## **Priority Project List Number 21 Candidate Projects** HING, PROTECTION TID RESTORATION ACT

**Public Meetings – November 2011** 

Abbeville November 16<sup>th</sup> New Orleans November 17<sup>th</sup>

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### APPENDIX A

### **PRIORITY LIST 21 SELECTION PROCESS**

### **Coastal Wetlands Planning, Protection and Restoration Act Guidelines for Development of the 21<sup>st</sup> Priority Project List**

### Final

### I. Development of Supporting Information

A. COE staff prepares spreadsheets indicating status of all restoration projects (CWPPRA Priority Project Lists (PPL) 1-20; Louisiana Coastal Area (LCA) Feasibility Study, Corps of Engineers Continuing Authorities 1135, 204, 206; and State only projects). Also, indicate net acres at the end of 20 years for each CWPPRA project.

- B. OCPR/USGS staff prepare basin maps indicating:
- 1) Boundaries of the following projects types (PPLs 1-20; LCA Feasibility Study, COE 1135, 204, 206; and State only).
- 2) Locations of completed projects.
- 3) Projected land loss by 2050 including all CWPPRA projects approved for construction through January 2011.
- 4) Regional boundary maps with basin boundaries and parish boundaries included.

### II. <u>Project Nominations</u>

A. The four Regional Planning Teams (RPTs) will meet individually by region to examine basin maps, discuss areas of need and Coast 2050 strategies, and accept project nominations by hydrologic basin. Project nominations that provide benefits or construct features in more than one basin shall be presented in the basin receiving the majority of the project's benefits. The RPT leaders, in coordination with the project proponents and the P&E Subcommittee, will determine which basin to place multi-basin projects. Alternatively, multi-basin projects can be broken into multiple projects to be considered individually in the basins which they occur. Project nominations that are legitimate coast-wide applications will be accepted separate from the nine basins at any of the four RPT meetings.

Proposed project nominees shall support Coast 2050 strategies. Nominations for demonstration projects will also be accepted at any of the four RPT meetings.

The RPTs will not vote to select nominee projects at the individual regional meetings. Rather, voting will be conducted during a separate coast-wide RPT meeting. All CWPPRA agencies and parishes will be required to provide the name and contact information during the RPT meetings for the official representative that will vote at the coast-wide RPT meeting.

B. One coast-wide RPT meeting will be held after the individual RPT meetings to vote for nominees (including basin, coast-wide and demonstration project nominees). The RPTs will select three projects in the Terrebonne, Barataria, and Pontchartrain Basins based on the high loss rates (1985-2006) in those basins. Two projects will be selected in the Breton Sound, Teche/Vermilion, Mermentau, Calcasieu/Sabine, and Mississippi River Delta Basins. Because of the relatively low land loss rates, only one project will be selected in the Atchafalaya Basin. If only one project is presented at the Region II RPT Meeting for the Mississippi River Delta Basin, then an additional nominee would be selected for the Breton Sound Basin.

A total of up to 20 basin projects could be selected as nominees. Each officially designated parish representative in the basin will have one vote and each federal CWPPRA agency and the State will have one vote. If coast-wide projects have been presented, the RPTs will select one coast-wide project nominee to compete with the 20 basin nominees for candidate project selection. Selection of a coast-wide project nominee will be by consensus, if possible. If voting is required, officially designated representatives from all coastal parishes will have one vote and each federal CWPPRA agency and the State will have one vote. The RPTs will also select up to six demonstration project nominees at this coast-wide meeting. Selection of demonstration project nominees will be by consensus, if possible. If voting is required, officially designated representatives from all coastal parishes will have one vote and each federal CWPPRA agency and the State will have one vote. The RPTs will also select up to six demonstration project nominees at this coast-wide meeting. Selection of demonstration project nominees will be by consensus, if possible. If voting is required, officially designated representatives from all coastal parishes will have one vote and each federal CWPPRA agency and the State will be by consensus, if possible. If voting is required, officially designated representatives from all coastal parishes will have one vote and each federal CWPPRA agency and the State will have one vote.

C. Prior to the coast-wide RPT voting meeting, the Environmental and Engineering Work Groups will screen each coast-wide project nominated at the RPT meetings to ensure that each qualifies as a legitimate coast-wide application. Should any of those projects not qualify as a coast-wide application, then the RPT leaders, in coordination with the project proponents and the P&E Subcommittee, will determine which basin the project should be placed in.

Also, prior to the coast-wide RPT voting meeting, the Environmental and Engineering Work Groups will screen each demonstration project nominated at the RPT meetings. Demonstration projects will be screened to ensure that each meets the qualifications for demonstration projects as set forth in the CWPPRA Standard Operating Procedures (SOP), Appendix E.

D. A lead Federal agency will be designated for the nominees and demonstration project nominees to prepare preliminary project support information (fact sheet,

maps, and potential designs and benefits). The RPT Leaders will then transmit this information to the P&E Subcommittee, Technical Committee and other RPT members.

### III. Preliminary Assessment of Nominated Projects

A. Agencies, parishes, landowners, and other individuals informally confer to further develop projects. Nominated projects shall be developed to support Coast 2050 strategies and goals.

B. The lead agency designated for each nominated project will prepare a brief Project Description that discusses possible features. Fact sheets will also be prepared for demonstration project nominees.

C. Engineering and Environmental Work Groups meet to review project features, discuss potential benefits, and estimate preliminary fully funded cost ranges for each project. The Work Groups will also review the nominated demonstration projects and verify that they meet the demonstration project criteria.

D. P&E Subcommittee prepares matrix of cost estimates and other pertinent information for nominees and demonstration project nominees and furnishes to Technical Committee and Coastal Protection and Restoration Authority (CPRA).

### IV. <u>Selection of Phase 0 Candidate Projects</u>

A. Technical Committee meets to consider the project costs and potential wetland benefits of the nominees. Technical Committee will select ten candidate projects for detailed assessment by the Environmental, Engineering, and Economic Work Groups. At this time, the Technical Committee will also select up to three demonstration project candidates for detailed assessment by the Environmental, Engineering, and Economic Work Groups.

B. Technical Committee assigns a Federal sponsor for each project to develop preliminary Wetland Value Assessment (WVA) data and engineering cost estimates for Phase 0 as described below.

### V. <u>Phase 0 Analysis of Candidate Projects</u>

A. Sponsoring agency coordinates site visits for each project. A site visit is vital so each agency can see the conditions in the area and estimate the project area boundary. There will be no site visits conducted for demonstration projects.

B. Environmental and Engineering Work Groups and the Academic Advisory Group meet to refine project features and develop boundaries based on site visits.

C. Sponsoring agency develops a draft WVA and prepares Phase 1 engineering and design cost estimates and Phase 2 construction cost estimates. Sponsoring agency should use formats approved by the applicable work group.

D. Environmental Work Group reviews and approves all draft WVAs. Demonstration project candidates will be evaluated as outlined in Appendix E of the CWPPRA SOP.

E. Engineering Work Group reviews and approves Phase 1 and 2 cost estimates.

F. Economics Work Group reviews cost estimates and develops annualized (fully funded) costs.

G. Corps of Engineers staff prepares information package for Technical Committee and CPRA. Packages consist of:

- 1) updated Project Fact Sheets;
- 2) a matrix for each region that lists projects, fully funded cost, average annual cost, Wetland Value Assessment results in net acres and Average Annual Habitat Units (AAHUs), and cost effectiveness (average annual cost/AAHU); and
- 3) a qualitative discussion of supporting partnerships and public support.

H. Technical Committee will host two public hearings to present the results from the candidate project evaluations. Public comments from the public will be accepted during the meeting and in writing.

### VI. <u>Selection of 21<sup>st</sup> Priority Project List</u>

A. The selection of the 21<sup>st</sup> PPL will occur at the Winter Technical Committee and Task Force meetings.

B. Technical Committee meets and considers matrix, Project Fact Sheets, and public comments. The Technical Committee will recommend up to four projects for selection to the 21<sup>st</sup> PPL. The Technical Committee may also recommend demonstration projects for the 21<sup>st</sup> PPL.

C. The CWPPRA Task Force will review the Technical Committee recommendations and determine which projects will receive Phase 1 funding for the  $21^{st}$  PPL.

