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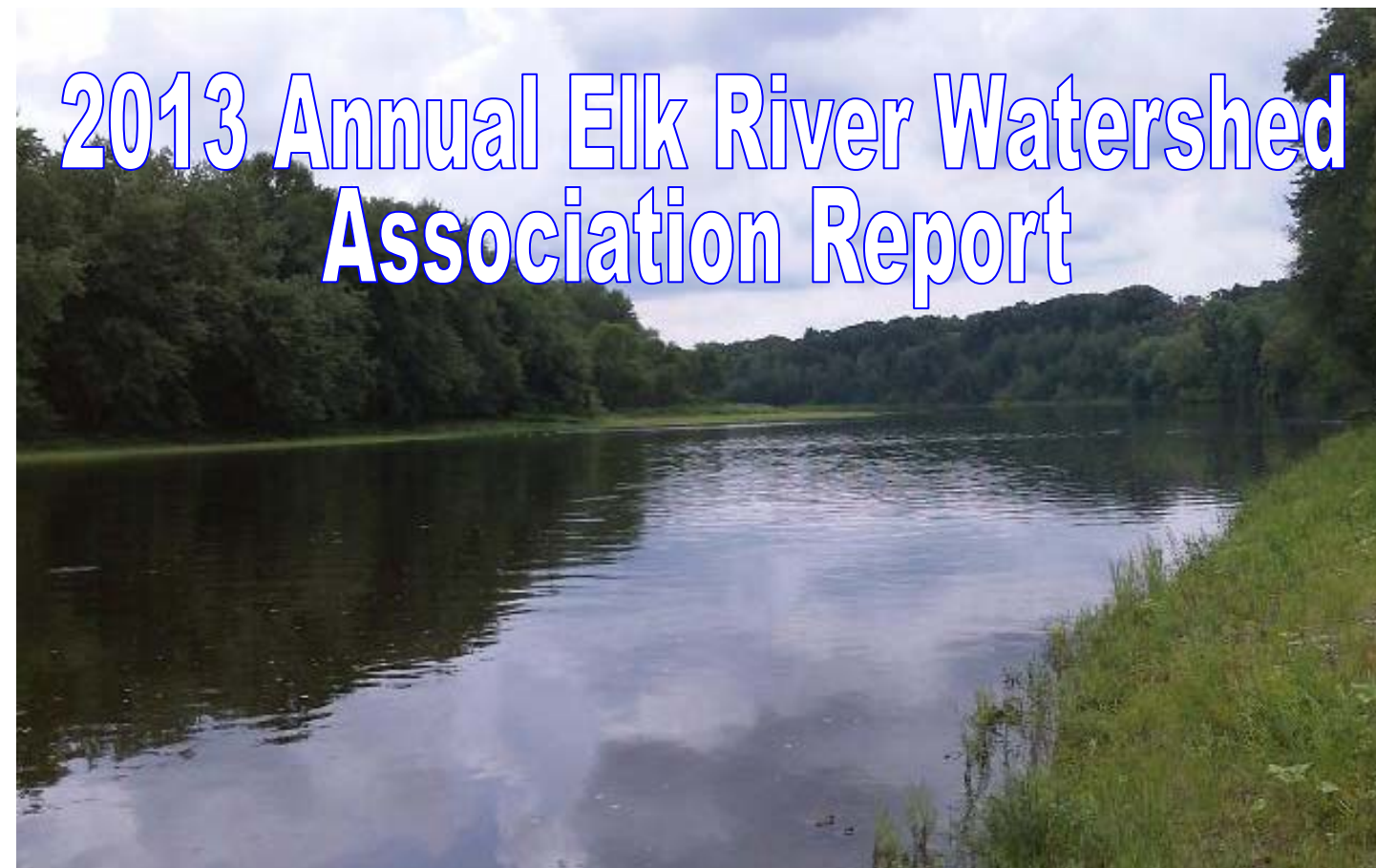


