



STATE OF NORTH CAROLINA, DEPARTMENT
OF ENVIRONMENT AND NATURAL RESOURCES
William G. Ross, Jr. Secretary

Land Quality Section
Division of Land Resources
Charles H. Gardner, Director

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Initiative targets agricultural sedimentation

An initiative that was conceived in response to the N.C. Sedimentation Control Commission's (SCC) 1997 Plan of Action to improve the Erosion and Sedimentation Control Program is cleaning up streams listed on the State's 303 (d) list as impaired by sediment from agricultural sources. The work is conducted by the N.C. Division of Soil and Water Conservation (DSWC) and the N.C. Association of Soil and Water Conservation Districts and is funded by the N.C. Agriculture Cost Share Program and grants under the Clean Water Act Section 319 program and the N.C. Clean Water Management Trust Fund.

In 1997 the SCC established a Workgroup on Agricultural Sediment as part of its Plan of Action. After nearly a year of meetings, the workgroup recommended that the N.C. Soil and Water Conservation Commission (SWCC) ask North Carolina's Soil and Water Conservation Districts to develop and implement an initiative to reduce erosion rates on cropland, reduce excessive rates of sediment delivery to streams, and stabilize and maintain streambanks.

In 1999, the Association of Soil and Water Conservation Districts (ASWCD) presented to the SCC and SWCC a proposal to assess sources and impacts of sediment in streams that the N.C. Division of Water Quality (DWQ) has listed as impaired by agricultural sediment and to develop work plans to address local agricultural sources of sediment. The Soil and Water Conservation Districts proposed to survey impaired streams and watersheds and

evaluate activities occurring in the stream channel itself, in the area within one-half mile of the stream, and in the watershed and tributaries. The surveys included an assessment of land-use changes over the last decade, identification of sediment sources, determination of the percent of agricultural land under a conservation plan for erosion control, a listing of typical BMPs used for erosion and sediment control in the watershed, and a work plan of needed practices to address unmet needs.

One outcome of a survey might be to recommend to DWQ that agricultural sediment be removed as a problem parameter for the stream segment. If agricultural sedimentation was confirmed to be causing impairment, recommendations would be made for deployment of additional BMPs and an estimate would be provided of the cost of installing BMPs.

Pilot studies

To demonstrate how the "Agricultural Sediment Initiative" would work, the ASWCD undertook a pilot study. Surveys were undertaken of impaired stream segments in Anson, Surry, Rockingham, Clay, Craven, and Union

counties. In Brown Creek in Anson County, Swift Creek in Craven County, and Lanes Creek in Union County, surveys indicated that because of land-use changes agriculture was no longer a significant sediment contributor. However, in the Brasstown Creek Watershed of Clay County, Troublesome Creek Watershed of Rockingham County, and the Ararat River Watershed in Surry County, agricultural sedimentation problems were confirmed, and plans to address the problems were developed. Based on the surveys and plans, the DSWC applied for an EPA Section 319 Grant to address sediment problems in these 303 (d) listed waters. The grant was awarded in 2000, and work plans are currently being implemented.

The ASWCD considered that the pilot study had been successful in that it resulted in on-site investigations that helped sort out problems with agricultural sediment and made site-specific recommendations to solve problems. ASWCD passed a resolution to expand the initiative to address all streams listed on the State's 303 (d) list as impaired by agricultural sediment.

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November action of the N.C. Sedimentation Control Commission

At its regular meeting on Nov 15, 2001, the N.C. Sedimentation Control Commission (SCC) took the following action:

- Voted to continue the delegation of authority to implement the N.C. Sedimentation Pollution Control Act to the N.C. Department of Transportation (DOT). Staff of the N.C. Land Quality Section reviewed the Division of Highways' implementation of the erosion and sedimentation control program. They reported that Land Quality staff across the state had conducted 568 inspections of DOT projects during the period Oct 2000 through Sept 2001 and had found 72.9% in compliance. Inspectors found offsite sedimentation at 16.9% of DOT projects—the same percentage as all other construction projects. Staff of the Land Quality Section central office reviewed 16 DOT projects and found 13 in compliance. Staff noted that DOT had received only one Notice of Violation during the review period and recommended that the DOT delegation continue. Staff recommended that DOT should place special emphasis on maintenance of sedimentation control measures and that DOT should review its design of energy dissipators to reduce velocities consistent with requirements of the N.C. Division of Water Quality and the Army Corps of Engineers.
- Approved amending rule 15A NCAC 04B .0126 to increase the fee that is charged when Land Quality Section staff review erosion and sedimentation control plans from \$40 per acre or any part thereof to \$50 per acre or any part thereof. (This change does not affect fees charged by local erosion and sedimentation control programs. Local programs set their own fees.)
- Denied a request by the Town of Lake Lure for a partial delegation of authority to implement the N.C. Sedimentation Pollution Control Act. The Town of Lake Lure had asked for authority to implement an erosion and sedimentation control program for construction sites smaller than one acre but to have the Asheville Regional Office of the Division of Land Resources continue to implement the program for sites one acre or larger. The N.C. Attorney General's office advised the Commission that such a partial delegation would be illegal, and commissioners voted to deny the request based on the legal advice.
- Approved soliciting requests from local governments for Local Program Assistance Funds.
- Approved appointing an informal workgroup to give guidance to the Director of the Division of Land Resources on approving disturbance in trout buffers larger than the area provided for in administrative rules (15A NCAC 04B .0125).
- Tabled until the next meeting a discussion of the N.C. Home Builders Association's objection to the Commission's guidance to Regional Engineers concerning determination of the width of undisturbed vegetation zones that may be used to ensure compliance with the SPCA and rules adopted under the act. The Commission had adopted guidance in May and voted to re-examine in November the scientific basis for the guidance and alternative methods of computing buffer widths. Commissioner Wendell Gilliam presented a review of studies related to sediment-removal capabilities.

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Send comments to Caroline Medlin, NCDENR-Land Quality, 1612 Mail Service Center, Raleigh, NC 27699-1612. Email: Caroline.Medlin@ncmail.net. Send change of address to WRRI, Box 7912, North Carolina State University, Raleigh, NC 27695-7912 (919/515-2815). Fifty-seven hundred copies of this newsletter were printed at a cost of \$1,387.00 or 24 cents per copy.

Personnel of the Land Quality Section of the N.C. Department of Environment and Natural Resources provide information and assistance for implementation of the N.C. Erosion and Sediment Control Program. For assistance, please contact the Regional Engineer or the Raleigh headquarters listed below:

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The North Carolina
Sedimentation Control Commission

The Sedimentation Control Commission (SCC) was created to administer the Sedimentation Control Program pursuant to the N.C. Sedimentation Pollution Control Act of 1973 (SPCA). It is charged with adopting rules, setting standards, and providing guidance for implementation of the Act. The composition of the Commission is set by statute to encompass a broad range of perspectives and expertise in areas related to construction, industry, government, and natural resource conservation and quality. All members are appointed by the Governor and serve three-year terms, except for the Director of the Water Resources Research Institute of The University of North Carolina, who serves as long as he remains Director. The chairman of the SCC is named by the Governor.

Chairman:

Kenneth H. Reckhow
Durham

Director of Water Resources Research Institute

Commissioners:

Daniel V. Besse
Winston-Salem

Rep. N.C. Environmental Management Com.

John R. Bratton
Knightdale
Rep. N.C. Mining Com.

Donnie W. Brewer
Greenville

Rep. Professional Engineers of N.C.

James Ferguson
Clyde

Rep. N.C. Soil and Water Conservation Com.

Phillip Ray Gibson
Asheville

Non-governmental conservation representative

J. Wendell Gilliam
Raleigh

Rep. NCSU Dept. of Soil Science

Ray B. Killough
Matthews

Rep. N.C. public utilities

Joseph A. Phillips
Raleigh

Non-governmental conservation representative

Kyle Sonnenberg
Southern Pines

Rep. Association of County Commissioners/
N.C. League of Municipalities

Ralph Stout
Greensboro

Rep. Carolinas Associated General Contractors

F. Roger Watson
Asheville

Rep. N.C. Home Builders Association

ties of vegetative buffers of various widths. Lisa Martin of the N.C. Home Builders Association told the Commission that it is the position of the Association that the guidance has the effect of a rule and that the commission should go through the rulemaking process to put it into place. After hearing advice from its attorney, Jennie Mau of the Attorney General's Office, the Commission voted to retain the guidance but hold discussion with the Home Builders Association at the February meeting.