### 21<sup>st</sup> Priority List Project Development Schedule (dates subject to change)

December 2010	Distribute public announcement of PPL 21 process and schedule
December 8, 2010	Winter Technical Committee Meeting, approve Phases I and II (Baton Rouge)
January 19, 2011	Winter Task Force Meeting (New Orleans)
January 25, 2011 January 26, 2011 January 27, 2011 February 22, 2011 February 24 -	Region IV Planning Team Meeting (Abbeville) Region III Planning Team Meeting (Morgan City) Regions I and II Planning Team Meetings (New Orleans) Coast-wide RPT Voting Meeting (Baton Rouge)
March 11, 2011	Agencies prepare fact sheets for RPT-nominated projects
March 22-23, 2011	Engineering/ Environmental Work Groups review project features, benefits & prepare preliminary cost estimates for nominated projects (Baton Rouge)
March 24, 2011	P&E Subcommittee prepares matrix of nominated projects showing initial cost estimates and benefits
April 8, 2011	Spring Technical Committee Meeting, select PPL 21 candidate project (Baton Rouge)
May/June/July	Candidate project site visits
June 8, 2011	Spring Task Force Meeting (Lafayette)
July/August/ September	Env/Eng/Econ Work Group project evaluations
September 20, 2011	Fall Technical Committee Meeting, O&M and Monitoring funding recommendations (Baton Rouge)
October 12, 2011	Fall Task Force meeting, O&M and Monitoring approvals (New Orleans)
October 26, 2011	Economic, Engineering, and Environmental analyses completed for PPL 21 candidates
November 16, 2011	PPL 21 Public Meeting (Abbeville)
November 17, 2011	PPL 21 Public Meeting (New Orleans)
December 13, 2011	Winter Technical Committee Meeting, recommend PPL 21 and Phase I and II approvals (Baton Rouge)
January 19, 2012	Winter Task Force Meeting, select PPL 21 and approve Phase II requests (New Orleans)

### **Candidate Projects Located in Region 1**

### **PPL21** Fritchie Marsh Creation and Terracing

### **Coast 2050 Strategy:**

Coastwide: Dedicated dredging to create, restore, or protect wetlands

### **Project Location:**

Region 1, Pontchartrain Basin, St. Tammany Parish, located approximately 3 miles southeast of Slidell, Louisiana. Portions of the project are located on Big Branch Marsh National Wildlife Refuge.

### **Problem:**

A significant portion of the Fritchie Marsh was lost due to Hurricane Katrina. Post storm shallow open water areas dominate the landscape which reduces the effectiveness of the PO-06 project. Wetlands in the project vicinity are being lost at the rate -0.92%/yr based on the extended boundary during 1984 to 2011. These marshes cannot recover without replacement of lost sediment, which is critical if the northshore marshes are to be sustained. Marshes near the intersection of Highways 433 and 90 are semi-impounded with substantially limited tidal exchange.

### **Goals:**

Project goals include restoring and nourishing marsh, maintaining the structural integrity of Salt Bayou, creating edge and reducing wave erosion, and improving tidal exchange to created and existing marshes south of Prevost Island. Specific goals of the project are: 1) create 580 acres of marsh including 10,000 feet of tidal creeks and 10 acres of ponds; 2) nourish an additional 20 acres or marsh, and 3) create 36 acres of emergent habitat by constructing 50,000 linear feet of earthen terraces.

### **Proposed Solution:**

Approximately 4.5 million cubic yards of material would be placed into two marsh creation areas to restore 580 acres and nourish 20 acres of brackish marsh. Material would be dredged from a borrow site in Lake Pontchartrain. The borrow site would be designed to avoid and minimize impacts to sensitive aquatic habitat and existing banklines. Tidal creeks and ponds would be constructed prior to placement of dredged material and retention levees would be gapped to support estuarine fisheries access to achieve a functional marsh. Culverts would be installed to improve tidal exchange to marsh located south of Prevost Island. Approximately 50,000 linear feet of earthen terraces would be constructed and planted.

### **Project Benefits:**

The project would result in approximately 575 net acres of marsh over the 20-year project life.

### **Project Costs:**

The total fully-funded cost is \$46,080,753.

### **Preparers of Fact Sheet:**

Patrick Williams, NOAA's National Marine Fisheries Service, (225) 389-0508, ext 208 patrick.williams@noaa.gov



### **PPL21 LaBranche Central Marsh Creation**

### **Coast 2050 Strategy:**

Coastwide: Dedicated Dredging for Wetland Creation

### **Project Location:**

Region 4, Pontchartrain Basin, St. Charles Parish, bounded to the North by the railroad running parallel to I-10, to the west by the marsh fringe just east of Bayou LaBranche, to the south by Bayou Traverse and to the east by marsh fringe west of a pipeline canal.

### **Problem:**

Dredging of access/flotation canals for construction of I-10 resulted in increased salinity & altered hydrology that exacerbated conversion of wetland vegetation into shallow open water bodies. Land loss is estimated to be -0.543 percent/year based on USGS data from 1984 to 2011 within the extended project boundary.

### **Goals:**

The primary goal is to restore marsh that converted to shallow open water. Project implementation would result in an increase of fisheries and wildlife habitat, acreage, and diversity along with improving water quality. The proposed project would provide a protective wetland buffer to the railroad and I-10, the region's primary westward hurricane evacuation route, and complement hurricane protection measures in the area.

### **Proposed Solution:**

The proposed solution consists of the creation of 762 acres of emergent wetlands and the nourishment of 140 acres of existing wetlands using dedicated dredging from Lake Pontchartrain. The marsh creation area would have a target elevation the same as average healthy marsh. It is proposed to place the dredge material in the target area with the use of retention dikes along the edge of the project area. If degradation of the containment dikes has not occurred naturally by TY3, gapping of the dikes will be mechanically performed. Successful wetland restoration in the immediate area (PO-17 constructed in 1994) clearly demonstrates the ability for these wetlands to be restored using material from a sustainable borrow area (outlet end of Bonnet Carre Spillway). Engineering monitoring surveys of the marsh creation area and borrow area are planned as well.

### **Project Benefits:**

The project would result in approximately 731 net acres of marsh over the 20-year project life.

### **Project Costs:**

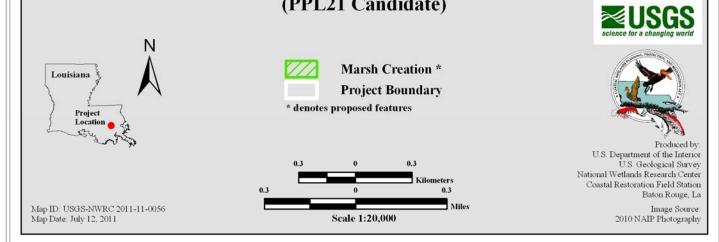
The total fully-funded cost is \$42,159,208.

### **Preparer of Fact Sheet:**

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### LaBranche Central Marsh Creation (PPL21 Candidate)



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### **Candidate Projects Located in Region 2**

### **PPL21 Lake Lery Shoreline Marsh Creation**

### **Coast 2050 Strategy:**

Coastwide: Dedicated Dredging to Create, Restore, or Protect Wetlands; and, Maintenance of Lake Shoreline Integrity.

### **Project Location:**

Region 2, Breton Sound Basin, along the northern and eastern rim of Lake Lery in St. Bernard Parish

### **Problem:**

The marshes forming the northern and eastern shoreline of Lake Lery were severely damaged by Hurricane Katrina. Wind-induced waves within Lake Lery could further damage the shoreline and cause accelerated interior marsh loss. Without directly rebuilding these marshes, the lake itself will likely continue to grow and will coalesce with Bayou Terre aux Boeufs and recently formed open water areas north of the lake. Based on USGS hyper temporal data analysis (1984 to 2011), land loss for the area is -1.42% per year. The subsidence rate is estimated at 1.1 to 2.0 ft per century (Coast 2050, Lake Lery mapping unit).

### **Goals:**

The project area encompasses 589 acres. The primary goals of the project are to 1) create/nourish 557 acres of marsh through dedicated dredging: and, 2) restore/stabilize approximately 3 miles of Lake Lery shoreline.

### **Proposed Solution:**

Create 432 acres and nourish 125 acres of intermediate marsh via dedicated dredging with borrow from nearby Lake Lery. Containment dikes will be constructed in situ and will be gapped within 3 years of construction to allow greater tidal exchange and estuarine fisheries access. Restore 15,911 feet of the lake rim by constructing a lakeshore berm feature, designed to reduce shoreline erosion. Approximately 17 acres will be constructed above water and will settle to intertidal elevation by year 5. The berm will be vegetated to stabilize the feature and reduce shoreline erosion.