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2013 Annual Elk River Watershed Association Report



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www.elkriverwatershed.org



ELK RIVER WATERSHED ASSOCIATION

The Elk River Watershed Association (ERWA) was formed in 1994 as a result of Local Water Planning efforts in Sherburne and Benton Counties. Concerned citizens identified the water quality of the Elk River and watershed lakes as priorities for improvement. Thus, the two Counties determined that a watershed approach would be the most effective way to improve water quality. Board of Directors meets the third Monday of the month rotating meeting locations between Foley USDA Service Center and the Palmer House in Palmer, MN at 9 AM. Meetings are open to the public.

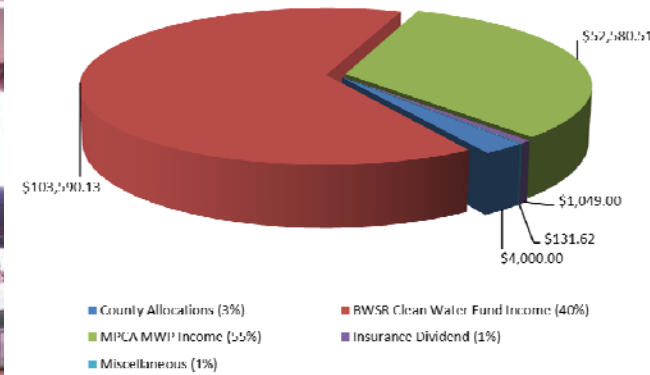
2013 ERWA Joint Powers Board



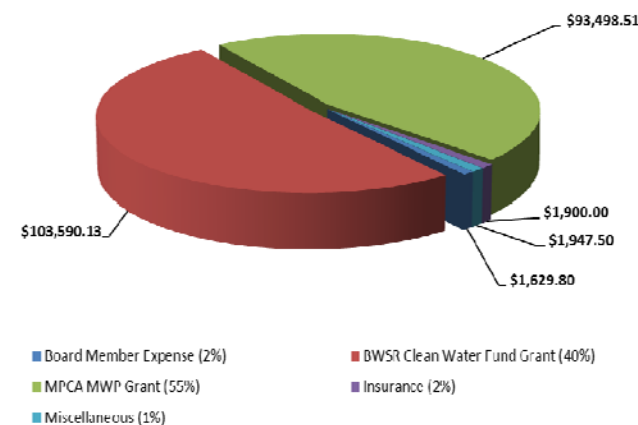
Board Members (left to right) Back: Joe Wollak, Benton County Commissioner; John Riebel, Sherburne County Commissioner; Larry Goenner, Sherburne Soil & Water Conservation District Supervisor; Front: Kenzie Phelps, Sherburne County member at large; Terry Polfuss, Sherburne County member at large; Roger Athman, Benton County member at large; Brian Kaschmitter, Benton County member at large; Joe Jordan, Benton Soil & Water Conservation District Supervisor

Financial Summary

REVENUE



EXPENSES



The Elk River Watershed is located northwest of the Twin Cities metropolitan area in the North Central Hardwood Forests Ecoregion and is a major tributary to the Upper Mississippi River. The full drainage area of the Elk River consists of approximately 392,320 acres of Sherburne County, Benton County, Mille Lacs County, and Morrison County. However; the majority of the Elk River Watershed lies within Benton and Sherburne Counties. The Elk River headwaters are located in northern Benton County, and the river extends south eastward towards the City of Elk River where it outlets into the Mississippi River.

MONITORING ACTIVITIES

Active Citizens continued to play a major role in surface water quality data collections in 2013. Volunteers who monitor watershed lakes and streams greatly multiply the ERWA's water quality sampling capabilities while learning about the water quality of lake and streams in their region and the causes and effects of pollution. The ERWA uses the volunteer data to assess which lakes and streams are in need of additional data collection and in assessment of the health of surface water.



