N08	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	230	Water					Х					
RB1903_CTD014_N09	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	230	Water					Х					
RB1903_CTD014_N10	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	220	Water	EC10237							Х	_	
RB1903_CTD014_N11	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	210	Water	EC10238							Х		
 RB1903_CTD014_N12	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	200	Water	EC10239							Х	_	
 RB1903_CTD014_N13	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	200	Water				Х					+	
 RB1903_CTD014_N14 RB1903_CTD014_N15	CTD014 CTD014	Kitty Hawk Seep	04/24/19 04/24/19	16:49:00 16:49:00	35 56.0103 35 56.0103	74 49.1444 74 49.1444	200 170	Water Water	EC10240			х					+	-
RB1903_CTD014_N16	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	140	Water	EC10240 EC10241							X	+	-
RB1903_CTD014_N17	CTD014	Kitty Hawk Seep Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	1110	Water	EC10241							Х	+	
RB1903_CTD014_N18	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	80	Water	EC10242							Х	-	
RB1903_CTD014_N19	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	29	Water	EC10244							х	_	
RB1903_CTD014_N20	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	surface	Water	EC10245							х		
RB1903 CTD014 N21	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	surface	Water					х			i	+	
RB1903_CTD014_N22	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	surface	Water							Х			
RB1903_CTD014_N23	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	surface	Water							Х			
RB1903_CTD014_N24	CTD014	Kitty Hawk Seep	04/24/19	16:49:00	35 56.0103	74 49.1444	surface	Water							Х			
RB1903_J2_1134_B1_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	3:00:00	35.92604	-74.80534	437	Tubeworm Vestimentum	EC10230							i		
RB1903_J2_1134_B1_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	3:00:00	35.92604	-74.80534	437	Tubeworm Trophosome	EC10231, EC10232									
RB1903_J2_1134_B1_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	3:00:00	35.92604	-74.80534	437	Tubeworm Tube	EC10234									
RB1903_J2_1134_B2_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	5:30:22	35.92778	-74.80808	395	Tubeworm Vestimentum	EC10227									
RB1903_J2_1134_B2_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	5:30:22	35.92778	-74.80808	395	Tubeworm Trophosome	EC10228									
RB1903_J2_1134_B2_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	5:30:22	35.92778	-74.80808	395	Remainder of Tubeworm	EC10229									
RB1903_J2_1134_B2_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	5:30:22	35.92778	-74.80808	395	Tubeworm Tube	EC10233									
RB1903_J2_1134_B2_02	J2-1134	Kitty Hawk Seep	April 23-24, 2019	5:30:22	35.92778	-74.80808	395	carbonate rock							Х	LI		
RB1903_J2_1134_B2_03	J2-1134	Kitty Hawk Seep	April 23-24, 2019	5:48:26	35.92777	-74.80809	396	Bathy shell							Х			Ш
RB1903_J2_1134_B4_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	10:59:13	35.93418	-74.81747	235	rock							Х		\bot	
RB1903_J2_1134_B4_02	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:08:15	35.93418	-74.81744	235	rock							Х	ىلى		Ш

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chavtor	Furu Mienis	Hillary Close
	RB1903_J2_1134_B4_04	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:08:15	35.93418	-74.81744	235	Anemone						Х				
	RB1903_J2_1134_B5_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	13:27:00	35.93605	-74.81818	210	clam shells x2							Х			
	RB1903_J2_1134_B5_02	J2-1134	Kitty Hawk Seep	April 23-24, 2019	14:03:00	35.93532	-74.81790	220	plastic spoon										
	RB1903_J2_1134_RB_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	2:16:00	35.92605	-74.80534	436	rock							Х			
	RB1903_J2_1134_R1_02	J2-1134	Kitty Hawk Seep	April 23-24, 2019		NA	NA	NA	anemone						Х				
	RB1903_J2_1134_RB_02	J2-1134	Kitty Hawk Seep	April 23-24, 2019	6:04:49	35.92783	-74.80839	399	rock							Х			
<u> </u>	RB1903_J2_1134_R2_05	J2-1134	Kitty Hawk Seep	April 23-24, 2019		NA	NA	NA	anemone						Х		\vdash		\perp
<u> </u>	RB1903_J2_1134_RB_03	J2-1134	Kitty Hawk Seep	April 23-24, 2019	3:05:00	35.92604	-74.80534	437	rock							Х			
<u> </u>	RB1903_J2_1134_SRed_01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	1:34:00	35.92574	-74.80497	447	squat lobster	EC10218		CM_00452							_
_	RB1903_J2_1134_SRed_02	J2-1134	Kitty Hawk Seep	April 23-24, 2019	1:39:00	35.92575	-74.80499	447	squat lobster	EC10219		CM_00454						—	+
-	RB1903_J2_1134_SRed_03	J2-1134	Kitty Hawk Seep	April 23-24, 2019	1:39:00	35.92575	-74.80499	447	squat lobster	EC10220		CM_00455	 						
<u> </u>	RB1903_J2_1134_SRed_04	J2-1134	Kitty Hawk Seep	April 23-24, 2019	1:41:00	35.92575	-74.80499	446	squat lobster	EC10221		CM_00456	 						
-	RB1903_J2_1134_SRed_05 RB1903_J2_1134_SRed_06	J2-1134 J2-1134	Kitty Hawk Seep	April 23-24, 2019	1:42:00 1:42:00	35.92575 35.92575	-74.80499	446	quill worm	EC10222		CM_00457 CM_00458							\vdash
	RB1903_J2_1134_SRed_06 RB1903_J2_1134_SRed_07	J2-1134 J2-1134	Kitty Hawk Seep	April 23-24, 2019 April 23-24, 2019	1:42:00	35.92575	-74.80499 -74.80499	446 446	quill worm quill worm	EC10223 EC10225		CM_00458						+	\vdash
-	RB1903_J2_1134_SRed_08	J2-1134 J2-1134	Kitty Hawk Seep	April 23-24, 2019	1:42:00	35.92575	-74.80499	446	quill worm	EC10225		CM_00460							-
	RB1903_J2_1134_SRed_09	J2-1134 J2-1134	Kitty Hawk Seep Kitty Hawk Seep	April 23-24, 2019	1:42:00	35.92575	-74.80499	446	shrimp (mult)	EC10224		CM_00453						+-	\vdash
-	RB1903_J2_1134_PC1	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:08:00	35.92788	-74.81202	337	Sediment (near bubbles)	LC10224	+	CIVI_00433		Х				+	+
	RB1903_J2_1134_PC2	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:09:00	35.92788	-74.81202	337	Sediment (near bubbles)					X				+-	-
	RB1903_J2_1134_PC3	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:10:00	35.92788	-74.81202	337	Sediment (near bubbles)					X			, — 		H
	RB1903_J2_1134_PC4	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:06:00	35.92789	-74.81202	337	Sediment (near bubbles)					X			, — 		H
	RB1903_J2_1134_PC5	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:07:00	35.92789	-74.81202	337	Sediment (near bubbles)								Х	_	-
	RB1903_J2_1134_PC6	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:07:00	35.92789	-74.81202	337	Sediment (near bubbles)					Х					
	RB1903_J2_1134_PC7	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:05:00	35.92789	-74.81202	337	Sediment (near bubbles)								х		
	RB1903_J2_1134_PC8	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:04:00	35.92789	-74.81202	337	Sediment (near bubbles)								х		
	RB1903_J2_1134_PC9	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:50:00	35.93482	-74.81771	228	Sediment (mat patches)					Х					
	RB1903_J2_1134_PC10	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:53:00	35.93482	-74.81771	228	Sediment (mat patches)								х		
	RB1903_J2_1134_PC11	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:53:55	35.93482	-74.81771	228	Sediment (mat patches)					Х		Х			
	RB1903_J2_1134_PC12	J2-1134	Kitty Hawk Seep	April 23-24, 2019	14:37:00	35.93543	-74.81719	218	Sediment (non seep)								х		
	RB1903_J2_1134_PC13	J2-1134	Kitty Hawk Seep	April 23-24, 2019	14:34:00	35.93543	-74.81719	218	Sediment (non seep)					Х					
	RB1903_J2_1134_PC14	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:48:24	35.93482	-74.81770	228	Sediment (mat patches)								х		
	RB1903_J2_1134_PC15	J2-1134	Kitty Hawk Seep	April 23-24, 2019	14:40:00	35.93543	-74.81719	218	Sediment (non seep)					Х					
L	RB1903_J2_1134_PC16	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:46:41	35.93482	-74.81770	228	Sediment (mat patches)								Х		Ш
	RB1903_J2_1134_PC17	J2-1134	Kitty Hawk Seep	April 23-24, 2019	14:41:00	35.93543	-74.81719	218	Sediment (non seep)								Х		
<u> </u>	RB1903_J2_1134_PC18	J2-1134	Kitty Hawk Seep	April 23-24, 2019	14:36:00	35.93543	-74.81719	218	Sediment (non seep)					Х					_
	RB1903_J2_1134_PC19	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:40:37	35.93481	-74.81771	228	Sediment (mat patches)					Х					_
_	RB1903_J2_1134_PC20	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:49:22	35.92787	-74.81214	335	Sediment (mat patches)					Х				—	+
<u> </u>	RB1903_J2_1134_PC21	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:42:43	35.93481	-74.81770	228	Sediment (mat patches)				 	X					
-	RB1903_J2_1134_PC22	J2-1134 J2-1134	Kitty Hawk Seep	April 23-24, 2019	14:32:00 14:31:00	35.93543	-74.81719	218 218	Sediment (non seep)					Х				+	\vdash
-	RB1903_J2_1134_PC23 RB1903_J2_1134_PC25	J2-1134 J2-1134	Kitty Hawk Seep	April 23-24, 2019 April 23-24, 2019	8:50:27	35.93543 35.92787	-74.81719 -74.81214	335	Sediment (non seep)								X		\vdash
	RB1903_J2_1134_PC26	J2-1134 J2-1134	Kitty Hawk Seep	April 23-24, 2019 April 23-24, 2019	11:41:51	35.93481	-74.81770	228	Sediment (mat patches)						-			+	\vdash
-	RB1903_J2_1134_PC27	J2-1134 J2-1134	Kitty Hawk Seep Kitty Hawk Seep	April 23-24, 2019	8:53:00	35.92787	-74.81770	335	Sediment (mat patches) Sediment (mat patches)					Х					-
-	RB1903_J2_1134_PC28	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:52:03	35.92787	-74.81214	335	Sediment (mat patches)		+			X		Х		+	+
\vdash	RB1903_J2_1134_PC29	J2-1134 J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:51:19	35.92787	-74.81214	335	Sediment (mat patches)					^		^	х	+	\vdash
	RB1903_J2_1134_PC30	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:54:49	35.92787	-74.81214	335	Sediment (mat patches)					Х	1			+-	\vdash
	RB1903_J2_1134_PC31	J2-1134	Kitty Hawk Seep	April 23-24, 2019	8:53:56	35.92787	-74.81214	335	Sediment (mat patches)		+			^			х	+	\vdash
	RB1903_J2_1134_PC32	J2-1134	Kitty Hawk Seep	April 23-24, 2019	14:44:00	35.93543	-74.81719	218	Sediment (non seep)									+	\vdash
	RB1903_J2_1134_N01	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:59:00	35.93482	-74.81771	228	water							Х		+	\Box
	RB1903_J2_1134_N02	J2-1134	Kitty Hawk Seep	April 23-24, 2019	11:58:00	35.93482	-74.81771	228	water									+	\Box
	RB1903_J2_1134_N03	J2-1134	Kitty Hawk Seep	April 23-24, 2019	12:01:48	35.93482	-74.81771	228	water		х				1			1	\Box
	RB1903_J2_1134_N04	J2-1134	Kitty Hawk Seep	April 23-24, 2019	12:01:02	35.93482	-74.81771	228	water	EC10235	х								П
	RB1903_J2_1134_JasonDeck	J2-1134	Kitty Hawk Seep	April 23-24, 2019		NA	NA	NA	fish			CM-00461	Ш						

Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Jason Chaytor Furu Mienis	Hillary Close
RB1903_J2_1135_B4_01	J2-1135	Cape Lookout DEEP	04/25/19		NA	NA	NA	Chrysogorgia	EC10246	CM-00463							
RB1903_J2_1135_B4_02	J2-1135	Cape Lookout DEEP	04/25/19		NA	NA	NA	Squat Lobster	EC10247	CM-00462						_	
RB1903_J2_1135_B5_01	J2-1135	Cape Lookout DEEP	04/25/19	20:34:00	33.91664	-75.83406	977	Bamboo coral	EC10248	CM-00464			RB-19-110x				
RB1903_J2_1135_B5_02	J2-1135	Cape Lookout DEEP	04/25/19	20:34:00	33.91664	-75.83406	977	rock	5040040	01100115			55.40.444	Х		_	_
RB1903_J2_1135_Q3_01	J2-1135	Cape Lookout DEEP	04/25/19	21:48:00	33.91891	-75.83344	945	Acanthogorgia	EC10249	CM-00465	Х		RB-19-111x			$-\!\!\!\!+\!\!\!\!\!-$	_
RB1903_J2_1135_Q3_02 RB1903_J2_1135_Q3_03	J2-1135	Cape Lookout DEEP	04/25/19 04/25/19	21:48:00 21:48:00	33.91891	-75.83344 -75.83344	945	Hermit Crab								+	
RB1903_J2_1135_Q3_04	J2-1135	Cape Lookout DEEP Cape Lookout DEEP	04/25/19	21:48:00	33.91891 33.91891	-75.83344	945 945	Aplacophoran								+	
RB1903_J2_1135_Q3_05	J2-1135 J2-1135	Cape Lookout DEEP	04/25/19	21:48:00	33.91891	-75.83344	945	Aplacophoran Scale worm								+	-
RB1903_J2_1135_Q3_06	J2-1135 J2-1135	Cape Lookout DEEP	04/25/19	21:48:00	33.91891	-75.83344	945	Scale worm Scale worm								+	-
RB1903_J2_1135_Q12_01	J2-1135	Cape Lookout DEEP	04/25/19	21:04:00	33.91751	-75.83403	960	Acanthogorgia	EC10250	CM-00466	х		RB-19-112x			+	-
RB1903_J2_1135_Sblue_01	J2-1135	Cape Lookout DEEP	04/25/19	9:53:07	NA NA	NA NA	NA NA	Bacterial Mat	2010230	OW 00400	^		IND 17 112X	x		-	-
RB1903_J2_1135_N01	J2-1135	Cape Lookout DEEP	04/25/19	22:00:00	33.91893	-75.83331	948	Water						Х		_	_
RB1903_J2_1135_N02	J2-1135	Cape Lookout DEEP	04/25/19	22:00:00	33.91893	-75.83331	948	Water								_	
RB1903 J2 1135 N03	J2-1135	Cape Lookout DEEP	04/25/19	22:00:00	33.91893	-75.83331	948	Water		х						\neg	-
RB1903_J2_1135_N04	J2-1135	Cape Lookout DEEP	04/25/19	22:00:00	33.91893	-75.83331	948	Water	EC10262	х							
RB1903_J2_1135_PC12	J2-1135	Cape Lookout DEEP	04/25/19	19:45:29	33.91580	-75.83184	1027	Sediment									
RB1903_J2_1135_PC20	J2-1135	Cape Lookout DEEP	04/25/19	19:45:49	33.91580	-75.83184	1027	Sediment									
RB1903_J2_1135_PC21	J2-1135	Cape Lookout DEEP	04/25/19	19:45:49	33.91580	-75.83184	1027	Sediment							х		
RB1903_J2_1135_PC22	J2-1135	Cape Lookout DEEP	04/25/19	19:43:30	33.91580	-75.83184	1027	Sediment							Х		
RB1903_CTD015_N01	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	1177	Water						Х			
RB1903_CTD015_N02	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	1177	Water						Х			
RB1903_CTD015_N03	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	1177	Water						Х			
RB1903_CTD015_N04	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	1177	Water						Х			
RB1903_CTD015_N05	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	1177	Water				Х					
RB1903_CTD015_N06	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	1177	Water				X				_	
RB1903_CTD015_N07	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	1177	Water	EC10251						Х	_	
RB1903_CTD015_N08	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	1000	Water	EC10252						Х	-	
RB1903_CTD015_N09	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	801	Water	EC10253						Х	_	_
RB1903_CTD015_N10	CTD015	Cape Lookout DEEP	04/25/19 04/25/19	23:15:00	33 56.6465	75 48.4260	701 601	Water	EC10254						Х	+	
RB1903_CTD015_N11	CTD015	Cape Lookout DEEP		23:15:00	33 56.6465	75 48.4260		Water	EC10255						Х	$-\!\!\!\!+\!\!\!\!-$	
RB1903_CTD015_N12	CTD015	Cape Lookout DEEP	04/25/19	23:15:00 23:15:00	33 56.6465	75 48.4260	501	Water	EC10256 EC10257						X	+	-
RB1903_CTD015_N13 RB1903_CTD015_N14	CTD015 CTD015	Cape Lookout DEEP Cape Lookout DEEP	04/25/19 04/25/19	23:15:00	33 56.6465 33 56.6465	75 48.4260 75 48.4260	399 300	Water Water	EC10257 EC10258						X	+	_
RB1903_CTD015_N15	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	180	Water	EC10259						Х	+	-
RB1903_CTD015_N16	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	180	Water	LC10237						^	+	-
RB1903_CTD015_N17	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	180	Water						х		-	
RB1903_CTD015_N18	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	180	Water						Х		-	
RB1903_CTD015_N19	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	86	Water	EC10260					Х	х	\neg	
RB1903_CTD015_N20	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	surface	Water	EC10261			Х			х		
RB1903_CTD015_N21	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	surface	Water				Х					
RB1903_CTD015_N22	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	surface	Water						Х			
RB1903_CTD015_N23	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	surface	Water						Х			IT
RB1903_CTD015_N24	CTD015	Cape Lookout DEEP	04/25/19	23:15:00	33 56.6465	75 48.4260	surface	Water						Х			
RB1903_CTD016_N01	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	2181	Water				Х					
RB1903_CTD016_N02	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	2181	Water				Х					
RB1903_CTD016_N03	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	2181	Water	EC10263						Х		
RB1903_CTD016_N04	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	2157	Water	EC10264						Х		Ш
RB1903_CTD016_N05	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	2130	Water	EC10265						Х		\perp
RB1903_CTD016_N06	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	2085	Water	EC10266						Х	\perp	\perp
RB1903_CTD016_N07	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	1903	Water	EC10267						Х	\dashv	+
RB1903_CTD016_N08	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	1699	Water	EC10268				-		Х	$-\!$	+
RB1903_CTD016_N09	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	1505	Water	EC10269	1 1	$\bot\bot\bot$			ш	Х	Щ	

Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
RB1903_CTD016_N10	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	1299	Water	EC10270						Х		
RB1903_CTD016_N11	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	1101	Water	EC10271						Х		
RB1903_CTD016_N12	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	1001	Water	EC10272						х		
RB1903_CTD016_N13	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	876	Water	EC10273						Х		
RB1903_CTD016_N14	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	750	Water	EC10274					-	Х		
RB1903_CTD016_N15	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	650	Water	EC10275						Х		
RB1903_CTD016_N16	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	550	Water	EC10276						Х		_
RB1903_CTD016_N17	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	451	Water	EC10277						Х	_	_
RB1903_CTD016_N18	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	351	Water	EC10278						X	+	
RB1903_CTD016_N19	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	250	Water	EC10279						X	+	
RB1903_CTD016_N20 RB1903_CTD016_N21	CTD016 CTD016	Blake Ridge	04/27/19 04/27/19	14:11:00 14:11:00	32 29.681 32 29.681	76 11.466 76 11.466	151 100	Water Water	EC10280 EC10281					-	x	+	
RB1903_CTD016_N21	CTD016	Blake Ridge Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	surface	Water	EC10281 EC10282						Х	+-	\dashv
RB1903_CTD016_N23	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	surface	Water	LC10202				x			+	
RB1903_CTD016_N24	CTD016	Blake Ridge	04/27/19	14:11:00	32 29.681	76 11.466	surface	Water					x			+	_
RB1903_CTD017_N01	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2609	Water			Х					+	-
RB1903_CTD017_N02	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2609	Water			x					+	-
RB1903_CTD017_N03	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2609	Water			X					+	-
RB1903_CTD017_N04	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2609	Water								\top	\exists
RB1903_CTD017_N05	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2609	Water	EC10373						х	\top	
RB1903_CTD017_N06	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2609	Water					х				
RB1903_CTD017_N07	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2609	Water					х				
RB1903_CTD017_N08	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2598	Water	EC10374						х		
RB1903_CTD017_N09	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2586	Water	EC10375						х		
RB1903_CTD017_N10	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2510	Water	EC10376						х		
RB1903_CTD017_N11	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	2000	Water	EC10377						х		
RB1903_CTD017_N12	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	1500	Water	EC10378						х		
RB1903_CTD017_N13	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	1200	Water	EC10379						х		
RB1903_CTD017_N14	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	750	Water	EC10380						Х		
RB1903_CTD017_N15	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	500	Water	EC10381						Х		_
RB1903_CTD017_N16	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	200	Water	EC10382		Х				Х		
RB1903_CTD017_N17	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	200	Water	EC10383						Х		
RB1903_CTD017_N18	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	200	Water	EC10384					-	Х	_	
RB1903_CTD017_N19	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	135	Water	EC10385						Х	+	_
RB1903_CTD017_N20 RB1903_CTD017_N21	CTD017 CTD017	Cape Fear Cape Fear	04/28/19 04/28/19	12:00:00 12:00:00	32 58.8174 32 58.8174	75 55.7206 75 55.7206	surface surface	Water Water	EC10386				X		х	+	_
RB1903_CTD017_N21 RB1903_CTD017_N22	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	surface	Water	EC 10300		Х				X	+-	
RB1903_CTD017_N23	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	surface	Water			X				-	+	
RB1903_CTD017_N24	CTD017	Cape Fear	04/28/19	12:00:00	32 58.8174	75 55.7206	surface	Water			X					+	_
RB1903_J2_1136_B1_01	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10291	C	M-00475	х	RB-19-115x			+	-
RB1903_J2_1136_B1_02	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10292		M-00476	х	RB-19-116x		_	+	
RB1903_J2_1136_B1_03	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10295		M-00477	х	RB-19-117x		_	+	
RB1903_J2_1136_B1_04	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10297		M-00478	х	RB-19-118x		\dashv	+	
RB1903_J2_1136_B1_05	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10299	C	M-00479	Х	RB-19-119x				
RB1903_J2_1136_B1_06	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10300		M-00480	х	RB-19-120x			T	
RB1903_J2_1136_B1_07	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10301	C	M-00481	Х	RB-19-121x				
RB1903_J2_1136_B1_08	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10302	C	M-00482	Х	RB-19-122x				
RB1903_J2_1136_B1_09	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10303	C	M-00483	Х	RB-19-123x			$oldsymbol{ol}}}}}}}}}}}}}}}}}}}$	
RB1903_J2_1136_B1_10	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10304				RB-19-124x			Ш	
RB1903_J2_1136_B1_11	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10305			х	RB-19-125x			Ш	
RB1903_J2_1136_B1_12	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10306			Х	RB-19-126x	\sqcup	\perp	\bot	_
RB1903_J2_1136_B1_13	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10307	C	M-00484	Х	RB-19-127x		\perp	\perp	
RB1903_J2_1136_B1_14	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10308			Х	RB-19-128x			لسل	

Sample Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Nancy Prouty	Mandy Joye Jason Chavtor	Furu Mienis	Hillary Close
RB1903_J2_1136_B1_15	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10309		Х	RB-19-129x				
RB1903_J2_1136_B1_16	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10310			RB-19-130x				
RB1903_J2_1136_B1_17	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	EC10311		Х	RB-19-131x			_	
RB1903_J2_1136_B1_18	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096	2167	B. heckerae	E040040			DD 40 400			_	
RB1903_J2_1136_B1_19	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:01:00	32.49396	-76.19096 74.10004	2167	B. heckerae	EC10313		Х	RB-19-132x		_+	+	-
RB1903_J2_1136_B1_20 RB1903_J2_1136_B1_21	J2-1136 J2-1136	Blake Ridge Seep Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	23:01:00 23:01:00	32.49396 32.49396	-76.19096 -76.19096	2167 2167	Sepunculid Anemone				x			+-	-
RB1903_J2_1136_B2_01	J2-1136	Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10312	CM-00485	v	RB-19-133x			+	-
RB1903_J2_1136_B2_02	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10314	CM-00486	X	RB-19-134x		-+	_	
RB1903_J2_1136_B2_03	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10315	CM-00487	х	RB-19-135x			+	
RB1903_J2_1136_B2_04	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10316	CM-00488	Х	RB-19-136x			\top	
RB1903_J2_1136_B2_05	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10317	CM-00489	х	RB-19-137x				
RB1903_J2_1136_B2_06	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10318	CM-00490	Х	RB-19-138x				
RB1903_J2_1136_B2_07	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10319	CM-00491	Х	RB-19-139x				
RB1903_J2_1136_B2_08	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10320	CM-00492	Х	RB-19-140x				
RB1903_J2_1136_B2_09	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10321	CM-00493	Х	RB-19-141x				
RB1903_J2_1136_B2_10	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10322	CM-00494	Х	RB-19-142x				
RB1903_J2_1136_B2_11	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10323		Х	RB-19-143x				
RB1903_J2_1136_B2_12	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10324			RB-19-144x			_	
RB1903_J2_1136_B2_13	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	B. heckerae	EC10325			RB-19-145x			_	
RB1903_J2_1136_B2_14	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:57:00	32.49391	-76.19131	2167	clam (dead)	E040000	014 00 407		DD 10 150			—	
RB1903_J2_1136_B4_01 RB1903_J2_1136_B4_02	J2-1136 J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00 2:44:00	32.49364 32.49364	-76.19096 -76.19096	2166	B. heckerae	EC10333 EC10334	CM-00497 CM-00498	X	RB-19-150x RB-19-151x		_+	+	-
RB1903_J2_1136_B4_02 RB1903_J2_1136_B4_03	J2-1136 J2-1136	Blake Ridge Seep Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	2:44:00	32.49364	-76.19096	2166 2166	B. heckerae B. heckerae	EC10334 EC10335	CIVI-00496	X	RB-19-151X			+-	-
RB1903_J2_1136_B4_04	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10336		X	RB-19-153x		-+	_	
RB1903_J2_1136_B4_05	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10337		х	RB-19-154x			+	-
RB1903_J2_1136_B4_06	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10338	CM-00499	Х	RB-19-155x			_	
RB1903_J2_1136_B4_07	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae			Х				\top	
RB1903_J2_1136_B4_08	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae			х					
RB1903_J2_1136_B4_09	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae			Х					
RB1903_J2_1136_B4_10	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10345		Х	RB-19-156x				
RB1903_J2_1136_B4_11	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10346	CM-00500	Х	RB-19-157x				
RB1903_J2_1136_B4_12	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10347		Х	RB-19-158x				
RB1903_J2_1136_B4_13	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10348		Х	RB-19-159x				
RB1903_J2_1136_B4_14	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10349	CM-00501	Х	RB-19-160x				
RB1903_J2_1136_B4_15	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10350	CM-00502	Х	RB-19-161x				
RB1903_J2_1136_B4_16	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10351	CM-00503	Х	RB-19-162x		+	+	\vdash
RB1903_J2_1136_B4_17	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096 76.10006	2166	B. heckerae	EC10352	CM-00504	X	RB-19-163x	+	-+	+	\vdash
RB1903_J2_1136_B4_18 RB1903_J2_1136_B4_19	J2-1136 J2-1136	Blake Ridge Seep Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	2:44:00 2:44:00	32.49364 32.49364	-76.19096 -76.19096	2166 2166	B. heckerae B. heckerae	EC10353	CM-00505	X	RB-19-164x	+	+	+	\vdash
RB1903_J2_1136_B4_19 RB1903_J2_1136_B4_20	J2-1136 J2-1136	Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae			X		+	_	+-	\vdash
RB1903_J2_1136_B4_21	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae			X			+	+	\vdash
RB1903_J2_1136_B4_22	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae			Х			+	+	+
RB1903_J2_1136_B4_23	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae			Х				+	\Box
RB1903_J2_1136_B4_24	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae			х					
RB1903_J2_1136_B4_25	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10354	CM-00506	х	RB-19-165x				
RB1903_J2_1136_B4_26	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10355	CM-00507	Х	RB-19-166x				
RB1903_J2_1136_B4_27	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10356		Х	RB-19-167x				Ш
RB1903_J2_1136_B4_28	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10357		Х	RB-19-168x				Ш
RB1903_J2_1136_B4_29	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10358		Х	RB-19-169x			\perp	Ш
RB1903_J2_1136_B4_30	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10359		Х	RB-19-170x	+	_	\perp	\sqcup
RB1903_J2_1136_B4_31	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10360		Х	RB-19-171x		+	+	\vdash
RB1903_J2_1136_B4_32	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10361		Х	RB-19-172x			Щ_	ш

Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos Andrea Quattrini	Nancy Prouty	Mandy Joye	Jason Chaytor Furu Mienis	Hillary Close
RB1903_J2_1136_B4_33	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10362			х	RB-19-1733	(
RB1903_J2_1136_B4_34	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10363			х	RB-19-174)				
RB1903_J2_1136_B4_35	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10364			х	RB-19-175)	(
RB1903_J2_1136_B4_36	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10365				RB-19-176	(
RB1903_J2_1136_B4_37	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10366				RB-19-177)				
RB1903_J2_1136_B4_38	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae	EC10367				RB-19-178	(
RB1903_J2_1136_B4_39	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae				х			\perp		
RB1903_J2_1136_B4_40	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae				Х			\bot		
RB1903_J2_1136_B4_41	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae				Х			\bot		
RB1903_J2_1136_B4_42	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							\bot		
RB1903_J2_1136_B4_43	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+-+		
RB1903_J2_1136_B4_44	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+		_
RB1903_J2_1136_B4_45	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+-+		+-
RB1903_J2_1136_B4_46	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+	_	
RB1903_J2_1136_B4_47 RB1903_J2_1136_B4_48	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00 2:44:00	32.49364	-76.19096 74.10004	2166	B. heckerae							+	_	
RB1903_J2_1136_B4_49	J2-1136 J2-1136	Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	2:44:00	32.49364 32.49364	-76.19096 -76.19096	2166 2166	B. heckerae B. heckerae							+-+	$-\!\!+\!\!-$	
RB1903_J2_1136_B4_49 RB1903_J2_1136_B4_50	J2-1136 J2-1136	Blake Ridge Seep Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+-+	$-\!\!\!\!+\!\!\!\!-$	+-1
RB1903_J2_1136_B4_30	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+	+	+
RB1903_J2_1136_B4_52	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+	+	+
RB1903_J2_1136_B4_53	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+ +	_	_
RB1903_J2_1136_B4_54	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+ +	-	_
RB1903_J2_1136_B4_55	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							1 1	-	
RB1903_J2_1136_B4_56	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae				х					
RB1903_J2_1136_B4_57	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae				х					
RB1903_J2_1136_B4_58	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae				х					
RB1903_J2_1136_B4_59	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae									
RB1903_J2_1136_B4_60	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae									
RB1903_J2_1136_B4_61	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae									
RB1903_J2_1136_B4_62	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae									
RB1903_J2_1136_B4_63	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae									
RB1903_J2_1136_B4_64	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							\perp		
RB1903_J2_1136_B4_65	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							\bot		
RB1903_J2_1136_B4_66	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							\bot		
RB1903_J2_1136_B4_67	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+		_
RB1903_J2_1136_B4_68	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae				+			+-+		_
RB1903_J2_1136_B4_69	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+-+		+-
RB1903_J2_1136_B4_70 RB1903_J2_1136_B4_71	J2-1136 J2-1136	Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	2:44:00 2:44:00	32.49364 32.49364	-76.19096 -76.19096	2166 2166	B. heckerae							+-+	$-\!\!+\!\!-$	
RB1903_J2_1136_B4_71 RB1903_J2_1136_B4_72	J2-1136 J2-1136	Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae B. heckerae							+-+	-	+-1
RB1903_J2_1136_B4_72	J2-1136 J2-1136	Blake Ridge Seep Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+-+	-	+-
RB1903_J2_1136_B4_74	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+-+	+	
RB1903_J2_1136_B4_75	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+	+	+
RB1903_J2_1136_B4_76	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							1 1	-	
RB1903_J2_1136_B4_77	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae				+			+		\top
RB1903_J2_1136_B4_78	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae							+		\top
RB1903_J2_1136_B4_79	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae									\Box
RB1903_J2_1136_B4_80	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae									
RB1903_J2_1136_B4_81	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	B. heckerae									
RB1903_J2_1136_B4_82	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian	EC10368				RB-19-1793	(
RB1903_J2_1136_B4_83	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian	EC10369				RB-19-1803		$oldsymbol{oldsymbol{oldsymbol{\square}}}$		
RB1903_J2_1136_B4_84	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian	EC10370			\perp	RB-19-1813		$\perp \perp \downarrow$	\perp	ш
RB1903_J2_1136_B4_85	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian					RB-19-182)	($\perp \perp \perp$		\perp

Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
RB1903_J2_1136_B4_86	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian	EC10371				R	B-19-183x				
RB1903_J2_1136_B4_87	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian	EC10372				R	B-19-184x				
RB1903_J2_1136_B4_88	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian						B-19-185x				
RB1903_J2_1136_B4_89	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian						B-19-186x				
RB1903_J2_1136_B4_90	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian						B-19-187x				
RB1903_J2_1136_B4_91	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian						B-19-188x				
RB1903_J2_1136_B4_92	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian		1				B-19-189x		_		_
RB1903_J2_1136_B4_93	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian						B-19-190x				_
RB1903_J2_1136_B4_94	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Holothurian		+			R	B-19-191x		-		
RB1903_J2_1136_B4_95	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:44:00	32.49364	-76.19096	2166	Anemone	FC1022/	+	CM 0040F		D	D 10 14/		-		
RB1903_J2_1136_B5_01 RB1903_J2_1136_B5_02	J2-1136 J2-1136	Blake Ridge Seep Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	1:06:00 1:06:00	32.49394 32.49394	-76.19133 -76.19133	2167 2167	B. heckerae	EC10326 EC10332		CM-00495 CM-00496	Х		B-19-146x B-19-147x		\rightarrow	+	-1
RB1903_J2_1136_B5_03	J2-1136 J2-1136	Blake Ridge Seep	April 27-28, 2019	1:06:00	32.49394	-76.19133	2167	Holothurian Holothurian	LC 10332		CIVI-00470			B-19-147x		-+	+	-1
RB1903_J2_1136_B5_04	J2-1136	Blake Ridge Seep	April 27-28, 2019	1:06:00	32.49394	-76.19133	2167	Gastropod					K	D-17-140X		-	+	+
RB1903_J2_1136_B5_05	J2-1136	Blake Ridge Seep	April 27-28, 2019	1:06:00	32.49394	-76.19133	2167	Sepunculid					R	B-19-149x			+	
RB1903_J2_1136_B5_06	J2-1136	Blake Ridge Seep	April 27-28, 2019	1:06:00	32.49394	-76.19133	2167	Mussel shell						D 17 117X		-		
RB1903_J2_1136_Q3_01	J2-1136	Blake Ridge Seep	April 27-28, 2019	3:44:00	32.49386	-76.19175	2167	Antipatharian	EC10246		CM-00467					-	_	
RB1903_J2_1136_Q4_01	J2-1136	Blake Ridge Seep	April 27-28, 2019	4:48:02	32.49418	-76.19021	2169	Isididae	EC10287		CM-00469		R	B-19-113x			_	
RB1903_J2_1136_Q9_01	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:36:00	32.49365	-76.19118	2166	Clam										
RB1903_J2_1136_Q10_01	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:34:00	32.49367	-76.19119	2166	Urchin	EC10284		CM-00468	х						
RB1903_J2_1136_Q10_02	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:34:00	32.49367	-76.19119	2166	Urchin	EC10285		CM-00470	х						
RB1903_J2_1136_Q10_03	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:34:00	32.49367	-76.19119	2166	Urchin	EC10286		CM-00471							
RB1903_J2_1136_SBlue_01	J2-1136	Blake Ridge Seep	April 27-28, 2019	4:37:13	32.49402	-76.19070	2169	Squat Lobster	EC10288		CM-00473	х						
RB1903_J2_1136_SBlue_02	J2-1136	Blake Ridge Seep	April 27-28, 2019	4:37:13	32.49402	-76.19070	2169	Mussel	EC10290		CM-00474		R	B-19-114x				
RB1903_J2_1136_SWhite_01	J2-1136	Blake Ridge Seep	April 27-28, 2019	4:16:11	32.49396	-76.19114	2168	Squat Lobster	EC10289		CM-00472							
RB1903_J2_1136_N01	J2-1136	Blake Ridge Seep	April 27-28, 2019	4:02:33	32.49361	-76.19091	2164	Water							Х			
RB1903_J2_1136_N02	J2-1136	Blake Ridge Seep	April 27-28, 2019	4:02:33	32.49361	-76.19091	2164	Water	EC10385									
RB1903_J2_1136_N03	J2-1136	Blake Ridge Seep	April 27-28, 2019	4:02:33	32.49361	-76.19091	2164	Water		Х								
RB1903_J2_1136_N04	J2-1136	Blake Ridge Seep	April 27-28, 2019	4:02:33	32.49361	-76.19091	2164	Water		Х								
RB1903_J2_1136_M1_01	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:44:00	32.49394	-76.19094	2167	B. heckerae (8 individuals)	EC10386								_	_
RB1903_J2_1136_M1_02	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:44:00	32.49394	-76.19094	2167	Ophiuroid (5 individuals)	EC10387	+						-		-
RB1903_J2_1136_M1_03	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:44:00 22:44:00	32.49394 32.49394	-76.19094 -76.19094	2167	Alvinocaris (9 individuals)	EC10388 EC10389							\rightarrow	+	-
RB1903_J2_1136_M1_04 RB1903_J2_1136_M1_05	J2-1136 J2-1136	Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	22:44:00	32.49394	-76.19094	2167 2167	Anemone Gastropod	EC10369 EC10390	+						-	+	+
RB1903_J2_1136_M1_06	J2-1136	Blake Ridge Seep Blake Ridge Seep	April 27-28, 2019	22:44:00	32.49394	-76.19094	2167	Alvinocaris	EC10390							-	+	+
RB1903_J2_1136_M2_01	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Live mussel (60 individuals)	EC10391							-	+	+
RB1903_J2_1136_M2_02	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Dead mussel	EC10393								+	-
RB1903_J2_1136_M2_03	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Annelid (132 individuals)	EC10394							-	_	
RB1903_J2_1136_M2_04	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Alvinocaris (11 individuals)	EC10395								_	
RB1903_J2_1136_M2_05	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Anemone	EC10396									
RB1903_J2_1136_M2_06	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Ophiuroid (3 individuals)	EC10397									
RB1903_J2_1136_M2_07	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Ophiuroid (35 individuals)	EC10398									
RB1903_J2_1136_M2_08	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Anemone	EC10399									
RB1903_J2_1136_M2_09	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Holothurian	EC10400		-							
RB1903_J2_1136_M2_10	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Demosponge	EC10401									Ш
RB1903_J2_1136_M2_11	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Gastropod	EC10402									Ш
RB1903_J2_1136_M2_12	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:22:00	32.49394	-76.19092	2167	Annelid (3 individuals)	EC10403							\perp	_	Ш
RB1903_J2_1136_M3_01	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Mussel (58 individuals)	EC10404	1					\sqcup	\perp	_	\perp
RB1903_J2_1136_M3_02	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Holothurian (15 individuals)	EC10405	1 1							4	\sqcup
RB1903_J2_1136_M3_03	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Anemone	EC10406	1 1		\vdash			\vdash	\dashv	-	\sqcup
RB1903_J2_1136_M3_04	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Alvinocaris	EC10407	1 1						+	+	\vdash
RB1903_J2_1136_M3_05	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Sepunculid (3 individuals)	EC10408	1 1					\vdash	+	+-	\vdash
RB1903_J2_1136_M3_06	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Alvinocaris (3 individuals)	EC10409						ш		—	ш

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
	RB1903_J2_1136_M3_07	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Clam (6 individuals)	EC10410									
	RB1903_J2_1136_M3_08	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Scaphopod	EC10411									
	RB1903_J2_1136_M3_09	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Gastropod	EC10412									
	RB1903_J2_1136_M3_10	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Gastropod	EC10413									
	RB1903_J2_1136_M3_11	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Gastropod (3 individuals)	EC10414									
	RB1903_J2_1136_M3_12	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Annelid (26 individuals)	EC10415									
	RB1903_J2_1136_M3_13	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:35:00	32.49366	-76.19097	2166	Ophiuroid (74 individuals)	EC10416									
	RB1903_J2_1136_PC01	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:21:00	32.49394	-76.19093	2167	Sediment (mussels)					Х					\perp
-	RB1903_J2_1136_PC02	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:21:00	32.49394	-76.19093	2167	Sediment (mussels)					X					
-	RB1903_J2_1136_PC03	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:20:00	32.49392	-76.19092	2167	Sediment (mussels)										
-	RB1903_J2_1136_PC04	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:19:00	32.49391	-76.19091	2167	Sediment (mussels)					X					
	RB1903_J2_1136_PC05	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:23:00	32.49391	-76.19093	2167	Sediment (mussels)					Х				-	
-	RB1903_J2_1136_PC06	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:22:00	32.49392	-76.19092	2167	Sediment (mussels)					X			-	+	
	RB1903_J2_1136_PC07	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:18:00	32.49392	-76.19091 74.10003	2167	Sediment (mussels)					X			\rightarrow	+	-
	RB1903_J2_1136_PC08 RB1903_J2_1136_PC12	J2-1136 J2-1136	Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	22:24:00 6:03:13	32.49392 32.49493	-76.19093 -76.18985	2167 2169	Sediment (mussels)					X X			\rightarrow	+	-
	RB1903_J2_1136_PC13	J2-1136 J2-1136	Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	6:02:09	32.49493	-76.18986	2169	Sediment (bacterial mat) Sediment (bacterial mat)					X			-	+	
	RB1903_J2_1136_PC14	J2-1136 J2-1136	Blake Ridge Seep Blake Ridge Seep	April 27-28, 2019 April 27-28, 2019	0:00:00	32.49493	-76.19117	2166	Sediment (bacterial mat)					X			х	+	
	RB1903_J2_1136_PC15	J2-1136	Blake Ridge Seep	April 27-28, 2019	5:59:10	32.49491	-76.18985	2169	Sediment (bacterial mat)		+						X	+-	
	RB1903_J2_1136_PC16	J2-1136	Blake Ridge Seep	April 27-28, 2019	5:54:51	32.49493	-76.18986	2169	Sediment (bacterial mat)					Х			_	+-	-
-	RB1903_J2_1136_PC17	J2-1136	Blake Ridge Seep	April 27-28, 2019	6:00:48	32.49493	-76.18985	2169	Sediment (bacterial mat)					Α			х	+-	-
	RB1903_J2_1136_PC18	J2-1136	Blake Ridge Seep	April 27-28, 2019	5:57:41	32.49492	-76.18985	2169	Sediment (bacterial mat)					Х			-	_	
	RB1903_J2_1136_PC19	J2-1136	Blake Ridge Seep	April 27-28, 2019	5:56:07	32.49492	-76.18985	2169	Sediment (bacterial mat)					Х					
	RB1903_J2_1136_PC20	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:01:00	32.49366	-76.19117	2166	Sediment (bacterial mat)								х		
	RB1903_J2_1136_PC21	J2-1136	Blake Ridge Seep	April 27-28, 2019	5:53:19	32.49492	-76.18986	2169	Sediment (bacterial mat)								х		
	RB1903_J2_1136_PC25	J2-1136	Blake Ridge Seep	April 27-28, 2019	23:58:00	32.49366	-76.19119	2166	Sediment (bacterial mat)					Х					
	RB1903_J2_1136_PC27	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:04:00	32.49366	-76.19118	2166	Sediment (bacterial mat)					Х					
	RB1903_J2_1136_PC28	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:07:00	32.49367	-76.19119	2166	Sediment (bacterial mat)										
	RB1903_J2_1136_PC29	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:05:00	32.49366	-76.19118	2166	Sediment (bacterial mat)					Х			Х		
	RB1903_J2_1136_PC30	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:09:00	32.49367	-76.19118	2166	Sediment (bacterial mat)					Х					
	RB1903_J2_1136_PC31	J2-1136	Blake Ridge Seep	April 27-28, 2019	0:03:00	32.49366	-76.19118	2166	Sediment (bacterial mat)					Х					
	RB1903_J2_1136_R1	J2-1136	Blake Ridge Seep	April 27-28, 2019	2:29:00	32.49365	-76.19096	2166	rock							Х			
	RB1903_J2_1136_R2	J2-1136	Blake Ridge Seep	April 27-28, 2019	22:59:00	32.49396	-76.19093	2167	mussel										
	RB1903_J2_1137_Q3_01	J2-1137	Cape Fear Seep	04/28/19	18:45:51	32.97960	-75.92845	2590	Anthomastus						RB-19-192x				
	RB1903_J2_1137_Q4_01	J2-1137	Cape Fear Seep	04/28/19	22:31:39	32.97423	-75.91799	2608	Chrysogorgia	EC10418		CM-00509			RB-19-193x				
	RB1903_J2_1137_Q4_02	J2-1137	Cape Fear Seep	04/28/19	22:31:39	32.97423	-75.91799	2608	Amphipod										
	RB1903_J2_1137_Q5_01	J2-1137	Cape Fear Seep	04/28/19	0:09:00	32.97320	-75.91542	2592	Paragorgia	EC10420		CM-00510	Х		RB-19-194x				\perp
	RB1903_J2_1137_Q5_02	J2-1137	Cape Fear Seep	04/28/19	0:09:00	32.97320	-75.91542	2592	Anemone									_	
	RB1903_J2_1137_Q8_01	J2-1137	Cape Fear Seep	04/28/19	21:11:00	32.97834	-75.92370	2601	Bamboo coral	EC10421		CM-00511			RB-19-195x				
	RB1903_J2_1137_Q9_01	J2-1137	Cape Fear Seep	04/28/19	0:23:00	32.97329	-75.91554	2594	Chrysogorgia	EC10422		CM-00508			RB-19-196x			-	
	RB1903_J2_1137_Q9_02	J2-1137	Cape Fear Seep	04/28/19	0:23:00	32.97329	-75.91554	2594	Amphipod									-	
-	RB1903_J2_1137_SBlue	J2-1137 J2-1137	Cape Fear Seep	04/28/19 04/28/19	20:35:00 19:25:37	32.97945 32.97967	-75.92659 75.02027	2593 2591	Filament worms		+		+			-	+	-	\vdash
-	RB1903_J2_1137_SBlack RB1903_J2_1137_N01	J2-1137 J2-1137	Cape Fear Seep	04/28/19	2:09:00	32.97967 NA	-75.92827 NA	2591 NA	Bacterial Mat Water				+				+	+	\vdash
	RB1903_J2_1137_N01 RB1903_J2_1137_N02	J2-1137 J2-1137	Cape Fear Seep Cape Fear Seep	04/28/19	2:09:00	NA NA	NA NA	NA NA	Water				+-+				+	+-	\vdash
	RB1903_J2_1137_N03	J2-1137 J2-1137	Cape Fear Seep	04/28/19	2:09:00	NA NA	NA NA	NA NA	Water	EC10417	х		+			x	+	+-	\vdash
	RB1903 J2 1137 N04	J2-1137 J2-1137	Cape Fear Seep	04/28/19	2:09:00	NA NA	NA NA	NA	Water	EG10417	X		1 +			X	+	+	\vdash
	RB1903_J2_1137_R01	J2-1137	Cape Fear Seep	04/28/19	0:48:00	32.97348	-75.91516	2587	rock		^		+				+	+	\vdash
	RB1903_J2_1137_R02	J2-1137	Cape Fear Seep	04/28/19	0:42:00	32.97347	-75.91517	2588	rock								+	+	\vdash
	RB1903_J2_1137_R03	J2-1137	Cape Fear Seep	04/28/19	18:57:48	32.97964	-75.92867	2588	rock									+	\Box
	RB1903_J2_1137_B1_01	J2-1137	Cape Fear Seep	04/28/19	22:30:18	32.97423	-75.91799	2608	rock									+	\Box
	RB1903_J2_1137_B1_02	J2-1137	Cape Fear Seep	04/28/19	22:31:14	32.97423	-75.91799	2608	rock										П
	RB1903_J2_1137_B2	J2-1137	Cape Fear Seep	04/28/19	22:50:00	32.97387	-75.91788	2605	rock										

Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye	Jason Chaylor Furu Mienis	Hillary Close
RB1903_J2_1137_PC01	J2-1137	Cape Fear Seep	04/28/19	20:24:00	32.97959	-75.92686	2593	Sediment (bacterial mat)					Х					
RB1903_J2_1137_PC02	J2-1137	Cape Fear Seep	04/28/19	20:23:00	32.97959	-75.92686	2593	Sediment (bacterial mat)								х		
RB1903_J2_1137_PC03	J2-1137	Cape Fear Seep	04/28/19	20:22:00	32.97960	-75.92686	2593	Sediment (bacterial mat)					Х					
RB1903_J2_1137_PC04	J2-1137	Cape Fear Seep	04/28/19	20:21:00	32.97960	-75.92687	2593	Sediment (bacterial mat)										
RB1903_J2_1137_PC05	J2-1137	Cape Fear Seep	04/28/19	20:25:00	32.97958	-75.92686	2593	Sediment (bacterial mat)								Х	_	_
RB1903_J2_1137_PC06	J2-1137	Cape Fear Seep	04/28/19	20:20:00	32.97960	-75.92687	2593	Sediment (bacterial mat)					Х			\vdash	—	_
RB1903_J2_1137_PC07 RB1903_J2_1137_PC08	J2-1137	Cape Fear Seep	04/28/19	20:21:00	32.97960	-75.92687	2593	Sediment (bacterial mat)								Х	+	+
RB1903_J2_1137_PC08 RB1903_J2_1137_PC13	J2-1137 J2-1137	Cape Fear Seep	04/28/19 04/28/19	20:19:00 2:03:59	32.97960 NA	-75.92687 NA	2593 NA	Sediment (bacterial mat)					X X			-+	+	-
RB1903_J2_1137_PC13	J2-1137 J2-1137	Cape Fear Seep Cape Fear Seep	04/28/19	19:16:12	32.97968	-75.92828	2591	Sediment (mud) Sediment (bacterial mat)					^			Х	+	+
RB1903_J2_1137_PC16	J2-1137	Cape Fear Seep	04/28/19	19:14:53	32.97968	-75.92828	2591	Sediment (bacterial mat)								X	+	-
RB1903_J2_1137_PC19	J2-1137	Cape Fear Seep	04/28/19	19:13:33	32.97968	-75.92828	2591	Sediment (bacterial mat)					Х				+	+-1
RB1903_J2_1137_PC20	J2-1137	Cape Fear Seep	04/28/19	19:21:05	32.97968	-75.92828	2591	Sediment (bacterial mat)								Х	\top	\Box
RB1903_J2_1137_PC21	J2-1137	Cape Fear Seep	04/28/19	19:19:55	32.97968	-75.92828	2591	Sediment (bacterial mat)					х					
RB1903_J2_1137_PC22	J2-1137	Cape Fear Seep	04/28/19	2:01:00	NA	NA	NA	Sediment (mud)					Х			1		
RB1903_J2_1137_PC23	J2-1137	Cape Fear Seep	04/28/19	1:56:58	32.97394	-75.91419	2572	Sediment (mud)					Х					
RB1903_J2_1137_PC25	J2-1137	Cape Fear Seep	04/28/19	2:05:55	NA	NA	NA	Sediment (mud)					Х					
RB1903_J2_1137_PC26	J2-1137	Cape Fear Seep	04/28/19	2:02:52	NA	NA	NA	Sediment (mud)								Х		
RB1903_J2_1137_PC27	J2-1137	Cape Fear Seep	04/28/19	1:57:57	32.97394	-75.91419	2573	Sediment (mud)								Х		
RB1903_J2_1137_PC28	J2-1137	Cape Fear Seep	04/28/19	19:18:42	32.97968	-75.92828	2591	Sediment (bacterial mat)					Х			\vdash		\perp
RB1903_J2_1137_PC29	J2-1137	Cape Fear Seep	04/28/19	19:17:28	32.97968	-75.92828	2591	Sediment (bacterial mat)					Х			\vdash	_	
RB1903_J2_1137_PC31	J2-1137	Cape Fear Seep	04/28/19	19:22:11	32.97968	-75.92828	2591	Sediment (bacterial mat)					Х			\vdash	—	_
RB1903_CTD018_N01	CTD018 CTD018	Richardson West	04/29/19	15:26:00 15:26:00	31 54.3920	77 41.6884	742	Water Water			X				X	-+	+	+
RB1903_CTD018_N02 RB1903_CTD018_N03	CTD018	Richardson West Richardson West	04/29/19 04/29/19	15:26:00	31 54.3920 31 54.3920	77 41.6884 77 41.6884	742 742	Water			X X				X	-+	+	-
RB1903_CTD018_N04	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water			^				X		+	+
RB1903_CTD018_N05	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water							X		+	-
RB1903_CTD018_N06	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water					Х				+	+-1
RB1903_CTD018_N07	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water					х				+	\top
RB1903_CTD018_N08	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water								х	\top	
RB1903_CTD018_N09	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water	EC10424									
RB1903_CTD018_N10	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water				Х				1		
RB1903_CTD018_N11	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water				Х						
RB1903_CTD018_N12	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water				Х						
RB1903_CTD018_N13	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water				Х						
RB1903_CTD018_N14	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water				Х					_	_
RB1903_CTD018_N15	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	742	Water				Х						_
RB1903_CTD018_N16	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	surface	Water	FC10422			Х					-	+
RB1903_CTD018_N17 RB1903_CTD018_N19	CTD018 CTD018	Richardson West Richardson West	04/29/19 04/29/19	15:26:00 15:26:00	31 54.3920 31 54.3920	77 41.6884 77 41.6884	surface surface	Water Water	EC10423				X			Х	+	_
RB1903_CTD018_N20	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	surface	Water					X	+		\dashv	+	+
RB1903_CTD018_N21	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	surface	Water					Α		¥		+	-
RB1903_CTD018_N22	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	surface	Water			х				Х	_	+	+
RB1903_CTD018_N23	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	surface	Water			Х				Х		\top	
RB1903_CTD018_N24	CTD018	Richardson West	04/29/19	15:26:00	31 54.3920	77 41.6884	surface	Water			Х				Х		\top	
RB1903_J2_1138_B2_01	J2-1138	Richardson West	04/29/19	22:00:45	31.89500	-77.69863	663	White Plexaurid	EC10444	C	M-00529	х		RB-19-221x				
RB1903_J2_1138_B3_01	J2-1138	Richardson West	04/29/19	21:44:10	31.89495	-77.69870	664	Black coral			M-00538		·					
RB1903_J2_1138_B4_01	J2-1138	Richardson West	04/29/19	21:09:49	31.89463	-77.69932	677	Lophelia	EC10445	C	M-00530					$\perp \perp$		Ш
RB1903_J2_1138_B4_02	J2-1138	Richardson West	04/29/19	21:09:49	31.89463	-77.69932	677	Hydroids								\vdash		ш
RB1903_J2_1138_B4_03	J2-1138	Richardson West	04/29/19	21:09:49	31.89463	-77.69932	677	Yellow Sponge	EC10473	C	M-00531					\vdash		ш
RB1903_J2_1138_B4_04	J2-1138	Richardson West	04/29/19	21:09:49	31.89463	-77.69932	677	White Sponge		1 .	14.00507			+	\vdash			+
RB1903_J2_1138_B4_05	J2-1138	Richardson West	04/29/19	21:09:49	31.89463	-77.69932	677	Eunicid Valley Englishermin	FC10470		M-00537 M-00532	X		DD 10 222		\vdash	+	+
RB1903_J2_1138_B5_01	J2-1138	Richardson West	04/29/19	21:28:00	31.89493	-77.69872	665	Yellow Enallopsammia	EC10470	C	IVI-UUD32	Х		RB-19-222x				ш

	Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chaytor	Furu Mienis	Hillary Close
	RB1903_J2_1138_B5_02	J2-1138	Richardson West	04/29/19	21:28:00	31.89493	-77.69872	665	Pseudodrifa										
	RB1903_J2_1138_B5_03	J2-1138	Richardson West	04/29/19	21:28:00	31.89493	-77.69872	665	Hydroids			CM-00535							
	RB1903_J2_1138_B5_04	J2-1138	Richardson West	04/29/19	21:28:00	31.89493	-77.69872	665	Bathypasamia	EC10471		CM-00533							
	RB1903_J2_1138_B5_05	J2-1138	Richardson West	04/29/19	21:28:00	31.89493	-77.69872	665	Squat Lobster	EC10472		CM-00534							
	RB1903_J2_1138_B5_06	J2-1138	Richardson West	04/29/19	21:28:00	31.89493	-77.69872	665	Hydroid			CM-00536							
	RB1903_J2_1138_Q1_01	J2-1138	Richardson West	04/29/19	20:39:11	31.89418	-77.69955	694	Yellow Enallopsammia	EC10425		CM-00512	Х						
	RB1903_J2_1138_Q2_01	J2-1138	Richardson West	04/29/19	21:52:59	31.89500	-77.69862	663	White Plexaurid	EC10432		CM-00521	Х		RB-19-206x			'	
	RB1903_J2_1138_Q3_01	J2-1138	Richardson West	04/29/19	19:06:22	31.89256	-77.69933	723	Plumarella	EC10426		CM-00513	Х		RB-19-201x			'	
	RB1903_J2_1138_Q3_02	J2-1138	Richardson West	04/29/19	19:07:46	31.89256	-77.69933	723	White Plexaurid	EC10427					RB-19-202x				
	RB1903_J2_1138_Q3_03	J2-1138	Richardson West	04/29/19	19:11:55	31.89256	-77.69933	723	Stalked Crinoid				Х						
	RB1903_J2_1138_Q3_04	J2-1138	Richardson West	04/29/19	19:07:46	31.89256	-77.69933	723	Brittle Star									<u> </u>	
	RB1903_J2_1138_Q4_01	J2-1138	Richardson West	04/29/19	19:26:54	31.89289	-77.69957	721	Yellow Enallopsammia	EC10431	Х	CM-00520	Х					-	
	RB1903_J2_1138_Q5_01	J2-1138	Richardson West	04/29/19	21:37:00	31.89494	-77.69873	664	Lophelia	E010100		CM-00517			DD 40 00F			'	
-	RB1903_J2_1138_Q6_01	J2-1138	Richardson West	04/29/19	22:36:31	31.89541	-77.69813	661	White Plexaurid	EC10430		CM-00519			RB-19-205x		-	+	
-	RB1903_J2_1138_Q6_02	J2-1138	Richardson West	04/29/19 04/29/19	22:36:31	31.89541	-77.69813	661	Shrimp	EC10420		CM-00518			DD 10 202			+'	
-	RB1903_J2_1138_Q7_01 RB1903_J2_1138_Q7_02	J2-1138 J2-1138	Richardson West	04/29/19	20:14:00 20:13:00	31.89379 31.89379	-77.69959 -77.69959	706 706	Plumarella White Playaurid	EC10428 EC10429		CM-00515 CM-00516	Х		RB-19-203x RB-19-204x		-	+	_
	RB1903_J2_1138_Q7_03	J2-1138 J2-1138	Richardson West Richardson West	04/29/19	20:13:00	31.89379	-77.69957	706	White Plexaurid Stalked Crinoid	EC 10429		CIVI-00516	v		KD-19-204X		+	+	_
-	RB1903_J2_1138_Q8_01	J2-1138	Richardson West	04/29/19	19:57:58	31.89377	-77.69953	706	Enallopsammia		v	CM-00514	۸				-	+	_
	RB1903_J2_1138_Q9_01	J2-1138	Richardson West	04/29/19	1:45:00	31.90344	-77.69633	772	Chrysogorgia	EC10433	^	CM-00514			RB-19-207x		-	+	
	RB1903_J2_1138_Q10_01	J2-1138	Richardson West	04/29/19	1:33:00	31.90228	-77.69667	758	Yellow Plexaurid	EC10434		CM-00523			RB-19-208x		-	+	_
	RB1903_J2_1138_R1	J2-1138	Richardson West	04/29/19	20:44:54	31.89418	-77.69955	694	Rock	2010101		0111 00020			IND 17 EGGX		_	+	
	RB1903_J2_1138_R2	J2-1138	Richardson West	04/29/19	1:12:00	31.90115	-77.69739	735	Rock									+	
	RB1903_J2_1138_R3	J2-1138	Richardson West	04/29/19	1:13:00	31.90117	-77.69733	736	Rock									+	
	RB1903_J2_1138_R4	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	Rock										
	RB1903_J2_1138_RB_01	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	White Plexaurid	EC10435			х		RB-19-209x				
	RB1903_J2_1138_RB_02	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	White Plexaurid	EC10436			Х		RB-19-210x				
	RB1903_J2_1138_RB_03	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	White Plexaurid	EC10437					RB-19-211x				
	RB1903_J2_1138_RB_04	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	White Plexaurid	EC10438			Х		RB-19-212x				
	RB1903_J2_1138_RB_05	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	White Plexaurid	EC10439			х		RB-19-213x				
	RB1903_J2_1138_RB_06	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	White Plexaurid			CM-00527			RB-19-214x				
	RB1903_J2_1138_RB_07	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	Pseudodrifa	EC10440		CM-00526			RB-19-215x				
	RB1903_J2_1138_RB_08	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	Pseudodrifa	EC10441					RB-19-216x			'	
	RB1903_J2_1138_RB_09	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	Stoloniferan			CM-00525			RB-19-217x			<u> </u>	
	RB1903_J2_1138_RB_10	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	Yellow Plexaurid	EC10442		CM-00524	Х		RB-19-218x			<u> </u>	
	RB1903_J2_1138_RB_11	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	Yellow Plexaurid	5040440					RB-19-219x			4	
-	RB1903_J2_1138_RB_12	J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	Stylasterid	EC10443					DD 10 000		$-\!\!\!\!+\!\!\!\!-$		_
-	RB1903_J2_1138_RB_13	J2-1138 J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	Anemone			CM-00528			RB-19-220x		-	+	_
	RB1903_J2_1138_RB_14 RB1903_J2_1138_RB_15	J2-1138 J2-1138	Richardson West Richardson West	04/29/19 04/29/19	2:40:00 2:40:00	31.90787 31.90787	-77.69564 -77.69564	771 771	Barnacle Barnacle			CIVI-00326					+	+	_
	RB1903_J2_1138_RB_16	J2-1138 J2-1138	Richardson West	04/29/19	2:40:00	31.90787	-77.69564	771	Hydroid								$-\!\!\!+\!\!\!\!-$	+'	_
	RB1903_J2_1138_M1_01	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Live Lophelia and Enall.	EC10446							+	+	_
-	RB1903_J2_1138_M1_02	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Dead Lophelia and Enall.	EC10446 EC10447	+					\vdash	+	+-	-
	RB1903_J2_1138_M1_03	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Annelid (114)	EC10448							_	+	
	RB1903_J2_1138_M1_04	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Yellow Sponge (5)	EC10449							+	+	=
	RB1903_J2_1138_M1_05	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Hexac (9)	EC10450								+	
	RB1903_J2_1138_M1_06	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Urchin	EC10451								\top	
	RB1903_J2_1138_M1_07	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Anemone	EC10452								\top	
	RB1903_J2_1138_M1_08	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Gastropod	EC10453								T	
	RB1903_J2_1138_M1_09	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Gastropod	EC10454								T	
	RB1903_J2_1138_M1_10	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Polychaete	EC10455									
	RB1903_J2_1138_M1_11	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Shrimp	EC10456									
	RB1903_J2_1138_M1_12	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	O. bidentata (2)	EC10457									

Sample.Number	Sample Type	Site	Date Collected	Time	Latitude	Longitude	Depth (m)	Tentative.ID	Erik Cordes	Chris Kellogg	Cheryl Morrison	Sandra Brooke	Amanda Demopoulos	Andrea Quattrini	Nancy Prouty	Mandy Joye Jason Chavtor	Furu Mienis
RB1903_J2_1138_M1_13	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Amphipod	EC10458								
RB1903_J2_1138_M1_14	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Scaphopod	EC10459								
RB1903_J2_1138_M1_15	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Ophiuroid	EC10460								
RB1903_J2_1138_M1_16	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Tunicate	EC10461								
RB1903_J2_1138_M1_17	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Unknown test	EC10462								
RB1903_J2_1138_M1_18	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Annelid	EC10463								
RB1903_J2_1138_M1_19	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Annelid	EC10464								
RB1903_J2_1138_M1_20	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Cladorhizid	EC10465								
RB1903_J2_1138_M1_21	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Stylasterid	EC10466								
RB1903_J2_1138_M1_22	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Hydroid (13)	EC10467								
RB1903_J2_1138_M1_23	J2-1138	Richardson West	04/29/19	22:32:01	31.89540	-77.69813	661	Hydroid (42)	EC10468								
RB1903_J2_1138_N01	J2-1138	Richardson West	04/29/19	0:22:00	31.89816	-77.69714	674	Water									
RB1903_J2_1138_N02	J2-1138	Richardson West	04/29/19	0:22:00	31.89816	-77.69714	674	Water									
RB1903_J2_1138_N03	J2-1138	Richardson West	04/29/19	0:22:00	31.89816	-77.69714	674	Water							Х		
RB1903_J2_1138_N04	J2-1138	Richardson West	04/29/19	0:22:00	31.89816	-77.69714	674	Water	EC10469						Х		

Appendix B - Plans of the Day (PODs)

09 April 2019

depart Charleston

transit towards the Hoyt Hills site

31.66 -78.13

31 39.6 N 78 07.799 W

upon clearing the sea buoy, meeting on bridge to discuss Jason launch and recovery –

Chief Sci, Expedition leader, officers, bosun

1500 tour of Jason for science party

2200 (approximate time) When we reach ~500 m depth, evaluate the weather

if conditions are appropriate for USBL calibration, launch elevator

if seas/wind are too high, proceed to multibeam ops

survey plan will be provided by Brian Andrews

upon completion of either task, proceed to Richardson Hills

31.98443 -77.41139

31 59.065 N 77 24.683 W

10 April 2019

0700 CTD-02 @ Richardson Hills

0900 Launch elevator for USBL calibration

1800 recover elevator, evaluate weather conditions

if weather is conducive, Launch Jason dive J2-1128

or mapping around Richardson Hills

2000 arrive on station for ROV or MBES ops

11 April 2019

0800 recover ROV

proceed to lander deployment near ROV recovery location

lander seafloor target: 31d53.656 N, 77d21.599 W

survey over lander to determine precise location

1200 Launch J2-1129 @ Richardson Hills A4963 location

ROV seafloor target: 31d59.065 N, 77d24.683 W

1600 recover J2-1129

transit to next ROV deployment location

ROV seafloor target: 31d47.351 N, 77d29.870 W

2000 Launch J2-1130 @ Richardson Hills mounds site

12 April 2019

2000 Recover J2-1130

transit to lander location and recover lander

then CTD-03 near lander recovery site

11 April 2019

1800 Start multibeam mapping from Richardson to Blake Deep

12 April 2019

Waiting On Weather (WOW) – if coming down, proceed to ROV ops

If weather improves near Blake Deep, proceed to that dive plan otherwise continue mapping