### **Project Benefits:**

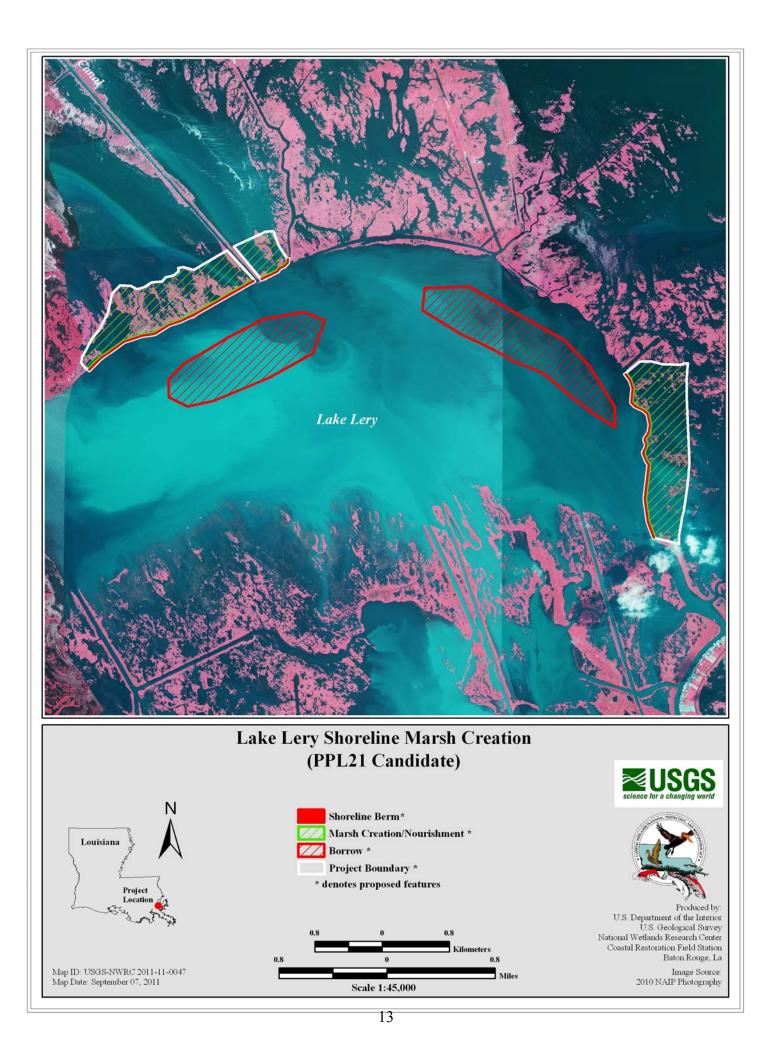
The project would result in approximately 412 net acres of marsh over the 20-year project life.

### **Project Costs:**

The total fully-funded cost is \$31,278,012.

### **Preparers of Fact Sheet:**

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### **PPL21** White Ditch Marsh Creation

### **Coast 2050 Strategy:**

Coastwide: Dedicated Dredging to Create, Restore, or Protect Wetlands; Off-shore and Riverine Sand and Sediment Resources.

Region 2 Regional Ecosystem Strategies: Restore and Sustain Marshes.

### **Project Location:**

Region 2, Breton Sound Basin, Plaquemines Parish, South of the White Ditch Siphon canal

### **Problem:**

The project area is an open water body immediately adjacent to the east bank of the Mississippi River levee. The area is a failed former agricultural impoundment that has also been cut off from the Mississippi River effectively eliminating any input of sediment or nutrients from the River. Surrounding marshes have changed from fresh marsh and possibly swamp, to intermediate marsh due to the elimination of freshwater inputs from the Mississippi River. High levels of subsidence (2.1 to 3.5 ft/century) have further exacerbated land loss and have increased water depths because of the lack of sediment input from the Mississippi River. The project area encompasses 380 acres. Land loss rates in the area are estimated at -0.79% per year between 1984 and 2011.

### **Goals:**

The primary goal of this project is to create/nourish emergent intermediate marsh habitat using dedicated renewable dredged sediment from the Mississippi River. Specific project goals include (1) creating 357 acres of marsh habitat, (2) nourishing 23 acres of existing marsh habitat, and (3) creating approximately 9,500 linear feet of tidal creeks.

### **Proposed Solution:**

Hydraulically dredge and place approximately 2 million cubic yards of renewable sediments from the Mississippi River to create 357 acres of marsh habitat, nourish 23 acres of existing marsh habitat, create approximately 9,500 linear feet of tidal creeks, and plant 50% of the created marsh area using the appropriate intermediate species. The project would complement the White Ditch Resurrection and Outfall Management project (BS-12) intended to provide increased freshwater inputs through the existing siphon at White Ditch. Freshwater input would work synergistically to help sustain the marsh created via sediment delivery from the Mississippi River.

### **Project Benefits:**

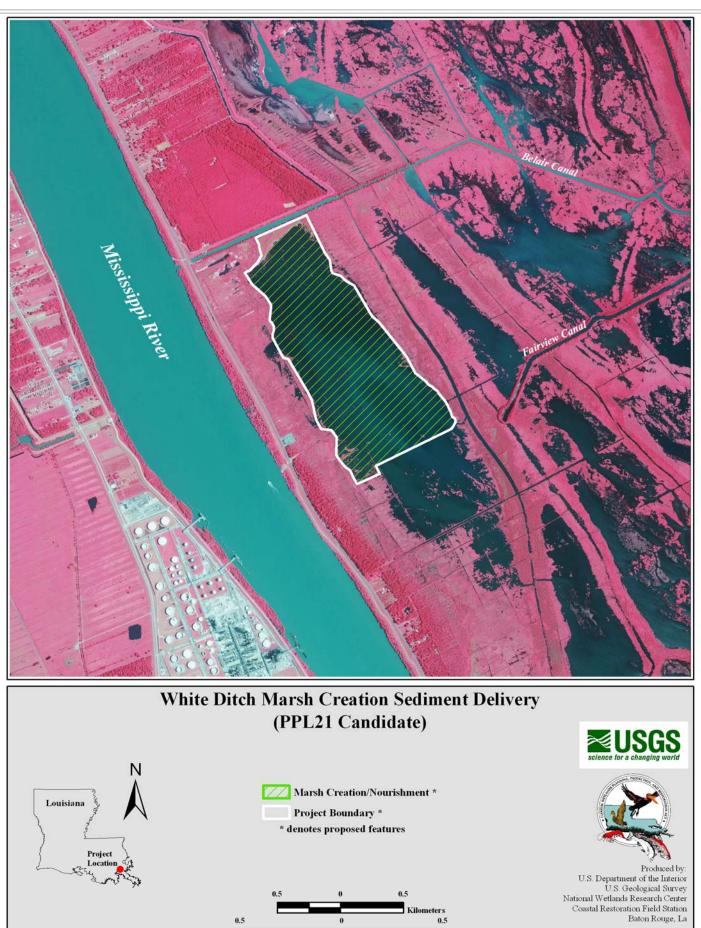
The project would result in approximately 331 net acres of marsh over the 20-year project life.

### **Project Costs:**

The total fully-funded cost is \$30,520,482.

### **Preparers of Fact Sheet:**

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Map ID: USGS-NWRC 2011-11-0054 Map Date: June 15, 2011

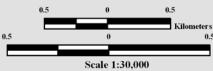


Image Source: 2010 NAIP Photography

0.5

Miles

### **PPL21 Bayou Grande Cheniere Marsh Creation and Terracing**

### **Coast 2050 Strategy:**

Coastwide: Dedicated Dredging for Wetland Creation

### **Project Location:**

Region 2, Barataria Basin, Plaquemines Parish, near Lake Hermitage, along Bayou Grande Cheniere ridge

### **Problem:**

Significant marsh loss has occurred south of Lake Hermitage with the construction of numerous oil and gas canals, subsidence, and sediment deprivation. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the area are estimated to be -0.66% per year for the period 1984 to 2011.

### **Goals:**

The primary goal is to re-create marsh habitat in the open water areas and nourish marsh along the eastern side of the Bayou Grande Cheniere ridge. Terraces are proposed to reduce fetch in several large open water bodies and to capture suspended sediment delivered via the West Pointe a la Hache siphons. Specific goals of the project are: 1) Create approximately 509 acres (383 acres of marsh creation and 126 acres of marsh nourishment) of marsh with dredged material from the Mississippi River; 2) create 85,600 linear feet (55 acres of marsh) of terraces.

### **Proposed Solution:**

Riverine sediments will be hydraulically dredged and pumped via pipeline to create/nourish approximately 509 acres of marsh in the project area. Containment dikes will be constructed as necessary. The proposed design is to place the dredged material to a fill height of +2.0 ft NAVD88. Dewatering and compaction of dredged sediments should produce marsh elevations conducive to the establishment of emergent marsh and within the intertidal range.

Approximately 85,600 linear feet of terraces (55 acres subaerial) will be constructed. The terraces will be 500 to 700 feet long, have a 20 ft crown width, an initial constructed height of +3.5 ft NAVD88 (settled height of +2.5ft), side slopes of 1(V):3(H), and 300 to 500-ft gaps between terraces. Terrace rows will be staggered and 250 feet apart. The terrace slopes will be planted with two staggered rows of smooth cordgrass, on 5-ft centers. The terrace crowns will be planted with two rows of seashore paspalum on 5-ft centers.

