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Activity: Mobile Bay National Estuary Program (Implementation)
Unique Identifier: EPA_RESTORE_002_004_Cat1
Location: Alabama, Mobile & Baldwin Counties
Type of Activity: Implementation
FPL Category: 1-Funding Approved
Cost Estimate: $1,742,000
Responsible Council Member: Environmental Protection Agency (EPA)
Partnering Council Member(s): Alabama

Originally submitted by: The EPA as a component within the proposal "Gulf National Estuary Program (NEP) and Lake Pontchartrain Basin Restoration Program (LPBRP) Comprehensive Plan Implementation Program"

Executive Summary: The Mobile Bay Estuary Program (MBNEP) – RESTORE Project Implementation activity includes restoring Twelve Mile Creek in accordance with the Stream Restoration Design Plan developed in the Planning activity; eradicating and controlling invasive species in Three Mile Creek in accordance with the Invasive Species Control and Eradication Plan developed in the Planning activity; adherence to environmental and other regulatory compliance requirements; quality assurance and post-restoration monitoring. The Implementation activity will ensure the stream restoration project and invasive species control and eradication are completed in a timely and fully-compliant manner. MBNEP will be responsible for ensuring timely initiation and completion of the project elements, including compliance, monitoring and reporting requirements.

Three Mile Creek and its surrounding watershed present an extraordinary opportunity to the cities of Mobile and Prichard, AL to transform a community liability into a waterway destination. Crossing and draining suburban and urban landscapes of greater Mobile, Alabama, it suffers from the negative effects of stormwater runoff and decaying infrastructure including trash/litter, bacteria from sewage (pathogens), excessive nutrients, invasive species, and erosion and sedimentation. Restoration of a degraded segment of Twelve Mile Creek will lay the foundation for improving dissolved oxygen concentrations within the creek, thus restoring a healthy aquatic ecosystem and fishery to the Three Mile Creek Watershed.

PROJECT DESCRIPTION:

This MBNEP RESTORE Project Implementation activity includes: 1) restoration of Twelve Mile Creek in accordance with the Stream Restoration Plan; and 2) invasive species control and eradication in accordance with the Invasive Species Control Plan; 3) monitoring during and after construction and application of invasive species control and eradication measures; and 4) periodic surveys of project areas to ensure proper restoration of construction-disturbed areas in compliance with permits and to determine the effectiveness of invasive species control treatments.

Twelve Mile Creek, one of six main tributaries within the Three Mile Creek Watershed, originates in the extreme western portion of the watershed and flows a little over three miles north and east to its confluence with Three Mile Creek. A major issue within this tributary is stream-bank erosion that has progressed to the point of exposing a sanitary sewer line that extends along the south stream-bank. Due to stream-bank erosion and being exposed this pipe is particularly vulnerable to leaks and failure, which would significantly impact ambient water quality. In addition, sediment from channel and bank erosion has accumulated downstream, reducing creek water depth and the cross-sectional flow area, resulting in higher water flow velocities during storm events. This has led to further channel erosion and sediment transport to a downstream lake, carrying pollutants including oxygen-demanding substances and nutrients.

Restoration of up to 1,800 linear feet of stream including re-establishment of vegetated banks and flood plain and installation of energy dissipation to reduce velocity of flowing water will significantly reduce a major source of sediment being transported downstream to ponds at Langan Park. Reducing sediment contributions to these ponds will pave the way for the City of Mobile to dredge them, increasing the ponds to their normal water depth/volume.

Dredging of the Lake will, in turn, be a catalyst for initiating a comprehensive invasive species management and eradication program for the Three Mile Creek. This program will target island apple snails (*Pomacea insularum*), first discovered in Langan Park ponds in 2008. Since these snails have traveled into Three Mile Creek, the State of Alabama's prime directive has been to keep the apple snails out of the Mobile-Tensaw Delta as these snails would compete with native species for limited resources. The non-native snails preferred food items include some of Alabama's most common and important aquatic plants: coontail (*Ceratophyllum demersum*), spiderlillies (*Hymenocallis spp.*), pickerelweed (*Pontederia cordata*) and bulltongue arrowhead (*Sagittaria lancifolia*). The apple snail prefers to lay its eggs on heavy-stemmed, emergent aquatic plants that grow over surface water including giant cutgrass (*Zizaniopsis miliacea*), cattails (*Typha spp.*) and arrow arum (*Peltandra virginica*), all native plants to the Twelve Mile Creek watershed. Many of the aquatic vegetation species in Three Mile Creek are non-native species, including Wild taro, or elephant's ear.

