

**2013 MAWD Project & Program of the Year
Detailed Award Information Form**

Award Category (check one)

Project

Program

MAWD Region:

One

Two

Three

Watershed District: Heron Lake

Project/program name: *A Grassroots Effort to Bring Back the Fulda Lakes*

Nominator (if different from above Watershed District)

Project/Program Summary (Up to 150 words) to be read at the awards program during the annual meeting banquet:

This grassroots endeavor started on behalf of Fulda townspeople noticing the degradation of First and Second Fulda Lakes, located within city limits. Through strong partnerships, the grassroots ideas turned to reality. The Heron Lake Watershed District (HLWD) was able to apply for funds based on the needs described by local landowners. Their participation was a key factor in project initiation.

Water quality improved greatly as a result of the drawdown, fish kill and reclamation projects, and education. Fulda Lakes have a maximum depth of seven feet. Since 2008, water clarity readings from both lakes have been documented to the bottom of the lake throughout the year.

Partnerships are essential in utilizing the best resources available and maximizing the cost effectiveness of any project or education event. Fulda Lakes are seeing improvement as a result of collaboration that made the drawdown, reclamation, and restoration projects possible.

Define Problem or need addressed:

The First and Second Fulda Lakes were in dire need of a drawdown and reclamation due to severe algae blooms, loss of rooted aquatic vegetation, loss of migratory waterfowl, rough fish impacts, reduced water clarity, and flooding.

Goal/purpose of the project/program:

The project's first goal was to reach long-term goals for phosphorus that were established in 1992. There are long term goals of 0.06-0.14 mg/L in the First Fulda Lake, and 0.025-0.105 mg/L in the Second Fulda Lake. The average from 1997-2002 was 0.148 mg/L for both First and Second Fulda Lakes.

The second project goal was to increase city residents' and watershed landowners' awareness of the problems facing the Fulda Lakes' and to seek their ownership in implementing corrective measures.

Describe project/program (continue on additional pages if needed, include watershed and water body information):

Concerned citizens asked for both financial and technical assistance in finding ways to make their lake healthy again. HLWD staff began to identify projects and seek funds for restoration efforts.

Within city limits was a nine-acre field. This property was extensively farmed in a corn and soybean rotation. Across the highway is a fertilizer plant. During rain storms, water carrying fertilizer, as well as

sediment from the field, flowed into three basins where open tile intakes were located. The water was then able to flow through those intakes into Second Fulda Lake. The landowner was not open to the idea of closing the intakes or installing any conservation measures, he was however, willing to sell the property. In August 2000, the HLWD purchased the property, replaced the open tile intakes with alternative rock inlets, and seeded the parcel into native grasses and forbs. In addition, the fertilizer plant placed a berm around their property to keep stormwater on site.

On the west side of the lakes are two 30-inch surface intakes. They go below ground, under the road, and outlet directly into the lake. The Fulda Fish and Game Club, Bondin Township, and the HLWD worked together to raise the intakes to provide some storage and seed the sensitive area around the intakes into native grass through the Conservation Reserve Program (CRP).

In the spring of 2002, Murray County Judicial Ditch (JD) #13 was improved to address inadequate drainage. The HLWD was involved throughout the process and was highly concerned about the effect the project would have on the water quality of Fulda Lakes and the watershed. The HLWD required filter strips along the new open ditch.

The HLWD received an Environmental Protection Agency (EPA) 319 grant to replace open tile intakes with alternative rock inlets. Through the grant, 75 percent cost-share was provided for the replacement of open tile intakes. Seventy percent of the open tile intakes in the ditch system were replaced.

The HLWD also required a means to filter the water before entering the lake. There was a perfect property for a flow through wetland as a means of treatment near the outlet of JD #13. The HLWD purchased the property from the landowner so a wetland restoration could be established. The US Fish and Wildlife Service (USFWS) provided 50 percent of the cost of the wetland restoration and the HLWD paid the remaining cost. Before entering the lake, the water from JD #13, along with an 18-inch stormwater outlet for the city of Fulda, flows through this system.

Directly below the wetland is Schindler's pond. It is roughly an acre in size. Its original depth was between five and seven feet. After taking a cross section in 2006, it was discovered there was only eight inches of water storage remaining. That same year, a cleanout occurred with the HLWD providing 50 percent of the cost and the USFWS providing the other 50 percent.

In March of 2006, the Minnesota Department of Natural Resources (DNR) began laying the ground work for a lake reclamation project. The fixed-crest dam on the outlet of the lakes had begun to fail, presenting Murray County, lakeshore landowners, concerned citizens, and the DNR a unique opportunity to work together to identify replacement structures and management options to improve the lake.