### **Project Benefits:**

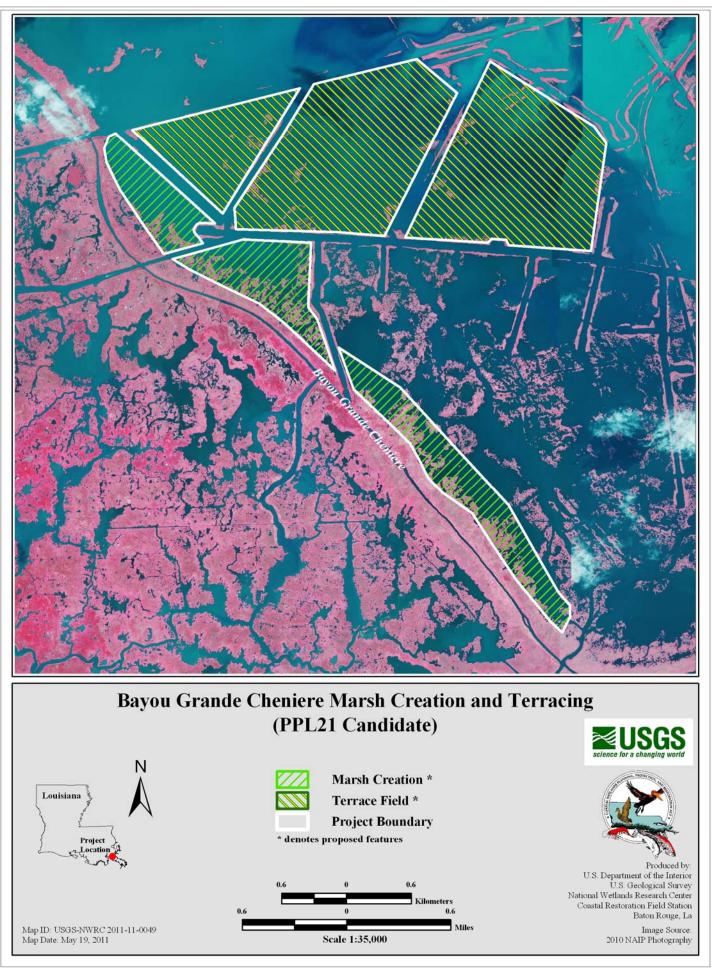
The project would result in approximately 419 net acres of marsh over the 20-year project life.

### **Project Costs:**

The total fully-funded cost is \$48,646,882.

### **Preparer of Fact Sheet**

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### **PPL21** Northwest Turtle Bay Marsh Creation

### **Coast 2050 Strategy:**

Coastwide: Dedicated Dredging for Wetland Creation

### **Project Location:**

Region 2, Barataria Basin, Jefferson Parish, northwest of Turtle Bay

### **Problem:**

Historic wetland loss in the area stems from shoreline erosion along Turtle Bay and interior marsh loss from subsidence, sediment deprivation, and construction of oil and gas canals. Based on the hyper-temporal analysis conducted by USGS for the extended project boundary, loss rates in the area are estimated to be -0.61% per year for the period 1984 to 2011.

### **Goals:**

The primary goal is to re-create marsh habitat in the open water areas and nourish existing marsh within the project area. The specific goal of the project is to create approximately 760 acres (423 acres of marsh creation and 337 acres of marsh nourishment) of marsh with dredged material from Turtle Bay or Little Lake.

### **Proposed Solution:**

The proposed project would create approximately 423 acres (90% of the 470 open water acres) and nourish approximately 337 acres of marsh using sediment dredged from Turtle Bay or Little Lake. Existing canal spoil banks, emergent marsh, and limited segments of containment dikes will be used to guide the distribution of the dredged material. Containment dikes will be degraded as necessary to reestablish hydrologic connectivity with adjacent wetlands.

### **Project Benefits:**

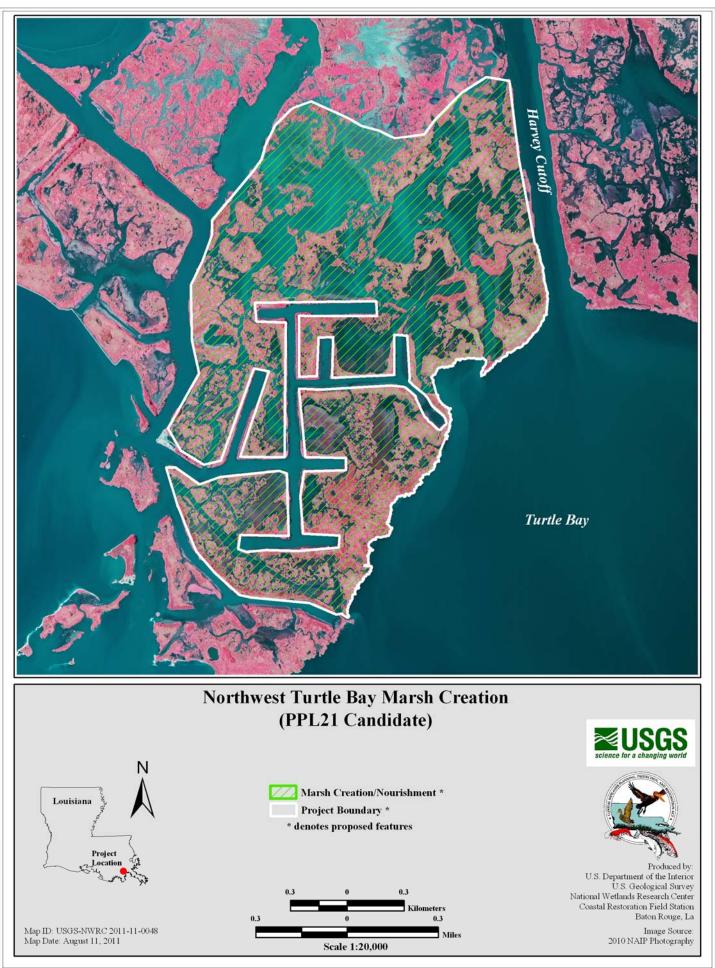
The project would result in approximately 407 net acres of marsh over the 20-year project life.

### **Project Costs:**

The total fully-funded cost is \$23,198,757.

### **Preparers of Fact Sheet**

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### **PPL21 Bayou L'Ours Terracing**

### **Coast 2050 Strategy:**

Coastwide: Terracing, Vegetative Plantings, Maintain or Restore Ridge Functions Local and Common Strategies: Maintain function of Bayou L'Ours Ridge

### **Project Location:**

Region 2, Barataria Basin, Lafourche Parish, east of Galliano and south of Little Lake

### **Problem:**

Areas located north and south of Bayou L'Ours and adjacent to the East Golden Meadow Hurricane Protection Levee have experienced marsh loss in the range of 8,000 to 10,000 acres. Because this location is a great distance from preferred sediment sources such as the Mississippi River, Gulf of Mexico, and even large bays and lakes, the now-customary practice of marsh creation using hydraulically dredged and deposited material presently does not seem feasible. And the use of more local borrow sources has not gained significant support. Thus, this critical area has been neglected from a restoration standpoint.

### **Goals:**

The proposed project would re-establish landmass in an area where land mass is scarce. This added landmass will help protect, extend the life expectancy, and help maintain the current function of the Bayou L'Ours ridge. The proposed project would also offer a small degree of protection to a portion of the Larose to Golden Meadow Hurricane Protection Levee.

### **Proposed Solution:**

The proposed solution is to construct 93,250 linear feet of terraces. The terraces would have a target elevation of +2.0 NAVD88, 15-foot top width, and 5:1 side slopes. The terraces will be planted with a row of plants on the crest and a row of plants on each side; spacing between plants will be 2.5 feet.