- Set dates for Commission meetings in 2002 as follows: February 20, May 7, August 7, and November 6. All meetings are scheduled to take place in the Ground Floor Hearing Room of the Archdale Building on Salisbury Street in downtown Raleigh.

North Carolina Erosion and Sediment Control Field Manual is available

The Land Quality Section of the N.C. Division of Land Resources has received a new supply of the revised N.C. Erosion and Sediment Control Field Manuals. This is a complement to the larger design manual intended as a field reference in the construction process.

Current holders of the manual will receive a revision packet in the near future.

Some cost-cutting measures and a new printer have brought the price for the manuals down to \$13.00. To order, send your request and a check made payable to "N.C. Department of Environment and Natural Resources" to:

**N.C. Land Quality Section
1612 Mail Service Center
Raleigh, NC 27699-1612**

Muddy Water Essay Contest State winner will receive \$1,200

The incentive for N.C. high school students to learn about and write about erosion and sedimentation is larger this year. The state winner will take home a check for \$1,200.

Students in any charter, public, or private high school or equivalent program in North Carolina are eligible to submit an essay to the Muddy Water Essay Contest. Essays should be on the process of soil erosion and sedimentation, the biological and economic impacts of these processes, or how to control erosion and prevent sedimentation.

Land Quality Regional Offices should receive entries from schools in their regions by February 15. Materials on this contest have been widely distributed throughout North Carolina, but brochures are still available from the Land Quality Section at (919) 733-4574.

Judging is conducted by the N.C. Division of Land Resources, Land Quality Section in cooperation with the Department of Public Instruction, Science and English Sections. Regional winners will present their essays to a panel of judges on April 17, and state winners will be selected and announced at an awards luncheon at that time.

Each student and teacher submitting an essay will receive a certificate of appreciation. Each regional winner will receive \$120, with the regional winners' teachers receiving \$100, and the regional winners' schools receiving \$80. The state 1st place winner will receive \$1,200, with the state winner's teacher receiving \$1,000 and the winner's school receiving \$800. Second place state winner will receive \$600, with the teacher receiving \$500 and the school receiving \$400. Third place state winner will receive \$300, with the teacher receiving \$250 and the school receiving \$200.

Grants available to help local governments start or enhance erosion and sediment control programs

The North Carolina General Assembly is currently providing \$151,357 per year for cost sharing with local governments to start new erosion and sedimentation control programs or to help existing programs improve their effectiveness.

The N.C. Sedimentation Control Commission has adopted the following criteria for awarding of cost-sharing funds:

- Local government entities (i.e. county or municipal government) with a locally adopted erosion and sedimentation control ordinance are eligible

for the Local Program Assistance Funds.

- A minimum 60% local match is required. The State match of 40% will be available for an 18-month period.
- Grants may be used for (1) start-up funds for new local programs salaries, equipment, training, legal expenses, public awareness or other appropriate program needs; and (2) supplemental funds for existing or expanding local programs salaries, equipment, training, legal/enforcement expenses,

or other appropriate program needs.

- Grant applications will be evaluated on their potential to achieve the principal objectives of the N.C. Sedimentation Control Commission.
- Priority will be given to programs shown to be (1) consistent with N.C. Basinwide Water Quality Plans, (2) capable of providing measurable results, (3) capable of providing other resources, (4) qualified to implement and enforce a local erosion and sedimentation control ordinance. Consideration will also be given to assessment of regional need by Land Quality Section Regional Offices and to assessment of state need by the Land Quality Section Central Office.

Agricultural Sediment Initiative *continued*

Subsequently, 33 Soil and Water Conservation Districts completed on-the-ground surveys in the watersheds of 56 impaired stream segments. Surveys indicated that agriculture was not a continuing source of sediment problems in about half the stream segments, and districts recommended that agricultural sediment be removed as the problem parameter for those segments. Agricultural sediment was confirmed as the problem parameter for about half the 56 stream segments.

