Sand County Foundation
Conservation Brief

April 2023

Innovations for Phosphorus Compliance in the Milwaukee River Basin

Sand County Foundation (SCF) supported the first Wisconsin Pollution Discharge Elimination System (WPDES) permit effort working with farmers in the Milwaukee River Basin to apply a performance-based conservation (PBC) approach to adaptive management.

The complexity of water-related challenges is expected to be exacerbated by increased frequency of high-intensity precipitation events over the next few decades. Over the last 50 years, nitrate and phosphorus (P) concentrations increased in many Midwestern water bodies, specifically, those in agricultural watersheds. **Municipal water utility departments have been challenged with communicating to their users the concept that urban and rural communities are connected by a shared watershed.**

The Wisconsin Department of Natural Resources (DNR) allows point-source P dischargers to utilize adaptive management or nutrient trading options to obtain WPDES permit compliance as an alternative to expensive utility infrastructure upgrade requirements. To date, over 60 permittees are using these options, often investing in streambank stabilization or retiring one or two farm fields from production. **Few incentivize conservation practices on annual cropland,** due to complexity in documenting P reductions dispersed across multiple farms.

With a 2018 Fund for Lake Michigan (FLM) grant, SCF piloted a novel PBC approach with the Village of Grafton wastewater utility department, focusing on bridging urban and rural communities and sharing outcomes with local and state agency representatives.

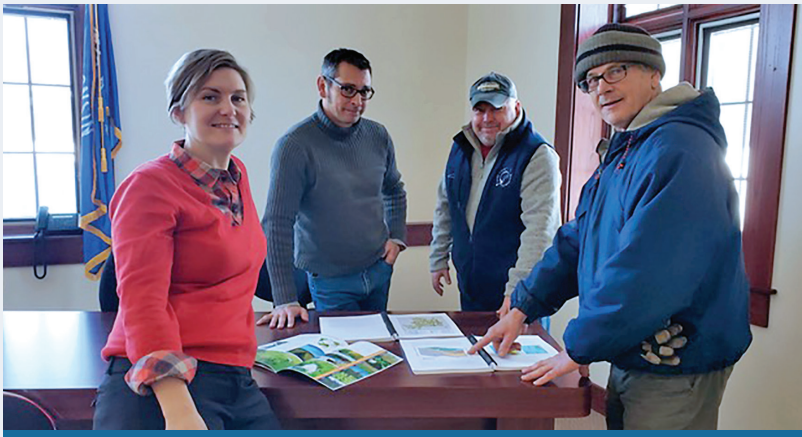
The objective of the PBC pilot was to incentivize the adoption of agricultural conservation practices to farmers upstream of the utility's discharge point to reduce P loading to the Milwaukee River. As a result in 2021, the Village of Grafton pursued a Wisconsin DNR adaptive management plan to meet their waste water treatment plant water quality permit needs.

SCF advised the Village of Grafton on applying a PBC approach (versus a pay-for-practice approach) to meet municipal WPDES permit compliance needs while facilitating cash incentive contracts to farmers implementing practices for nutrient and sediment reduction. SCF developed a strategy to better facilitate farmer engagement by crop consultants and conservation professionals. The PBC farmer incentive approach pays farmers according to the modeled (SnapPlus) P (pounds) retained on the land (compared to what was previously lost with surface runoff) resulting from the implementation of new conservation practices on their fields.

Applying a PBC approach for conservation delivery reduced P loss by 933 pounds across just two farms, at a cost of approximately $21 per pound. When compared to the outcomes from applying a standard pay-for-practice approach, the average cost was $100 per pound, with only three of nine farms resulting in a P reduction from the modeled conservation practices. Therefore, the pilot results suggest PBC is a viable alternative funding option to incentivize environmental improvement within a watershed.

A PBC incentive system, customized to fit local conditions *(landscape and economic)* and farmer networks in existing watershed-based projects, can accelerate nutrient management adoption and leverage non-federal conservation funding for farmers.

A successful watershed approach is a critical piece to achieving Grafton's 15-year adaptive management goal of over 62,000 pounds of P reduction to the Milwaukee River Basin, and ultimately Lake Michigan.



It takes a village; PBC requires collaboration with stakeholders across the watershed.

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www.sandcountyfoundation.org/PerformanceBasedConservation

Project partners and sponsors:

Fund for Lake Michigan

Ozaukee County

MMSD Partners for a Cleaner Environment

Grafton Quality Life Naturally

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Sand County Foundation

Sand County Foundation inspires and empowers a growing number of land owners and managers to ethically care for the land to sustain water resources, build healthy soil, enhance wildlife habitat, and support outdoor recreation.

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