Great Lakes Protection Fund
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Funded Project

Optical Technology to Efficiently Detect Sewage Contamination for Rapid Remediation

Project No.	1065
Timeline	2015 – 2020
Award Amount	$1,424,000
Team Leader	Steven Corsi, U.S. Geological Survey, srcorsi@usgs.gov

The goal of this team was to build a first-of-its-kind hand-held, real-time, optical sensor that would have the capacity to locate human sewage contamination in streams and storm sewers and significantly speed up the repair process on pipes and wastewater conveyance systems. Contamination of urban waterways by leaking wastewater systems, and the tracking of this contamination back to the source, is widely recognized as a challenging problem. No tools exist today that can rapidly and accurately identify sewage contamination in surface waters.

To determine those optical signals that consistently indicate human sewage, the team initiated an extensive field sampling and laboratory analysis program. The team worked in three watersheds in three states within the Great Lakes basin: the Kinnickinic River in Milwaukee (WI); the Clinton river in Macomb County (MI); and Red Creek in Monroe County (NY).

After several years of sampling, the team found that the optical technology works well in larger watersheds but as one moves up into increasingly smaller drainages, and into neighborhoods, there is too much variability and background “noise” for the technology to work consistently. The team is currently using the techniques they developed and tested in larger watersheds in the Milwaukee area and in the Grand River near Grand Rapids, Michigan.