the control of erosion related to highway and bridge construction, and establish a training program for persons who prepare plans for, review plans for, conduct inspections of, or engage in highway or bridge construction activities. Highway and bridge construction projects funded in whole or in part by state or federal funds are covered under this statute.

Highway and bridge construction that is not state or federally funded is not covered under the provisions of State Statute 89.19.1. As part of the Balsam Branch Priority Watershed Plan, the DNR strongly recommends that areas of road and bridge construction not covered under State Statute 89.19 abide by the guidance standards for erosion control as specified by the Department of Transportation's Facilities Development Manual and the Department of Natural Resources Wisconsin Construction Site Best Management Practice Handbook. The Polk County Land Conservation Department will work with county and township road departments to inform them about these requirements and educational opportunities related to these standards.

Land Use and Stormwater Management Planning

Land use management planning is another tool that can be used to protect surface water quality, groundwater, and wetlands in the watershed. Stormwater management planning is an important component of this planning effort. Poorly planned development can have a devastating impact on water quality. Implementation measures of land use management plans can help to alleviate these impacts. These implementation measures may include storm water management ordinances, subdivision ordinances, zoning ordinance revisions and preservation of natural sites or corridors which affect water quality.

Land use management plans may be prepared by municipalities including villages, townships, or counties. A coordinated effort among all units of government included in the watershed would provide the greatest benefit. Polk County, the villages of Balsam Lake, Centuria, and Milltown and the surrounding townships could enter into an agreement under Wisconsin Statute 66.30 to develop a growth/land use management plan. Such an effort is recommended as part of the implementation of the Balsam Branch Watershed Plan. Development and implementation (to some degree) of a land management plan and stormwater ordinances, to the extent they emphasize water quality considerations are eligible under NR 120.21 for state funding. Funding would also be available for individual municipality efforts for improving or protecting water quality if it is determined that such an approach would help meet the water quality goals of this plan.

CHAPTER FIVE
Local Government's Implementation Program

Introduction

This chapter identifies the means for implementing the management actions for nonpoint source pollution control described in the previous chapter. The success of this priority watershed project depends on the aggressive implementation of these nonpoint source pollution control strategies. The emphasis of local implementation of cost share practices is in the rural areas of the watershed. Local involvement with the urban portion of the watershed is primarily in implementation of the education and information strategy outlined in chapter 6. The Department of Natural Resources may provide technical assistance and financial support directly to the villages or lake districts in the watershed, and the Land Conservation Department will assist with these efforts.

More specifically this chapter identifies:

- The agencies and units of government responsible for carrying out the identified tasks;
- The best management practices (BMPs) necessary to control pollutants on the sites identified in chapter 4;
- The cost-share budget;
- The cost containment policies;
- The cost-share agreement reimbursement procedures including administrative procedures for carrying out the project;
- Staffing needs including total hours per year and number of staff to be hired;
- Schedules for implementing the project;
- The involvement of other programs;
- The project budget including the expense for cost-sharing; and staffing for technical assistance, administration, and the information and education program.

Project Participants: Roles and Responsibilities

Landowners and Land Operators:

Owners and operators of public and private lands are important participants in the priority watershed program. They will adopt BMPs which reduce nonpoint sources of water pollution and protect and enhance fish, wildlife, and other resources. Land owners and land operators in the Balsam Branch watershed eligible for cost-share assistance through the priority watershed program include: 1) individuals; 2) Polk County; 3) other governmental units described in NR 120.02(19); 4) corporations; and 5) the State of Wisconsin.

Polk County

Polk County is the primary unit of government responsible for implementing this plan in rural areas.

The Polk County Land Conservation Committee (LCC) will act for the County Board and will be responsible contractually and financially to the State of Wisconsin for management of the project in areas with rural land uses. The County LCC will coordinate the activities of all other agencies involved with the rural portion of the project.

The specific responsibilities for the county are defined in the Wisconsin Administrative Rules, s. NR 120.04, and are summarized below:

1. Identify in writing a person to represent the county during implementation of the project.

2. Contact all owners or operators of lands identified as significant nonpoint sources (Category I) within one year of signing the nonpoint source grant agreement. The county's strategy for contacting landowners is included in this chapter.

3. Develop farm conservation plans consistent with the needs of the project.

4. Enter into nonpoint source cost-share agreements with eligible landowners and enforce the terms and conditions of cost-share agreements as defined in s. NR 120.13, Wisconsin Administrative Code.

5. For lands the county owns or operates, to enter into cost-share agreements with DNR to correct identified nonpoint sources and fulfill their obligations as a cost-share recipient.

6. Design best management practices and verify proper practice installation.

7. Reimburse cost share recipients for the eligible costs of installing BMPs at the rates consistent with administrative rules and established in this plan.

