Coastwide Projects

Coastwide Projects

CW-1	Backfilling Canals
CW-2	Inflatable Artificial Sand Bar Project (IASB)
CW-3	Vox Maximus Barrier Island Restoration

CW-1

Backfilling Canals

PPL21 PROJECT NOMINEE FACT SHEET
January 27, 2011

Project Name
Coastal Wetland Restoration by Backfilling Canals in Jean Lafitte National Historical Park and Preserve

Coast 2050 Strategy
Coastwide Strategy: Restore/sustain marshes, Restore Swamps; Region 2 Jean Lafitte Mapping Unit Strategy: Restore hydrology

Project Location
Region 2, Barataria Basin, Jefferson Parish, Jean Lafitte National Historical Park and Preserve

Problem
The types of wetlands in the Jean Lafitte area have varied somewhat over time, but generally have consisted of a mix of cypress swamp, bottomland hardwood, and marsh. Wetland losses have been minimal compared to many other areas within Barataria Basin and the Louisiana Coastal Zone. The rate of wetland loss has not been consistent over time, and greater wetland loss rates correlate with major storm events as well as canal construction and maintenance. Since 1958, wetland losses in the park have slowed overall, but the rate of loss in 2005 was the highest on record. Altered hydrology remains a problem in the park, largely due to the effects of canals and associated spoilbanks.

Canal dredging has contributed significantly to land loss in Louisiana, yet little has been done to reverse the damage caused by canals and spoilbanks. Canals have turned marsh and swamps to open water, and spoilbanks have replaced wetlands with an upland environment. Spoilbanks also restrict water flow above and below the wetland surface and cause increased periods of flooding and drying of the wetlands behind them. Increased flooding can lead to stress and mortality of wetland vegetation, while drying the soil increases subsidence through oxidation of organic matter. These hydrologic alterations also limit sediment deposition in the adjacent wetlands. In addition to these effects, canals can also facilitate saltwater intrusion into these wetlands, and spoilbanks retain saltwater on the landscape after storm surges.

Proposed Project Features
This project will backfill a system of oil and gas, pipeline, and residential development canals (est. 16mi of canals) at strategic locations in Jean Lafitte National Historical Park and Preserve. Backfilling will involve removing the existing spoilbanks and disposing of the dredged material in the canals. While there is not sufficient sediment volume remaining in the spoilbanks to completely fill the canals to adjacent wetland elevation, typically there is enough to significantly shallow the canals, and over time some additional filling to the target elevation is observed. Those areas returned to adjacent wetland elevation rapidly revegetate without the need for planting. In addition, removal of the spoilbanks will restore natural hydrology across the wetland surface over a larger area in the vicinity of the canals.

Goals
- Convert approximately 184 acres of upland spoilbank habitat to emergent wetlands by year 3
- Convert approximately 40 acres of open water to emergent wetlands by year 3
- Begin to convert deepwater habitat in 119 acres of canals to shallow water habitat immediately, increasing until all open water area is either emergent wetland or shallow water habitat
- Increase SAV cover to 50% in 119 acres of open water by year 3
- Convert 442 acres of canal and spoilbank to emergent wetlands or shallow water habitat over the life of the project
- Improve hydrology over a large area of wetlands (rough estimate=thousands of acres)

Preliminary Project Benefits
- Preliminary benefits=goals (see above)

Identification of Potential Issues
Three point eight miles of canals in the project area are within the Bayou aux Carpes 404(c) area. Under an agreement with EPA, the U.S. Army Corps of Engineers is responsible for funding and implementing mitigation measures in this area as part of the Greater New Orleans Hurricane and Storm Damage Risk Reduction System Project. Monitoring work is underway and will form the basis for the forthcoming mitigation plan. Canal backfilling is included in the array of potential mitigation measures that could be implemented by the Corps.

Preliminary Construction Costs
The estimated construction cost including 15% overhead, 10% contingency, and inflation is $8,731,000.

