

Heron Lake Phosphorus Reduction Project

Final Report

Jan Voit

June 13, 2016

Project Sponsor:

Heron Lake Watershed District

Grant Project Summary

Project title: Heron Lake Phosphorus Reduction Project
Organization (Grantee): Heron Lake Watershed District
Project start date: June 1, 2012 Project end date: May 23, 2016 Report submittal date: May 16, 2016
Grantee contact name: Jan Voit Title: District Administrator
Address: PO Box 345
City: Heron Lake State: MN Zip: 56137
Phone number: 507-793-2462 Fax: 507-793-2253 E-mail: jan.voit@mysmbs.com
Basin (Red, Minnesota, St. Croix, etc.): Des Moines County: Nobles, Jackson, Murray, and Cottonwood

Project type (check one):

- Clean Water Partnership (CWP) Diagnostic
- CWP Implementation
- Total Maximum Daily Load (TMDL) Development
- 319 Implementation
- 319 Demonstration, Education, Research
- TMDL Implementation

Grant Funding

Final grant amount: \$0.00 Final total project costs: \$326,934.78
Matching funds: Final cash: \$0.00 Final in-kind: \$6,903.05 Final Loan: \$320,031.73
Contract number: SRF0257 MPCA project manager: Katherine Pekarek-Scott

Executive Summary of Project (300 words or less)

The Heron Lake watershed, a subwatershed of the West Fork Des Moines River (WFDMR) watershed, encompasses approximately 472 square miles and is located in portions of Nobles, Jackson, Murray, and Cottonwood Counties in southwestern Minnesota. In December 2008, the Environmental Protection Agency approved a Total Maximum Daily Load (TMDL) Report encompassing 32 impairments in the WFDMR watershed. These impairments include phosphorus, turbidity, and bacteria. The WFDMR and Heron Lake TMDL Study states the sources contributing to excess phosphorus in North and South Heron Lake were divided between point source, primarily wastewater treatment facilities and nonpoint sources, including cropland/pasture runoff and streambank erosion. The primary contributing sources to bacteria were found to be livestock on overgrazed riparian pasture, surface-applied manure on cropland, feedlots lacking adequate runoff controls, and inadequate septic systems. To meet the water quality goals, a 10 percent to 86 percent reduction in bacteria, a 20 percent to 90 percent

reduction in turbidity, and a 79 percent reduction in phosphorus is needed.

Decreasing the amount of phosphorus and bacteria entering the Heron Lakes is necessary to meet the TMDL goals. The Heron Lake Watershed District (HLWD) Watershed Management Plan, WFDNR and Heron Lake TMDL Implementation Plan, and county water plans recognize on-the-ground best management practices (BMPs) as being the most effective way to address these nutrients.

From June of 2012 through May of 2016, HLWD staff worked with watershed landowners to achieve project implementation. During that time period 27 septic systems were replaced as shown in **Figure 1**. It is estimated that these replacements will reduce phosphorus by 277 pounds per year, nitrogen by 730 pounds per year, total suspended solids by 5,783 pounds per year, biochemical oxygen demand by 10,468 pounds per year, and bacterial colony forming units by 1.93 E+15.

Partnerships (Name all partners and indicate relationship to project)

- Heron Lake Watershed District: project sponsor, project administration, and in-kind contribution
- Douglas Damm: replaced failing septic system
- David and Donna Lappe: replaced failing septic system
- Wally and Wendy Cooper: replaced failing septic system
- Nicholas and Darci Jenkins: replaced failing septic system
- Richard and Diane Freking: replaced failing septic system
- David and Jessica Janssen: replaced failing septic system
- David and Sheila Graff: replaced failing septic system
- Gordon and Mary Liepold: replaced failing septic system
- Kevin Busch: replaced failing septic system
- Mark and Sara Eisfeld: replaced failing septic system
- Arthur Olsem: replaced failing septic system
- Karen Bullerman: replaced failing septic system
- Stuart Rogers: replaced failing septic system
- Gary Brewington/Erin Brewington: replaced failing septic system
- David and Sheila Bos: replaced failing septic system
- Lance and Rachel Daberkow: replaced failing septic system
- Glen and Wilma Gunderman: replaced failing septic system
- Jessica Kremer and William Anderson: replaced failing septic system
- Dennis and June Daberkow: replaced failing septic system
- Diane Hulstein: replaced failing septic system
- Anthony and Alexa Johnson: replaced failing septic system
- Alex and April Busch: replaced failing septic system
- Scott and Lisa Johnson: replaced failing septic system
- Lisa Limmer/Barbara Amundson: replaced failing septic system
- Kirk and Angela Freking: replaced failing septic system
- Mark and Jessica Riley: replaced failing septic system
- Wayne and Maryann Sieverding: replaced failing septic system