TBD Launch J2-1129 @ Richardson Hills A4963 location

ROV seafloor target: 31d59.065 N, 77d24.683 W

4 hr dive (might do this short dive on the 13th if WOW is long)

transit to next ROV deployment location

ROV seafloor target: 31d47.351 N, 77d29.870 W

Launch J2-1130 @ Richardson Hills mounds site

dive time will depend on length of WOW

after recovery of J2-1130, transit to lander location

13 April 2019

CTD-05 near lander recovery site

Recover lander at first light

0800 Launch J2-1131 at Blake Deep

14 April 2019

J2-1132 at Stetson Banks

12 April 2019

on arrival CTD-05 @ Stetson Banks bowl site followed by Launch J2-1129 @ Stetson Banks bowl site 32d07.415 N, 77d39.449 W, 670 m depth

13 April 2019

0800 recover J2-1129

transit to lander location

triangulated position: 31d53.97 N, 77d21.222 W

1000 recover lander

transit to transit to Blake Deep, CTD-06 on arrival

1200 Launch J2-1130 at Blake Deep

31d17.58 N, 85d26.35, 1400 m

14 April 2019

0400 recover J2-1130

0800 launch J2-1131 @ Richardson A4963

ROV seafloor target: 31d59.065 N, 77d24.683 W, 750 m

1200 recover J2-1131

1400 re-deploy lander at previous location

drop it (approximately) here: 31d53.82 N, 77d21.32 W

triangulate lander

transit to Blake (Popenoe) Mounds

15 April 2019

CTD-07 on arrival

0800 J2-1132 at Popenoe (Blake) Mounds

31d03.690 N, 79d30.726 W, 700 m

2000 recover J2-1132

transit to Charleston

16 April 2019

0730 arrive at sea buoy

13 April 2019

1200 CTD-05 @ Richardson A4963

when the seas come down: launch J2-1129 @ Richardson A4963

ROV seafloor target: 31d59.065 N, 77d24.683 W, 750 m

14 April 2019

1200 recover J2-1129

1400 re-deploy lander at previous location

drop it (approximately) here: 31d53.82 N, 77d21.32 W

triangulate lander

transit to Blake Mounds

15 April 2019

CTD-06 on arrival

0800 J2-1130 at Blake Mounds

31d03.690 N, 79d30.726 W, 700 m

2000 recover J2-1130

transit to Charleston

16 April 2019

0730 arrive at sea buoy

14 April 2019

transit to Hoyt Hills to conduct brief MBES patch test and survey continue transit to Blake Mounds

15 April 2019

CTD-07 on arrival

0800 J2-1130 at Blake Mounds

two potential starting points

if we get in at 0800: 31d03.001 N, 79d30.764 W, 685 m

if we get in at 1200: 31d03.788 N, 79d31.678 W, 567 m

2000 transit to Charleston

16 April 2019

0730 arrive at sea buoy

16 April 2019

1000 depart Charleston

transit towards the Savannah Banks site

31.7679 N -79.20477W

31 46.075 N -79 12.29699 W

tour of Jason for new science party, drills, etc.

1600 (approximate time) on station- CTD cast

1800 Launch ROV (J2-1130)

17 April 2019

0800 Recover ROV

0900 Head to Blake Deep (9 hrs transit)

31.293 -77.243

31 18.2960 N -77 14.375 W

1800 CTD on arrival

2000 ROV dive (J2-1131)

18 April 2019

0800 recover ROV, transit to Blake Ridge

32.494 - 76.199

32 29.638 N -76 11.821W

1600 CTD on arrival

1800 ROV Dive (J2-1132) (weather depending)

19 April 2019

0600 Recover ROV, transit to Lookout Deep

33.923 -75.812

33 55.386 -75 48.716W

1500 CTD or XBT upon arrival, then multibeam map

1800 ROV dive TBD

RB1903

Plan of the Day

17 April 2019 ~0900 Recover ROV 1000 Head to Blake Deep (9 hrs transit) 31.293 -77.243 31 18.2960 N -77 14.375 W On arrival ROV dive (J2-1131)

18 April 2019
1200 recover ROV
1300 CTD
Multibeam to cover some holidays at the north end of feature

(tracklines will be given to the bridge, target area: 31 23.641N -77 13.408W) and then transit to safe harbor

19 April 2019 Waiting on Weather

20 April 2019 Head to Lookout Deep: 33.923N, -75.812W 33 55.386 -75 48.716W

Activities: CTD or XBT upon arrival, then multibeam map to refine dive target

ROV dive (12-18 hrs)

RB1903

Plan of the Day

20 April 2019

Head to Lookout Deep: Starting line – point #1: 34.02686N, -75.77626 W 34.01.612 -75.46.576W

Activities: Map Map MAP

21 April 2019

Head to Pamlico Canyon when mapping is complete

Triangulate the lander if conditions allow Lander location: 34.92354N, -75.15117W 34.55.413N, -75.09.070W 1936m

CTD* cast until ROV ops can be initiated

			-			
CTD #	Long DD	Lat DD	Long DM	Lat DM	Station	Depth (m)
1	-75.2245	34.97216	-75 13.470	34 58.330	Pamlico	694
2	-75.2006	34.95279	-75 12.036	34 57.167	Pamlico	1113
3	-75.1705	34.93638	-75 10.230	34 56.183	Pamlico	1394
4	-75.1519	34.92395	-75 09.114	34 55.437	Pamlico	1930
5	-75.1248	34.90709	-75 07.488	34 54.435	Pamlico	2524

*Note, these casts can be done in any order, and starting CTD can be closest to lander location.

ROV dive (24 hrs) Target onbottom: 34.92796N, -75.1495W 34.55.6776N, -75.08.9700W

Depth: 1820 m

22 April 2019

Recover ROV
Transit to Pea Island
CTD cast
ROV dive (24hrs):
35.675N, -74.794W
35 40.473N, -74 47.647W
Depth: 318m

23 April 2019 Recover ROV Transit to Kitty Hawk CTD cast ROV dive

22 April 2019

1200 Recover ROV CTD cast at: 34.93488, -75.165817 34 56.092033N, -75 9.950883W 1607m

Transit to Pea Island (4.5hrs) CTD cast with monocore 35.673N, -74.795W 35 40.410N, -74 47.71W

~2000: ROV dive (12 hrs): 35.675N, -74.794W 35 40.473N, -74 47.647W Depth: 318m

23 April 2019

0800 Recover ROV
CTD cast at recovery location
Transit to Kitty Hawk (<2 hrs)
CTD cast upon arrival after USBL pole deployment
Approximate location:
35 55.5639N, -74 48.635W
ROV dive (12 hrs)

RB1903

Plan of the Day

23 April 2019

~0000: ROV dive-J2-1133 (12 hrs): 35.675N, -74.794W 35 40.473N, -74 47.647W Depth: 318m

1200 Recover ROV

2 CTD casts CTD #12: background spot, D=353 m 35.6767N, -74.79552W 35 40.600N, -74 47.721W

CTD #13: Mat, bubble spot: 35.67556, -74.79550W, 312m 35 40.5336, -74 47.7306

Transit to Kitty Hawk

24 April 2019

0000 Dive at Kitty Hawk (12 hrs, J2-1134) Tentative target: 35.92773N, -74.80815W 35 55.66378N, -74 48.4896W D=398m

1200 recover Kitty Hawk, set up for 2 CTD casts CTD #14 target: wherever Jason is recovered CTD # 15: 35.93414N, -74.8182W, D= 233 35 56.04861N, -74 49.0929W

Transit to Keller Canyon (2hrs) Tentative location: 35.5447N, -74.7829W 35 32.68217N, -74 46.974W D=1151m

25 April 2019

Keller Canyon 00:00-12:00-Dive: J2-1135, 12 hrs CTD at ROV recover location/within the canyon (if feasible)

Transit to Hatteras Canyon (2hrs) 35.2854N, -74.9054W 35 17.1236N, -74 54.325W D=957m

26 April 2019

Hatteras Canyon Dive: J2-1136

00:00-12:00, 12 hrs

CTD at ROV recovery location/within the canyon (if feasible)

TBD based on review of new mapping data:

Transit to Cape Lookout (9) or Cape Fear (15hrs)

RB1903

Plan of the Day

25 April 2019

Transit to Cape Fear Seep (~6 hrs) 32.97N, -75.932W 32 58.42N, -75 55.95W D= 2600m

Multibeam with water column en route and over site

26 April 2019

Transit mapping/Map SW of Blake Ridge Seep Multibeam en route with water column CTD upon arrival at Blake Ridge Seep

27 April 2019

Transit to Blake Ridge seep (depending on weather report, break off from mapping to arrive 0400/0600

Blake Ridge Seep (4hrs)

32.494N, -76.199W

32 29657N, -76 11.928W

1200-2359 – Dive at Blake Ridge Seep (12hrs) (or earlier if conditions look dive-able)

CTD either before or after dive, depending on conditions

28 April 2019

Transit to Cape Fear Seep (~3 hrs)

32.97N, -75.932W

32 58.42N, -75 55.95W

D = 2600 m

0400-1800 Dive at Cape Fear Seep (16hrs)

CTD at the dive site

Transit to Blake Mounds (31 21.44N, -79 01.026W, 17 hrs)

1600: Dive on Blake Mounds (24 hrs)

29 April 2019: 0800: recover, CTD Steam to Charleston

Appendix C - Dive Plans

Dive: J2-1128 Launch: 2000 on 04/10/19 Site: Richardson Hills

Seafloor Target: 31d52.813 N, 77d22.433 W

Basket: 16 push cores on swing arms, 6 sample quivers on swing arms, 4 niskins, 5-chamber slurp, 2 large bioboxes, 3 coral pots, additional sample quivers

Note: make sure lasers are on for all transits, off for glamor shots

- Get settled on the bottom, begin transit towards WPT1
- 2. take one set of 4 push cores at the start if you find a suitable place
- 3. Start up the slope to WPT2, continue through all WPTs
 - a. Make note of substrate type, current direction, fauna
- 4. At any point that you find a decent amount of Lophelia, mussel pot
 - a. Only turn T-handle counter-clockwise when handling
 - b. Push into coral, turning counter-clockwise
 - c. When it's in, engage ram on manipulator
 - d. Turn mussel pot clockwise
 - e. Keep turning until you see the black mark on string
 - f. Pick it up and return to holster
- 5. When you see them, collect a diversity of corals
 - a. Octocorals and antipatharians into quivers
 - i. Plumarella or something else with good numbers
 - b. Scleractinians into biobox (Enallopsamia and Lophelia)
- **6.** Continue across the swales
 - a. Another set of push cores
 - b. More coral collections
 - c. Another mussel pot
- 7. Near the end, trip the niskins around a lot of live Lophelia
- 8. Come home

Dive: J2-1129 Launch: 1500 on 04/13/19 Site: Richardson A4963 Seafloor Target: 31d59.07 N, 77d24.75 W, 800 m depth

Basket: 11 push cores on port swing arm, 8 sample quivers on stbd swing arm, 4 niskins, 5-chamber slurp, 2 large bioboxes (1 with inserts, 1 without), 3 markers, 3 coral pots, milk crate, McLean Pump

Notes: Make sure lasers are on for all transits, off for glamor shots
When transitioning from sitting to transiting, white balance (one push)
Watch leads should take copious notes in notebook
Quivers 3 and 4 are set up for microbial samples – only 1 species in each

- 1. Once you are in good coral territory, deploy McLean pump get a good fix
- 2. Take a set of push cores if you can and a rock if you see one
- 3. Begin transit towards Transplant site
 - a. Search for transplants and recover them into biobox
- 4. Take a coral pot
 - a. Only turn T-handle counter-clockwise when handling
 - b. Push into coral, turning counter-clockwise
 - c. When it's in, engage ram on manipulator
 - d. Turn mussel pot clockwise
 - e. Keep turning until you see the black mark on string
 - f. Pick it up and return to holster
- 5. When you see them, collect a diversity of corals
 - a. Octocorals and antipatharians into quivers
 - i. Plumarella or white plexaurid with good numbers
 - b. Scleractinians into biobox (Enallopsamia and Lophelia)
- 6. When further away from 1st one, take another mussel pot, and then another
- 7. Start N towards WPT 2 and 3
 - a. Last mussel pot, more octocoral collections, more push cores
- 8. Return to McLean deployment location
- 9. trip the niskins then recover McLean pump

Dive: J2-1130 Launch: 1800 on 04/16/19 Site: Savannah Banks Seafloor Target: 31 46.075 N -79 12.295 W, 535 m depth

Corals	Ideal collection needs	location
0 01010	10001	biobox, 3 mussel
Lophelia	1 big collection, 10 small	pots
Enallopsammia	>10	quivers
Desmophyllum	>10	quivers or biobox
Madrepora	?	quivers or biobox
Plumarella	10	quivers
white plexaurid	10	quivers
other octocorals	opportunistic	quivers
other cup corals	opportunistic	quivers

Other critter needs	Ideal collection needs	location
Eumunida	opportunistic	slurp
Other squat		
lobsters	opportunistic	slurp
Asteroschema	opportunistic	biobox/quivers/slurp
Echinus	opportunistic	biobox
Sponges	opportunistic	

Basket: 11 push cores on port swing arm, 8 sample quivers on stbd swing arm, 4 niskins, 5-chamber slurp, 2 large bioboxes (6 inserts), 3 markers, 3 coral pots, milk crate for ROCKS

Notes: Make sure lasers are on for all transits, off for glamor shots

When transitioning from sitting to transiting, white balance (one push)

Watch leads should take copious notes in notebook

All quivers except #7 are set up for microbial samples – only 1 species in each (3 minimum, 5 ideal Enallopsammia or Desmophyllum)

- 1. Take a set of push cores if you can and a rock if you see one
- 2. Transit to WP1, find a good coral collection site
- 3. When you see them, collect a diversity of corals (SEE TABLE)
 - a. Octocorals, antipatharians, Enallopsammia into quivers
 - b. Scleractinians into biobox (Lophelia, Desmophyllum, Madrepora)
- 4. Take a coral pot
 - a. Only turn T-handle counter-clockwise when handling
 - b. Push into coral, turning counter-clockwise
 - c. When it's in, engage ram on manipulator

- d. Turn pot clockwise
- e. Keep turning until you see the black mark on string
- f. Pick it up and return to holster
- **5.** Head towards WPT 2
 - a. Collect corals, 2^{nd} coral pot, more push cores, rocks
- **6.** Head towards WPT 3
 - a. Collect corals, last coral pot, more push cores, rocks
- 7. trip the niskins then continue until all the basket is loaded

Dive: J2-1131 Launch: 1800 on 04/17/19 Site: Blake Deep Seafloor Target: 31 17.151 N -77 14.229 W, 1365 m depth

Corals	Ideal collection needs	location
Solenosmilia	10	quivers/biobox
Desmophyllum	>10	quivers or biobox
Enallopsammia	>10	quivers
Madrepora	some	quivers or biobox
Plumarella	10	quivers
Bamboo corals	10	quivers/biobox
Plexaurids	10	quivers
Antipatharians	opportunistic	quivers/biobox
other octocorals	opportunistic	quivers
other cup corals	opportunistic	quivers

Other critter needs	Ideal collection needs	location
Eumunida	opportunistic	slurp
Other squat		
lobsters	opportunistic	slurp
Asteroschema	opportunistic	biobox/quivers/slurp
Echinus	opportunistic	biobox
Sponges	opportunistic	biobox/quivers
Acesta (bivalve)	opportunistic	biobox

Basket: 11 push cores on port swing arm, 8 sample quivers on stbd swing arm, 4 niskins, 5-chamber slurp, 2 large bioboxes (6 inserts), 3 coral pots, milk crate for ROCKS, 3 markers, 3 small stoppers, SCOOP

Notes: Make sure lasers are on for all transits, off for glamor shots

When transitioning from sitting to transiting, white balance (one push)

Watch leads should take copious notes in notebook

All quivers except #7 are set up for microbial samples — only 1 species in each (3 minimum, 5 ideal Desmophyllum)

- 1. Take a set of push cores if you can and a rock if you see one
- 2. Transit to WP1, find a good coral collection site
- 3. When you see them, collect a diversity of corals (SEE TABLE)
 - a. Octocorals, antipatharians, Desmophyllum into quivers
 - b. Scleractinians into biobox (Solenosmilia, Madrepora)
- **4.** Take a coral pot
 - a. Only turn T-handle counter-clockwise when handling

- b. Push into coral, turning counter-clockwise
- c. When it's in, engage ram on manipulator
- d. Turn pot clockwise
- e. Keep turning until you see the black mark on string
- f. Pick it up and return to holster
- **5.** Head towards WPT 2
 - a. Collect corals, 2nd coral pot, more push cores, rocks
- **6.** Head towards WPT 3
 - a. Collect corals, last coral pot, more push cores, rocks
- 7. Head towards WPT 4
 - a. Collect corals, last coral pot, more push cores, rocks
- **8.** Head towards WPT 5
 - a. Collect corals, last coral pot, more push cores, rocks
- 9. trip the niskins then continue until all the basket is loaded
- 10. If you reach the top of the feature, just run across the platform until the end of dive

Dive: J2-1132 Launch: 1200 on 04/21/19 Site: Pamlico Canyon Seafloor Target: 34 55.533 N -75 08.955 W, 1820 m depth

	Ideal collection	
Corals	needs	location
Desmophyllum	>10	quivers or biobox
Paramuricea	>10	quivers or biobox
Solenosmilia	10	quivers/biobox
Dominant octocorals (e.g.):		
Acanthogorgia		
Paragorgia		
Bamboo corals		quivers/biobox
Plexaurids		quivers
Antipatharians	opportunistic	quivers/biobox
other octocorals	opportunistic	quivers
other cup corals	opportunistic	quivers

	Ideal collection	
Other critters	needs	location
Asteroschema	opportunistic	biobox/quivers/slurp
Eumunida	opportunistic	slurp
Other squat lobsters	opportunistic	slurp
Echinus	opportunistic	biobox
Sponges	opportunistic	biobox/quivers
Acesta (bivalve-1 2)	opportunistic	biobox

Basket: 16 push cores on skid, 11 push cores on port swing arm, 8 sample quivers on stbd swing arm, 5 quivers on skid, 4 niskins, 5-chamber slurp with small mesh, 1 large biobox (4 inserts), 2 coral pots, 1 milk crate and 1 MP holder for ROCKS and coral bases, 5 markers, 5 small stoppers, SCOOP

Imagery:

Make sure lasers are on for all transits, off for glamor shots White balance (one push) when sitting down or starting transiting Set up shot, then hands off controller for 10-20 secs

Notes: Watch leads should take copious notes in notebook, if you see trash, pick it up if it doesn't impact science or is dangerous.

All quivers ON STARBOARD SWINGARM except #7 are set up for microbial samples – only 1 species in each (3 minimum, 5 ideal Desmophyllum or Paramuricea)

- 1. Take a set of 7 push cores if you can and a rock if you see one
- 2. Transit to WP1, find a good coral collection site
- 3. When you see them, collect a diversity of corals (SEE TABLE)
 - a. Octocorals, antipatharians, Desmophyllum into quivers
 - b. Scleractinians into biobox (Solenosmilia)
- 4. Take a coral pot (if possible-Solenosmilia)
 - a. Only turn T-handle counter-clockwise when handling
 - b. Push into coral, turning counter-clockwise
 - c. When it's in, engage ram on manipulator
 - d. Turn pot clockwise
 - e. Keep turning until you see the black mark on string
 - f. Pick it up and return to holster
- **5.** Head towards WPT 2
 - a. Collect corals, 2nd coral pot, 6 push cores, rocks
- **6.** Head towards WPT 3
 - a. Collect corals, last coral pot, 6 push cores, rocks
- 7. Head towards WPT 4
 - a. Collect corals, 6 push cores, rocks
- 8. Head towards WPT 5
 - a. Collect corals, last coral pot, more push cores, rocks
- 9. trip the niskins near lots of coral then continue until all the basket is loaded
- 10. If you reach the top of the feature, just run across the platform until the end of dive

Dive: J2-1133 Launch: 0000 Site: Pea Island Seep

Ideal collection

Seafloor Target: 35.675 N, -74.794W, 35 40.473N, -74 47.647W

Depth: 318 m

m depth

Corals	needs	location
Dominant octocorals (e.g.):		
Bamboo corals		quivers/biobox
Antipatharians	opportunistic	quivers/biobox
cup corals		
	Ideal collection	
Other critters	needs	location
Mussels/Clams		
Asteroschema	opportunistic	biobox/quivers/slurp
Eumunida	opportunistic	slurp
Other squat lobsters	opportunistic	slurp
Echinus	opportunistic	biobox
Sponges	opportunistic	biobox/quivers
Other seep associates	opportunistic	biobox/quivers

Basket: 21 push cores on skid, 11 push cores on port swing arm, 8 sample quivers on stbd swing arm (7 ultracleaned), 4 niskins, 5-chamber slurp with small mesh, 1 large biobox (4 inserts), 2 mussel pots, 1 milk crate and 1 MP holder for ROCKS and coral bases, 5 markers, 5 small stoppers, SCOOP

Imagery:

Make sure lasers are on for all transits, off for glamor shots White balance (one push) when sitting down or starting transiting Set up shot, then hands off controller for 10-20 secs

Notes: Watch leads should take copious notes in notebook, if you see trash, pick it up if it doesn't impact science or is dangerous.

All quivers ON STARBOARD SWINGARM except #7 are set up for microbial samples – only 1 species in each (3 minimum, 5 ideal Desmophyllum, Acanthogorgia, or Paramuricea)

- 1. Find seep (mat, hydrate, carbonate)
- 2. Take a set of 8 push cores if you can and a rock if you see one
- 3. Transit to WP1, find a good collection site

- **4.** When you see them, collect a diversity of organisms (SEE TABLE)
- **5. Slurp mat** (use same chamber at multiple sites)
- **6.** Take a mussel pot (if possible **-Bathymodiolus or clams**)
 - a. Only turn T-handle counter-clockwise when handling
 - b. Push into coral, turning counter-clockwise
 - c. When it's in, engage ram on manipulator
 - d. Turn pot clockwise
 - e. Keep turning until you see the black mark on string
 - f. Pick it up and return to holster
- 7. Head towards WPT 2
 - a. Collect animals, 2nd mussel pot, 8 push cores, rocks
- **8.** Head towards WPT 3
 - a. Collect animals, 3rd mussel pot, 8 push cores, rocks
- 9. Head towards WPT 4
 - a. Collect animals, 8 push cores, rocks
- **10.**Head towards WPT 5
 - a. Collect animals, more push cores, rocks
- 11.trip 3 Niskins <u>CLOSE TO THE END OF THE DIVE</u> (near mussels, mats, bubbles, something seepy) then continue until all the basket is loaded
- 12. If you reach the top of the feature, just run across the platform until the end of dive

Push core plan:

8 in non seep

8 in bubble

2 sets of 8 in mats

Niskin plan:

1 niskin (#1 or 2) in bubbles

3 Niskins in seepy habitat

Rock plan:

Larger the better, variety of sites (Nancy/Jason to guide)

5 rocks, 4 in biobox inserts, 1 in rockbox/mussel pot holder

Dive: J2-1134 Launch: 2000 on 04/23/19 Site: Kitty Hawk Seep Seafloor Target: 35.92515N, -74.8053W, 35 55.509N, -74 48.3156W

Depth: 471m

Corals	Ideal collection needs	location
Lophelia		
Dominant octocorals (e.g.):		
Bamboo corals		quivers/biobox
Antipatharians	opportunistic	quivers/biobox
cup corals		
	Ideal collection	

Ideal collection	
needs	location
opportunistic	biobox/quivers/slurp
opportunistic	slurp
opportunistic	slurp
opportunistic	biobox
opportunistic	biobox/quivers
opportunistic	biobox/quivers
	opportunistic opportunistic opportunistic opportunistic opportunistic opportunistic

Basket: 21 push cores on skid, 11 push cores on port swing arm, 8 sample quivers on stbd swing arm (7 ultracleaned), 4 niskins, 5-chamber slurp with small mesh, 1 large biobox (4 inserts), 2 mussel pots, 1 milk crate and 1 MP holder for ROCKS and coral bases, 5 markers, 5 small stoppers, SCOOP

Imagery:

Make sure lasers are on for all transits, off for glamor shots White balance (one push) when sitting down or starting transiting Set up shot, then hands off controller for 10-20 secs

Notes: Watch leads should take copious notes in notebook, if you see trash, pick it up if it doesn't impact science or is dangerous.

All quivers ON STARBOARD SWINGARM except #7 are set up for microbial samples – only 1 species in each (3 minimum, 5 ideal Desmophyllum, Acanthogorgia, or Paramuricea)

- 1. Find seep (mat, hydrate, carbonate)
- 2. Take a set of 8 push cores if you can and a rock if you see one

- 3. Transit to WP1, find a good collection site
- 4. When you see them, collect a diversity of organisms (SEE TABLE)
- 5. Slurp mat (can use same chamber at multiple sites)
- **6.** Take a mussel pot (if possible-**Bathymodiolus or clams**)
 - a. Only turn T-handle counter-clockwise when handling
 - b. Push into coral, turning counter-clockwise
 - c. When it's in, engage ram on manipulator
 - d. Turn pot clockwise
 - e. Keep turning until you see the black mark on string
 - f. Pick it up and return to holster
- 7. Head towards WPT 2
 - a. Collect animals, 2nd mussel pot, 8 push cores, rocks
- **8.** Head towards WPT 3
 - a. Collect animals, 8 push cores, rocks
- 9. Head towards WPT 4
 - a. Collect animals, 8 push cores, rocks
- **10.**Head towards WPT 5
 - a. Collect animals, more push cores, rocks
- 11. Head towards WPT 5
 - a. Collect animals, more push cores, rocks
- 12. trip 3 Niskins <u>CLOSE TO THE END OF THE DIVE</u> (near mussels, mats, bubbles, something seepy) then continue until all the basket is loaded
- 13. If you reach the top of the feature, just run across the platform until the end of dive

Push core plan:

8 in non seep

8 in bubble

2 sets of 8 in mats

Niskin plan:

1 niskin (#1 or 2) in bubbles

3 Niskins in seepy habitat

Rock plan:

Larger the better, variety of sites (Nancy/Jason to guide)

5 rocks, 4 in biobox inserts, 1 in rockbox/mussel pot holder

Dive: J2-1135 Launch: 0000 on 04/25/19 Site: Cape Lookout DEEP Seafloor Target: 33 54.9594N-75 49.9632W, 1015 m depth

	Ideal collection	
Corals	needs	location
Desmophyllum	>10	quivers or biobox
Paramuricea	>10	quivers or biobox
Solenosmilia	10	quivers/biobox
Dominant octocorals (e.g.):		
Acanthogorgia		
Paragorgia		
Bamboo corals		quivers/biobox
Plexaurids		quivers
Antipatharians	opportunistic	quivers/biobox
other octocorals	opportunistic	quivers
other cup corals	opportunistic	quivers

	Ideal collection	
Other critters	needs	location
Asteroschema	opportunistic	biobox/quivers/slurp
Eumunida	opportunistic	slurp
Other squat lobsters	opportunistic	slurp
Echinus	opportunistic	biobox
Sponges	opportunistic	biobox/quivers
Acesta (bivalve-1 2)	opportunistic	biobox

Basket: 16 push cores on skid, 11 push cores on port swing arm, 8 sample quivers on stbd swing arm, 5 coral quivers on skid, 4 niskins, 5-chamber slurp with small mesh, 1 large biobox (4 inserts), 2 coral pots, 1 milk crate and 1 MP holder for ROCKS and coral bases (e.g., Desmophyllum, Bamboo), 5 markers, 5 small stoppers, SCOOP

Imagery:

Make sure lasers are on for all transits, off for glamor shots White balance (one push) when sitting down or starting transiting Set up shot, then hands off controller for 10-20 secs

Notes: Watch leads should take copious notes in notebook, if you see trash, pick it up if it doesn't impact science or is dangerous.

All quivers ON STARBOARD SWINGARM except #7 are set up for microbial samples – only 1 species in each (3 minimum, 5 ideal Desmophyllum or Acanthogorgia)

- 1. Take a set of 7 push cores if you can and a rock if you see one
- 2. Transit to WP1, find a good coral collection site
- 3. When you see them, collect a diversity of corals (SEE TABLE)
 - a. Octocorals, antipatharians, Desmophyllum into quivers
 - b. Scleractinians into biobox (Solenosmilia)
- **4.** Take a coral pot (if possible-**Solenosmilia**)
 - a. Only turn T-handle counter-clockwise when handling
 - b. Push into coral, turning counter-clockwise
 - c. When it's in, engage ram on manipulator
 - d. Turn pot clockwise
 - e. Keep turning until you see the black mark on string
 - f. Pick it up and return to holster
- **5.** Head towards WPT 2
 - a. Collect corals, 2nd coral pot, 6 push cores, rocks
- **6.** Head towards WPT 3
 - a. Collect corals, last coral pot, 6 push cores, rocks
- 7. Head towards WPT 4
 - a. Collect corals, 6 push cores, rocks
- **8.** Head towards WPT 5
 - a. Collect corals, last coral pot, more push cores, rocks
- 9. trip the niskins near lots of coral then continue until all the basket is loaded
- 10. If you reach the top of the feature, just run across the platform until the end of dive

Dive: J2-1135 Launch: 0000 on 04/25/19 Site: Keller Canyon Seafloor Target: 35.5447 N -74.7829W, 1000 m depth

	Ideal collection	
Corals	needs	location
Desmophyllum	>10	quivers or biobox
Paramuricea	>10	quivers or biobox
Solenosmilia	10	quivers/biobox
Dominant octocorals (e.g.):		
Acanthogorgia		
Paragorgia		
Bamboo corals		quivers/biobox
Plexaurids		quivers
Antipatharians	opportunistic	quivers/biobox
other octocorals	opportunistic	quivers
other cup corals	opportunistic	quivers

	Ideal collection	
Other critters	needs	location
Asteroschema	opportunistic	biobox/quivers/slurp
Eumunida	opportunistic	slurp
Other squat lobsters	opportunistic	slurp
Echinus	opportunistic	biobox
Sponges	opportunistic	biobox/quivers
Acesta (bivalve-1 2)	opportunistic	biobox

Basket: 16 push cores on skid, 11 push cores on port swing arm, 8 sample quivers on stbd swing arm, 5 coral quivers on skid, 4 niskins, 5-chamber slurp with small mesh, 1 large biobox (4 inserts), 2 coral pots, 1 milk crate and 1 MP holder for ROCKS and coral bases (e.g., Desmophyllum, Bamboo), 5 markers, 5 small stoppers, SCOOP

Imagery:

Make sure lasers are on for all transits, off for glamor shots White balance (one push) when sitting down or starting transiting Set up shot, then hands off controller for 10-20 secs

Notes: Watch leads should take copious notes in notebook, if you see trash, pick it up if it doesn't impact science or is dangerous.

All quivers ON STARBOARD SWINGARM except #7 are set up for microbial samples – only 1 species in each (3 minimum, 5 ideal Desmophyllum or Acanthogorgia)

- 1. Take a set of 7 push cores if you can and a rock if you see one
- 2. Transit to WP1, find a good coral collection site
- 3. When you see them, collect a diversity of corals (SEE TABLE)
 - a. Octocorals, antipatharians, Desmophyllum into quivers
 - b. Scleractinians into biobox (Solenosmilia)
- **4.** Take a coral pot (if possible-**Solenosmilia**)
 - a. Only turn T-handle counter-clockwise when handling
 - b. Push into coral, turning counter-clockwise
 - c. When it's in, engage ram on manipulator
 - d. Turn pot clockwise
 - e. Keep turning until you see the black mark on string
 - f. Pick it up and return to holster
- **5.** Head towards WPT 2
 - a. Collect corals, 2nd coral pot, 6 push cores, rocks
- **6.** Head towards WPT 3
 - a. Collect corals, last coral pot, 6 push cores, rocks
- 7. Head towards WPT 4
 - a. Collect corals, 6 push cores, rocks
- **8.** Head towards WPT 5
 - a. Collect corals, last coral pot, more push cores, rocks
- 9. trip the niskins near lots of coral then continue until all the basket is loaded
- 10. If you reach the top of the feature, just run across the platform until the end of dive

Dive: J2-1136 Launch: xxxx on 04/27/19 Site: Blake Ridge Seep

Seafloor Target: 32.3937N, -76.19115W, 32 29.6248N, -76 11.4692W

Depth: 2193 m

	Ideal collection	
Corals	needs	location
Dominant octocorals (e.g.):		
Bamboo corals		quivers/biobox
Antipatharians	opportunistic	quivers/biobox
cup corals		-

	Ideal collection	
Other critters	needs	location
	target mix of	biobox/quivers/slurp
Mussels/Clams	sizes	(small)
Asteroschema	opportunistic	biobox/quivers/slurp
Eumunida	opportunistic	slurp
Other squat lobsters	opportunistic	slurp
Echinus	opportunistic	biobox
Sponges	opportunistic	biobox/quivers
Other seep associates	opportunistic	biobox/quivers

Basket: 21 push cores on skid, 11 push cores on port swing arm, 8 sample quivers on stbd swing arm (7 ultracleaned), 4 niskins, 5-chamber slurp with small mesh, 1 large biobox (4 inserts), 3 mussel pots, 1 milk crate for ROCKS and coral bases, 5 small stoppers, 1 marker, SCOOP

Imagery:

Make sure lasers are on for all transits, off for glamor shots White balance (one push) when sitting down or starting transiting

Set up shot, then hands off controller for 10-20 secs

Notes: Watch leads should take copious notes in notebook, if you see trash, pick it up if it doesn't impact science or is dangerous.