Funding the initiative

Based on input from participating districts, the DSWC estimated that installing BMPs to clear up sediment problems in all the 303 (d) streams where agriculture was determined to be a source would cost more than \$36 million. Since an effort of that magnitude was clearly infeasible, DSWC used surveys to select priority stream segments based on the seriousness of the problems indicated and developed a proposal to the Clean Water Management Trust Fund (CWMTF) to fund work in the priority segments. The scope of DSWC's first proposal—\$11 million to fund work in 17 impaired stream segments—was considered too expensive. The proposal that finally went to

the CWMTF trustees for consideration asked for just under \$4 million to do BMP implementation and restoration work and to fund water quality monitoring by the U.S. Geological Survey in the Haw River (Cape Fear Basin) in Alamance County and the Ararat River (Yadkin-PeeDee Basin) in Surry County. In both watersheds, the N.C. Wetlands Restoration Program has committed to assist with stream bank restoration and the establishment of functional riparian buffers.

At its September meeting, the N.C. Soil and Water Conservation Commission allocated \$1 million of Agriculture Cost Share Program funds to address agricultural sediment issues in seventeen impaired stream segments.

In November, the CWMTF awarded \$1 million to DSWC to begin the Agricultural Sediment Initiative. According to David Williams, Chief of Nonpoint Source Programs with DSWC, with the lower level of funding, the schedule for implementing BMPs will be delayed or the scope of the proposed project will have to be narrowed. The DSWC will continue to seek funding to accelerate the program and will coordinate program resources with the SCC and the SWCC.

Interested local governments may obtain an application package by calling the Land Quality Section Central Office at (919) 733-4574. The application package is also available in pdf format at website: <http://www.dlr.enr.state.nc.us/forms/lpgrant.pdf>.

The deadline for applications for the 2002 grant cycle is January 10, 2002.

Personnel and organizational changes

David Ward, CPESC, has been promoted to State Sedimentation Specialist.

James Caldwell, E.I. is the new Assistant Dam Safety Engineer in the N.C. Division of Land Resources Central Office in Raleigh.

Clinton Cook, E.I. is the new Assistant Regional Engineer in the Mooresville Regional Office.

Cindy Saftit is the new Environmental Technician in the Mooresville Regional Office.

The N.C. Division of Land Resources is now home to two new sections, the **N.C. Geodetic Survey** and the **Center for Geographic Information and Analysis (CGIA)**.

Study indicates minimum tillage could drastically reduce agricultural sediment

After two years of monitoring sediment loss from side-by-side fields under conventional tillage and minimum tillage, Drs. Carlyle Franklin and Dennis Hazel are convinced that minimum tillage could eliminate much of the agricultural sedimentation problem. Unfortunately, this research on tobacco fields in the N.C. Piedmont also showed that yields are initially reduced from minimum tillage relative to conventional tillage.

“This is a very promising approach to agricultural sedimentation,” said Franklin, “if we could just find a way to economically implement it.”

At NCSU’s Oxford Research Station Franklin and his colleagues sampled runoff from conventionally tilled tobacco—planted in replicated plots that were disked, harrowed and bedded—versus replicated plots of tobacco that were planted into the residue of killed rye grain. They sampled runoff during the 1999 and 2000 growing seasons and analyzed samples for nutrients and for total suspended solids (TSS). They found that sediment yields (as measured by TSS) from fields under conventional tillage was 6 to 8 times greater than those from fields under minimum tillage.

After harvesting the tobacco from their experimental plots, the researchers found that the yield was about 185 pounds per acre (about \$300 per acre) less for the minimum tillage plots than for the conventional tillage plots. However, they also found that yields from both plots were significantly below what is typical for the region. Hazel said that is probably because the researchers used less nitrogen fertilization than farmers typically do.

Franklin said that after several years under minimum tillage, yields should increase because of better soil conditions. But, to be encouraged to adopt minimum tillage farmers need payments for the years when they are giving up higher yields. For tobacco—the most aggressively cultivated crop in the state—payments would have to be substantial to make up for lost yield, and

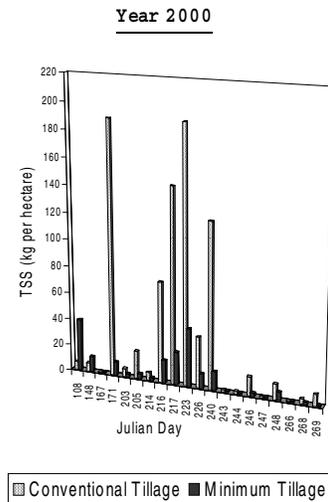
they might have to continue for 6 to 8 years.