### **Project Benefits:**

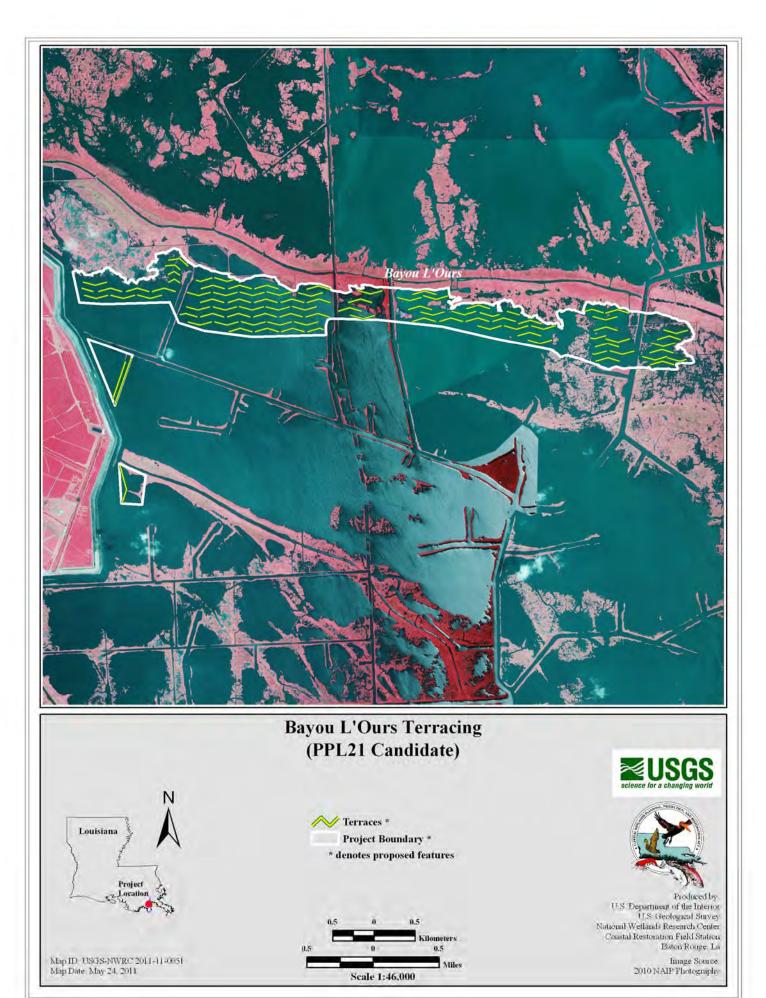
The project would result in approximately 58 net acres of marsh over the 20-year project life.

### **Project Costs:**

The total fully-funded cost is \$ \$5,447,519.

### **Preparer of Fact Sheet:**

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### **Candidate Projects Located in Region 3**

### **PPL21** Southeast Marsh Island Marsh Creation

### **Coast 2050 Strategy:**

Coastwide Common Strategies: Dedicated dredging to create, restore, or protect wetlands; Offshore and riverine sand and sediment resources.

Region 2 Regional Ecosystem Strategies: Restore and Sustain Marshes.

### **Project Location:**

Region 3, Teche-Vermillion Basin, Iberia Parish, Southeast end of Marsh Island Wildlife Refuge

### **Problem:**

Areas of interior emergent marsh on Marsh Island have been converted to open water, primarily due to hurricane activity and subsidence. Marsh Island has been projected to lose 12.9% of its marsh habitat through 2050. Areas targeted by this project are those with the greatest historic land loss and are proximal to East Cote Blanche Bay. The project area encompasses 610 acres. Within the project area, 270 acres were marsh and the remaining 340 acres were open water as of 2010. Land loss rates in the area are estimated at -0.46 percent/year based on USGS data from 1985 - 2010.

### **Goals:**

The primary goal of this project is to create/nourish brackish marsh habitat using dedicated dredging of offshore sediment. Borrow material will be targeted from the state offshore area to limit water quality impacts, avoid *in situ* deltaic sediments, and minimize impacts to potential oyster lease areas. Specific project goals include (1) creating 341 acres of marsh habitat, (2) nourishing 269 acres of marsh habitat, and (3) creating approximately 10,000 linear feet of tidal creeks.

### **Proposed Solution:**

Hydraulically dredge and place approximately 1.3 million cubic yards of offshore sediments into two marsh creation areas to create 341 acres of marsh habitat, nourish 269 acres of marsh habitat, create approximately 10,000 linear feet of tidal creeks, and plant 50% of the created marsh area using the appropriate brackish species. The project would complement the constructed Marsh Island Hydrologic Restoration (TV-14) and the East Marsh Island Marsh Creation (TV-21) projects.

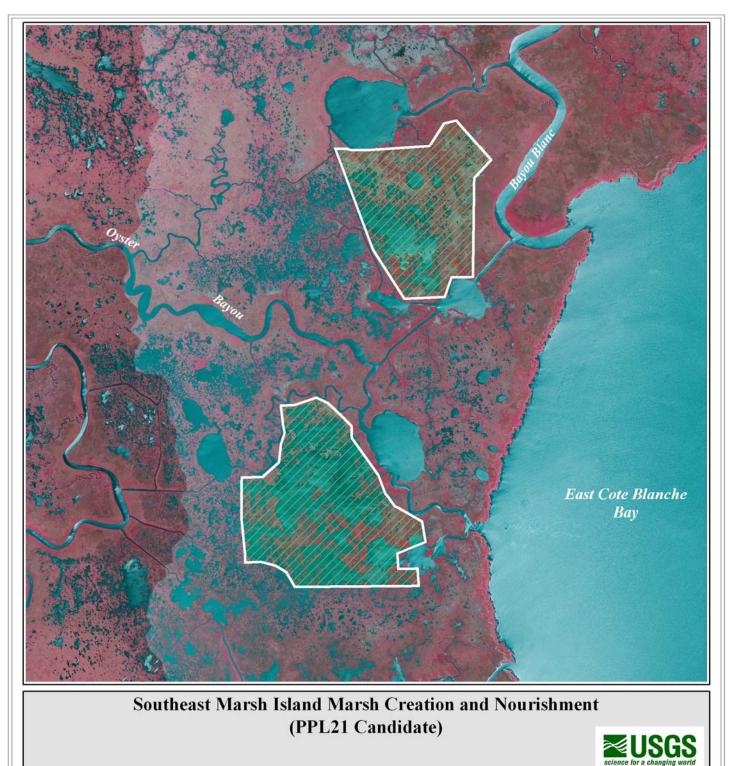
### **Project Benefits:**

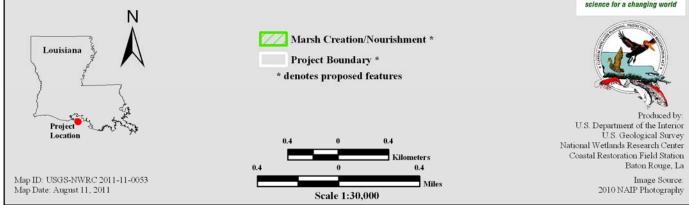
The project would result in approximately 338 net acres over the 20-year project life.

**Project Costs:** The total fully-funded cost is \$22,532,305.

### **Preparers of Fact Sheet:**

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### **PPL21** Cole's Bayou Marsh Restoration

### **Coast 2050 Strategy:**

Coastwide: Dedicated Dredging to Create, Restore, or Protect Wetlands Regional: Restore and Sustain Wetlands

### **Project Location:**

Region 3, Teche/Vermilion Basin, Vermilion Parish, east of Freshwater Bayou Canal

### **Problem:**

Project area wetlands are undergoing loss at -0.42 %/year based on 1983 to 2011 USGS data from the extended boundary. Wetland loss processes in this area include subsidence/sediment deficit, interior ponding and pond enlargement, and storm impacts resulting in rapid episodic losses. In addition, significant interior marsh loss has resulted from salt water intrusion and hydrologic changes associated with increasing tidal influence. As hydrology in this area has been modified, habitats have shifted to more of a floatant marsh type, resulting in increased susceptibility to tidal energy and storm damages. Habitat shifts and hydrologic stress reduce marsh productivity, a critical component of vertical accretion in wetlands.

### **Goals:**

Specific goals of the project are: 1) create 365 acres of brackish marsh in recently formed shallow open water; 2) nourish 53 acres of existing brackish marsh; and, 3) increase freshwater and sediment inflow into interior wetlands by improving project area hydrology.

### **Proposed Solution:**

Create 365 acres and nourish 53 acres of brackish marsh via dedicated dredging with borrow from nearby Vermilion Bay. Although this is not considered an "external" source of material, significant sediment inflows into this area may result in some borrow area infilling. Half of the marsh creation acres would be planted. Encourage additional freshwater nutrient and sediment inflow from Freshwater Bayou Canal by dredging a portion of Cole's Bayou; and, installing a series of culverts throughout the project area. North structures are envisioned to allow the ingress of sediment, water, and fisheries organisms into the semi-impounded project area, but avoid backflow of water and potential loss of interior marsh sediment (i.e., north to south flow only). Southern structures are envisioned to allow water to drain out of the marsh.

