



Keeping it on the Land

Information for the soil erosion and sediment control community in the Great Lakes basin

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The changing focus of erosion control

By Jerry Wager, Ohio Dept. of Natural Resources and chair, Great Lakes Soil Erosion and Sediment Control Task Force

Is all erosion bad? Or, do we need to rethink our approach to erosion control? Our more sophisticated understanding of fluvial processes is raising some interesting resource management questions which erosion control programs at all levels need to consider.

Initially, erosion control programs focused on preserving agriculturally rich soils. By the late 1970s, restoring degraded water quality by keeping soil and attached pollutants out of the water underpinned sediment control efforts. More recently, erosion control agencies have recognized the aquatic damage resulting from excessive rates of erosion and sedimentation.

The latest focus on aquatic damage has resulted in more aggressive and widespread adoption of erosion control practices on farms and construction sites. Both regulatory and voluntary approaches have increased; complementary practices, e.g. stream buffers, are also being touted as solutions. In response to the demand for more environmentally benign solutions, traditional stream bank armoring, such as riprap and concrete, has been replaced by the softer approach of vegetative installations. The question remains however, is this newest practice as environmentally sound as it appears or does it perpetuate the sins of the past by putting a pretty face on the loss of natural stream processes?

Constricting the ability of streams to meander, especially in response to changes in watershed runoff patterns, generally results in down cutting and a detachment from floodplains. More of the stream energy is contained in the channel, increasing bank instability and erosion, with fewer locations for deposition of sediment loads. In assessing our current approaches to stream bank erosion and sedimentation,

we need to keep in mind a few principles.

Sediment load is only part of the pollution problem. Channel form is another, perhaps more important, part of the equation. Floodplains and meanders work wonders to deposit sediment where it causes less harm to aquatic systems. Sinuous channels develop complex flow patterns capable of sorting sediment, concentrating the coarse fraction in the channel, and storing the fines in point bars and in the floodplain.

Not all sediment is created equal Filling interstitial spaces of gravel bed streams with sediment is problematic. Pollutants attached to clay and silt are also problems. Sediment also smothers aquatic habitat when washed from uplands during intense rainfall events. However, streams with the ability both to transport and to process sediment loads are generally healthy. Sediments contain nutrients and seeds, which help replenish floodplains and increase diversity, while floodplains help sequester attached pollutants.

Sometimes bank erosion increases sediment loading; sometimes it does not As banks on outside bends erode, inside banks build. The difference in height between the eroding and the building bank determines sediment load. If both banks are the same height, there is no net increase in sediment delivered downstream. The entire riparian system can benefit from bank erosion, i.e., lateral channel migration.

Down cutting is a bad scenario that gets worse with time. When a stream has frequent access to an extensive floodplain, many wonderful fluvial processes happen. But as channels downcut they abandon their floodplain and the associated benefits are lost, including channel stability. A cycle of high sediment loading begins as the now entrenched stream begins a long recovery process of making a new floodplain at a

lower elevation by eroding the high old floodplain. Constricting this process with bank protection reduces the stream's recovery potential.

Many of our assumptions and goals concerning erosion control emerged from a desire to maintain soil productivity; those assumptions remain with us today. However, our vision has expanded to include restoration of the ecological integrity of streams; and our understanding of fluvial dynamics has changed as well. In light of new goals and new knowledge, it is time to reassess our approaches to erosion control. Whether we employ concrete, riprap or willows, restricting the ability of streams to establish new floodplain and stable channels will not achieve the water quality goals we desire. We need to understand stream processes, try to work with them, and give streams the room they need to adjust to their changing watersheds.

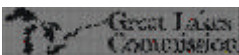
Dan Mecklenburg, Ohio DNR, contributed to this article.

