2006

Wisconsin Land and Water Conservation Annual Progress Report

Local Conservation Accomplishments

Locally Led Conservation Programs

Emerging Challenges

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You may also download the report by visiting these websites:

http://runoffinfo.uwex.edu

http://dnr.wi.gov/org/water/wm/nps/index.htm

http://www.datcp.state.wi.us/arm/agriculture/land-water/conservation/land_water_rmp.jsp

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WISCONSIN LAND AND WATER CONSERVATION

2006 ANNUAL PROGRESS REPORT

A joint report by the Department of Agriculture, Trade and Consumer Protection and the Department of Natural Resources summarizing Wisconsin's achievements in reducing polluted runoff and conserving land and water resources.

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
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

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 Projects (DNR grant program)
UNPS Urban Nonpoint Source and Storm Water Management Grant Projects (DNR grant program)
TMDL Total Maximum Daily Load (DNR program for impaired waters)
WAV Water Action Volunteers (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 (Storm Water Discharge Permits)
NR 243 Ch. NR 243 Wisconsin Administrative Rule (Animal Feed Operations)

INTRODUCTION

Wisconsin has a long history of protecting it's land and water resources with the help of farmers, conservation groups, watershed and lake groups, tribes, local governments and federal agencies. This report to the Wisconsin Land and Water Conservation Board summarizes progress made in 2006 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.

In 2006, staff from county land conservation departments and municipalities delivered over $45 million in conservation practices and technical assistance. That money has been used to control erosion from both cropland 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.

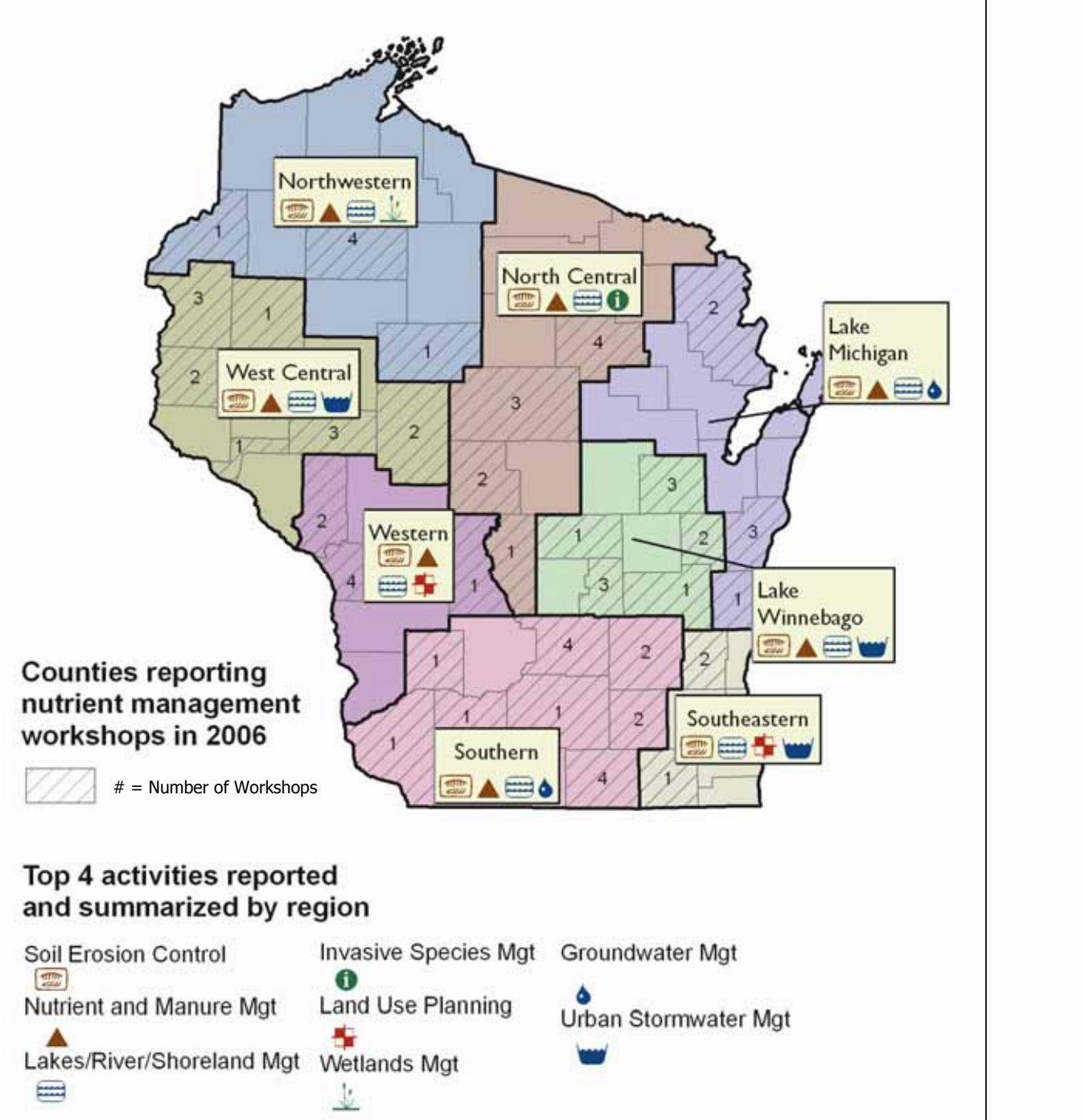
Considerable progress was made during the year in controlling nonpoint source pollution through cost-sharing 3,699 best management practices. To date, over 92% of all types of sites (cropland, livestock and stream bank) identified as the most critical nonpoint source pollution sites in priority watershed and lake projects have been resolved. In addition, in 2006, counties and municipalities reported increasing progress toward implementing the statewide performance standards and prohibitions set forth in NR 151 and ATCP 50.

Data for this report comes from traditional state and federal sources. New to this year's report is data collected through a statewide survey of county land conservation departments. These data add a new dimension to the report and will serve as a baseline for future reports. 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 Storm Water Management Grant Projects, ch. 281.66
- Farmland Preservation Program, ch. 91

Map 1: County Activities

Counties report their activities to DATCP and DNR every year. The 2006 data on land conservation department activities has been summarized here by LWRM planning regions. These regions are consistent with those established by the Wisconsin Land and Water Conservation Association.



PROGRAM MANAGEMENT

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. Revised every five years, the plans 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 addition to providing a framework for local implementation of state programs, LWRM plans also identify local resource concerns and strategies to address these concerns. The three most common activities conducted by local conservation departments in 2006 were soil erosion control; nutrient and manure management; and lake, river, or shoreland management. Counties also reported activities as diverse as invasive species management, grazing assistance, urban stormwater management and groundwater management.

Map 1 summarizes county activities at the regional level and displays the top four activities for each region. It also shows that a total of 70 nutrient management workshops were held in 34 counties. Of these counties, 27 had listed nutrient management as a priority in their 2006 LWRM workplan.

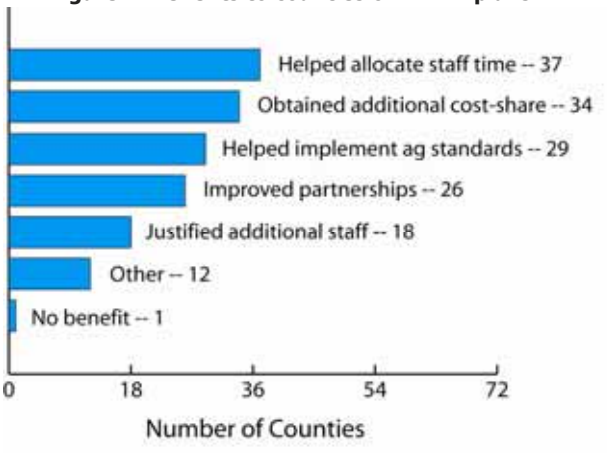
Counties have reported several benefits associated with their LWRM plans. Figure 1 shows county responses regarding plan benefits. Key among these benefits is obtaining additional funding for conservation practices and additional staff. Over $1 million in cost-share funds and several part or full-time staff members were obtained based on LWRM plan goals. Table 1 summarizes these results.

As of the end of 2006, 55 of Wisconsin's 72 counties had revised their LWRM plans to meet the latest standards for approval, including NR 151 implementation strategies. The remaining 17 will be updating their plans during 2007.

