

2008



Wisconsin
Land and Water Conservation
Annual Progress Report

Land and Water Conservation Board

Mark E. Cupp—Chair
Tom Rudolph—Vice Chair
Dennis M. Caneff—Secretary
Sandi M. Cihlar
Robin Leary
Thomas W. Traxler, Jr.
Charles Wagner
Ken Johnson—DNR
Jana Steinmetz—DOA
Kathy Pielsticker—DATCP

Authors

Carol Holden—DNR
Justin Shell—DATCP

Additional copies of this report are available by contacting:

DATCP—(608) 224-4606

DNR—(608) 267-2375

You may also download the report by visiting these websites:

<http://runoffinfo.uwex.edu>

<http://dnr.wi.gov/runoff>

<http://www.datcp.state.wi.us>

Publication Number

ARM Pub. 189

Photos

Cover images courtesy of:

Vernon County LWCD

Douglas County LWCD

Tim Mulholland

Table of Contents

PROGRAM MANAGEMENT	6
Land and Water Resource Management Planning Program.....	6
Funding for Conservation	6
Soil and Water Resource Management Program	7
Priority Watershed and Lake Program.....	7
Priority Watershed Critical Sites	7
Targeted Runoff Management Grants.....	8
Urban Nonpoint Source and Stormwater Management Grants.....	8
Impaired Waters and Total Maximum Daily Loads	8
2008 Program Highlights	9
PERFORMANCE STANDARDS IMPLEMENTATION	10
Implementing Runoff Performance Standards	10
Local commitment.....	10
Barriers to Implementation	10
Compliance	11
Regulation	11
Information and Education	12
SUCCESS STORY - LA CROSSE COUNTY	13
CONSERVATION RESULTS	14
Best Management Practices	14
Cropland Soil Erosion Control	14
State Funded Conservation Practices	14
Sediment Reductions in Priority Watershed and Lake Projects	14
Cropland Erosion Critical Sites	14
Transect Survey	15
Farmland Preservation Program.....	15
Nutrient Management	15
Manure Management.....	15
State Funded Conservation Practices	15
Nutrient Reductions in Priority Watershed and Lake Projects.....	15
Livestock-Related Critical Sites	16
Regulatory Approaches to Managing Manure.....	16
Notices of Discharge	16
Concentrated Animal Feeding Operations	16
Local Ordinances.....	17
Streambank, Shorelines, Water Quality and Habitat Protection.....	17
State Funded Conservation Practices	17
Sediment Reduction in Priority Watershed and Lake Projects	17
Streambank and Shoreline Critical Sites	18
Easements	18
Conservation Reserve Enhancement Program	18
2008 BMP Highlights	18
SUCCESS STORY - QUAD-COUNTY PARTNERSHIP	19
URBAN STORMWATER.....	20
Urban Best Management Practices.....	20
DNR Stormwater Permit Program	20
INFORMATION AND EDUCATION	21
County Activities.....	21
Basin Education Activities	21
Citizen-based Water Monitoring.....	22
SUCCESS STORY - BAYFIELD COUNTY.....	23
SUCCESS STORY - IRON COUNTY	Back Cover

WISCONSIN LAND AND WATER CONSERVATION

2008 ANNUAL PROGRESS REPORT

This report to the Wisconsin Land and Water Conservation Board summarizes progress made in 2008 on programs administered by the Department of Agriculture, Trade and Consumer Protection (DATCP) and the Department of Natural Resources (DNR) to promote conservation and control polluted runoff from both rural and urban sources. This report is submitted in part to meet program requirements under § 281.65(4)(o) and § 92.14(12), Wis. Stats. for an annual report.

Funding for this report was provided in part by a nonpoint source grant from s. 319 of the Clean Water Act administered by USEPA.



The Department of Natural Resources and the Department of Agriculture, Trade, and Consumer Protection provide equal opportunity in their employment programs, services, and functions under an Affirmative Action Plan. If you have questions, please write to the Equal Opportunity Office, Department of the Interior, Washington, D.C., 20240. This publication is available in alternate format upon request. Please contact the DATCP LWRM program at (608) 224-4606 for information.



Frequently Used Acronyms and Abbreviations

Agencies, Departments and Organizations

DATCP	Wisconsin Department of Agriculture, Trade and Consumer Protection
DNR	Wisconsin Department of Natural Resources
EPA	United States Environmental Protection Agency
FSA	Farm Service Agency (part of USDA)
FWS	United States Fish and Wildlife Service
LCD	County Land Conservation Department
LWCD	County Land and Water Conservation Department
NRCS	Natural Resources Conservation Service (part of USDA)
USDA	United States Department of Agriculture
UWEX	University of Wisconsin—Extension
WALCE	Wisconsin Association of Land Conservation Employees
WLWCA	Wisconsin Land and Water Conservation Association

State and Federal Programs and Terms

BMP	Best Management Practice
CAFO	Concentrated Animal Feeding Operation (Facilities permitted by DNR under NR 243)
CREP	Conservation Reserve Enhancement Program (Federal and state grant program)
EQIP	Environmental Quality Incentive Program (NRCS grant program)
FPP	Farmland Preservation Program (DATCP program)
LWRM	Land and Water Resource Management (DATCP planning program)
PWP	Priority Watersheds and Lake Projects (DNR grant program)
SWRM	Soil and Water Resource Management (DATCP grant program)
TRM	Targeted Runoff Management grant (DNR grant program)
UNPS	Urban Nonpoint Source and Stormwater Management grant (DNR grant program)
TMDL	Total Maximum Daily Load (part of DNR program for impaired waters)
WAV	Water Action Volunteers (Citizen monitoring program)
WPDES	Wisconsin Pollutant Discharge Elimination System (DNR permitting program)

Wisconsin Administrative Rules

ATCP 50	Ch. ATCP 50 Wisconsin Administrative Rule (SWRM, LWRM)
ATCP 51	Ch. ATCP 51 Wisconsin Administrative Rule (Livestock Facility Siting)
NR 151	Ch. NR 151 Wisconsin Administrative Rule (Runoff Management)
NR 216	Ch. NR 216 Wisconsin Administrative Rule (Stormwater Discharge Permits)
NR 243	Ch. NR 243 Wisconsin Administrative Rule (Animal Feeding Operations)
NR 153	Ch. NR 153 Wisconsin Administrative Rule (Targeted Runoff Management Grants)
NR 155	Ch. NR 155 Wisconsin Administrative Rule (Urban Nonpoint Source Water Pollution Abatement and Stormwater Management Grants)

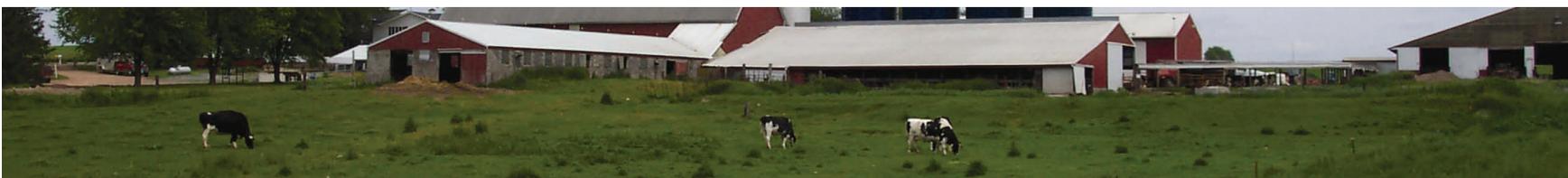


In 2008, staff from county land conservation departments and municipalities delivered about \$44 million in conservation practices and technical assistance to control erosion from both croplands and construction sites, repair eroded streambanks and shorelines, manage livestock manure to keep it out of waterways, and reduce polluted stormwater runoff from city streets and parking lots. Some highlights from 2008 are as follows:

- ◆ 2,652 best management practices were installed.
- ◆ Through best management practices installed in priority watershed projects, nearly 366,000 fewer tons of sediment and about 147,000 fewer pounds of phosphorus enter rivers, streams and lakes each year.
- ◆ 93% of critical sites in priority watersheds have been resolved, primarily through installation of BMPs.
- ◆ There was an increase in commitment of county resources to implementing the runoff performance standards and prohibitions.
- ◆ Conservation partners delivered hundreds of hours of educational activities to agricultural and urban audiences.
- ◆ Over 1,800 citizens participated in volunteer stream monitoring.

