

**2016 Mid-Year Monitoring Memo**  
***Recycled Water Projects***  
**Hilton Head Plantation and Palmetto Hall**  
Hilton Head Public Service District  
Hilton Head Island, South Carolina

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In April 2016, on behalf of Hilton Head Public Service District (the PSD), Ballantine Environmental Resources conducted biological monitoring of four wetland recycled water projects (RWPs) on northern Hilton Head Island. The PSD operates two projects in Hilton Head Plantation and two in Palmetto Hall Plantation. The projects are not contiguous or joined by surface water flow. This memo summarizes the ecological conditions in Cypress Swamp and Whooping Crane Conservancy in Hilton Head Plantation; and the “Grassy” and “Wooded” wetlands in Palmetto Hall. The following summary describes the most recent environmental status in the wetlands. Most important, this summary will describe how the wetlands responded to adverse weather events.

***Conditions of the Wetlands***

**Flooding Impact.** The four freshwater wetlands are in close proximity (an area of 2-3 square miles). In these communities the most significant event was the historic rainfall and flooding in South Carolina in October 2015. The destruction by flooding was far more severe in the Piedmont zone of the state. Locally, Hilton Head Plantation’s Whooping Crane and Cypress Conservancies contained the buildup of rising water fairly well. In November, Cypress Conservancy’s surface water level was an average of 4

inches higher than the norm. We observed no water flowing over the boundaries of this wetland or into adjacent uplands.

Conversely, surface water in Whooping Crane rose significantly enough (6-12 inches) to flow into an adjacent cell on the southern perimeter of the wetland. Here, rising water ran southward out of the wetland, breaching a berm that had served as a containment levee and popular nature trail for 50 years. The Hilton Head Plantation POA was forced to close this popular route until further notice. We recommend that this berm be redesigned and restored to protect against rising water and potential flooding in the future. This could be an infrastructure project shared by Hilton Head PSD and the Hilton Head Plantation Property Owners Association. The goal of such a project would be to contain the water level in Whooping Crane at historical average levels and protect the area against overflow in future storms, drought and other events. The central boardwalk, which was designed to stand above flood elevations, did not suffer any damage.

In Cypress Conservancy the water level also rose, but did not cause flooding. We observed that the average water level in this basin rose approximately 5-7 inches, or 30 percent above the summer average level. This minimal rise of water can be attributed to the dry-down regimen, which significantly controls water levels.

Benefitting from this surplus of water, an increase of fish, invertebrates, amphibians and other prey species attracted a range of predators. We observed a diversity of water birds, such as wood stork, green heron, great blue heron, white

ibis, and snowy and great egrets, hunting in perimeter waters and roosting in the swamp's blackgum and cypress trees.

## **Palmetto Hall**

The Wooded Wetland was “pond-full,” or 100 percent inundated, with an average water depth of 10-15 inches. This wetland has a defined basin with a berm that contains surface water for long time periods. We observed no over-bank flooding, which would have impacted the adjacent golf courses.

The Grassy Wetland had record high surface water in many sectors following the period of the above-mentioned flooding. Three areas were noteworthy:

(1) The headwater pond near the inflow pipe had surface water an average of 30-plus inches deep.

(2) The central channel running between two arms of the golf course was also holding water up to 30 inches deep in the growing season, but this water had receded by November.

(3) The north end of the Grassy wetland had been entirely inundated. Nearly 70 percent of this rare sawgrass community was flooded with silt and sandy organic matter, causing the decline of the sawgrass community. As of autumn 2015 the sawgrass community had recovered by only 5-10 percent. We will report on the recovery of this habitat in our next monitoring memo.

## **The Outlook**

The most significant influence on the Recycled Water wetlands was the historic rain and flooding event. However, onsite evidence proved that the application of Recycled Water has sustained the aquatic lands' resilience to greater flooding. The extensive, diverse savanna marshes and old growth forests are the best lines of defense against flooding and destruction of property and natural resources. Recent intense weather events show how the Recycled Water program has vitalized and sustained local wetlands, reinforcing their ability to withstand future natural disasters, whether flooding or as in past years, drought. Recycled Water is a vital resource that stabilizes the natural environment and thus, property values and community security long-term.