Table 1: Benefits to counties of LWRM plans

Regions	Additional Cost-sharing Obtained	Additional Staff Obtained
Lake Michigan	$133,687	1
Lake Winnebago	$70,800	1
North Central	$228,800	4
Northwestern	$57,000	1
Southeastern	$20,000	2
Southern	$320,942	1.25
West Central	$157,942	2.3
Western	$33,433	1.25
Total	**$1,022,604**	**13.8**

Figure 1: Benefits to counties of LWRM plans

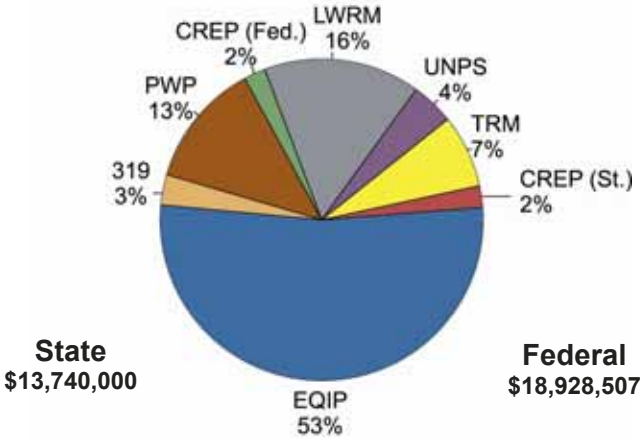


FUNDING FOR CONSERVATION

In 2006, staff from county land conservation departments (LCDs) and municipalities delivered about $45.03 million in conservation practices and technical assistance. This money was administered through cost-share agreements with agricultural producers, as well as grants to 76 urban municipalities, several lake districts and a tribal government.

Funding for cost-sharing, staffing and support came from both state ($24.3 million) and federal ($20.73 million) funds. Staffing assistance through state programs totaled more than $10.5 million and cost-share totaled more than $13.7 million. Federal funding came from EPA through section 319 of the Clean Water Act, and from USDA's Environmental Quality Incentives Program (EQIP) and Conservation Reserve Enhancement Program (CREP). These programs provided $500,000 in staffing assitance and over $18.9 million in cost-share. Cost-share dollars for both state and federal programs are further broken down in figure 2. Reporting of additional contributions of money, time and other resources that came from counties, municipalities, landowners, and non-profit organizations are beyond the scope of this report.

Figure 2: Total State and Federal Cost-sharing for 2006*



* Includes federal and state CREP funding but not CREP incentive payments.

SOIL AND WATER RESOURCE MANAGEMENT PROGRAM

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

For 2006, DATCP had more dollars available to allocate to the counties for staffing than in 2005. Many counties report new local priorites leading to increased demands on staff. While this increase in funding does benefit counties, the level of funding provided continues to fall short of state demand.

Compared with 2005, there has been a slight decrease in funding provided to counties for landowner cost-sharing. For the 2005-2007 biennium, DATCP does have additional funds available to cost-share nutrient management plans, but has lost a significant portion of its bond revenue funds used to cost-share manure storage, shoreland protection and other "hard" practices.

Over the last five years, counties have been making improvements in their ability to spend cost-share dollars. In 2006, there was a slight decrease in the percent of available cost-sharing spent through grant contracts with landowners, or through extensions of landowner contracts; however, this decrease was not significant. Counties, along with DATCP, continue to work towards finding ways to improve their ability to use all available cost-share 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 project managers help landowners install BMPs or change management practices on these sites.

As of the end of 2006, over 92% of all types of critical sites were resolved (livestock—95%, uplands—92%, streambanks/shorelines—95%, other—44%). Most of these critical sites are resolved voluntarily by the landowner with cost sharing 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.

Table 2: 2006 Financial data	
SWRM Grant Program Expenditures	
$9.36 Million	DATCP Staffing and support
$5.13 Million	DATCP Cost-share
$710,000	State CREP
358	County Conservation Staff
91%	percentage of cost-share spent or extended
DNR Grant Program Expenditures	
$2.4 Million	TRM for BMPs
$1.4 Million	UNPS for urban BMPs
$1.2 Million	UNPS for stormwater planning
$4.1 Million	PWP for BMPs
Federal Grant Program Expenditures	
$17.2 Million	EQIP for BMPs
$1.03 Million	CREP for BMPs
$1 Million	S. 319 grant for BMPs
$1.5 Million	NRCS technical assistance

NRCS

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 2006, DNR awarded $1.9 million (37%) of the $5.1 million requested.

Urban Nonpoint Source and Storm Water Management Grants

These DNR grants cover both planning and construction projects to address polluted urban runoff. They typically last two years. Governmental units are eligible for grants even if they are covered by storm water permits under NR 216. Planning grants can pay for 70%—up to $85,000—of storm water management planning, education, ordinance and utility development and enforcement. Construction grants may cover 50%—up to $150,000—of the cost of BMPs such as storm water detention ponds, infiltration practices, and streambank and shoreline stabilization. In 2006, DNR awarded $3.8 million (70%) of the $5.4 million requested.

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. Section 303(d) of the Clean Water Act requires states to list water bodies as impaired if they are not meeting water quality standards or use designations. The "Impaired Waters List" is updated every two years. In 2006, 643 water bodies were on the list; of those, 271 are listed for atmospheric deposition of mercury. Thirty-eight percent (38%) of the waters on the 303(d) list are listed for nonpoint source pollution. DNR is developing a surface water assessment methodology to establish new guidelines for listing and de-listing waters.

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. A TMDL is a quantitative analysis of the amount of a pollutant a stream, river, or lake can assimilate before exceeding water quality standards. The TMDL is equivalent to the loading capacity of the stream made up of background, 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.

Wisconsin has approved TMDLs for 51 waterbodies, since the year 2000. Ninety percent (90%) of these TMDLs address sediment from agricultural runoff, which leads to degraded habitat. Larger, watershed-scale TMDLs are being developed for the Upper and Lower Rock River Basins, the Lower Fox River Basin, and the Red Cedar River Basin. These larger-scale TMDLs will address both point source and nonpoint source pollutants.

Efforts to develop a statewide TMDL implementation program are underway. DNR is developing a program framework, including identifying program goals, regulatory, financial, and technical tools, and determining roles and responsibilities of partners and stakeholders.

For more information, go to:

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

Table 3: 2006 Program highlights	
Priority Watershed and Lake Projects	
28	number of active priority watershed and lake projects
58	number of closed/completed projects since program started
1,231	number of participating landowners
8,485	total number of landowners participating in both active projects and those closed from 2000-2006 (overall participation rate = 30%)
150	number of nonpoint source impaired waters benefiting from project implementation
TRM Grants	
19	number of TRM projects awarded in 2006 (19 agricultural)
164	total number of TRM projects, 1999 -2006 (114 agricultural, 50 urban)
133	number of projects completed through 2006
146	number of nonpoint source impaired waters benefiting from project implementation (1999-2006)(112 rural, 34 urban)
Urban NPS Grants	
51	number of UNPS project grants awarded in 2006 (31 planning, 20 design/construction)
304	total number of projects, 2000-2006 (158 planning, 146 design/construction)
214	number of completed projects through 2006
206	number of nonpoint source impaired waters benefiting from project implementation (2000-2006) (108 planning, 98 design/construction)
Best Management Practices	
947	number of BMPs installed as part of the SWRM program during 2006
21%	percentage of practices under $3000 installed using SWRM funds
10%	percentage of practices over $10,000 installed using SWRM funds
2,912	number of BMPs installed through TRM, UNPS, and PWP
Critical Sites	
25	number of priority watershed & lake projects addressing critical sites
1,655	number of critical sites identified in priority watershed projects
92%	percentage of all types of critical sites resolved as of Dec. 31, 2006

Conservation Success Story

Willow Creek — Richland County

Richland County, located in Wisconsin's driftless area, has an abundance of trout streams, many with DNR fishing easements. Maintaining and repairing habitat in these streams can be challenging. Willow Creek is one example where groups have worked together to restore a quality trout stream.