The result of the process was unanimous support for a temporary drawdown, construction of a variable-crest dam, and the installation of a fish barrier at the lake outlet. In addition, a rotenone treatment was done on the tributaries to the lake, as well as the lake system. In the spring of 2009, the lake was stocked with walleye fry, bluegills, and largemouth bass.

In 2007, the HLWD was awarded an EPA 319 grant for the Fulda Lakes Best Management Practices (BMP) Project. Through this grant the HLWD and partners were able to install a critical area planting, shoreline restoration, and provide incentives to operators who practices conservation tillage on their farm land. The critical area planting was implemented in an area where three highly erodible channels in a farm field drained to the lake. The channels were shaped, widened, and seeded to permanent vegetation. The grant provided 75 percent cost-share to the landowner for the installation.

Through the EPA 319 grant the HLWD offered incentives for landowners farming within the Fulda lake subwatershed to practice conservation tillage. In order to qualify for incentive payments, a field that was planted to corn in the previous crop year contained 55 percent residue cover and a field that was previously planted to soybeans contained 30 percent residue cover.

The HLWD also partnered with lakeshore landowners, Heritage Society members, Murray County, the City of Fulda, and the DNR to conduct three shoreline restoration projects. Projects ranged from a

simple filter strip to a complex restoration that involved a complete bank stabilization using all bioengineered practices.

Stormwater from the east side of the City of Fulda dumped directly into the lake. The HLWD and project partners faced several challenges with the steep slope, small area, and very large cottonwood trees along the lakeshore. In the summer of 2011, the outlet structure was removed, the water was allowed to drop into a man-hole, and then outlet level across rip rap. After taking the force out of the water it travels across a zero-grade vegetated swale for treatment. Following treatment, water is allowed to enter the lake over an area protected by rock to prevent erosion.

In 2011, the HLWD applied and received funding for a phosphorus reduction initiative in the City of Fulda. With these funds, the HLWD hopes to instill a sense of personal responsibility for the two lakes in the Fulda area by engaging students, 4-H members, Master Gardeners, landscapers, and the general public in the awareness of effect of water pollution to the Fulda Lakes. This will be done through classroom presentations, hands-on installation of five rain gardens, and a tour of the rain gardens at the end of the grant period. Work began on this effort in early 2012.

Describe public benefit:

In order to see a change on the landscape, educational and implementation efforts must be undertaken. Project partners believe that providing watershed landowners with financial assistance and hands-on opportunities to learn about pollution reduction and their economic and environmental benefits will produce long-term water quality benefits for the watershed.

The efforts undertaken have shown great public benefit through water pollution reduction. Having a fishable/swimmable water body in southern Minnesota is a great asset.

Watershed plan reference (where is the problem/solution identified in the watershed plan, does it address stated problems, objectives and goals):

5.1 Water Quality

Objective 5.1-2 Promote the use and construction of BMPs in agricultural and urban settings to maintain and improve water quality.

Objective 5.1-3 Develop attainable water quality targets, while recognizing water quality standards developed by the State of Minnesota and natural year-to-year variability in water quality.

Action 5.1-3a Develop a schedule for the implementation of lake management plans placing priority on those lakes currently meeting designated uses for protection.

Action 5.1-3b Determine lakes and streams worthy of protection prior to becoming impaired, and establish non-degradation water quality targets.

5.6 Education

Objective 5.6-1 Develop educational materials and programs for targeted audiences including local governments, citizens, educators and other interested parties.

Action 5.6-1a Offer schools service learning opportunities through restoration projects.

Action 5.6-1b Conduct educational tours of BMPs and other water conservation practices being utilized within the watershed or nearby watersheds.

Action 5.6-1c Utilize the CAC to engage private citizens and inform them about resource management issues and the activities.

Action 5.6-1d Utilize a CAC to engage local government and state and federal agencies and inform them about resource management issues, the activities of the HLWD and opportunities to partner.

Action 5.6-1e Develop, conduct, and sponsor workshops, participate in speaking engagements, and prepare press releases.

Action 5.6-1f Obtain and organize testimonials from citizens implementing BMPs within the watershed to encourage other citizens to implement similar BMPs.

Action 5.6-1g Consider a district-wide signage campaign for streams or other similar resources.

Action 5.6-1h Continue distributing information through several channels, including keeping an up-to-date website and periodic newsletters, to keep citizens informed in a timely manner.

Objective 5.6-2 Encourage landowners and cities to improve water quality, reduce runoff volume, and enhance ecological systems through the use of cost-share programs.

Action 5.6-2a Encourage communities to improve water quality using a targeted education program and BMP implementation cost-sharing.