8. Prepare and submit annual work plans for activities necessary to implement the project. The Polk County Land Conservation Department (LCD) shall submit a workload

analysis and grant application to the Department of Agriculture, Trade and Consumer Protection (DATCP) as required in s. Ag. 166.50.

9. Prepare and submit to the Department of Natural Resources (DNR) and the Department of Agriculture, Trade and Consumer Protection (DATCP) the annual resource management report required under s. NR 120.21(7) to monitor project implementation by tracking changes in the nonpoint source inventory, and quantifying pollutant load reductions which result from installing BMPs.

10. Participate in the annual watershed project review meeting.

11. Conduct the information and education activities identified in this plan for which they are responsible.

Department of Natural Resources:

The role of the Department of Natural Resources (DNR) is identified in s. 144.24, Stats. and s. NR 120, Wis. Adm. Code. (NR 120). The Department has been statutorily assigned the overall administrative responsibility for the Wisconsin Nonpoint Source Pollution Abatement Program. The Department's role is summarized below.

Project Administration: Project administration includes working with the counties to ensure that work commitments required during the 10-year project implementation phase can be met. The DNR will participate in the annual work planning process with the county.

The Department reviews cost-share agreements signed by the county and the participating landowners for installing BMPs. The DNR provides guidance when questions arise concerning the conformance of proposed activities with the statutes, administrative rules, and the watershed plan.

Financial Support: Financial support for implementation of the priority watershed project is provided to each county in two ways: a local assistance grant agreement, and a nonpoint source grant agreement. These agreements are described later in this chapter.

The DNR may also enter into cost-share agreements directly with local or state units of government for the control of pollution sources on land the governments own or operate.

Project Evaluation: The DNR has responsibility for priority watershed project monitoring and evaluation activities. These efforts determine if changes in water quality occur as best management practices and other pollution controls are installed or implemented. The water quality evaluation and monitoring strategy for the Balsam Branch Watershed is included in Chapter 8. The DNR documents the results of monitoring and evaluation activities in interim and final priority watershed project reports.

Technical Assistance: The DNR provides technical assistance to the county and municipalities on the design and application of best management practices. This assistance is primarily for urban areas.

Other Responsibilities: These include:

1. The Northwest District Nonpoint Source Coordinator will arrange for DNR staff to assist county staff with site reviews to determine the impacts of nonpoint sources on wetlands and/or groundwater quality.

2. Assisting county staff to integrate wildlife and fish management concerns into selection and design of BMPs.

Department of Agriculture, Trade and Consumer Protection:

The role of the Department of Agriculture, Trade and Consumer Protection (DATCP) is identified in s. 144.25, stats., ch. 92 stats., and NR 120. In summary, the DATCP will:

1. Manage a training program for the staff involved with project implementation.

2. Cooperate with the University of Wisconsin - Extension to act as a clearinghouse for information related to agricultural best management practices, sustainable agriculture, and nutrient and pest management.

3. Assist the counties to carry out the information and education activities or tasks described in this plan.

4. Assist county staff to identify watershed participants subject to federal or state conservation compliance programs.

5. Assist counties, if requested, to develop a manure storage ordinance.

6. Assist county staff to complete annual workload analyses and grant applications for work conducted under the priority watershed project.

7. Participate in the annual project review meetings.

8. If the need arises, assist in developing technical standards for agricultural BMPs, and provide technical assistance to county staff concerning application of these practices.

9. Assist county staff to evaluate the site specific practicality of implementing rural best management practices.

10. Provide technical and engineering assistance to counties for agricultural BMPs.

Other Agencies:

The Balsam Branch Watershed Project will receive assistance from the agencies listed below.

Natural Resource Conservation Service (NRCS): This agency works through the local LCC to provide technical assistance for planning and installing conservation practices. The local NRCS personnel will work with the county staff to provide assistance with technical work when requested by the Land Conservation Committee and if NRCS staff time is available. Personnel from the Area NRCS office will provide staff training and engineering assistance for best management practices. Efforts will be made by DATCP to assist NRCS to coordinate the Balsam Branch Priority Watershed Project with the conservation compliance and other conservation provisions of the 1985 and subsequent Federal Farm Bills.

University of Wisconsin Extension (UWEX): County and Area Extension agents will provide support in developing and conducting a public information and education program aimed at increasing voluntary participation in the project. This will include assistance to carry out the information and education activities identified in this plan.

Farm Service Agency (FSA): FSA administers most of the federal programs aimed at the stabilization of the prices paid producers for agricultural products and administers federal funds for rural soil and water and other resource conservation activities. The Agricultural Conservation Program (ACP) which is administered by FSA will, to the extent possible, be coordinated with the Balsam Branch Priority Watershed Project. In addition other conservation incentives such as the Conservation Reserve Program (CRP) will be used whenever possible to control critical nonpoint sources of pollution.