The Invasive Species Control program will consist of a baseline survey to determine the scale and boundaries of treatment areas. A protocol of chemical, biological and mechanical treatments would be implemented followed by subsequent periodic surveys to determine the effectiveness of control treatments. Subsequent treatments/measures that require less effort with increased control and over time would be undertaken over a period of three years.

Specific Actions/Activities: The following activities will ensure that the MBNEP RESTORE project implementation activity is properly and effectively conducted.

Task 1: Restoration of Twelve Mile Creek in accordance with the Stream Restoration Plan.
Task 2: Control and eradication of invasive species in Three Mile Creek in accordance with the Invasive Species Control Plan.
Task 3: Monitoring during and after stream restoration and during and after application of invasive species control and eradication measures to ensure compliance with environmental permits, conditions and other regulatory clearances and conditions.
Task 4: Periodic surveys of project areas to ensure proper restoration of construction- disturbed areas in compliance with permits and to determine the effectiveness of invasive species control treatments.

Deliverables:

- Progress reports (quarterly).
- Environmental permit and regulatory clearance closeout reports (as required).
- Project final report.
- Up to 1,800 linear feet of stream and stream-bank restoration

Ecological Benefits/Outcomes and Metrics: The primary benefit of restoring an eroded segment of Twelve Mile Creek and controlling/eradicating invasive/nuisance species in Three Mile Creek and its associated tributaries is improvement of water quality by controlling water flow and reducing sediment transport downstream to improve concentrations of dissolved oxygen. A secondary outcome is improvement of Three Mile Creek watershed habitats for sustaining wildlife and freshwater fisheries.

The metrics to be used to measure success include: Up to 1800 linear feet of stream and stream-bank restored; up to 7.5 acres of wet bank restored/protected from invasive/nuisance species; up to 100 acres of water surface area restored/protected from invasive/nuisance species; and acres of wet bank with at least a 70% reduction in presence of apple snail within target area over a three year period.

Leveraging and Co-Funding: The City of Mobile has included the dredging of Langan Park ponds in its capital improvement budget for 2016-2017. This activity has been identified as a priority within the City but has been put on hold in anticipation of addressing the source of the impairment to the ponds.

Duration of Activity: Estimated 5 years for implementation of the stream restoration plan and the invasive species control and eradication program, including pre and post monitoring. 5 years including pre and post monitoring.

Life of Activity: Over 20 years estimated.

RESPONSE TO SCIENCE REVIEWS:

N/A – Summary of Science Review Comments and Responses are included in the related Planning activity for this project in Category 1, Unique Identifier EPA_RESTORE_002_004_Cat1

ENVIRONMENTAL COMPLIANCE:

The U.S. Army Corps of Engineers (USACE) has authorized implementation of this project under Clean Water Act Section 404 Nationwide Permit 27. To address the National Environmental Policy Act for the approval of federal funding for implementation of this project, the Council has adopted the USACE Environmental Assessment (EA) and decision document for Nationwide Permit 27, dated December 21, 2016. The Council has reviewed the subject EA, the May 13, 2019, USACE authorization letter for this project (#SAM-2018-01108-GAC), and the associated May 11, 2019, USACE decision memorandum, which includes project specific analysis regarding other potentially applicable environmental laws. Based on its review of the USACE documentation, the Council has determined that the proposed project would have no effect on a listed endangered or threatened species pursuant to the Endangered Species Act. The project would not affect essential fish habitat as defined pursuant to the Magnuson-Stevens Fishery Conservation and Management Act. The project has no potential to cause effects to historic properties listed or eligible for listing on the National Register of Historic Places. Based on this review, the Council has issued a Finding of No Significant Impact (FONSI) for this activity. This FONSI, EA, and associated documentation can be found here.