

Monthly Report: March 2014

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FORESTRY & LIFE
SCIENCES

Baruch Institute of
Coastal Ecology and
Forest Sciences
Hwy. 17 N.
177 Hobcaw Rd.
Georgetown, SC
29440

(843) 546-1013
FAX (843) 546-6296

To:

William Bailey and Margaret G. McIntosh
Planning Division
Savannah District
US Army Corps of Engineers
100 W. Oglethorpe Ave.
Savannah, GA 31401

30 March 2014

By:

Jamie Duberstein
Baruch Institute of Coastal Ecology and Forest Science
Clemson University
PO Box 596
Georgetown, SC 29442
Cell: 706-410-6722

Bill and Mackie:

Please see the bulleted list below for the major actions and accomplishments associate with Cooperative Agreement Number W912HZ-14-2-0002 for the month of March, 2014. Please let me know if you would like me to elaborate on the details of any items I've listed below, or if there are any other items that interest you.

Sincerely,

Jamie

- Built monitoring stations for deploying the In-Situ Aquatroll water sensors. They consist of two wells, both of same diameter and length above- and below-ground. Figure 1 shows the monitoring station. Specifications are:
 - Marsh surface will be located at 0.25" below the surface of the monitoring station base; this coincides with thickness of the flat pvc.
 - The Belowground salinity/water depth sensors are Aquatroll 200 (In-Situ) and are suspended to a depth reaching the lower portion of the left well in Figure 1. The belowground section extends ~ 12 ½" (36 cm), and a portion has thin slits cut into it for water exchange ("wellpoint" or "screened" pvc). Water freely exchanges between the belowground portion of the well and the marsh root zone at depths ranging ~ **2 ½ - 12 ½" (6 – 36 cm) below the soil surface; this is the belowground salinity sampling zone.**
 - The aboveground sections extend ~ 4' (123 cm) above the surface. For the belowground salinity well (left well in Figure 1), material is regular schedule 40 pvc.
 - The aboveground salinity sensor is an Aquatroll 100 and is housed suspended in the well on the right side of Figure 1. The upper portion (~ 4') of the well is the wellpoint/screened variety, and water freely exchanges through the entire well, except the bottom 2 ½" (6 cm) occupied by the mounting coupler. The sensor hangs suspended to a depth of approximately 6 cm above the platform surface (i.e., above the mounting coupler), coinciding with 2 5/8" above the marsh surface.
 - The belowground portion of the right well shown in Figure 1 extends ~ 12 ½", is made of regular schedule 40 pvc that has holes drilled in it for drainage, is capped to facilitate maintenance, and is solely in place as support and stability.
 - Aboveground sections are long enough to remain mostly above high water, though sensors can operate accurately and safely even if they are submerged. Wells should be sufficiently high enough to allow interfacing with the belowground salinity sensors during most tidal cycles. Note that opening the wells housing the belowground

- salinity sensors is not permitted if the estuary flood stage exceeds the height of the upper well.
- I hope to outfit each monitoring station with staff gages attached to the upper wells. Hence, upper wells are actually longer than necessary to stay out of high water. That upgrade is for another year.
 - Tops of the wells are sealed with a locking cap, to which the suspension wires are attached. This helps ensure better precision on water level readings between periods of interfacing with the sensors (e.g., when uploading data).
- Programmed the water sensors for deployment. Measurements will be made and recorded **hourly** starting 01 April 2014. Note that not all sensors will not be deployed at the field sites at this time, but should be within days of this activation time. Sensor clocks were synchronized at a time when daylight savings was in effect. Therefore, **sensor clocks will record data using EDT**. Water depth is measured using a specific gravity of the water; sensors for all sites were set to fresh (specific gravity 0.999). We plan to adjust the specific gravity to coincide with site salinity. For reference, specific gravity of brackish water is 1.012 and specific gravity of sea water is 1.024; this is a minor adjustment.

Data from belowground sensors (Aquatroll 200) includes:

- Pressure (PSI)
- Temperature (deg C)
- Depth (cm)
- Specific Conductivity (μs)
- Salinity (PSU)
- Total Dissolved Solids (ppt)

Data from aboveground sensors (Aquatroll 100) includes:

- Temperature (deg C)
- Specific Conductivity (μs)
- Salinity (PSU)
- Total Dissolved Solids (ppt)

Data from Barometer sensors includes:

- Pressure (PSI)
 - Temperature (deg C)
- Continued working on the process to purchase a boat
 - Continued the search for a temporary technician job to be funded by the grant.
 - Four people (of 29) were interviewed
 - 1 applicant cannot start until June 2nd; this is later than I'd like.
 - 1 applicant accepted an alternate job offer
 - 2 applicants stated they were not interested in the position anymore.
 - Another 3 people have been selected for interviewing.
 - Coordinated logistics involved with the April vegetation sample.



Figure 1. Water monitoring station