

## **Data Management and Sharing Plan**

**Types of data and samples:** This project will generate several types of data and samples including (1) shipboard underway data such as meteorological data, navigation data, and processed multibeam mapping data, (2) processed CTD water-column environmental data (e.g., water temperature, pH, salinity, light), (3) raw ROV video records and associated environmental sensor data, (4) raw free vehicle baited video and still imagery, (5) specimen capture records (ROV and trap - location, date, time, and all body measurements), (6) processed DNA sequence data for captured animal specimens, (7) processed metagenomic DNA sequence data for microbial assemblages in sediment and water samples, (8) sediment community respiration and nutrient regeneration data along with isotopic data for sediment infaunal (pulse chase experiments). These data products will be used to generate the following ultimate derived data products: (1) biodiversity, abundance, and species composition of benthic megafauna, mobile scavengers, and sediment microbes at each study location, (2) sediment community function (respiration, nutrient regeneration, detrital processing) at each study location, (3) genetic connectivity at species and population levels for key megafaunal and mobile scavenger species between study locations.

**Data Storage and Maintenance:** Data will largely be acquired on the research cruise where it will be entered and/or stored on redundant hard drives (laboratory computers, external hard drives and/or cloud-based servers) by the principal investigator in charge of a particular data product. In the case of shipboard underway and CTD data, the UH Ocean Technology Group provides data entry and post processing. For the ROV video and associated environmental data, entry and processing are provided by the UH ROV technician group. Data will also be acquired from laboratory based analysis of samples (e.g. ROV video annotation to derive megafaunal abundance; DNA sequence data). These data will be entered and stored as describe above.

The data acquired is varied in type and structure and so will be archived in appropriate national data repositories for the long term and to enable public access. Megafaunal data will be archived in OBIS and/or the National Ocean Data Center (NODC). All shipboard underway and CTD data will be archived at the NODC automatically through existing UNOLS data programs. Raw genetic data will be archived in openly available databases such as (NCBI GenBank, GBIF, OBIS and WoRMS). High-quality morphological imagery, and access to curated voucher specimens and tissue samples will be archived at the Natural History Museum of London. Data and observations not appropriate for archiving in national data repositories will be reported in peer-reviewed publications, either as tabulated data in the publication or in supplementary data tables. Where appropriate, data will also be made available on laboratory websites for download. To increase accessibility to project data and the dissemination of our research findings—particularly among scientists from developing countries—we will make every effort to publish our results as open-access articles or within open-access journals. Ph.D. or M.S. theses associated with the project will also be made available electronically. Finally, all protocols and methods will be deposited on the website “protocols.io” and updated appropriately as methods evolve.

**Data Sharing, Reuse and Redistribution Policies:** We will share and archive data collected as part of this research project as described above in open access international databases/repositories (we note this is also in compliance with the NSF Division of Ocean Science Data and Sample Policy). All data will be publicly available within six months of the

project end date. There are no ethical and privacy issues with the proposed data. The datasets from this project will not be copyrighted.

**Policies and provisions for re-use, re-distribution:** All data from this project, once published or otherwise made publicly available, are considered within the public domain for all not-for-profit uses and there will be no permission restrictions placed on use of the data.

**Access to contractor generated data for regional data synthesis:** Generation of a synthesis of biodiversity, biogeography, and ecosystem function for key benthic ecosystem components across the CCZ will require access to similar data sources collected by other groups through contractor funded research projects. The current investigators generated the data from the ABYSSLINE project which provides information in the eastern CCZ regions of the UK1 and OMS claim areas as well as APEI 6, and thus these datasets will be accessible for syntheses. The ISA archives datasets from other contractors, we will contact the ISA for access to these data for syntheses. More importantly, scientists working for the various CCZ contractors will be invited to the data synthesis workshop on the condition that they contribute their benthic ecological data to the synthesis effort. Because all contractors and the ISA will benefit from this synthesis, substantial cooperation and participation in data synthesis efforts are expected.