New grants awarded for soil erosion and sediment control projects

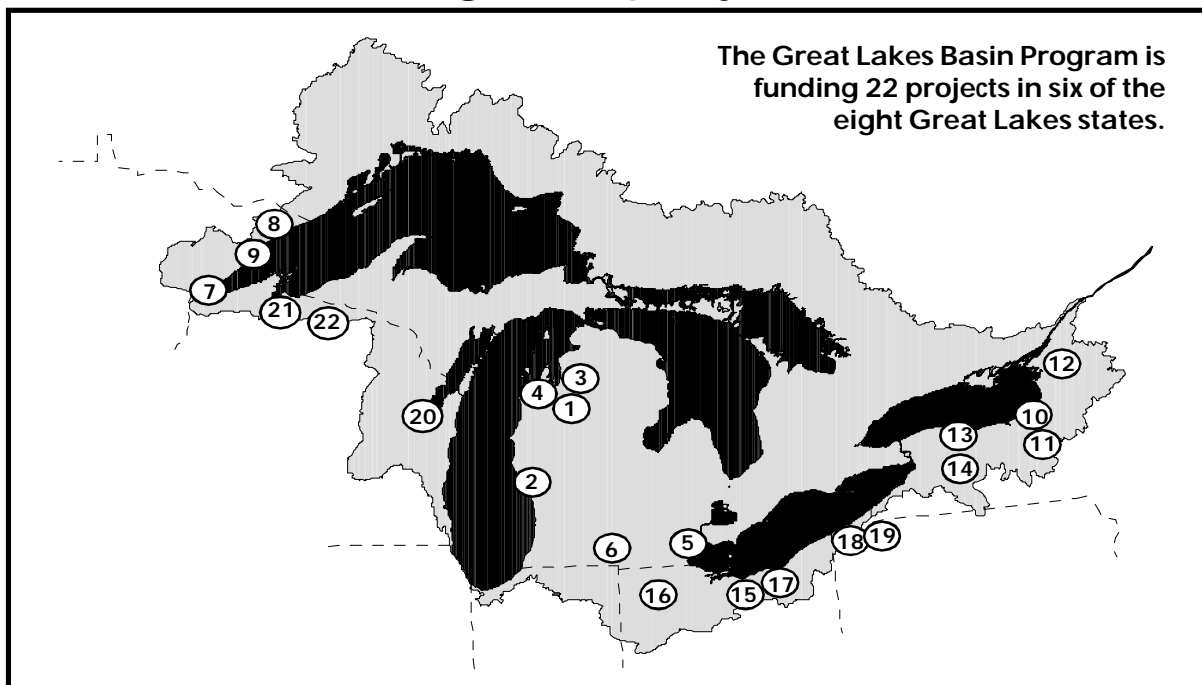
On March 18-19, projects for FY1999 funding under the Great Lakes Basin Program for Soil Erosion and Sediment Control were selected when the Great Lakes Soil Erosion and Sediment Control Task Force met in Chicago. This year the program received 55 proposals, of which 22 were funded for a total of \$350,000. The 22 projects include nine information/education initiatives and 13 demonstration or technical assistance grants. Once again, the caliber of proposals was outstanding and the choice difficult. See page two for FY1999 project descriptions, recipients and locations.

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Great Lakes Basin Program Partners



FY1999 Basin Program projects



MICHIGAN

1. Agricultural Impact Reduction Program

Michigan Agricultural Stewardship Association, \$25,000

This project will increase policymakers' awareness of the impact of agricultural practices upon Great Lakes ecosystems and teach soil conservation and sustainable farming methods to participating farmers. Contact: Russ LaRowe, (616) 258-3305.

2. Improving Muskegon Lake Water Quality Through Proper Land Use in the Ryerson Creek Watershed

Muskegon Conservation District, \$24,654

This project will produce a template for improving water quality and managing rapidly urbanizing watersheds by remediating existing streambank erosion and developing a stormwater management plan for the Ryerson Creek watershed which drains into Muskegon Lake, a designated Area of Concern on Lake Michigan. Contact: Kathy Evans, (616) 773-0008.

3. Lake Michigan Shoreline Erosion Project in Antrim County

Antrim Conservation District, \$23,422

The Antrim Conservation District in the Grand Traverse Bay area of Michigan will control sedimentation from public access sites on Lake Michigan through bioengineering techniques (e.g., rain gardens) and ensure community support for them through an

"Adopt-a-Public Access Site Today" (APAST) program. Contact: Janet Person, (616) 533-8363.

4. Psutka Lake Crossing Project

Conservation Resource Alliance, \$25,000

This project will improve the water quality and available fish and wildlife habitat of the Betsie River, a state-designated natural river flowing into Grand Traverse Bay, Mich., by engaging local support to remediate a long-standing, highly eroded site. Contact: Kim Kook, (616) 946-6817.

5. Michigan Water Trail

Michigan Dept. of Agriculture, \$23,850

The Michigan Water Trail is a one-half acre permanent watershed to be constructed at the State Fairground in Detroit, Mich. It will provide fair-goers with information about controlling soil erosion in a variety of settings from urban to agricultural. Contact: Jack Knorek (517) 335-2874.

6. Sauk River/Adopt a Stream Project

Branch County Soil Conservation District, \$18,200

This project will raise awareness of the water quality impacts of erosion by involving students from the Quincy and Coldwater School Districts in Branch County, Mich., as well as local businesses, governments and other private citizens in identifying highly eroded sites along the Sauk River, determining best management practices with project partners and monitoring results, including water quality changes. Contact: Gordon Porter, (517) 278-8008.