### **Project Benefits:**

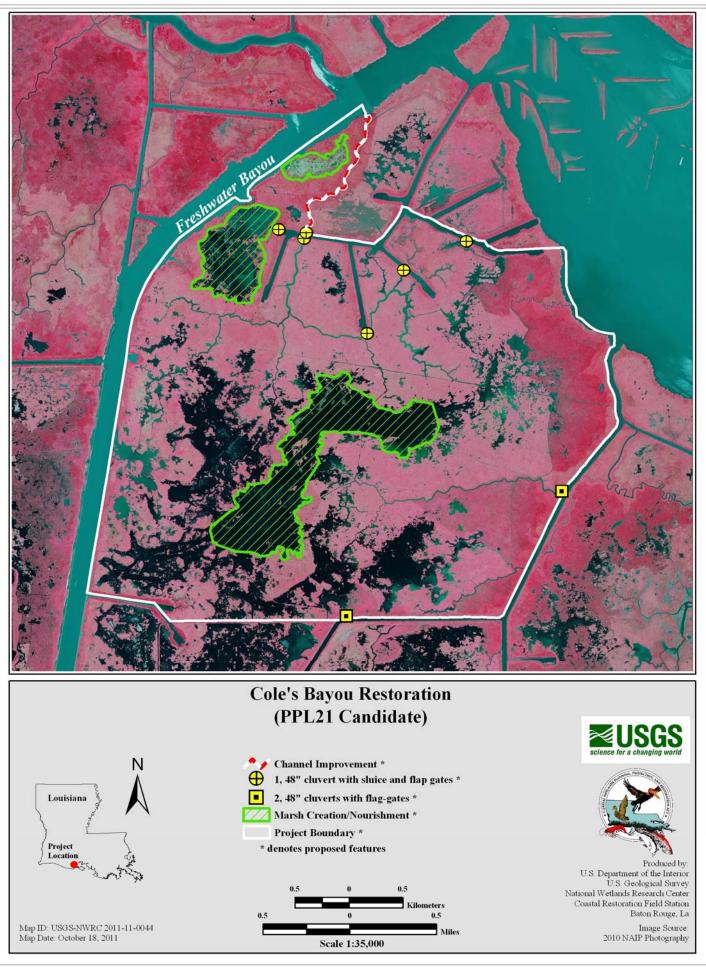
The project would result in approximately 398 net acres of marsh over the 20-year project life.

### **Project Costs:**

The total fully-funded cost is \$26,631,224.

### **Preparer of Fact Sheet:**

Kimberly Clements, NOAA's National Marine Fisheries Service, (225) 389-0508, ext 204 kimberly.clements@noaa.gov



### **Candidate Projects Located in Region 4**

### **PPL21 Oyster Bayou Marsh Restoration**

### **Coast 2050 Strategy:**

Coastwide: Dedicated Dredging to Create, Restore, or Protect Wetlands

### **Project Location:**

Region 4, Calcasieu-Sabine Basin, located west of the Calcasieu Ship Channel and south of the west fork of the Calcasieu River

### **Problem:**

Altered hydrology, drought stress, saltwater intrusion and hurricane induced wetland losses have caused the area to undergo interior marsh breakup. Recent impacts from Hurricane Rita in 2005 and Hurricane Ike in 2008 have resulted in the coalescence of Oyster Lake with interior water bodies increasing wave/wake related erosion. Based on USGS hyper temporal data analysis (1984 to 2011), land loss for the area is -0.75% per year. The subsidence rate is estimated at 0.0 to 1.0 ft per century (Coast 2050, Mud Lake mapping unit).

### **Goals:**

The project boundary encompasses 809 acres. Specific goals of the project are: 1) create 510 acres of saline marsh in recently formed shallow open water; 2) nourish 90 acres of existing saline marsh; 3) create 14,140 linear feet of terraces; and, 4) reduce wave/wake erosion.

### **Proposed Solution:**

Approximately 510 acres of marsh would be created and 90 acres would be nourished. Sediment needed for the fill would be mined approximately one and a half miles offshore in the Gulf of Mexico. Half of the created acres would be planted. Tidal creeks and ponds would be constructed prior to placement of dredged material and retention levees would be gapped to support estuarine fisheries access to achieve a functional marsh. Approximately 14,140 linear feet of earthen terraces would be constructed and planted.

### **Project Benefits:**

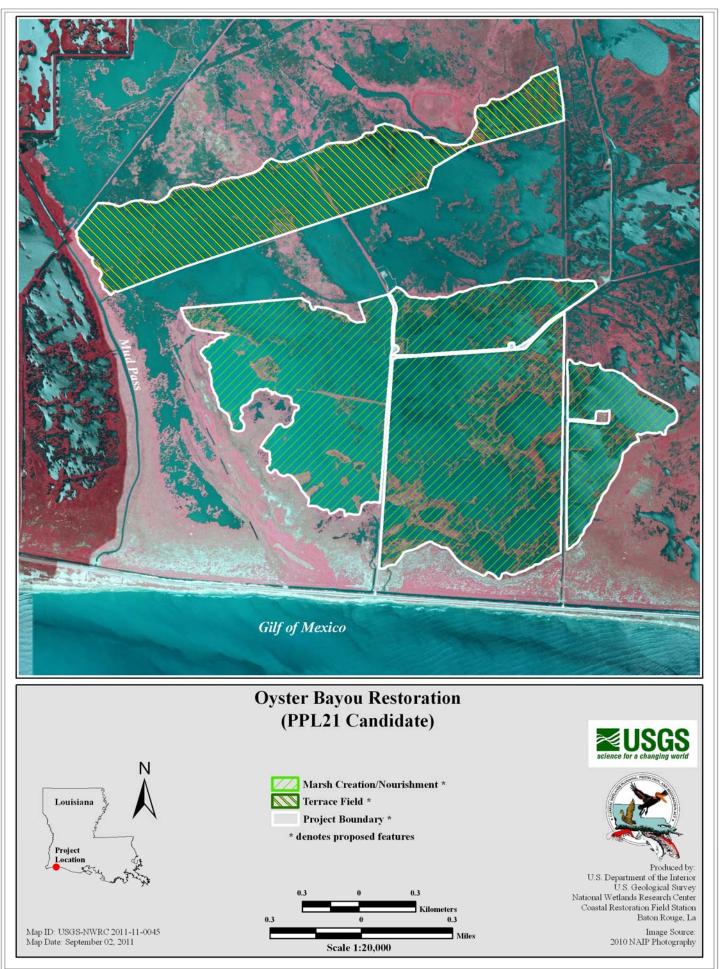
The project would result in approximately 489 net acres of marsh over the 20-year project life.

### **Project Costs:**

The total fully-funded cost is \$29,781,355.

### **Preparer of Fact Sheet:**

Kimberly Clements, NOAA's National Marine Fisheries Service, (225) 389-0508, ext 204 kimberly.clements@noaa.gov



### **Candidate Demonstration Projects**

### **PPL21** Automated Marsh Planting Demonstration Project

(formerly called "Alternative to Manual Planting")

### **Coast 2050 Strategy:**

Coastwide: Dedicated dredging for wetland creation; Wetlands Vegetation Plantings Regional: Dedicated delivery of sediment for marsh building by any means feasible; Habitat Diversification and Vegetation Planting

### **Potential Demonstration Project Location:**

This demonstration project could be done at any dedicated or beneficial use of dredged material site creating a marsh platform.

### **Problem:**

Though wetland restoration with grass plugs is being done in some areas, success of reestablishing vegetation is limited in many challenged sites. New technologies and applications are needed to achieve greater stabilization, higher survivability, and integration of diverse species back into these areas. Hand planting is costly and time consuming.

### Goals:

The goal of this project is to demonstrate a possible alternative to manual plantings at dredged material placement sites. *Specific goals*: 1) To test if "plant parts" (not limited to rhizomes, seeds, stolons, stem cuttings, etc.) can survive passing through a dredge pipe; 2) To determine if this method gives an acceptable distribution of plants; and, 3) To determine the optimal time to input the "plant parts" for maximum growth and distribution.

### **Proposed Solution:**

Install a hopper on the dredge pipe allowing "plant parts" to be carried to the dredged material placement site through the pipeline. The demo would consist of 3 replicates of 4 separate treatments: *Concept 1* – three flagged-off areas of the dredged material placement site to be the "natural recruitment" area; *Concept 2* – three flagged-off areas of the dredged material placement site to be the typical "hand planted" area; *Concept 3* – three cells having dredged material pre-loaded thru the dredge pipe with "plant parts" at "time/dredged quantity interval 1"; and *Concept 4* – three cells having dredged material pre-loaded thru the dredged quantity interval 2".