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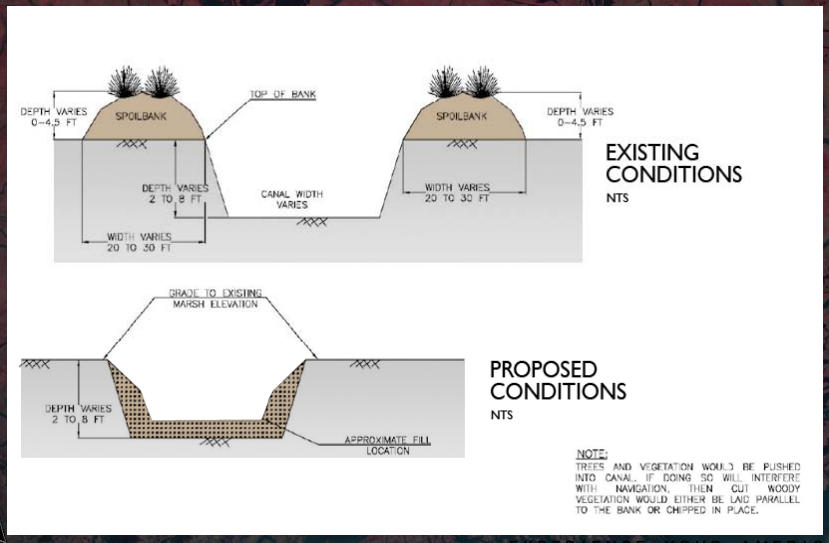
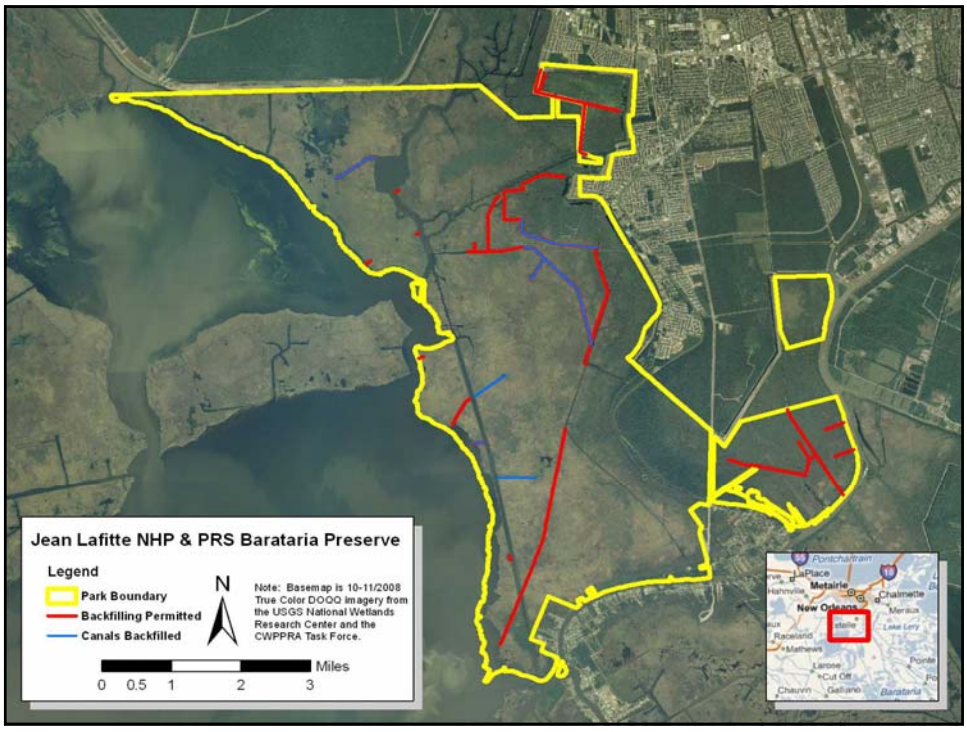
Coast-wide Wetland Restoration by Backfilling Canals

Coast-wide Wetland Restoration by Backfilling Canals

Backfilling in Cross-Section





Coast-wide Wetland Restoration by Backfilling Canals

Goals/Benefits:

- Convert 400 ac of upland spoil bank habitat to emergent wetland by yr 5
- Convert 120 ac open water to emergent wetland by yr 5
- Begin to convert deepwater habitat in 300 ac of canals to shallow water habitat
- Increase SAV cover to 50% in 300 ac open water by yr 5
- Improve hydrology over thousands of acres

Identification of Potential Issues

- 404(c) (Jean Lafitte National Park)

Preliminary Construction Costs

- $28 million (incl contingency)

Louisiana Department of Natural Resources 0 2mi

Coast-wide Wetland Restoration by Backfilling Canals

Questions?

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Louisiana Department of Natural Resources 0 2mi

National Park Service
U.S. Department of the Interior

Jean Lafitte National Historical Park and Preserve

Canal Reclamation at the Barataria Preserve

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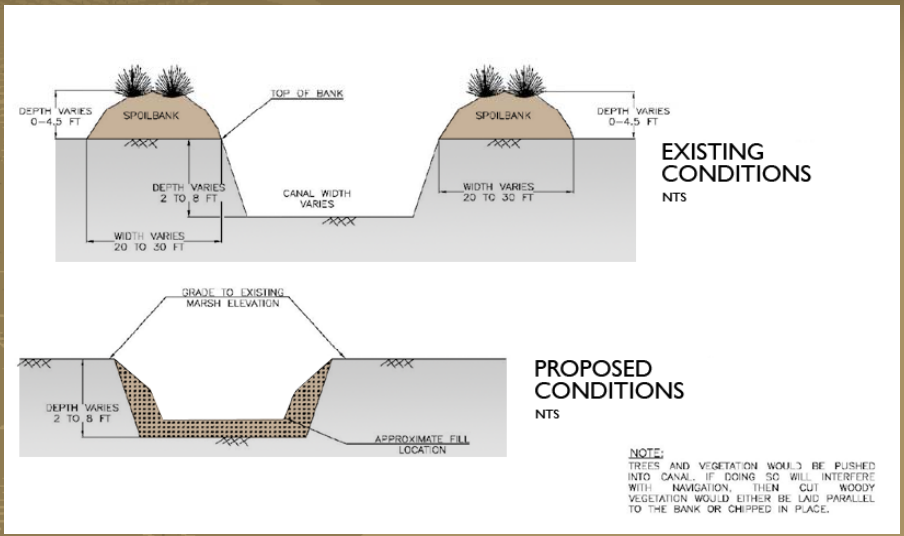
Backfilling in Cross-Section



