

## **Georgia Department of Natural Resources- Coastal Resources Division**

### **American Recovery and Reinvestment Act of 2009 Stimulus Action Plan**

The National Oceanic and Atmospheric Administration (NOAA) Office of Habitat solicited for project proposals from coastal and Great Lakes communities for coastal habitat restoration projects under the American Recovery and Reinvestment Act of 2009. The purpose of the effort is to foster healthy and resilient American communities while generating and protecting jobs for the thousands of people whose task it will be to restore valuable coastal and marine habitat.

#### **Clayhole Swamp WMA Floodplain Restoration Project**

##### **Project Scope:**

This project, titled “Clayhole Swamp Wildlife Management Area (WMA) Floodplain Restoration Project,” will remove impediments to hydrological flow caused by an asphalt-capped roadbed within the forested floodplain of the Altamaha River. The roadbed, known as Swamp Road, installed in 1999, is eight tenths of a mile long and approximately 40 feet wide. This project will remove the asphalt from the roadbed, fill the ditches to adjacent flood plain grade on each side of the road, remove culverts from the road, narrow the roadbed to 20 feet wide and lower it to one feet above adjacent floodplain level and install at least six shallow fjords to ensure proper flow of water across the flood plain at any river stage. Disturbed sites on each side of the roadbed will be vegetated with hardwood species and monitored for colonization by invasive species. Education and outreach will include a nature trail and educational kiosk located at the campsite near the entrance to Clayhole Swamp WMA.

Restoration monitoring at the impacted road causeway site within the Clayhole WMA will include pre and post restoration surveys and monitoring of two primary biological response indicators (fish and vegetation) and several abiological response indicators (hydroperiod, soil morphology, sediment supply and sediment character).

##### **Project Outputs/Outcomes**

The objective of this project is to restore the flow across the floodplain in the project vicinity while maintaining use of the road for periodic access for hunting, management, and recreational purposes. This project will immediately reduce and remove an impediment to water flow across a large portion of the Altamaha River floodplain. Natural flow will be returned to approximately 256 acres of floodplain. Long-term outcomes include enhanced flow across the floodplain, allowing the area to be used as spawning and feeding grounds for diadromous fish species such as American Shad, herring and sturgeon. Not only will the restored sheet flow assist in fish passage and increased foraging area but will also allow for coastal resiliency in the area. Tidal floodplains and forested wetlands protect uplands from storm surge and river flooding. They also serve as important transitional areas as the coast adjusts to sea level rise.

Education will be provided through interpretive kiosks and a marked nature trail at the project site. Signage will be placed along the trail illustrating the several plants and animals that are found in the area, and will discuss the project and how it benefits the ecosystem.

This effort will generate a technical report on the efficacy and processes of the restoration effort. This report will be used as a template for assessment of restoration efficacy within applicable scenarios of impacted coastal forests within Georgia. The results will be infused into the conservation community thereby positively impacting bio-regional planning needs. Lastly, the results for these studies will be infused within the Coastal Training Program, a well-recognized outreach program of the NERR. It is expected that the training delivered within this program using the expected results from this effort to restoration practitioners and land managers will have far reaching effects on future land conservation activities, modeled trajectories for recovery rates with the potential to impact coastal policy concerning forestry management practices within ephemeral coastal floodplain wetlands.

This project will employ several sectors of the job market. Throughout the project, graduate students will be employed to survey the results of the restoration. Engineering firms will design plans for the road and produce hydrological and topographical maps of the road and the surrounding area. Heavy construction crews will remove the roadbed, grade the road and haul off fill to other locations. At the same time a construction crew will be working to install the nature trail on the uplands of Clayhole Swamp WMA. In total, this project will create or maintain 68 jobs.

**Project Timeline:**

Pre-construction monitoring will begin immediately upon notice of award. All restoration and educational activities will be concluded by January 2010, however, post-construction monitoring will continue thru January 2012.

**Budget Summary (May 2009 – January 2012)**

<b>Budget Category</b>	<b>Federal</b>	<b>Non-Federal</b>	<b>Total</b>
<b>Personnel</b>	\$0	\$2,160	\$2,160
<b>Fringe (40.9%)</b>	\$0	\$869	\$869
<b>Travel</b>	\$0	\$0	\$0
<b>Equipment</b>	\$0	\$0	\$0
<b>Supplies</b>	\$26,700	\$0	\$26,700
<b>Contractual</b>	\$510,800	\$0	\$510,800
<b>Construction</b>	\$0	\$0	\$0
<b>Other</b>	\$0	\$0	\$0
<b>Indirect</b>	\$0	\$0	\$0
<b>Total</b>	<b>\$537,500</b>	<b>\$3,029</b>	<b>\$540,529</b>

## **Restoration of Natural Shorelines within Lanier Basin**

### **Project Scope:**

This project, titled “Restoration of Natural Shorelines within Lanier Basin,” will involve the removal of shoreline armoring and a dilapidated wooden walkway in the marshes of Lanier Basin, located in the City of Brunswick, Glynn County, Georgia. This area will be restored through the reestablishment of a natural shoreline and enhancement oyster reef resources. This project will involve extensive monitoring to document the colonization and success of native plants and oysters for two years. Similarly, an extensive public outreach and education plan will be developed and implemented as this restoration site is located at a city park and will be highly visible to the public.

