



ACHIEVING WATER-QUALITY GOALS WITH A COMMUNITY-BASED APPROACH



In 2023, Sand County Foundation (SCF) launched a pilot project in Wisconsin to develop a relationship between Johnsonville, LLC and farmers in the Sheboygan River watershed to achieve water quality goals through on-farm conservation implementation to reduce phosphorus and sediment runoff loss.

Johnsonville treats process and sanitary wastewater from its campus in the Town of Sheboygan Falls, as well as the sanitary wastewater from the Village of Johnsonville. The final effluent is discharged into the Sheboygan River as a point source permitted by the Wisconsin Department of Natural Resources. Johnsonville has been working to reduce phosphorus discharge from its food processing facility for over 10 years. Improved wastewater treatment processes over the last decade cut the average phosphorus concentration in its effluent from about 0.5 mg/L to less than 0.25 mg/L and Johnsonville now discharges on average less than two pounds of phosphorus per million gallons water treated. Johnsonville's total phosphorus discharge still exceeds the 247 pounds per year allocated under the Northeast Lakeshore Total Maximum Daily Load.

Collaborating on a Water-Quality Solution

Two compliance options available to point source dischargers like Johnsonville are adding wastewater treatment equipment that removes more phosphorus from the point-source effluent, and creating water quality trading partnerships to reduce phosphorus loads across a larger portion of the watershed. Johnsonville wanted to learn whether cost-sharing with watershed partners could produce better overall outcomes in terms of phosphorus and sediment loading compared to investing in wastewater infrastructure.

Performance-based conservation is a system for agricultural conservation delivery that is predicated on planning and modeling whole farm systems to look for management and practice changes or additions that create the highest response to resource concern(s). Rather than receiving an incentive payment for implementing a new farming practice, regardless of the benefit, (i.e., paid based on the practice that is added), performance-based conservation applies a direct value to the farmer for the environmental response of the system that has been adopted and provides data on the environmental impact of their change (i.e., price paid per pound of phosphorus or sediment loss prevented by the practice added).

SCF modeled conservation implementation scenarios for four farms participating in the pilot which represent a diverse mix of production including dairy, grain, and livestock. The scenarios include fertilizer and manure management, reduced tillage, buffers, alternative crops, and cover crops. By modeling various options, the team could identify those that provide both agronomic and environmental benefits.





Innovative Partnership = Impressive Impact



Johnsonville's partnership with four local farms in 2024 achieved remarkable conservation results. A full review of each farm, combined with strategic scenario building, guided the implementation of conservation efforts across **1,432 acres**. This led to a reduction of **618 pounds of phosphorus** and **64.9 tons of sediment** from entering local waterways. The key to this success was a data-driven approach, empowering farms to make management changes tailored to their farm systems.

Nutrient and Sediment Savings Translate to:



4.2 Dump Trucks
worth of soil saved from
reaching waterways



154.5 tons
of wet algae
growth avoided



\$546.80
worth of
phosphorus
fertilizer held
in field



Natural Resources
Conservation Service
U.S. DEPARTMENT OF AGRICULTURE

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Sand County Foundation inspires and empowers farmers, ranchers, and forestland owners to ethically care for the land to sustain water resources, build healthy soil, and enhance wildlife habitat.

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