In addition to the Citizen monitoring efforts, the Sherburne SWCD had continued to monitor flow levels on the Elk River at county road 16 in cooperation with the MPCA.

The MPCA has designed a new website which makes accessing and understanding data collected by citizens easier; check it out!

<http://cf.pca.state.mn.us/water/cmp/index.cfm>

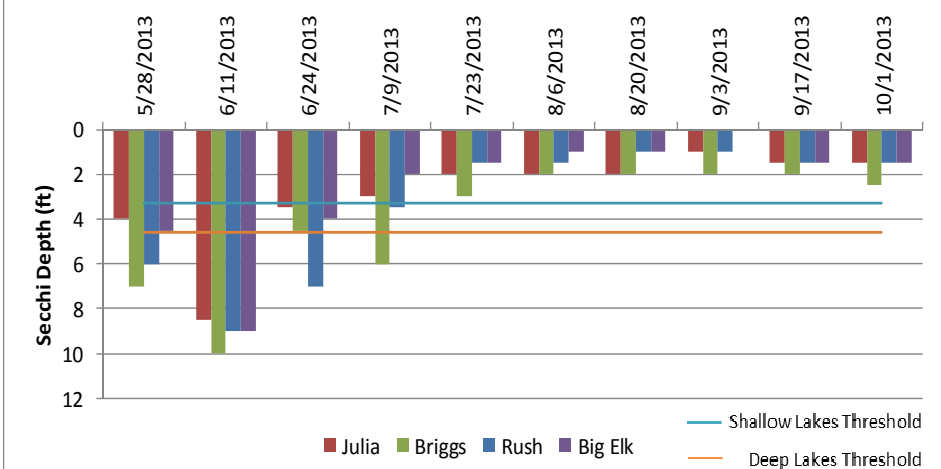
Citizen Stream Monitoring Program

In 2013 volunteers monitored 34 stream and river sites throughout the Watershed. The volunteers collect transparency and rain fall information on the stream sites that they have selected. Volunteers typically take readings once a week from April through October. The Citizen Stream Monitoring Program is part of the Minnesota Pollution Control Agency's (MPCA) Statewide monitoring program. The ERWA uses the volunteer data to assess which streams are in need of additional data collection and in assessment of the health of the surface water.

Citizen Lake Monitoring Program

In 2013 volunteers monitored 10 lake sites throughout the Watershed. This volunteer program greatly multiplies the ERWA's water quality sampling capabilities, while volunteers learn about the water quality of lakes in their region and the causes and effects of lake pollution. CLMP volunteers collect water transparency data using a secchi disk about once a week during the summer months. The ERWA uses the volunteer data to assess which lakes are in need of additional data collection and in assessment of the health of the surface water.

Briggs Lake Chain Secchi Depth 2013



EDUCATION AND OUTREACH

Watershed Community Leaders

As local leaders of the Major Watershed Project, ERWA staff coordinated the efforts which brought together the Watershed Community Leaders Team. This group continues to serve as a “two-way street” for communication of watershed views from their communities to the staff involved in the Major Watershed Project. One major success stemming from this network is the development of a water quality continuing education course for the Central MN Relators Association. This training is planned to take place March 6th, 2014. In 2013 the Watershed Community leaders participated in four tours around the watershed:

- 1) St. Cloud Drinking Water Treatment Plant: January 2013
- 2) Elk River Wastewater Treatment Facility: April 2013
- 3) Rural Residential Best Management Practices-Wright County: August 2013
- 4) Agricultural Best Management Practices: November 2013



6th Annual Elk River Watershed Cleanup

Over 20 volunteers and all 5 Sherburne SWCD staff joined in to pick up trash along Big and Mitchell Lakes, the Elk River, and some of its tributaries. In less than 2 hours the group managed to collect over 500 lbs of trash!

