

Grand Lake St Marys Progress Report

March 2010

The “Grand Lake St. Marys & Its Watershed: Water Quality Improvement Initiatives” was announced in November. Since this time progress has been made by the community, landowners in the watershed, agricultural businesses, and by local, state, and federal agencies on implementing the strategies mentioned in this report. Listed below are the strategies and initiatives to improve Grand Lake and its watershed. Progress and updates are underlined.

Outreach, Engagement and Voluntary Implementation without Significant Additional Resources

Agriculturally Related Issues:

The majority of the land in the Grand Lake watershed is in agricultural production. Crop and livestock production accounts for approximately 90% of the land in the watershed. To that end, the following recommendations are proposed to address recognized concerns regarding agricultural pollution sources with existing staff.

- Transfer 1 FTE from within DSWR to work full-time within the GLSM watershed to assist with tasks such as but not limited to:
 - Increase technical assistance and site visits to farms (visit 50 operations).
 - Improve complaint follow-up visits; conducting enforcement.
 - Conduct nutrient management plan (NMP) training (4 workshops).
 - Outreach to producers, integrators, co-ops, ag organization members, etc.
 - Liaison with local USDA reps to accelerate use of Farm Bill conservation funds.

Terry Mescher and Jocelyn Henderson (DSWR employees) are spending 50 percent of their time in the watershed. A team of local individuals, which includes representatives from ODNR, OSU Extension, Mercer SWCD and NRCS have been meeting bi-weekly and working on actions to implement the items mentioned in this plan.

- Engage local chapters of OFBF, OFU, Young Farmers, and other agricultural organizations; seek commitment that all of their crop and livestock farming membership develop and use NMPs – either the new streamlined Ohio Nutrient Management Workbook, or a full NRCS Comprehensive Nutrient Management Plan (CNMP); ask for their help in conducting NMP training and on-farm assessments.

Meetings are being coordinated with local Farm Bureau and Young Farmer representatives. A recent survey shows that approximately 23% of the cropland acreage in the watershed is covered by approved CNMPs that were developed within the last five years. Two nutrient management workbook training sessions were held January 26th and February 22nd. Over 110 producers attended these two events. These training sessions provide further opportunities for development of nutrient management plans. In addition these sessions provided information on soil nutrient recycling using cover crops and information on topdressing wheat with manure.

- Engage local co-ops and integrator companies; seek their commitment that all of their partners and producers develop and use NMPs; ask for their help in conducting training.
 - Apply for Cooperative Conservation Partnership Initiative (CCPI) grants to assist in nutrient management plan development in 2010.

The following co-ops and integrator companies have been contacted regarding nutrient management plans: Tunte Farms, Mercer Landmark, Advanced Ag Solutions, and Cooper Farms. Grant opportunities through USDA NRCS may help these companies further implement nutrient management planning with their growers. In addition an agricultural producer alliance is being formed in the watershed that will help encourage the development and use of nutrient management plans.

- Organize and conduct NMP training sessions through DSWR and SWCDs in late 2009 and early 2010; all producers in the watershed will be given the opportunity to attend; goal is to reach over 90% of all farms (row crop and livestock) within two years. Training will inform that NRCS CNMP is required for EQIP eligibility.

Two nutrient management workbook training sessions were held in January and February and were successful. 110 producers in attendance. Other workshops and field days are currently being planned for the remainder of this year and next.

- Foster the use of manure nutrients over commercial fertilizer.
 - Encourage producers to acknowledge manure nutrients applied, and reduce or eliminate commercial fertilizer application.
 - Supply nitrogen needs for corn through side dressing swine manure on 500 acres in 2010.
 - Supply nitrogen needs for wheat through top dressing swine manure on 100 acres in 2010.

To address and work towards implementing these items a field day is tentatively being planned that would demonstrate how manure can be used to side dress and top dress to supply the nitrogen needs of a growing crop. The desire of this field day is to largely have it driven and promoted by local agricultural companies. The field day could be used to demonstrate the use of new nitrogen stabilizers on the market that can be used with liquid manures. Loss of N and the uncertainty of the amount of N applied are primary reasons why manure is not used as a sole nitrogen source. Currently testing is being conducted to help develop rates for side dressing with swine manure. The January and February training sessions also provided information on using swine manure to side dress corn and top dress wheat. There are some producers in the watershed that are already topdressing wheat in the watershed with manure.

