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Trustees

Attached is the proposed assessment work plan. I would like your immediate comments so we can hopefully schedule field work for early next week. Assessment staffing will require 2-3 CSA persons and two additional divers (assume NOAA and DNER reps). I intend to utilize the charter divemaster as well. Please direct questions/concerns to my attention.

Best regards,

Bruce

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## ASSESSMENT WORK PLAN

Impact Delineation: The rough boundaries of grounding impact have been defined during the coral triage/reorientation action. Two primary impact locations have been identified during the coral triage/reorientation action and are hereafter referred to as 1) initial and 2) exit impact locations. Dive tows will be conducted outside the current impact boundaries, to be certain all grounding-related injury has been identified.

A diver/DGPS buoy system will be utilized to accurately delineate the primary impact locations. A diver equipped with a wireless Divelink communication system will direct the mapping of impact locations. The diver will swim along the margins of impact sites towing a Trimble differential global positioning system (DGPS) buoy which transmits the navigational position telemetrically back to a computer on board the survey vessel. The DGPS will be interfaced with a computer installed with Coastal Oceanographics, Inc. Hypack<sup>®</sup> Max navigation and data acquisition software. The navigation system provides digital navigation data logging, and a real-time display of the diver/buoy track along the survey area. The displayed and recorded positions will be calculated from DGPS data (WGS-84). Navigational data will be processed to estimate area of impact and to produce a scaled map of the overall impact area.

Quantitative video data will be collected at unimpacted areas directly adjacent to the grounding site to quantitatively assess biological community structure lost in the impacted areas and could be utilized to assess natural resource recovery relative to baseline conditions. Quantitative video transects will be established in close proximity and parallel to the grounding site. Quantitative video transects will extend 25 m. A tape measure will be deployed along each transect to provide scale during analyses and document transect length. The navigational coordinates for each transect will be recorded utilizing the DGPS.

Quantitative video data will be collected using a Sony<sup>®</sup> digital video camera in an underwater housing. A steel rod that extends approximately 45 cm (18 in.) beyond the video camera lens will be attached to the top of the underwater housing to provide and aid in maintaining a constant height above the substrate. To collect quantitative data, the video camera and housing will be held perpendicular to the substrate and slowly moved along the length of the transect. Video data collected along each transect will be initialized with transect number and survey date.

Quantitative video data will be analyzed to determine density (colonies per m<sup>2</sup>) of hard corals (including fire coral, *Millepora* spp.), soft corals, and the barrel sponge (*Xestospongia muta*). Non-overlapping video frames along each transect will be analyzed. Video frames will be saved as computer image files and reviewed using Adobe Photoshop<sup>®</sup> computer software. Hard and soft corals will be identified to lowest taxonomic level and counted for each video frame image file to estimate their density (colonies per m<sup>2</sup>). The area of each video frame will be estimated utilizing the scale provided by the tape measure present in the field of view.