All quivers ON STARBOARD SWINGARM except #7 are set up for microbial samples – only 1 species in each (3 minimum, 5 ideal Desmophyllum, Acanthogorgia, or Paramuricea)

- 1. Find seep (mat, hydrate, carbonate)
- 2. Take a set of 8 push cores if you can and a rock if you see one
- 3. Transit to WP1, find a good collection site
- 4. When you see them, collect a diversity of organisms (SEE TABLE)

- **5. Slurp mat** (use same chamber at multiple sites)
- **6.** Take a mussel pot (**Bathymodiolus**)
 - a. Only turn T-handle counter-clockwise when handling
 - b. Push into coral, turning counter-clockwise
 - c. When it's in, engage ram on manipulator
 - d. Turn pot clockwise
 - e. Keep turning until you see the black mark on string
 - f. Pick it up and return to holster
- 7. Head towards WPT 2
 - a. Collect animals, 2nd mussel pot, 8 push cores, rocks
- 8. Head towards WPT 3
 - a. Collect animals, 3rd mussel pot, 8 push cores, rocks
- **9.** Head towards WPT 4
 - a. Collect animals, 8 push cores, rocks
- 10. Head towards WPT 5
 - a. Collect animals, more push cores, rocks
- 11.trip 3 Niskins <u>CLOSE TO THE END OF THE DIVE</u> (near mussels, mats, bubbles, something seepy) then continue until all the basket is loaded
- 12. If you reach the top of the feature, just run across the platform until the end of dive

Mussel Collections:

3 different patch sizes (small, medium, large, 3-5 each patch)

Target different mussel sizes – no need to actually measure them on the seafloor dead shells

Push core plan:

8 by mussels

8 by clams

2 sets of 8 in mats

Niskin plan:

1 niskin (#1 or 2) in bubbles

3 Niskins in seepy habitat

Rock plan:

variety of sites (Nancy/Jason to guide), 2-3

Dive: J2-1137 Launch: 1200 on 04/28/19 Site: Cape Fear Seep

Seafloor Target: 32.97918N, -75.92864W, 32 58.7508, -75 55.7184W

Depth: 2676 m

	Ideal collection	
Corals	needs	location
Dominant octocorals (e.g.):		
Bamboo corals		quivers/biobox
Antipatharians	opportunistic	quivers/biobox
cup corals		-

	Ideal collection	
Other critters	needs	location
	target mix of	biobox/quivers/slurp
Mussels/Clams	sizes	(small)
Asteroschema	opportunistic	biobox/quivers/slurp
Eumunida	opportunistic	slurp
Other squat lobsters	opportunistic	slurp
Echinus	opportunistic	biobox
Sponges	opportunistic	biobox/quivers
Other seep associates	opportunistic	biobox/quivers

Basket: 21 push cores on skid, 11 push cores on port swing arm, 8 sample quivers on stbd swing arm (7 ultracleaned), 4 niskins, 5-chamber slurp with small mesh, 1 large biobox (4 inserts), 3 mussel pots, 1 milk crate for ROCKS and coral bases, 5 small stoppers, 1 marker, SCOOP

Imagery:

Make sure lasers are on for all transits, off for glamor shots White balance (one push) when sitting down or starting transiting Set up shot, then hands off controller for 10-20 secs

Notes: Watch leads should take copious notes in notebook, if you see trash, pick it up if it doesn't impact science or is dangerous.

- 1. Find seep (mat, hydrate, carbonate)
- 2. Take a set of 8 push cores if you can and a rock if you see one
- 3. Transit to WP1, find a good collection site
- 4. When you see them, collect a diversity of organisms (SEE TABLE)
- **5. Slurp mat** (use same chamber at multiple sites)
- 6. Take a mussel pot (Bathymodiolus)
 - a. Only turn T-handle counter-clockwise when handling

- b. Push into coral, turning counter-clockwise
- c. When it's in, engage ram on manipulator
- d. Turn pot clockwise
- e. Keep turning until you see the black mark on string
- f. Pick it up and return to holster
- 7. Head towards WPT 2
 - a. Collect animals, 2nd mussel pot, 8 push cores, rocks
- **8.** Head towards WPT 3
 - a. Collect animals, 3rd mussel pot, 8 push cores, rocks
- 9. Head towards WPT 4
 - a. Collect animals, 8 push cores, rocks
- **10.**Head towards WPT 5
 - a. Collect animals, more push cores, rocks
- 11.trip 3 Niskins <u>CLOSE TO THE END OF THE DIVE</u> (near mussels, mats, bubbles, something seepy) then continue until all the basket is loaded
- 12. If you reach the top of the feature, just run across the platform until the end of dive

Mussel Collections:

3 different patch sizes (small, medium, large, 3-5 each patch)
Target different mussel sizes – no need to actually measure them on the seafloor dead shells

Push core plan:

8 by mussels

8 by clams

2 sets of 8 in mats

Niskin plan:

1 niskin (#1 or 2) in bubbles

3 Niskins in seepy habitat

Rock plan:

variety of sites (Nancy/Jason to guide), 2-3

Dive: J2-1138 Launch: 1200 on 04/29/19 Site: Richardson West

31.8884N, -77.6964W 31 53.311N, -77 41.792W

Depth: 723 m

Corals	Ideal collection needs	location
		biobox, 3 mussel
Lophelia	1 big collection, 10 small	pots
Enallopsammia	>10	quivers
Desmophyllum	>10	quivers or biobox
Madrepora	?	quivers or biobox
Plumarella	10	quivers
white plexaurid	10	quivers
other octocorals	opportunistic	quivers
other cup corals	opportunistic	quivers

Other critter needs	Ideal collection needs	location
Eumunida	opportunistic	slurp
Other squat		
lobsters	opportunistic	slurp
Asteroschema	opportunistic	biobox/quivers/slurp
Echinus	opportunistic	biobox
Sponges	opportunistic	

Basket: 11 push cores on port swing arm, 8 sample quivers on stbd swing arm, 2 sample quivers on the sled, 4 niskins, 5-chamber slurp, 2 large bioboxes (6 inserts), 3 markers, 3 coral pots, milk crate for ROCKS

All quivers ON STARBOARD SWINGARM except #7 are set up for microbial samples – only 1 species in each (3 minimum, 5 ideal Enallopsammia or Lophelia)

Imagery:

Make sure lasers are on for all transits, off for glamor shots White balance (one push) when sitting down or starting transiting Set up shot, then hands off controller for 10-20 secs

Notes: Watch leads should take copious notes in notebook, if you see trash, pick it up if it doesn't impact science or is dangerous.

- 1. Take a set of push cores if you can and a rock if you see one
- 2. Transit to WP1, find a good coral collection site

- 3. When you see them, collect a diversity of corals (SEE TABLE)
 - a. Octocorals, antipatharians, Enallopsammia into quivers
 - b. Scleractinians into biobox (Lophelia, Desmophyllum, Madrepora)
- **4.** Take a coral pot
 - a. Only turn T-handle counter-clockwise when handling
 - b. Push into coral, turning counter-clockwise
 - c. When it's in, engage ram on manipulator
 - d. Turn pot clockwise
 - e. Keep turning until you see the black mark on string
 - f. Pick it up and return to holster
- **5.** Head towards WPT 2
 - a. Collect corals, 2nd coral pot, more push cores, rocks
- **6.** Head towards WPT 3
 - a. Collect corals, last coral pot, more push cores, rocks
- 7. trip 3 Niskins CLOSE TO THE END OF THE DIVE (near lots of corals)
- 8. Come home

Appendix D - Jason Dive Summaries

ROV Jason Daily Report

Cruise Number: RB 19-03

Dive number: J2-1128

Chief Scientist: Erik Cordes

Report Date: 4/11/2019

Expedition Leader: Alberto Collasius Jr.

Prepared By: Expedition Leader

Vessel Location: Atlantic 32N 78W

Weather: Good for launch/ At limit for recovery

Dive Times: GMT

Dive Activities/Future Activities:

Coral pots, Push cores, Coral samples to quivers, Samples to Bio Box's, Reson and slurp mounted but not utilized

Reason for Dive Termination: Objectives completed

Dive No.	Dates	Max Depth	Hours Descending	Hours Ascending	Hours on Bottom	Hours in water	Time On Deck	Time on Deck not available to science
J2- 1128	4/10-4/11	792	:50	2:45	9:30	13:05		0

Completed Dive Summaries:

Vehicle Status: No problems with vehicle.

Weather Forecast:

Weather models have showers in your vicinity right thru Sat morning. Not much on satellite and radar right now. I think the best chance of a few showers will be tonight. I also think the windiest/roughest conditions will be late today thru tomorrow morning. Keep in mind, 1 heavy shower will be followed by a 30-60 minute wind speed lull, but on the leading edge of a heavy shower, winds could gust to 30-34 kts Quietest conditions of the next 5 days will be Sat afternoon and evening S winds will be increasing Sun and Sun night will feature strong, gusty winds and thunderstorms. Clearing skies Mon morning. Windy and rough, but it will start to improve Mon afternoon.

Expedition Leader Comments:

Great dive. Landed right on target. Typical first dive with a few teething pains. Wrap counter and dp to Control vans not functioning yet but should be soon. Bridge driving went very well. Sampling went well. As we started ascent the engineer had to go do wakeups and a bad wrap occurred that was noticed as soon as they got back. Had a little trouble adjusting levelwind but 1 call to Fred and we were getting things in order.

Chief Scientist Comments:

This was a very successful dive. The primary goal was to ground-truth our multibeam and test our conceptual models of coral distribution. We spent a good deal of time in the beginning of the dive going through the camera controls with our cinematographer, and he had some helpful pointers, primarily the utilization of the auto white balance button any time that the distance of the subject changes significantly (i.e. sitting down vs. transiting). We are also getting some of the kinks out in our use of the event logger and the video system, but this is to be expected for the first dive.

There were abundant live corals and mounds of coral rubble throughout. It was truly a target-rich environment, and we utilized most of the different types of sampling gear including the bioboxes, coral quivers, and coral (mussel) pots. All of the pilots did an excellent job with the various collections. We did not use the push cores because of the sediment type (there was no sediment), or the slurp sampler due to a lack of suitable targets. Some of the coral quivers were hard to reach, so we are going to adjust the placement of the cores and quivers on the swing arms. One of the bioboxes (our own, not Jason group's) came up a bit warm, so we worked on the seal during the surface interval. The science party commented that the niskins were in an excellent position and they worked well and the Jason group is thanked for their efforts in rigging these bottles.

Contact Numbers:

WHOI/NDSF Vessel Other

Voice: 508 289 3445 (Cathy Offinger) Mobile: 774 392 2986 (Matt Heintz)

Email: mheintz@whoi.edu

ROV Jason Daily Report

Cruise Number: RB 19-03

Dive number: J2-1129

Chief Scientist: Erik Cordes

Report Date: 4/14/2019

Expedition Leader: Alberto Collasius Jr.

Prepared By: Expedition Leader

Vessel Location: Atlantic 32N 78W

Weather: Had to delay launch for weather. It layed down enough for launch but was coming back up late am so

recovered 8am

Dive Times: GMT

Dive Activities/Future Activities:

Coral pots, Coral samples to quivers, Samples to Bio Box's, Reson and McLane pump deploy and recover

Reason for Dive Termination: Weather

Dive No.	Dates	Max Depth	Hours Descending	Hours Ascending	Hours on Bottom	Hours in water	Time On Deck	Time on Deck not available to science
J2- 1128	4/10-4/11	792	:50	2:45	9:30	13:05		0
J2- 1129	4/13-4/14	746	1:07	1:20	11:15	13:42	56:53	32:53

Completed Dive Summaries:

Vehicle Status: No problems with vehicle. Need to dial in a few of the views to Both upper and lower Niskins

Weather Forecast: Forecast to deteriorate significantly today

Large low pressure system moving NE across the midwest this morning, and is trailing a strong cold front through the south. Strong squall line of thunderstorms (with severe weather) is moving E and will pass across FL Panhandle this afternoon, shifting off the South Carolina coast by close to midnight tonight. Winds will increase from the S this evening up to 30-40kt and gusts to 50+kt possible. I can't rule out the chance for an isolated waterspouts and some thunder/lightning within this squall line, which should pass near you between 2am and 8am tomorrow. S winds shift into the W behind the front, and wind speeds a little lower. Skies should clear within a few hours after the squall line passes, with winds then diminishing and veering through late Mon into Tues. Fair weather and lighter winds/seas expected for most of Tues and Wed. Thurs we could have another cold front moving across the South, poised to shift offshore before the end of the week.

Expedition Leader Comments:

Good dive. 1.6 knots of surface current. Had to dial in the levelwind a few times and not sure we have it spot on. Had tested at transition during descent but still had troubles with cable laying in nicely during ascent. Launch and recovery went very well except for Level wind issues. Akel got the ship dialed in spot on. Sampling went well except lower Niskins did not trip. Due to weather call not all objectives were completed.

Chief Scientist Comments:

Contact Numbers:

WHOI/NDSF Vessel Other

Voice: 508 289 3445 (Cathy Offinger)

Mobile: 774 392 2986 (Matt Heintz)

Email: mheintz@whoi.edu

ROV Jason Daily Report

Cruise Number: RB 19-03

Dive number: J2-1130

Chief Scientist: Amanda Demopoulos

Report Date: 4/17/2019

Expedition Leader: Alberto Collasius Jr.

Prepared By: Expedition Leader

Vessel Location: Atlantic 32N 78W Weather: Very nice for both LAR

Dive Times: GMT

Dive Activities/Future Activities:

Coral pots, Coral samples to quivers, Samples to Bio Box's, Slurp and push cores

Reason for Dive Termination: Objectives completed

Dive No.	Dates	Max Depth	Hours Descending	Hours Ascending	Hours on Bottom	Hours in water	Time On Deck	Time on Deck not available to science
J2- 1128	4/10-4/11	792	:50	2:45	9:30	13:05		0
J2- 1129	4/13-4/14	746	1:07	1:20	11:15	13:42	56:53	32:53

Completed Dive Summaries:

Vehicle Status: We have an AC ground fault that appears after submersion but disappears during descent. No other problems.

Weather Forecast: Short term looks good. Expected to deteriorate significantly Thursday PM.

Expedition Leader Comments:

Good dive. 2.2 knots of surface current. Sampling went well. Adjusted level wind during descent and had to do no other adjustments. One of the large Niskins spit a hose clamp and slid down enough to not fully close when tripped. I was advised this had small impact on Science.

Chief Scientist Comments:

The goal of this dive was to traverse a mound feature located at Savannah Banks, from the base to the top of the mound, imaging benthic organisms and their associated habitats and collecting specimens and environmental samples. We planned to collect multiple coral species, several sediment push cores, coral pots, rocks, water samples, and slurp mobile taxa, opportunistically. While we were unsuccessful at finding any rocks to sample as a consequence of the environment, we achieved all of the major dive objectives.

The current on bottom was challenging, but the pilots were able to efficiently maneuver and work with the currents. Despite these conditions, the pilots were able to make excellent collections. One of the niskins didn't close completely, but the issue was resolved prior to the next dive. Because the three other niskins fired, we had sufficient water for our sampling needs for the dive. Overall, this was a highly successful dive and the scientists are still working on the samples collected while we prepare for the next one.

Contact Numbers:

WHOI/NDSF Vessel Other

Voice: 508 289 3445 (Cathy Offinger)

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ROV Jason Daily Report

Cruise Number: RB 19-03

Dive number: J2-1131

Chief Scientist: Amanda Demopoulos

Report Date: 4/18/2019

Expedition Leader: Alberto Collasius Jr.

Prepared By: Expedition Leader

Vessel Location: Atlantic 32N 78W

Weather: Very nice for launch. Deteriorating for recovery

Dive Times: GMT

Dive Activities/Future Activities:

Coral pots, Coral samples to quivers, Push cores,rock collection, Samples to Bio Box's, Slurp and push cores **Reason for Dive Termination: Objectives completed**

Dive No.	Dates	Max Depth	Hours Descending	Hours Ascending	Hours on Bottom	Hours in water	Time On Deck	Time on Deck not available to science
J2- 1128	4/10-4/11	792	:50	2:45	9:30	13:05		0
J2- 1129	4/13-4/14	746	1:07	1:20	11:15	13:42	56:53	32:53
J2- 1130	4/17	554	1:19	1:06	8:42	11:07	60:47	0
J2- 1131	4/17-4/18	1365	1:55	2:10	13:27	17:32	10:27	0

Completed Dive Summaries:

Vehicle Status: We have an AC ground fault that appears after submersion but disappears during descent. No other problems.

Weather Forecast: Looks bad for the next 48 hours.

Expedition Leader Comments:

Good dive. .8 knots of surface current. Sampling went well. Level wind continues to drift. We are planning a test cast with the steel pig before the weather comes up.

Chief Scientist Comments:

The primary objective of the dive was to investigate a steep feature within the Blake Ridge region. Previous Alvin and D2 (ROV, Okeanos) dives to the north and south of the dive target revealed diverse communities of corals and coral communities, so this exploratory dive had the potential for being very exciting, and it did not disappoint. As soon as we reached the seafloor, we encountered diverse coral communities, with several species of octocorals (isidiids, paramuricids, plexaurids, primnoids), black and stony corals represented. Several enormous dead coral skeletons (either black coral or bamboo) were identified and a few of these were collected for microchemical analysis. We observed very few fish species but imaged an interesting cusk eel loaded with parasites.