Agricultural Best Management Practices (BMPs)

BMPs Eligible For Cost-Sharing And Their Rates:

Best management practices are those practices identified in NR 120 which are determined in this watershed plan to be the most effective controls of the nonpoint sources of pollution. The practices eligible for cost-sharing and the cost share rates for each BMP are listed in Tables 5-1 and 5-2 below.

Design and installation of all BMPs must meet the conditions listed in NR 120. Generally these practices use specific standard specifications included in the NRCS Field Office Technical Guide. In some cases additional specifications may apply. The applicable specifications for each BMP can be found in NR 120.14. The Department may approve alternative best management practices and design criteria based on the provisions of NR 120.15 where necessary to meet the water resource objectives. Approval for alternative agricultural BMPs, is developed in consultation with DATCP.

If the installation of BMPs destroys significant wildlife habitat, NR 120 requires that habitat will be recreated to replace the habitat lost. The DNR District Private Lands Wildlife Specialist or a designee will assist the LCD in determining the significance of wildlife habitat and the methods used to recreate the habitat. Every effort shall be made during the planning, design, and installation of BMPs to prevent or minimize the loss of existing wildlife habitat.

Table 5-1. State Cost-Share Rates for Best Management Practices[1]

BEST MANAGEMENT PRACTICE	STATE COST SHARE RATE
Field Diversions and Terraces	70%
Grassed Waterways	70%
Critical Area Stabilization	70%[2]
Shoreline Buffers	70%[2]
Wetland Restoration	70%[2]
Shoreline and Streambank Stabilization	70%[2]
Grade Stabilization Structures	70%[2]
Agricultural Sediment Basins	70%[2]
Barnyard Runoff Management	70%
Animal Lot Relocation	70%
Manure Storage Facilities	70%/50%[3]
Livestock Exclusion from Woodlots	50%
Nutrient and Pesticide Management	50%[4]
Animal Waste Storage System Abandonment	70%
Intensive Grazing Management	50%
Milking Center Waste Control	70%
Cattle Mounds	70%
Lake Sediment Treatment	70%
Urban Related Activities	50-70%

[1] Table 5-2 shows BMPs cost shared at a flat rate.

[2] Easements may be entered into with landowners identified in the watershed plan in conjunction with these BMPs. See chapter 4 for an explanation of where easements may apply.

[3] Maximum cost share amount is $35,000 for manure storage. The cost share rate is 70% for the first $20,000 costs, and 50% for the remaining costs.

[4] Spill control basins have a state cost share rate of 70%.

Table 5-2. Practices Using a Flat Rate for State Cost-Share Funding

BEST MANAGEMENT PRACTICE	FLAT RATE
Contour Farming	$ 6.00/ac (1)
Contour Stripcropping	$ 12.00/ac (1)
Reduced Tillage	$ 45.00/ac (2)
Reduced Tillage	$15.00/ac (3)
Cover and Green Manure Crop	$25.00 per acre (4)

[1] Wildlife habitat restoration components of this practice are cost-shared at 70%.
[2] $45 per acre over 3 years for reduced tillage on continuous row croplands.
[3] $15 per acre for one year only for reduced tillage on crop rotations involving hay.
[4] Cost sharing is available for up to three years if fields otherwise would contribute to degraded water quality.

Following is a brief description of some of the most commonly used BMPs included in Table 5-1 and 5-2. A more detailed description of these practices can be found in NR 120.14.

Contour Farming

The farming of sloped land so that all operations from seed bed preparation to harvest are done on the contour.

Contour Stripcropping

Growing crops in a systematic arrangement of strips or bands, on the contour, in alternate strips of close grown crops, such as grasses or legumes, and row crops. All operations from seed bed preparation to harvest are done on the contour.

Reduced Tillage

A system which leaves substantial amounts of crop residue on the soil surface after crops are planted. The minimum amount of ground cover after planting shall be 30 percent. It is utilized in two situations; one for continuous (at least 3 consecutive years) row crops, the other for short crop rotations (no more than 2 years corn and small grains and hay) or for the establishment of forages and small grains.

Critical Area Stabilization

The planting of suitable vegetation on critical nonpoint source sites and other treatment necessary to stabilize a specific location.

Grassed Waterways

A natural or constructed channel shaped, graded and established with suitable cover as needed to prevent erosion by runoff waters.

Grade Stabilization Structure

A structure used to reduce the grade in a channel to protect the channel from erosion or to prevent the formation or advance of gullies.

Livestock Exclusion from Woodlots

The exclusion of livestock from woodlots to protect the woodlots from grazing by fencing or other means.