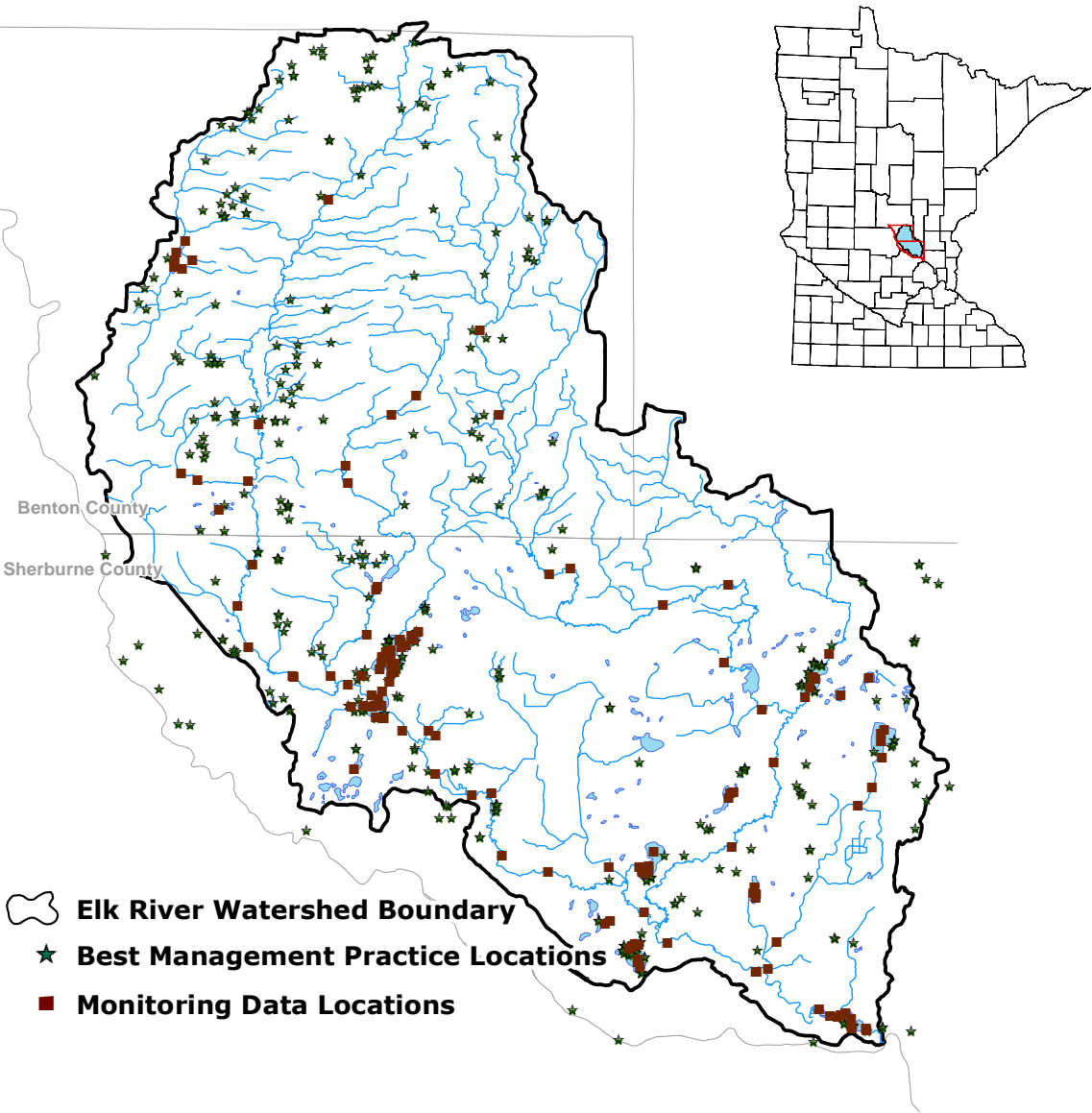
The 500 lbs of trash is an estimate using the MN DNR's Rubbish Weights Guide. Trash that was collected consisted of the usual suspects; fast food wrappers, coffee cups, aluminum cans, cardboard boxes, cigarette butts, styrofoam, scrap metal, car tires and rims, newspapers, and plastic. Some unusual items found were couch cushions, file cabinet, dehumidifier, and a bike.