The site is located in the Class I trout stream portion of Willow Creek. The current land use is light pasturing. A portion of the creek had eroded into nearby cropland, causing concerns for the landowner. Ken Anderson, Richland County land conservation technician, worked with several groups to provide cost-sharing and labor to assist in repairing several sites along the creek. Funding came from an EQIP contract with NRCS, Ocooch Chapter of Trout Unlimited, DNR and the U.S. Fish and Wildlife Service. Anderson designed and inspected the project, as well as coordinated a work day to build 40 LUNKER structures for fish habitat. This project, consisting of 2,000 feet of riprap on 5 sites with 40 structures, cost over $40,000. Through partnerships, important aquatic habitat was restored and agricultural lands were protected from erosion.

Richland County LCD

Before: Willow Creek was causing severe streambank erosion, threatening nearby cropland.

After: Streambank stabilization measures controlled erosion and LUNKERS provided new habitat for trout.

Conservation Success Story

Coon Fork Lake Watershed— Clark County

Coon Fork Lake, located in Eau Claire County, faced a significant challenge from agricultural non-point pollution. Coon Fork Lake is situated in a heavily used public park with more than 17,000 camper days per year. After large rainfall events, high fecal coliform levels were present at the beaches and the trophic status of the lake was reclassified as eutrophic (due to the large amounts of phosphorus entering from the 31,700 acre watershed). In 2005, three counties, Clark, Jackson, and Eau Claire, teamed up to devise solutions for this challenge. The first step was to write a lake management plan. Upon plan completion, funding was secured through a DNR lake management grant. The grant funds were used to install, throughout the three counties, several best management practices aimed at reducing the amount of sediment and manure entering into the lake.

In Clark County, these efforts helped the Humbird Area Farm improve both the environment and farm working conditions. Initially, this family farm had an inadequately sized barnyard and steep eroding pastures abutting an intermittent waterway. This waterway had experienced significant sedimentation and nutrient deposition. The banks were severely flattened out causing spring runoff to spill out far beyond the natural floodplain, which in turn caused the surrounding pasture to become even more saturated. The barnyard and pasture, which has lost more than a foot and a half of manure-laden soil over the past several years, had become a hazard to the operation and caused the farm building foundations to begin sinking. After a year of planning, the farmer implemented numerous BMPs, including 4,000 feet of waterway fencing, livestock crossings, a barnyard runoff control system with multiple filter strips, terraced pasture, and a farmer-written nutrient management plan. In the future, raised reinforced lanes and a watering system will be installed. The installation of these BMPs has contributed to not only the environmental sustainability of Coon Fork Lake and the farm, but also to the economic sustainability of the farm. Cows are cleaner, somatic cell counts are lower, working conditions are safer, and better managed manure applications have reduced the need for commercial fertilizer inputs.

Clark County LCD

Before: Just prior to construction, the barnyard shows a destabilized building foundation.

After: The new barnyard will collect runoff, and will protect the building's foundation.

Performance Standards Implementation

Implementing Runoff Performance Standards

Wisconsin has implemented performance standards and prohibitions to control polluted runoff from agricultural and urban land uses since October 2002. The task of implementing the performance standards and prohibitions will take many years and an estimated $36.3 to $54.8 million per year. County land conservation departments and committees are key components to implementation of the agricultural performance standards and prohibitions. The non-agricultural performance standards are primarily implemented by municipalities and construction contractors through DNR-administered stormwater discharge permits, although an increasing number of LCDs are becoming actively involved in non-agricultural performance standards activities.

State programs have changed over the last five years to facilitate implementation. Performance standards and prohibitions are required components of the Farmland Preservation Program and most TRM grants; an implementation strategy is a required element of LWRM plans. All planning activities funded with Urban Nonpoint Source grants must meet the non-agricultural performance standards.

The Wisconsin Association of Land Conservation Employees produced a strategy that has been used to define the county implementation process for the agricultural performance standards and clarify roles and responsibilities. The strategy includes ten components defining activities such as planning, information and education, partnership arrangements, compliance determinations, tracking and enforcement. In 2007, all seventy-two counties submitted a report to DNR and DATCP describing 2006 activities defined in the strategy and an estimate of the level of farmer compliance with the agricultural performance standards and prohibitions. These data will serve as a baseline for future reports.

Counties were asked about the amount of resources they dedicated to implementation of the performance standards in terms of staff. More than half of the counties (41) reported that they dedicated over one-fourth of their staff resources towards implementing the agricultural performance standards. Thirteen of these counties dedicated more than 50% of staff resources. Thirty-one counties dedicated less than 25% of their staff to this activity. For implementation of the non-agricultural performance standards, sixteen counties reported dedicating 50% or more of their staff time to this activity. The majority (35 counties) reported dedicating 25% or less of their staff time to this activity (see figures 3 and 4).

Figure 3: Percentage of staffing resources dedicated to agricultural performance standards

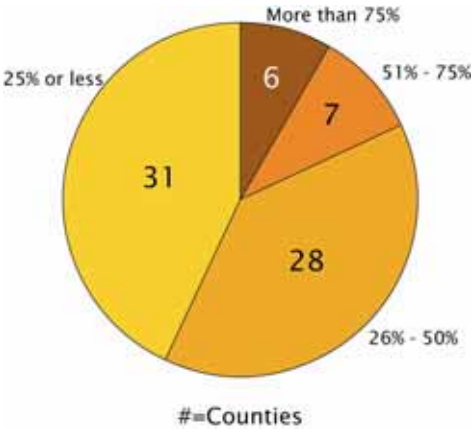
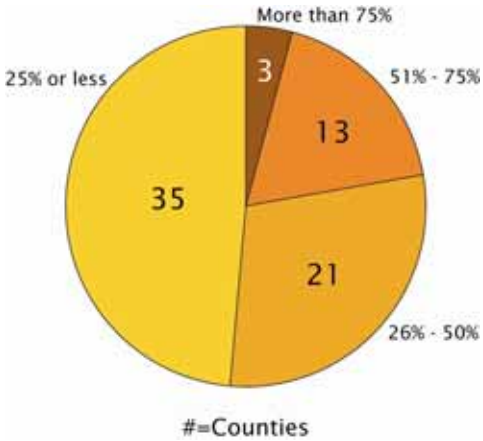


Figure 4: Percentage of staffing resources dedicated to non-agricultural performance standards



Counties were also asked to report the levels of cost-share that were dedicated to implementation of the performance standards. For the agricultural performance standards, twenty-eight counties reported dedicating more than 50%, while twenty-three counties reported dedicating 25% or less. Counties had fewer cost-share dollars available to implement non-agricultural performance standards. More than two-thirds of the counties spent 25% or less, and only three reported spending 75% or more of available cost-share on non-agricultural performance standards implementation (see figures 5 and 6).

Counties reported several barriers to implementation of the performance standards and the degree to which these barriers hindered implementation. Counties cited lack of time and staff as the number one barrier; this was followed by insufficient funding for structural (hard) practices, insufficient funding for management (soft) practices and lack of additional county funding or support. Other barriers reported to be present to a great extent or some extent by at least half of the counties include lack of landowner interest or cooperation, difficulty in accessing or competing for cost-share dollars, lack of cooperation from needed partners and changing land uses (see figure 7).

Counties estimated the level of compliance with the agricultural performance standards and manure management prohibitions based upon on-site inventories of farms. Results are shown in figure 8. The highest level of compliance was reported for the sheet, wind and rill erosion performance standard. Thirty-two counties reported a high level of compliance (meaning that they observed that 75% or more of the croplands were in compliance in their counties). An additional eleven counties reporting a medium compliance level (~50 % of the croplands in compliance). Twenty-seven counties said they had not inventoried cropped fields for this performance standard.

The performance standard that is the most challenging in terms of compliance is the nutrient management performance standard. Only seven counties reported a high level of compliance and another 14 estimated a medium level of compliance. Twenty-four counties reported a low level of compliance. Counties report that this performance standard is very difficult to measure.

Another challenge in implementing the performance standards is working with county, state and federal partners who share roles and responsibilities. Where partnership arrangements do occur, they vary from formal cooperative agreements, such as a Memoranda of Understanding, to informal verbal agreements. In 2006, twenty-eight counties had some form of arrangement with DNR, thirty-eight with NRCS, twenty-one with UWEX and seventeen with other LCDs. The majority of counties reported no partnership arrangements with DATCP, DNR, NRCS, UWEX or other LCDs to implement the performance standards.