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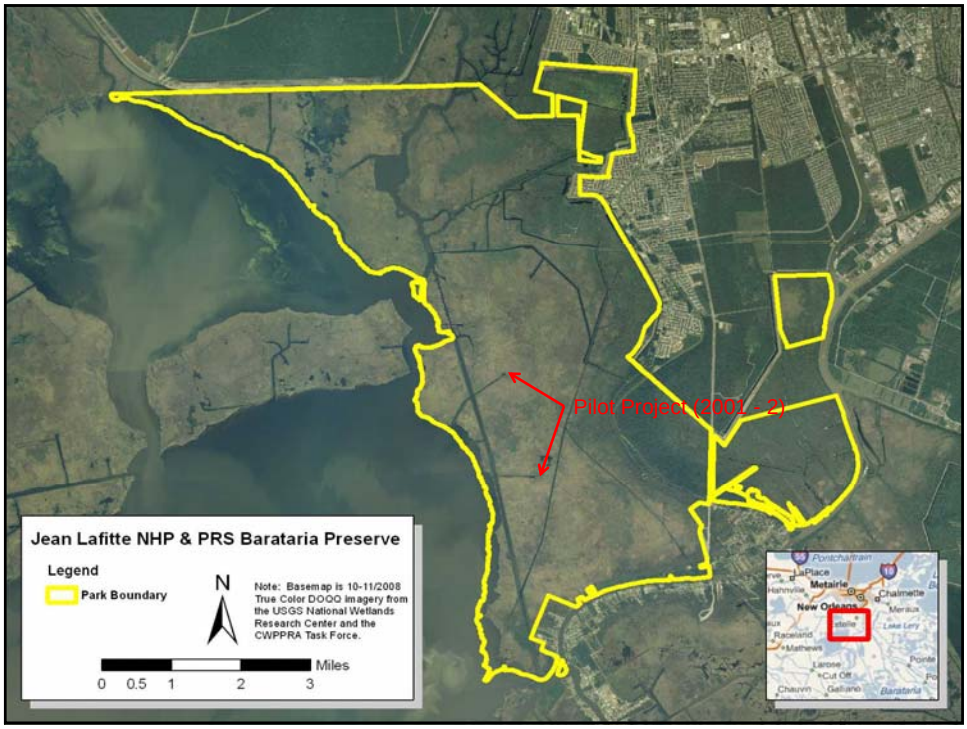
Pilot Project (2001 - 2)
Jean Lafitte NHP & PRS Barataria Preserve
Legend
Park Boundary
N
Note: Basemap is 10-11/2008 True Color DOQQ imagery from the USGS National Wetlands Research Center and the CWPPRA Task Force.
Miles
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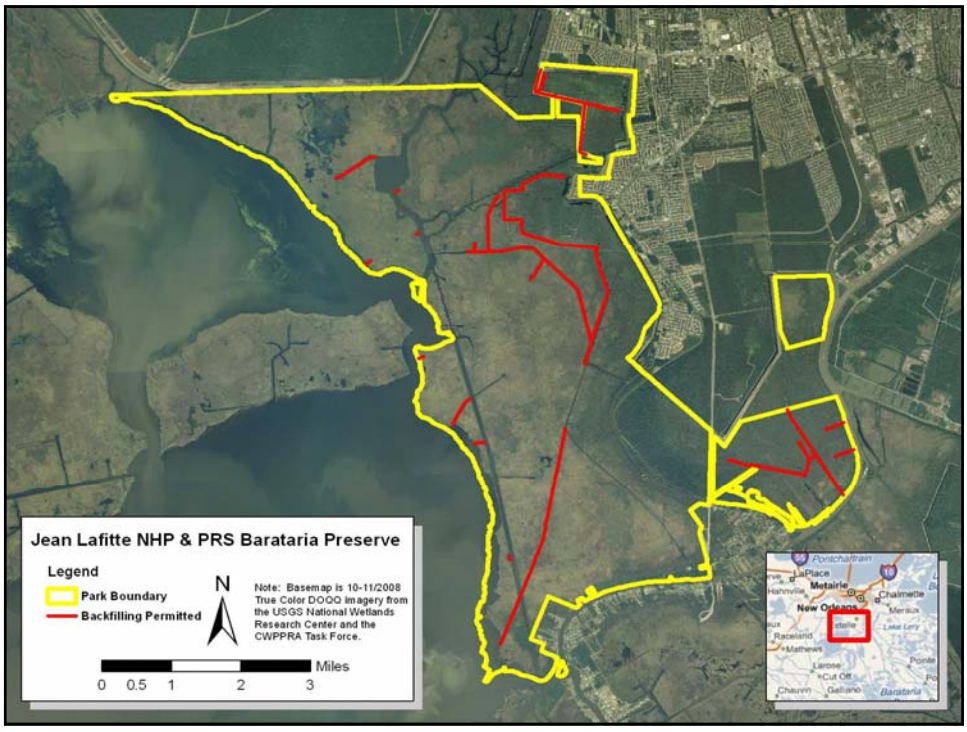
Jean Lafitte NHP & PRS Barataria Preserve
Legend
Park Boundary
Backfilling Permitted
N
Note: Basemap is 10-11/2008 True Color DOQQ imagery from the USGS National Wetlands Research Center and the CWPPRA Task Force.
Miles
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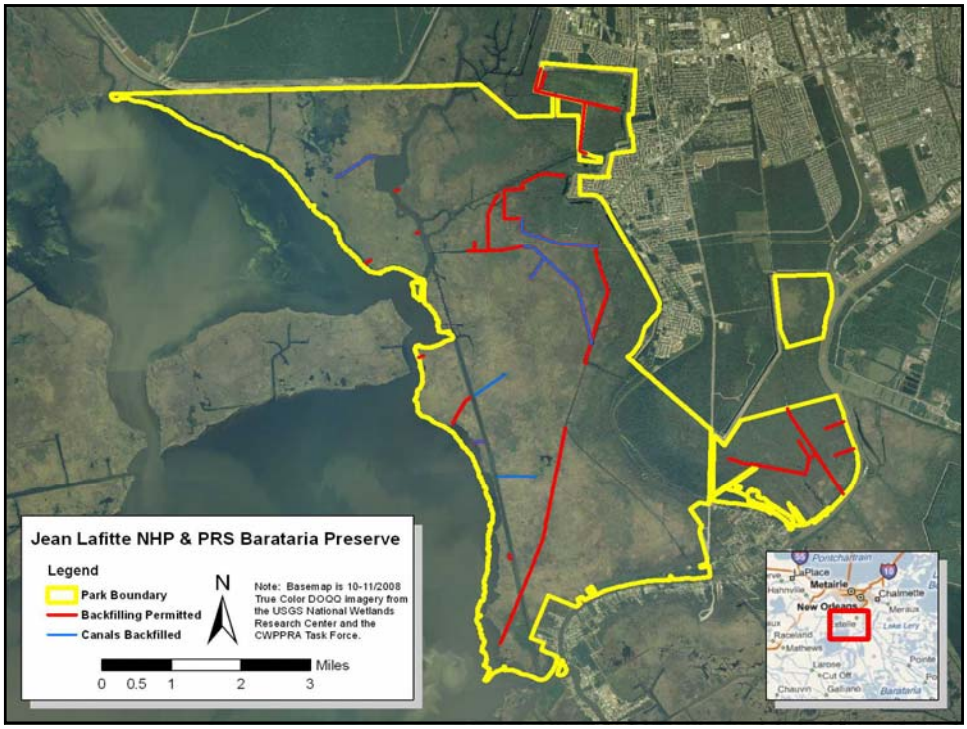