2013 ACCOMPLISHMENTS AT A GLANCE

<u>Best Management Practices</u>	<u>TMDL's</u>	<u>Major Watershed Project</u>	<u>Upcoming 2014</u>
◇ 6 Nutrient Management Test Plots	◇ 2 Stream TMDLs 6 Lake TMDLs	◇ Data collection and analysis of impaired waters	◇ TMDL Implementation
◇ 5 Shoreline Restorations	◇ Education and Outreach	◇ Watershed Restoration and Protection Strategy Report	◇ Mississippi River (St. Cloud) Watershed Strategy-report & MPCA contract completion
◇ 1 Stream Bank Restoration	◇ 6th Annual Elk River Cleanup	◇ Watershed Community Leaders Team	
◇ 1 Stormwater Reduction Project	◇ Lakeshore buffer maintenance workshop - Briggs Lake Chain		

BMP and Monitoring Locations 1995-2013



TMDL IMPLEMENTATION UPDATE

Elk River Bacteria TMDL

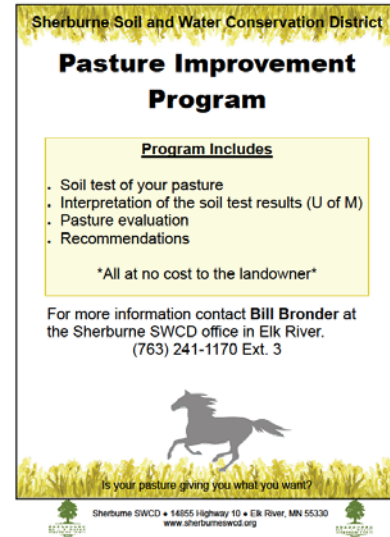
In response to the Elk River Bacteria TMDL, Sherburne SWCD applied for and received funds to initiate a Pasture Management Improvement Program focused on small hobby farms within priority locations identified in the Elk River Bacteria TMDL and Implementation Plan. Staff plans to work with identified landowners to implement bacteria reduction best practices such as pasture renovation/management, riparian buffer strips, clean water diversions, vegetated buffer strips, and manure management including composting structures.

Big Elk Lake Nutrient/ Elk River Turbidity TMDL

As a direct outcome of the Big Elk Lake Nutrient TMDL, Sherburne SWCD partnered with the Briggs Lake Chain Association to apply for a 2014 Clean Water Fund Community Partners Grant. The grant will be used to start a mini grant program which will be administered by the Lake Chain Association. The program focus will be to strategically place Stormwater reduction best management practices on parcels which have been identified as contributing to degraded water quality through TMDLs, aerial lakeshore analysis and site-reviews conducted by the BLCA.



Briggs Lake Chain Workshop

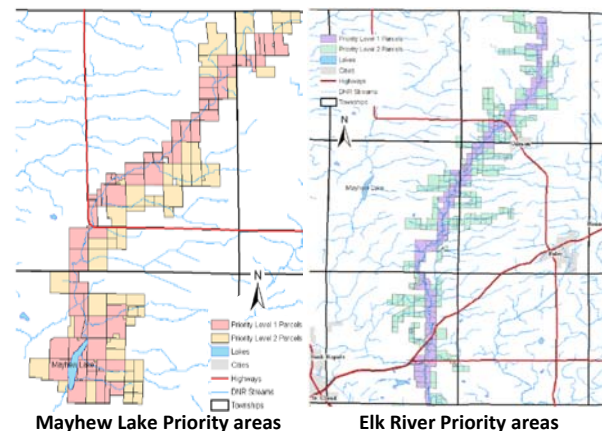


Algae colored water with pondweed

Mayhew Lake Nutrient/Big Elk Lake Turbidity TMDL

The 2012 TMDL study found that Mayhew Lake is sensitive to spring time nutrients associated with snow melt and early spring rains. The 2012 TMDL study found that the Elk River is sensitive to nutrients in mid to late summer. Efforts will be focused on removing nutrients from spring runoff near Mayhew Lake and summer nutrients along the Elk River by:

- 1) Manure and nutrient management practices to reduce application of manure
- 2) Managing runoff from feedlots
- 3) Managing riparian pastures
- 4) Installing buffers along shoreline in crop land and pasture
- 5) Repair/replacement of leaking septic systems



Mayhew Lake Priority areas

Elk River Priority areas

BEST MANAGEMENT PRACTICES

Little Elk Lake Shoreline Restoration

- **Area:** 1,100 ft²
◇ 60 linear feet
- **# of Plants:** 260
- **Drainage Area:** 13,068 ft²
- **Pollution Reduction:** .12 lbs/year of TP



Little Elk Lake Stormwater Reduction

- **Area:** N/A
- **Drainage Area:** 1.2 Acres
- **# of Plants:** N/A
- **Pollution Reduction:** 10 lbs/yr of TP; 29 tons sediment/yr



Lake Fremont Shoreline Restoration

- **Area:** 10,000 ft²
◇ 1,300 linear feet
- **# of Plants:** seeded
- **Drainage Area:** 20 Acres
- **Pollution Reduction:** 12 lbs/yr of TP; 14 tons sediment/yr



BEST MANAGEMENT PRACTICES

Little Elk Lake Shoreline Restoration

- **Area:** 900 ft²
◇ 64 linear feet
- **Drainage Area:** 8,712 ft²
- **# of Plants:** ~300
- **Pollution Reduction:** .185 lbs/year of TP



Little Elk Lake Shoreline Restoration

- **Area:** 1,000 ft²
◇ 92 linear feet
- **Drainage Area:** 8,712 ft²
- **# of Plants:** 234
- **Pollution Reduction:** .24 lbs/year of TP



Little Elk Lake Shoreline Restoration

- **Area:** 675 ft²
◇ 45 linear feet
- **Drainage Area:** 21,780 ft²
- **# of Plants:** 530
- **Pollution Reduction:** .17 lbs/year of TP



MAJOR WATERSHED RESTORATION AND PROTECTION PROJECT

Coordinated efforts to protect and restore surface waters in the Mississippi River (St. Cloud) Watershed continued to make headway in 2013. Efforts completed and in progress are summarized below.

Impaired Waters

For lakes and streams that were inventoried as unhealthy prior to 2010, water quality trend analysis and computer modeling associated with Total Maximum Daily Loads (TMDLs) was completed in 2013. The TMDLs are scheduled for completion by mid to late March 2014 and will be available for review by the public at the last Watershed wide public event as well as the EPAs 30-day mandatory review period (estimated June 2014).

Low dissolved oxygen: Battle Brook (County ditch 18 to Little Elk Lake), Rice Creek (Rice Lake to Elk River), and Clearwater River (Clearwater Lake to Mississippi River).

Turbidity: Rice Creek (Rice Lake to Elk River)

Excessive Nutrients: Julia, Briggs, Rush, Birch and Orono Lakes (Sherburne County); Donovan Lake (Benton County); Indian, Mink, Somers, Silver, Locke and Fish Lakes (Wright County).

For lakes and streams that were inventoried as healthy watershed partners began to identify a list of strategies that will protect their current state of water. These strategies will be outlined in the Watershed Restoration and Protection Strategy Report

Final Watershed Restoration and Protection Strategy Report

A draft Watershed Restoration and Protection Plan (WRAPS) is scheduled for completion early in 2014. This plan will be submitted to the MPCA for approval. Upon approval, locals can use the information to inform the Water Planning Process.

