



Illinois River Nutrient Farm Pilot Project

Demonstrating a new economic model for wetland restoration

The Illinois River Nutrient Farm Pilot Project will produce the scientific research and economic studies necessary to demonstrate that a wetland-based “nutrient farm” can produce cleaner water and vital wildlife habitat, while generating landowner income. The Wetlands Initiative has conceived of and manages the project with significant input and support from many public and private partners. These partners include the Metropolitan Water Reclamation District of Greater Chicago (MWRD), The Nature Conservancy, the U.S. EPA, and researchers from ten institutions, including Argonne National Laboratory and the University of Illinois.

The goal of this pioneering project is to demonstrate that, through water quality trading, nutrient farmers could sell nutrient removal credits to municipalities or industries that release excess nutrients and cannot cost-effectively

remove these nutrients themselves. Nutrient farming differs from other trading scenarios in that it uses wetlands to attain a verifiable credit (e.g., ton of nitrogen removed). The research performed at the pilot project will demonstrate the success of nutrient farming as a cost-effective alternative technology for nutrient removal in freshwater systems and as a means of restoring much needed wetlands in the Midwest.

The Illinois River Nutrient Farm Pilot Project will be the nation’s first nutrient farm and will encompass 5,000 acres within the floodplain of the Illinois River, all in the vicinity of Hennepin, Illinois, approximately 125 miles southwest of Chicago. The project will include three sites: Goose Pond, Sawmill Pocket, and TWI’s Hennepin & Hopper Lakes Restoration Project. While Goose Pond and Sawmill Pocket will be connected to the Illinois River with



Willows and mudflats characterize much of the degraded Goose Pond, the site of The Wetlands Initiative’s Illinois River Nutrient Farm Pilot Project. Erosion from the agricultural watershed has filled the area with excess sediment and nutrients. The Illinois River Nutrient Farm Pilot Project will restore the lake’s hydrology and vegetation, providing the ideal wetland conditions that support natural biological and chemical reactions to remove nitrogen and phosphorus.

two pump stations (inlet and outlet), Hennepin & Hopper will serve as a control site and remain isolated from the river by a 100-year levee.

Since fall 2006, The Wetlands Initiative has reached key milestones toward implementing the project, beginning at Goose Pond. These include signing landowner agreements; establishing preliminary research agendas with 10 institutions (see sidebar); gaining support from U.S. EPA, the Chicago water reclamation district and The Nature Conservancy; and completing preliminary engineering design and wetland restoration plans. TWI submitted a permit application and wetland restoration plan in March 2007 to federal and state regulators. This was one of the last major milestones prior to construction, which could begin in early 2008.

The Wetlands Initiative anticipates that the MWRD will agree to fund construction, estimated to be approximately \$25 million. Because pending Illinois EPA nutrient standards will require wastewater treatment facilities in Illinois to upgrade or expand their plants at great cost, the MWRD is seeking to test alternative nutrient treatment technologies, such as wetland treatment.

Creating and managing large-scale wetland restoration projects is not new to The Wetlands Initiative. In 2001, TWI turned off the drainage pumps that had kept the corn and soybean fields dry for almost a century on 2,600 acres of leveed Illinois River floodplain at Hennepin. Today, a mosaic of lakes, marshes, seeps, savannas, and prairies—now known as the Sue and Wes Dixon Waterfowl Refuge—supports one of the richest natural areas in the Midwest.

Scientists already know much about the ability of wetlands to create clean water, yet there are still unanswered questions regarding how wetlands could function as nutrient farms. Thus, The Wetlands Initiative will coordinate an extensive scientific and economic research program at the pilot project designed to address these and other questions:

- Is nutrient storage permanent?
- How will microbial activity affect air quality?
- What is the most economical way to distribute wetlands throughout a watershed to achieve maximum environmental benefit?
- What market and governance strategies will serve to meet environmental goals?
- Can other wetland values, such as biodiversity, be maintained if nutrient removal is optimized?

This interdisciplinary research will integrate knowledge of chemical, physical, and biological processes with the economic mechanisms necessary to support these landscapes.



THE WETLANDS INITIATIVE

53 W. Jackson Blvd., Suite 1015 • Chicago, IL 60604

(312) 922-0777 • Fax (312) 922-1823

twi@wetlands-initiative.org • www.wetlands-initiative.org



In addition to providing cleaner water, wetland nutrient farms can provide habitat for birds, fish, frogs, and other aquatic species.

Pilot Project Research Partners and Topics

Argonne National Laboratory—greenhouse gas emissions and CO₂ sequestration

Bradley University—soil development

Illinois Natural History Survey—waterfowl and fish

Metropolitan Water Reclamation District of Greater Chicago—water quality sampling

The Nature Conservancy—biodiversity

Southern Illinois University—carp

University of Illinois at Urbana-Champaign—water budgets; aqueous nitrogen and phosphorus removal; microbial communities; soils

University of Illinois at Chicago—nitrogen and phosphorus storage; biomass development

University of Missouri-Columbia—agricultural economics

University of Wisconsin—biodiversity

Western Illinois University—herpetofauna; macroinvertebrates