

## DATA MANAGEMENT PLAN

We are committed to adhering to NSF rules and regulations by making the data generated as part of this project available to the broader community in a timely fashion via publicly accessible repositories such as the NSF-funded Biological and Chemical Oceanography Data Management Office (BCO- DMO) website. For example, the Helmuth lab maintains a website that provides open access to weather station and sonde data (<https://hobolink.com/p/02a28f0a8f6d88b3cb508399b253f0b8>). It also maintains a website that provides access to the lab's network of intertidal sensors via a graphical interface (<http://www.northeastern.edu/helmuthlab/database/>). The latter are mirrored on BCO- DMO.

The proposed research will generate several types of experimental and modeling data. The experimental data generated for **Objective 1** will consist of 20 replicate algal density (6-day) time series for different strains (temperate vs. tropical) of *T. tetrahele* exposed to distinct environmental regimes (constant vs. variable temperatures characterized by different frequencies and means). Under the constant temperature regime, algal populations will experience one of nine temperature treatments ranging from 0 to 40 °C. For the variable temperature regime, algal populations will experience temperature fluctuations whose frequency will range from 1 to 24 over 6 days. The 10 °C extent of the temperature fluctuations will be centered on one of seven distinct temperatures ranging from 5 to 35 °C. Model predictions of algal densities based on nTSMs and TSMs fitted to the experimental data will also be produced for each treatment outlined above. Finally, for **Objective 2**, model predictions of algal density dynamics and persistence based on nTSMs and TSMs parameterized with the experimental data and forced with climate projections of sea surface temperature from CMIP5/6 GCMs will be produced for each *T. tetrahele* strain.

All data as well as metadata associated with this proposed research will be archived and made accessible to researchers and the public on the Helmuth lab website. Any embargoed data will be made available to project participants only via a password protection system until the embargo is lifted. This venue offers the advantage of quicker turn-around when posting new data (i.e., fewer administration layers involved in processing), but at the expense of long-term (beyond the termination of the project) stability. We will therefore mirror all databases on the BCO-DMO website within 2 years. The redundancy of the two systems maximizes both speed of availability and stability. Finally, NU recently launched a new Digital Repository Service (DRS, <http://library.northeastern.edu/services/drs-digital-repository-service>). Data will be stored in this web site as a series of ASCII files, as a graphical interface option is not yet available.