Shoreline and Streambank Stabilization

The stabilization and protection of stream and lake banks against erosion and the protection of fish habitat and water quality from livestock access. This practice includes streambank rip-rap, streambank shaping and seeding, stream crossings, livestock watering, fencing and fish habitat structures. This practice may also include plans and practices to manage or exclude livestock.

Terraces

A system of ridges and channels with suitable spacing and constructed on the contour with a suitable grade to prevent erosion in the channel.

Field Diversions

The purpose of this practice is primarily to divert water from areas it is in excess or is doing damage to where it can be transported safely.

Barnyard Runoff Management

Structural measures such as filter systems and/or diversions and rain gutters to redirect surface runoff around the barnyard, and collect, convey or temporarily store runoff from the barnyard.

Manure Storage Facility

A structure for the storage of manure for a period of time that is needed to reduce the impact of manure as a nonpoint source of pollution. Livestock operations where this practice applies are those where manure is winter spread on fields that have a high potential for runoff to lakes, streams and groundwater. The facility is needed to store and properly spread manure according to a management plan.

Agricultural Sediment Basins

A structure designed to reduce the transport of sediment eroded from critical agricultural fields and other pollutants to surface waters and wetlands.

Shoreline Buffers

A permanently vegetated area immediately adjacent to lakes, streams, channels, and wetlands designed and constructed to manage critical nonpoint sources or to filter pollutants from nonpoint sources.

Animal Lot Relocation

Relocation of an animal lot from a critical site such as a floodway to a suitable site to minimize the amount of pollutants from the lot to surface or groundwater.

Wetland Restoration

The construction of berms or destruction of the function of tile lines or drainage ditches to create conditions suitable for wetland vegetation.

Nutrient Management

The management and crediting of nutrients for the application of manure and commercial fertilizers, and crediting for nutrients from legumes. Management includes the rate, method, and timing of the application of all sources of nutrients to minimize the amount of nutrients entering surface or groundwater. This practice includes manure nutrient testing, routine soil testing, and residual nitrogen soil testing.

Pesticide Management and Spill Control Basin

The management of the handling, disposal and application of pesticides including the rate, method, and timing of application to minimize the amount of pesticides entering surface and groundwater. This practice includes integrated pest management scouting and planning and spill control basins with liquid-tight floors for pesticide handling areas.

Easements

Although not considered to be Best Management Practices, easements are useful legal tools and their applicability is defined in Chapter 4, Management Actions. Details for such arrangements will be worked out between DNR and the counties during implementation phase.

Animal Waste Storage System Abandonment

70 percent cost sharing will be provided for the proper abandonment of leaking or improperly sited manure storage systems including abandonment of a nearby well. The practice includes proper

removal and disposal of wastes, liner materials, and saturated soil as well as shaping, filling, and seeding of the area.

Intensive Grazing Management

A grazing management scheme that divides the pasture into multiple cells (usually 5 to 30) that receive a short but intensive grazing period followed by a recovery period of approximately 28 days. Rotational grazing increases pasture production while enhancing a dense, stable vegetative cover. Rotational grazing can be installed on croplands that currently contribute nutrients, sediments or pesticides to a water resource with a maximum of 50 percent cost share. Maximum cost-share rate per watering system is $2,000.

Milking Center Waste Control

Up to 70 percent cost sharing may be provided for milk center waste control systems including: a filter strip system, repair, or modification of existing measures and installation of equipment needed to transport waste.

Cover and Green Manure Crop

Cost sharing of $25 per acre for up to three years may be allowed for cover and green manure crops if the fields otherwise would contribute to degraded water quality through soil erosion.

Cattle Mounds

70 percent cost share may be provided for cattle mounds when used with barnyard runoff control systems to replace dry lots or loafing areas that are identified as pollution sources.

Lake Sediment Treatment

70 percent cost share rate. Lake sediment treatment is a chemical, physical or biological treatment of polluted lake sediment. Dredging of sediment is not considered a cost sharable practice.

Urban Related Activities

Municipalities are required to identify and develop a schedule for implementation of: Core and Segmented Urban Programs.

Alternative Best Management Practices

- Wetland creation on sties where wetlands did not previously exist is proposed as an alternative BMP.

- The development of lake shore buffers is also proposed as an alternative BMP. The buffers shall extend a minimum of 15 feet from the shoreline inland. Eligibility will be based on site inspections done by the county and DNR staff.

BMPs Not Cost-Shared

BMPs not cost-shared, but which shall be included on the cost share agreement if necessary to control the nonpoint sources, are listed in NR 120.17. Several examples are included below.

- That portion of a practice to be funded through other programs.
- Practices previously installed and necessary to support cost-shared practices.
- Changes in crop rotations and other activities normally and routinely used in growing crops or which have installation costs that can be passed on to potential consumers.
- Changes in location of unconfined manure stacks involving no capital cost.
- Other activities the DNR and the County determine are necessary to achieve the objectives of the watershed project.

