

# Great Lakes Basin Program GLRI Project

## MI/OH Erosion & Sediment Reduction for the Tiffin River/WLEB

**Size:** watershed

**Grant Amount:** \$299,976

**Year awarded:** 2012

**Sponsor:** Hillsdale Conservation District

**Address:** 588 Olds St.

**Address:** Building #2

**City:** Jonesville

**State:** MI

**Zip:** 49250

**Contact information:** Project Manager, Jessica Luck

**Work Phone:** 517-849-9890

**Email:** [jessica.luck@mi.usda.gov](mailto:jessica.luck@mi.usda.gov)

### Submitted Project:

Size: watershed

Budget: \$299,976

Savings: 269,000

### Background

#### Sediment Sources

The Tiffin River is one of the more erosive watersheds in the Lake Erie drainage basin as reported by NRCS's Rapid Resource Assessment Plans. This river system receives major sediment loading as a result of erosion from agricultural cropland. This sediment also carries nutrients (P & N) which are major contributors to plant growth and algal blooms, which affects dissolved oxygen, fish populations and economic values of the Lake Erie system. In fact 85% of the land base within the Tiffin watershed is in agricultural production. The conservation practices included in this proposal will prevent soil loss, sedimentation, nutrient loading and overall reduction in water quality of the HUC's, Tiffin-Maumee River system and Lake Erie basin. The Tiffin River drains ~ 380,762 acres of land, in the four counties included in this project, of its total 497,280 acres. In Lenawee County the Tiffin drains ~ 83,300 acres or 17% of the county. In Fulton County the Tiffin River drains approximately ~ 107,017 acres or 41% of the county. In Hillsdale County the Tiffin drains ~ 57,989 acres or 15% of the county. In Williams County the Tiffin drains ~ 132,456 acres or 49%. The Tiffin River eventually empties into the Maumee River, which then empties into the western basin of Lake Erie. The Maumee is the largest river system in the Great Lakes and is the single largest contributor of nutrient and sediment runoff. The project areas that will be worked in are headwater streams for the river. Here the topography is very rolling, and the soils are prone to erosion. Over 50% of these soils are considered Highly Erodible Land or (HEL). The practice of fall tillage on these soils creates a huge amount of ephemeral/gully erosion. Ephemeral erosion and a combination of sheet and rill erosion that occurs on exposed or bare soil eventually becomes a gully if not corrected.

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In recent years, improper tillage on these highly erodible soils has been followed by excessive rain storms that have scoured the country side. This project offers another tool to implement conservation practice as part of a system approach to control erosion and reduce sediment loss from these cropland fields.

*Western Lake Erie Basin Partnership Strategic Plan* - The project supports goal 1 *reduce nutrient exports from tributaries into Lake Erie* and goal 2 *reduce sediment exports from tributaries into Lake Erie*.

*Lake Erie Lake-wide Management Plan (Maumee RAP Strategic Plan)* - The project supports the long term goal of the Agricultural Run-Off Group (work with agencies throughout the watershed to reduce phosphorus...) and its first action (encourage voluntary adoption of agricultural BMPs that are ecologically and economically advantageous). The project contributes to the reduction of impairments to beneficial use associated with undesirable algae, degradation of fish and wildlife populations, beach closings, degradation of benthos and loss of fish and wildlife habitat.

*The Ohio Lake Erie Phosphorus Task Force* - This site includes the draft report developed by the Ohio Lake Erie Phosphorus Task Force. The report includes background, analysis of relative contributions of phosphorus sources and a suite of recommendations best suited to reduce nutrient loading. The project implements recommendation #10 (promotion of appropriate BMPs and identify options to more fully support fundable BMPs that address phosphorus, not just sediment).

*Ohio Coastal Nonpoint Pollution Control Program Plan* - The project supports several recommendations associated with objectives in Chapter 3, Management Measures for Agricultural Sources, including objective 2 (Develop and offer voluntary incentive programs to encourage local voluntary adoption of BMPs based on targeting by the water quality-monitoring program), and objective 4 (Develop partnerships with private industry and local watershed or community organizations to initiate education programs and encourage voluntary adoption of BMPs).

*Partners for Clean Streams, Stage II Restoration Watershed Plan for the Maumee AOC* - The project supports the objectives listed in the plan pertaining to reducing nutrient and sediment loading. This plan is conditionally endorsed by OEPA and ODNR

### **Readiness to Implement Project**

The Western Lake Erie Basin Partnership (WLEB) has created an updated strategic plan (2010) for the entire basin; it is not HUC/watershed specific.