Figure 5: Percentage of cost-sharing dedicated to agricultural performance standards

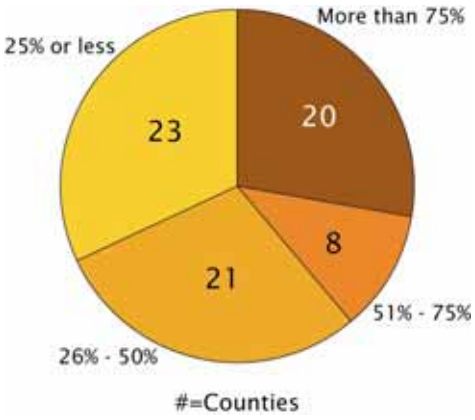
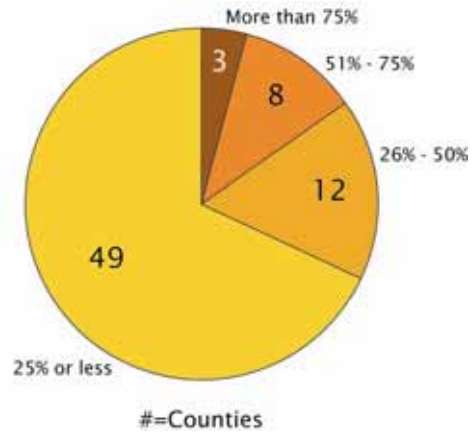


Figure 6: Percentage of cost-sharing dedicated to non-agricultural performance standards



Many counties are in the process of developing tools and methods to determine compliance with the performance standards and prohibitions. These methods involve reviewing landowner records, conducting on-site inventories, determining, tracking and reporting levels of compliance and informing landowners/producers of their compliance obligations. Five counties have fully functional tracking systems, another 56 are developing systems and 11 do not intend to develop a tracking system.

In 2006, counties informed 1,185 landowners of their compliance status and obligations to maintain compliance with the performance standards and prohibitions. Most of the notifications were made in person or by a combination of letters and personal contacts. Only 14 counties had a method in place to notify new landowners of existing compliance obligations on their recently-purchased land.

Many counties have chosen to enact ordinances to implement certain performance standards, and LCD staff involvement varies in this process. Fifty counties reported they regulate the manure storage performance standard through an ordinance, while the remaining counties intend to rely on either DNR or a combination of local and DNR efforts for enforcement. About two-thirds of the counties intend to rely on DNR, or a combination of local and DNR efforts, to achieve compliance on all other performance standards.

Figure 7: Barriers to implementation of agricultural performance standards

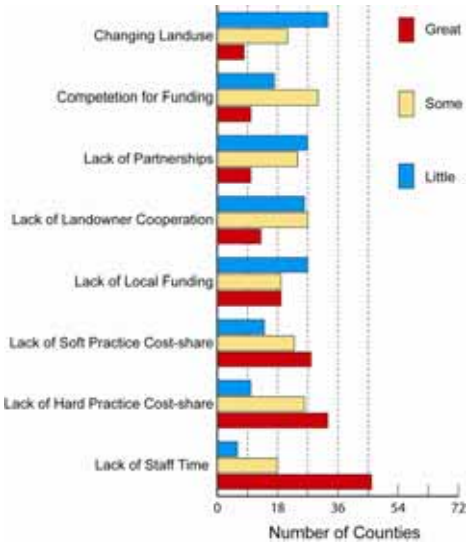
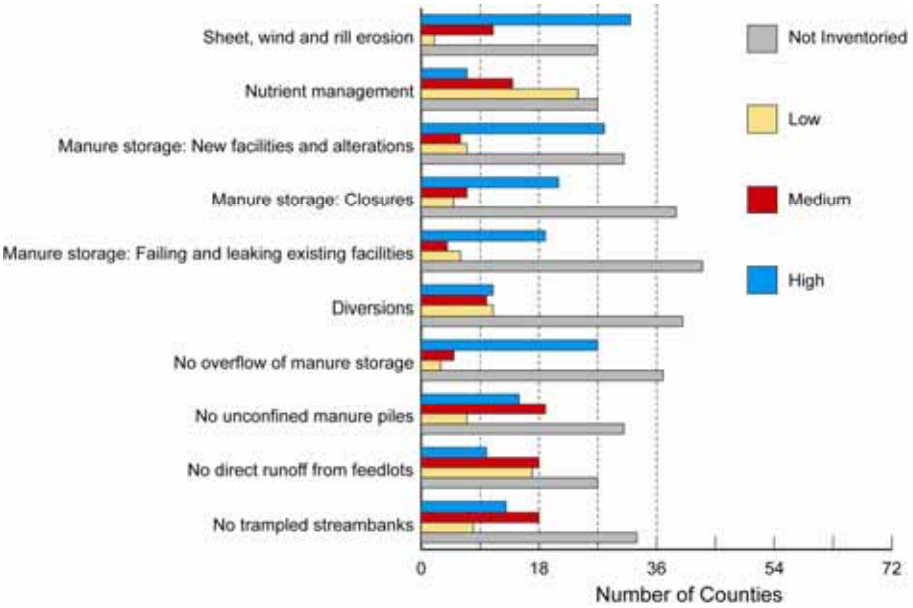
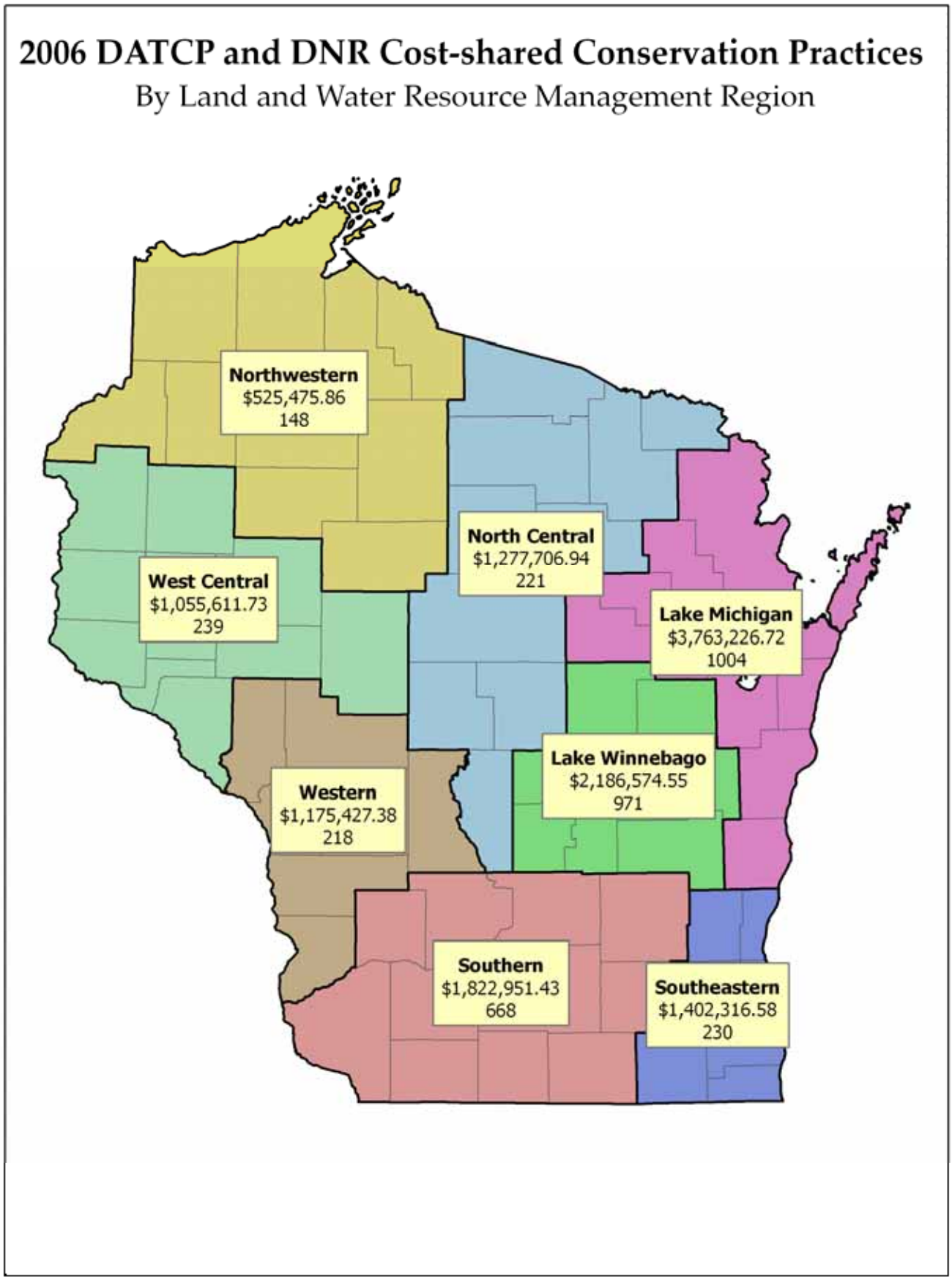


Figure 8: Estimated level of compliance with agricultural performance standards in 2006, based on on-site inventories by counties.





