

Collaborative Research: VIDA Seagrass: Viral Infection Dynamics Among Seagrasses Data Management Plan

Data management goals for this project are: (1) prompt publication of significant findings in peer-reviewed journals in an open-access format with appropriate acknowledgment of funding sources, (2) appropriate frozen storage of biological samples (seagrass blades, nucleic acids) for completion of the research goals, as well as long-term availability of these specimens to the broader scientific research community upon request, (3) timely and accessible data archiving and sharing through BCO-DMO and specialized sequence and metabolomics databases described below.

The proposed research will generate physical samples (primarily seagrass shoots) collected during the field sampling campaigns in Tampa Bay and the microcosm samples at the University of North Florida (UNF), visual observations (shoot density, morphometric data, growth rates) and photographs, environmental metadata (YSI measurements), nucleic acids, quantitative PCR measurements of TVX load, microsatellite analysis of turtlegrass genotypes, transcriptomic sequence data, lipidomic data, and results from cellular response assays.

Physical seagrass shoots that are not destructively sampled for analysis and extracted nucleic acids will be stored in -80°C freezers in the Breitbart lab at the University of South Florida College of Marine Science (USF-CMS). Each sample will be split in half and each half archived in a separate freezer in case of equipment failure. All freezers are connected to emergency backup power and have temperature logs and remote alarm systems that notify Breitbart if temperatures exceed normal limits. All data generated through the field and microcosm experiments, including photographs, will be recorded in laboratory notebooks, transcribed to CSV databases where possible, and maintained electronically in shared Box.com folders per USF policies, which ensures routine backup and maintenance in an off-campus server. Although the Box folder will be hosted at USF, all project investigators will have secure access.

All field and experimental data will be submitted to the Biological and Chemical Oceanography Data Management Office (BCO-DMO) within 2 years of acquisition to comply with NSF OCE data dissemination and archiving policy. Breitbart has contributed similar datasets to BCO-DMO from a previous OCE-funded project. For transcriptomic data, raw sequences will be permanently archived with appropriate metadata in the National Center for Biotechnology Information (NCBI) Sequence Read Archive (SRA) and assemblies will be submitted to the NCBI Transcriptome Shotgun Assembly (TSA) Database. All sequence data will be connected under a NCBI BioProject. In addition to the NCBI databases, transcriptomic data will be submitted to SeagrassDB, an open-source transcriptomics database specifically designed for seagrasses and aquatic plants, where it will be readily available to this community of researchers (Sablok et al. 2018). Oxylipin datasets will be uploaded and stored in the NIH Common Fund's National Metabolomics Data Repository (NMDR; metabolomicsworkbench.org/).

Reference:

Sablok, G., R. J. Hayward, P. A. Davey, R. P. Santos, M. Schliep, A. Larkum, M. Pernice, R. Dolferus and P. J. Ralph (2018). "SeagrassDB: an open-source transcriptomics landscape for phylogenetically profiled seagrasses and aquatic plants." *Scientific Reports* **8**: 2749.