### **Project Outputs/Outcomes:**

Following the removal of the shoreline armoring, there will be approximately 0.2 miles of living shoreline created, and cultch material deployed throughout approximately 25 acres. Long-term, this project will restore degraded salt marsh, enhance oyster resources, improve water quality, promote the reestablishment of natural shorelines, provide shoreline stabilization and improve storm water filtration. This project will increase awareness of environmental and socio-economic benefits associated with shoreline/marsh restoration and oyster enhancement projects, and will create or maintain 271 short and long term jobs throughout its duration. Additionally, this project will act as a regional pilot project as methods and techniques used will be transportable to other sites in the South Atlantic Bight. Other prospective shoreline/marsh restoration and oyster enhancement sites are currently being identified for future projects.

### **Project Time Line:**

Within thirty days following the award start date contracting and education/outreach activities will begin. Once contracts are in place, contractors will conduct site surveys, produce project task lists and develop a comprehensive monitoring plan. Contractors will then begin cultch acquisition and cultch preparation. Shoreline preparation will begin in the winter of 2009/2010. Shoreline stabilization, marsh vegetation plantings and oyster cultch deployment will begin spring of 2010. Monitoring will begin following the final cultch deployment which is anticipated to be mid summer 2010. Monitoring will continue throughout the duration of the award.

**Budget Summary (May 2009 – June 2011):**

<b>Object Class</b>	<b>Federal Funds</b>	<b>Matching Funds</b>
<b>Personnel</b>	\$25,350	\$0
<b>Fringe Benefits</b>	\$9,106	\$0
<b>Equipment</b>	\$25,000	\$0
<b>Travel</b>	\$0	\$0
<b>Supplies</b>	\$8,900	\$0
<b>Contractual</b>	\$804,451	\$0
<b>Indirect</b>	\$0	\$0
<b>Other</b>	\$0	\$0
<b>Total</b>	<b>\$872,807</b>	<b>\$0</b>

**Sapelo Island Restoration Project**

**Project Scope:**

The proposed project, titled “Sapelo Island Restoration Project,” is designed to restore the tidal hydrology at nineteen impacted salt and brackish marsh sites on Sapelo Island. These hydrological impacts have resulted primarily from restrictive culvert pipes, failed water-control structures and earthen causeways. Some of the impacting structures have been in place since the 1920’s and are quite possibly located on older sites dating back to the plantations of the late 1700’s and 1800’s. Modifications were often tied to agriculture enterprises (limited rice cultivation), transportation infrastructure, and large-scale habitat manipulations that included draining and filling of tidal and freshwater wetlands. The changes to timing and volume of tidal flow have generally impaired the health of associated emergent salt marshes as seen by reduced plant densities and spatial distribution. Total acreage of marshes expected to experience hydrological enhancement is in excess of 80 hectares (198 acres).

The restoration of tidal flow will be accomplished using a range of remedies which includes increasing flow by replacing conventional culverts with high-volume box culverts, removing failed water-control structures, removing earthen causeways and installing spanning bridges. Specific remedies have been chosen for each site within the project based upon expected restoration benefits and cost, and that address potential changes from ‘down-stream’ restorations that would significantly affect timing and volume of tidal inundation.

In partnership with four universities and the Sapelo Island National Estuarine Research Reserve (SINERR), DNR plans to initiate comprehensive monitoring of the project sites to accurately quantify habitat enhancements. These results will be synthesized and infused into the state’s Coastal Management Program which implements environmental

permitting relative to tidal salt marsh impacts. SINERR also has long-term monitoring sites located within and in close proximity to several restoration sites. Long-term monitoring efforts will supplement monitoring data for these restoration sites. Furthermore, the SINERR's Coastal Training Program provides an outreach mechanism for reaching decision makers that affect the health of coastal resources.

**Project Outputs/Outcomes:**

Acreage estimates for restored marsh hydrology was undertaken using aerial photo analysis in ArcView and by site reconnaissance. Estimates considered existing topography and anticipated changes due to increased tidal inundation and frequency. Several proposed enhancements are compound in their impacts due to multiple locations along one linear creek system. Downstream enhancements will provide for even greater gains at upstream sites. It is estimated that over 80 hectares of tidal salt marsh and tidal brackish marsh will be restored as a result of this effort.

Job creation through this initiative is both significant and diverse. From post-doctoral positions involved in scientific monitoring to heavy-equipment operators removing fill from salt marshes, the projects are designed to be heavy with contractual services and low in overhead. Each restoration site will require barge operators, heavy equipment operators, job foremen/engineers, support personnel, and research scientists that will conduct a range of activities. Additionally, there are jobs within the project that are well-suited to be filled by local residents of Sapelo Island. Not including the suppliers of concrete, box culverts, etc., the project in total is expected to directly result in the creation of at least 171 jobs.