Data for this report come from traditional state and federal sources. The following programs, along with their authorizing Wisconsin statutes, are covered by this report:

- ◆ Land and Water Resource Management Planning Program, ch. 92.10
- ◆ Soil and Water Resource Management Program, ch. 92.14
- ◆ Priority Watersheds and Lake Projects, ch. 281.65
- ◆ Targeted Runoff Management Grant Projects, ch. 281.65
- ◆ Urban Nonpoint Source and Stormwater Management Grant Projects, ch. 281.66
- ◆ Farmland Preservation Program, ch. 91





LAND AND WATER RESOURCE MANAGEMENT PLANNING PROGRAM

Wisconsin's 72 counties are the main vehicles for delivering state conservation programs and funds. Land and Water Resource Management (LWRM) plans are the primary planning tools counties use to target their conservation efforts. These plans are the product of a locally-led process conducted every five years to establish county conservation priorities and identify activities to address these key concerns. Each plan must describe how the county will implement the state performance standards to control agricultural and urban runoff. Each plan is developed in consultation with DNR and must be approved by DATCP.

In 2008, DATCP began the process of moving LWRM plans to a 10-year cycle. LWRM plans revised over the next five years will be eligible for a 5-year extension at the end of their approval period. This will bring the program in line with other planning programs in the state and reduce workloads for county staff.

The three most common activities conducted by counties are soil erosion control, manure management and nutrient management. However, many counties address concerns in areas as diverse as invasive species management, grazing assistance, urban stormwater management and groundwater management. Nutrient management planning and training continue to grow in importance to counties addressing issues related to the agricultural performance standards.

FUNDING FOR CONSERVATION

In 2008, staff from county land conservation departments (LCDs) and municipalities delivered about \$44 million in conservation practices and

technical assistance. This money was administered through cost-share agreements with agricultural producers, as well as grants to fifty-four urban municipalities, several lake districts and a tribal government.

Funding for cost-share programs, staffing and support came from both state (\$21 million) and federal (\$23 million) funds. Staffing assistance through state programs totaled more than \$10.2 million and cost-share funding totaled more than \$10.8 million. Federal funding came from EPA through s. 319 of the Clean Water Act, and from USDA's Environmental Quality Incentives Program (EQIP) and Conservation Reserve Enhancement Program (CREP). These programs provided \$170,138 in staffing assistance and over \$23 million in cost-share dollars. Cost-share programs for both state and federal agencies are further broken down in Figure 1. Reporting of additional contributions of money, time and other resources that came from

Table 1: 2008 Financial data	
SWRM Grant Program Expenditures	
\$9,267,894	DATCP Staffing and support
\$4,974,884	DATCP cost-share funds
\$419,388	state CREP
371	county conservation staff
93%	percentage of cost-share dollars spent or extended
DNR Grant Program Expenditures	
\$2,233,107	TRM for BMPs
\$993,334	UNPS for urban BMPs
\$938,956	UNPS for stormwater planning
\$2,209,245	PWP for BMPs
Federal Grant Program Expenditures	
\$21,640,422	EQIP for BMPs
\$210,000	CREP for BMPs
\$1,321,544	s. 319 grant for BMPs
\$170,138	NRCS technical assistance

counties, municipalities, landowners, and non-profit organizations is beyond the scope of this report.

SOIL AND WATER RESOURCE MANAGEMENT PROGRAM

The Soil and Water Resource Management (SWRM) program supports locally-led conservation efforts through county staffing grants and cost-share funding to implement LWRM plans.

Over the last few years, the SWRM grant program has continued to lose ground, at the rate of several hundred thousand dollars per year, in its attempt to meet the goal in s. 92.14(6)(b), Stats. to fund an average of 3 staff in each county at 100, 70 and 50 percent. The 2009-11 biennial budget attempted to secure level funding for county staff in the face of significant budget difficulties, but did not address this larger issue. With the prospect of additional reductions in state and local funding, combined with cost increases for salaries and fringe benefits, county staff are facing considerable challenges in retaining their programming capacity. At the same time, counties are witnessing increased demands to implement local and state priorities, including the much-anticipated Working Lands Initiative. Staff funding, at both the state and local levels, remains a fundamental source of concern for conservation professionals.

For 2008, DATCP launched in earnest two initiatives to direct cost-share dollars and other funding to address state priorities. DATCP took critical steps in building state capacity to implement nutrient management by increasing nutrient management planning assistance funding to \$3 million and expanding training opportunities. DATCP and DNR continued their efforts to rebuild the animal waste regulatory program as a tool to resolve manure discharges from livestock operations (see page 16 for more details). The state's budget problems threaten these efforts, particularly nutrient management. Despite these advances, DATCP remains unable to satisfy about \$6 million in county requests for cost-share funds to prepare nutrient management plans and install hard practices such as

manure storage, shoreland protection, and barnyard runoff controls.

Counties, along with DATCP, continue to improve their ability to use all available cost-share funds, including more flexibility in extending cost-share projects. Counties are holding steady in their ability to spend cost-share dollars on bond projects while also gaining experience in managing nutrient management funds.

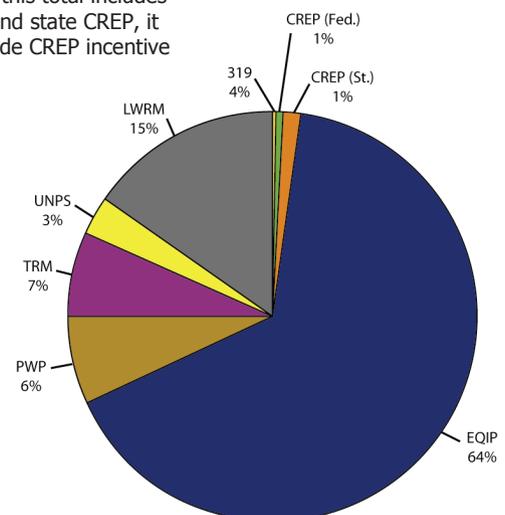
PRIORITY WATERSHED AND LAKE PROGRAM

Projects in this program set pollution reduction goals based on the severity of polluted runoff from both agricultural and urban sources. DNR administers funds for best management practices (BMPs). DATCP funds local staff that provides technical assistance, education, and project management. Legislation passed in 1997 ended new project selection. All projects will be completed by December 31, 2009.

Priority Watershed Critical Sites

While most participation in priority watershed and lake projects is voluntary, projects selected after 1993 are required to address the most critical sites needed for water quality improvement. Owners of critical sites must either participate voluntarily or be subject to legal orders to abate pollution. Local

Figure 1: Over \$34 million total in state and federal cost-share dollars. While this total includes both federal and state CREP, it does not include CREP incentive payments.



project managers help landowners install BMPs or change management practices on these sites.

As of the end of 2008, 93% of all types of critical sites were resolved (livestock—96.3% uplands—92.6%, streambanks/shorelines—96.8%, other—44.4%). Most of these critical sites are resolved voluntarily by the landowner with cost-share grants for BMPs and technical assistance. Data on the types of critical sites are detailed under the manure management, cropland soil erosion and streambank/shoreline sections of this report.

TARGETED RUNOFF MANAGEMENT GRANTS

DNR administers TRM grants to local governments to address both urban and rural polluted runoff. Projects are site-specific and usually last two years. Typical TRM projects, cost-shared at 70% up to \$150,000, include livestock manure management, erosion control and stream bank protection practices. In 2008, funding for TRM grants was enough to award \$4.9 million or 100% of the \$4.9 million in eligible requests.

