

Collaborative Research: Effects of elevated carbon dioxide (CO₂) on the metabolism of a keystone species, Antarctic krill *Euphausia superba*, in the Western Antarctic Peninsula (WAP)

DATA MANAGEMENT PLAN

All significant findings from the proposed work will be promptly prepared and submitted for publication with authorship that accurately reflects the contributions of those involved.

Planning prior to fieldwork:

Fieldwork is proposed for Years 1 and 2 at Palmer Station, Antarctica. Planning prior to the field season will be done via teleconference as well as the Palmer LTER PI planning meetings, which are held annually during the month of September prior to the start of the next field season.

Types of data, samples, physical collections, software, curriculum materials, and other materials to be produced in the course of the project:

- Description of the platform, the biological source and treatment protocols, description of overall experimental design, aim, and conclusions.
- Sampling event log and data inventory
- Carbonate chemistry, environmental (temperature, salinity, nutrients), biological (phytoplankton biomass and community composition), and krill physiological and metabolic data from CO₂ perturbation experiments
- Data generated from transects with a fleet of three Slocum Webb gliders

Plans for archiving data, samples, and other research products, and for preservation of access to them:

I will submit all data collected, after quality assurance, to appropriate data servers as soon as possible, but no later than two (2) years after the data are collected. The project is a multidisciplinary effort, so several types of data and different data repositories will be involved in the data archiving effort as summarized below. Each of these repositories is well-established in their protocols for quality assurance, accessing and availability of data, and the specific details of data management are available through those centers.

Data generated from CO₂ perturbation experiments. The Palmer LTER has designed a comprehensive information management environment centering on an information system called Palmer Data Zoo (<http://oceaninformatics.ucsd.edu/datazoo/data/pallter/datasets>). Discrete measurements collected during the CO₂ perturbation experiments at Palmer Station (carbonate chemistry, environmental, biological, krill physiology) as well as a summary of experimental methods and manipulations will be submitted to Palmer Data Zoo. The experimental summary and all discrete measurements will also be submitted to and available through OCB-DMO (<http://bco-dmo.org/data/>), which handles experimental data as well as in situ observations (including those relevant to ocean acidification). BCO-DMO is already funded to provide data management for NSF OPP ANT projects at no extra cost to this proposal, and will archive all the data they manage at the appropriate national archive facility, such as the NODC and/or the National Geophysical Data Center (NGDC). All data will be submitted according to the procedures outlined for ocean acidification data reporting in Riebesell et al. (Eds., 2011).

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Ship-based data. Standard procedures are ongoing to archive data from the existing Antarctic Palmer LTER program to deliver timely data to the national data centers by the current PIs. The shipboard underway data (i.e., CTD, fluorescence, surface pCO₂) collected during krill collections and any coordinated shipboard sampling associated with this project will be available from the central UNOLS data repository (<http://www.rvdata.us>) and the Marine Geoscience Data System ([http://www.marinegeo.org/tools/search/search.php?platform=Laurence M. Gould&output_sort_full=date](http://www.marinegeo.org/tools/search/search.php?platform=Laurence%20M.%20Gould&output_sort_full=date)). These data will be archived permanently at NODC and/or NGDC. Additionally the ship-mounted CTD data associated with this project will be provided to Palmer Data Zoo and the appropriate national data servers (NODC).

Biosonics and Glider Data. The R/V Point Sur will be utilized by the Palmer LTER group this upcoming field season (2012/2013); however, this season is a trial run and there is no guarantee that it will be available during our proposed field seasons (2013/2014 and 2014/2015). However, in the event that we have an opportunity to utilize the R/V Point Sur during the proposed field seasons, acoustic data associated with krill swarms will be obtained with a Biosonics DT-X acoustic towfish. Additionally, profiles of upper ocean CTD properties, phytoplankton physiology (from FIRE sensor), and acoustics will be obtained from Gliders deployed as part of the *in situ* sampling in the Palmer Deep canyon region. As with CTD and acoustic data from ships, these data will be submitted, after quality assurance, to NODC. The optical data will also be submitted to NODC and to the Office of Naval Research Optical Wood database.

Policies for access and sharing including provisions for appropriate protection of privacy, confidentiality, security, intellectual property, or other rights or requirements:

The Saba lab will design and host an initially password-protected share drive that will serve as a repository for the data generated from the glider transects and CO₂ perturbation experiments which will be made available to the PI and associated team members for analysis. Public release of these data (to Palmer Data Zoo, OCB-DMO, NODC, and other appropriate national data servers) will occur no later than 2 years after data are collected (as described above) and will likely coincide with the submission of the analyzed datasets to peer-reviewed journals.

References cited:

Riebesell U., V. J. Fabry, L. Hansson, and J. -P. Gattuso (Eds.). 2011. Guide to best practices for ocean acidification research and data reporting, 260 p. Luxembourg: Publications Office of the European Union.