Activities and Sources of Pollution Not Eligible For Cost Share Assistance

Priority watershed cost-share funds cannot be used to control sources of pollution and land management activities specifically listed in NR 120.10(2). The following is a partial list of ineligible activities most often inquired about for cost-sharing in rural areas.

- Operation and maintenance of cost-shared BMPs,
- Actions which have drainage of land or clearing of land as the primary objective,
- Practices already installed, with the exception of repairs to the practices which were rendered ineffective due to circumstances beyond the control of the landowner,
- Activities covered under the Wisconsin Pollution Discharge Elimination System (WPDES) Program or covered in other ways by Chapter 147 of Wis. Stats. (including livestock operations with more than 1,000 animal units, or livestock operations issued a notice of discharge under ch. NR 243),
- Septic system controls or maintenance,
- Dredging activities,
- Silvicultural activities,
- Bulk storage of fertilizers and pesticides,

- Activities and structures intended primarily for flood control,
- Practices required to control sources which were adequately controlled at the time the cost-share agreement was signed, with the exception of those that occur beyond the control of the landowner,
- Other practices or activities determined by DNR not to meet the objectives of the program.

Cost-Share Budget

Costs of Installing BMPs

The quantity and type of management practices that are required to meet the water quality objectives of this project are listed in Table 5-3. The capital cost of installing the BMPs are listed in this table assuming landowner participation rates of 100 percent and 75 percent. Also included are the units of measurement and cost per unit for the various BMPs.

The capital cost of installing the Best Management Practices is approximately $7.5 million, assuming 100 percent participation.

State funds necessary to cost-share this level of control would be about $4.7 million.

The local share provided by landowners and other cost-share recipients would be about $2.8 million.

At a 75 percent level of participation, the state funds needed to cover capital installation would be about $3.6 million.

Easement Costs

Chapter 4 identifies where nonpoint source program funds can be used to purchase easements. The estimated cost of purchasing easements on eligible lands in Polk County is shown in Table 5-3. At 100 percent participation, the estimated purchase price of easements on eligible lands would be $180,000. At 75 percent participation, the cost would be $135,000. The easement costs would be paid for entirely by the state. However, it is very difficult to determine landowner response to easements as a management tool. Easements are a relatively new tool in the Priority Watershed Program. Therefore, it is very difficult to estimate cost.

Table 5-3. Cost-share Budget Needs for Best Management Practices

Best Management Practices	Number	Cost/Unit $	Total Cost[1]	100% Participation		75% Participation	
				State Share	Local Share	State Share	Local Share
Upland NPS Control							
Change in Crop Rotation	2,000	NA[2]	0	0	0	0	0
Reduced Tillage[4]	1,500	45/ac	67,500	67,500	0	50,625	0
Reduced Tillage[5]	1,500	15/ac	22,500	22,500	0	16,875	0
Critical Area Stabilization	20	500/ac	10,000	7,000	3,000	5,250	2,250
Grass Waterways	20	3,500/ac	70,000	49,000	21,000	36,750	15,750
Field Diversions & Terraces	6,000	15/ft	90,000	63,000	27,000	47,250	20,250
Grade Stabilization	31	8,000/ea	248,000	173,600	74,400	130,200	55,800
Agricultural Sediment Basin	13	12,500/ea	162,500	113,750	48,750	85,313	36,563
Nutrient Management[7]	46,500	6/ac	279,000	139,500	139,500	104,625	104,625
Nutrient and Pest Mgmt[7]	46,500	10/ac	465,000	232,500	232,500	174,375	174,375
Shoreline Buffers	600	120/ac	72,000	50,400	21,600	37,800	16,200
Wetland Restoration	100	500/ea	50,000	35,000	15,000	26,250	11,250
Livestock Exclusion. Woods	13,000	14/rods	175,500	175,500	[3]	131,625	[3]
Animal Waste Management							
Barnyard Runoff Control							
Complete System	45	25,000/ea	1,125,000	787,500	337,500	590,625	253,125
Roof Gutters	42	800/ea	25,200	17,640	7,560	13,230	5,670
Clean Water Diversion	41	2,500/ea	102,500	71,750	30,750	53,813	23,063
Manure Storage Facility[6]	60	62,000/ea	3,720,000	2,100,000	1,620,000	1,575,000	1,215,000
Manure Storage Abandonment	10	5,000/ea	50,000	35,000	15,000	26,250	11,250
Streambank Erosion Control							
Shape and Seeding	37,355	12/ft	448,260	313,782	134,478	235,337	100,859
Fencing	2,060	14/rods	27,810	27,810	[3]	20,858	[3]
Rip-Rap	3,380	20/ft	67,600	47,320	20,280	35,490	15,210
Livestock/Machinery							
Crossing/Watering Ramp	15	3,000/ea	45,000	31,600	13,500	23,625	10,125
Remote Watering Systems	15	1,500/ea	22,500	15,750	6,750	11,812	5,063
Well Abandonement	40	1,000/ea	40,000	28,000	12,000	21,000	9,000
Subtotal							
Easements	530	300/ac	159,000	159,000	0	119,250	0
Totals			$7,504,870	$4,736,302	$2,768,568	$3,552,227	$2,076,426