URBAN NONPOINT SOURCE AND STORMWATER MANAGEMENT GRANTS

These DNR grants cover both planning and construction projects to address polluted urban runoff. They typically last two years. Construction grants may cover 50% up to \$150,000 of the cost of BMPs such as stormwater detention ponds, infiltration practices, and streambank and shoreline stabilization. In 2008, DNR was only able to fund about \$2.8 million in construction grants. This represents 58% of the \$4.8 million of eligible funding requests. Planning grants can pay for 70% up to \$85,000 for stormwater management planning, education, ordinance and utility development and enforcement. In 2008, DNR was only able to fund about \$1.3 million in planning grants. This represents 60% of the \$2.15 million of eligible funding requests.

IMPAIRED WATERS AND TOTAL MAXIMUM DAILY LOADS

Impaired waters, as defined by Section 303(d) of the federal Clean Water Act, are those waters that do not meet the state's water quality standards. The "Impaired Waters List" is updated every two years. In 2008 DNR submitted a draft list to EPA after receiving and compiling public comments. Recommendations for listed waters came from monitoring conducted by DNR and partners and input from groups that collect or have access to data on Wisconsin waters. The list is considered draft until approved by EPA.

Once a waterbody is on the Impaired Waters List, the state is required to write a Total Maximum Daily Load (TMDL) report for each waterbody. TMDLs are analyses that identify pollutant reductions needed to a stream, river, or lake in order for that water body to meet water quality standards. The TMDL is equivalent to the total loading capacity of the stream made up of point sources, nonpoint sources and a margin of safety. The allocations are distributed among the point sources (wasteload allocation) and nonpoint sources (load allocations). DNR and EPA must approve all TMDLs.

Currently, Wisconsin has TMDLs on approximately 60 waterbodies. Many of these TMDLs address sediment and phosphorus loadings from agricultural runoff, which lead to turbid water, algal blooms, low dissolved oxygen levels and degraded habitat. Larger, watershed-scale TMDLs are being developed for the Upper and Lower Rock River Basins, the Lower Fox River Basin, and Tainter Lake/Lake Menomin. These larger-scale TMDLs will address both point source and nonpoint source pollutants.

For more information, go to:

<http://dnr.wi.gov/org/water/wm/wqs/303d/>

Table 2: 2008 Program highlights	
Priority Watershed and Lake Projects	
20	number of active priority watershed and lake projects
66	number of closed/completed projects since program started
4,302	number of participating landowners
8,569	total number of landowners participating in both active projects and those closed from 2003-2008 (overall participation rate = 32%)
150	number of nonpoint source impaired waters benefiting from project implementation
TRM Grants	
54	number of TRM projects awarded in 2008 (53 agricultural, 1 urban)
238	total number of TRM projects, 1999 - 2008 (187 agricultural, 51 urban)
171	number of projects completed through 2008
131	number of nonpoint source impaired waters benefiting from project implementation (1999 - 2008) (97 agricultural, 34 urban)
Urban NPS Grants	
53	number of UNPS project grants awarded in 2008 (all planning, no design/construction)
378	total number of projects, 2000-2008 (207 planning, 171 design/construction)
290	number of completed projects through 2008
249	number of nonpoint source impaired waters benefiting from project implementation (2000-2008) (129 planning, 120 design/construction)
Best Management Practices	
1,463	number of BMPs installed as part of the SWRM program during 2008
1,189	number of BMPs installed through TRM, UNPS and PWP
Critical Sites	
25	number of priority watershed and lake projects addressing critical sites
1,657	number of critical sites identified in priority watershed projects
93	percentage of all types of critical sites resolved as of Dec. 31, 2008





PERFORMANCE STANDARDS IMPLEMENTATION

IMPLEMENTING RUNOFF PERFORMANCE STANDARDS

The reporting year of 2008 was the third year of collecting county information related to implementing performance standards and prohibitions. The data reveal steady progress towards carrying out the implementation strategy put in place shortly after the performance standards went into effect in 2002.

Local Commitment

County commitment, measured by staff time and cost-share dollars dedicated to implementation, generally rose between 2006 and 2008 for the agricultural performance standards and prohibitions, but declined for the non-agricultural performance standards. In 2008, 32 counties dedicated more than 50% of their staff time to agricultural performance standards activities, with 13 of those counties dedicating 75% or more. Compare that to 2006 when there were only 13 counties reporting more than 50% staff commitment with 6 of those counties dedicating more than 75%. Of the 40 counties that dedicated less than 50% of their staff time in 2008, half of them reported dedicating 25% or less. In 2006 there were 59 counties at the 50% commitment level with 31 dedicating less than 25%.

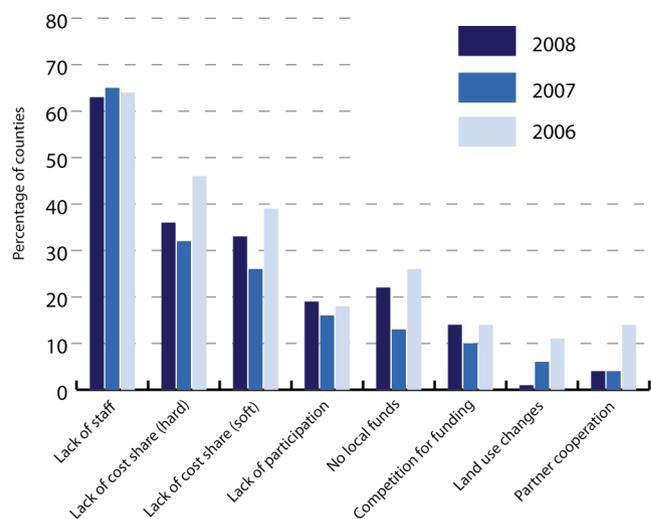
The number of counties spending more than 50% of their cost-share dollars on implementation activities in 2008 rose to 47, as compared to 28 for 2006. Thirty-two of those counties reported spending more than 75% of their cost-share dollars on implementation in 2008 compared to 20 counties in 2006. Only 25 counties reported spending less than 50% of their cost-share dollars on agricultural implementation activities, compared to 44 counties in 2006.

For the non-agricultural performance standards, 10 counties dedicated 50% or more staff time in 2008 compared with 16 counties in 2006 with the majority of counties dedicating less than 25% each year. Cost-share funding for non-agricultural performance standards activities remained relatively flat with the majority (60 counties) reporting that they dedicated less than 50% of their available funds to implementation activities in 2008.

Barriers to Implementation

While the increase in county commitment towards implementation of the agricultural performance standards and prohibitions is encouraging, it's clear that there is still a pressing need for more resources. For the third year in a row, the greatest barrier to implementation was insufficient staff levels or time. Lack of cost-share dollars for both hard (e.g. structural) and soft (e.g., management) practices were again listed as the second and third greatest barriers respectively. This pattern is likely to continue as counties and the state experience the effects of a declining economy. Figure 2 shows the implementation barriers and the percent of counties that ranked these as barriers to a "great extent" from

Figure 2: Percentage of counties responding "Great Extent" for each listed "barrier" to implementing the performance standards and prohibitions.



2006 to 2008 (other levels were “some extent,” “little” and “none”).

Compliance

Compliance with the agricultural performance standards and prohibitions appears to be steadily rising as is the number of counties that inventoried fields and farms for compliance. In 2008, the number of counties that reported levels of compliance in the medium to high ranges rose an average of 12 percent over the number of counties reporting these levels in 2006. In 2008, an average of 52 counties conducted on-site inventories as compared with an average of 39 counties in 2006 (actual numbers varied depending on which performance standard or prohibition was being measured). Figure 3 shows the number of counties reporting medium-to-high levels of compliance for each performance standard and prohibition for both 2006 and 2008.

Before counties conduct on-site inventories, they review landowner records. In 2008 counties mainly reviewed three types of records alone or in combination: cost-share agreements (53 counties), Farmland Preservation Program (FPP) self-reporting (43 counties) and local ordinances (39

counties). Reviews increased by 23% over 2006 data. The number of counties who reported no records reviews dropped from 13 in 2006 to 3 in 2008. Forty-one counties notify landowners following records review, about the same number as the previous year. County staff then selects operations for on-site inventories and conducts the inventories.