Picture



Description/location: Mound system installation, NE ¼ of Section 34, Bondin Township, Murray County

Acronyms (Name all project acronyms and their meanings)

- WFDNR – West Fork Des Moines River
 - TMDL – Total Maximum Daily Load
 - HLWD – Heron Lake Watershed District
 - BMPs – Best Management Practices
 - CWP – Clean Water Partnership
 - SERP – State Environmental Review Process
 - MPCA – Minnesota Pollution Control Agency
 - SWCD – Soil and Water Conservation District
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Work Plan Review

1. Work Plan Changes

1.1. Amendment 1: September 26, 2014

Due to weather constraints and inability to secure contractors, project staff has determined that the loan funds will not be used within the current loan period. This amendment extended the timeframe by one year.

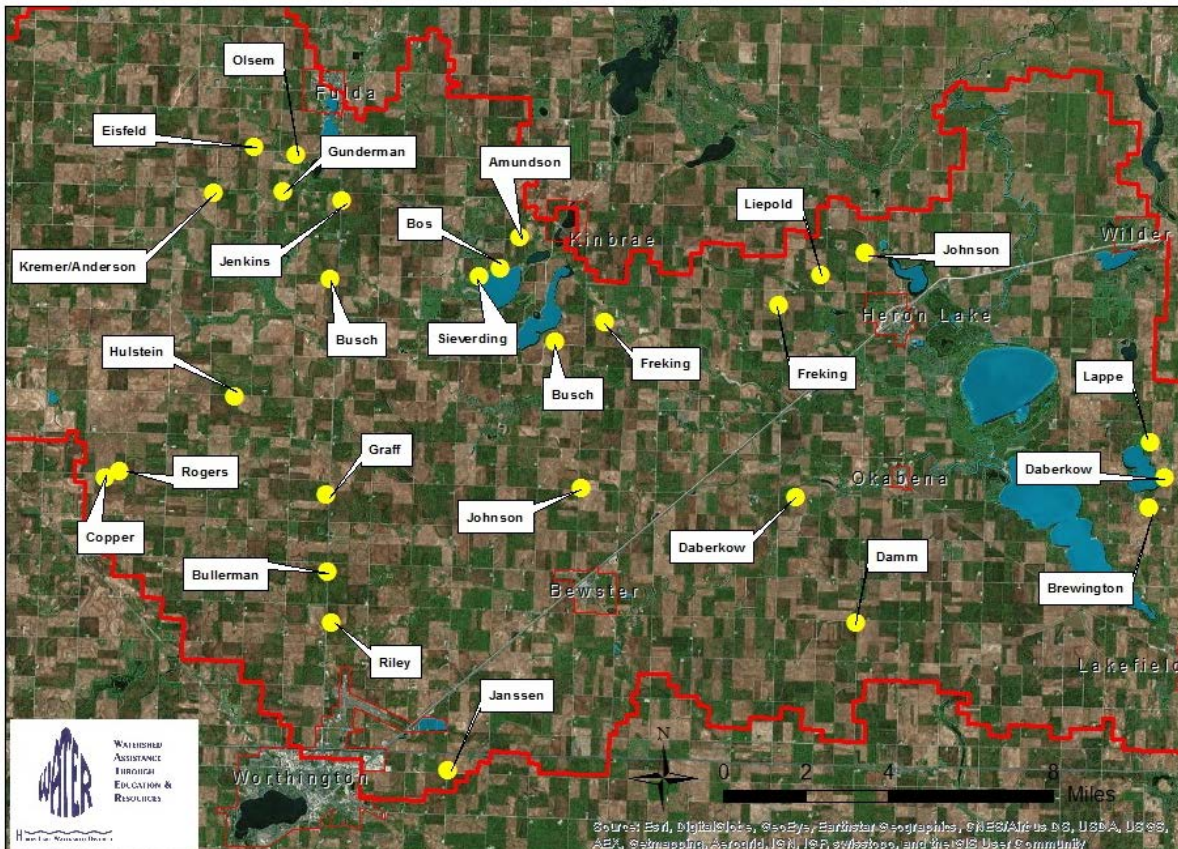
2. Activities and Tasks

Objective 1: Project implementation

Task A: Loan Implementation

- Two septic systems were installed in 2012. Total funds disbursed were \$20,201.48.
- Four septic systems were installed in 2013. Total funds disbursed were \$47,013.47.
- Nine septic systems were installed in 2014. Total funds disbursed were \$108,420.02.
- Twelve septic systems were installed in 2015. Total funds disbursed were \$144,396.76.
- Project locations are shown in **Figure 1**.

Figure 1. Clean Water Partnership (CWP) Low-Interest Loan Program Project Locations
CWP Low-Interest Loan Program

