

DATA MANAGEMENT PLAN

Overview

The PIs are committed to the goal of making the highest quality data, metadata, and research summaries available to the scientific and management communities. Our research and data management plan provides a mechanism for distributing data and metadata to researchers, students, and coastal zone managers.

1. Types of data produced

The proposed research will generate new data on environmental and biotic parameter of impacted seagrass habitat and reference sites (listed in the table below). The data will be collected based on in situ measurement made quarterly. Prior to data collection, data collection protocols will be created for each variable measured. Data will undergo QA/QC checks on both collection data (by promptly reviewing and entering data sheets) as well as following data entry (via data proofing and searching for data irregularities) to ensure data quality.

Variables	Data source/collection method
Salinity, dissolved oxygen, water temperature, turbidity, chlorophyll a	Measured in situ with YSI data sonde
Total Suspended solids	Measured in the lab from water samples collected in situ
Depth	Measured in situ with depth pole
Light intensity/PAR	Measured with fixed in situ sondes at select sites
Seagrass morphometrics: total and species-specific seagrass biomass, root:shoot biomass ratios, shoot density	Measured from seagrass cores collected in situ and processed in the lab
Seagrass percent coverage, seagrass shoot density	Measured along fixed transect within replicated 0.25 m x 0.25 m quadrats
Seagrass flowering/reproductive effort, seed density, percent germination	Measured from seagrass cores collected in situ and processed in the lab
Ratios of C:N in seagrass tissue	Measured at UTMSI core facility from subsampled blades from seagrass cores
Seagrass epiphyte loads	Measured from seagrass blades sub-sampled from cores collected in situ and processed in the lab
Seagrass growth rates	Measured in the field with the blade marking technique and plastochrone method for <i>Z. marina</i> or the cut and harvest approach for <i>H. wrightii</i>
Nekton densities and biodiversity	Measured from otter trawl surveys
Seagrass meadow landscape configuration	Digitized from orthorectified aerial photography

2. Data and Metadata standards

Metadata for each environmental variable will be recorded simultaneously with data collection and stored in the Ecological Metadata Language (EML) format using an open-access program such as Morpho (<https://knb.ecoinformatics.org/#tools/morpho>). For all data analysis and modeling, we will keep detailed notes on our work flow, including methods, troubleshooting, data exploration, and programs used, which

will be shared among the PIs. These notes will be compiled using Microsoft Word and backed-up daily locally and remotely via UT Box or Dropbox on external servers. Code will also be stored in a concurrent versioning system such as Git in order to allow all members of the research team to make and track modifications.

3. Policies for Access and Sharing

Hardcopies of all data collected will be stored at UNC-CH, UNCW and UT. An additional local electronic copy of the data will be taken off campus nightly on a laptop computer. All electronic data files will be automatically synced and backed-up via the UT Box and Dropbox file storage systems and shared among PI's via shared repositories on these servers. All code used for data processing and analysis will also be backed-up and shared using GitHub.

4. Policies for revision and reuse

For any data produced during the work, the PI's will retain the rights to the data until publication or by November 1, 2021, whichever is sooner.

5. Plans for archiving

This RAPID proposal will leverage previous data collected from the form PI-lead efforts; pre-storm data exist for all the variables listed in the table above. The length of the pre-storm data set varies depending on the variable considered, but ranges from 2-10 years. We will publish all previous monitoring data from ~30 study sites re-sampled during this award along with all new data and metadata to the Biological and Chemical Oceanography Data Management Office (BCO-DMO) by November 1, 2021. We anticipate publishing all code and model outputs along with corresponding manuscripts. This will be made open in online supplements.