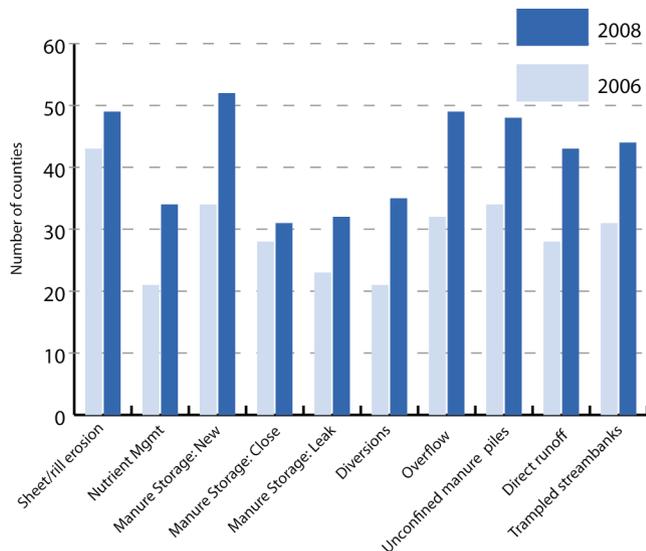
Following the on-site inventories, county staff members notify landowners of their compliance status. In 2008, 1,616 landowners were notified, primarily through a combination of letters and personal visits. This is 431 more notifications than in 2006 (36% increase). Tracking compliance is important for record keeping. In 2008, 19 counties used tracking systems with GIS mapping capabilities while another 27 counties planned to upgrade their current tracking system to one with GIS within 2-3 years. Thirteen counties planned to keep using their current spreadsheet or paper systems with no plans for upgrades and 6 counties used a combination of tracking systems. Only 11 counties reported using no tracking systems but 9 of those planned to develop systems within the next 2-3 years.

Regulation

Comparisons of 2008 with 2006 data show that the majority of counties still rely primarily on DNR to enforce compliance with the agricultural performance standards and prohibitions. An average of 42 counties relied primarily on DNR in 2008 compared with an average of 39 counties in 2006. The major increases in reliance on DNR for enforcement were for the sheet, rill and wind erosion control and clean water diversions performance standards.

However, reliance by counties on local ordinances is increasing at a faster rate. In 2008, an average of 38 counties relied primarily on ordinances compared to 30 counties in 2006. The highest increases were for the nutrient management performance standard and the manure management prohibitions. As counties increasingly rely on either ordinances or DNR, they are decreasing their reliance on a combination of DNR and local ordinances. The average number of counties relying on this combination declined for all

Figure 3: Number of counties reporting medium-to-high levels of compliance with individual performance standard or prohibition.



performance standards in 2008 compared to 2006, with the highest declines in the sheet, rill and wind performance standards, nutrient management, clean water diversions, and manure management prohibitions.

Information and Education

In 2008, 65 counties relied primarily on personal visits to educate landowners about the agricultural performance standards and prohibitions, slightly

more than in 2006. The next most popular educational tools were fact sheets developed by the multi-agency Agricultural Performance Standards Information and Education Committee. Newsletter articles and other media ranked third with 42 counties using these tools in 2008 (about the same as previous years). In 2008 there was a significant increase in the number of counties who used county-specific materials. There were 39 counties in 2008 compared to 32 in 2007 and 22 in 2006.

AGRICULTURAL PERFORMANCE STANDARDS AND PROHIBITIONS

- ◆ Control cropland erosion to meet tolerable rates.
- ◆ Build, modify or abandon manure storage facilities according to accepted standards.
- ◆ Divert clean runoff away from livestock and manure storage areas located near waterbodies or areas susceptible to groundwater contamination.
- ◆ Apply manure and other fertilizers according to an approved nutrient management plan.
- ◆ No overflow of manure storage facilities.
- ◆ No unconfined manure piles near waterbodies.
- ◆ No direct runoff from feedlots or stored manure into state waters.
- ◆ No trampled streambanks or shorelines from livestock.

NON-AGRICULTURAL PERFORMANCE STANDARDS

- ◆ During construction, control 80% of the sediment load from sites of 1 acre or more.
- ◆ After construction, control 80% of the total suspended solids, control the peak discharge rate, infiltrate a portion of the water coming off the site and maintain vegetated buffers around waterbodies.
- ◆ Control petroleum product runoff from fueling and vehicle maintenance areas.
- ◆ In developed urban areas (density of 1,000/sq. mi. or more), educate the public and develop programs on proper leaf, yard and pet waste management, apply nutrients on municipally owned property in accordance with a nutrient management schedule and detect and eliminate illicit discharges.
- ◆ Permitted municipalities, in addition to the above 3 requirements, must reduce total suspended solids by 20% by 2008, and 40% by 2013.
- ◆ Non-municipal properties that apply fertilizers to more than 5 acres of turf or lawn must do so according to an application schedule based on soil tests.

SUCCESS STORY—ADAMS CREEK, LA CROSSE COUNTY

Adams Creek in eastern La Crosse County is a 2.5 mile spring-fed stream that drains to the La Crosse River via Burns Creek. Continued sediment buildup from agricultural nonpoint sources of pollution degraded the habitat so much that the creek landed on EPA's 303(d) list of impaired waterbodies. Fish surveys conducted in 1993 and 2000 showed very few trout in the middle and lower portion of the stream, even though a fair number of brook trout were found upstream.

In 2000 the La Crosse County LCD received a Targeted Runoff Management grant from DNR to help restore the stream corridor. By 2003 best management practices had been installed to restrict cattle access and repair eroded stream banks through reshaping and rip rapping critical sites.

The LCD had been conducting annual base flow water chemistry monitoring along Adams Creek since 2001. Initially after the 2003 BMPs were installed, water chemistry showed a marked improvement. However, water quality began to decline rapidly in 2005. Water quality data showed that dissolved oxygen levels in Adams Creek often fell as low as 1 milligram per liter and consistently dropped below 5 milligrams per liter, which is the State of Wisconsin standard. Fish surveys conducted by DNR that year showed little to no improvement in brook trout numbers.

Further investigations revealed that a riparian agricultural operation had made some management changes. The resulting increased runoff was the primary cause of the depressed dissolved oxygen levels. The LCD and NRCS combined resources to install several BMPs that were designed to remove the flow of animal waste into the creek. In addition to the TRM grant, funding from EQIP and the county's environmental cost-share fund were used to install a manure storage facility, barnyard runoff control system, clean water diversion, milk house waste water control system, stream bank fencing and crossing, as well as a nutrient management plan. Water quality improvements were almost immediate.

In 2008, dissolved oxygen levels in Adams Creek returned to an average of 8 milligrams per liter, total phosphorus levels were nearly halved and fecal coliform levels dropped. Although these improved water quality conditions fall short of La Crosse County's water quality goals of 0.05 mg/L of total phosphorus and 1000 colonies per 100ml of fecal coliform bacteria, they will provide a much better environment for brook trout populations to prosper. DNR's macroinvertebrate sampling also confirms this improvement. The Hilsenhoff Biotic Index (HBI) went from very poor in 2005, to fair in 2006, to very good in 2007. The stream appears to be on the path to recovery and conservation staff are hopeful that the trout will return.





CONSERVATION RESULTS

BEST MANAGEMENT PRACTICES

Data tracked by DNR and DATCP show that 2,652 agricultural and urban BMPs were installed during 2008. This includes projects installed with funding awarded in 2007 and extended into 2008. For the reporting years 2004-2008, there were a total of 16,411 BMPs installed.

2008 data on categories, types of BMPs and administering agency can be found in Table 7 on page 23. This is the second year that BMP data installed with NRCS funding is included. However, the tables under the following sections do not include the federal data for purposes of comparison with previous reports.

Generally, DNR cost-share dollars are used to pay for a broad range of cropping and livestock management practices, while DATCP cost-share dollars are focused on the installation of low-cost practices. State and local funds are often used to leverage federal cost-share programs, such as EQIP and s. 319.