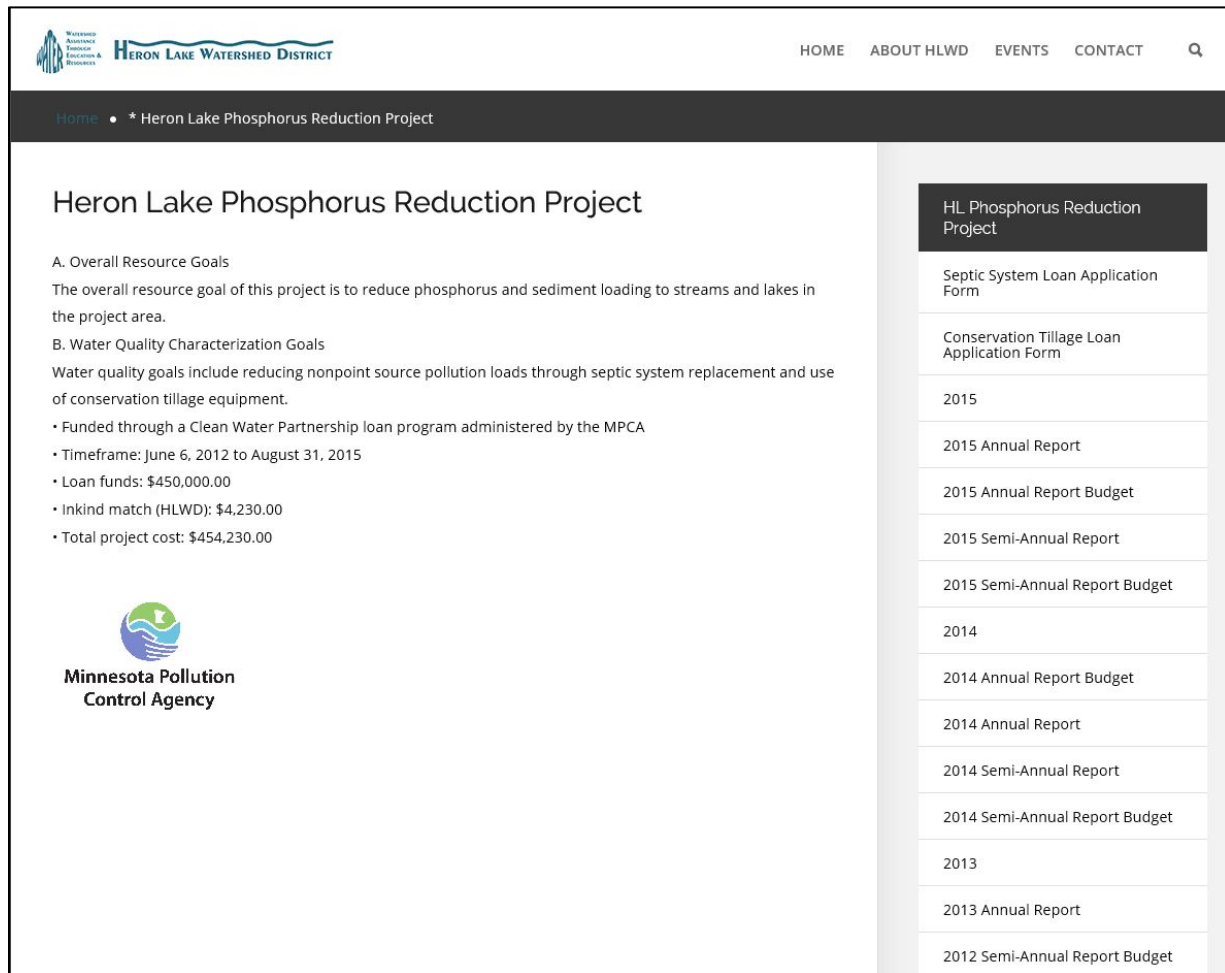


Objective 2: Project oversight

Task A: Loan program administration

- The general obligation promissory note, bond counsel opinion, and State Environmental Review Process (SERP) checklist were completed and obtained.
- The SERP Categorical Exclusion from Environmental Review public notice was published.
- Each loan required the homeowner to complete the application form and submit a cost estimate. The homeowner worked with their respective county and contractor throughout the installation process. The county was responsible for inspection and issuing a certificate of compliance. HLWD staff submitted a disbursement request to MPCA upon project completion and certification. After funds were received from MPCA, payment was issued to the contractor(s).
- Jan Voit revised the loan application forms. They were approved by MPCA on June 18, 2012. All forms can be found in **Appendix 1**.
- A press release announcing the availability of low-interest loans for septic system replacement and conservation tillage equipment was distributed to local news media on June 18, 2012 and April 9, 2013. This information can be found in **Appendix 2**.
- Information regarding the CWP Loan Program was added to the website on June 27, 2012 (See **Figure 2**).
- On July 18, 2012, a memo regarding the CWP loan program was sent to contractors, county water plan coordinators, and Soil and Water Conservation District (SWCD) staff. The memo included information about loan program requirements, as well as how to find the application forms on the HLWD website. Another memo was sent out April 28, 2015 regarding the remaining loan funds of \$275,300.00. The information can be found in **Appendix 3**.
- In February 2014, 2015, and 2016, an advertisement for the loan program was submitted to the *Tri County News* for inclusion in their farm supplement. The advertisement can be found in **Appendix 2**.
- Due to weather constraints and inability to secure contractors, it was determined that loan funds would not be used within the original time frame. Contact was made with MPCA. The work plan was amended to reflect changing the end date from May 2015 to May 2016. The amendment was submitted on June 20, 2014. The resolution for the loan program extension was approved by the HLWD and MPCA. It was approved on September 26, 2014. The new end date is May 23, 2016.
- On March 29, 2016, Pete Fastner, MPCA contacted Jan Voit regarding eLINK reporting. Up to this point, it had not been a requirement to track septic system loans in eLINK. CWP loan only projects that were started in the last four years have now been added into eLINK and should provide the BMP locations and pollution reduction information.
- On April 14, 2016, 26 projects were entered in eLINK. Catherine Wegehaupt has mapped the projects sites and reported pollution reduction information.
- On May 5, 2016, one project was recorded in eLINK. The site was mapped and pollution reduction information was entered.

Figure 2. Heron Lake Phosphorus Reduction Project Webpage



Task B: Submit reports

- Katherine Pekarek-Scott, MPCA and Jan Voit met via conference call on May 21, 2012. The purpose of the call was to discuss the work plan for the CWP. The work plan includes a narrative, budget, and timeline. The work plan was submitted to MPCA on May 24, 2012.
- The work plan was approved by MPCA on June 19, 2012.
- All semi-annual and annual reports were submitted prior to August 1st and February 1st respectively for the entirety of the project.
- The final report was submitted on May 10, 2016.

Project Obstacles and Lessons Learned:

Weather constraints and inability to secure contractors made project implementation difficult.

Grant Results

3. Measurements

In order to present measurable results, extensive documentation must be undertaken. Section 2 summarized the activities completed during the grant period. The measurements are described below by objective and task as presented in the work plan.

Objective 1: Project implementation

- Twenty-seven septic systems were replaced.
- The Board of Water and Soil Resources Septic System Improvement Estimator was used to provide pollution reduction information for the septic system replacement projects.
- It is estimated that the 27 septic system replacements will reduce:
 - phosphorus by 277 pounds per year,
 - nitrogen by 730 pounds per year,
 - total suspended solids by 5,783 pounds per year,
 - biochemical oxygen demand by 10,468 pounds per year, and
 - bacterial colony forming units by 1.93 E+15.