Action 5.6-2b Encourage individuals to implement water quality improvement practices at their homes and businesses, using education and cost-sharing for the implementation of BMPs. Support and utilize SWCD cost-sharing programs to encourage citizens to install BMPs for the purpose of improving water quality and reducing the volume of runoff.

Action 5.6-2c Evaluate the need for additional cost-share programs to provide incentives to landowners and others responsible for resource management.

Was project goal achieved? If so, how was the success measured?

Landowners in the drainage area upstream of the lake system were involved in a project to improve JD #13. As a result of the improvement process, filter strips were installed along the entire system, open tile intakes were replaced with rock inlets, and a wetland restoration was completed at the ditch outlet.

The DNR released a series of newspaper articles regarding the history of the Fulda Lakes, lake reclamation projects, and the proposed efforts to improve the lake system. A public meeting was held to discuss repair of the outlet dam and possible drawdown measures. Murray County did extensive work with lakeshore landowners to obtain unanimous support for the temporary drawdown. The DNR and Murray County implemented in-lake management that included replacing the fixed-crest dam with a variable-crest structure, manipulating water levels, fish eradication, and fish stocking.

HLWD staff provided first-hand information about the EPA 319 grant program requirements through direct mailing, one newsletter, a kickoff meeting, and reports to the general public and local officials. These efforts proved successful in that there were a total of 5,828.46 acres enrolled in conservation tillage practices. From 2008-2011 there was a 73 percent increase in the amount of acres enrolled into the program. Three shoreline restoration projects were completed. Projects ranged from a simple filter strip to a complex restoration that involved a complete bank stabilization using bioengineering practices. By completing several restorations, it was hoped that every landowner on the Fulda Lakes' would see first-hand some type of restoration that could be implemented on their property.

Water quality improved greatly as a result of the drawdown, fish kill and reclamation projects, and education. When the water quality monitoring data from 1997-2002 is compared to the 2010 data:

First Fulda Lake

- Total suspended solids (TSS) decreased by 72 percent
- Turbidity decrease by 51 percent
- Chlorophyll A decreased by 62 percent
- Ortho Phosphorus (OP) decreased by 70 percent
- Total phosphorus (TP) 45 percent

Second Fulda Lake

- TSS decreased by 72 percent
- Turbidity decreased by 73 percent
- Chlorophyll A decreased by 70 percent
- OP decreased by 80 percent
- TP decreased by 56 percent

Fulda Lakes have a maximum depth of seven feet. Since 2008, water clarity readings from both lakes have been documented to the bottom of the lake throughout the year.

Watershed or water body name to be protected or improved by project or program (if applicable)

1st Fulda Lake and 2nd Fulda Lake

Watershed or water body information (e.g., size, watershed area, classification, description):

First and Second Fulda Lakes are located at Fulda, Minnesota, in Murray County in southwestern Minnesota. These Natural Environment Lakes are shallow, with a maximum depth of nine feet and have heavily developed shorelines. The combined surface area of the two lakes is 177 acres, placing it in the upper 15 percent of lakes in the state in terms of size. The watershed for both lakes is relatively small (4.4 square miles) compared to the surface area of the lakes (16:1 ratio).

Project partners (financial or inkind support)

<u>Agency or organization</u>	<u>% Participation</u>
<i>Department of Natural Resources</i>	16 %
<i>Murray County</i>	33 %
<i>US Fish and Wildlife Service</i>	6 %
<i>Fulda Game and Fish Club</i>	1 %
<i>State of Minnesota (EPA 319 and Clean Water Partnership grants)</i>	15 %
<i>Landowners</i>	1 %
<i>Murray Soil and Water Conservation District</i>	1 %
<i>Heron Lake Watershed District</i>	27 %

Start date: July 16, 1996

Project status:

On-going Project/Program

Completed: Completion date:

Project cost (this can be provided as total cash cost or a breakdown can be provided to show the cost of various project elements and partners):

Department of Natural Resources	\$ 65,944.00
Murray County	\$ 140,000.00
US Fish and Wildlife Service	\$ 25,454.00
Fulda Game and Fish Club	\$ 5,000.00
State of Minnesota	\$ 65,600.00
Landowners	\$ 3,400.00
Murray Soil and Water Conservation District	\$ 1,411.00
Heron Lake Watershed District	\$ 114,088.00

Letters of support:

Each application must have at least two letters of support. The letters can be from individuals, agencies, organizations, or local units of government. Letters from staff or managers of the sponsoring District will not be accepted. Attach letters to this application as a pdf document.

- Ryan Doorenboos, Department of Natural Resources
- James Troje, City of Fulda

Photos:

As noted in the instructions, each nomination must be accompanied by **at least 4 (4) photos** of the project or program. The photos must be in a digital format.