Data Management Plan
Collaborative Research: Global biodiversity and functioning of eelgrass ecosystems
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Introduction. This project comprises the second generation of the Zostera Experimental Network, ZEN (www.zenscience.org), a collaborative network studying the structure and functioning of coastal ecosystems based on eelgrass (Zostera marina) and established with support from OCE-1031061. The proposed 2nd generation network builds on the network of 16 sites and partner institutions built under ZEN 1, with commitments now in hand from a total of 24 partner institutions planning parallel research at >40 sites in 14 countries throughout the northern hemisphere. At each site project participants will conduct parallel experiments and surveys, collecting both biological samples (eelgrass biomass, growth, and genetic structure; epifaunal biomass and community composition; algal biomass) and a range of ancillary environmental data.

Data and metadata collection. Field data to be recorded at each site (or nearby monitoring station, as appropriate) will include: water temperature time series during research period using hobotemp loggers; salinity recorded regularly during each experiment; water depth; and C and N content of eelgrass leaf tissue. All data will be georeferenced using GPS.
Datasets collected at each of the >40 participating sites will include a uniform suite of mandatory metadata to be finalized prior to initiation of field research in summer 2014. Minimum requirements for each observation will include experiment or time series designation, time, date, and location (latitude and longitude via GPS). For physical samples, each data record will contain: experiment or time series designation, time, date, location, and sample number. Each data set will also be associated with a set of metadata to include: descriptions of standards used for measurement of location, sampling procedures, sample treatment and preparation, analytical procedures. All participants will receive detailed instructions in the form of the "ZEN Handbook" (the ZEN handbook developed for the 1st generation of experiments can be downloaded at: https://dl.dropbox.com/u/9989009/ZEN_Handbook_V2.pdf). Data from each participating site will be entered into a standardized digital spreadsheet form, as in ZEN 1. All basic environmental data and metadata will be submitted to the PI and Project Coordinator (Postdoctoral Researcher) at VIMS within 6 months of collection; after quality control and quality assurance by the VIMS team, the data will be made available to the group as a whole. PIs may place reasonable, time-limited restrictions on data use (less than two years). All investigators using data collected during the project will be required to cite and acknowledge the originators of the data, whether or not restrictions apply to its use.

Data Management and Dissemination: Project participants. Environmental data collected during this project will be made available to all project participants in a timely fashion following initial quality control and quality assurance processing by individual investigators. As in ZEN 1, we will use a restricted access dropbox site to facilitate sharing of data and other communications, among the network of participants. Primary responsibility for maintenance of the database and website will reside with the PI and the

Postdoctoral Scholar supported by the project, with assistance from the IT staff at VIMS.

Data Management and Dissemination: Broader scientific community. Environmental data resulting from the experiments and field sampling, as well as biological data where appropriate, will be posted to a public access scientific database via the BCO-DMO at the time of publication, or no more than three years after collection. We will consult with BCO-DMO staff to identify appropriate data for submission, and appropriate standards. In addition, we will meet legal requirements for submission of data and research results of the governments of all foreign countries involved as partners in the project; these requirements and our procedures for satisfying them will be finalized by consultation with team members early in Year 1. If appropriate, the data will ultimately be formally published in electronic format as a data paper in the Ecological Society of America's Ecological Archives (http://esapubs.org/archive/archive_D.htm).

Biological samples. Voucher specimens of species studied will be photographed, preserved, and maintained at the investigator's home institution, while specimens of any putative new species will be deposited in the Smithsonian Institution's National Museum of Natural History, as well as in appropriate repositories in the country of origin if outside the USA.