

## DATA MANAGEMENT PLAN

Collaborative Research: Testing for local adaptation among populations of eastern oysters (*Crassostrea virginica*) inhabiting a natural salinity gradient in the Gulf of Mexico.

### 1. Products of Research, Data Storage and Preservation

This project will accomplish the following objectives:

- A. Use RAD-sequencing to quantify genomic variation among eight populations spanning the salinity gradient inhabited by *C. virginica* in the GOM, and test for loci that may be responding to local conditions.
- B. Test for local adaptation to salinity by measuring growth and survival for mesocosm-reared progeny of oysters from four populations spanning a broad range of salinity conditions.
- C. Measure physiological rates and gene expression as a function of temperature and salinity for oysters from each population x salinity treatment in (B).
- D. Use salinity exposure experiments to test for differences among populations in salinity tolerance of oyster larvae, and use target capture sequencing of surviving larvae to test whether extreme salinities impose selection on the same loci identified in (A) and (C).
- E. Use the data from (C) to build estuary-specific dynamic energy budget models, linking salinity and temperature to population growth.

Genomic data from (A) will be stored on a hard drive in Dr. Kelly's lab, and backed up on a server. Growth and mortality data from B&C will be entered into Excel spreadsheets stored on computers in Dr. Kelly and Dr. Pollack's and Dr. Scarpa's labs, and shared with research team members via Google Docs. Physiological data from (D) will be entered into Excel spreadsheets and stored on hard drives in Dr. La Peyre's lab and backed up on a server. Output from the DEB model in (E) will also be stored on hard drives in Dr. La Peyre's lab and backed up on a server.

### 2. Data Formats and Metadata

We will document our metadata by taking careful notes in laboratory notebooks that refer to specific data files and describe all columns, units, abbreviations, and missing value identifiers. These notes will be transcribed into a .txt document that will be stored with the data file. Established data exploratory exercises will be performed on databases to scan for errors, missing data, or outliers. Only after rigorous quality assurances of databases have been performed will they be entered into a metadata archive for official analyses. Full methodology for each procedure will be documented in database metadata and in refereed publications. The metadata will fully describe all data files and the context of the measurements. Data and metadata will be saved on the P.I.s' personal web servers at TAMU-CC and LSU with password protection for project reporting purposes.

### 3. Data Dissemination and Policies for Data Sharing and Public Access.

We will register our project and data management plan with the Biological and Chemical Oceanography Data Management Office (BCO-DMO), and make all data available in BCO-DMO after publication or within two years of collection, whichever comes first. Data will either be available within BCO-DMO, or in another public database, with links to data files provided within BCO-DMO. Genomic data from (A) will be archived on Genbank. Data from B-D will be archived on Dryad and The Gulf of Mexico Research Initiative Information and Data Cooperative (GRIIDC, <https://data.gulfresearchinitiative.org/>) which is a research database focusing on the data and information needs of the GoM.

### 4. Roles and responsibilities

The PIs will be responsible for all data management during and after data collection.