Map 2: Best Management Practices Installed

Conservation Results

Best Management Practices

Data tracked by DNR and DATCP show that 3,699 agricultural and urban BMPs were installed during 2006. DNR tracked a total 2,047 cost-share agreements with landowners and 125 grants to municipalities. This includes projects installed with funding awarded in 2005 and extended into 2006. Data on specific BMPs can be found in Table 7 on page 23.

Generally, DNR cost-sharing is used to pay for a broad range of cropping and livestock management practices, while DATCP costs-share dollars are focused on the installation of low-cost practices

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

In 2006, state cost-sharing through SWRM, TRM, Priority Watershed and Priority Lake grants helped pay for agricultural BMPs to reduce soil erosion, including:

NRCS

- 73,059 acres of cropland practices, such as reduced tillage, high residue management, or cover crops, to hold soil in place and grassed waterways to repair and prevent gullies. Nearly 60,000 of these acres were devoted to high residue management.
- 160 practices, such as grade stabilization structures, to deflect or slow down runoff from slopes.
- 138,320 feet of BMPs such as diversions, windbreaks and terrace systems.

Table 7 on page 22 shows the number and types of erosion control practices installed through the SWRM, TRM and PW programs. Some practices installed for other purposes also have erosion control benefits.

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. Many also set specific goals to control gully erosion. The total pollutant reduction goal for both cropland and gully erosion control was 542,679 tons per year (about 40% of the estimated load of 1,387,387). By the end of 2006, sediment delivery to surface water had been reduced by 351,170 tons per year, meeting 65% of the projects' goals. There was an additional 27,290 tons per year of sediment reduction reported by grantees that did not identify loadings or goals.

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 2006, landowners and county staff had resolved 1,258 (92%) of those sites mostly through implementation of best management practices or management changes.

Transect Survey

Since the 1980s, landowners have made strides toward conserving productive soil on the land through the use of numerous soil conservation techniques. The transect survey is a statistical method for estimating cropland soil erosion based on a visual examination of field conditions. It is currently the most effective way for Wisconsin conservationists to evaluate the amount and success of conservation practices occurring on agricultural fields.

In 2006, 22 counties conducted the transect survey to measure the rate of soil erosion. In these counties, approximately 75% of fields were at or below the tolerable rate of soil loss, which is not significantly different from the rates reported in 2005. Each year fewer counties are participating in the transect survey process. The software program used to collect and analyze the survey data is currently being redesigned. It is hoped that the new WinTransect Program, scheduled for release in 2008, will increase participation and improve our knowledge of soil erosion controls in Wisconsin.

Farmland Preservation Program

The Farmland Preservation Program (FPP) identifies and protects agricultural areas against unplanned or poorly planned development. The program is designed to preserve agricultural land and open spaces by promoting orderly land use planning and development, by securing soil and water conservation, and providing tax relief to farmers in the program. All landowners receiving the credit must meet county soil and water conservation standards, which in all counties require soil erosion rates to be at or below tolerable rates ("T"). County land conservation department staffs check each participating landowner for compliance with the conservation standards at least once every six years.

All 70 counties participating in FPP (Menominee and Milwaukee do not participate) updated their county standards to require farmer participants to meet the performance standards and manure management prohibitions. Beginning in 2005, many FPP participants needed to meet a compliance schedule that includes these expanded conservation standards in order to receive the tax credit. These cross compliance requirements do not require that cost-sharing be made available.

Table 4: Farmland Preservation Quickfacts

8.1 million	of Wisconsin's 16.2 million acres of farmland protected through the FPP
19,100	farmland owners received farmland preservation tax credits in 2006
$12.45 million	value of farmland preservation tax credit
$652	average tax credit per claimant
19%	percentage of the total property taxes offset by farmers who claimed the credit
35%	percentage of Wisconsin's potentially eligible farmers who claimed the credit

Nutrient Management

The 2006 growing season is the 11th year of quality assurance review by nutrient management planners for improving Wisconsin nutrient management plans. Over this time, 171 planners have had plans reviewed for compliance with the NRCS nutrient management technical standard. Plan usefulness is improving and more plans are being developed. In counties like Brown and Door, average soil test phosphorous levels from the Wisconsin Soil Test Summary: 2000-2004 have decreased by 4 ppm when compared to the previous four year summary. These counties have more cropland under nutrient management plans than other counties in the state.

These annually updated plans are based on soil tests and UW soil fertility recommendations that credit nitrogen, phosphorous, and potassium from manure and fertilizer against the soil test recommendations for the crops to be grown. A properly developed and implemented nutrient management plan will reduce risks of acute or chronic runoff, maintain soil productivity, reduce excess nutrient applications, maximize profitability and achieve realistic crop yields.

2006 Planning Progress and Trends

As of December 2006, 288 farmers and 717 other certified planners in Wisconsin are considered qualified nutrient management planners. DATCP annually collects total acreage under nutrient management plans in two ways: 1) a survey of farmers completed by bulk fertilizer suppliers; 2) the nutrient management plan checklists submitted by farmers, agronomists, and public agency staff.

Suppliers of bulk fertilizer reported 1,862 plans covering 852,254 acres in 2006. This is 448 more plans and 240,649 more acres than in 2003 when this annual survey began.

For the 2006 growing season, 478 nutrient management planners submitted nutrient management plan checklists for county, state and federal programs covering 1,657 nutrient management plans on 721,129 acres. This acreage is a 19% increase from the acres reported in 2005. Of the 721,129 acres reported in nutrient management plan checklists, 288 farmers are writing their own plans on 75,762 acres. This represents a 23% decrease in plans and a 16% decrease in acres over 2005, which may be attributable to less reporting of these plans to DATCP. In contrast, 190 private agronomists (27 more than in 2005) reported 1,369 nutrient management plans on 645,367 acres, a 23% increase in acres and 30% increase in plans during the same timeframe. The number of nutrient management plan checklists has been increasing by at least 15% per year.

Figure 9: Nutrient management acres, 2001-2006

Table 5: Nutrient reductions in priority watersheds and lakes

Parameter	Initial loading (lbs./yr.)	Reduction goal (lbs./yr.)	Amount Reduced (lbs./yr.)	% of goal Achieved
Phosphorus	409,050	226,677	147,559	65
COD	850,856	411,568	307,395	75

MANURE MANAGEMENT

State Funded Conservation Practices

In 2006, landowners used state cost-share to install manure management practices, including:

- 350 BMPs such as manure storage structures and site closures, and practices to control runoff from barnyards, feedlots, milk houses, and pastures
- 61,513 feet of livestock fencing, access roads and cattle crossings and wastewater treatment strips to reduce runoff in areas of heavy livestock activity
- 52,983 acres of nutrient management, heavy use area protection and wastewater treatment strips to keep manure out of sensitive areas

Nutrient Reductions in Priority Watershed & Lake Projects

Almost all of the 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 2006, these projects had achieved a large percentage of their nutrient reduction goals (see Table 5). There was an additional 76,802 pounds per year of phosphorus reduction reported by grantees that did not identify initial loadings or goals.

Livestock-Related Critical Sites

Twenty-two priority watershed and lake projects reported progress on the 216 livestock-related critical sites identified in those projects. As of the end of 2006, two additional critical sites had been resolved bringing the total to 206 (95%), with 10 remaining. The majority of these sites had been resolved through the installation of best management practices.

Management Intensive Grazing

Management Intensive Grazing (MIG) is an increasingly popular option for managing livestock that can help reduce soil erosion, control nutrient losses, and better manage manure. Twenty-three percent of Wisconsin dairy farmers practice MIG. And with nearly 50% of new dairy farmers getting started using the MIG approach, this number increases annually.