There is the USDA- Farm Bill Program funding through CSP and EQIP which provide limited dollars. The primary problem is that these funds can only fund a few contracts and are limited to each county. One program that provided funds to Ohio in Williams and Fulton Counties was from CAP's Campbell's Project. This program provided funds for a limited number of acres for practices such as wetlands, cover crops and controlled ag-drainage structures. This source was approximately \$50,000/year for the seven county CAP Area in Ohio. The primary focus of this grant was nitrate reduction not sediment reduction.

Another program funded in the watershed has been an ongoing effort known as the Center of Excellence Program in Lenawee County whose focus is education and demonstration of farm based best management practices that will improve water quality. This program has been going on for over 15 years. It has over 30 state, local, and agribusiness partners that assist in collecting data on conservation tillage and the latest technology for farmers to make decisions on their own farms. Over 400 producers attend the annual summer field day and 150-200 producers attend the annual crops day in January to learn the results of the Center for Excellence plots. The designated watershed is also part of a CREP area for Michigan and Ohio. In Michigan, we are able to take highly erodible land within 1,000 feet of surface water and install conservation cover. In addition, water sediment control basins can be part of this program, but getting into a 15 year contract is an issue for some producers. Ohio has a Lake Erie CREP program that is designed for riparian areas where

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conservation practices such as filter strips, riparian buffers, hardwood tree plantings, wetland, and field windbreaks. Since FY 2000, Williams and Fulton SWCDs have installed 4,500 acres of these practices. The WLEB is not currently involved in this project, if awarded the grant we will include them on the work being done and the reports. To involve the community we will have field days, kickoff events and a media campaign. Partnerships that have been established to implement this project include: four local SWCDs- Lenawee and Hillsdale SCD in Michigan and Williams and Fulton SWCD in Ohio; NGO-Conservation Action Project (CAP); USDA-NRCS; Michigan Dept. Ag. and Rural Development; Ohio Dept. of Natural Resources- Division of Soil and Water Resources.

Presently, this project is coordinated by Multi-State group of staff members from the following organizations or agencies:

- Michigan Department of Agriculture and Rural Development; Jack Knorek- Regional Coordinator and Steve Shine- Environmental Stewardship Division Section Manager
- Local SWCDs in Ohio (Fulton District Technicians - Pete Carr, Dan Bruner and Williams District Technicians -Bert Brown) and Michigan (District Administrators for Hillsdale CD- Jessica Luck and Lenawee CD- Kathlene Kurowicki; Lenawee CD Education Coordinator- Judith Holcomb)
- Ohio Department of Natural Resources-Division of Soil and Water Resources Program Specialist- Ed Crawford
- NGO-Conservation Action Project-Multi-County Coordinator-Todd Hesterman
- USDA-NRCS; Civil Engineering Technician- Mike Boff (Ohio), District Conservationist - Thomas Van Wagner (Lenawee) and Jason Wheeler (Hillsdale).

### **Project Work Area**

HUC: 041000060105 - Lime Creek, Michigan

HUC: 041000060106 - Covell Drain-Bean Creek, Michigan

HUC: 041000060204 - Mill Creek, Ohio

Total Area: 83080

Agricultural Area: 53588

Forest Area: 7989

Urban Area: 4190

### **Priority Areas:**

The watersheds listed are in the headwater portions of the Tiffin River. Within these watersheds are the soils most susceptible to erosion and sediment loss. The soils in this region are primarily Blount, Pewamo, Morley Associations which have the highest erodible potential and many acres are considered Highly Erodible Land or (HEL). Because of this we are focusing on four practices for these watersheds: conservation cover crops with reduced tillage or no-till systems; grassed riparian buffers; water and sediment control basins; redlined grassed water-ways.

### **Implementation Strategy**

The process to be used:

The advisory committee will establish criteria or a ranking system, to target the BMP implementation, based upon: total soil erosion savings, distance to riparian area, targeted zones that are HEL classified, lack of local farm bill funds (i.e. EQIP) to be eligible for participating in the program. Based upon the number of applications received by each county, the advisory will meet by quarter to evaluate and rank for funding. They will also create an agreement that will outline the requirements for an approved Resource Management Plan (RMS), type of practices to be installed, cost-share and incentive rates and tons of soil expected to be saved.

Outreach programs will be put into place that will promote the program practices and dollars available per practice and tons of soil saved. Part of this effort will be a targeted mailing to individual landowners in the watersheds, especially those lands that are considered HEL, explaining the program. Also, each county will hold an outreach day such as a field day or workshop to promote the program and benefits.

Applicants will be approved by each local SWCD board and agree to a contract that is a minimum of three years or the life of the BMP whichever is greater. Producers signing these agreements will have to follow NRCS Standards and specifications for the practice, which must be reviewed by the local District Conservationist.