CROPLAND SOIL EROSION CONTROL

State Funded Conservation Practices

Keeping productive soil on the land and out of the water is one of Wisconsin's primary conservation goals. The counties, state and federal government

administer a variety of programs that work together to help landowners reduce soil erosion to tolerable ("T") levels or below.

In 2008, cost-share funds from SWRM, TRM and PWP helped pay for agricultural BMPs such as reduced tillage, residue management and cover crops to hold soil in place, grade stabilization and other structures to deflect or slow down runoff from slopes and practices to repair and prevent gullies. Table 3 shows the totals of these erosion control practices, by units of measure, for 2008 and for the 5 years from 2004-2008.

High residue management continues to be the most used cropland BMP. Nearly 30,000 acres received state cost-share funds for residue management in 2008 and a total of 263,666 acres from 2004-2008.

Sediment Reductions In Priority Watershed And Lake Projects

Nearly all priority watershed and lake projects developed goals to control sediment resulting from cropland soil erosion and many set goals to control gully erosion. By the end of 2008, projects had achieved cropland and gully erosion pollutant reductions of 365,662 tons per year. This amount is 70% of the goal of 519,787 tons per year (about 28% of the estimated load of 1,327,929). There was an additional 13,141 tons per year of sediment reduction reported by grantees that did not identify loadings or goals. Data came from projects that were open during 2008 along with projects that had closed in the previous five years, but were still in the operations and maintenance period.

Cropland Erosion Critical Sites

Twenty-three priority watershed and lake projects identified a total of 1,368 sites deemed critical sources of cropland soil erosion. By the end of 2008, landowners and county staff had resolved 1,267 (93%) of those sites mostly through implementation of best management practices or management changes.

Table 3: Cropland Erosion Control Practices

Unit of measure	2008 (state only)	2004-2008 (state only)
Acres	34,731	352,616
Number	112	762
Feet	104,764	688,453

Transect Survey

An updated version of the transect software was released in 2008. The new application, WinTransect, makes it easier for counties to collect and report on transect data. The new application is available for download at the following URL:

<http://transect.soils.wisc.edu>

FARMLAND PRESERVATION PROGRAM

The Working Lands Initiative (WLI), enacted in July 2009, modernized and overhauled the 30-year old Farmland Preservation Program (FPP) to better identify and protect agricultural areas against unplanned or poorly planned development. Without increasing costs for state taxpayers, WLI provided local governments and farmers with a new and improved toolbox for farmland preservation, adding new tools to protect farmland through the purchase of conservation easements and the designation of “agricultural enterprise areas” (AEA) to target agricultural preservation and development. As part of overhaul, changes to FPP increased the tax credits for farmer participants, and strengthened conservation compliance, including the new requirement that farmers meet state conservation standards. These changes should enhance conservation efforts on farms, and result in more farms meeting standards designed to protect water quality.

Table 4: Farmland Preservation Quickfacts

7.7 million	of Wisconsin’s 15.2 million acres of farmland protected through the FPP
18,1000	farmland owners who received farmland preservation tax credits in 2008
\$11.5 million	value of farmland preservation tax credit
\$633	average tax credit per claimant
17.5%	percentage of the total property taxes offset by farmers who claimed the credit
34.5%	percentage of Wisconsin’s potentially eligible farmers who claimed the credit

NUTRIENT MANAGEMENT

The DATCP collects data on the extent of nutrient management planning through bulk fertilizer suppliers and through the nutrient management plan checklist submitted by farmers, agronomists, and public agency staff. Suppliers of bulk fertilizer to Wisconsin farmers reported 3,489 plans covering 1,324,001 acres in 2008. This is 26% more acres than the previous year. In 2008, 615 NM planners (405 farmers and 210 agronomists) submitted nutrient management plan checklist forms. Remarkably, farmers developed 122 more self-written plans than last year, covering 32% more acres. Farmers hiring agronomists to develop plans also increased from the previous year. Agronomists submitted checklists for 2,322 plans (285 more than in 2007) covering 21% more acres than 2007.

MANURE MANAGEMENT

State Funded Conservation Practices

In 2008, landowners used state cost-share dollars to install manure management practices such as manure storage structures, practices to control runoff from barnyards, feedlots, milk houses, and pastures; livestock fencing, access roads and cattle crossings and wastewater treatment strips to reduce runoff in areas of heavy livestock activity; and nutrient management, heavy use area protection and wastewater treatment strips to keep manure out of sensitive areas. Table 5 shows the totals of these manure management practices, by units of measure, for 2008 and for the 5 years from 2004-2008.

Nutrient Reductions in Priority Watershed & Lake Projects

Priority watershed and lake projects inventoried every barnyard and feedlot in the project areas and identified phosphorus from livestock manure as a key water quality problem. Several projects also identified excess phosphorus problems related to improperly stored or applied manure and milk house waste, and developed reduction goals for those sources. Three projects tracked reductions in chemical oxygen demand (COD) from BMPs and

management changes associated with barnyards and feedlots. Through 2008, these projects had achieved a large percentage of their nutrient reduction goals (see Table 5). There was an additional 77,066 pounds per year of phosphorus reduction reported by grantees that did not identify initial loadings or goals. Data came from projects that were open during 2008 along with projects that had closed in the previous five years, but were still in the operations and maintenance period.

Livestock-Related Critical Sites

Twenty-two priority watershed and lake projects originally identified 216 livestock-related critical sites in those projects. An additional two sites were added in 2008 that had not been included in the original inventory. As of the end of 2008, two additional critical sites had been resolved bringing the total to 210 (96% resolved) with 8 sites remaining. The majority of these sites had been resolved through the installation of best management practices.

REGULATORY APPROACHES TO MANAGING MANURE

Notices of Discharge

Since the mid-1980s DNR has used notices of discharge (NODs) under ch. NR 243 to address significant discharges to state waters from small (<300 animal units) and medium (300 – 999 animal units) sized livestock operations. DATCP engineers and county staff provide technical assistance. Both DNR and DATCP provide state funding to address NOD sites and jointly administer a grant application process that uses a combination of state and federal EPA funding. USDA funding is also occasionally used to address these sites.

Unit of measure	2008 (state only)	2004-2008 (state only)
Acres	87,651	276,859
Number	428	1,753
Feet	68,228	302,288

Table 6: Nutrient reductions in priority watersheds and lakes

Parameter	Initial loading (lbs./yr.)	Reduction goal (lbs./yr.)	Amount Reduced (lbs./yr.)	% of goal Achieved
Phosphorus	386,557	213,235	147,640	69
COD	850,856	411,568	307,395	75

The number of NODs issued has declined from a historic range of 30 to 40 per year to a total of 22 between 2000 and 2007. In 2008 DNR and DATCP jointly allocated a minimum of \$500,000 to fund these projects. In CY 2008, DNR issued six notices under NR 243. Four were NODs and three were Notices of Intent to issue an NOD. Cost-share grants from DNR and DATCP totaling \$641,000 were awarded for 5 of these sites.

Concentrated Animal Feeding Operations

Under ch. NR 243, DNR regulates livestock operations with 1,000 or more animal units. These concentrated animal feeding operations (CAFOs) require a Wisconsin Pollution Discharge Elimination System (WPDES) permit. There are currently 180 permitted CAFOs. While this represents less than 1% of livestock operations, CAFOs account for roughly 15% of the manure produced in Wisconsin. DNR saw a marked increase in the number of applications for CAFOs in 2008 and has about 45 applications in-house for proposed permitted operations.

In 2007, revisions to NR 243 to meet federal regulatory changes went into effect. The changes primarily affect CAFOs and deal with restrictions on manure applications near surface waters and during the winter, phosphorus-based nutrient management requirements, adjustments to animal unit equivalency numbers, additional groundwater protection associated with land-applied manure and development of emergency management plans.