Lands under managed grazing realize many environmental benefits. One key benefit is that permanent pastureland decreases the potential for soil erosion. Well-managed grazing also provides high quality habitat for grassland wildlife and can be used to control woody vegetation in stream corridors.

NRCS

Table 6	
NOD Statistics as of Dec. 31, 2006:	
591	number of NODs since program began
$6.7	millions of grant dollars to NOD recipients since 1985
CAFO Statistics as of Dec. 31, 2006	
159	number of CAFOs with WPDES permits:
51	number permits issued/reissued during 2006
0	number of new permit applications pending
12%	permit backlog percentage (goal = 15% or less)*

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

Regulatory Approaches to Managing Manure

Notices of Discharge

Since the mid-1980s DNR has used notices of discharge (NODs) to address significant discharges to state waters from smaller-scale livestock operations under ch. NR 243. DATCP engineers and county staff provide technical assistance and, if necessary, coordinate cost sharing to address problems identified through DNR inspections.

The number of NODs issued has declined from a historic range of 30 to 40 per year to a total of 17 between 2000 and 2006, with one being issued in 2006. The primary reasons for this decline are decreased funding, increased DNR workload to issue permits for Concentrated Animal Feeding Operations and to address acute manure runoff incidents, reliance on county implementation of performance standards, and reliance on funding through TRM grants. Because TRM is a competitive grant with about nine months between project application deadline and grant award, DNR no longer has a timely and guaranteed funding source for the NOD approach. However, in 2006 DNR and DATCP revised a cooperative agreement to use DATP funds for these projects.

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 permit.

In 2006, the Natural Resources Board adopted proposed revisions to NR 243 to meet federal regulatory changes. 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. These changes became effective on July 1st, 2007.

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 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. In jurisdictions that regulate facility siting, 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 be made available.

A new concern among counties is winter spreading of manure. Some counties have adopted or are considering ordinances to address these concerns.

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 2006, 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.

Table 7 on page 22 highlights popular cost-shared practices: streambank/shoreline protection, wetland restoration, pesticide management, prescribed grazing and well abandonment.

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 87,081 tons per year. This is based on total load estimates of 190,088 tons per year. By the end of 2006, those projects reported reductions of 72,456 tons per year, or 83 percent of the reduction goal. There was an additional 2,146 tons per year of sediment reduction reported by grantees that did not identify initial loadings or goals.

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 2006, 59 sites had been resolved.

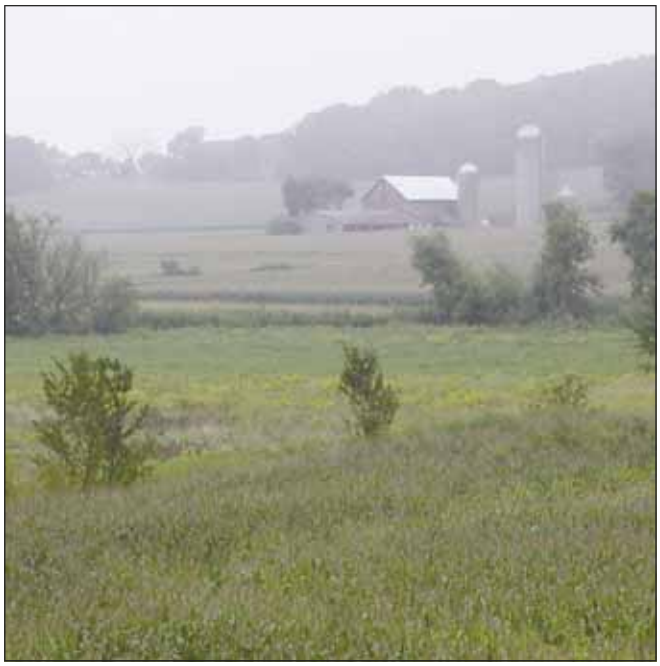
Easements

The acquisition of 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, 2007, DNR held a total of 1,401 water quality easements encompassing 14,216 acres of land.

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 $72 million in federal payments over the next 15 years.

Wisconsin's CREP goal is to enroll 100,000 acres into riparian buffers, filter strips, wetland restorations, grassed waterways, and grassland habitat; improving water quality and grassland habitat for all wildlife. Landowners can choose to enroll their land in either 15-year agreements or perpetual easements.



DATCP

Table 7: 2006 BMP highlights

Practice Installed	SWRM	DNR
Erosion Control		
Residue management, waterway systems, cover crops, reduced tillage (acres)	199	72,860
Critical area stabilization, grade stabilization structures, sinkhole treatment, sediment basins (number)	126	34
Field diversions, windbreaks, shoreline protection, animal trails & walkways (feet)	131,101	7,219
Manure Management		
Manure storage, waste transfer, barnyard and roof runoff controls, roofs, sediment basins, livestock watering (number)	162	188
Access roads/cattle crossings, fencing, treatment strips (feet)	48,471	13,042
Heavy use area protection, nutrient management, wastewater treatment strips (acres)	17,019	35,964
Streambank and Shoreline		
Stream crossings, streambank fencing, rip-rap, shoreline restoration (feet)	—	113,210
Shoreline protection and restoration (sq. feet)	—	44,679
Stream crossings, rip-rap, other shoreline protection (number)	—	322
Vegetated riparian buffers, stream crossings, shoreline habitat restoration (acres)	—	2
Other		
Well Abandonments (number)	255	70
Wetland restoration (acres)	112	53
Pesticide management (acres)	—	5,806
Prescribed grazing-permanent pasture (acres)	123	524
Prescribed grazing-permanent fencing (feet)	88,832	1,000
CREP	Goal (acres)	Enrolled (acres)
All practices	100,000	42,500
Grasslands	15,000	11,355
Riparian buffers	80,000	28,000
Wetland restorations	5,000	3,160

Conservation Success Story

Management Intensive Grazing—Columbia County

Management intensive grazing is the process of moving a herd of livestock from one pasture to another, allowing each a period of rest before it is grazed again. This rest allows desirable plants time to recover and produce new growth. Since livestock are free to select what they eat, they receive a more nutritious and balanced diet. Additional benefits of grazing techniques include reduced environmental impacts, reduced costs for the producer and greater nutrient recycling.

The Columbia County Land and Water Conservation Department has been actively promoting grazing for several years. They have obtained funds through the Grazing Lands Conservation Initiative grant, a federal grant administered by the Wisconsin Department of Agriculture, Trade and Consumer Protection, to help with technical assistance and educational programming.

Sites in Columbia County that have been successful with MIG include Fountain Prairie Farms and the Breneman Dairy Farm. Fountain Prairie Farms includes a 60-acre restored tallgrass prairie and wetland, and over 300 head of grass-fed Highland cattle. According to the UW Center for Dairy Profitability, for the past ten years managed grazing farms have been the most profitable farms in Wisconsin per cow or per hundred weight of milk sold.

Fountain Prairie Farms

Conservation Success Story

Wetland Restoration – Racine County

Prior to drain tiling and ditching for agricultural use and other land uses, approximately two-thirds of Racine County was comprised of wetlands. While drainage was important to sustain agriculture, some marginally drained cropland created negative impacts, including sedimentation to surface waters.

Eagle Lake, a meso-eutrophic shallow lake, receives sediment and nutrients delivered from the surrounding watershed. The sub-watershed on the southeast side of the lake contained a drainage basin, drainage ditch, many complex underground tile drainage systems and a water pumping station to keep the land drained for crop production. Approximately 400 acres of cropland contribute surface and subsurface water to the basin that drains directly to Eagle Lake. At the water pumping station, brown water was being discharged out of the basin and into the lake. The pumped water contained significant amounts of sediment and nutrients.

The basin's landowner, in cooperation with the Eagle Lake Management District, approached the Racine County LCD about possible programs for the low-lying area. After many discussions, the decision was made to restore 67 acres to wetlands utilizing an easement through the CREP. The landowner and Racine County LCD received assistance from DATCP, NRCS, and FSA. After a year of CREP easement work, including design planning and other considerations, the final engineering plan was completed by the regional DATCP engineer. Everything was in place to begin restoring the hydrology of the "once native" wetland.