**Project Time Line:**

Scientific monitoring will commence at the time funds are awarded and will continue for two years. It is fully expected that all projects will be completed within two (2) years of the award date. Six of the box culvert improvements can begin once the funds are awarded. Concurrently, contracts will be let for bridge design and more complex box culvert installations. As these plans are completed, the bid process will commence and contracts will be awarded for construction.

**Budget Summary (May 2009 – April 2011):**

<b>Object Class</b>	<b>Federal Funds</b>	<b>Matching Funds</b>
<b>Personnel</b>	\$0	\$0
<b>Travel</b>	\$0	\$0
<b>Equipment</b>	\$0	\$0
<b>Supplies</b>	\$0	\$0
<b>Contractual</b>	\$3,215,932	\$0
<b>Other</b>	\$0	\$1,500
<b>Indirect</b>	\$0	\$0
<b>Total Charges</b>	<b>\$3,215,932</b>	<b>\$1,500</b>

## **Waterbottoms Restoration Through Marine Debris Removal**

### **Project Scope:**

This project, titled “Waterbottoms Restoration Through Marine Debris Removal” will employ contractors for the removal of marine debris throughout Georgia’s estuarine waterways caused by the sinking of non-historic commercial marine, fishing, and recreational vessels. Specifically, this project will seek to remove all known and accessible sunken vessels based on their impacts to the coastal environment. Vessels causing direct impact to the state’s coastal marshlands and inter-tidal mud flats are referred to as Tier 1 vessels and will be removed as the first priority. There are currently 22 Tier 1 vessels. Tier 2 vessels are those that are on state submerged lands, but that are causing a lesser impact to marshlands or mud flats. There are 89 Tier 2 vessels that will be removed in priority order based on their proximity to nearby marshlands and mud flats, navigation channels, and dockage facilities.

Upon notification of funding, the Georgia Department of Natural Resources Coastal Resources Division (DNR) will initiate the project by working with local government marine patrols to conduct site inspections to verify the location and condition of Tier 1 vessels and their associated debris fields. Using information from the field, DNR will issue requests for bids for the removal and disposal of the vessels. The requests for bids will specify that contractors are to remove the vessels without further impact to the coastal resource, that each vessel is to be recycled to the extent possible, and disposed of in an approved upland facility. Following removal of the debris, the tonnage and area of impact (square feet or acres) will be documented by DNR. Follow-up site visits will be conducted on a quarterly basis for the duration of the grant to ensure that natural re-vegetation (salt marsh) and hydrological patterns occurs.

Throughout the project, the public will be notified of the removal of each vessel through the DNR website (<http://crd.dnr.state.ga.us/content/displaycontent.asp?txtDocument=1112>). Press releases will document particular activities. DNR will also conduct outreach to commercial and recreational vessel owners to encourage them to properly dispose of their vessels when they are no longer serviceable.

### **Project Outputs/Outcomes:**

The immediate results of this project will be the removal of up to 111 sunken vessels impacting Georgia’s coastal marshlands, inter-tidal mud flats and submerged lands. These vessels are equivalent to approximately 2,648 tons of marine debris and impact a conservative estimate of 114,392 sq.ft. (2.6 acres) of state waterbottom resources. Based on quotes from local contractors, this project has the potential to create a total of 36,701 labor hours and an estimated 253 jobs throughout its duration.

The primary long-term benefit of this project will be the restoration of critical coastal resources, enabled through the elimination of a large and persistent source of marine debris. Additional benefits will accrue to the general population. Commercial and

recreational users of coastal Georgia’s waterways will be able to travel safely without concern of collision with submerged debris; aesthetic eyesores will be eliminated; and public dockage currently blocked by sunken vessels will be made available, generating increased economic return to marina operators.

**Project Time Line:**

This project will begin immediately upon NOAA’s Notice of Award. DNR staff will conduct preliminary site visits and prepare requests for bids for the removal of Tier 1 vessels. The first contracts with local vendors will be issued within 60-days of grant start. Contracts for Tier 1 and Tier 2 vessels will continue for a period of up to 18-months until all accessible vessels have been removed. Outreach activities will be conducted throughout the duration of the project.

**Budget Summary (May 2009 – October 2010):**

<b>Object Class:</b>	<b>Federal Share</b>	<b>Non Federal Share</b>
Personnel	<b>\$32,363</b>	<b>\$0</b>
<b>Fringe Benefits (35.92%)</b>	<b>\$11,625</b>	<b>\$0</b>
<b>Travel</b>	\$0	<b>\$0</b>
<b>Equipment</b>	\$0	<b>\$0</b>
<b>Supply</b> Signage	<b>\$1,760</b>	<b>\$0</b>
<b>Contractual</b>		
Tier 1	\$1,155,807	
Tier 2	\$6,036,192	
<b>Total</b>	<b>\$7,191,999</b>	<b>\$0</b>
<b>Other</b>		
Boat Fuel	\$24,120	
Printing	\$3,000	
<b>Total</b>	<b>\$27,120</b>	<b>\$0</b>
<b>Indirect</b>	<b>\$0</b>	<b>\$0</b>
<b>Total Charges:</b>	<b>\$7,264,867</b>	<b>\$0</b>