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**Evaluating Physical, Chemical, and Biological Impacts from
the Savannah Harbor Expansion Project**
Cooperative Agreement Number W912HZ-13-2-0013

FY 2016 - First Quarterly Report – January 1, 2016

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Dear Ms Richards –

The following paragraphs summarize the progress on the project for the period October 1, 2015 through December 31, 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** – 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 received additional data for the Sturgeon monitoring study in the Savannah River on October 7th 2015. 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 September and October 2015 and posted them to the SHEP monitoring website.
 - c. **Water Quality** – We are currently waiting on the oxygen injection systems to come online. Methods have been established to retrieve and store gauge data locally on CGR servers. We are currently developing techniques to display these parameters on the web portal map in both real time and historically by connecting this internally stored data to ESRI so they can be actively displayed through ArcGIS Online. Our goal is to allow users to get real time data as well as



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the option of querying historical data particular gauges and display, graphically, how gauge variables change over time. The main objective of this visualization is to be able to display any changes in dissolved oxygen once the oxygen injection systems become active. This also will be useful in monitoring salinity, water temperature, turbidity, and stream velocity.

- d. **Vegetation/Marsh Monitoring Data** – We did not receive any additional data for the Vegetation Monitoring project during this quarter. We have received reports from September, October, and November 2015 and the third quarterly report of FY 2015. They have all been posted to the SHEP monitoring website.
 - e. **Avian Tissue Monitoring** – We have received the third quarterly report of FY 2014 and posted it to the website.
 - f. **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.
 - g. We received the Pre-construction monitoring report and posted it on the top of the reports section of the 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. 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.

During the first quarter of FY 2016 there were 1033 page views on the website from 739 unique users. This was an increase of 245% in page views from the first quarter of FY 2015, Figure 1.

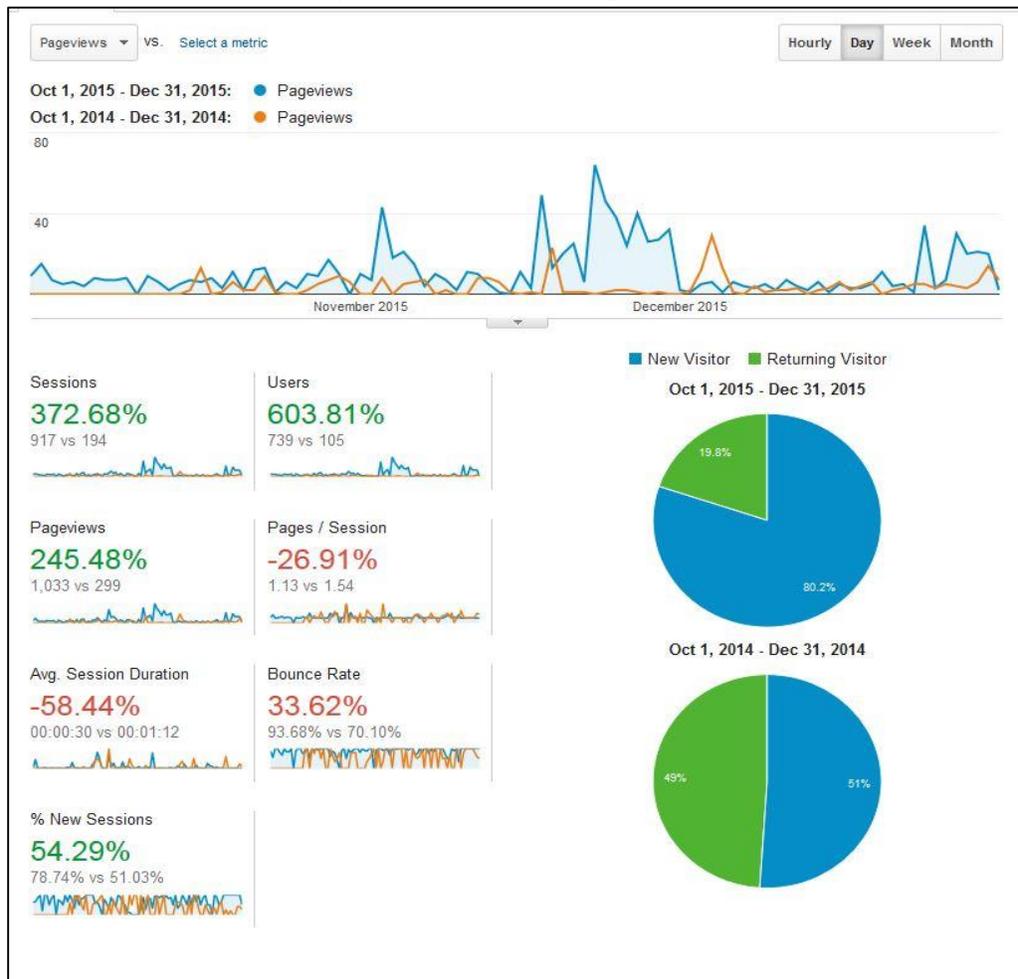


Figure 1: Website statistics of 1st quarter 2016 versus 1st quarter of 2015.



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c. Develop Standard Operating Procedures (SOP)

- i. Standard Operating Procedures (SOP) for data reporting and handling have been established, yet since it is still early in the monitoring program, much of the monitoring data are not yet available therefore only SOP for the sturgeon, water quality, and bathymetry data have been established. We have been developing visualization and display methods for the preliminary sturgeon monitoring data, water quality, 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 2016 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,

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