

Data Management Plan

Genomic data should be deposited in NCBI data bases or other data repositories as appropriate. Program/project/cruise metadata tied to these databases should be provided to BCO-DMO so that there is a tie between the primary genomic data and the sampling program and/or any environmental data.

If there is no appropriate data management office or repository, you should describe plans for data sharing using an institutional web site or other appropriate venue.

Some experimental data and observations may not be appropriate for sharing and may be on no practical use for other beyond providing supporting data for information that will be part of publications. If you do not think your study will produce any data appropriate for sharing or archiving, please explain.

Your Data Management Plan – At the end of this message, please describe the data to be collected as a part of your project and your plans for sharing and/or eventually archiving the data. If you have provided a data management plan in your proposal, please copy the existing text into this document and update or augment as needed.

My proposal addresses 6 objectives that are experimental in nature. No data are of the types that are desirable for archiving for large scale environmental meta-data. The data to be collected by my investigations are of a type that do not seem appropriate for sharing and may be on no practical use for others beyond providing supporting data for information that will be part of publications. The data will be in publications that will be broadly available. My lab has a strong history of productively publishing. To date, I have produced 170 research articles, with these being cited >7,000 times. Web-of-Science lists me as one of the most Highly Cited authors in that area of Ecology and the Environment – thus, our publications are an effective way of making our types of data broadly available. Below I list each objective and give a short summary of the type of data to be collected and how they will be made available. I also list two types of data or samples we may collect that would be useful for deposition and how we will deposit those data.

OBJECTIVES:

- 1) To extend our previous reef-flat studies on seaweed-coral interactions to seaweeds typical of reef-slope environments – *This will produce data on how contact with seaweeds affects coral survivorship and physiological state and how this varies across both coral and seaweed species. These data will be available in publications in the primary literature.*
- 2) To determine the metabolites functioning as allelopathic agents. - *These data will be from bioassay guided separation of allelopathic chemical extracts. The specific metabolites responsible for these bioactivities will be isolated, purified, and identified. These data will be made available via publication in the primary scientific literature.*

- 3) To evaluate the role of metabolites moved via direct contact (lipid-soluble) vs water-soluble metabolites in generating seaweed effects on corals. - *Data from these experiments will be how lipid-soluble metabolites moved from seaweeds to corals via direct contact affect coral physiology and fitness vs water-soluble metabolites affect nearby corals via dispersal through the water. The data themselves will be determinations of coral bleaching and death and of PAM readings of photosynthetic potential. These data will be made available via publications in the primary literature.*
- 4) To evaluate concentrations of active metabolites on seaweed surfaces and whether these are naturally at levels sufficient to damage corals. - *These data will consist of DESI-MS readings of the concentrations of previously identified bioactive metabolites (see Objective 2 above) present on the exterior surfaces of intact seaweeds that demonstrate allelopathic activity against corals. These data will be made available in publications in the primary literature.*
- 5) To determine if corals induce increased resistance to the effects of seaweed metabolites following initial exposure. - *These data will consist of the physiological and fitness consequences that corals experience when contacting seaweeds both when they have not previously been in contact with these seaweeds and when they have been (i.e., do they induce the ability to resist allelopathic effects of seaweeds?). These data will be made available via publications in the primary literature.*
- 6) To determine which reef herbivores selectively consume which seaweeds and whether seaweed metabolites serve both allelopathic and herbivore deterrent functions or whether different metabolites are used for these functions. - *These data will consist of (1) video recordings of fish feeding in the field when presented with cafeteria-style presentation of different seaweeds (i.e., which species of herbivores feed on which species of seaweeds?) and (2) altered feeding by these fishes when presented with palatable seaweeds treated with the allelopathic metabolites determined via experiments in Objective 2 above.*

OTHER DATA OR SAMPLES:

There are two possible types of data or samples that we will, or may, collect that will be deposited in with others so they can be broadly available to the scientific community. First, any voucher samples collected for species identification will be deposited with the Smithsonian Institution's Natural Museum of Natural History where they can be appropriately curated and made available. Second, in some instances when we get differential responses from different populations of the same species, we are now using genetic sequence analysis from 18S rRNA to assess possible taxonomic divergence and whether we are working with phenotypic or genotypic variance. In addition to publications in the primary literature, these sequences are deposited in GenBank.

- 2) If you have any overdue annual or final reports, or if you are a co-PI on any projects with overdue reports we will not be able to process this recommendation until the reports are submitted and approved.
- 3) Are there any changes to your current and pending support information?

4) Provide information on things such as ship time changes, overdue annual reports, etc., as needed.

The Program Officer handling your proposal is Ajit Subramaniam. Please reply to asubrama@nsf.gov with questions regarding data management, changes to the budget, current and pending, etc. When we receive and review the requested material, we will complete our program analysis and make our recommendations for the award.