1 Total cost to control identified critical pollution sources
2 NA means that cost share funds are not available for this practice
3 Local share consists of labor and any additional equipment costs, also see flat rates
4 Reduced tillage on greater than three years continuous row crops
5 Reduced tillage, including no-till, on rotations including hay
6 Maximum cost-share is $35,000
7 Nutrient and Pest Management is cost shared per ac over a three year period. Therefore, number of acres shown represents three times the eligible acres.

Source: DNR; DATCP; and the Polk County LCD

Cost Containment

Cost Containment Procedures

Chapter NR 120 requires that cost containment procedures be identified in this plan to control the costs of installing BMPs. The cost containment procedure to be used by Polk County is described below. The bidding procedure and average cost and flat rate lists can be obtained from the county LCD.

Bids: Competitive bids will be required for all structural BMPs with estimated total costs, as determined by the project technician, exceeding $5,000. The bidding process requires a minimum of two bids from qualified contractors in itemized bid format. In cases where bids were requested from a minimum of three qualified contractors, but only one bid was received, the county will determine if the bid constitutes an appropriate cost for the project. If no bids are received or if the lone bid is not deemed appropriate, counties will limit cost sharing based on average costs.

Average Costs: Average costs will be used for all structural BMPs with an estimated cost of less than $5,000 and for all non-structural BMPs not using a flat rate, unless the cost share recipient decides, and the county agrees, to bid the installation of the BMPs. If the cost share recipient or any county decides to bid a structural BMP under $5,000, the aforementioned bid procedure will pertain.

Flat Rates: BMPs using flat rates are shown in Table 5-2. The rates shown are the state's share of the practice installation costs.

Payments for "in kind" contributions will be based on the county's guidelines. Cost share recipients who wish to install a BMP using their own labor, material, and equipment must submit a quote plus one quote from a qualified contractor for the practice installation.

The Wisconsin Conservation Corps may be used to install BMPs for cost share recipients.

Cost-share payments will be based on actual installation costs. If actual installation costs exceed the amount of cost-sharing determined by cost estimates, then the amount paid the grantee may be increased with the approval of the Polk County Land Conservation Committee. Appropriate documentation regarding the need for changes will be submitted to the DNR.

Cost-Share Agreement Reimbursement Procedures

Nonpoint Source Grant Agreement and Administration

General Information

The Nonpoint Source Grant Agreement is the means for transmitting funds from the DNR (through the Nonpoint Source Program) to Polk County for use in funding the state's share of cost share agreements. Cost share agreements are the means to transmit funds from the county to the landowners.

A portion of the nonpoint source grant is forwarded to Polk County to allow the county to set up an "up front" account. Funds from this account are used by the county to pay landowners after practices are installed through the project. A second payment of the remainder of the grant will be made during the year. The county will submit an annual report of expenditures. The Nonpoint Source (NPS) Grant Agreement will be amended annually to provide funding needed for cost sharing for the year. The funds obligated under cost share agreements must never exceed the total funds in the NPS Grant Agreement.

Fiscal Management Procedures, and Reporting Requirements

Counties are required by NR 120 to maintain a financial management system that accurately tracks the disbursement of all funds used for the Balsam Branch Watershed Project. The records of all watershed transactions must be retained for 3 years after the date of final project settlement. A more detailed description of the fiscal management procedures can be found in NR 120.25 and NR 120.26.

Cost Share Agreement and Administration

Purpose and Responsibilities

Consistent with s. 144.25, Stats. and NR 120, Wis. Adm. Code, cost-share funding is available to landowners for a percent of the costs of installing BMPs to meet the project objectives. Landowners have five years after formal approval of the watershed plan to enter into cost-share agreements (CSA). Practices included on cost-share agreements must be installed within the schedule agreed to on the cost-share agreement. Unless otherwise approved, the schedule of installing BMPs will be within 5 years of signing of the cost-share agreement. Practices must be maintained for a minimum of ten years from the date of installing the final practice included in the cost-share agreement.