### **Project Benefits:**

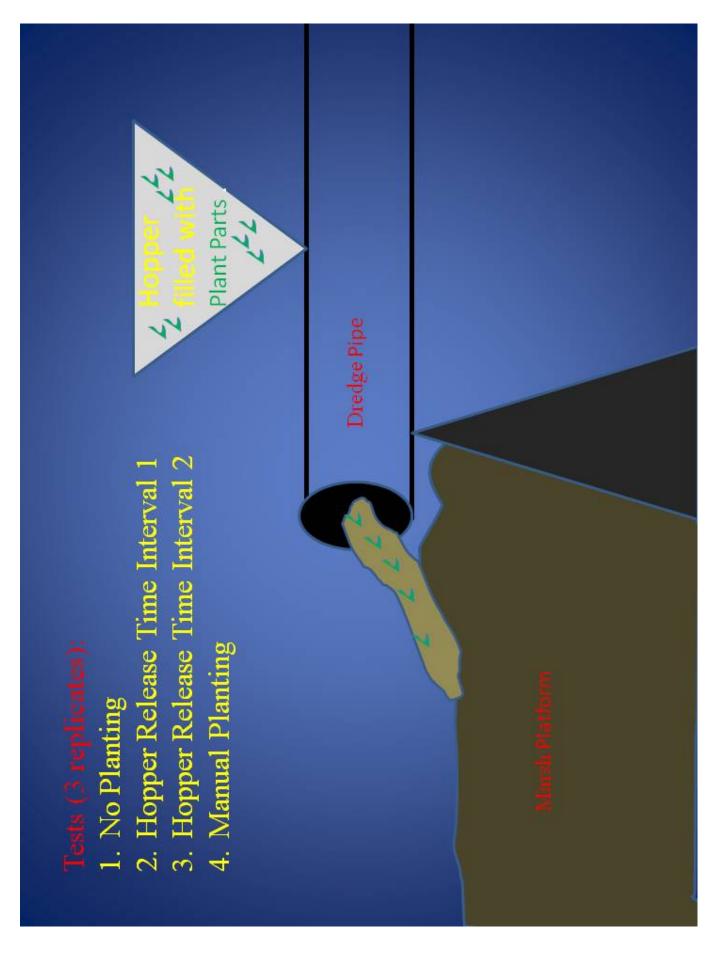
Potential project benefits include: 1) reduce the cost of planting and 2) increase habitat value.

### **Project Costs:**

The total fully funded cost is \$2,300,608.

### **Preparers of Fact Sheet:**

Nathan Dayan, USACE. 504-862-2530, <u>nathan.s.dayan@usace.army.mil</u> Susan Hennington, USACE, 504-862-2504, <u>susan.m.hennington@usace.army.mil</u> John Petitbon, USACE, 504-862-2732, john.b.petitbon@usace.army.mil Steve Roberts, USACE, 504-862-2517, <u>steve.w.roberts@usace.army.mil</u>



### PPL21 Deltalok® Coastline Stabilization Demonstration Project

### **Coast 2050 Strategy:**

Coastwide Strategy: Maintain, Protect or Restore Ridge Functions; Vegetation Planting; Regional Strategies: Protect Bay, Lake and Shorelines; Restore and Maintain Barrier Islands and Critical Land Forms

### **Potential Demonstration Project Location:**

Coastwide

### **Problem:**

Marsh and wetland loss occurs throughout coastal Louisiana due to shoreline erosion. The loss of vegetation has accelerated the rate of erosion, and reducing this loss is proving difficult and costly. Shore stabilization is crucially needed to prevent the eroding marsh footprint. Though wetland restoration with grass plugs is being done in some areas, it is limited in scope. Shoreline and ridge stabilization is still needed to prevent the eroding marsh footprint.

### **Goals:**

The goal of this project is demonstrate the successful use of the Deltalok® Terra-Soft Block<sup>™</sup> (TSB) System to both armor and repair shorelines, and serve as a viable planting ground for marsh vegetation.

### **Proposed Solution:**

This project proposes shoreline protection and stabilization treatments with vegetative plantings utilizing the Deltalok® TSB System. Two different applications of the Deltalok® Terra-Soft Block<sup>TM</sup> (TSB) System will be constructed: 3-700ft Shoreline Protection treatments at 2 separate locations/environments; and 3 Shoreline Repair treatments due to washouts. The Shoreline Protection treatments will total 4,200 feet and be constructed to a height of 4 feet. The Shoreline Repair treatments have designed cross-sections of 30 foot wide double-wall washout closures, with a maximum depth of 4 feet in center, and an average depth of 3 feet, with the double wall to be approximately 12-18 inches above water at average tide. Assumptions of water depth, weather, and tide conditions will be subject to actual conditions once the project location is chosen.

### **Project Benefits:**

- 1) Reduce the cost of shoreline stabilization (2/3 the cost of riprap)
- 2) Rapid, efficient, and effective construction
- 3) Durable structure which resists differential settlement and seismic activity
- 4) Achieves 100% system strength on installation, does not rely on root strength/reinforcement

### **Project Costs**

The total fully funded cost is \$1,750,312.

### **Preparer of Fact Sheet:**

Scott Wandell, USACE, 504-862-1878, scott.f.wandell@usace.army.mil

System	Components
	<ul> <li>Deltalok<sup>®</sup> Terra-Soft Block<sup>TM</sup></li> <li>(TSB)</li> </ul>
	- Soft, earthen building block, Terra-Soft Block <sup>TM</sup> - Made from geotextile material (5 micron mode)
34	- Made non geochie material (amountest)
	- Water permeable and root friendly
	TSBs ready to install TSBs ready to install
	<ul> <li>IUU% recycled plastic, made in USA</li> <li>Interlocks Deltalok<sup>®</sup> TSB's</li> </ul>
	<ul> <li>Provides mechanical connection to geogrid for backfill reinforcement</li> </ul>
Empty TSB ready for fill material	Deltalok Interlocking Plate
<b>Deitalok</b> <sup>®</sup>	



# Building a Deltalok® TSB Wall



# Construction

Deltalok® reinforced slope

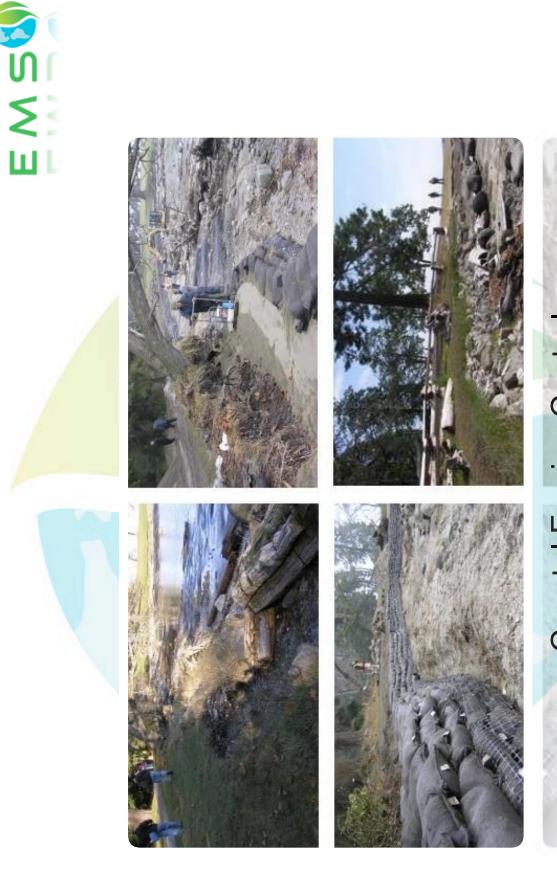
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- Surface is leveled
- A Deltalok® Interlocking Plate secures first layer of Terra-Soft Blocks to the ground
- Build wall like a block & mortar wall
- Tamp TSB's down to engage with interlocking plate





## Coastal Erosion Control -Newcastle Island, BC Canada







29

# Lakeside erosion control - Great Lakes



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### **PPL21 Gulf Saver Bags Demonstration Project**

### **Coast 2050 Strategy:**

Maintenance of Bay and Lake Shoreline Integrity; Vegetative Planting

### **Potential Demonstration Project Location:**

Coastwide

### **Problem:**

Shoreline erosion is one of the primary causes of loss in Louisiana's coastal marshes. Vegetative plantings are frequently used to combat shoreline erosion, especially in areas where funding or poor soils limit the use of hard structures (e.g., rock dikes). Though wetland restoration with grass plugs is being done, success is limited in many challenged sites. New technologies and applications are needed to achieve greater stabilization, higher survivability, and integration of diverse species back into to these areas, particularly where invasive species like roseau cane (*Phragmites sp.*) have become excessively dominant.

### **Goals:**

The goal of this project is to demonstrate the applicability of Gulf Saver Bags for long term stabilization and reestablishment of coastal vegetation. Specifically, the project goal is to demonstrate the effectiveness of Gulf Saver Bags to provide a more efficient, reliable, and cost effective vegetative planting technique for shoreline stabilization.

### **Proposed Solution:**

The Gulf Saver Bag is a biodegradable burlap bag filled with an all natural humus mix. The humus is a mixture of all natural organic nutrients that support maximum plant growth and survivability and custom mixed to be site specific. The plants "plugged" into the Gulf Saver Bag are native species such as smooth cordgrass.

Three shoreline stabilization treatments will be evaluated. The treatments will consist of different alignments and spacing along the shoreline. Each treatment will be employed along 750 feet of shoreline and will consist of three replicates for a total of 6,750 feet. Plant growth, survival, and shoreline position will be monitored.