MINNESOTA

7. Miller Creek Sediment Trap Maintenance Demonstration Project

South St. Louis County Soil and Water Conservation District, \$10,000

This project will establish the procedure and resources required to maintain an in-stream sediment trap to allow planning for long-term maintenance for such installations by local governments. Contact: R.C. Boheim, (218) 723-4867.

8. Multi-Agency GIS Database and Planning Tool for Minnesota's Lake Superior Shoreline

Minnesota Board of Water and Soil Resources, \$20,800

This project will build an information base of GIS layers to enhance coordination of the various programs and agencies which address water quality management, specifically soil erosion and sedimentation, in Minnesota's Lake Superior watershed. Contact: Gene Clark, (218) 723-4752.

9. Knife River Watershed Education Project

Laurentian Resource Conservation & Development Council (RC&D), Inc., \$10,230

This is the RC&D Council's third grant under the Basin Program in support of the Knife River Education Project for this watershed on the north shore of Lake Superior. This grant will support a watershed newsletter, tree-planting in riparian areas and

a bioengineering workshop. Contact: Kim Samuelson, (218) 720-5225.

NEW YORK

10. Management Intensive Grazing in the Great Lakes Basin

Cayuga County Soil and Water Conservation District, \$15,000

By converting highly erodible soils in the Seneca River watershed from tillage to rotational grazing, this project will reduce soil erosion and decrease animal waste run-off to this central New York tributary to Lake Ontario. Contact: James Hotaling, (315) 252-4171.

11. Remedial Erosion and Sediment Control for Salmon Creek

Tompkins County Soil and Water Conservation District, \$9,250

Under this grant, the Tompkins County SWCD will re-establish Salmon Creek's natural stream course through the county with bendway weirs and willow plantings as the most cost effective and least maintenance intensive approach to controlling erosion and sedimentation problems in the watershed. Contact: Paul Long, (607) 257-3820.

12. St. Lawrence River Shoreline: Bio-Technology Shore Stabilization

St. Regis Mohawk Tribe, \$21,950

This project will demonstrate the economy and effectiveness of using vegetation in combination with rock riprap for shoreline stabilization in the St. Lawrence River rather than standard riprapping. Contact: Ken Jock, (518) 358-5937.

13. Penfield Watershed Management Education Brochure

Town of Penfield, \$3,375

The Penfield Watershed Management Committee will produce a nonpoint source information brochure to be distributed to approximately 13,000 households in the Irondequoit Bay area, part of the Rochester, NY Area of Concern. Contact: Brian Anglin, (716) 377-8647.

14. Protected Shores: Enhancing Your Shoreline Property Through Proper Management Practices

Ontario County Soil and Water Conservation District, \$9,000

This project will educate residents and cottagers in three western Finger Lakes watersheds currently experiencing significant development pressures on marginal lands

which add to the erosion and sedimentation burden on the lakes, the Oswego River and eastern Lake Ontario. Contact: Stephen Lewandowski, (716) 396-1450.

OHIO

15. Lorain County Urban Sediment Erosion Control Program

Lorain County Board of Commissioners, \$21,150

Controlling construction site erosion problems in the watershed of the Ohio Black River Area of Concern is the focus of this project, which will develop an urban sediment/erosion control program for the county through site plan approval, site visits and education and training sessions. Contact: Ron Twining, (440) 329-5302.

16. Sudden Soil Density Change Training Session

Conservation Action Project, \$4,600

The success of conservation tillage is challenged by soil compaction which restricts root access to moisture. This project will develop a process to ensure a uniform, deep root zone for row crops and communicate that information to farmers using and considering conservation tillage. Contact: Bill Rohrs, (419) 784-5389.

17. Chagrin River Sediment and Erosion Management Guide

Chagrin River Watershed Partners, Inc., \$10,485

The Chagrin River Watershed Partners will prepare a guide to the causes, costs and solutions to erosion and sedimentation, in particular the problems associated with the rapid urbanization of Chagrin River sub-watersheds in north central Ohio. Contact: Thomas Denbow, (440) 975-3870.

PENNSYLVANIA

18. Determination of Sediment Loading Potential to Pennsylvania Lake Erie Coastal Waters Due to Bluff Erosion and Storm Water Discharge Ravines

Edinboro University of Pennsylvania, \$24,000

This project will determine the degree to which bluff erosion along Pennsylvania's open water Lake Erie shoreline contributes to overall sediment loading in the shore zone. The results will then be used by various government agencies to promote better land-use planning and decision making in the area. Contact: Eric Randall, (814) 734-1542.

