Please fill out the questionnaire below as thoroughly as possible as part of your award's data sharing requirement. Refer to your Data Sharing Plan for your team's original data sharing strategy. This questionnaire applies to all data generated as part of your award, regardless of publication status.

1. Please list all data types collected as part of your MMI grant, and whether it is raw or post-processed. Data types may include (e.g.):

    - *Biological and Biochemical data*
        - *Physiology (cell abundance, growth dynamics, growth rates, chlorophyll, etc.)*
        - *Photophysiology and biophysical (e.g. F_v/F_m, linear & cyclic electron flow)*
        - *Bioptical (scattering, absorption spectra, etc.)*
        - *Virus abundances and production rates*
        - *Enzyme hydrolysis rates (e.g. caspase activities, etc.)*
        - *Transparent exopolymer particles, aggregation*
        - *Cellular nitric oxide production*
        - *Cellular reactive oxygen species (ROS)*
        - *Membrane integrity staining*
        - *Cellular calcification*
    - *Molecular Data*
        - *DNA gene sequences*
        - *RNA transcript identities and abundances*
        - *Bioinformatic analyses*
    - *Flow Cytometry Data*
        - *Scatter plots of chlorophyll, side-scatter, forward scatter, fluorescence*
        - *Cell sorting data*
    - *Field data*
        - *Biological, biochemical, molecular and flow cytometry data from the field*
        - *Nutrient concentrations*
        - *Standard physical and chemical oceanographic data*

2. Where have you posted your data to make it publically available? Please provide hyperlinks to all files and note any data repositories you have used. Examples may include:

    - *Most datasets and protocols have been posted for public access on a ftp site: (ftp://boardwalk.marine.rutgers.edu/bidle/). These folders ('Datasets' and 'Protocols') are also still being populated. Rutgers will be transitioning away from the use of ftp sites over the next 6 months so Bidle is working with the Rutgers' DMCS IT team to move these datasets/protocols over to: http://bidlelab.marine.rutgers.edu/public_data*
    - *Sequencing data has been deposited to NCBI. Most of these datasets represent targeted amplicon sequences derived from natural populations.*
    - *Datasets have also been posted on the Biological and BCO-DMO. Links to different projects can be found at: https://www.bco-dmo.org/person/51281 (under 'Project Coordination' tab)*

- *Bidle has also continued the development of a custom-designed, laboratory information management system (LIMS) to store raw and processed experimental and field data. Through a partnership with Big Rose Web Design LLC, Bidle (along with Kim Thamatrakoln; collaborator on various projects) are actively building an integrated, query-based database management system that allows for data entry, secure data storage, visualization, and analysis.*

  The LIMS integrates diverse datasets, obtained across multiple projects, in an easily-accessible format that allows for rigorous and robust interpretation and identification of potential linkages between experimental findings that may otherwise go unnoticed. Through a secure lab website, authorized users are able to add/edit/query/analyze/export data, which are stored in a MySQL database. MySQL data tables are created using standards based data schemas, ensuring that experimental data can be shared with other laboratories and exported to public databases in uniform formats. The database is housed internally within DMCS on secure-servers maintained by the Information Technology group and backed up daily.

  The LIMS allows integration of data across experiments, field campaigns and projects so that relevant research personnel can easily organize and access related datasets and explore mechanistic interactions that would otherwise go unnoticed given the current disparate state of our datasets. In addition, such a database would vastly facilitate dissemination and sharing of our data so that it can adequately serve the wider community and more broadly facilitate active research in this area. All relevant personnel at Rutgers and at collaborating institutions will be granted authorized, secure access and receive the relevant training on the use of the system. This will greatly facilitate ease of data sharing between our groups and organize our data in a standardized format.

  Throughout the duration of the project, Big Rose will provide support and maintenance of the database, as well as any new customizations that may be deemed necessary during the course of the research. The lab-based part of the LIMS has gone through extensive design and beta testing phases and is now ready to 'go live' for the Bidle and Thamatrakoln groups. We are currently working with DMCS IT staff to set up a domain name and to transfer the code platform with the functionality as designed by Big Rose Web Design LLC. Bidle and Thamatrakoln are putting the final touches on the 'field-based' part of the LIMS and anticipate it 'going live' by the end of the calendar year.

3. Have you generated unique identifiers associated with your data (e.g. ORCID user ID, UUIDs, DOI's or other similar mechanisms)? If yes, please list those identifiers below.

   No, not yet.

4. Have you generated any data you consider proprietary and suitable for a patent? If yes, what type of data is it?

   No.

5. Have you published or do you anticipate publishing a “Data Release Paper” for referencing and sharing the data?

   Not at this moment.

6. What challenges are you having with making your data public? How can MMI be of assistance?

   The biggest challenge is just organizing and curating the data and getting it put into the publicly accessible databases listed above. It takes a concerted effort on the part of me and my research group to do this regularly. Ultimately, the establishment of the LIMS will greatly help to organize and facilitate this process—we will be able to generate/export publicly available groups of datasets on a regular basis from the master database.