

Summary

Cruise: AT41

Pilot: Bruce

Dive: A4964

Stbd Observer: Alexis

Date: 8/25/18

Site: Blake Deep/Escarpment

Port Observer: Cheryl

Dive A4964 was at Blake Escarpment, a site visited previously during the Okeanos Explorer trip in June 2018. According to what was observed on the multibeam prior to the dive we expected to be traversing a steep 100m tall wall for the majority of the dive. What we found was actually a shorter wall with a less intense slope than expected. The slope was gradual at the base of the escarpment but increased as we approached the top of the feature. The base of the escarpment had a thin layer (~2-3in) of sediment with a sprinkling of coral rubble and an assortment of small and medium sized rocks that supported a diverse coral community. There was deeper sediment present (>8 in) on the gradual slope up from the base of the escarpment and sediment was adhered to the escarpment all the way up to the ridge. The density of coral rubble increased as we moved up the slope. The plateau at the top of the escarpment had a rock ledge that was a few meters thick before it dropped off to the sedimented part of the slope. There was very little current and very little material snowing down through the water column, made for great viability.

After our 45-minute decent to 1270 meters we approached bottom a few hundred meters from the base of the escarpment but observed a diverse coral community growing on rock outcrops from the moment we touched the bottom. When we first touched bottom we immediately observed numerous large healthy bamboo coral (*Keratoisis*) colonies, other unbranched bamboo corals (some straight and some squiggly/zigzagged), numerous genera of black corals (*Bathypathes*, *Stauropathes*, *Sticopathes*, *Leiopathes*, and more), *Solenosamilia*, and yellow and white sponges. The bottom was not as muddy as expected but it was patchy – pretty rocky and littered with dead *Desmophyllum* and *Madrespora/Solenosamilia* rubble. The rocks were covered in a black coating (possibly iron manganese). Due to the high diversity we set up to collect right away and spent approximately 2 hours at this first landing site collecting samples and taking 4K video. During this time we collected a bamboo coral, fired a nissen, collected a few rocks, 2 black corals, *Solenosamillia*, *Paragorgia*, attempted push cores but really only got 1 or 2 that worked.

Next we picked up to start moving to the base of the escarpment but didn't get very far before we set up to collect a *Bathypathes* sample. We then started heading towards our T1 target and continued to see bamboos, black corals, sponges, and *Solenosamillia* along the way. Once we approached T1 we continued to see similar communities and decided to continue on towards T2 which was upslope. On our way to T2 we stopped to sample an *Enallopsammia rostrate*, were able to take a full set of 8 push cores, and collected a large dead bamboo skeleton. Then we continued towards T2 which was a less steep incline than expected and once we came over the

ridge at 1206 meters there was similar coral and associate diversity. Once we were along the ridge we sampled *Madrepora*, a *Chrysogorgid* (+ shrimp associate), and a plexaurid. We flew along the edge of the ridge until we found a sedimented area on the gentle downslope and collected another set of push cores. We stopped to sample *Desmophyllum* into the microbiology quivers and a plexaurid. We continued toward and around to the point of the scarp feature and continued to see very thin *Madrepora*, sponges, bamboos, and black corals but in a lower density than during previous times in the dive. Our last few collections consisted of a black coral that had not been observed before, *Storepathes*, a few rocks in to scoop box, fired niskin 4, and the three remaining pushcores. Finally, we spent our last few minutes cruising around and acquiring some 4K footage of a crinoid on a bamboo coral. We did our best to sample for diversity throughout this dive site but there were many octocorals and black corals that we were not able to sample.

A few things that we had issues with were that we had some trouble with the cameras, specifically the Pats cameras on both the STBD and Port sides. They responded very slowly to the controllers and would freeze the camera controller system – required hard reboots. Also, Niskin 5 did not fire because the rubber bands inside broke.