The cost-share agreement is a legal contract between the landowner and the county. The agreement includes the name and other information about the landowner and grant recipient, conditions of the agreement, the practices involved and their location, the quantities and units of measurement involved, the estimated total cost, the cost share rate and amount, the timetable for installation, and number of years the practice must be maintained. The agreements also identify and provide

information on practices not cost-shared through the nonpoint program but that are essential to controlling pollution sources (such as crop rotations). These items will be completely listed in the conservation plan and the conservation plan is tied to the CSA via addendum 2 of the CSA. Once it is signed by both parties, they are legally bound to carry out the provisions in it.

If land ownership changes, the cost-share agreement remains with the property and the new owner is legally bound to carry out the provisions. NR 120.13(9) and (10) has more information on changes of land ownership and the recording of cost-share agreements.

Local, state, or federal permits may be needed prior to installation of some BMPs. The areas most likely to need permits are zoned wetlands and the shoreline areas of lakes and streams. These permits are needed whether the activity is a part of the watershed project or not. Landowners should consult with the Polk County Planning and Zoning Department or the Land Conservation Department offices to determine if any permits are required. The landowner is responsible for acquiring the needed permits prior to installation of practices.

The cost-share agreement binds the county to provide the technical assistance needed for the planning, design, and verification of the practices on the agreement and to provide the cost-share portion of the practice costs.

Counties are responsible for enforcing compliance of cost-share agreements to which they are a party. Where DNR serves as a party to an agreement with a unit of government, the DNR will take responsibility for monitoring compliance. The responsible party will insure that BMPs installed through the program are maintained in accordance with the operation and maintenance plan for the practice for the appropriate length of time. Polk County will check for compliance with practice maintenance provisions once every three years after the last practice has been installed. The county must check maintenance at its own expense after the Nonpoint Source Agreement has lapsed, unless state funding for this activity becomes available at any time during the implementation or monitoring phase of this project.

Landowner Contact Strategy

The following procedure will be used to make landowner contacts.

- During the first three months of the implementation period, all landowners or operators with eligible nonpoint sources will receive a mailing explaining the project and how they can become involved from the county.

- After the initial landowner mailings, county staff will make personal contacts with all landowners that have been identified as having nonpoint sources of pollution in Management Category I. These contacts will occur within the cost-share sign-up period.

- The county will continue to make contacts with eligible (Management Category I and II) landowners and operators until they have made a definite decision regarding participation in the program. Landowners will be eligible to sign contracts for five years. If necessary, time extensions for signing contracts may be authorized by the department. The DNR's Northwest District Nonpoint Source Coordinator and the county project staff will evaluate

the cost-share sign-up rate and progress being made toward achieving the water quality goals. Performance standards will be jointly agreed to if an extension is to be authorized.

- The county will contact all eligible landowners not signing cost-share agreements by personal letter six months prior to the end of the cost-share sign-up period.

Procedure for Developing a Cost Share Agreement

Eligibility for cost-sharing is verified following a site visit, using the criteria described in chapter 4.

The development of farm conservation plans will be the primary method used to develop cost-share agreements. These plans are specific to a particular landowner and are a comprehensive approach to the abatement of the nonpoint sources of pollution, and the conservation of soil and other resources. The farm plan takes into consideration the sustainability of the agricultural resources and the management decisions of the owner or operator.

The cost share agreement specifies the items listed in the farm conservation plan that are necessary to reduce the nonpoint sources of pollution. The conservation plan and cost share agreement will document existing management which must be maintained to protect water quality.

The following procedure will be used by the county for developing and administering agreements. Below are the steps from the initial landowner contact through the completion of BMP maintenance.

1. Landowner and county staff meet to discuss the watershed project, NPS control practice needs, and coordination with conservation compliance provisions if applicable.

2. Landowner agrees to participate with the watershed project.

3. A farm conservation plan is prepared by the county.

4. The landowner agrees with the plan, a Cost Share Agreement is prepared and both documents are signed by the landowner and the county. A copy of the Cost Share Agreement (CSA) is sent to the DNR NW District Nonpoint Source Coordinator and a copy given to the landowner. The CSA will be recorded by the county with the Polk County Register of Deeds.

5. Practices are designed by the county, or their designee, and a copy of the design is provided to the landowner.

6. Landowner obtains the necessary bids or other information required in the cost containment policy.

7. Amendments to the CSA are made if necessary.

8. The county staff oversee practice installation.

9. The county verifies the installation.

10. The landowner submits paid bills and proof of payment (canceled checks or receipts marked paid) to the county.

11. Land Conservation Committees or their designated representative and if required, county boards, approve cost-share payments to landowners.

12. Checks are issued by the county to the respective landowners and project ledgers are updated.

13. The county records the check amount, number, and date.

14. DNR reimburses the county for expended cost-share funds.

Identifying Wildlife and Fishery Needs

The Polk County staff will consult with DNR's NW District wildlife management and fisheries management staff to optimize the wildlife and fish management benefits of nonpoint source control BMPs. Specifically, the county staff will contact DNR staff if in the county's opinion: fence rows, rock piles, wetlands, or other wildlife habitat components will be adversely affected by installation of agricultural BMPs.