Civic Engagement Involvement

I Live. I Work. I Play. I Am. Campaign: The long-term strategy to involve citizens and stakeholders in actively playing a role in natural resource restoration and protection continued.

A second Watershed event took place on March 7th, 2013 in Clearwater. The purpose of this event was to gather input from citizens and local government on local water resource priorities. Attendees could preview tools that were used to help resource managers identify critical protection and restoration areas. Staff working on the project were there to explain the draft results for the 12 lakes TMDLs and the water health evaluations including the Lakes Assessment Report, Watershed Assessment Report, and Stressor ID report. The 3rd and final watershed event is planned for April of 2014.

Critical Area Identification/Planning Efforts

Efforts to narrow down what practices to implement and where on the landscape to implement them were initiated during the second half of 2013. This process proved to be challenging due to the absence of a watershed wide model (known as the Hydrological Simulation Program FORTTRAN aka HSPF). The HSPF model is scheduled for completion in early 2015. Information from HSPF will identify subwatersheds that are currently contributing to degraded water quality as well as to evaluate the efficiency of different kinds or adoption rates of BMPs.

In the meanwhile, information used to inform prioritization included: recommended target locations as identified by the project consultants during completion of TMDLs, critical areas identified in field surveys, critical areas identified in existing reports, local knowledge and well as a variety of GIS tools. This information will be enhanced and amended after the HSPF models are complete for the watershed.



Minnesota Pollution Control Agency



CLEAN WATER FUND GRANT

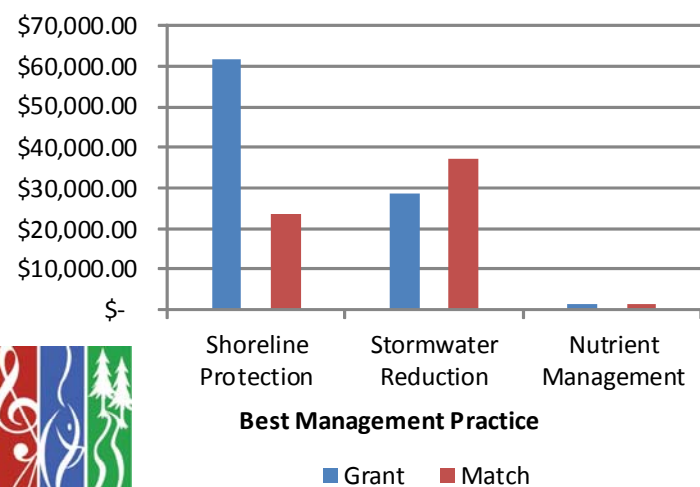
Complete Summary (2011-2013)

Project	Total Amount	Total Size
Filter Strip	5	.11 Ac
Nutrient Management	22	150.7 Ac
Critical Area Planting	5	.117 Ac
Bio-retention Basin	2	.07 Ac
Streambank and Shoreline Protection	2	1,465 Ln Ft
Stormwater Reduction (SAFL BAFFLE)	1	N/A

Pollution Reductions

Indicator Name	Total Value	Unit
Sediment (TSS)	31.15	Tons/yr
Soil (Est. Savings)	30	Tons/yr
Nitrogen (Est. Reduction)	1,053	Lbs/yr
Phosphorus (Est. reduction)	121.99	Lbs/yr

Budget Summary



Find out how Clean Water funds are being used in Minnesota at:
<http://maps.bwsr.state.mn.us/CWFMap/>