In addition to continuing to implement the 2007 code revisions, DNR focused on review of nutrient

Table 7: Regulatory approaches to managing manure

CAFO Statistics as of Dec. 31, 2008	
180	number of CAFOs with WPDES permits
27	number permits issued/reissued during 2008
45	number of new permit applications pending
13%	permit backlog percentage (goal = 15% or less)*

*new permit applications older than 6 months or expired permits awaiting re-issuance

management plans for CAFOs in 2008. DNR hired a nutrient management specialist and has been working to ensure the quality of submitted CAFO nutrient management plans for new and existing WPDES permitted CAFOs. This will help to ensure that manure and process wastewater from these operations is land applied properly.

Local Ordinances

Local ordinances are becoming more important as tools to regulate manure management. Counties continue to modify their manure storage ordinances to include the state manure management prohibitions in NR 151. Under the state nonpoint law, most farms are entitled to cost-share funds if they are required to install practices to meet state performance standards on existing cropland practices and livestock facilities. State approval is required if local ordinances include standards more stringent than those in NR 151 or ATCP 50. DNR and DATCP have developed joint procedures to review and approve more stringent ordinances.

Under the Livestock Facility Siting Law (s. 93.90 Wis. Stats., ATCP 51), local governments must apply state standards if they require local permits for new and expanded livestock facilities. To date, 23 counties, 37 towns and 1 city have adopted siting ordinances. Since 2006, 44 local permits have been issued, covering over 77,000 animal units. In these areas, permit applicants must meet current state standards for manure and nutrient management. Cross compliance requirements for NR 151 under

the livestock siting law do not require that cost-share funds be made available.

For additional information on the siting law, visit:

<http://livestocksiting.wi.gov>

STREAMBANK, SHORELINES, AND WATER QUALITY AND HABITAT PROTECTION

State Funded Conservation Practices

In 2008, many landowners used state cost-share dollars to install practices that protect and restore streambanks and shorelines, protect groundwater, and improve habitat through wetland restorations. These conservation practices were some of the most popular and accounted for most of the practices installed in the northern third of the state. Partners such as fishing and hunting groups, conservation organizations, “friends of” groups, local conservation staff, U.S. Fish and Wildlife Service, and DNR staff often contribute matching funds along with expertise and labor to make these projects successful.

Streambank/Shoreline Sediment Reduction In Priority Watershed And Lake Projects

The majority of the priority watershed and lake projects established goals to reduce the amount of sediment erosion from streambanks and shorelines by 66,403 tons per year. This is based on total load estimates of 150,644 tons per year. By the end of 2008, those projects reported reductions of 45,707 tons per year, or 69 percent of the reduction goal.

Table 8: Streambank/Shoreline Protection Practices

Unit of measure	2008	2004-2008
Acres	0	385
Number	6	1,540
Feet	35,758	536,812
Square feet	23,596	132,561

There was an additional 1,700 tons per year of sediment reduction reported by grantees that did not identify initial loadings or goals. Data came from projects that were open during 2008 along with projects that had closed in the previous five years, but were still in the operations and maintenance period.

Streambank and Shoreline Critical Sites

Twelve priority watershed and lake projects identified a total of 62 streambank/shoreline erosion sites as critical sources of sediment to surface water. By the end of 2008, 60 sites (97%) had been resolved.

Easements

The acquisition of conservation easements along rivers, streams and lakes has been a long-standing tool used cooperatively by landowners, counties, DNR, NRCS and nonprofit conservation organizations to protect water quality. Through June 30, 2009, DNR held a total of 1,473 water quality easements encompassing 15,511 acres of land and 15 easements totaling 1,616 acres in the North Branch of the Milwaukee River Wildlife and Farming Heritage Area that supports the goals of the nonpoint source program. DNR plans to secure another 260 acre easement in the North Branch Milwaukee River project during 2009.

CONSERVATION RESERVE ENHANCEMENT PROGRAM

Wisconsin's Conservation Reserve Enhancement Program (CREP) is a cooperative effort with the USDA's Farm Service Agency and Natural Resources Conservation Service, DATCP, DNR, LCDs and Wisconsin landowners. This partnership allows Wisconsin to leverage about \$77 million in federal payments over the next 15 years.

Practices	Goal (acres)	Enrolled (acres)
Grassland	15,000	11,349
Riparian buffers	80,000	28,621
Wetland restorations	5,000	2,898
All practices	100,000	42,868

Practice Installed	DNR	DATCP	NRCS
Erosion Control			
Residue management, green manure crop, grassed waterways, buffers, waterway systems, reduced tillage, grade stabilization structure, critical area stabilization (acres)	30,664	4,067	216,913
Critical area stabilization, grade stabilization, sinkhole treatment, subsurface drains, underground outlets water and sediment control basins (number)	11	101	315
Animal trails and walkways, critical area stabilization, diversions, windbreaks, underground outlets, waterway systems, streambank and shoreline protection (feet)	5,512	99,252*	87,060
Manure Management			
Agricultural sediment basin, barnyard runoff control systems, livestock watering facilities, manure storage facilities, milk-house waste control, roof runoff systems, sediment basins, waste transfer systems (number)	251	177	273
Access roads and cattle crossings, barnyard runoff management, livestock fencing, wastewater treatment strips (feet)	17,072	51,156	342,219
Heavy use area protection, nutrient management, wastewater treatment strips (acres)	12,254	75,397	234,537
Streambank and Shoreline			
Critical area stabilization, streambank/shoreline protection, shoreline habitat restoration, stream crossing, streambank rip-rap, streambank/shoreline fencing, streambank/shoreline shaping and seeding (feet)	35,758	*	65,351
Shoreline habitat restoration (acres)	–	–	1,529
Shoreline habitat restoration for redeveloped areas (sq. feet)	23,596	–	–
Residential nutrient management, stream crossing (number)	6	–	24
Other			
Pesticide management, soil analysis for nutrient management, well abandonments (number)	161	201	2,380
Easements, pesticide management, rotational grazing, wetland restoration (acres)	532	634	59,930
Rotational grazing (feet)	–	49,850	–

*DATCP streambank and shoreline BMPs are tracked under the Erosion Control section and are measured in feet.

SUCCESS STORY—REGIONAL APPROACH TO NUTRIENT MANAGEMENT IMPLEMENTATION

In 2008, four counties in central Wisconsin teamed up to standardize their approach to nutrient management planning (NMP), training and implementation. Clark, Marathon, Lincoln, and Taylor counties (Quad-County Partnership) had many positive discussions during the year that resulted in a decision to standardize NMP reporting and partner up to deliver farmer education workshops. The groundwork was set by Marathon and Lincoln Counties who had been working together for several years to advance nutrient management planning. They had worked closely with Northcentral Technical College (NTC) to provide farmer training in the two-county region. Since NTC's region includes parts of Clark and Taylor counties, the 2008-2009 workshops included locations in Clark, Marathon, and Taylor Counties.

More than 90 farmers from 63 farms covering over 20,000 acres participated in the 2008-2009 regional training at five centralized locations. Sponsors included the four county conservation departments, UW-EX in Clark and Marathon counties, and NTC. Staff from the county conservation departments and UW-EX taught the curriculum. NTC provided an adjunct professor, coordinated registrations, printed nutrient management maps from DATCP's Manure Management Advisory System website, and provided "Snap-Plus ready" laptop computers for class participants. DATCP staff had previously provided Snap-Plus update training to all UW-EX and county conservation staff before the workshops. This teamwork resulted in a higher quality program and more teaching capacity than could have been achieved independently. Ideas were shared that improved the farmer training program. In the future, the Quad-County Partnership could lead to offering even more types of training, beyond nutrient management, that better meet the needs of individual producers.

The training goal was to encourage all farmers to leave with a completed nutrient management plan that met the requirements in NRCS 590 Nutrient Management Standard, ATCP 50 and NR 151. Ninety-five percent of class attendees completed an NMP and became qualified to write their own plan. As an added incentive, every farmer who completed a plan had the full cost of tuition reimbursed through a Nutrient Management Farmer Education Grant (formerly called Multi-Agency Land and Water Education Grant or MALWEG).

This partnership among counties, technical colleges, and state agencies has led to other nutrient management training successes. This past summer, the partnership hosted a regional Certified Crop Advisor workshop for local agronomists and consultants. Regional NMP reporting requirements were standardized and outlined for more than 30 participants. Feedback was very positive, since the agronomists and consultants no longer had to meet differing NMP reporting deadlines and NMP submittal requirements for each county they service.

Other NMP educational opportunities arose from the initial Quad-County Partnership. Taylor and Clark Counties partnered with Chippewa Valley Technical College in 2009 to bring additional nutrient management training opportunities to local farmers. Clark County worked closely with MALWEG in 2008 to create an "On-the-Road Show" Nutrient Management Farmer Training program where the class was brought to the farm instead of the farmer to the class. This unique approach, now funded through a 2009 NMFE Grant, has increased participation of Amish and Mennonite farmers in nutrient management planning. More than 20 farmers covering 3,255 acres participated in the "On-the-Road Show" training in 2008.

Many opportunities for conservation partnerships exist with neighboring counties. Clark, Marathon, Taylor, and Lincoln Counties partnered with state agencies for funding and technical assistance, and with local technical colleges for logistical support. Successful conservation partnerships recognize that farms, consultants, and nonpoint pollution sources do not respect geo-political boundaries. By working together to protect shared resources, these four Central Wisconsin counties proved that cooperation is a very efficient way to gain and maintain conservation compliance.



URBAN BEST MANAGEMENT PRACTICES

In 2008, 54 municipalities used funding from Urban Nonpoint Source and Priority Watershed grants to install 155 urban practices, including BMP designs and stormwater and construction site erosion control plans. Table 11 shows the type and number of practices installed and planned with state cost-share funds.

DNR STORMWATER PERMIT PROGRAM

Since the mid-1990s, DNR has administered a program under Chapter NR 216 of the Wisconsin Administrative Code to address the issue of polluted urban stormwater runoff. Typical sources for this type of pollution are municipal storm sewers that collect runoff from lawns, streets, and parking lots, and runoff from construction sites and industrial sites that discharge to surface waters or groundwater without treatment. Research on urban streams in Wisconsin has shown high concentrations of suspended solids, bacteria, heavy metals, oil, grease and polyaromatic hydrocarbons as a result of stormwater discharges from these sources.

DNR has a permit program to regulate stormwater discharges from municipal, industrial and construction site sources. The municipal stormwater program addresses stormwater discharges from municipal separate storm sewer systems (MS4s), including large and medium MS4s (those serving a population over 100,000 people), MS4s in designated urbanized areas, and MS4s that serve a population of 10,000 people or more. The industrial stormwater program regulates certain industrial facilities based upon the type of industrial activity undertaken. The construction site permit program

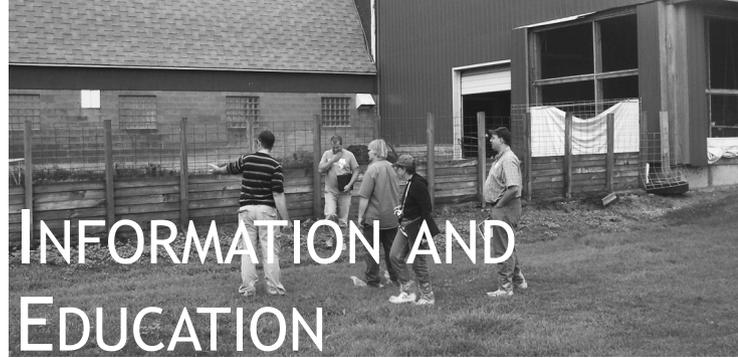
regulates sites where one or more acres of land is disturbed for new construction or redevelopment.

Municipal: As of December 31, 2008, there were 76 municipalities regulated under individual MS4 stormwater permits in Wisconsin. Additionally, there were 141 MS4s covered under a general MS4 stormwater permit. The general MS4 stormwater permit contains six minimum control measures to reduce pollutants in urban stormwater. Some municipalities have implemented stormwater utilities to fund their local programs.

Industrial: As of December 31, 2008, there were over 5,000 industrial facilities covered by a stormwater discharge permit. Industrial permittees must develop stormwater pollution prevention plans to identify sources of stormwater contamination and pollution prevention measures. The Auto Dismantling and Scrap Recycling permittees are offered the option of joining a Cooperative Compliance Program, developed to establish industry-wide approaches to reducing or eliminating stormwater contamination. These programs provide group training, foster information sharing and promote BMPs.

Construction: On average, the DNR confers coverage to over 1,000 construction sites annually. Owners of construction sites are required to develop and implement site-specific erosion control and stormwater management plans to prevent pollutants from entering waters of the state.

Practices	2008	2004-2008
Detention systems, infiltration devices, street sweeper, other practices (number)	91	625
Urban planning and design (number)	59	167
Storm sewer re-routing, streambank/shoreline protection (feet)	4,797	27,013
Critical area stabilization, grassed waterway, other practices (square feet)	260	275,923



COUNTY ACTIVITIES

Counties conduct a range of outreach activities focusing on areas such as groundwater protection, performance standards compliance and protecting working lands. In 2008, counties reported conducting a total of 263 workshops. In the past, these workshops focused on topics ranging from groundwater protection to stream ecology. However, a growing area of focus for workshops is nutrient management. These workshops help train farmers to write their own nutrient management plans and are critical to increasing the total acres under nutrient management plans. As counties come to better understand the barriers to implementing the performance standards, the value of these activities is becoming clear.

Counties also engage the public and partner groups through coordinated presentations and conservation tours. A total of 839 presentations were conducted by 67 counties. Over 300 newsletters, 129 displays, and 65 tours of conservation sites or facilities were conducted during the year, as well.

Supporting county efforts to implement the agricultural performance standards is the job of a multi-agency committee that develops educational materials, conducts outreach activities and maintains the runoffinfo.uwex.edu website. A similar group provides support to municipalities on stormwater issues.

BASIN EDUCATION ACTIVITIES

The UW Extension Basin Education initiative involves a collaborative educational approach to land and water resource management in the state. UWEX, in cooperation with DNR, DATCP, NRCS, and other partners, provides educational programs and services in areas defined by the state's major river basins. In 2008, Basin Educators worked with counties, municipalities, and other partners to deliver local and statewide educational and outreach services on a variety of land and water conservation issues. Basin educators were involved in many of the

issues and individual projects highlighted throughout this report. A few of the activities are highlighted below.

Agricultural Performance Standards and Prohibitions. Basin Educators worked with state and local partners on the Wisconsin Agricultural Performance Standards Information and Education Committee. A pilot workshop in September, 2008, brought together staff from local conservation agencies (LCD and NRCS) to focus on assessing compliance. The workshop illustrated various county strategies to implement NR 151, and provided a training opportunity to build skills and understand challenges in evaluating farms for compliance with agricultural performance standards. The pilot served as a model for additional workshops in 2009.

Planning discussions for Agricultural Performance Standards educational programs led partners to develop several new water quality outreach initiatives in 2008. The "Explore and Restore" programs for the Lakeshore Basin's Manitowoc River, East and West Twin Rivers, and Silver Creek Watersheds have helped landowners understand the connection between their management activities and the health of their local rivers. In Door County, the Lakeshore Basin Educator led a coalition of partners in development of a 16-page educational pamphlet that clearly illustrates connections between land management practices, water quality, and public health; local partners used the materials intensively in their work with farmer and rural residents.

Stormwater. Basin educators continued to support stormwater education for communities and individuals in residential developments and lakeshore settings. Basin educators provided educational materials and programs about rain gardens, rain barrels, sustainable landscaping, green roofs, and other residential stormwater infiltration

practices. Efforts included demonstrations, tours, workshops, development of localized educational materials, and evaluation.

Total Maximum Daily Loads (TMDLs). Basin educators were active with local partners in planning and organizing for the development of several TMDL plans. These “clean water” plans focus on sources of impairment throughout the watershed and involve close work between stakeholders and staff in state and local agencies. Project areas included the St. Croix, Lower Fox, Rock River, Mead Lake, and Parson’s Creek.

