

Summary

Cruise: AT41

Pilot: J. Grau **Dive:** 4969

Stbd Observer: Z. Proux

Date: 08/30/2018 **Site:** Pamlico Canyon **Port Observer:** J. Chaytor

Today's dive was at a significant step in the channel floor of Pamlico Canyon, coincident with a downslope widening of the canyon. Because of the unique nature of the morphology of the dive site and its resemblance to a dogs tail, it was referred to as the "Dog's Tail" or "Dog's Butt" in dive notes/communications. On landing at approximately 1600 m (1309 UTC), a large stack of boulders surrounded by Sargassum, sediment and trash was encountered. Six push cores were collected adjacent to the rock pile, after which the pile was briefly investigated. Following a complete circuit of the feature, we moved towards the NW on a heading for T2 and what we expected would be the first major vertical wall. But, before we had traversed less than a few tens of meters, we encountered the first of many benched (terraced) vertical walls, with the differential erosion between rocks of different types (individual layers). The terraces between the wall sections were covered in sediment. At the base of the first wall, a second set of 6 cores were collected (1343 UTC) and a rock (R1) was collected (which broke in two during stowage, but both pieces were picked up. Following this evolution, we continued upslope towards the dog tail and T2, stopping to collect representative samples of stoney and octocoral (inc. *Desmophilum*) and macrofauna (crab slurped). The canyon walls were largely uncolonized (except for under overhangs) and except for small patches and bands, free of surface coating FeMn. Another rock was collected on the wall at 1511 m (R2, 1504 UTC). Niskin bottles were fired at several coral sites. After arriving at T2 (1549 UTC), we moved upslope to the NW, stopping at the base of the next wall segment to take another 6 push cores (this time in an area where biologic and geologic material from the wall was accumulating). After push core sampling, another rock was picked up (R3, 1604 UTC). A few meters above the coring site, a live clam shell was collected. We continued ascending the wall collecting a mix of coral species and water samples. Individual layers within the wall showed variable morphologies including numerous that had a scalloped, excavated appearance. At the top of the "dog tail" NE wall, we began a traverse across a soft sediment bench towards T3, with no sign of significant downslope sediment transport or strong bottom current. At T3 (1727 UTC) we began an approach to the canyon NE wall, taking a final set of six push cores (1738 UTC) at

the base in scattered, mixed bio/geo wall debris. Another rock was collected following core collection (R4, 1755 UTC, 1262 m). During ascent along the remainder of the wall, several coral species were collected, primarily from prominent overhangs. We traversed several section of the wall that had large voids/cracks that created precariously hanging slabs of rock and came across a near vertical positive-relief “fracture” with a dark-colored rock running up the center. A sample of the dark colored rock was taken at 1846 UTC (R5, 1234 m). Continuing up the wall, numerous broken slabs of wall were encountered, one of which had a *Paragorgia* attached, with a small sample taken for micro (1914 UTC). At 1947 UTC T4 was reached at a depth of 1052 m in a broad gently sloping sediment plain. The sub left bottom at 2010 UTC.