The restoration primarily consisted of filling a drainage ditch, removing parts of the existing tile system, and turning off the pump. Restoring the original hydrology created 40 acres of surface water at varying depths between 2 and 4 feet and a 27 acre native grass perimeter.

Today, not only does the wetland restoration give Eagle Lake clean water, but it also benefits waterfowl, wildlife, and the lake community.

Racine County LCD

Urban Stormwater

Best Management Practices

In 2006, 76 municipalities used funding from 125 TRM and UNPS grants to install urban practices, develop BMP designs and produce stormwater and construction site erosion control plans. Table 8 shows the type and number of practices installed and planned with state cost-sharing.

Table 8: Urban BMPs	TRM/ UNPS
Detention systems, infiltration devices, street sweeping, other practices (number)	243
Streambank, Shoreline Protection (feet)	5,092
Stormwater & erosion control plans, utility district plans (number)	39

DNR Stormwater Permit Program

For over a decade DNR has administered a program under NR 216 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, parking lots, construction sites or industrial sites and discharged 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 in the discharges from these sources.

DNR has developed individual and general permit programs 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.

DNR

Municipal: As of December 31, 2006, there are currently 75 municipalities regulated under individual MS4 stormwater permits in Wisconsin. Additionally, there were 113 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, 2006, there were a total of 5,306 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.

Conservation Success Story

Sand Lake Conservation Camp—Marinette County

The Marinette County Land & Water Conservation Division held its first Conservation Camp in June of 2006 at the Camp Bird Youth Center. Camp Bird is part of the Marinette County Park system and is used primarily for youth education.

The purpose of Conservation Camp is twofold. The first is to teach kids basic conservation, focusing on habitat and our role in conserving it for the future. The second purpose is to connect kids with nature through outdoor activities. Promoting life skills, such as taking responsibility for one's actions, working together or getting along, trying new things, having fun while learning, and developing social/leadership skills are also key elements of the program.

All sessions and activities were developed and delivered by Marinette County and other agency staff. Camp began on a Thursday evening with an introduction to such diverse topics as forestry, fisheries, archery, Wisconsin birds, canoeing, invasive species, astronomy, orienteering and mammals. Camp ended on Saturday afternoon with a highly competitive game of Conservation Jeopardy. Cabin-based teams won treats and prizes by showing their knowledge of the topics covered at camp.

The 29 campers ranged in age from 11-16 years old. They were given an evaluation to fill out on the last day of camp. Comments about the staff and presenters included "excellent", "they rocked", "they joined in and had fun with us" and that they were "good at explaining things." The camp and its curriculum will continue to evolve and improve. Plans to include live animals and more hands-on activities are being developed for future camps.

Marinette County LCD

Information and Education

County Activities

Counties continue to conduct a range of outreach activities covering areas as diverse as performance standards compliance, groundwater protection and land use planning that includes farmland protection and livestock siting. Activities often take the form of presentations to local groups or organizations, workshops to inform the public on specific topics and department newsletters directed at the public. Many counties have recognized the importance of information and education activities, making them key tools in their conservation programs.

In the past, counties have held workshops on topics ranging from beach or shoreline management to groundwater protection and stream ecology. In 2006, 53 counties reported conducting 176 workshops. Many counties continue to hold nutrient management workshops, either through land conservation departments or partner agencies such as UWEX and DATCP. These workshops help train farmers to write their own nutrient management plans and are critical to increasing the total acres under nutrient management plans. Counties reported conducting 70 nutrient management workshops during 2006.

As counties come to better understand barriers to implementing the performance standards, the value of information and education is becoming clear. In 2006, 63 counties reported delivering information and education materials on the performance standards. Nearly all of these counties relied on personal visits to landowners as their primary means of education. More than half the counties used fact sheets prepared by DNR, DATCP or the multi-agency agricultural performance standards information and education committee. Forty-one counties developed newsletter articles and other media. Twenty-two counties developed educational materials specifically for their counties. Other outreach included direct mailings to landowners and segments on a weekly radio program.

Many counties rely on local volunteer groups and partner agencies to help address concerns identified in their LWRM plans. These relationships are often developed through presentations, newsletters and displays at local events. A total of 843 presentations were conducted by 66 counties in 2006. An additional 91 displays, 222 newsletters and 96 tours of conservation site or facilities were conducted during the year. The content of the activities ranged from general awareness to specific issues such as grazing and forest management.

Basin Education

Wisconsin's Basin Education Initiative involves a collaborative approach to promoting land and water resources management in the state. UWEX, in cooperation with DNR, DATCP, NRCS and other partners, provides educational programs and other services in areas defined by the state's major river basins.

In 2006-07, Basin Educators worked with counties, municipalities and other partners to deliver local and statewide educational and outreach services on a diversity of natural resource issues. Some highlights include:

- Delivering agricultural performance standards education through a multi-agency committee that developed a statewide education and outreach plan for counties, hosted a session at the 2006 WALCE conference, developed a PowerPoint presentation of "What Farmers Need to Know," and a display for general use. For more info, see: http://runoffinfo.uwex.edu
- Initiating or contributing to eight collaborative stormwater education efforts involving about 94 municipalities and counties as a way to more effectively and efficiently meet the Phase II stormwater minimum measures.
- Providing support to counties in planning the information and education components of seven LWRM plans.

- Assisting DNR and other partners in the development process of the Red Cedar, Rock and Lower Fox TMDLs.
- Conducting rain garden, rain barrel, sustainable landscaping and green roof demonstrations, clinics and tours to about 1,400 youth and adult participants. The popular Rain Garden Education Kit for teachers was evaluated and updated. Other rain garden activities included presentations at conferences and workshops, displays at fairs, including the State Fair, supporting installation and maintenance of demonstration gardens and assisting with locally-tailored rain garden publications.
- Delivering groundwater and drinking water education programs including private well testing, interpreting test results, displays at county fairs and other events, public forums, festivals, teacher training and well abandonment demonstrations.
- Planning and hosting three municipal stormwater permittee Wisline Web workshops, each attended by about 240 people at 9 locations across Wisconsin. Topics included ordinance development/enforcement, program implementation and public engagement. An Information and Education template was developed as a starting point for municipalities to develop their I&E plans. Evaluations showed that 70% of participants felt confident in moving ahead with their ordinances and I&E plans.
- Assisting with the production of a west-central Wisconsin stormwater tour and conference attended by 85 homebuilders and developers, and a south-east conference on stormwater infiltration attended by over 100 builders, developers, consultants and municipal officials.
- Conducting water monitoring training and support for ongoing lake and stream monitoring.
- Planning and hosting two Wisline Web technical trainings to implement the post-construction performance standards, attended by about 265 people at 14 locations.

More information at:

http://basineducation.uwex.edu

CITIZEN-BASED WATER MONITORING

Citizen-based Water Monitoring efforts in Wisconsin were increased in 2006 with the introduction of a new three-level Citizen-based Water Monitoring Network which incorporated existing citizen monitoring programs for lakes and streams, and which offered citizens an opportunity to participate in pilot efforts for new components of the Network.

The goals of the Network are to:

- Develop a Citizen-based Water Monitoring Network.
- Educate citizens about the status of Wisconsin's surface and groundwater resources.
- Build a network of informed citizen advocates for management and protection of Wisconsin's water resources.
- Obtain water resource data useful for DNR decision-making.

The Network incorporates existing lake and stream citizen monitoring programs into its first level; and in some case, the second level, as well. These programs include, the Citizen-based Lakes Monitoring Network, the Clean Boats/Clean Waters Program and the Water Action Volunteers. Collectively, these programs have over 3500 participants helping to monitor and protect Wisconsin's waters.

Within level 1 stream monitoring, 42 local programs support the efforts of over 400 adults (or students outside of classroom activities) and 1,425 students. They monitor for six parameters including water clarity, temperature, and dissolved oxygen content. They also assess habitat in and alongside the streams for aquatic organisms, collect and identify macroinvertebrates to rate water quality, and measure the amount of water flowing in the stream on each of their sampling dates. Hundreds of other students and civic groups participate annually in storm drain stenciling projects sponsored through

this level 1 program, called Water Action Volunteers (WAV). DNR coordinates the effort statewide along with the UWEX. Local partners, such as counties, Basin Educators, nature centers, local municipalities, "friends of" groups, and other citizens allow the program to operate effectively. A DVD set became available to citizen stream monitors after over a year of development. The DVD sets are provided free of charge to WAV monitors.