According to David Williams, Chief of Nonpoint Source Programs with the N.C. Division of Soil and Water Conservation (DSWC), N.C.’s Agriculture Cost Share Program provides incentive to farmers to adopt minimum tillage at three levels: annual, three-year, and long-term. Under the long-term plan, farmers who agree to maintain 80% vegetative cover all year for 5 years can get a one-time, up-front payment of \$125 an acre.

The ACSP also recognizes the risk of reduced yields and cultural inertia that

inhibit adoption of minimum tillage practices by growers of high-value crops (e.g. peanuts, tobacco, and vegetables). Producers of these crops who will commit to use minimum tillage and maintain 50% vegetative cover for three years can receive a one-time incentive of \$250 per acre for peanuts and \$500 per acre for tobacco and vegetables.

According to Steve Coffey with DSWC, North Carolina had about 4.8 million acres—or about 30% of all cropland—under minimum tillage (also called conservation tillage) in 2000. Nationwide, 17.5% of all crops were under minimum tillage in 2000.



ADVANCED EROSION AND SEDIMENT CONTROL SEMINARS

February 19-20, 2002
Four Points Sheraton
Raleigh, NC

March 12-13, 2002
Holiday Inn Select
Hickory, NC

Purpose: This seminar is presented to update design professionals who develop erosion and sedimentation control plans—including engineers, landscape architects, and surveyors—on regulations related to erosion and sedimentation control and present new design concepts and approaches. Thirteen (13) PDHs are available to professional engineers and land surveyors, and 10 continuing education units are available to landscape architects for completion of both days.

Fee: \$125.00. Covers materials, breaks, and lunches.

Deadline: Registrations will be taken on a first-come, first-served basis, but no registrations will be taken after February 1, 2002, for the Raleigh workshop and February 28, 2002, for the Hickory workshop.

For additional information and a registration form go to website:

<http://www2.ncsu.edu/ncsu/CIL/WRRI/erosionseminars.html>

Sponsored by

N.C. Sedimentation Control Commission; Land Quality Section, Division of Land Resources, N.C. Department of Environment and Natural Resources; and Water Resources Research Institute of The University of North Carolina

Free Erosion Control Workshops Offered For Equipment Operators, Contractors

How to prevent sedimentation at construction work sites is the topic of free, full-day training workshops to be held in the Charlotte region in mid-January. The ***Clear Water Contractor Program*** provides the tools and knowledge needed to protect North Carolina's rivers, creeks and streams from construction runoff.

Workshops will be held from 8 am to 5:30 pm at the following locations:

January 15, 2002- Joe V. Knox Citizens Center, 215 N. Main St., Mooresville, NC

January 16, 2002- Central Piedmont Community College South Campus, 2800 Campus Ridge Rd., Matthews, NC

January 17, 2002- Gaston County Citizens Resource Center, 1303 Dallas-Cherryville Highway, Dallas, NC

January 23, 2002- Stanly County Agri-Civic Center, 26023-B Newt Rd. (Highway 24/27), Albemarle, NC

Federal, state and local experts will discuss a range of topics. The workshops are available for equipment operators, grading contractors, excavators or anyone involved in land clearing activities. The program is not intended for architects, engineers or others in the design community.

Attendance at the workshops is free and all materials, breaks and lunch are provided. Persons completing the workshop will receive a certificate of completion, instructional handbook, North Carolina Erosion and Sediment Control Field Manual, and designation as a 2002 Clear Water Contractor.

Registration is required by January 10, 2002. Each workshop is limited to 35 participants. A workshop brochure and registration form are available from the Centralina Council of Governments (CCOG), P.O. Box 35008, Charlotte, NC 28235-5008, 704 372-2416. The brochure and registration form may also be downloaded from the COG website at: <http://www.centralina.org>.

The erosion control workshops are an extension of a successful pilot program started in Western North Carolina. The training series is funded through a 205(j) grant from the NC Department of Environment and Natural Resources, Water Quality Division. CCOG is administering the program in the region.

**For additional information contact:
Michael McLaurin
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704 372-2416**

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