Sign-up for the program will be on a continuous basis or until all dollars have been committed. Implementation of practices will begin with planning and design work then implementation on the ground during appropriate seasonal conditions. Spot checks and practice satisfaction follow-ups will be completed.

**Practices to be used are:** conservation cover crops with conservation tillage planting practices, water and sediment control basins (WASCOB), grassed riparian buffers and “redlined” grassed waterways on areas that have lost cropland status and no longer eligible to receive cost-share to repair a non-functioning grassed waterway. Also included into a non-eligible status for payments are certain riparian areas to be planted into buffers along streams.

**The process of incentive dollars** will be a two or three tiered process. First, we will offer funds tied to total soil savings at \$1/ton of soil saved. Secondly, funds to support the practice with cost share that is tied into the installation at 50% of total costs or capped rate per practice. Thirdly, a one-time upfront sign-up bonus of \$215 per agreement to be offered on grassed riparian buffers.

### Technical Assistance

Technical assistance will be provided by the SWCD staff under the guidance of the USDA-NRCS staff. The program is designed to provide funds to the SWCD technical staff based upon a dollar per agreement, which includes (hours for sign-up, I&E, design and plan, installation supervision, plan design with landowner, follow-up). Typically based upon data from Ohio’s Soil and Water Information Management System or SWIMS, the number of hours to accomplish a RMS and installation of these practices requires about 30 hours per agreement. Also the average benefit cost by hour, which includes, salary and benefits is \$25 per hour or \$750 per agreement. This project will reimburse each SWCD back on two-thirds of the SWCD time as reimbursement or 20 hours at \$25 per hour or \$500 per agreement. The remaining third of this rate will be used as in-kind match for the grant. Hillsdale CD currently has a SWAT technician; part of this position includes providing technical assistance for such projects. This position is written as a three year commitment and will go through FY2014. Technical assistance for the Hillsdale projects for FY2013 and FY2014 will be paid for through the SWAT technician position grant. These wages will be used as an in-kind match. We have budgeted to do 98 practices/agreements for \$40,167 that will be contracted back to the four Soil and Water Conservation Districts (SWCD). Based upon our BMP listing each participating county will have the following eligible contracts per practice: Cover Crops – each county has 10 agreements; WASCOBs – this practice is targeted to the Michigan Counties or 4 agreements each; Redlined Water Ways – is limited to 20 acres, each county will be budgeted for 5 agreements; Grassed Riparian Buffers has 30 acres or 7/8 agreement budgeted for each county.

In-kind funds will be achieved by accounting for office space, technical assistance provided by four SWCD’s, administrative support; input expenses from producers as they share in the costs to install the practices at a 50% level per practice.

### BMPs

Name: Conservation Cover Crops

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Type: Agronomic/Cover-based

Acres: 3000

Cost: \$60000

**Description:**

Cover crops are grasses, small grains, brassicas or legumes planted after harvest to protect the soil. Cover crops will be used in conjunction with conservation cropping and tillage systems. Cover crops will be applied two of the three years under this project. A per acre cost share rate of \$20 per acre will be used for seed and planting. Each producer will be allowed 25 acres each year or 75 acres for three years of the agreement. Each county (SWCD) will have a base of 250 acres per year or 10 producers per year. Target goal is 40 agreements, totaling 3,000 acres on cropland not currently using conservation tillage practices.

Soil savings for this practice: The average tons of soil estimated to be saved is 2 tons per acre per year. Cover Crops have an expected life span of 1 year. We anticipate installing 3000 acres during the project. Therefore, the expected soil savings is - 2 tons of soil saved per year per acre X 1 years life span X 25 acres = 50 tons per practice per year @ 1000 acres a year we will save 2000 tons and over the 3 years 6000 tons of soil.

Start Date: October 2012

End Date: April 2015

Incentive Method: Cost Share

Incentive Rates: 50% capped at \$1,500

Total Soil Savings: 6000

Name: Redlined Grass Water Way

Type: Engineering Practices

Acres: 20

Cost: \$70000

**Description:**

This practice, "Redlined" Grass Water Way, is an engineered practice. A grass waterway is a natural or constructed channel that is shaped to a required dimension established with suitable vegetation. They serve to convey concentrated water flow thus eliminating gully erosion and are designed to last for 10 years. After a ten year period, most water ways fail and need to be re-engineered and shaped to its original capacity. At this point, however, they are no longer considered cropland and are "redlined" or deleted from eligible cropland as determined by USDA-FSA, and cannot receive cost-share to repair or replace. These areas need to be protected, but are not eligible for funding and are overlooked by producers and are now eroding at alarming rates. This program will identify those that are eroding at high rates and will provide cost-share funds to correct these problem areas.