- Foster efforts to export more manure from the watershed.
 - Document extent to which poultry manure is exported from the watershed over the next nine months; assist in raising the already-high percentage.
 - Apply for funding to continue research-using Geotubes for manure solids separation and nutrient concentration over the next year.
 - Help facilitate a study to determine the distance swine manure can be trucked economically.

ODA Livestock Environmental Permitting Program (LEPP) inspectors are working with permitted poultry farms and certified livestock managers (CLMs) to document the extent of poultry manure being exported outside the watershed. Based on these records thus far, ODA estimates that 90 percent of the poultry layer manure from permitted farms is being exported outside the watershed. Cooper Farms is the major poultry grower company other than layers. Based on the location of the few Cooper turkey facilities in the watershed it is documented that all of this manure is being exported outside the watershed. Knowing this information it would leave only a few independent poultry producers unaccounted. In regards to Geotubes the initial study shows that this technology is not economical for most small/medium-sized operations. Regarding a study to determine the economics of transporting swine manure, a small grant has been awarded by the Conservation Technology Information Center (CTIC) to look at stratification in swine manure storage structures and how manure could be managed so that the nutrient rich portion of the manure could be transported more cost effectively. Manure values from approximately 18 barns will be part of the study to determine nutrient values and content. In addition, a demonstration project is being planned in 2010 that will use technology to reduce odor and pathogens in swine manure. Odor and pathogen reductions will make it easier to transport manure of the farm.

- Collaborate with USDA NRCS on the use and prioritization of Farm Bill programs including Environmental Quality Incentives Program (EQIP), at a level of at least the FFY '09 and '10 of ~\$1 million/year (contingent

upon future federal appropriations), in an effort to:

- Develop and/or update 50 CNMPs in the next year.
- Promote new management system practices, and work with NRCS to identify and tailor a package of practices that better fit the GLSM watershed, with a goal of having 1,000 acres of management systems in place .
- Install 20 manure storage and management structures in 2009 and 2010.

Local and state partners are working with USDA NRCS to secure additional EQIP funding for this fiscal year. In the most recent EQIP sign up Mercer County received 86 applications from farmers in the county wanting to apply conservation practices. A significant portion of the applications completed were from landowners in the Grand Lake St. Marys Watershed. These applications included requests from landowners for land management practices, CNMPs, and manure storage and management structures. 10 CNMPs have been developed since July 2009. The land management system practices have now been tailored to include conservation tillage, which will be more compatible for producers who use manure and need to incorporate into the soil. These land management system practices will be promoted through Grand Lake EQIP. As far as accomplishments towards installing manure storage and management structures, in 2009 five dry stack manure storage structures were built in the watershed and two feedlots were covered as a runoff control measure. Also in 2009, an additional two dry stack manure storage structures, one compost facility, one anaerobic lagoon, and five drainage water management control structures were approved for EQIP funding. Designs and plans are being completed for these practices with plans to install in 2010.

- Increase conservation practice enrollment in the Conservation Reserve Program and the Lake Erie Conservation Reserve Enhancement Program within the Grand Lake watershed.
 - Establish 65 acres of filter areas or riparian buffers within the Grand Lake watershed at an average width of 30 feet within five years.
 - Construct or restore 60 acres of functional wetlands within five years to allow for filtration of nutrients and settling of sediment.

USDA reports that approximately 1,900 acres of buffers in the GLSM watershed have been enrolled in the Lake Erie Conservation Reserve Enhancement Program. There are barriers to enrollment of additional buffers and functional wetlands. Conservation programs currently do not provide enough funding to entice landowners to restore or establish wetlands. The Wetland Reserve Program (WRP) offers values of \$3500 per acre to protect or restore wetlands. Farmland values are in the \$8,000 per acre range. Agricultural land values are higher in Mercer County and the Grand Lake Watershed versus other parts of the state. The current payment rate is the most limiting barrier to enrollment and different compensation values are needed for this area as compared to the rest of the state to get additional wetland acreage. 30 million dollars is available through WRP this year. In Franklin Twp. approximately 200 acres of land was purchased through the Clean Ohio Program. Some of the 200 acres included wetland acreage. Additional assistance is needed to target and identify possible wetland sites and to work directly with individuals on restoring wetlands. Small fields along creeks could be targeted as possible wetland sites as landowners may be more willing to restore wetlands in these areas versus trying to site wetlands in larger fields.

