

As is readily seen in the summary table above, the Benthic Resource Survey provided by the Applicant does not come close to providing the depth and breadth of data promised in the approved Scope of Work document. In particular, the lack of ANY quantitative quadrat data (stem counts), the lack of GPS coordinates for approximately half of the cover-abundance scores, the lack of any of the ancillary data promised, render this report extremely superficial and inadequate for its proposed purposes.

The report does little more than confirm what was already known: that the benthos of Coral Harbor is extensively vegetated with SAV, and that there are major coral communities in at least two locations. However as far as providing a baseline for impact and mitigation assessment, the report is of little value.

MAP OF APPLICANT'S 2022-2023 BENTHIC RESOURCE SURVEY

Although the Applicant did not provide a map indicating the location of transects and quadrats, the table provided in the Benthic Resource Survey did supply Lat/Lon coordinates for 643 out of 1,100 quadrats (the remaining quadrats did not include location data).

We have uploaded the supplied GPS data to Google Earth to visually illustrate the transect paths and the portion of the 114 acre survey area that was reported on in the survey. The illustration below includes the following features: (1) an underlying Google Earth satellite image of Coral Harbor, (2) the footprint of the marina docks, (3) the area of direct construction and operational impacts outlined in turquoise, (4) the 114 acre survey area outlined in solid red, and (5) the location of the 643 quadrats that were reported with GPS coordinates.

Each of the 643 quadrats which included geolocation data is indicated by a green dot on the image.



This image illustrates the extremely limited coverage of the survey area reported in the Applicant's 2022-2023 Benthic Resource Survey. Although the figure could include an additional 460 points, these points cannot be plotted due to lack of GPS coordinates, and it is unlikely that these points would extend the survey area substantially if they follow a similar pattern to the points that were geolocated.

The image also illustrates that the reported survey locations did not include the majority of the marina construction footprint. It did not include the habitat of the fringing mangroves at Usher Cay or at the northwest corner of the harbor. It did not include any of the deeper portions of Coral Harbor. It certainly did not comply with the required Scope of Work.

The image also illustrates that the required 5 meter transects were not conducted. If the northeast corner is expanded some transect paths become apparent, as illustrated below with thin yellow lines connecting linear transect points:



The turquoise bar across the four lines measures 30 meters, which indicates that these transects were spaced 10 meters apart, not the 5 meters required under the Scope of Work. The visibility in Coral Harbor rarely exceeds 3 meters, and virtually never exceeds 5 meters, so it is highly doubtful that these transects provided complete visual coverage of the benthos in this area, and certainly was not adequate to locate and identify small coral colonies or other features of interest.

Additional evidence of the inadequate transect spacing is observed at the southwest corner of the survey area, just south of Penn Point. This area is known to contain multiple protected resources, include ESA listed corals and hardbottom coral habitat. It is one of the areas that should have been most closely surveyed.

When the reported quadrat points are plotted on Google Earth the route of the survey diver(s) becomes apparent. The area was traversed in a "zig-zag" pattern, and when the spacing of the pattern is measured in Google Earth it is apparent that the spacing of the transects was approximately 70' (or 20 meters) which is 4 times the spacing required in the SOW, and clearly too far apart to observe all features. The map below shows the reported quadrats at this location, and the apparent dive pattern traced in green. The distance was measured in Google Earth:

