2023 Final Activities Report | 2023 Lake Protection Grant LPT#80123

Riparian Restoration to Improve Water Quality and Habitat

The following is the 2023 report for the DNR Lake Protection Grant, "Riparian Restoration to Improve Water Quality and Habitat." This grant provides CPZ with the opportunity to continue the efforts of implementing lake management plans created from 2010-2015, as well as building community capacity in the watersheds surrounding these lakes.

Along with the deliverables listed below, the Water Resources Technician (WRT) continues to provide technical assistance to landowners for shoreland/wetland restorations and stormwater management issues.

Every goal and deliverable that was addressed in 2023 is listed below.

Goal 1.a: Community Engagement: Create relationships with property owners within the watershed by conducting property visits and meeting farmers at field days and other events. Host an outreach event in Fenwood Creek Watershed.

The WRT, along with other conservation staff, hosted an event called "Moving Fenwood Forward". This event was attended by 140 landowners and provided them with information from a local, state and federal agencies and agricultural vendors. Each agency/vendor provided a short presentation and hosted a booth that allowed for 1 on 1 conversations. Through this event, CPZ connected with landowners and helped secure 15 new site visits and potential conservation projects.

Some pictures from the event. 140 landowners were able to listen to lightning talks from conservation partners and were able to engage in 1 on 1 conversations with those agencies at booths/tables set up around the room.

Goal 1.b: Watershed Inventory (Buffer focus): Complete an inventory of the Fenwood Creek watershed to determine current landscape conditions. Inventory will include agricultural lands as well as the other land uses that exist in the riparian areas.

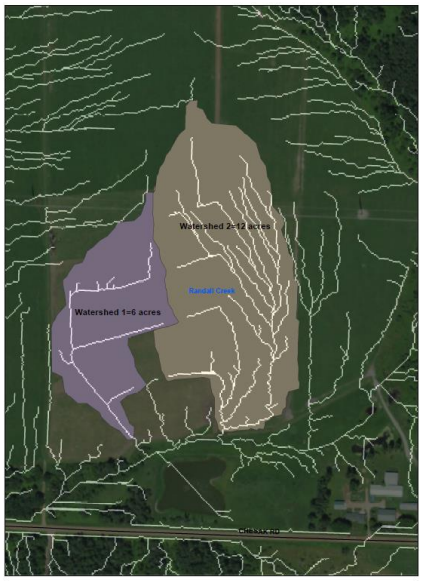
The WRT, with help from other conservation staff, completed an inventory of the Fenwood Creek watershed. Site visits were completed on properties that had land adjacent to the main branch of Fenwood Creek. From these site visits, problem areas were highlighted, and a letter was sent to the landowner, or a site visit occurred. These visits and follow-ups led to the commitment of several projects for the 2024 construction season including waterways, diversions, and pond outlet projects.

Goal 1.c: Water Quality Monitoring: Collect regular water quality samples to test for sediment and nutrients (Total Phosphorus and Total Suspended Solids) to help track improvement within the watershed. Work with UW Discovery Farms to collect edge-of-field samples from their monitoring stations in Marathon County.

WRT continued the monitoring and sampling efforts that had been started on Fenwood Creek and expanded those efforts to include 4 total sites along Fenwood Creek. Along with the twice a month sampling, the WRT also started a chapter of WAV (Water Action Volunteers) which led to 10 more sites being monitored. These additional sites will help provide valuable information about the over surface water quality in the county.

One of the 4 sampling locations on Fenwood Creek. This location is near the bottom of the Fenwood Creek Watershed. We collect data on total phosphorus, total suspended solids, temperature, dissolved oxygen, and discharge.

WRT continued the working relationship with UW Discovery Farms for edge of field monitoring. In 2023, one of the edge of field monitors needed to be relocated and the WRT assisted with mapping the watershed to determine a new monitoring location.



These watershed maps were used to determine the best location for the edge of field monitor. A field visit was also completed to verify the size of the drainage area. This will make for more accurate data.

Goal 1.d: Water Quality Monitoring: Create a Marathon County chapter of the Water Action Volunteers (WAV) program (run by UW-Extension/DNR) to gather additional pertinent data about the surface water quality in the County.

The WRT hosted a training event for new Water Action Volunteer (WAV) members in April of 2023. Nine members from the public attended the training and helped monitor 13 different locations. The 13 locations were scattered throughout the entire county which will help provide information about the water quality across many different streams and watersheds.

WAV training on the Eau Claire River in April 2023

Goal 1.e: Technical Assistance-Conservation Practice Funding: Work with producers within the Fenwood watershed to assess resource concerns, determine conservation/soil health practices needed to correct resource concerns, and direct eligible producers within the watershed to conservation program funding opportunities.

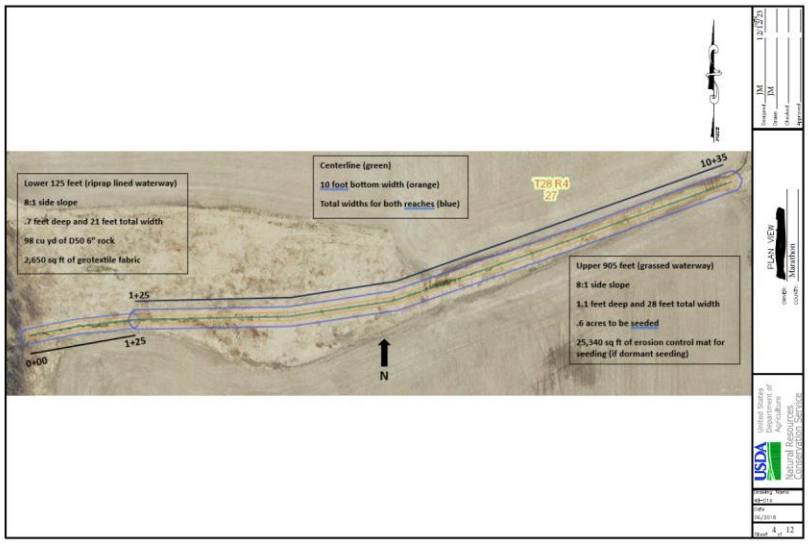
All site visits that were conducted this year in the Fenwood Watershed were followed up with a letter that was accompanied with a map (see map below). This map shows areas of the property that would benefit from the installment of CREP (Conservation Reserve Enhancement Program) practices. Other letters included suggestions to install waterways, diversions, and other erosion control practices. As of the end of 2023, there are three completely committed projects that will be planned for and possibly installed in 2024. One of the projects may take two construction seasons to complete.

- 35 foot wide grass filter strip (CP-21) on each side of creek.
- 91,602.77 sq ft = 2.1 acre.
- Total Estimated Payments:
  - 15-Year Agreement (contract) = **$5,885.65**
  - Perpetual Easement = **$8,487.55**

The highlighted areas on the image above are areas that could be improved by installing a grassed waterway. For more information about grassed waterways and possible cost-sharing opportunities for these projects please contact the Marathon County Conservation, Planning, and Zoning Department at 715-261-6000.

An example of one of the follow up letters to landowners. This letter illustrated the areas of concern and provided CREP payment estimates for acreage removed from production.

One the projects that will be implemented in the summer of 2024 is a grassed/lined waterway along the main branch of Fenwood Creek. The plan for this project has been completed by the WRT, but due to some minor delays, the installation of the project needed to be delayed until 2024.



One of the pages from the completed plan for the grassed/lined waterway. This page includes the plan view for the project.

One of the goals for Marathon County was to reinvigorate the CREP program. In 2023, the WRT and other staff made a targeted effort to get CREP projects implement on the landscape. The WRT was able to complete one site after successfully convincing the landowner to apply for CREP; survey and stake out the project area; and perform the final inspections for

the project. This project removed some conventionally farmed acres into a permanent buffer along an intermittent waterway.


Images of the planted buffer strip.

Goal 2.b: Community Engagement and Education: Continue to educate and engage landowners within the Big Eau Pleine watershed to contribute to better water quality in the reservoir by improving their land management practices.

In May of 2023, the WRT, along with some members of the Pike Lake Sportsman's Club, hosted a "Pike Lake Restoration Day" at the Town of Reid Town Hall. Twenty-five landowners from around the watershed attended the event to learn about the importance of water quality and how we can make improvements on the landscape that will benefit the water. Presenters included staff from Golden Sand RC&D, WIDNR, UW Extension Lakes, and Marathon County Conservation, Planning, and Zoning. The event was well received, and it led to site visits with interested landowners.


Two of the presenters at the Pike Lake Restoration Day. Chris Hamerla, Golden Sands RC&D and Pat Goggin, UW Extension Lakes

WRT continued creating the Fenwood Creek Watershed Newsletter to help stay engaged with the landowners of the watershed. The highlight of the issue shown below was the site visits and follow up efforts that Marathon County

Conservation Staff had completed throughout the watershed. Many of the site visits were followed up with a CREP (Conservation Reserve Enhancement Program) program participation estimate.


Marathon County

MARATHON COUNTY
Conservation, Planning & Zoning Department

FENWOOD CREEK WATERSHED
MOVING FENWOOD FORWARD

June 2023

Conservation Incentives: Installing CREP practices on your property

In the fall of 2022, Marathon County Conservation staff met with 35 different landowners within the Fenwood Creek Watershed to conduct site visits on their property. The goal of these visits was to determine if there were any programs that the property could be enrolled in that would provide payments to the landowners. Due to site characteristics and soil types, almost every site had acreage that was eligible for CREP (Conservation Reserve Enhancement Program). CREP is a program through the Natural Resource Conservation Service (NRCS) (in partnership with the County, FSA, and DATCP) that provides a sign-on incentive payment, annual rental payments, and cost-share payments for practice establishment on enrolled acres depending on soil types. Annual payments can range from $40/acre to as high as $230.40/acre! Some of the most common practices for CREP include Filter Strips, Buffer Strips, Wetland Restorations, and Grassed Waterways.

Shown here is an example of what a CREP practice could look like on your property and what payment amount would be associated with that practice.

CREP Estimate:

35 foot wide filter strip on south side of the creek
58,450 sq ft = 1.34 acres
ShA Soil Type Rental Rate: $96/acre
15 year agreement payment: $2,931.82
Perpetual easement payment: $4,282.64

This is just one option that may be available on your land. There are many different conservation practices that may fit better into your operation and still help improve the soil and water quality of the watershed. If you are interested in having a site visit, or would like to discuss possible projects that could be implemented on your property, call Marathon County Conservation at 715-261-6000.

An issue of the Fenwood Creek Watershed Newsletter from June 2023

Goal 2.c.: Habitat Improvement: Work with landowners to restore deteriorated streambanks and other areas with little or poor quality shoreland and in-stream habitat.

The WRT, along with other county staff, worked on the implementation of a native shoreland landscape on Barker-Stewart Island in Wausau. To implement this project, the site first had to be prepped. The preparation involved invasive species removal. Much of the removal was done by hand, but the Marathon County Parks, Recreation, and Forestry department assisted in some box elder tree removal as well. After the site was prepped, county staff plus volunteers from other local organizations and the Wausau Bird Club helped plant 600 native shrubs and groundcover species. Since this will be a demonstration site, signage was created that will help educate visitors about the importance of utilizing native species in a shoreland landscape.



Prepping the site by removing several box elder trees, and planting about 600 native plants.

Goal 3.a: Continue to provide education and outreach to Marathon County residents regarding water quality and soil health. This includes attending meetings, events, developing education materials (Eastern Lakes Times newsletter,

Eastern Lakes Facebook page, EPPIC Facebook page, etc.), and creating shoreland restoration plans that can be implemented to protect and improve water resources.

The WRT, along with the Marathon County Conservationist, completed an interview for Spectrum News in July of 2023. The interview was focused on the counties efforts in improving the water quality in the Fenwood Creek watershed. Farmers that have implemented conservation practices were highlighted, along with the county's water quality monitoring efforts in the watershed.

Snapshots from the Spectrum News Interview from July 2023

Similarly, to the Spectrum interview, the WRT was also involved in a published article for the Wisconsin Counties Association Magazine. The WRT and Marathon County Grazing Analyst authored an article for the magazine that highlighted the Fenwood Creek Watershed Pilot Program. This program incentivizes farmers to improve their land management practices and reduce their phosphorus index. Unlike other programs, this program allows farmers the flexibility of choosing whatever practices work best for them as long as they are able to reduce their phosphorus loss.

Photo: Marathon County Conservation Staff

Farmers Take Ownership in Improving the Big Eau Pleine Reservoir

by Brooke Bembeneck, Conservation Grazing Analyst, and Jared Mader, Water Resources Technician, Marathon County Conservation, Planning and Zoning Department

In the spring of 2009, the 7,000-acre Big Eau Pleine Reservoir in western Marathon County experienced a devastating event. Sportsmen, landowners and recreationists watched helplessly as thousands of dead fish surfaced with the melting of the ice that spring. Nothing could be done, the damage had been building up for years prior to the tragic result.

Although most people would think the problem was with the water, it was the management of land upstream of the reservoir. The Big Eau Pleine Watershed's land use is about 70% agriculture, with predominantly corn and bean rotations. Due to conventional agricultural practices, such as tillage and winter manure application, excessive soil erosion and nutrient runoff are far too common.

Every rain and snow melt event flushes soil sediment and nutrients (manure) into streams and rivers, adding hundreds of thousands of pounds of phosphorus into the reservoir. One pound of phosphorus can produce up to 500 pounds of algae. When algae growth is excessive in bodies of water, it has a negative impact on the oxygen levels in the water, especially when the body of water is covered by ice in the winter. This was the culprit of the 2009 Big Eau Pleine fish kill, in which 80% of the renowned fishery was lost.

Since the fish kill, the land management upstream of the reservoir has not altered much. Until agronomic practices seriously change, events like these are a continuous threat.

To prevent future fish kills, numerous state and local agencies and organizations partnered together and created a management plan for the reservoir. One of the recommendations from the "Strategies for Reducing Fish Kills in the Big Eau Pleine Reservoir" plan, published in 2017, was to develop a pilot program targeting one of the most phosphorus-laden smaller watersheds within the greater Big Eau Pleine Watershed.

In 2020, the Marathon County Conservation, Planning and Zoning Department launched the Fenwood Creek Watershed Pilot Program working with five farmers to utilize a new incentive program to reduce their soil and nutrient loss.

"As a lifelong resident in this watershed, I believe you have to start somewhere cleaning up the water," said Dave Bauman, one of the participating farmers who enthusiastically supports the program. "If we can get more and more farmers to start farming this way, you will start seeing many more results in our area and for the Big Eau Pleine Reservoir."

The pilot is a non-prescriptive, incentive program that allows farmers to pick the practices that best fit their operation, such as cover crops and reduced tillage, to voluntarily reduce the amount of phosphorus leaving their fields and eventually finding its way to surface waters.

"The thing I like the most about this program is it gives me so much flexibility to try things that work best for my farm," said farmer Keith Bauman. "What works for me might not work for the next person and the money helps with the cost of the things I try, which really helps cover any risk."

Unlike other programs that incentivize the installation of specific practices, the pilot program pays farmers $20-40 per acre to reduce their average whole-farm phosphorus index. Thus, incentivizing the desired outcome of the practice (large amounts of phosphorus reduction). In the first three years of the program, the five participating farmers have reduced their soil loss by 4,200 tons and their phosphorus loss by 5,240 pounds using conservation practices such as reduced tillage and cover crops.

To secure enough funding to expand this pilot program to the entire Fenwood Creek Watershed, state legislation has been introduced. The sponsors are hoping that the pilot program's success will provide enough evidence to promote rolling out statewide incentive programs for farmers who adopt superior conservation practices. ■

Brooke Bembeneck is a conservation grazing analyst and Jared Mader is a water resources technician for the Marathon County Conservation, Planning and Zoning Department.

HEALTHY WATERWAYS

"The thing I like the most about this program is it gives me so much **flexibility to try things that work best for my farm."**

– Keith Bauman

Photo: Marathon County Conservation Staff

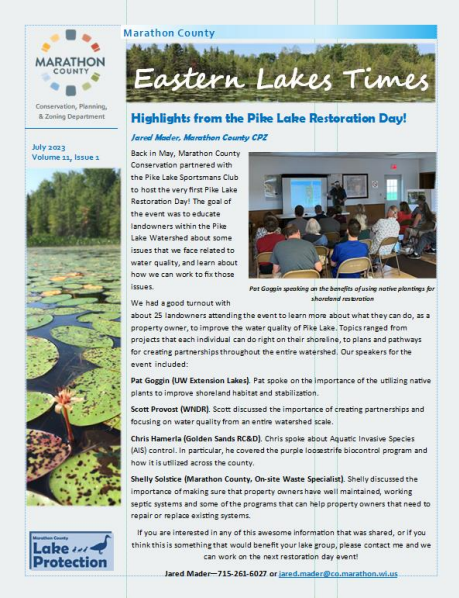
10 WISCONSIN COUNTIES

SEPTEMBER 2023 11

Image of the published article in the WI Counties Association Magazine (Sept. 2023 addition)

In October of 2023, the WRT, along with another member of the conservation team, presented at a field day for the sixth-grade class of a local school. The focus of the day was to teach the students about the importance of watershed management to improve water quality. The WRT demonstrated how conservation staff use different equipment to monitor water quality and how that data is needed to help encourage landowners to improve their land management practices.

WRT continued engaging lakeshore owners by producing quarterly issues of the Eastern Lakes Times Newsletters to stay connected with the landowners around the lakes in eastern Marathon County.



Marathon County

MARATHON COUNTY

Conservation, Planning, & Zoning Department

Eastern Lakes Times

July 2023
Volume 11, Issue 1

Highlights from the Pike Lake Restoration Day!

Jared Mader, Marathon County CPZ

Back in May, Marathon County Conservation partnered with the Pike Lake Sportsmans Club to host the very first Pike Lake Restoration Day! The goal of the event was to educate landowners within the Pike Lake Watershed about some issues that we face related to water quality, and learn about how we can work to fix those issues.

Pat Goggin speaking on the benefits of using native plantings for shoreland restoration

We had a good turnout with about 25 landowners attending the event to learn more about what they can do, as a property owner, to improve the water quality of Pike Lake. Topics ranged from projects that each individual can do right on their shoreline, to plans and pathways for creating partnerships throughout the entire watershed. Our speakers for the event included:

Pat Goggin (UW Extension Lakes). Pat spoke on the importance of the utilizing native plants to improve shoreland habitat and stabilization.

Scott Provost (WNDR). Scott discussed the importance of creating partnerships and focusing on water quality from an entire watershed scale.

Chris Hamerla (Golden Sands RC&D). Chris spoke about Aquatic Invasive Species (AIS) control. In particular, he covered the purple loosestrife biocontrol program and how it is utilized across the county.

Shelly Solstice (Marathon County, On-site Waste Specialist). Shelly discussed the importance of making sure that property owners have well maintained, working septic systems and some of the programs that can help property owners that need to repair or replace existing systems.

If you are interested in any of this awesome information that was shared, or if you think this is something that would benefit your lake group, please contact me and we can work on the next restoration day event!

Jared Mader—715-261-6027 or jared.mader@co.marathon.wi.us

Marathon County Lake Protection

Cover page from the Eastern Lakes Time issue that was sent out in July of 2023.

In partnership with the Big Bass Lake Protection and Rehabilitation District, the WRT created new homeowner packets that the District could distribute to any new home owners around the lake. The packet included information about creating native shoreland projects, local contacts, and information about some of the local zoning rules and ordinances.

During the 2016 -2019 Lake Grant period, Marathon County worked with the Lake DuBay Lions Club to install a shoreland demonstration site at Lake DuBay Lions Park. Since the installation in 2016, the site has been overgrown and taken over by weeds and other unwanted species. In the spring/summer of 2023, the WRT, along with Lions Club members, completely thinned, weeded, and replanted about half of the demonstration site. The plan is to complete the other half of the project in the spring/summer of 2024. The goal of the redesign as to create a low maintenance native landscape that will be attractive to a lake shore owner.

Weeding and thinning efforts.

Planting about 100 new native species.

In April of 2023, the WRT also helped write, administer, and grade the aquatic ecology test at the Wisconsin Envirothon Event. The WRT was also part of the station leaders for the event. This involved interacting with the students and providing them with information after the event about what kinds of areas they should be focusing on for the future.

The aquatic ecology station leaders at the 2023 Envirothon Competition

Goal 3.b: Water Resource Technician: To effectively implement projects and grow participation in healthy land management within Marathon County, a Water Resources Technician position will be funded. This position will help coordinate the activities listed above, provide technical assistance and education, as well as develop relationships with property owners throughout the county and project watersheds. Ultimately, the efforts of this position will help meet the goals of this grant application, the Marathon County Land and Water Resource Management Plan, Fenwood Creek 9 Key Elements Watershed Management Plan, Lake Wausau Protection and Improvement Plan, and Big Eau Pleine Strategies for Reducing Fish Kills Plan.

The WRT, with help from Golden Sands RC&D, hosted 2 pools for the purple loosestrife (PLS) biocontrol program. The two pools contained 12 plants and helped rear upwards of 1,000 beetles that were released into natural populations of purple loosestrife. Before the pools and plants were set up, the WRT also helped harvest the purple loosestrife roots for all the other volunteers.

Along with the small set up at the Marathon County office, the WRT helped set up a mass rearing cage at the Marshfield Agricultural Research Station (MARS).

Collecting PLS roots with Chris Hamerla from Golden Sands and Marathon County CPZ's beetle rearing setup

Goal 3.c: Shovel Ready Projects: The WRT, along with other County staff, have identified several locations across the county that are ready for restoration implementation. Currently we have three projects within the Eastern Lakes area of the county that are ready for implementation. Two of the projects are shoreland restorations that will serve as demonstrations to other property owners in the area, and the third project is a tree drop project on Big Bass Lake (WIDNR LTT Lake) to improve fish habitat.

A tree drop project was completed on Big Bass Lake along the south end of the lake. This project will provide some important habitat for the fish populations of the lake. There is a lack of good near shore habitat on the lake, so this project is a good start to improving the overall habitat of the lake.

One of the other shovel ready projects on Mayflower Lake was further discussed and altered slightly. A different product was discussed and will now be used for the erosion control practice. This practice will be installed in early spring or summer of 2024.

Mature trees that were cut and cabled for the "fish sticks" project on the ice. Photo after ice out.

Through other programs, Marathon County implemented numerous conservation practices and calculated pollution reduction numbers for these practices. Most of these conservation practices were implemented within the Big Eau Pleine Watershed. Following are the pollution reduction numbers as well as the practices installed (excerpted from the DATCP Annual Report):

POLLUTION REDUCTION

- P Reduction (lbs) – 5203
- N Reduction (lbs) – 3720x
- Sediment Reduction (tons) – 2779

CONSERVATION PRACTICES INSTALLED

- Nutrient Management Plans Developed (acres) – 3552 – new acres in 2023
- Cover Crops (acres) – 717
- No-Till (acres) – 556
- Critical Area Stabilization (acres) – 6
- Barnyard Runoff Control (number) – 3
- Roof Runoff systems (number) – 1
- Manure Storage/Waste Transfer (number) – 10
- Clean Water Diversion (feet) – 362
- Grazing Pans (number) – 3
- Manure Storage Closure (number) – 14
- Livestock Watering Facilities (number) – 1
- Livestock Fencing (linear feet) – 32,400
- Feed Storage Runoff Control (number) – 1
- Milking Center Wastewater (number) – 1
- Streambank/Shoreline Protection (linear feet) – 300
- Riparian Buffers (acres) – 3
- Critical Area Stabilization (number) – 6