



# Illinois River Nutrient Farming Pilot Project

Demonstrating a new economic model for wetland restoration

The Illinois River Nutrient Farming Pilot Project will be the nation's first research and demonstration site to show that wetland-based "nutrient farming" can efficiently remove nitrogen and phosphorus from the water and carbon from the air, provide vital wildlife habitat, and generate income for the landowner. The Wetlands Initiative has developed this strategy with significant input and support from many public and private partners, including the Metropolitan Water Reclamation District of Greater Chicago, The Nature Conservancy, the U.S. EPA, and researchers from many institutions, including Northwestern University and the University of Illinois.

Nutrient farming aims to put into practice the U.S. EPA's goal of using water quality trading strategies to improve water quality. A nutrient farmer will manage restored or created wetlands optimizing natural wetland processes to remove nitrogen and phosphorus from the water and carbon from the air. The nutrient farmer would then 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).

Researchers at the Illinois River Nutrient Pilot Project will be able to closely observe nutrient removal processes and other biological activity in the wetlands. Using these observations, agricultural economists will be able to compute how nutrient farming can be a cost-effective alternative technology for nutrient removal in freshwater systems and lead to the creation of a new wetland-based nutrient farming market throughout the Upper Mississippi River Basin.

The pilot project will encompass 1,500 to 3,000 acres within the floodplain of the Illinois River or its tributaries. The Wetlands Initiative is working with local landowners, federal and state regulators, and other stakeholders to



Jill Kosel, TWI



Gary Sullivan, TWI

Willows and mudflats characterize much of the degraded Illinois River floodplain. Agricultural run-off has filled the Illinois River and its tributaries with excess sediment and nutrients, such as nitrogen and phosphorus. Healthy vegetated wetlands (at right), however, can support a diverse plant and animal community — habitats that support natural biological and chemical reactions to remove nitrogen and phosphorus.

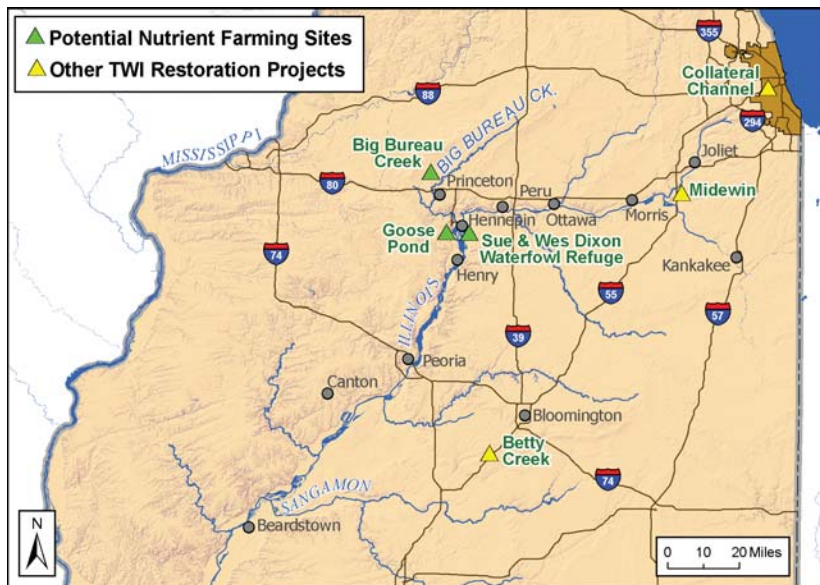
determine the most effective location for this project. The Pilot Project is expected to be funded by both public and private resources, including economic stimulus funds now being considered by Congress.

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 site 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 be needed 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.



TWI has identified several potential sites for the Illinois River Nutrient Farming Pilot Project. Sites are currently in the permitting or development stages.



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



Gary Sullivan, TWI

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

## Pilot Project Partners and Research Topics

Bradley University—soil development

Field Museum of Natural History—birds

Illinois Natural History Survey—waterfowl and fish

Iowa State University—water quality

Metropolitan Water Reclamation District of Greater Chicago—water quality sampling

The Nature Conservancy—biodiversity

Northwestern University, Kellogg School of Management—market economics

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; greenhouse gas emissions and CO<sub>2</sub> sequestration

University of Missouri-Columbia—agricultural economics

University of Wisconsin—biodiversity

Western Illinois University—carp control; herptofauna; macroinvertebrates