

2019 Update

Land Owner and Grower Project Summary

Silver Creek Pilot Watershed Project

The Silver Creek watershed is about 7.5 square miles (4,800 acres) and is located 1 mile west of the Austin Straubel airport. Silver Creek flows from Outagamie County into Brown County, and is a tributary to Duck Creek, which flows into the bay of Green Bay. Water testing in Silver Creek shows that it has high levels of phosphorus and sediment, which contribute to algae growth, low oxygen, and loss of habitat for fish and aquatic life.

The Silver Creek pilot project started in June 2014 and is a partnership between agricultural land owners and operators; state, local and tribal governments; and NEW Water, the brand of the Green Bay Metropolitan Sewerage District. The overarching goals of the project are to improve water quality in Silver Creek and establish a long-term partnership between NEW Water and the agricultural community. To achieve these goals, the project works to improve soil health, implement operational improvements, and install conservation practices to retain phosphorus and soil on the field. Success and progress towards these goals to date is due in large part to the participation by land owners and operators in the Silver Creek watershed.

2018 – Year Three of Implementation

The implementation of practices began in 2016 and continued throughout 2017 and 2018. The verification of previously installed practices was initiated in 2017 and continued in 2018. Accomplishments of the pilot project over the last five years include:

- » Soil nutrient sampling at 2.5 acre grids for all fields
- » Annual field walks with conservation and agronomic professionals to identify opportunities for reducing field-level phosphorus and soil loss
- » Conservation and Enhanced Nutrient Management Plans developed with each participating land owner and grower
- » Obtained conservation practice funding, utilizing a variety of funding sources to meet the needs of the grower or land owner
- » Assisted with contracting, implementation, inspection, and operation of the conservation practices; using GIS technology to collect, organize, and communicate information

Practices Implemented in 2018

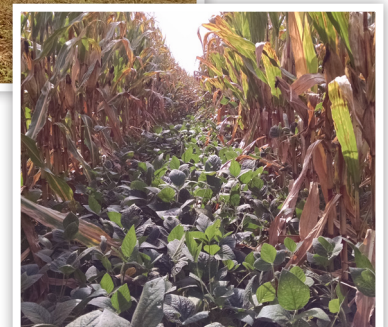
- » 6 acres of critical area plantings
- » 16 acres of filter strips
- » 3 acres of diversion
- » 13 acres converted to CRP
- » 27 acres of wetland construction
- » 20 acres of biomass
- » 15 acres of cereal/harvestable forage
- » 118 acres of cover crops
- » 1,531 acres of land in cover (cover crops, alfalfa, grass, CRP)
- » 410 acres of tillage practices changed
- » 68 acres used precision nutrient management techniques
- » 35 acres of pollinator habitat established

Pilot Project Efforts in 2019 and Beyond

- » Re-walk selected fields to confirm conservation and nutrient management opportunities
- » Repeat soil sampling for all fields in the fall of 2019
- » Meet with individual land owners and growers to review conservation opportunities and implementation
- » Verify installed practices and monitor performance
- » Continue monitoring phosphorus water quality along Silver Creek
- » Update conservation and enhanced nutrient management plans biannually



Cover crop planted with Interseeder™:



Conservation Practice Spotlight: Water and Sediment Control Basins

Water and Sediment Control Basins, or WASCBs, are short earthen dams designed to slow the speed of water leaving a field during a runoff event. WASCBs are effective ways to prevent gully erosion, trap sediment, and manage farm field runoff. A large field in Silver Creek with complex topography historically had problems with erosion and drainage prior to the project. After walking the field to identify possible conservation practices, two options were designed. The first option included a complicated network of critical area plantings, grassed waterways, and buffer strips which would break up the field and increase complexity of tilling, planting, and harvesting (top photo, render). Option two included building three WASCBs which allowed the grower to maintain seamless operation of the field without losing a large amount of cropped acreage (bottom photo, May 2018). The WASCBs installed on this field are now fully operational and have helped retain soil on the field and improve drainage without any adverse operational effects on crop yield or farm operations.



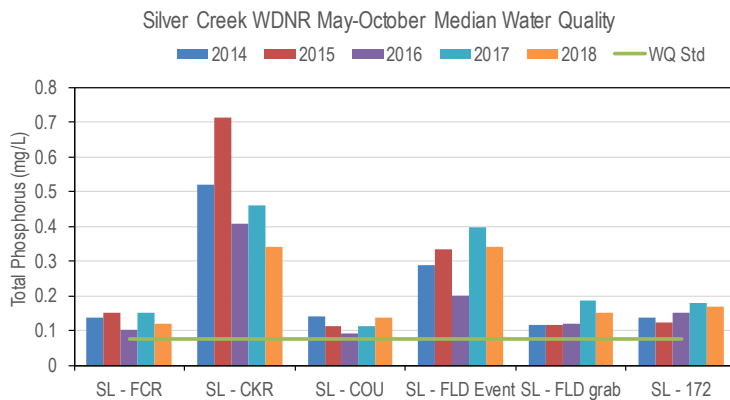
Biological Monitoring

Biological monitoring can assist in determining the success of on-field conservation implementation due to observations of in stream organisms, which indicate that biological data are correlated to the phosphorus levels in the watershed. The 2018 data show suitable habitat is present for biological communities in Silver Creek due to the species present, but that there is still some organic pollution present in the watershed. This is consistent with observed water quality data, and with the known implementation that occurred in 2018. Once practices are fully established, continued monitoring will be useful to demonstrate their successful performance.

Silver Creek Team expects that improvements in water quality will be observed gradually over time, as practices become well established and the creek has time to respond. Generally, these observed water quality improvements require a number of years post implementation.

Water Quality Monitoring

Grab and event-based water quality sampling has taken place at 5 locations along Silver Creek since 2014. A general trend of decreased phosphorus was observed beginning in 2016, following the installation and implementation of practices. Data from 2018 shows similar or decreased phosphorus concentrations, especially at the Crook Road crossing which has historically been high. The



Milestone	2014	2015	2016	2017	2018	2019
Silver Creek Pilot Duration	[Bar spanning 2014-2019]					
Water Quality Monitoring	[Bar 2014]	[Bar 2015]	[Bar 2016]	[Bar 2017]	[Bar 2018]	[Bar 2019]
Field Soil Testing	[Bar 2014-2015]					[Bar 2019]
Develop Conservation and Nutrient Plans		[Bar spanning 2015-2019]				
Implement Conservation and Nutrient Management		[Bar spanning 2015-2019]				
Develop Full Scale Program		[Bar spanning 2015-2019]				

Additional Information

For additional information about the demonstration project, please contact Erin Houghton (ehoughton@newwater.us or 920-438-1071) or Jeff Smudde (jsmudde@newwater.us or 920-438-1040).



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