Objective 2: Project oversight

- Semi-annual and annual reports were submitted and approved as described in Objective 2 Task B.

4. Products

There have been several products produced through this grant. The documents, as well as the appendices in which they are located, are listed below.

4.1. Appendix 1 – Loan Forms

- 01 Septic System Loan Application Form
- 02 Conservation Tillage Equipment Loan Application Form
- 03 Internal Routing Sheet
- 04 Lien Agreement for Septic System Loan

4.2. Appendix 2 – Direct Mailings

- 01 Memo to Contractors 2012
- 02 HLWD Financial Newsletter 2013
- 03 HLWD Financial Newsletter 2014
- 04 Memo to Contractors 2015
- 05 HLWD Financial Newsletter 2015

4.3. Appendix 3 – Media Information

- 01 CWP Loan Program Press Release 2012
- 02 CWP Loan Program Press Release 2013
- 03 Low-Interest Loan Advertisement 2014
- 04 Low-Interest Loan Advertisement 2015
- 05 Low-Interest Loan Advertisement 2016

5. Public Outreach and Education

Although education was not a specific work plan task, efforts were undertaken to meet one-on-one with landowners and contractors, as well as to provide information to the general public regarding the low-interest loan program.

On July 18, 2012, a memo was sent to 28 contractors, four county water plan coordinators, and four SWCD staff. The purpose was to let them know the amount of loan funds remaining and the program end date.

In 2012 and 2013, press releases were drafted and sent to the *Tri County News* for publication. The main coverage for this newspaper is Jackson and Nobles County. Subscriptions total about 575, with about 150 store copies available for purchase at various locations in the immediate area.

A webpage devoted to the grant was developed for the HLWD website in 2012. Each year the semi-annual and annual reports were uploaded to the site. The application forms for septic system replacement and conservation tillage equipment purchase were also uploaded.

On April 28, 2015, a memo was sent to 28 contractors, four county water plan coordinators, and four SWCD staff. The purpose was to let them know the amount of loan funds remaining and the program end date.

In August of 2013, 2014, and 2015, the HLWD annual newsletter contained information regarding the low-interest loan program. The newsletter was sent to approximately 3,400 watershed residents, agency personnel, and legislators each year.

The HLWD annual reports in 2012, 2013, 2014, and 2015 contained a summary of the CWP loan program. These reports were distributed to two nonprofit organizations, three watershed districts, eight city councils, 24 townships, 24 SWCD managers and supervisors, 20 county commissioners, eight county staff and four county auditors, 18 state agency staff, nine federal agencies, two legislators, five HLWD managers, and three HLWD staff.

6. Long-term Results

The following information comprises the long-term results of the project.

- Many inquiries were made regarding SSTS replacement projects within the last six months of the project. The systems could not be installed within the loan agreement timeframe. Because of the continued landowner interest, the HLWD submitted an application for additional CWP loan funds. Through this project, the HLWD proposes to replace 30 septic systems over the three-year period.
- While new partnerships were not established with non-profit groups or agency personnel, the working relationship with those entities continued. New partnerships were formed with the landowners receiving low-interest loan funds.
- The final report for the Heron Lake Phosphorus Reduction Project will be submitted to local and state agency personnel, advisory committee members, and legislators. It will also be posted on the HLWD website. Making this information available provides an opportunity to show that septic system replacement does improve water quality.

- In 2015, Phase 2 of the Watershed Restoration and Protection Strategies (WRAPS) was undertaken for the WFDNR watershed. The HLWD is the lead agency for this effort. Several inventories will be conducted, one of which may be septic systems. The outcome of the WRAPS will be a set of complete watershed management strategies to address restoration of impaired and protection of unimpaired waters. This information will provide an improved understanding of the watershed and the ability to prioritize project implementation for water resource protection and restoration activities.
- In order to make the best use of general operating funds, the HLWD will continue to put forth extensive efforts to obtain outside funding to assist with water quality improvement efforts.

7. Final Expenditures

The final expenditures can be found in the attached Excel document.