**Data Management Plan**
  **I. Title and Contact Information.**
  a. **Title:** RAPID: Collaborative Research: Carbon and nutrient responses in an estuarine-coastal complex impacted by floodwaters from Hurricane Matthew
  b. **Point of Contact:** Hans W. Paerl, hans_paerl@unc.edu
 **II. 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.
 **III. Types of Data.**
  a. **Observational Dataset:** Observational data collected will be hydrographic profiles of depth, temperature, salinity, DO, pH, turbidity, chlorophyll fluorescence, PAR, and barometric pressure using YSI 6600 sondes. Sensors are standardized following recommend procedures, and calibrations are verified on a regular basis. The observational dataset will be collected throughout the project period at approximately weekly frequency for the Neuse River Estuary and Pamlico Sound. Data from the project will be merged with a continuing, long-term monitoring dataset for the Neuse River and Pamlico Sound systems (ModMon).
  b. **Chemical and Biological Sample Datasets:** Collected water samples from field visits will be analyzed for a variety of dissolved and particulate constituents, including CDOM, nutrients, bulk DOM, DON, POC, PN, C stable isotopes, phytoplankton pigments by HPLC, and the measurements will be stored as relevant corrected values. Chemical analyses will be calibrated and verified using certified standards and where possible, will follow EPA-approved protocols. Stable C isotope values will be calibrated and normalized on the Vienna PDB scale. CDOM fluorescence will be calibrated in quinine sulfate units (QSU) and individual excitation-emission matrices (EEMs) of samples will be generated. Appropriate metadata will be stored with all data. Several hundred MB of data are expected to be generated.
  c. **Microbial Productivity Dataset:** Phytoplankton primary productivity will be measured using the $^{14}$C method. Metadata for community productivity measurements will be stored with the data.
 **IV. Data and metadata formats and standards**.
  a. **Data formats:** Hydrographic profile data will be stored as raw (.dat and ASCII) and spreadsheet (.xlsx) files. All chemical and biological results will be stored in spreadsheet format and converted to ASCII format as needed for analysis (e.g., Matlab, R) or archival purposes. NetCDF conversion will be made where advised by database managers at BCO-DMO. Field and sample data will include date, time, location (approximate), and depth (either exact or surface/bottom) as appropriate. Quality control will include expert review of hydrographic data and daily checks of chemical analyses using external standards. Standard chemical oceanographic units will be used where appropriate for these data.
  b. **Metadata:** 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. Using BCO-DMO ensures that the metadata will conform to the Federal Geographic Data Committee (FGDC) content standard. Metadata will include the definition of qualifier codes used to flag data. The PIs will consult with BCO-DMO staff

to identify the most effective means of communicating excitation-emission matrix (EEM) and biological activity specific metadata.

V.  **Data Storage and Access During Project**

All files will be backed up weekly and stored both onsite on personal computers with redundant backup on a shared network drive and offsite on portable media. Data will be shared among project participants using email and password-protected cloud storage.

VI.  **Data Access, Sharing, and Re-use**

a.  **Access:** After the embargo period, the complete data set from the proposed work will be made available through the Biological Chemical Oceanographic-Data Management Office (BCO-DMO). PI Osburn has worked closely with BCO-DMO (Cyndy Chandler) on building a CDOM database and has experience with posting spectral data in a manner to conform to BCO-DMO's standards of documentation and format. Similar consulting will be required for the biological activity data.

b.  **Embargo Period.** A maximum of two years embargo time will be taken to ensure adequate time for original research collaborators to publish their results. After that period, data will be released to BCO-DMO.

c.  **Submittal Frequency.** The project will upload data files and collection-level metadata annually to BCO-DMO as soon as they have been quality controlled and processed. BCO-DMO makes the data publicly available through their respective systems immediately upon receipt and subject to any approved embargo period.

d.  **Expected Data Re-users:** CDOM scientists and stakeholders are likely re-users of this data. For the latter, the optical properties of plankton confirmed in this study may be used for in situ sensor development and deployment. Outside the original research community (i.e., project collaborators), users will be able to contact the PIs with questions regarding access and use of the data. However, once the embargo period ends, it is expected that the project's data will become public domain. Two stipulations will be posted to potential users. First, the database and/or relevant publications originally presenting the project data will be acknowledged by any user. Footnotes and addenda to the database will be maintained regularly to track publications by the original research community and clearly identified to data re-users. To facilitate tracking of re-use and fair credit to data providers, BCO-DMO will provide a recommended formal citation for the data set, including a persistent identifier. Second, acknowledgement of NSF funding for the original data will be required by re-users.

VII.  **Data Archiving**

The PIs will work closely with BCO-DMO curators to provide all information necessary for data preservation at an appropriate National Data Center. Redundant storage in this clearinghouse will guarantee the widest dissemination possible to future access for the supported data, as well as the core data set.