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**Evaluating Physical, Chemical, and Biological Impacts from  
the Savannah Harbor Expansion Project**

Cooperative Agreement Number W912HZ-13-2-0013

**FY 2015 - First Quarterly Report – January 1, 2015**

Submitted by Thomas Jordan, Marguerite Madden, and David L. Cotten  
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Dear Ms Richards –

The following paragraphs summarize the progress on the project for the period October 1, 2014 through December 31, 2014, according to the five objectives outlined in the Statement of Work and summarized below.

**Progress by Objective**

1. **Research and develop data analysis tools and standardized maps; Analyze and integrate multiple, complex datasets to provide detailed map**
  - a. **Bathymetric Data** – We have written scripts to convert these to ArcGIS shapefiles and the bathymetry data has been merged with existing LiDAR datasets of the surrounding terrain. These data sets are included in our local Geodatabase and may be migrated to the on-line map. The status of this data set is unchanged since the previous report.
  - b. **Sturgeon Data:** We did not receive any additional data for the Sturgeon monitoring study in the Savannah River during this quarter. We have created a few different display concepts of sturgeon movement as well as other tagged species, i.e. Striped Bass and American Shad, and we have discussed different methods for analysis and display with Bill Post. We have received reports for the sturgeon monitoring project for August, September, October, and November 2014 and posted them to the SHEP monitoring website.
  - c. **Vegetation/Marsh Monitoring Data** – We did not received any additional data for the Vegetation Monitoring project during this quarter. We have received



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reports from September and October 2014 and the third quarterly report of FY 2014. They have all posted been posted to the SHEP monitoring website.

- d. **Avian Tissue Monitoring** – We have received the third quarterly report of FY 2014 and posted it to the website.
  - e. **Marsh Edge Fishes** – We did not receive any data for the Marsh Edge Fishes project during this quarter. We have received the first, second, and third quarterly reports of FY 2014 and posted them to the website.
  - f. On October 16, 2014 USACE commander, COL Thomas J. Tickner met with our team here at UGA. We presented our current results on the project up to this point in time. Topics covered in the presentation included, but were not limited to, the combined bathymetric dataset, fish movements (both Sturgeon and Striped Bass), water quality stations displaying dissolved O<sub>2</sub>, and a wetlands change detection map.
2. **Research, identify, and catalogue existing study documents for the major resource areas**
- a. As part of a class project by one of our student workers, land cover/land use change of the wetlands surrounding the project area was determined based on imagery from 1993, 1997, 2003, and 2008. The imagery was collected from the Landsat satellite and analyzed using an object based analysis program called eCognition. The goal of the effort was to try to detect changes in the wetlands resulting from the completion of the initial deepening of the Savannah Harbor in 1994.
3. **GIS Data and Web Portal**
- a. **Determine appropriate attributes for the GIS**
    - i. This is an on-going effort and depends on the data we receive from other researchers as described above in Objective 1. All mapping coordinates are being standardized on the Georgia State Plane Coordinate System, East Zone, NAD83. Vertical coordinates are referenced to NAVD88, except for raw bathymetric data, which are referenced to local MLLW. Data sets with coordinates in other systems are converted to State Plane for compatibility. The original coordinates are preserved in the data sets as attributes. *(no change from the previous reports)*



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- b. Develop a web portal to facilitate public access to the pertinent data**
    - i. In order to further understand how the website is accessed by the public, Google analytics were implemented on the SHEP website. These analytics currently can track the number of page views and information regarding the users accessing the site. The analytics information provided tells us if the user is a new or returning visitor, the operating system used by the visitor, and the country of origin of the user.
  
  - c. Develop Standard Operating Procedures (SOP)**
    - i. These have not been established yet – since it is still early in the monitoring program, much of the data is not yet available. We are receiving some preliminary data but not enough to begin to set up formal SOPs. We have been developing visualization and display methods for the preliminary sturgeon monitoring data and the bathymetric surveys.
- 4. Update and maintain the GIS**
- a. These efforts are on-going. We continue to collect available GIS data for Chatham and Effingham counties (Georgia) and Jasper County (South Carolina), including LiDAR, base GIS data layers (roads, hydrology, boundaries, etc.), multi-date aerial photography and satellite images in order to build a comprehensive geodatabase for the region. We are collecting data from the Georgia GIS Data Clearinghouse, the USGS National Map, NOAA Coastal Services Center, and Savannah SAGIS.
  - b. Additional data will be incorporated into the base GIS as they become available.
- 5. Prepare quarterly progress reports and annual reports**
- a. This document represents the First Quarter Report of FY 2015 for this project.
  - b. A budget summary is attached at the end of this document.



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Please feel free to contact either Marguerite Madden or Tommy Jordan if you have questions or concerns regarding this report.

Respectfully submitted,

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