

The Benefits of Wetlands: The Upper Halfway Creek Project

Introduction to the Project

Researchers from the U.S. EPA are working in collaboration with U.S. Geological Survey and the U.S. Fish and Wildlife Services on this project. Upper Halfway Creek marsh is a constructed wetland managed by the U.S. Fish and Wildlife Service. This project will assist the U.S. EPA in developing best management practices involving use of wetlands.



Fig. 1: One of the project sampling sites.

Background

A constructed and managed wetland provides an excellent opportunity for studies through which we gain a deeper understanding of the biological and economic benefits of wetlands. Wetlands are an important part of the water cycle; they store water during floods while maintaining moist habitats during all but the most severe droughts. Many factors work together to make wetlands hotbeds of biological activity important for retention and cycling of nutrients (nitrogen and phosphorus) and sediments. Plants and soil bacteria common to wetlands help transform and trap nutrients and sediments. Without wetlands, nutrients and sediments can be transported rapidly out of a watershed (Fig. 2) downstream where they contribute to both poor water quality and degradation of aquatic habitats. The economic impact of wetlands can be significant since they reduce damage from flooding and raise the water quality of our rivers.

What are the goals of this study?

- ◆ To measure nutrients and sediments coming from the watersheds of Halfway Creek and Sand Lake Coulee Creek
- ◆ To assess the effectiveness of a constructed wetland on Upper Halfway Creek in preventing escape of nutrients and sediments into Lake Onalaska, a major backwater of the Mississippi River
- ◆ To compare the retention of nutrients and sediments in a constructed wetland with a native wetland in the same area

What methods are used in this study?

Water quality is monitored remotely and water samples are collected to measure nutrient and sediment load. Water quality monitoring equipment is set up at three sites and water samples are taken at each of these sites: (see map on reverse side)

- ◆ Site 1: In the inlet structure at the Upper Halfway Creek Marsh Project
- ◆ Site 2: On Halfway Creek, near County Highway ZN
- ◆ Site 3: On Sand Lake Coulee Creek, upstream of the County Highway OT Bridge

What are the expected outcomes of this study?

- ◆ A better understanding of the processes responsible for nutrient retention and cycling and for sediment retention within wetlands
- ◆ Assessment of the economic impact of flooding reduction within the Halfway Creek watershed
- ◆ Assessment of the economic impact of improvement in water quality of Lake Onalaska

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RESEARCH & DEVELOPMENT

Building a scientific foundation for sound environmental decisions

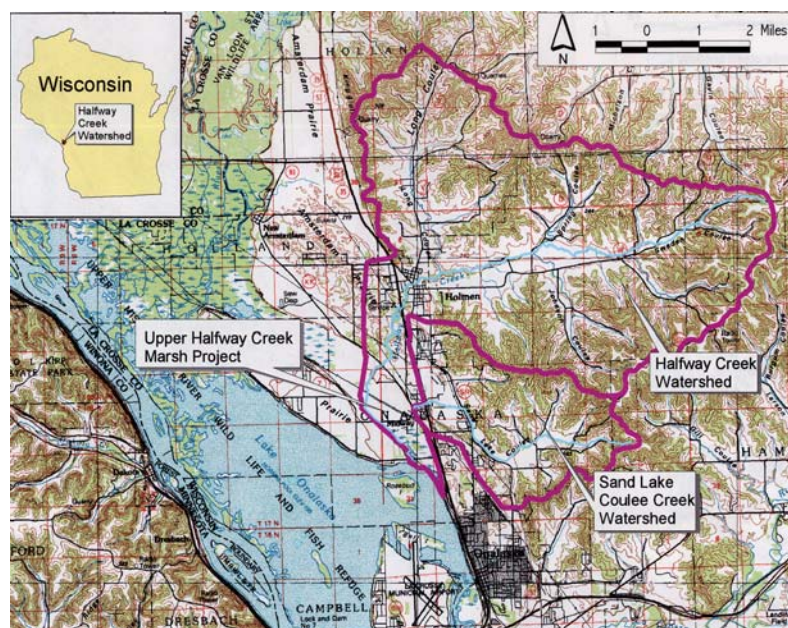


Fig. 2: Map of watershed areas being studied.

What other studies are planned?

Further laboratory and field studies are planned to:

- ◆ Determine the age and history of sediments deposited in project wetlands
- ◆ Determine nitrate retention and phosphorus binding by wetland soils
- ◆ Measure sediment loading and nutrient content of sediments
- ◆ Measure the uptake of nutrients by plants during growth and release of nutrients during decomposition

Where can I obtain more information?

Water quality data from each sampling site are uploaded to a website for near-real time viewing. This website can be accessed at:

<http://wi.waterdata.usgs.gov/nwis/current/?type=flow>. The U.S. EPA maintains a website at <http://www.epa.gov/owow/wetlands> where you can learn more about watersheds and wetlands.

How can I help?

Volunteers are needed for a variety of activities, including sediment and plant sampling and processing plant samples for nutrient analyses. For more information contact the LaCrosse District Office of the Upper Mississippi River National Wildlife and Fish Refuge at 608-783-8405.



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