All of the science objectives were met, and the basket was full. We appreciate the attention the ROV group paid to ensuring that we dived in the correct location, after accounting for current speed and direction. The pilots did an exceptional job collecting a variety of challenging samples that are now keeping the scientists busy for days. They also helped us collect great imagery for the project. We ended up maxing out the cards recording the 4K imagery, but Scotty resolved the problem quickly. Great work!

Contact Numbers:

WHOI/NDSF Vessel Other

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Email: mheintz@whoi.edu

Cruise Number: RB 19-03

Dive number: J2-1132

Chief Scientist: Amanda Demopoulos

Report Date: 4/18/2019

Expedition Leader: Alberto Collasius Jr.

Prepared By: Expedition Leader

Vessel Location: Atlantic 35W 75.2W

Weather: Moderate for launch. Had a pretty good blow during ops. Delayed recovery to let it come down. Blew 30 knots for a

few hours.

Dive Times: GMT

Dive Activities/Future Activities:

Coral pots, Coral samples to quivers, Push cores, rock collection, Samples to Bio Box's, Slurp and push cores

Reason for Dive Termination: Objectives completed

Dive No.	Dates	Max Depth	Hours Descending	Hours Ascending	Hours on Bottom	Hours in water	Time On Deck	Time on Deck not available to science
J2- 1128	4/10-4/11	792	:50	2:45	9:30	13:05		0
J2- 1129	4/13-4/14	746	1:07	1:20	11:15	13:42	56:53	32:53

Completed Dive Summaries:

Vehicle Status: Aft P+T had a .9 ground during dive. No impact on science.

Weather Forecast: Looks better for the next few days.

Expedition Leader Comments:

Very productive dive. 2.7 knots of current for launch. 4 knots of current during recovery. As it was a deeper dive wire angle was the best we had all cruise. Ship lost position 2 times because of Current/Wind combination. Very challenging recovery with current so hi. As we went to launch vehicle ship came to the end of a position move. It was noticed while unlatching. Good catch. I have spoken with bridge about not doing short position moves in high current areas

Chief Scientist Comments:

We had a great dive at Pamlico Canyon today. The seafloor at the start of the dive was composed of heavily sedimented, sloped terrain, with moderate marine snow in the water column. Throughout the dive, while heading upslope along the waypoints, we observed a few species of coral (Acanthogorgia, Solenosmilia, Desmophyllum) that occupied the underside of ledges and several brisingid seastars on the sides of steep features. Push cores were collected at the base of the canyon, and along the steps opportunistically. Several coral samples were collected into the quivers, bioboxes, and coral pots, sometimes on the fly with a scoop against steep walls.

The dive was incredibly productive, despite some major sampling challenges due to the steep cliffs and locations of target specimens. The pilots did a great job with the difficult sampling and the scientists met all of their collection objectives. Despite the high current

conditions throughout the dive and weather that came on toward the latter half of the dive, the ROV and ship operators were able to keep the ROV in the water, on the bottom, and sampling. Great work!

Contact Numbers:

WHOI/NDSF Vessel Other

Voice: 508 289 3445 (Cathy Offinger)

Mobile: 774 392 2986 (Matt Heintz)

Cruise Number: RB 19-03

Dive number: J2-1133

Chief Scientist: Amanda Demopoulos

Report Date: 4/23/2019

Expedition Leader: Alberto Collasius Jr.

Prepared By: Expedition Leader

Vessel Location: Atlantic 35.7W 74.8W

Weather: Good weather for LAR

Dive Times: GMT

Dive Activities/Future Activities:

Coral pots, Coral samples to quivers, Push cores, rock collection, Samples to Bio Box's, Slurp and push cores **Reason for Dive Termination: Objectives completed**

Dive No.	Dates	Max Depth	Hours Descending	Hours Ascending	Hours on Bottom	Hours in water	Time On Deck	Time on Deck not available to science
J2- 1128	4/10-4/11	792	:50	2:45	9:30	13:05		0
J2- 1129	4/13-4/14	746	1:07	1:20	11:15	13:42	56:53	32:53
J2- 1130	4/17	554	1:19	1:06	8:42	11:07	60:47	0
J2- 1131	4/17-4/18	1365	1:55	2:10	13:27	17:32	10:27	0

J2- 1132	4/21-4/22	1840	2:53	1:15	23:40	27:48	71:37	0

Vehicle Status: Got a big Tuna stuck in aft bay for a bit. No other issues

Weather Forecast: Moderate blow expected this evening.

Expedition Leader Comments: Another good dive. All went well till the Tuna attacked. Shut off all lights to try and make it go away. When we turned lights back on Tuna was stuck in aft bay. Went away for a bit once it extracted itself but started on the bow of vehicle again. It hit itself multiple time and seemed to knock itself out and eventually fell backwards off the basket. Not sure Tuna survived.

Chief Scientist Comments:

This was an incredible dive in an area that was recently detected through multibeam mapping efforts and previously imaged by Sentry in 2017. We conducted an Alvin dive at a site ~ 1.5 nm to the northwest of today's dive target. The seep dive was incredibly diverse in terms of fishes, including rock fish, snipe eels, long-finned hake, and midwater fishes, plus we saw lots of schooling fish and shoals of squid. Hammerheads, a manta ray, and a tuna also were observed. We collected rocks and many sediment cores within bacterial mats and bubbles, plus water samples. While collecting a rock, we found a tube worm (Vestimentiferan: cf. Lamellabrachia), which to our knowledge has not be collected along the US Atlantic seeps and could represent a discovery. In addition, we found Lophelia growing on carbonate, which was a nice surprise. All of the scientific objectives were met by the dive and the expert collecting capabilities of the pilots and ROV crew.

We were especially grateful for the pre-dive installation of the core umbrella, which helped protect the gassy cores from escaping from the basket during recovery.

Contact Numbers:

WHOI/NDSF Vessel Other

Voice: 508 289 3445 (Cathy Offinger)

Mobile: 774 392 2986 (Matt Heintz)

Cruise Number: RB 19-03

Dive number: J2-1134

Chief Scientist: Amanda Demopoulos

Report Date: 4/24/2019

Expedition Leader: Alberto Collasius Jr.

Prepared By: Expedition Leader

Vessel Location: Atlantic 35.9W 74.8W

Weather: Good weather for Launch. Blew pretty good through

the night. Just letting go for recovery

Dive Times: GMT

Dive Activities/Future Activities: Coral pots, Coral samples to quivers, Push cores,rock collection,Samples to Bio Box's, Slurp and push cores

Reason for Dive Termination: Objectives completed

Dive No.	Dates	Max Depth	Hours Descending	Hours Ascending	Hours on Bottom	Hours in water	Time On Deck	Time on Deck not available to science
J2- 1128	4/10-4/11	792	:50	2:45	9:30	13:05		0
J2- 1129	4/13-4/14	746	1:07	1:20	11:15	13:42	56:53	32:53
J2- 1130	4/17	554	1:19	1:06	8:42	11:07	60:47	0
J2- 1131	4/17-4/18	1365	1:55	2:10	13:27	17:32	10:27	0

J2- 1132	4/21-4/22	1840	2:53	1:15	23:40	27:48	71:37	0
J2- 1133	4/23	355	1:10	: 32	9:28	11:10	9:15	0

Vehicle Status: Slurp damaged during ops. Intake broke free of hose. This impacted science. Had 2 AFX trips during first few hours of dive. Thoughts are it was GF monitor related.

Weather Forecast: Supposed to lay down this afternoon/evening and come back up tomorrow afternoon

Expedition Leader Comments: Another good dive. Aside from AFX trips and Slurp failure it went very well.

Chief Scientist Comments:

This was the first ROV dive at a known seep environment previously imaged by Sentry in 2017 and waypoints were selected based on confirmed rock, mat, and fish locations from that imagery. The ROV lost power twice and the slurp hose disconnected, but despite these issues, the dive was very successful and the scientists were able to accomplish all of their objectives. We observed dense fish communities at several hard bottom, carbonate features throughout the dive, but the dive track was dominated by soft sediments with lots of sea stars. Given the recovery of a tube worm at the Pea Island seep on the previous dive, we were keen to see if more could be found at Kitty Hawk, and we were very successful. At least 4 more tube worms were collected on this dive; these animals are previously undocumented from the US Atlantic seeps, by collecting rocks from the seafloor. Rock and shell samples were collected to characterize their mineral

composition, enable approximation of the ages of the seep features and constrain the environmental conditions. Sediment was collected at three target environments, bubbles, mats, and background habitats, for geochemical and ecological assessments. Several squat lobsters and quill worms were slurped to provide tissue for molecular and food web studies. Lastly, the niskin samples will be processed for eDNA and microbial community analysis to facilitate community comparisons among seep, canyon, and coral environments.

I've been very pleased with the skill and efficiency of the ROV team, and their attention to detail, all of which have enabled very successful dives thus far on this mission.

Vessel Other

Contact Numbers:

WHOI/NDSF

Voice: 508 289 3445 (Cathy Offinger)

Mobile: 774 392 2986 (Matt Heintz)

Cruise Number: RB 19-03

Dive number: J2-1135

Chief Scientist: Amanda Demopoulos

Report Date: 4/25/2019

Expedition Leader: Alberto Collasius Jr.

Prepared By: Expedition Leader

Vessel Location: Atlantic 33.5W 74.8W

Weather: Forecast says deteriorating weather. Pretty good for launch. Called dive because winds (mid 20s) were coming up.

Dive Times: GMT

Dive Activities/Future Activities: Coral samples to quivers, Push cores, rock collection, Samples to Bio Box's, Slurp and push cores

Reason for Dive Termination: Weather call

Dive No.	Dates	Max Depth	Hours Descending	Hours Ascending	Hours on Bottom	Hours in water	Time On Deck	Time on Deck not available to science
J2- 1128	4/10-4/11	792	:50	2:45	9:30	13:05		0
J2- 1129	4/13-4/14	746	1:07	1:20	11:15	13:42	56:53	32:53
J2- 1130	4/17	554	1:19	1:06	8:42	11:07	60:47	0
J2- 1131	4/17-4/18	1365	1:55	2:10	13:27	17:32	10:27	0

J2- 1132	4/21-4/22	1840	2:53	1:15	23:40	27:48	71:37	0
J2- 1133	4/23	355	1:10	: 32	9:28	11:10	9:15	0
J2- 1134	4/24	477	:51	: 35	14:46	16:12	7:39	0
J2- 1135	4/25	1030	2:05	1:02	2:39	5:48	25:54	0

Vehicle Status: Vehicle in good shape. No problems

Weather Forecast: Forecast calls for the weather to deteriorate significantly.

Expedition Leader Comments: Very good but abbreviated dive. Had a short weather window and took advantage of it.

Chief Scientist Comments:

This exploratory dive examined a target identified in a coral suitability model for the region, representing a validation test of the model. The start of the dive at the base of a steep feature was composed of soft sediments, surprisingly interspersed with small bacterial microbial mats. We collected slurp and core samples at the mats before heading to the steep slope. While traversing upslope, we encountered large boulders that were colonized with encrusting sponges of various colors and a few different corals. These boulders were dramatic features on the scanning sonar and possibly represent a previously unknown landslide feature. The rock collection will be characterized to better understand the broader geological

feature. Attached to these rocks, we observed a fairly diverse assemblage of deep-sea corals from at least five different families. Given the short dive duration, we targeted collections of a few of the dominant corals in order to aid in species identification and contribute to food-web studies. Niskins were tripped at the end of the dive by the corals.

We were pleased that all the equipment worked and that we were able to do this short exploratory dive before the weather picked up. The ROV operators did an excellent job, progressing through the collections in an efficient manner. This helped address a number project objectives and will improve the validate the habitat suitability models developed to improve our understanding of the distribution of deep-sea corals.

Contact Numbers:

WHOI/NDSF

Vessel Other

Voice: 508 289 3445 (Cathy Offinger)

Mobile: 774 392 2986 (Matt Heintz)

Cruise Number: RB 19-03

Dive number: J2-1136

Chief Scientist: Amanda Demopoulos

Report Date: 4/28/2019

Expedition Leader: Alberto Collasius Jr.

Prepared By: Expedition Leader

Vessel Location: Atlantic 32.4W 76.2W

Weather: Fair

Dive Times: GMT

Dive Activities/Future Activities: Coral samples to quivers, Mussel pots, Push cores, rock collection, Samples to Bio Box's, Slurp and push cores

Reason for Dive Termination: Allotted time up

Dive No.	Dates	Max Depth	Hours Descending	Hours Ascending	Hours on Bottom	Hours in water	Time On Deck	Time on Deck not available to science
J2- 1128	4/10-4/11	792	:50	2:45	9:30	13:05		0
J2- 1129	4/13-4/14	746	1:07	1:20	11:15	13:42	56:53	32:53
J2- 1130	4/17	554	1:19	1:06	8:42	11:07	60:47	0
J2- 1131	4/17-4/18	1365	1:55	2:10	13:27	17:32	10:27	0

J2- 1132	4/21-4/22	1840	2:53	1:15	23:40	27:48	71:37	0
J2- 1133	4/23	355	1:10	: 32	9:28	11:10	9:15	0
J2- 1134	4/24	477	:51	: 35	14:46	16:12	7:39	0
J2- 1135	4/25	1030	2:05	1:02	2:39	5:48	25:54	0
J2- 1136	4/27-4/28	2169	1:33	1:45	8:46	12:04	21:09	0

Vehicle Status: A Ground fault tripped the AFX right after leaving bottom. Had to give it 2 tries before it came back. Vehicle in good shape otherwise

Weather Forecast: Fair seas and Moderate winds

Expedition Leader Comments: Very good dive other than afx trip. 1.8 knots of surface current for launch. .4 Knots for recovery. 2200 meter dive so wire angle stayed nice for dive

Chief Scientist Comments: This was a great dive exploring Blake Ridge seeps. Our primary goal was to target collections at mussel beds, bacterial mats, and carbonate rock environments, while also characterizing the environment via high resolution imagery. The dive was a great success and we were able to accomplish all of our objectives. We set down on bottom and transited toward waypoints selected based on previous Alvin dives in 2003 and found several old bucket lid markers and Robert Carney's colonization experiment. The

experiment was a bucket filled with oyster shells and rabbit food, and after inspecting the lid, we found Bathymodiolus mussels and anemones attached. During the transit around the site between waypoints, we encountered dense mussel beds, dead clam beds, bacterial mats, and an exciting hydrate mound. We collected some amazing imagery at the mound feature that included two Gaidropsarus sp. fish (rocklings) hanging out in the crevice underneath solid methane hydrate. Really incredible. Several of the collections required precise manipulator skills and the pilots accomplished the tasks with ease. The dive went well and the power failure had no impact on the science.

Contact Numbers:

WHOI/NDSF Vessel Other

Voice: 508 289 3445 (Cathy Offinger)

Mobile: 774 392 2986 (Matt Heintz)

Cruise Number: RB 19-03

Dive number: J2-1137

Chief Scientist: Amanda Demopoulos

Report Date: 4/29/2019

Expedition Leader: Alberto Collasius Jr.

Prepared By: Expedition Leader

Vessel Location: Atlantic 32.4W 76.2W

Weather: Fair for launch, 24 knots of wind for recovery

Dive Times: GMT

Dive Activities/Future Activities: Coral samples to

quivers, Mussel pots, Push cores, rock collection, Samples to Bio Box's,

Slurp and push cores

Reason for Dive Termination: Allotted time up

Dive No.	Dates	Max Depth	Hours Descending	Hours Ascending	Hours on Bottom	Hours in water	Time On Deck	Time on Deck not available to science
J2- 1128	4/10-4/11	792	:50	2:45	9:30	13:05		0
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J2- 1130	4/17	554	1:19	1:06	8:42	11:07	60:47	0
J2- 1131	4/17-4/18	1365	1:55	2:10	13:27	17:32	10:27	0

J2- 1132	4/21-4/22	1840	2:53	1:15	23:40	27:48	71:37	0
J2- 1133	4/23	355	1:10	: 32	9:28	11:10	9:15	0
J2- 1134	4/24	477	:51	: 35	14:46	16:12	7:39	0
J2- 1135	4/25	1030	2:05	1:02	2:39	5:48	25:54	0
J2- 1136	4/27-4/28	2169	1:33	1:45	8:46	12:04	21:09	0

Vehicle Status: Vehicle in very good working order

Weather Forecast: Fair seas and Moderate winds

Expedition Leader Comments: Great dive. No problems at all.

Chief Scientist Comments: This dive at Cape Fear helped us groundtruth some seep targets identified by Sentry in 2012. We found extensive bacterial mats, what appeared to be frenulate tubeworm patches, and carbonate rock. On several rock features we found corals, including *Anthomastus* and *Chrysogorgia*, and large sponges, as well as different fishes. We encountered odd shaped tubular mud rocks that have been previously observed at the northeast US Canyons. All of the collections were challenging due to the extremely swift currents at depth (even at 2600m!), complex bathymetry, and fragile specimens, but the pilots rose to the challenge and accomplished all of our dive objectives. Great job!

Contact Numbers:

WHOI/NDSF Vessel Other

Voice: 508 289 3445 (Cathy Offinger)

Mobile: 774 392 2986 (Matt Heintz)