Data Management Plan for the Research Proposal: Skeletal Records of Coral Reef Bleaching in the Central Equatorial Pacific

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The project will generate a unique set of coral reef skeletal, physiological, ecological and oceanographic data that will strengthen our understanding and interpretation of skeletal records of coral reef bleaching and allow for the reconstruction of historical bleaching events in the central equatorial Pacific. The proposed experimental dataset will enable the link to be made between the proportion and characteristics of stress bands in massive coral skeletons and the intensity and duration of bleaching, and mortality. These data will also shed light on the mechanism of stress band formation and the role of zooxanthellae loss, energetic reserve and calcification decline. We will return to Jarvis and Kanton Islands to re-sample massive *Porites* corals that we tracked before, during and after the prolonged 2015 bleaching event. Characterization of stress banding in those corals, interpreted within the framework of our experimental results and the Jarvis and Kanton ecological surveys conducted during and after the bleaching, will provide a robust test of our bleaching proxy and allow us to better interpret the historic stress bands in terms of bleaching severity and extent. In addition we will extract and analyze long cores from new colonies at Jarvis, Kanton, Howland and Baker and analyze existing cores from Kingman and Palmyra.

We will participate in and present papers at international meetings and workshops, including the International Coral Reef Society meeting, the American Geophysical Union (AGU) annual meeting in San Francisco and the Ocean Science/American Society for Limnology and Oceanography (ASLO) meetings which alternate each year. In addition, our results will be communicated through a variety of media platforms and disseminated in a timely manner through peer-reviewed publications. We will update our existing publically available Matlab code for the automated and objective identification and characterization of coral stress bands and append to our CoralCT analysis program. All data will be archived in the Biological and Chemical Oceanographic Data Management Office (BCO-DMO) and PANGEAE.

All field observational data and laboratory data generated under this grant will be submitted to and archived by WHOI's Biological and Chemical Oceanography Data Management Office. BCO-DMO ensures that the data are archived at the National Centers for Environmental Information (NCEI; https://www.ncei.noaa.gov/). In addition, we will submit our data for curation, archiving and distribution by EPOCA (http://www.epoca-project.eu/index.php/data.html) in cooperation with the World Data Center for Marine Environmental Sciences (WDC-MARE). Data are archived in Pangaea, an information system operated as an Open Access library aimed at archiving, publishing and distributing georeferenced data from earth system research. (http://www.pangaea.de/about/). Our Matlab code and graphic tutorial for automated analysis of growth parameters and bioerosion in the skeletal cores of corals is freely available through Zenodo/GitHub. We will append code developed under this proposal for the analysis and characterization of coral stress bands to the existing coralCT software program.