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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 - Fourth Quarterly Report – September 30, 2015

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Dear M.s Richards –

The following paragraphs summarize the progress on the project for the period July 1, 2015 through September 30, 2015, 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** –The bathymetric 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 (Figure 1). At the request of The UGA Skidaway Institute of Oceanography (SKIO), maps of the most recent bathymetric survey data were compiled and the data were delivered to them. These data are now being reviewed in detail by researchers at SKIO and CGR.



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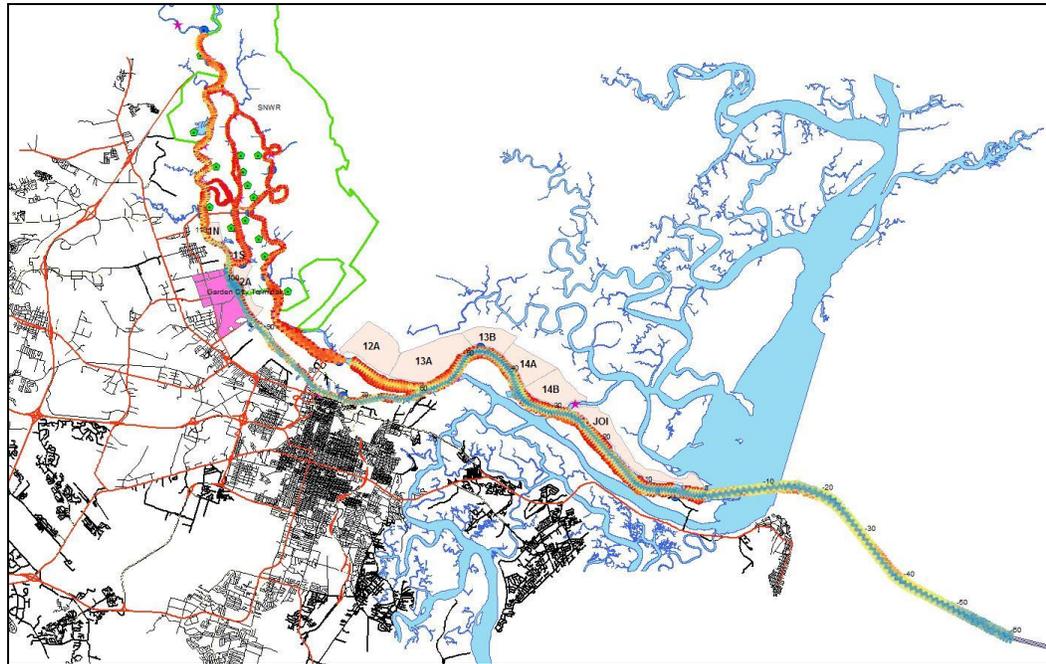


Figure 1: Extent of bathymetric survey data for the Savannah Harbor - 2015

- 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 received reports regarding Sturgeon distribution for the months of June, July, and August 2015 and the annual reports from FY 2014 and 2015. All the reports received for this quarter have been posted to the SHEP monitoring website.
- c. **Vegetation/Marsh Monitoring Data** – We did not receive any additional data for the vegetation monitoring project during this quarter. We received reports from the months of May, June, July, and August 2015 and the 2nd quarterly report of FY 2015. They have all been posted to the SHEP monitoring website.
- d. **Avian Tissue Monitoring** – We have not received any data for this quarter. We received the FY 2014 report for avian tissue monitoring and posted them to the SHEP monitoring website.



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- e. **Marsh Edge Fishes** – We did not receive any data for the Marsh Edge Fishes project during this quarter. We received the final project report for identifying and evaluating the distribution of fishes, crab, and shrimp in the Savannah River Estuary the during this quarter. The report has been posted to the SHEP monitoring website.
2. **Research, identify, and catalogue existing study documents for the major resource areas**
 - a. All existing study documents that we are aware of have been gathered and catalogued.
 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)*
 - 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. For this quarter there were 1749 page views on the SHEP monitoring website with 93% constituting new visitors.
 - ii. Additional metrics have been added to the google analytics interface. Data generated by visitors to the SHEP website can now track what pages were visited as well as the average session duration. A use for this data is still being discussed.
 - 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.



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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.), and 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.
- c. We are working with ArcGIS Server software to create a more robust online map display that will incorporate additional data, such as historical images, DEMs, and LiDAR.

5. Prepare quarterly progress reports and annual reports

- a. This document represents the Fourth Quarterly Report of FY 2015 for this project.

Please feel free to contact Marguerite Madden, Tommy Jordan, or David L. Cotten if you have questions or concerns regarding this report.

Respectfully submitted,

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