

Hog Island/Newton Creek Habitat Restoration Project

St. Louis River Area of Concern, Superior, Wisconsin

NOAA Great Lakes Habitat Restoration Program

June 2011

Background

Hog Island is a place of scenic beauty and high ecological value. Located at the “headwaters of Lake Superior,” at the far western end of the lake within the city of Superior, Wisconsin, the area is regionally important both as an ecological resource and a recreational and scenic amenity. For many years the area has served as a disposal site for dredge spoils, a railway yard, and a repository for industrial byproducts. In 1987, the St. Louis River, including Hog Island, was designated as an Area of Concern (AOC) due to numerous beneficial use impairments (BUIs), including loss of fish and wildlife habitat, degradation of fish and wildlife populations, degradation of benthos, beach closings, and others. Despite these conditions, Hog Island, Hog Island Inlet, Newton Creek, Allouez Bay, and Pokegama Bay are extremely important for local and migratory fish and wildlife populations. Ecological restoration within these areas through NOAA’s Great Lakes Habitat Restoration Program will provide essential habitat for rare, threatened and endangered species; control invasive vegetation and other threats to ecological viability; improve water and sediment quality; and provide recreation and an aesthetic amenity for local residents and visitors.

Moving from Remediation to Restoration

Remediation of contaminated materials at Hog Island/Newton Creek was completed in 2005 after a 10-year, multi-phase cleanup process. During the final phase 60,000 tons of contaminated sediments were removed from the lower portions of Newton Creek and Hog Island Inlet. This was the first cleanup in the St. Louis River AOC conducted under the Great Lakes Legacy Act, a federal program specifically focused on cleaning up toxic sediments in Great Lakes Areas of Concern. With remediation complete, restoring habitat and ecological functions is the next step for Hog Island and the St. Louis River – as well as the Great Lakes ecosystem as a whole. The process of moving from “remediation to restoration” that has been demonstrated at Hog Island serves as a model for other AOCs in the Great Lakes.

In 2008 the Great Lakes Commission (GLC) received funding from the National Oceanic and Atmospheric Administration (NOAA) to restore habitat in two Great Lakes AOCs. Along with Muskegon Lake, Michigan, the Hog Island area of the St. Louis River AOC was selected to help demonstrate the potential to restore previously remediated sites. With local leadership from the Douglas County Land Conservation Department, the NOAA Great Lakes Habitat Restoration Partnership project at Hog Island is making significant strides to restore ecological function, structure, and biological diversity to a previously contaminated portion of the harbor.

Restoration Goals and Objectives

The long-term goals for Hog Island are to restore ecological processes and biodiversity; reduce threats to the sustainability of natural communities; and implement a compatible recreational plan for the area. The *Hog Island & Newton Creek Ecological Restoration Master Plan*, completed in 2007, provides a blueprint for the restoration of natural communities and ecosystem processes in this area of the AOC (www.biohabitats.com/hogisland/index.php). Funding from NOAA and grant partners are being used to implement priority habitat restoration actions identified in the master

plan totaling approximately 64 acres of wetland and associated shoreline and riparian habitat. Specific restoration activities include:

- **Invasive Species Control:** More than 8 acres of invasive species, including purple loosestrife and narrow leaved cattail have been controlled at multiple sites on both public and private land along Superior shoreline and along Newton Creek, the tributary to Hog Island inlet.
- **Shoreline Buffer Restoration and Maintenance:** 18 acres of native, vegetative buffers were restored at Hog Island, Loon's Foot Landing and Allouez Bay. These areas will be monitored for emergence of invasive species and controlled or replanted as needed.
- **Riparian Restoration:** Between 2 and 8 acres of riparian buffers will be restored along the Newton Creek, Bluff and Bear Creeks. Along the Newton Creek corridor, native conifer species such as white spruce will be planted to both restore habitat and help remove and control invasive species in the riparian buffer area. Along Bluff and Bear Creeks, riparian habitat will be restored using native shrub and tree species, with an emphasis on conifer species as recommended in regional conservation plans.
- **Emergent Vegetation and Wild Rice Restoration:** Partners will work cooperatively with the Great Lakes Indian Fish and Wildlife Commission to restore 2 acres of native emergent vegetation and wild rice. Successful restoration of native species in disturbed areas will also provide an opportunity for long-term control of invasive species, such as Phragmites and narrow leaved cattail.
- **Aquatic Habitat Structures:** Thirty aquatic habitat structures were built and installed in the Hog Island inlet in 2010. Materials for the structures consisted of old-growth virgin pine harvested during the late 1870's and used as harbor pier structures. Some of these logs are 450 years old! The structures are designed to be multi-purpose, providing cover for fish species, substrate for macro invertebrates, loafing areas for turtles and perching areas for birds.
- **Culvert Replacement:** In coordination with the Town of Parkland Public Roads Department, Douglas County Highway Department, and the U.S. Fish and Wildlife Service, partners will design and replace two sub-standard culverts in the Allouez Bay watershed to restore hydrology, improve habitat for fish and wildlife, and "slow-the-flow" in the watershed that is degrading water quality and habitat.
- **Wetland Restoration:** Approximately 20 acres of wetlands will be restored in the St. Louis River sub-watersheds to restore natural hydrologic functions on the landscape and mitigate stream channelizing runoff. Priority will be given to projects in the Allouez Bay sub-watershed. The abundance of retired agricultural land and the presence of heavy clay soils facilitate the cost-effective restoration of emergent wetlands.
- **Submergent Aquatic Vegetation Restoration:** Approximately 2 acres of native submergent aquatic vegetation will be restored to the remediated portions of the Hog Island inlet (the same areas where aquatic habitat structures are placed) by placing seed and rootstock in weighted mesh bags to temporarily anchor the plants to bottom sediments.
- **Piping Plover Habitat Restoration:** In collaboration with Wisconsin Department of Natural Resources, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service and City of Superior, partners will clear trees, design and implement the construction of rock groins to trap sand, deposit dredged material as beach nourishment and cover with sand to restore and enhance 3 acres of piping plover habitat along Wisconsin Point/Allouez Bay.



Fire is used to control invasive species.



Aquatic habitat structures are built from old-growth pine.

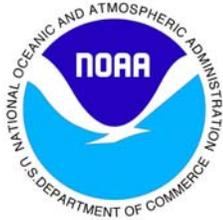
Ecological restoration at Hog Island, Hog Island Inlet, Newton Creek and Allouez Bay will provide essential habitat for rare, threatened and endangered species; control invasive vegetation and other threats to ecological viability; improve water and sediment quality; and provide recreation and an aesthetic amenity for local residents and visitors. The ecological restoration conducted through this project addresses the habitat-related BUIs in the St. Louis River AOC to further the goal of delisting the AOC while meeting the objectives of the habitat plan established for the area. It also provides a template for the “remediation to restoration” process throughout the Great Lakes watershed.

Project Location



Location of restoration activities conducted through the Hog Island/Newton Creek Habitat Restoration Project, St. Louis River Area of Concern, Superior, Wisconsin. Note that the locations of culvert replacement and wetland restoration projects are currently pending.

Partners:



Douglas County Land Conservation Department
Great Lakes Commission
National Oceanic and Atmospheric Administration-Restoration Center
University of Wisconsin, Superior – Lake Superior Research Institute
Wisconsin Department of Natural Resources
City of Superior
Great Lakes Indian Fish and Wildlife Commission
U.S. Fish and Wildlife Service
U.S. Natural Resources Conservation Service
Wisconsin Department of Agriculture, Trade, & Consumer Protection
U.S. Environmental Protection Agency – Great Lakes National Program Office
Dome Petroleum, Inc.
Enbridge Energy, LLC
Murphy Oil, USA
Burlington Northern and Santa Fe Railway
Craigin Family and Ruppert Family
West Wisconsin Land Trust
AMI Engineering
Grubbe Logging
Wisconsin Department of Corrections – Gordon Correctional Facility
Crex Meadows State Wildlife Refuge
U.S. Army Corps of Engineers
St. Louis River Alliance
Wisconsin Sea Grant
The Nature Conservancy
Minnesota Department of Natural Resources
Boreal Natives - Prairie Restorations Inc.
Dragonfly Gardens
Wetland Habitats, Inc.

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