### **Project Benefits:**

Potential project benefits include; 1) establishment of vegetation in eroding areas, 2) reduction in shoreline erosion, 3) increased habitat value through increased species diversity.

### **Project Costs:**

The total fully funded cost is \$1,053,181.

### **Preparers of Fact Sheet**

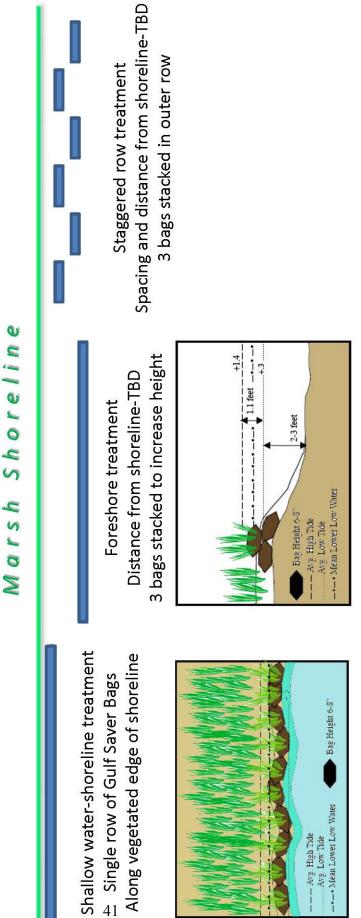
Kevin Roy, USFWS, Kevin\_Roy@fws.gov Don Blancher, Sustainable Ecosystem Restoration, LLC, blancher@restoreecosystems.com P.J. Marshall, Restore the Earth Foundation Inc, pjm@gulfsaversolutions.com Leslie Carrere, Gulf Saver Solutions, <u>lc@gulfsaversolutions.com</u>





Habitat Enhancement through Vegetative Plantings Using Gulf Saver Bags **Conceptual Treatments** 

Each treatment will be 750 ft long with 3 replicates



Final dimensions and spacing for treatments to be determined during engineering and design

Matrix
valuation
Project Ev
Candidate F
PPL21 C

Project Name	Region	Parish	Project Area (acres)	Average Annual Habitat Units (AAHU)	Net Acres	Total Fully Funded Cost	Fully-Funded Phase I Cost	Fully-Funded Phase II Cost	Average Annual Cost (AAC)	Cost Effectiveness (AAC/AAHU)	Cost Effectiveness (Cost/Net Acre)
Fritchie Marsh Creation and Terracing	1	St. Tammany	2,021	209	575	\$46,080,753	\$4,080,095	\$42,000,658	\$3,344,557	\$16,003	\$80,140
Labranche Central Marsh Creation	1	St. Charles	902	309	731	\$42,159,208	\$3,885,298	\$38,273,910	\$3,065,695	\$9,921	\$57,673
Lake Lery Shoreline Marsh Creation	2	St. Bernard	589	172	412	\$31,278,012	\$3,277,356	\$28,000,656	\$2,271,516	\$13,206	\$75,918
White Ditch Marsh Creation	2	Plaquemines	380	119	331	\$30,520,482	\$2,807,119	\$27,713,363	\$2,211,330	\$18,583	\$92,207
Bayou Grande Cheniere Marsh Creation and Terracing	2	Plaquemines	1,729	190	419	\$48,646,882	\$3,669,775	\$44,977,107	\$3,532,709	\$18,593	\$116,102
Northwest Turtle Bay Marsh Creation	2	Jefferson	807	187	407	\$23,198,757	\$2,354,788	\$20,843,969	\$1,683,220	\$9,001	\$56,999
Bayou L'Ours Terracing	2	Lafourche	1,047	32	58	\$5,447,519	\$903,617	\$4,543,902	\$385,639	\$12,051	\$93,923
Southeast Marsh Island Marsh Creation	3	Iberia	610	216	338	\$22,532,305	\$2,273,834	\$20,258,471	\$1,632,615	\$7,558	\$66,664
Cole's Bayou Marsh Restoration	3	Vermilion	3,840	234	398	\$26,631,224	\$3,136,805	\$23,494,419	\$1,922,965	\$8,218	\$66,913
Oyster Bayou Marsh Restoration	4	Cameron	809	231	489	\$29,781,355	\$3,165,322	\$26,616,033	\$2,162,912	\$9,363	\$60,903

## PPL 21 Demonstration Project Evaluation Matrix

					Parameter (P <sub>n</sub> )	ter (P <sub>n</sub> )				
			ď	$P_2$	P3	₽	P5	Pe		
			Innovativeness	Applicability or	Potential Cost	Potential Env	nnovativeness Applicability or Potential Cost Potential Env Recognized Need Potential for	Potential for	Total	Averaging
	Lead	Total Fully		Transferability	Effectiveness	Benefits	for Info	Technological	Score	of Agency
Demonstration Project Name	Agency	Funded Cost						Advancement		Scores
Automated Marsh Planting (aka "Alternative to Manual Planting")	COE	\$2,300,608	3	3	2	2	2	2	14	13.7
	COE	\$1,750,312	2	3	3	7	2	2	14	13.9
Habitat Enhancement through Vegetative Plantings Using Gulf Saver Bags	FWS	\$1,053,181	2	3	۲	2	2	2	12	11.3

(Parameter grading as to effect: 1 = low; 2 = medium; 3 = high)

Example - if 4 agencies cast a vote of "3" and 3 agencies cast a vote of "2", then a score of "3" was given. Individual parameter scores were determined from the score having the majority of the vote. 'Total Score" calculation:

"Averaging of Agency Scores" calculation:

Calculated by averaging the Total Scores from each Agency.

### **Demonstration Project Parameters**

certain regions of the coastal zone. The technology demonstrated should be unique and not duplicative in nature to traditional methods or other previously tested techniques should receive lower scores techniques for which the results are known. Techniques which are similar to traditional methods or other previously tested techniques should receive lower scores (P<sub>1</sub>) Innovativeness - The demonstration project should contain technology that has not been fully developed for routine application in coastal Louisiana or in than those which are truly unique and innovative.

 $(P_2)$  Applicability or Transferability - Demonstration projects should contain technology which can be transferred to other areas of the coastal zone. However, this does not imply that the technology must be applicable to all areas of the coastal zone. Techniques, which can only be applied in certain wetland types or in certain coastal regions, are acceptable but may receive lower scores than techniques with broad applicability. (P<sub>3</sub>) Potential Cost Effectiveness - The potential cost-effectiveness of the demonstration project's method of achieving project objectives should be compared to the cost-effectiveness of traditional methods. In other words, techniques which provide substantial cost savings over traditional methods should receive higher scores than those with less substantial cost savings. Those techniques which would be more costly than traditional methods, to provide the same level of benefits, should receive the lowest scores. Information supporting any claims of potential cost savings should be provided.

(P<sub>a</sub>) Potential Environmental Benefits - Does the demonstration project have the potential to provide environmental benefits equal to traditional methods? somewhat less than traditional methods? Techniques with the potential to provide benefits above and beyond those provided by traditional techniques should receive the highest scores. (P<sub>5</sub>) Recognized Need for the Information to be Acquired - Within the restoration community, is there a recognized need for information on the technique being investigated? Demonstration projects which provide information on techniques for which there is a great need should receive the highest scores.

(P<sub>6</sub>) Potential for Technological Advancement - Would the demonstration project significantly advance the traditional technology currently being used to achieve project objectives? Those techniques which have a high potential for completely replacing an existing technique at a lower cost and without reducing wetland benefits should receive the highest scores.

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Date: Time: Location:	November 16, 2011 7:00 p.m. Vermilion LSU Agriculture Center 1105 West Port Street Abbeville, Louisiana	November 17, 2011 7:00 p.m. U.S. Army Corps of Engineers District Assembly Room 7400 Leake Avenue New Orleans, Louisiana	<b>21st Priority Project List (PPL) Public Meetings</b> Two public meetings will be held to present the results of candidate project evaluations under review and consideration for CWPPRA PPL 21. The evaluation results will be presented for all the PPL 21 candidate projects at each meeting. The public is invited to attend and provide comments on the candidate projects. The CWPPRA Technical Committee will meet on December 13, 2011 in Baton Rouge at the Louisiana Department of Wildlife and Fisheries to recommend projects for PPL 21 selection.
ANALUS GOVERNM TVISVOD	THE RESTORATION ACT	Written comments ma 2011 to the CWPPI Col	Written comments may be provided no later than November 28, 2011 to the CWPPRA Task Force by mail, fax or email to: Colonel Edward R. Fleming
· ·		Distri U.S. /	District Engineer, New Orleans c/o: Brad Inman U.S. Army Corps of Engineers P.O. Box 60267 New Orleans, Louisiana
		Email: B	Fax: 504-862-2572 Email: Brad.L.Inman@usace.army.mil