



Submerged Aquatic Vegetation (SAV), Buffalo, NY
Interagency Agreement with U.S. EPA

Location

- The SAV project will encompass three sites along the Buffalo River.
- The three proposed aquatic habitat restoration sites are located within the city of Buffalo. The Ellicott site is located at river mile (RM) 1.2, the Savarino site is located at RM 1.5, and the Irish Propane site is located at RM 2.1. All of the sites are located on the right descending bank (RDB) of the river and consist of the shallow water areas between the shorelines and the edge of the navigation channel.

Project Description

- The objective of the project is to enhance aquatic habitat within the Buffalo River.
- Measures for the restoration of aquatic habitat include the installation of in-water structure features such as locked logs and rootwads, and the planting of submerged and emergent vegetation.
- Design will focus on bioengineering techniques to reduce shoreline erosion, restore valued habitat along the Buffalo River, and manage invasive species

- This project will consist of Detailed Design for a habitat restoration project, followed by contract award and oversight of project implementation

Importance

- This project has been identified by the Buffalo River Remedial Advisory Committee as a priority management action required for delisting of the Area of Concern
- SAV is a rare example of aquatic and near-shore habitat in the urban core.

Consequences

- Without this project, the Buffalo River will continue to suffer from hardened industrial facility effects that has created a harsh environment for aquatic life.
- Without this project, local stakeholders and the EPA will be unable to meet their shared goal of delisting the Buffalo River Area of Concern

Project Phase	FY19 Requirement	FY19 Budget	FY20 Requirement	FY20 Budget	FY21 Requirement	FY21 Budget
Design and Implementation	\$200k	\$200k	\$50k	\$50k	\$25k	\$25k

Project Sponsor/Customer

- U.S. Environmental Protection Agency

Congressional Interests

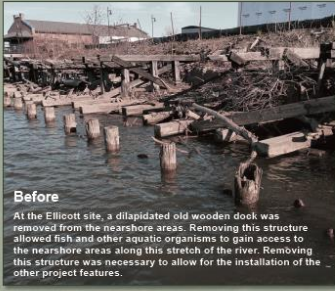
- Representative Brian Higgins D-NY-26
- Senator Charles Schumer D-NY
- Senator Kirsten Gillibrand D-NY

Current Status

- Contractors completed 2019 additional plantings in July/August 2019 and de-mobilized until protective fencing is removed in November 2019
- Contract modification awarded for Ellicott site to bolster locked log structures to mitigate substrate migration and protect submerged aquatic vegetation; work to be conducted in Q3, FY19

Issues

- No project issues at this time.



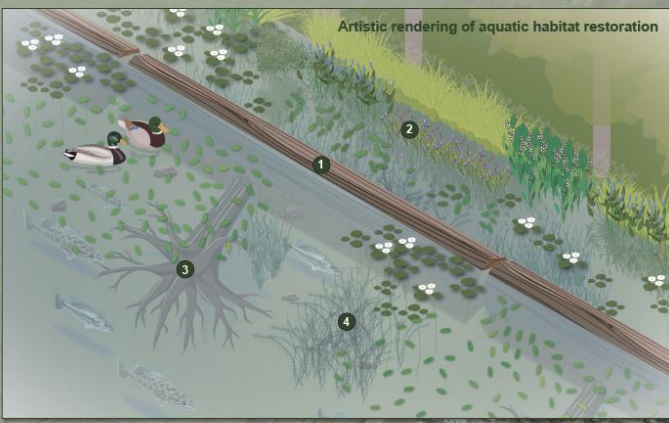
Before
At the Ellicott site, a dilapidated old wooden dock was removed from the nearshore areas. Removing this structure allowed fish and other aquatic organisms to gain access to the nearshore areas along this stretch of the river. Removing this structure was necessary to allow for the installation of the other project features.

Buffalo River Aquatic Habitat Restoration

Project Background
Historical urban and industrial development has substantially altered the Buffalo River through riverbank modification, filling of nearshore areas, and hardening of shorelines with stone or steel bulkhead walls. These activities have destroyed much of the shallow water habitat along the Buffalo River.
Federal, state, and nonprofit partners identified multiple sites on the Buffalo River for nearshore and shoreline restoration. This project targeted three sites spanning approximately 2,250 feet along the Buffalo River. Work to restore these areas began in 2016.
This project was made possible through a partnership between Erie County, U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, Buffalo Niagara Water Keeper, and the Buffalo River Remedial Action Committee with funding provided by the Great Lakes Restoration Initiative. In addition, the Irish Propane Corp., Savarino Development, and Ellicott Development supported the projects with site access.

Aquatic Habitat Improvement
Several features were constructed to restore shallow water aquatic habitat at three sites along the Buffalo River. These improvements are intended to establish native vegetation communities and create areas where fish and other wildlife can find sheltered habitat within the river. The improvements consisted of the following:
1 **Locked Logs:** Tree trunks up to 30' long were installed end to end and parallel to the shoreline at a depth of two feet below average water level. These "locked logs" reduce erosion, accumulation of river debris, and wave energy along the shoreline allowing for the growth of aquatic (submerged) and emergent (partially submerged) vegetation. They also provide habitat for aquatic organisms and add to the variety of underwater structures in the nearshore areas of the Buffalo River that fish and other organisms can use for shelter and refuge.
2 **Emergent Vegetation:** Emergent vegetation was established through plantings in the protected areas behind the locked-logs.

This vegetation is a food source for waterfowl, and also provides habitat for aquatic macroinvertebrates (i.e. mayflies, stoneflies, dragonflies, etc.), which are a food source for fish and other aquatic organisms. Some of the types of emergent vegetation planted include blue flag iris (*Iris versicolor*), arrow arum (*Peltandra virginica*), pickerel weed (*Pontederia cordata*) and water willow (*Justicia americana*).
3 **Rootwads:** Large, multi-branching tree roots were installed at depths of 6' below average water levels in nearshore areas. These rootwads are naturally complex structures that provide shelter, refuge, and forage habitat for fish and other aquatic organisms.
4 **Submerged Aquatic Vegetation (SAV):** Floating leaved and completely submerged plants were established at deeper depths than the emergent vegetation. This vegetation provides a unique habitat for fish in which they can forage for food and find shelter and refuge. Some of the types of SAV planted include water celery (*Valeriana americana*), sago pondweed (*Stuckenia pectinata*), and long-leaved pondweed (*Potamogeton nodosus*).



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These project features are designed to

- Establish both emergent and submergent native vegetation, thereby increasing biodiversity and in-channel habitat.
- Increase nearshore submerged structure, increasing fish habitat complexity and diversity.
- Support the Buffalo River ecosystem by creating habitat for waterfowl, birds, mammals, reptiles, amphibians, fish, and other aquatic organisms.

Irish Propane Site
Project Length: 820'

Ellicott Site
Project Length: 920'

Savarino Site
Project Length: 550'

What can you do to help?

- If boating, avoid creating wakes or propwash close to nearshore areas.
- Volunteer with local organizations to pick up trash and debris.



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