Pilot Project Completed with LSU 2001 & 2002

Pilot Canal in 1998

Pilot Canal in 2005

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Pilot Project Completed with LSU 2001 & 2002

Pilot Canal w/Spoilbanks

Pilot Canal After Backfilling

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Current Project

Horseshoe Canal

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Current Project

June 19, 2010 Tarpaper Canal

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Current Project

July 20, 2010 Tarpaper Canal

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Current Project

October 19, 2010 Tarpaper Canal

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Costs per Acre Restored

Estimated cost for construction – 8.73 million

Total area – 442 acres

Spoilbank/water to wetland in three years – 224 acres

Cost/acre Total – $19,753

Cost/acre for wetland in year three – $38,977

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Jean Lafitte National Historical Park & Preserve

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National Park Service
U.S. Department of the Interior

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CW-2

Inflatable Artificial Sand Bar Project (IASB)

PPL21 PROJECT NOMINEE FACT SHEET
January 26, 2011

Project Name
Inflatable Artificial Sand Bar Project (IASB) - Coastwide Project

Coast 2050 Strategy
Coastwide: Stabilization of the width and depth of major navigation channels and other water bodies at their point of intersection

Project Location
Coastwide estuarine channels with historical high levels of salt water intrusion and tidal flux. Examples are, but not limited to: Calcasieu Ship Channel; Houma Navigation Canal; Freshwater Bayou; Barataria Waterway; Grand Bayou; West Belle Pass.