Basin educators continued to deliver groundwater and drinking water education programs, and linking these programs to watershed management. Basin educators also provided evaluation and program planning expertise across a variety of land and water conservation programs. For more information, visit:

- <http://runoffinfo.uwex.edu>
- <http://basineducation.uwed.edu>
- <http://woodlandinfo.org>

CITIZEN-BASED WATER MONITORING

In 2008 citizen water monitoring continued to develop, supporting three levels of involvement: introductory, status and trends, and special research project monitoring. The stream monitoring program, co-sponsored by DNR, UWEX, and the River Alliance of Wisconsin, saw continued growth. In addition, a new volunteer wetland monitoring program started strong, with 71 participants in its first year.

Within the entry level program for stream monitoring, Water Action Volunteers, 130 adults and more than 970 students were trained to assess six aspects of stream health: macroinvertebrates, habitat, dissolved oxygen, water clarity, temperature, and stream flow. In addition, many volunteers trained in past years continued to monitor. Collectively, these dedicated volunteers monitored 186 sites statewide during 2008. Table 12 shows monitoring activity data for 2008.

Table 12: WAV Volunteer Monitoring Activities for 2008	
814	days volunteers spent monitoring streams during 2008
6,308	days volunteers spent monitoring since 1997
700	stream sites registered in on-line database
186	stream sites monitored during 2008
46	local volunteer stream monitoring programs
170	people participating in Level 2 stream monitoring
1,825	volunteers who participate in volunteer stream monitoring

In the Level 2 program, 170 people monitored 140 sites using DNR methods to monitor pH, water clarity, continuous water temperature, and dissolved oxygen. Automated reports for Level 2 data were developed through the DNR’s Surface Water Integrated Data Management System (SWIMS). These reports are available to DNR biologists as well as anyone with web access.

To help increase public knowledge of the volunteer stream monitoring program, work continued on an outreach campaign in cooperation with Dr. Bret Shaw (UWEX/UW-Madison Life Science Communications). Multiple news articles about the success of citizens’ efforts appeared in papers across the state and a radio piece was also produced. These materials are available at:

<http://watermonitoring.uwex.edu/level2/outreach.html>

Volunteers also participated in Level 3 stream monitoring projects, monitoring for E. coli bacteria in several locations, and pursuing independent research across the state (e.g., obtaining grants, partnering with DNR biologists, university scientists, and county and federal staff). One example of a partnership with a local DNR biologist was that citizens collected grab samples that were analyzed for nutrients. The results may be used for developing state criteria for phosphorus concentrations in surface water. The citizens’ efforts allowed the DNR biologist 40 hours to work on other projects.

The Wisconsin Ephemeral Pond Monitoring Project (WEPP) brought together state and local

governments, state and private academic institutions, non-profit organizations, and individual citizens to map and document ephemeral ponds in southeast Wisconsin. It also serves as a mechanism to increase public awareness of the conservation value of these wetlands. By working together,

committed citizens, nonprofit partners, and staff from local and state agencies field checked a total of 422 sites mapped as potential ephemeral ponds. Fifty eight percent were verified as ephemeral ponds.

SUCCESS STORY—LAKE OWEN SHORELINE PROTECTION

Lake Owen, a 1,320 acre lake in southwestern Bayfield County, is home to northern pike, large and smallmouth bass, walleye, crappies and bluegills—and people who come for the fishing and scenic beauty. While the northern portion is in the Chequamegon National Forest, the south and east shores are heavily developed. Water quality is exceptional with clarity readings around 20 feet, but much of the lake has very steep shorelines susceptible to heavy erosion.

One lakeshore development is Lake Owen Villas—28 condo units situated on 19 acres. Random access, heavy usage and grounds maintenance, combined with steep slopes and lots of impervious surface deteriorated the shoreline and sent nutrients and sediment to one of the best lakes in the county. Concerned condo residents turned to the Bayfield County Land and Water Conservation Department for help. After four meetings with the LWCD and lots of work, the homeowners subcommittee presented a restoration plan at their annual meeting. On a very close vote, the owners voted to restore 180 feet of their 700 feet of frontage. The deciding factor among many undecided voters was the trust and credibility in the LWCD to deliver results.

Bayfield County requires a buffer setback of 50 feet from the ordinary high water mark—more restrictive than the 35 foot state minimum. The LWCD works closely with the Zoning Department to ensure that all shoreland mitigations and restorations meet county standards. This relationship has created trust between the departments that allows efficient implementation of projects overseen by the LWCD. Permits, if needed, are processed rapidly and innovative techniques to enhance buffer effectiveness are fully supported by the Zoning Administrator and staff. Both departments agree that flexibility prompts innovations that address problems for the greater good.

Several out-of-the-box practices increased resource protection beyond the traditional. A canoe rack, concrete pad and fire ring were removed from the shoreline, wood chip paths created, areas under existing piers were stabilized, and over 4,000 native trees, shrubs, grasses and forbs were planted. Most significantly, the smooth ground of the near shore area was excavated to create small depressions and berms to capture runoff in series and infiltrate it into the soil. The LWCD conservatively estimates that 80% of the runoff is now controlled by the native planting and retention berms.

During construction the homeowners decided to increase the restoration area 2,000 sq. ft. beyond the original planned area. The LWCD staff was on site for portions of five days overseeing excavations and planting. Several homeowners assisted with the planting and bark paths. Advocates and non-believers alike made frequent visits to the construction zone, creating many teachable moments. A few weeks later when the cover crop greened up, even the skeptics agreed it looked better.

Total cash outlays were \$8,500 with in-kind volunteer assistance from homeowner association members and others. This project serves as a demonstration site that the LWCD can now use, with permission, and was a featured stop on the fall WALCE Technical Tour. The homeowner association president recently contacted the LWCD to express continuing satisfaction with the project and to request additional assistance to address other stormwater runoff concerns in the development. The key to success was working personally with the association over time to build trust and technical credibility, being patient while information was processed and thought through, and a mutually acceptable plan to protect the resource permanently.

SUCCESS STORY—LIVESTOCK MANAGEMENT PRACTICES IMPROVE TROUT HABITAT IN IRON COUNTY.

For the past 30 years, Vaughn Creek in Iron County has had its fill of sediment and nutrient contribution from land uses along its sandy banks. The creek flows north to converge with the Bad River, which then meanders several miles through a clay plain before reaching its final destination—Lake Superior. Classified by the Wisconsin Department of Natural Resources as a brook and rainbow trout stream, it once provided excellent fishing. However, sedimentation from several priority sites has greatly impacted water quality.

In the summer of 2007, Iron County Conservation staff first visited farms in the Vaughn Creek watershed in order to promote its nutrient management program. During a walkover of one local farm, staff alerted the landowner to several issues of which he was not aware. Thirty head of dairy cattle had unlimited access to the creek via the stream's sandy banks and were crossing it to graze in the field beyond. This had resulted in extremely destabilized and eroded streambanks. Staff indicated that with a few easily-implemented and relatively low-cost conservation practices, sedimentation and erosion could be nearly eliminated from the site. In addition, much of the cost of the project could be reimbursed through a combination of state and federal cost-share programs.

In 2008, NRCS and Iron county staff worked together to design a livestock management and access road plan for the farm. An access road and cattle crossing were designed and built to accommodate the 30 head of dairy cattle that needed access to grazing fields. In addition, livestock exclusion practices were erected along both sides of Vaughn Creek to restrict cattle access to the streambank. This greatly reduced the likelihood of trampled streambanks, a major contributor to erosion and sedimentation in the system. The partnership between NRCS and Iron County made this project feasible since EQIP funded 46% of the project and the county funded 37% of the project by leveraging local funds. The landowner's cost was only 17% of the project's total cost. Furthermore, the landowner became more interested in nutrient management and has since written his own nutrient management plan covering 205 acres of his farmland.

Despite an early reluctance to become involved, the landowner realized several benefits from working with his local Land Conservation Department. He was able to help increase water quality in a fishery that he has enjoyed for many years, his cattle now have safe and easy access to their grazing lands, and the costs of implementing the practices were minimal due to cost-share assistance from several agencies.

