



Final Subgrants Progress Report

USEPA-Great Lakes Restoration Initiative Project

Grant or IA Number:	GL-00E01456-0
State Grant #:	BROK14
Project Title:	Lake Erie Watersheds Nutrient Reduction Project—Phase 2
Reporting Period:	July 1, 2015 — April 30, 2018
Principal Investigator:	Russell Gibson, Ohio Environmental Protection Agency

Ohio EPA applied for and received an FY14 Great Lakes Restoration Initiative Grant #GL-00E01456-0 in the amount of \$689,060 (\$??? Federal & \$??? State) to implement a series of targeted nutrient reduction practices. The subgrantee funded under this project has completed conservation project implementation work and the subgrant is closed. Ohio EPA is currently in the process of closing out all grant-related activities.

Building on the success of Phase 1 project (in Loss Creek and Brokensword Creek watersheds), this project expanded the reach of the conservation efforts into five watersheds (HUC-12 scale) to implement and install practices to reduce nutrient loading in this headwaters region of the reach of the Sandusky River watershed and ultimately to Lake Erie. This project successfully implemented nonpoint source pollution controls management through both innovative and traditional means. This project continued with a first-of-its kind “performance reimbursement” method for increasing awareness of nutrient loss (especially phosphorus) in a targeted community of farmers (*that built upon P-Risk Reduction performance reimbursement that was originally implemented in Phase 1 of this effort). In addition, traditional “cost-share” was provided to implement and install structural conservation practices.

Reimbursements for results-oriented practice implementation and/or installation were provided as:

- **Performance reimbursement for utilizing state-of-the art technologies** such as modified and new cover crop seeding equipment and precision fertilizer technology. This reimbursement was provided to participants who purchased and used this equipment on a per acre basis. The goal was to facilitate purchases of most modern nutrient placement equipment—and more importantly the use of that technology;
- **Reimbursement for reducing a farm tract’s risk of phosphorus loss to waters of the State** to “Low” from “Medium,” “High,” or “Very High” using a modified version of Ohio Natural Resources Conservation Service’s (NRCS) Phosphorus-Index scoring system that provides for scoring deductions for implementing new or improved conservation practices. This continued, and built on the success of the same concept used as part of the Ohio Lake Erie Nutrient Reduction Demonstration Watershed-GLRI grant from 2011 in the Loss Creek Watershed; and
- **Cost share for drainage water management systems and cover crop planting** implemented at rate of 75-90% for installed or implemented conservation practices.

Ohio EPA staff completed was in regular communication the sub-grantee over the course of this grant cycle. This included numerous phone calls, site visits and multiple meetings with the Crawford SWCD.

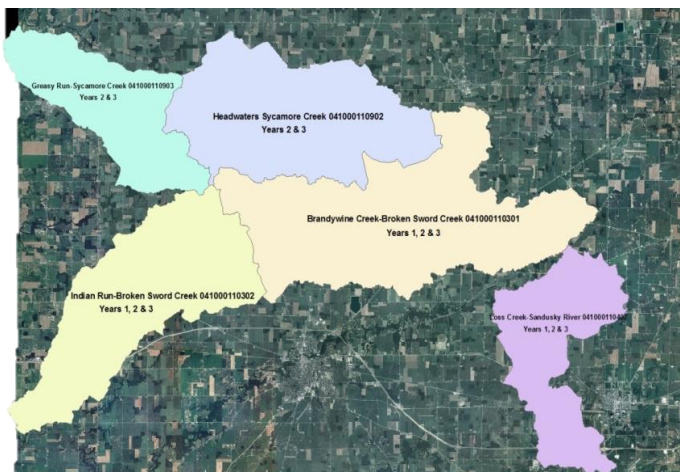
Ohio EPA successfully administered the subgrant agreements. The table below lists the subgrants awarded under this project and the amount of funds that were spent on each project:

Table 1.1 Lake Erie Nutrient Reduction Demonstration Project—Subgrantee Award

Project Number	Subgrant Sponsor/Recipient	Amount Awarded	Amount Spent
14GLRI-BROK-01	Crawford Soil and Water Conservation District	\$600,250	\$600,250

The Crawford SWCD project (14GLRI-BROK-01) resulted in the following:

- Development of whole farm conservation plans for 21,293.0 acres
- Successfully growing 10,429 acres of cover/manure crops
- Cover crop technology development performance reimbursement for 1,251.5 acres
- Installation of 16 drainage water management systems
- Achieved reduction in risk of phosphorus loss on 1,916.3 acres
- Installation of 5 blind inlets to slow and filters surface runoff into subsurface tile systems
- Installation of 1 saturated buffer system
- Performance reimbursement for placement (in-row/banding) — nutrient management on 1,823.1 acres
- Performance reimbursement for precision guidance — nutrient management on 1,095.2 acres
- Performance reimbursement for foliar feeding nutrient management —on 213.5 acres
- Installation of 4,335 linear feet of livestock exclusion fencing
- Installation of 2 alternative water supplies
- Estimated pollutant load reduction: nitrogen – 34,592 pounds/year; phosphorus – 1,885 pounds/year; sediment —540 tons/year



Pre-project environmental monitoring has been conducted by Ohio EPA’s Ecological Assessment Unit. Post project monitoring is scheduled to commence during the summer of 2018. Fact sheets for all subgrant-funded projects are attached to this report. A stand-alone GLRI project summary that was developed at the beginning of this project with tie-in to FY 2014 Phase 2 GLRI project is included with the attachments to this report.

This project is a useful example of the momentum effect in this region— beginning with Loss Creek (as part of Phase 1 project), then into the headwaters of Brokensword Creek, and finally into three (3) more adjacent HUC-12 watersheds, including downstream Brokensword, and the two (2) Sycamore Creek watersheds. These projects (Phases 1 and 2) serve as models to use—and improve upon, when considering potential targeted agricultural BMP projects considered in Ohio and other Midwest and Great Lakes states.

Project related attachment and Photographs to Final Subgrants Progress Report

GL-00E01456-0

Lake Erie Watersheds Nutrient Reduction Project—Phase 2



Lake Erie Watersheds Nutrient Reduction Project



Phase 1 (2012-2015) and Phase 2 (2015-2017)

Federal Grant: #GL-00E0836-0 (Phase 1) &

#GL-00E01456-0 (Phase 2)

State Grant IDs: #NUTR11 & #14BROK

The Lake Erie Nutrient Reduction Demonstration Project, Phase 1 is a first-of-its-kind project that focuses on:

- Performance-based reimbursement for reducing risk of Phosphorus loss (i.e., \$/acre on field where conservation practices are installed or implemented that reduce P-Index risk from Very-High, High or Medium to “Low”). A farm conservation plan update component is included with this P-Risk reduction effort.
- Cost share for innovative and traditional conservation practices (with focus on drainage water management, fertilizer placement, cover crops and a stream bank restoration project); and
- Reimbursement for reducing soil loss (Per ton reimbursement for fixing eroded areas.

This collaboration between Ohio EPA, Crawford County Soil & Water Conservation District, Crawford County Park District, Ohio State University Extension and the Sandusky River Coalition has been an innovative test of agricultural programming in a HUC-12 subwatershed of the Sandusky River. This project expanded into another HUC-12 in late 2014.

In addition to agricultural programming, this project also included green stormwater demonstration practices at the Crawford County Park District’s main office and nature center. The project also engaged the Sandusky River Coalition in educational and public outreach activities and OSU Extension performing social indicator survey work. Pre and post project environmental monitoring is being conducted by Ohio EPA’s Ecological Assessment Unit and water quality staff from Ohio EPA’s northwest district office. In a true partnership, this project engages a wide array of persons and practices concentrating on reducing nutrient loadings to Loss Creek, the Sandusky River and ultimately to Lake Erie.

The Lake Erie Watersheds Nutrient Reduction, Phase 2 project further expands into adjacent Lake Erie (Sandusky) watersheds in Crawford County, OH. This project began in June 2015. Innovative opportunities that are provided as part of this project include the following:

- Continuation of the P-Risk reduction performance reimbursement concept from Phase 1 including the farm planning component;
- Continuation of cost-share — primarily for cover crops and drainage related conservation practice implementation such as controlled drainage, saturated buffers, and blind inlets;

- A new performance-based reimbursement targeted at entrepreneurs who purchase new or upgrade cover crop planting equipment — Concept is to reimburse these entrepreneurs by the acre order to get cover crops planted in the most timely and effective manner as possible.
- A new “Accelerated Nutrient Management” component aimed to provide performance reimbursement to producers who try one or more new and/or innovative technologies to apply nutrients to crops. These technologies include: Infrared crop-sensing, Nutrient placement (in-row or banding), Nutrient Precision Guidance and Foliar Feeding.