This practice will use the approved cost-share rate list used by USDA-NRCS to establish the practice. Estimated cost for this practice is \$5,000 which includes installation, labor and materials. The rate of cost-share will be capped at 50% or rate of \$2,500 per producer/agreement. The second part of funds used will be a one-time sediment reduction incentive of \$1 per ton of soil saved. An estimated soil savings for this practice is 100 tons per acre or 1,000 tons during its life. Therefore each agreement or producer will be eligible to receive this sediment reduction incentive payment of \$1,000. This agreement is capped at \$3,500.

Soil savings for this practice: The average tons of soil estimated to be saved is 100 tons per year. Grass Water Ways have an expected life span of 10 years. We anticipate installing 20 waterways during the project. Therefore, the expected soil savings is - 100 tons soil saved per year X 10 years life span X 1 acre = 1000 tons per practice at 20 practices we will save 20,000 tons of soil.

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Start Date: October 2012  
End Date: June 2015  
Incentive Method: cost share and sediment reduction payment  
Incentive Rates: 50% capped at \$2,500 and \$1/ton (\$1000)  
Total Soil Savings: 20000

Name: Water and Sediment Control Basin-WASCOB  
Type: Engineering Practices  
Acres: 240  
Cost: \$56000

**Description:**

This practice, water and sediment control basin or WASCOB, is an engineered practice that has an earthen dam or combination ridge and channel generally constructed across the slope and minor watercourse to form a sediment trap and water retention basin. They are designed to hold a 10 year 24 hour frequency storm without overtopping. When installed, the WASCOB will have a 30 foot buffer around the stand pipe. Anticipated life of the practice is 10 years.

This practice is specifically targeted for Lenawee and Hillsdale Counties, Michigan. We are estimating that we will have interest installing eight systems. Average size of a system to be installed is 30 acres. This practice will use the approved cost-share rate list used by USDA-NRCS to establish the practice. Estimated cost for this practice is \$8,000 which includes installation, labor and materials. The rate of cost-share will be capped at 50% or rate of \$4,000 per producer/agreement. The second part of funds used will be a one-time sediment reduction incentive of \$1 per ton of soil saved. An estimated soil savings for this practice is 100 tons per acre or 3,000 tons saved on a 30 acre field. Therefore each agreement or producer will be eligible to receive this sediment reduction incentive payment of \$3,000. This agreement is capped at \$7,000.

Soil savings for this practice: The average tons of soil estimated to be saved is 100 tons per acre per year. WASCOBs have an expected life span of 10 years. We anticipate installing 8 WASCOBs during the project. Therefore, the expected soil savings is - 100 tons soil saved per year X 10 years life span X 30 acres = 30,000 tons per practice at 8 practices we will save 240,000 tons of soil.

Start Date: October 2012  
End Date: June 2015  
Incentive Method: cost share and sediment reduction  
Incentive Rates: 50% capped at \$4,000 and \$1/ton (\$3000)  
Total Soil Savings: 240000

Name: Grassed Riparian Buffers  
Type: Alternate Incentive  
Acres: 30  
Cost: \$10950

**Description:**

Payments will be based upon a three tiered process. First a flat rate of cost-share of 50% will be applied to the installation of the practice, which includes labor, earthwork and materials. A typical cost associated for installation is \$100 per acre or \$50 per acre of eligible cost share for the producer. Secondly, a one-time signing bonus incentive, at a rate of \$215 per acre will be paid. The third part of this practice payment is a sediment reduction incentive at a rate of \$1 per ton of soil saved. The average soil savings is 100 tons over the 10 year life of the practice. Therefore, a producer would be eligible to receive a sediment reduction incentive of \$100 per acre. Each agreement is capped at \$365 per practice.

Soil savings for this practice: The average tons of soil estimated to be saved is 10 tons per acre per year. Grassed Riparian Buffers have an expected life span of 10 years. We anticipate installing 30 units during the project. Therefore, the expected soil savings is - 10 tons of soil saved per year per X 10 year life span X 1 acre = 100 tons per practice at 30 practices we will save 3000 tons of soil.

Start Date: October 2012

End Date: June 2015

Incentive Method: cost share, signing bonus, sediment reduction

Incentive Rates: 50% capped at \$50, \$215 bonus, \$1/ton (\$100)

Total Soil Savings: 3000

## Media Campaign

### Kickoff:

The roll out of this program will take place the first quarter or October 2012. There will be a kick-off event where the general public and public officials will be invited to learn more about the program. We will also have a targeted mailing.

### Ongoing:

There will be ongoing press releases for the local papers, articles will be included in SWCD newsletters, two media packets will develop one for public officials and the other for landowners. Information will also be on each SWCD's web page including general information about the program and sample contracts for producers.

### End:

The end event will include a press release and also copies of our final report will be available.

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