19. Cascade Creek Sedimentation Control and Educational Project

Lake Erie Arboretum at Frontier Park, \$24,775

This Erie, PA, arboretum will plant approximately 100 trees to stabilize Cascade Creek that flows through the park. Educational plaques and newsletter stories will disseminate information about the importance of trees along streambanks, especially in urban areas. Contact: Dan Dahlkemper, (814) 825-3253.

WISCONSIN

20. Pensaukee River Watershed Riparian Buffer Project

Shawano County Land Conservation Dept., \$14,100

The Pensaukee River watershed, which drains into the Upper Green Bay basin of Lake Michigan, is predominantly agrarian and susceptible to extensive nonpoint source pollution problems. This project will develop long-term, vegetative buffer strips in riparian zones to enhance water quality and serve as an educational opportunity for area farmers. Contact: Scott Frank, (715) 526-9239.

21. Bad River Integrated Resource Management Plan Dissemination Project

Bad River Band of Lake Superior Tribe of Chippewa Indians, \$4,554

The Band has developed an Integrated Resource Management Plan for this heavily forested river which flows through its reservation and into Lake Superior. When adopted, the plan will be presented to the public through newspaper stories and public meetings, and be available for interested foresters and landowners wishing to apply the forestry practices to their land in order to improve water quality in the Bad River. Contact: Ervin Soulier, (715) 682-7123.

22. Forest Road Building Workshops

Forest Industry Safety and Training Alliance, \$6,605

The Alliance will conduct two day-long workshops covering the range of issues forestry professionals must consider when constructing logging roads in Wisconsin's Lake Superior drainage area. Contact: Donald Peterson, (715) 282-4979.

This newsletter is available online at
<http://www.glc.org/docs/soilerosion/keeping.html>.

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Of interest...

If you have an addition to this section, please contact Jennifer Read at 734-665-9135, jread@glc.org.

WORKSHOPS AND CONFERENCES

May

16-19 Getting the Job Done at Ground Level: Sixth National Watershed Conference (Austin, Texas). Innovative approaches to watershed programming, including flood damage reduction, erosion and sediment control, drainage, irrigation, recreation, fish and wildlife habitat and water quality improvement. Contact: John W. Peterson, National Watershed Coalition, 703-455-6886, fax 703-455-6888, jwpeterson@erols.com.

23-28 Sustaining the Global Farm: 10th International Soil Conservation Organization Conference (Purdue University, West Lafayette, Indiana). Contact: ISCO99, Purdue University, 765-494-8683, fax 765-494-5948; usco99@ecn.purdue.edu.

June

6-9 Keep America Growing: Balancing Working Lands and Development (Philadelphia, Pennsylvania) Conference addressing methods and experiences in protecting working lands and making working lands sustainable. Contact: Chuck Beretz, American Farmland Trust 202-331-7300, cbertz@farmland.org; or Carl Bouchard, USDA-NRCS, 202-720-8767, cbouchard@usda.gov; <http://www.farmland.org/kag.html>.

24 Better Ways To Develop Ohio (Columbus, Ohio) Contact: Tim Lawrence, OSU Extension, Darby Watershed, (937) 644-3162, lawrence.53@osu.edu; Molly Bean (614) 292-8135, bean.21@osu.edu; <http://www.ag.ohio-state.edu/~landuse/conference>.

July

11-14 NACD North Central Regional Meeting (Cedar Rapids, Iowa). Contact: Robert Raschke, 303-988-1810, fax 303-988-1896.

August


1-4 NACD Northeastern Regional Meeting (Baltimore, Maryland). Contact: Robert Raschke, 303-988-1810, fax 303-988-1896.

CALL FOR PAPERS

For the **National Conference on Grazing Lands**, meeting, Dec. 6-9, 1999, at Bally's Conference Resource, Las Vegas, Nevada. Contact: Terry Lynott, 303-988-0530, fax 303-988-1896.

The NACD Urban, Community and Coastal Resources Committee

announces a new electronic discussion group to promote and facilitate implementation of urban, community and coastal conservation programs and services at the local level. To subscribe, simply send an e-mail message from your computer with the word "subscribe" in the subject field to NACDUrban-request@nacdnet.org. Contact: Debra A. Bogar, Network Facilitator National Association of Conservation Districts 9150 W. Jewell Avenue, Suite 111 Lakewood CO 80232 303-988-1893; 303-988-1896 (fax); Deb-Bogar@nacdnet.org.

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