MANURE MANAGEMENT TEST PLOTS

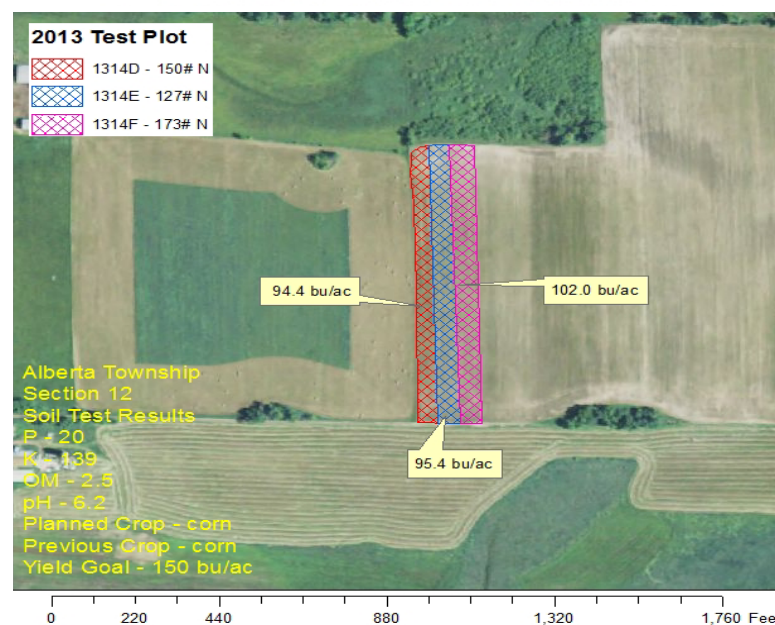
Three Year Summary

Nutrient Management Test Plots are used to evaluate management strategies. A small strip of cropland is used to evaluate the University of Minnesota's nutrient recommendations against the producer's normal management strategies. These test plots are customized for each farmer.

Over the three years of the grant, 29 test plots were planned to be completed in the Elk River Watershed covering 208.2 acres with estimated reductions of 4,189 lbs nitrogen, 1,167 lbs of phosphorus and 1,889 lbs of potash. Due to poor growing conditions the last two years 22 plots were able to be completed covering 150.7 acres with reductions of 3,162 lbs of nitrogen, 999 lbs of phosphorus and 1,435 lbs of potash.

Year	# Plots	Acres	N	P	K
2013	6	46.8	875	38	0
2012	8	57.8	1,418	805	1,111
2011	8	46.1	869	156	324
	22	150.7	3,162	999	1,435

2013 BMP Test Plot Results



Plot is comparing different rates of urea on corn

1208E - 275# Urea
 Plot will receive 300# 0-15-40 preplant, 200# of 17-10-30 starter at planting and 275# urea after planting

	N	P	K
1st Year Manure	0	0	0
Preplant	0	45	120
Starter	34	20	60
Urea	127	0	0
Total	161	65	180
U of M	190	15	25
Surplus	-29	50	155

1208F - 375# Urea
 Plot will receive 300# 0-15-40 preplant, 200# of 17-10-30 starter at planting and 375# urea after planting

	N	P	K
1st Year Manure	0	0	0
Preplant	0	45	120
Starter	34	20	60
Urea	173	0	0
Total	207	65	180
U of M	190	15	25
Surplus	17	50	155

1208D - 325# Urea
 Plot will receive 300# 0-15-40 preplant, 200# of 17-10-30 starter at planting and 325# urea after planting

	N	P	K
1st Year Manure	0	0	0
Preplant	0	45	120
Starter	34	20	60
Urea	150	0	0
Total	184	65	180
U of M	190	15	25
Surplus	-6	50	155

Over the three years 11 manure spreader calibrations were completed, 17 manure samples taken, 40 soil samples and 47 tissue samples were taken. Weekly chlorophyll testing was also completed during the summers.

In 2013, 10 test plots were planned in the Elk River Watershed. Because of the wet spring 4 test plots could not be complete. The 6 test plots that were complete in the Elk River Watershed covered 46.8 acres and reduced phosphorous by 38 lbs and nitrogen by 875 lbs.

