

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 multiple 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
Water column concentration of dissolved nutrients	Water column samples collected in situ and nutrient concentrations processed at UTMSI
Chlorophyll-a, salinity, dissolved oxygen, water temperature, turbidity	Measured in situ with YSI data sonde
Suspended solids	Measured in the lab from water samples collected in situ
Light attenuation	Measured in situ based on simultaneous measurements of surface & underwater irradiance
Depth	Measured in situ with depth pole
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
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
Herbivore grazing rates	Grazing scars scored on seagrass blades sub-sampled from each core
Seagrass percent coverage, seagrass shoot density, macroalgal biomass	Measured within randomized 0.25 m x 0.25 m quadrats (8 per site per quarterly sampling event)
Seagrass growth rates	Measured in the field with the blade marking technique for <i>T. testudinum</i> or the cut and harvest approach for <i>H. wrightii</i>
Infauna density and biodiversity	Measured from seagrass cores collected in situ and processed in the lab
Epifauna density and biodiversity	Measured from seagrass push net surveys collected in situ and processed in the lab
Nekton densities and biodiversity	Measured from seine net surveys
Predation rates	Measured via tethering assay in the field (10 replicate tethers per site per quarter)

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 L. Yeager, K. Dunton, and the graduate students. These notes will be compiled using Microsoft Word and backed-up daily locally and remotely via UT Box on UT internal server network. 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 copied and taken off campus (to the PI's house) weekly until project completion and data are permanently archived. All files will also be backed-up and shared among project personnel via the UT Box file storage and sharing system. An additional local electronic copy of the data will be taken off campus nightly on a laptop computer and backed up weekly on an external harddrive. 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, 2019, whichever is sooner.

5. Plans for archiving

This RAPID proposal will utilize six years of previous monitoring data from the Texas Statewide Seagrass Monitoring Program. These data are archived online after undergoing QAQC protocols in the Texas Seagrass database (<http://texasseagrass.org/results.html>). We will publish previous monitoring data from impacted and reference sites and all new data and metadata to the Biological and Chemical Oceanography Data Management Office (BCO-DMO) by November 1, 2019. A link to the current online repository for the previous monitoring data will also be included within the BCO-DMO project page. We anticipate publishing all code and model outputs along with corresponding manuscripts. This will be made open in online supplements.