Counter-gradient Flow of Fatty Acids in Marine Food Webs through Egg Boons

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Data Policy Compliance

The project investigators will comply with the data management and dissemination policies described in the *NSF Award and Administration Guide* (AAG, Chapter VI.D.4) and the *NSF Division of Ocean Sciences Sample and Data Policy*.

Pre-Cruise Planning

Description of Data Types

The project will produce several observational and experimental datasets, described in the list below. Observational data will be collected on field sampling trips near Port Aransas, Texas, planned to take place between once per month in June, July, August, November, December, and January, and biweekly between 1 September and 30 October.

Observational Datasets:

1. **Fatty acid composition:** Fatty acid profiles will be measured for samples of fish eggs, several species of marine animals, and four basal resources on a using a Shimadzu GC-2014 gas chromatograph with a flame ionization detector following procedures described by Faulk and Holt (2005). These profiles will be expressed in terms of composition (% of total fatty acids) and concentration (mg per g dry weight). File types: Excel file(s). Repository: BCO-DMO

2. **Bulk stable isotope ratios:** Stable carbon and nitrogen isotope ratios in bulk samples of fish eggs, marine animals, and basal resources will be analyzed on a ThermoFisher Scientific Delta V isotope ratio mass spectrometer (IRMS) coupled to a ThermoFisher Scientific EA-Isolink CNSOH element analyzer. Samples for isotope analysis will be freeze dried, ground into a homogenous powder, and stored in a desiccator cabinet prior to analysis. File types: Excel file(s). Repository: BCO-DMO

3. **RNA:DNA ratios:** DNA and RNA will be measured for animal samples collected from field and from the feeding experiments. DNA and RNA will be measured using the ethidium bromide (EB) fluorometric technique described by Westerman and Holt (1988) based on aliquots (100 pL) of homogenates. Calculations will be based upon comparisons with DNA-EB and RNA-EB calibration curves from calf thymus DNA and yeast RNA (Type 111) standards. File types: Excel file(s). Repository: BCO-DMO.

Experimental Datasets:

1. **Feeding experiments:** Egg consumption experiments will be carried out on nine species of marine animals. Animals will periodically be fed fresh fish eggs from captive spawning broodstock. Samples will be taken at four time points during the 2-month experiment duration for fatty acid, stable isotope, and RNA:DNA analyses. Dataset will include species identification, time since start of experiment, amount of eggs fed, fatty acids profile, stable isotope values, and RNA:DNA values. File types: Excel file(s). Repository: BCO-DMO.

Data and Metadata Formats and Standards

All data will be stored as spreadsheet files (.xls, .xlsx). Quality flags will be assigned according to the ODS IODE Quality Flag scheme (IOC Manuals and Guides, 54, volume 3; http://www.iode.org/mg54_3).

Metadata will be prepared in accordance with BCO-DMO conventions (i.e. using the BCO-DMO metadata forms) and will include detailed descriptions of collection and analysis procedures.

Data Storage and Access During the Project

The investigators will store project data (including spreadsheets, images, and PDFs of scanned logs) on laboratory computers that are backed up to the university's centralized data storage area. The Principal Investigator (PI) has also established an account on the university's file sharing service for data storage and sharing among project investigators. Personal computers used by the PI are backed up daily to the university's centralized data storage area, with sequential backup being retained.

Mechanisms and Policies for Access, Sharing, Re-Use, and Re-Distribution

The project investigators will work with BCO-DMO data managers to make project data available online in compliance with the NSF OCE Sample and Data Policy. Data, samples, and other information collected under this project can be made publicly available without restriction once submitted to the public repositories.

Data produced by this project may be of interest to chemical and biological oceanographers interested in the movement of fatty acids through food webs. We will adhere to and promote the standards, policies, and provisions for data and metadata submission, access, re-use, distribution, and ownership as prescribed by the BCO-DMO Terms of Use (http://www.bco-dmo.org/terms-use).

Plans for Archiving

BCO-DMO will also ensure that project data are submitted to the appropriate national data archive. The PI will work with BCO-DMO to ensure data are archived appropriately and that proper and complete documentation are archived along with the data.

Roles and Responsibilities

The PI and Co-I will be responsible for sharing his/her subset of data among the project participants in a timely fashion. The PI will have responsibility for coordinating the entire project and coordination of biochemical analyses. The Co-I will be responsible for oversight of the experiments. The Co-I and technician will be responsible for conducting field sampling, laboratory experiments, and data management. The Co-I will coordinate the overall data management and sharing process and will submit the project data and metadata to the Biological and Chemical Oceanography Data Management Office (BCO-DMO) who will be responsible for forwarding these data and metadata to the appropriate national archive.