Problem
At low stream flows, the Gulf's salt water moves upstream along channel bottoms below less dense fresh water. Because salt water has a greater density than fresh water, it moves upstream in the form of a wedge. When freshwater flows increase or decrease the saltwater wedge retreats downstream or advances upstream, respectively. Sandbars naturally form at the confluence of the channels and the gulf. These sandbars in their natural state would ordinarily limit the salt water intrusion. Current navigation requires maintenance of a navigation channel deeper than the natural channel bottom, and in turn reduces or eliminates the sandbars, increasing the frequency and influence of salt water intrusion.

Proposed Solution
The proposed features consist of installation of inflatable bladder/tube system that would span the width of the navigation channel and reduce its depth by between 25 and 50%. The bladder system would be inflated only during times of (not an issue outside of the Mississippi), and extreme low and high tides. During these channel closures, typical shallow draft vessels will maintain access through the channel, but less frequent deeper draft vessels may be delayed due to bladder operation temporarily. Navigation coordination will developed during PED and communicated prior to inflation of the closure system.

Goals
Reduce salt water intrusion and minimize tidal flux by mimicking natural channel depth and sand bars at effective locations in existing channels.

Specific Project Goals: 1) Temporarily reduce the cross-sectional area of the navigation channel by approximately 1/3 and salt water intrusion by 50%.

Preliminary Project Benefits
1) *What is the total acreage benefited both directly and indirectly?*
   TBD depending on the chosen location of project.
2) *How many acres of wetlands will be protected/created over the project life?*
   TBD depending on the chosen locations of project.

3) *What is the anticipated loss rate reduction throughout the area of direct benefits over the project life (<25%, 25-49%, 50-74%, and >75%)?* 25-49%

4) *Do any project features maintain or restore structural components of the coastal ecosystem such as barrier islands, natural or artificial levee ridges, beach and lake rims, cheniers, etc?* Yes, it could restore sand bars at the mouths of passes, bayous and channels. This project could restore barrier islands and stability to currently weakened freshwater and intermediate ecosystems.

5) *What is the net impact of the project on critical and non-critical infrastructure?*
TBD depending on the chosen locations of project.

6) *To what extent does the project provide a synergistic effect with other approved and/or constructed restoration projects?*
Coast projects within the area would benefit from reduction of extreme tidal flows. TBD depending on the chosen locations of project.

Identification of Potential Issues
Depending on the chosen locations of the project, navigation issues may occur do to possibility of shoaling.

Preliminary Construction Costs
Estimated construction cost with 25% contingency is $300K.

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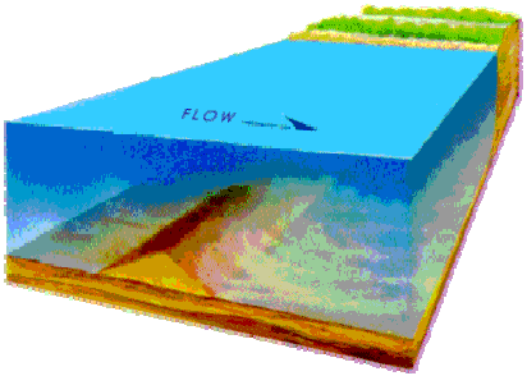

CW-3

Vox Maximus Barrier Island Restoration

PPL21 COASTWIDE PROJECT NOMINEE FACT SHEET

Project Name
Vox Maximus barrier island restoration

Coast 2050 Strategy
Restore the natural tidal hydrology to the Louisiana Coast from Isle Derniere to the Chandeleur Islands.

Problem
Barrier islands protected Louisiana shoreline marshes and communities from destructive tidal and storm surges.

Proposed Solution
The Dutch super dredge, Vox Maximus, could be leased for 12-14 months to restore the islands to their 1854 US geological survey configuration. The borrow could come from dredging the Mississippi River channel up to New Orleans or beyond.

Goal
Restoration of the natural coastal hydrology will protect and augment the benefits of previous and future shoreline and inland restoration projects.

Preliminary Benefits
Cost effective restoration of barrier islands and much needed maintenance of The Mississippi River Channel.

Identification of Potential Issues
Will need a Jones Act Exemption. Thousands of Port of New Orleans' jobs depend on keeping the Mississippi River navigable.

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