

DATA MANAGEMENT PLAN

Data collection and storage

During the proposed work, the PI and his students will generate data on larval feeding performance, larval growth, planktonic larval duration, timing of metamorphic competence, and juvenile quality of the echinoid *Dendraster excentricus*. Similar data on larval feeding performance will be generated for several other species of marine invertebrates in summer research with community college students. The project will also generate substantial data on plankton communities of nearshore southern California (e.g., temperature, salinity, chl *a* concentration, and size distribution and identities of planktonic particles). These data will be analyzed with appropriate statistical methods in R. All of these resources will be digital, either numerical or categorical data recorded in Excel and stored as .csv files, or in the form of digital images (.tif). The PI does not anticipate any long-term physical collections resulting from this work. Digital data and analyses will be stored electronically in three secure locations: 1) the hard drive of the PI's primary computer, 2) external hard drives in the PI's laboratory and office, and 3) on remote server space provided to all faculty at CSU Long Beach. Faculty are provided with 100 GB of storage space and are able to request more as needed. The data collected in this grant will be stored indefinitely in each of these locations. Metadata, data files, and code for statistical analyses will be made publicly available in several ways (see below) within two years of collection. The PI does not anticipate any limit on public data availability beyond the standard two-year moratorium period.

Digital data dissemination

On commencement of the award, the PI will contact NSF's Biological and Chemical Oceanography Data Management Office (BCO-DMO) to register the project and upload metadata. Metadata will be generated using the recommendations in the BCO-DMA Data Management Guidelines Manual. Subsequently, digital data and analysis files (as .csv files) will be submitted to BCO-DMO as they become available. Any open-access publications related to these datasets will also be submitted to BCO-DMO (as .pdf files). Once processed and posted by BCO-DMO data managers, these materials will be publicly accessible via that website. The status of metadata and data archiving will be described in each Annual Project Report, and compliance with this Data Management Plan will be documented in the Final Project Report. In addition to providing access through BCO-DMO, the PI will honor direct requests from the community for datasets. Prior to publication, data requests will be honored if they do not conflict with the PI's publication plans. After publication, all direct data requests will be honored, or requesters will be directed to the project's BCO-DMO URL.

In addition, as part of this proposal the PI aims to continue developing a publicly accessible website (http://web.csulb.edu/colleges/cnsm/depts/biology/invertebrate_reproduction/) aimed at serving as a public resource on the development of marine invertebrates of southern California. Additional species records will be added to this website during the course of the project, further enhancing its utility to the public, students, and professional biologists.

Other dissemination of data

The data collected during project will be disseminated in several other ways. First, the PI and his students will routinely attend annual meetings of the Society of Integrative and Comparative Biology, the Western Society of Naturalists, and the Association for the Sciences of Limnology and Oceanography (Ocean Sciences), where results of the project will be presented by students and the PI. In addition, the PI is generally invited to present 1-2 departmental seminars per year; the PI will present results of the project at these venues, as

well. Most importantly, the PI and his students will submit their research results for publication to peer-reviewed journals. When possible, papers will be published open access so as to maximize public availability. Regardless of open access status, electronic copies of published papers will be available upon request directly from the PI (as .pdf files).