The response by agricultural producers throughout the Loss Creek and Brandywine/Broken Sword Creek sub-watersheds as part of the Phase 1 project has been very strong. Likewise, the resulting improvements in conservation practices that are appearing in the agricultural landscape reflect this strong interest. Producer interest in watersheds downstream and adjacent to the Phase 1 project watersheds are what led to the application for the second phase GLRI project. Because of this momentum, a high percentage of producer participation and similar results are expected from the Phase 2 project (Sign-ups are just now beginning—Summer, 2015). Watersheds included with Phase 2 project include: Loss Creek (Years 1-3), Brandywine Cr. – Broken Sword Cr. (Years 1-3), Indian Run-Broken Sword Cr. (Years 1-3), Headwaters Sycamore Cr. (Years 2-3), and Greasy Run-Sycamore Cr. (Years 2-3). The project area covers approximately 100,000 cropland acres, all within the Sandusky River watershed in Crawford County, OH.

FY11 GLRI Lake Erie Nutrient Reduction Demonstration Project —Phase 1 Subgrants

Project Number	Project Sponsor	Type of Project	Total
NUTR11-GLRI-01	Crawford County SWCD	Agricultural BMPs	\$ 319,530
NUTR11-GLRI-02	Sandusky River Coalition	Education & Outreach	\$ 64,189
NUTR11-GLRI-03	Ohio State University Extension	Education & Outreach	\$ 30,000
NUTR11-GLRI-04	Crawford County Park District	Stormwater BMPs	\$ 65,030
TOTAL			\$ 478,749

FY14 GLRI Lake Erie Watershed Nutrient Reduction Project — Phase 2 Subgrant

Project Number	Project Sponsor	Type of Project	Total
14BROK-GLRI-01	Crawford County SWCD	Agricultural BMPs	\$ 600,250
TOTAL			\$ 600,250

PHOTOS: Lake Erie Watersheds Nutrient Reduction Project—Phase 2



Figure 1: Air Seeder user in Cover Crop planting promotion

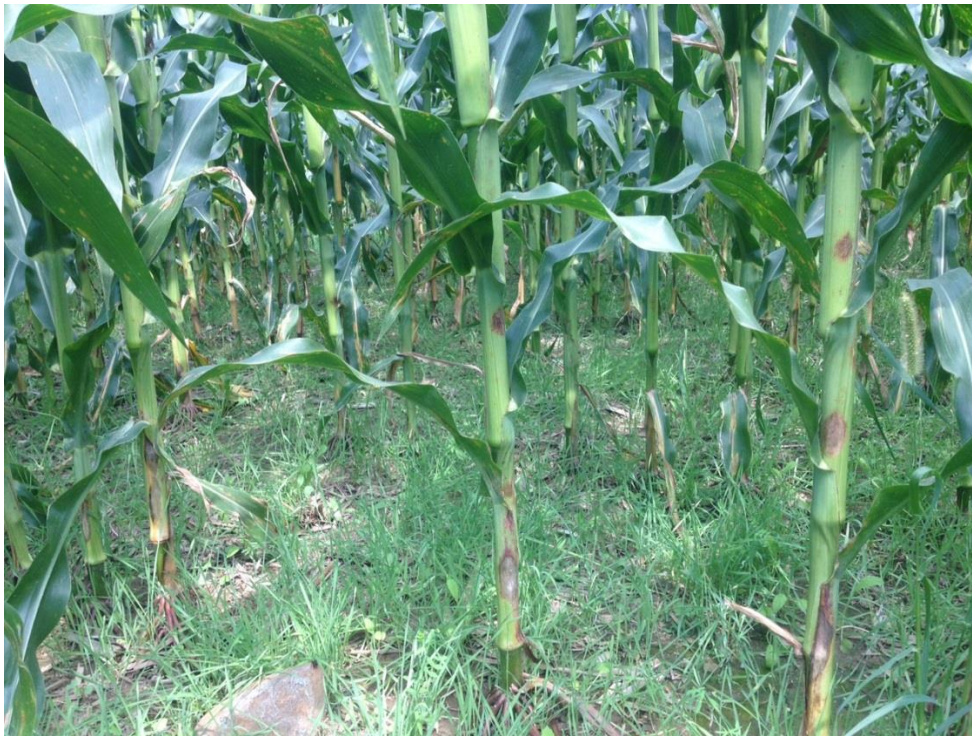


Figure 2: No-Till Corn Planted into Cereal Rye. (Crop rotation planning)



Figure 3: Blind Inlet installed to intercept surface drainage into subsurface drainage system



Figure 4: Blind Inlet installed to intercept surface drainage into subsurface drainage system



Figure 5: Controlled Drainage System



Figure 6: Controlled Drainage System



Figure 7: No-Till corn with in-row application of fertilizer



Figure 8: Cover Crops



Figure 9: Cover Crops



Figure 10: In-Row Fertilizer Application