A second level program for monitoring streams was developed as part of the Network in which citizens are trained to utilize DNR methodologies to monitor pH, dissolved oxygen, continuous temperature, and transparency. This program was piloted during 2006. A coordinator was hired to lead the pilot effort through a partnership between the River Alliance of Wisconsin and DNR. The coordinator worked with DNR biologists in each region of the state to train 112 citizens (working in 14 groups) to monitor stream sites of interest to the groups or to the DNR. An evaluation plan was developed for the project so that such things as staff time commitments, costs, and program effectiveness could be assessed.

Table 9: WAV Volunteer Monitoring Activities for 2006

749	days volunteers spent monitoring streams during 2006
4053	days volunteers spent monitoring since 1997
486	stream sites registered in online database
150	stream sites monitored during 2006
157	volunteers who participated in river clean ups reported to WAV in 2006
42	local volunteer stream monitoring programs
50	people trained as trainers for the level 1 WAV stream monitoring program
112	people participating in the level 2 stream monitoring pilot project
1,825	volunteers who participate in volunteer stream monitoring (400 adults, 1,425 students)
22	individuals trained to monitor E. coli in streams as part of a six-state research project

UWEX

The project was, in general, a success. Citizens were indeed able to be trained to successfully monitor streams of Wisconsin for a variety of parameters commonly monitored during baseline assessments by DNR staff. They accurately calibrated and utilized equipment, recording and submitting data to the appropriate personnel in a timely fashion. Their level of interest to monitor at sites of interest to DNR staff was acceptable, and they felt they received adequate training and support from program staff. Further, by the end of the six-month field season, they had collected monthly data at 120 stream locations, indicating how widespread their contribution to data collection can be. A report with project findings is available online at:

http://watermonitoring.uwex.edu/pdf/level2/Final2006Report2007Mar21.pdf

Several third level projects were identified for stream monitoring within the Network that included an E. coli bacteria monitoring project, a family level macroinvertebrate identification pilot project, and a crayfish survey. Over 50 citizens participated in these projects during 2006. Table 9 highlights program activities and participation.

CONSERVATION SUCCESS STORY

Northeastern Wisconsin County Groundwater Partnership

Groundwater resource protection is a critical issue in northeastern Wisconsin. A large percentage of area homes rely on groundwater for their drinking water. Because issues like local topography make groundwater highly susceptible to contamination in this region, area counties have set groundwater protection as a priority in their Land and Water Resource Management plans. Information and education opportunities are a key tool in addressing this problem.

In 2005 and 2006, Kewaunee, Manitowoc, Brown and Calumet Counties worked together to coordinate and host the 4th annual Groundwater Festival. This festival is designed to increase groundwater awareness by providing examples of local people and programs taking action to protect these resources. During the festival held in April 2006, over 620 students and their teachers participated in four rotations of hands-on lessons taught by over 150 volunteers from businesses, organizations and agencies scattered around the state. The topics at the festival covered the connection between groundwater and surface water, tracking groundwater contamination, a discussion of Karst topography, solutions to groundwater pollution and ideas for taking action to address groundwater pollution.

Because interest in the festival exceeded festival capacity, a second event was scheduled for May 2006. Both the April and May festivals were considered great successes.

Through the combination of the two festivals, over 900 5th and 6th grade students in northeastern Wisconsin were given the opportunity to learn important lessons about their groundwater resources.

Emerging Trends

Improved Manure Management

Concerns over manure management, including winter spreading, are growing in importance throughout the state. Sound management of manure can protect natural resources and drinking water.

Land spreading is a common method for disposing of manure; and when done properly, it is a safe and effective method. However, inappropriate spreading during winter months can lead to acute manure runoff events, possibly resulting in fish kills and contaminated drinking wells.

In 2006, a statewide task force convened by DATCP and DNR developed a set of recommendations for addressing manure runoff incidents, including more detailed focus on the role of nutrient management plans. DATCP and DNR implemented these recommendations by:

- Improving state programming and agency coordination to better respond to manure events. Agencies established a mechanism for cost-sharing practices on farms with manure discharges.
- Using DATCP grant funds to cost-share nutrient management plans on farms with manure events, awarding $520,000 in 2006 and working on initiatives to raise additional funding.
- Working with counties to improve local efforts to better manage manure by developing fact sheets on appropriate winter manure management and emergency response plans, and identifying successful models for county responses.
- Amending the Well Compensation Program to provide grant money for manure related contamination of wells and awarding grants to owners of problem wells living in "areas of special eligibility."

Protecting Working Lands

Many believe the need to protect and enhance working lands in the state is critical to preserving Wisconsin's economic and cultural base. A recent study by the Wisconsin Academy of Science, Arts and Letters recommended:

- Continuing the use-value assessment provisions of state tax law. The state should also undertake an assessment of the current state tax code to evaluate its impact on working lands and the viability of farm/forest operations.
- Developing tax policies that recognize the value of agricultural and forest land preservation and that provide consistency in formulation of preservation strategies.
- Updating the Wisconsin Farmland Preservation Program.
- Monitoring development of farmland preservation provisions of the federal Farm Bill and how these may mesh with state and local farmland preservation efforts.

The Bioeconomy

Wisconsin is set to play a key role in the emerging bioeconomy. Potential biomass resources such as corn byproducts, waste from food and beverage processing, and pulp remnants from the paper and lumber sectors are all part of Wisconsin's economy. Even cow manure, long a challenge to the environment, is now being transformed into renewable power.

However, as Wisconsin embraces these new technologies, agencies and landowners needs to be mindful not to undermine past successes. The removal of retired cropland from state and federal programs presents a challenge to local conservation programs. The potential for soil erosion and water quality issues from these lands can be reduced through careful management and the proper implementation of BMPs. Integrating efforts to protect working lands and develop a bioeconomy can enhance Wisconsin's chances of accomplishing both goals.

Conservation Success Story

Narrows-Baraboo Priority Watershed Success Story

Ask long-time residents of the Narrows Creek area about fishing and they will fondly recall a time when you could catch your limit of smallmouth bass along with many other species of fish. But over the years, the fishery declined due to poor water quality and lack of habitat. By 1987 the bass population was described as poor. In 1989, the Department of Natural Resources selected the 175 square-mile Narrows Creek-Middle Baraboo River watershed as a priority watershed project. Sauk County began implementing the project on October 27, 1992. It officially ended December 31, 2005.

Located in central Sauk County, the project area encompasses 175.6 miles of streams and rivers and 2 impoundment lakes. A portion of the watershed is partially located in the driftless region, characterized by steep hillside slopes and narrow valleys. The remainder of the watershed lies within the outwash plain of glacial Lake Wisconsin with topography ranging from gently rolling hills to steep slopes. The majority of the watershed is agricultural, primarily dairy farming. The topography, combined with the agricultural uses, creates a high potential for water quality impacts from nonpoint source pollution.

Sauk County LCD set ambitious goals for the project, which they often met or exceeded. The accomplishments include:

- Reduction of the phosphorus load by two-thirds (16,500 pounds/year) with the installation of 178 barnyard runoff control systems. 148 of these projects were in the high priority sub-watersheds allowing staff to exceed goals by targeting sites in these critical areas.
- Reduction of sediment loss from cropped fields by nearly 3,700 tons/year meeting 83% of the reduction goal and 17% of the total upland sediment load.
- Reduction of streambank erosion by 6,306 tons/year with the installation of 16,139 feet of rock riprap protecting streambanks and in-stream habitat.
- Control of sedimentation from gully erosion by 4,017 tons/year.

The success belongs to the landowners in the watershed. Seventy-five percent of the eligible landowners committed to the project and worked with county staff to implement conservation on their properties. State expenditures for installing conservation practices totaled $3.8 million, which was below the plan's projections. The community's dedication to the resource has resulted in many new assets: new parks along the stream, new boat and canoe landings for increased access, and the removal of dams to allow fish passage and improved recreational opportunities. In addition, DNR fisheries staff continues to monitor the rebounding small mouth bass populations resulting from both upland and in-stream restoration. The cooperative effort between the landowners, county staff, DNR staff, local governments, private groups, and other state and federal agencies is helping Narrows Creek and the Baraboo River to be once again the valuable water resource and fishery long-time residents remember.

Sauk County LCD