



**Great Lakes Protection Fund**

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**Funded Project**

# Using Active Management of Drain Networks to Improve the Great Lakes Ecosystem

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Project No.	994
Timeline	2013 – 2017
Award Amount	\$355,000
Team Leader	Dennis McGrath, The Nature Conservancy, <a href="mailto:dmcgrath@tnc.org">dmcgrath@tnc.org</a>
Project Website	<a href="http://www.tnc.org/gldrain">http://www.tnc.org/gldrain</a>

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This project will lead to significant reductions in nutrients and sediment in Great Lakes tributaries and coastal areas with the development and application of a novel, automated, real-time drain tile management network. Regions around the Great Lakes with the most serious nutrient issues, such as Saginaw Bay and Western Lake Erie, have some of the densest drain tile networks in the U.S. Recent research indicates that drain tiles are often the largest single source of biologically available phosphorus but that active drain management can be an important practice for controlling that phosphorus.

This team will explore the feasibility of combining two different technologies: an active drain tile management technology and an optimization software that allows for real-time, wireless management of networks of sensors and control structures. In its final form, the system will consist of a network of real-time sensors (installed at the field and sub-watershed scales) and drain control structures, that will be integrated with an optimization system and a wireless communication network. The team will examine the technology, assess the environmental and agronomic impacts, explore the opportunities in the Great Lakes basin, identify the physical settings where a “smart drain network” can reduce nutrients, and identify a potential market for services.