Assist USDA NRCS with conducting farm-scale conservation planning and targeting BMP implementation in two priority sub-watersheds within the GLSM watershed: Beaver/Coldwater Creek and Grassy/Monroe Creeks. NRCS will also provide outreach and educational activities with local stakeholder groups and organizations. This

project expects to accomplish development of conservation plans on 35% of acreage in both sub-watersheds during FFY '10. By FFY '11 the project will emphasize enrolling and installing BMPs, including more effective, and targeted buffer installation, wetland restoration, drainage water management, as well as other traditional EQIP practices. This initiative is funded with Clean Water Act Section 319 funding from Ohio and US EPA and will result in:

- Complete farm-scale conservation plans on 35% of the acreage within the two targeted sub-watersheds.
- Enroll and install conservation BMP's on 35% of the acreage within the two targeted sub-watersheds.

Ohio EPA using U.S. EPA Clean Water Act §319 funding is providing \$500,000 to Ohio-NRCS to hire three new employees (1 supervisor & 2 staff) to perform conservation planning in the aforementioned watersheds. U.S. EPA has approved all of the associated paperwork with this Inter-agency Agreement between U.S. EPA and NRCS. Now that the agreement has been fully executed, the selection of GLSM dedicated NRCS employees (1 supervisor and 2 staff) will commence. This activity will begin during spring of this year and continue for a two year period.

- Pursue the use of other grants from USDA, US EPA, etc.
 - Coordinate with OSU Extension and apply for Conservation Innovation Grant to develop manure management and cover crop management strategies in the next year.
 - Identify other grants and funding sources to improve nutrient management in the watershed.

Eligible partners for Conservation Innovation Grants include farm cooperatives, producer associations, individual landowners, and non-governmental organizations. Some discussions have taken place about a possible CIG grant to foster the export of manure out of the watershed.

- Establish management practices and obtain buy-in from interested parties to improve fall/winter manure management.
 - Encourage producer compliance with Ohio NRCS 633 Waste Utilization Standard, Ohio NRCS 590 Nutrient Management Standard, and Ohio NRCS 313 Waste Storage Facility Standard.
 - Significantly reduce manure applications on frozen or snow-covered ground and within four years eliminate producer dependency on application of liquid manure on frozen or snow-covered ground in the GLSM watershed.
 - Establish cover crops after manure application in order to keep manure nutrients in the field and prevent losses.
 - Some operations may be able to eliminate dependency on frozen/snow-covered ground without incentives, while others may need assistance with manure storage or other alternatives.

Compliance with practice standards is promoted through various educational events and field days throughout the year and when producers choose to participate in USDA cost-share programs. Each year progress is made to reduce the dependency on applying liquid manure on frozen and snow covered ground as more manure storage and management practices are built in the watershed. Local sources report less manure being applied during the winter time than in previous years. There is significant interest in using cover crops as more individuals are trying cover crops . OSU Extension is also working with producers and have some on farm demonstrations of different cover crop practices.

- Identify and pursue development of alternative manure treatment and management strategies.
 - Coordinate with OSU Extension to develop land treatment practices to treat fields with extremely high soil test phosphorus with alum over the next 18 months.
 - Help facilitate development of networks between producers with excess manure and producers buying commercial fertilizer, in an effort to replace fertilizer with manure, possibly through OFBF and other agricultural organizations within two years.

- Help develop management strategies and identify application equipment that allow producers to make manure applications on growing crops.
- Explore implementation of methane digesters or gasification technologies to improve manure management and reduce carbon emissions, with the City of Celina and others
- Develop strategies to employ separation of manure solids, and work to export separated solids from the watershed.

Alternative manure treatment and management strategies are under review. Several companies that offer alternative treatment and management strategies have provided information and presentations on their technology. One company in particular has agreed to work with state and local partners on a demonstration of their manure treatment system on a farm in the watershed. This technology is supposed to reduce odor, pathogens, and nutrient concentration. The City of Celina continues to explore possibilities of using anaerobic digesters.

- Re-establish natural watershed buffers and channels (ag and non-ag applicability).
 - Identify areas for development of streamside wetlands and willing landowners for implementation.
 - Identify channels with impaired drainage, and explore alternative channel designs to restore natural channel processes that reduce nutrient and sediment delivery.
 - Explore innovative ways to use existing programs to achieve buffer installations
 - Identify the most environmentally effective locations for filter areas.

Streamside wetlands and alternative channel designs face similar challenges as noted before regarding land values and lack of incentives and funding available for the landowner. The state is working with USDA on possible ways to fund channel designs to restore natural channel processes. However, these practices are not currently eligible for USDA funding.

Non-Agriculturally Related Issues:

While representing the majority of the land use in the watershed, agriculture is not the only source of pollution in the watershed. The following items have been identified as areas to engage partner agencies and other organizations in the community to address non-agricultural pollution sources.

- Seek to upgrade treatment and control of domestic sewage.
 - Assist SWCDs applying for EPA Sect. 319 funds to repair failing septic systems in 2009 and assist Mercer and Auglaize counties to use American Recovery and Reinvestment Act funding available for same purpose.
 - Document current and planned development of central sewer systems and assist residents in connecting to those systems.
 - Coordinate with Mercer and Auglaize County Health Dept to identify and gauge extent of failing household sewage treatment systems.
 - Develop additional funding options to assist in system replacement, rehab, or central system connections.

EPA Clean Water Act §319 funding for the Wabash watershed has been reallocated to the GLSM watershed. The grant with Mercer County SWCD has been executed and is moving forward. Applications for septic system improvements, elimination of dairy milking parlor discharges, and installation of subsurface tile control structures were recently advertised in local press and outreach by Mercer SCWD to local producers and citizenry has commenced. Low interest loan funding is also available for the watershed. A WPCLF grant application has been submitted to study the feasibility of hooking up small villages in the watershed to a

centralized sewer system. A balanced growth grant was submitted and denied funding. The watershed is exploring other grant opportunities along similar lines. Future grants could include possibly identifying wetland areas.

- Increase assistance, oversight and enforcement of sediment & erosion control plans on development sites.
 - Provide outreach and training to developers and contractors for pre- and post-construction stormwater management and erosion control.
 - Coordinate among local and state agencies to ensure compliance with stormwater and erosion and sediment control standards.

There have been issues in the past with response and follow up on storm-water, sediment and erosion control sites. Documentation of these situations is important and providing detailed information may assist Ohio EPA in more effectively dealing with these issues.

- Working in partnership with Ohio EPA, ODNR, US EPA-Region 5 and local partners, US EPA- funded technical consultants will develop a lake management and implementation strategy to identify and implement site-specific recommendations for lake management practices to improve water quality within Grand Lake. The strategy will also identify and implement actions designed to reduce harmful algae blooms within recreational areas of the lake.

Ohio EPA-DSW facilitated a meeting at Grand Lake St. Mary's State Park on 2/8/10 with Kevin Kratt of Tetrattech and the local GLSM workgroup comprised of Mercer & Auglaize counties, GLSM state park staff, Mercer SWCD, ODNR Soil & Water Resources, city of Celina and others. This meeting successfully introduced Tetrattech to the local work group and provided opportunities for exchanging concerns and expectations as well as allowing Kevin to provide an overview of how they will approach the GLSM lake management project. Following is the schedule provided by Tetrattech for completing important provisions of the GLSM contract with US EPA:

- Identify and assess Demonstration Project Alternatives—March 31st, 2010
- Develop long-term adaptive lake management plan—May 14th, 2010
- Develop Demonstration Project Recommendations—May 21st, 2010

Recreational facility management and water quality improvement: Working in cooperation with Ohio EPA, GLSM State Park, U.S. EPA, and other local recreational management partners, identify and install lake management practices designed to improve water quality in and around public recreational areas in GLSM. An outline of potential projects that may be effective includes:

- Lake shoreline stabilization
- Channel aeration and/or circulation
- Stream sediment collectors
- In-stream alum doser demonstration project to reduce nutrient loadings
- Solar powered circulators in and around beach areas to reduce blue-green algae
- Lake management outreach and education

The Grand Lake St. Marys community is currently raising funds to implement a pilot project this year that includes lake aeration and stream sediment collection. The project will consist of of two large aeration systems and three stream collectors in key lake tributaries.

OEPA-DSW recently received a Surface Water Improvement Fund (SWIF) grant application from Mercer County and two applications from the Auglaize County Commissioners to implement water quality improvement demonstration projects in Grand Lake St. Mary's. Auglaize is requesting \$75,000 to install solar updraft water circulators around a state park beach; Mercer County is requesting \$60,000 to install aerators and \$45,000 to construct floating wetland treatment systems. Grants are currently under review and DSW anticipates having recommendations complete by the first week of April. DSW staff is also providing technical assistance to the GLSM State Park staff.

ODNR-Parks will continue construction of an in lake dredge material relocation area that will protect approximately 2,000 feet of shoreline and create a 23.5 acre wetland.

- Preserve and restore wetlands.
 - Identify remaining wetlands around GLSM to protect and areas where wetlands could be most effectively restored, to reduce sediment and nutrient delivery; protect 30 acres of existing wetland and restore an additional 30 acres.

The two-30 acre goals to protect and restore may be too high given the lack of existing wetland areas and development in close proximity to the lake.

- Reduce non-ag nutrient applications.
 - Provide workshops on lawn fertilizer and other urban water quality BMPs.
 - Educate homeowners close to the lake of the fate of lawn fertilizers applied and reduce over-application of such fertilizers.

Funding is currently available for soil sampling for lawns and gardens and educational workshops on use of lawn fertilizers and urban BMPs are currently being planned.

- Conduct water quality monitoring and public information.
 - Coordinate ongoing water quality monitoring and microcystin analysis with Ohio EPA, ODNR, Celina and others.
 - Conduct public education and outreach regarding water quality and potential impacts of blue-green algae in coordination with the Ohio Department of Health. ODH will assist with the development and distribution of advisory information.
 - Maintain a GLSM website or content and links to existing websites to provide public information about water quality.

Ohio EPA Baseline GLSM Monitoring: Ohio EPA's Northwest District Office submitted a plan for monitoring water quality in GLSM this summer. The primary emphasis will be to establish a baseline measurement so that future improvements resulting from BMP installation etc, may be effectively measured and/or compared. This activity will commence during the 2010 monitoring season.

USDA-NRCS Chickasaw Creek Monitoring: In association with USDA-NRCS Special EQIP Initiative in Chickasaw Creek, the National Center for Water Quality Research (NCWQR) at Heidelberg University is continuing daily monitoring of water quality within the Chickasaw Creek.

Beach Area Microcystin Monitoring: ODNR Division of Parks will once again monitor for microcystin levels in and around the state park beaches. This monitoring will be ongoing throughout the recreational season.

City of Celina Water Intake Monitoring: The city of Celina purchased a Sonicator in August, 2009 that allows them to evaluate total microcystin levels in lake water. This monitoring has been ongoing since last summer. Current samples of lake water collected in GLSM near the water intake have exhibited microcystin levels of 2.3 ppb as of 3/4/10. These figures are well below the levels observed last summer—but that is to be expected during the winter months. *Microcystin* levels in finished drinking water from the city's plant continue to be non-detectable as it has been throughout 2009.

Microcystin & Water Quality Education and Outreach Activities: Ohio EPA's Inland Lakes Program continues to maintain the GLSM Microcystin website with current and timely information to update the public on water quality conditions within the GLSM. Recently, a four-color brochure and poster informing about harmful algal blooms was prepared by Ohio Sea Grant. While not speaking directly to GLSM, this document is providing very high quality information about harmful blue-green algae blooms.

Enforcement with Current Resources and Authority

- Reach agreement with Mercer and Auglaize SWCDs, ODA, and ODNR DSWR that, with current resources:
 - All partners will continue to vigorously respond to all complaints.
 - Valid complaints resulting in pollution of waters of the state that are not resolved within six months will be referred to DSWR for enforcement; any orders will include NMP requirement.
 - Documented ag pollution abatement program rule violations will be monitored for any further repeat violations for four years. A second violation within this timeframe will result in an immediate referral to DSWR for enforcement action; any Chief's Order that is issued will require an NMP to be developed.
 - ODNR Chief will consider referring repeat violators to ODA for possible permitting, as well as referrals to Ohio's NPDES authority.

All manure related complaints are being followed up on regardless of whether or not a pollution discharge is occurring or imminent. Complaints involving application of manure on frozen and snow-covered ground are being followed up on to determine: The producers need for hauling on frozen/snow-covered ground, If setback distances are met, and if the operation has a current nutrient management plan.