



The University of Georgia

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

Cooperative Agreement Number W912HZ-13-2-0013

Third Quarterly Report – June 30, 2014

Submitted by Thomas Jordan, Marguerite Madden and Sergio Bernardes
Center for Geospatial Research (CGR)
Department of Geography - University of Georgia
Athens, Georgia 30602

Dear Ms Richards –

The following paragraphs summarize the progress on the project for the period April 1, 2014 through June 30, 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** - Ned Durden (USACE) has sent CGR the data for additional bathymetric surveys of the Harbor from October 2013, including data representing Channel stations 0+000 to 113+750 and the Sediment Basin. We have had a software developer to write scripts to convert these to ArcGIS shapefiles and an intern to work on integrating the bathymetry with existing LiDAR datasets of the surrounding terrain. These data sets are included in our local Geodatabase and will be migrated to the on-line map.
 - b. **Sturgeon Data:** We have received the first batch of data for the Sturgeon monitoring study in the Savannah River, including the receiver locations and RFID transmitter data for the period November 21, 2013 through January 10, 2014. We have been working on concepts for the display and analysis of these data and will discuss the most appropriate methods for analysis and display with Bill Post. We have included the receiver locations in the on-line map. We have received reports for sturgeon distribution for February, March and April 2014 and posted them to the SHEP monitoring website.



The University of Georgia

- c. **Vegetation/Marsh Monitoring Data** – We have incorporated the marsh monitoring site locations, as reported in Jamie Duberstein’s documents, into the Geodatabase and have plotted them on the on-line map, along with ground photos of each site. We have received reports from February, March, April and May 2014 and have posted them on the SHEP monitoring website.
- d. **Avian Tissue Monitoring** – We have received the first quarterly report and posted it to the website.
2. **Research, identify, and catalogue existing study documents for the major resource areas**
 - a. No new activity in this area.
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 will be converted to State Plane for compatibility. The original coordinates will be 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. During the Second and Third Quarters of 2014, CGR worked closely with our point of contact at the U.S. Army Corps of Engineers (Ms Margaret McIntosh) to implement, update and customize the website that will serve as data and information portal for the Savannah Harbor Expansion Project Monitoring Program. These efforts were documented in detail in the previous report. The web portal is now considered to be stable and is being maintained in a routine manner, although enhancements are being implemented as needed.
 - Multiple customizations of the Mapping page, including the implementation of clickable water gage icons, links to USGS data associated with each gage (water quality, dissolved oxygen and specific conductance), as well as the redefinition of the default zoom level. Marsh and sturgeon monitoring site locations are included in the map but not exposed on the initial (default) view.



The University of Georgia

They may be turned on by clicking on the “View Larger Map” link and opening the Content Tab and clicking on the ‘Monitoring Locations” data layer. Ground photos of the marsh monitoring sites are now included in the popup windows for those locations.

- Considering the current stability status of the web portal, we ended the portal development phase at the workstation level and migrated development to the SHEP server at CGR. During this quarter, the SHEP server was configured for site migration by installing a suite of software tools and services for website development, update, display and testing. Installed software included Adobe Dreamweaver and XAMPP, which includes Apache, MySQL and PHP, required by the portal. The database of users for access control, created by using MySQL, was also migrated. The new server-based environment supports site maintenance and version control, allowing for multi-user update of the portal.
- During this quarter, CGR implemented the requested solution for access control of the web portal, consisting on a MySQL database of authorized users, a log in page and associated pages (i.e., access denied, access granted, and password change pages). The restrict access area of the web portal currently links to the Project-CH2M HILL website, also hosted by CGR. This local access solution will be migrated to the operational portal following further development and testing.
- To guarantee site maintenance and to maximize uptime of the increasingly complex SHEP web portal we are training additional CGR personnel in the design and maintenance of the web site.

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.



The University of Georgia

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 Third Quarterly Report for this project.
- b. A budget summary is attached at the end of this document.

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

Respectfully submitted,

Thomas R. Jordan, Ph.D.
Associate Director, CGR

Marguerite Madden, Ph.D.
Director, CGR



CGR
Center for Geospatial Research
The University of Georgia