The DNR staff will assist county staff at the county's request by:

- Identifying streambank protection practices that benefit fish and wildlife.
- Identifying wildlife habitat components that could be incorporated into vegetative filter strips along streams or in upland areas.
- Reviewing placement of agricultural sediment basins to assure that negative impacts on stream fish and aquatic life do not occur and recommending wildlife habitat components.
- Providing technical assistance when the installation of BMPs will require the removal of obstructions or other wildlife habitat by proposing measures to minimize impact on wildlife habitat.
- Assisting to resolve questions concerning effects of agricultural nonpoint source BMPs on wetlands.

Submittal to the Department of Natural Resources

Cost-share agreements do not need prior approval from DNR, except in the following instances:

- where cost-share funds are to be used for practices on land owned or controlled by the county.
- for agreements or amendments where the cost-share amount for any practice for a landowner exceeds $50,000 in state funds, or when the total cost-share agreement amount and its amendments exceed $100,000.

- for grade stabilization structures and agricultural sediment basins with embankment heights between 15 and 25 feet and impoundment capacities of 15 to 50 acre feet.

- for streambanks to be controlled using riprap or other materials with banks over 6 feet high, according to NR 120.14. If applications are similar to each other in content, they will be reviewed to determine if future applications need be subject to this approval procedure.

- for animal lot relocation.

- for roofs over barnyards or manure storage facilities.

Local Assistance Grant Agreement Administration

General Information

The Local Assistance Grant Agreement (LAGA) is a grant from the DNR to Polk County for staff and support costs. Consistent with NR 120, the counties will use funds from the LAGA for staff to implement the project and conduct information and education activities. Other items such as travel, training, and certain office supplies are also supported by the LAGA. Further clarification of eligible costs supported by this grant is given in NR 120.14(4) and (6).

Grant Agreement Application Procedures

An annual review of the Local Assistance Grant Agreement is conducted through the development of an annual workload analysis by the county. This workload analysis estimates the work needed to be accomplished each year. The workload analysis is provided to DATCP and DNR for review and clarification. Along with the workload analysis, a grant application form is sent. Funds needed to complete the agreed upon annual workload are amended to the local assistance grant agreement.

Fiscal Management Procedures, Reporting Requirements

Polk County is required by NR 120 to maintain a financial management system that accurately tracks the disbursement of all funds used for the Balsam Branch Watershed Project. The records of all watershed transactions must be retained for 3 years after the date of final project settlement. A more detailed description of the fiscal management procedures can be found in NR 120.25 and NR 120.26. NR 120 requires quarterly reports to DATCP from the county in accordance with s. Ag. 166.40(4) accounting for staff time, expenditures, and accomplishments regarding activities funded through the watershed project. Reimbursement requests may be included with the submittal of the quarterly project reports.

Budget and Staffing Needs

This section estimates the funding and staffing required to provide technical assistance for the rural portion of this project and education and information activities for the entire watershed.

Staff Needs

Table 5-4 lists the total estimated staff needed to implement the project. Figures are provided for both the 50% and 75% levels of participation. A total of about 67,800 staff hours are required to implement this plan at a 75% landowner participation rate. This includes 10,000 staff hours to carry out the information and education program.

Currently, 2.6 positions are being funded for the Balsam Branch Watershed Project. The county and agencies will determine the need for additional staff based on the annual workload analysis. The county will assess the number and type of staff required for the final five years of the project based on the actual landowner participation following the five year cost-share sign-up period.

Staffing Costs

The estimated cost for staff at the 75% participation rate (see Table 5-5) is approximately $1.4 million. These costs will be paid by the state through the Local Assistance Grant Agreement.

Table 5-4. Estimated County LCD Staff Needs for Project Implementation

Activity	Project Years When Work Will Be Done	POLK COUNTY	
		75% Landowner Participation (Staff Hours)	50% Landowner Participation (Staff Hours)
Project and Financial Management	1-10	6,800	6,000
Clerical		12,000	10,000
Information & Education Program	1-10	10,000	10,000
Pre-Contact Office Inventory;	1-5 (75	2,415	1,610
Landowner Contacts & Progress Tracking	6-10 (25%		
Easements	1-10	4,500	3,000
Conservation Planning & Cost Share Agreement Development	1-5 (75 6-10 (25%	1,725	1,150
Plan Revisions and Monitoring	1-5 (25 6-10 (75%	1,200	800
Practice Design & Installation	1-10		
Upland Sediment Control		12,441	8,294
Animal Waste Management		12,225	8,150
Streambank Erosion Control		3,325	2,216
Training	1-10	1,200	1,200
Total LCD Workload:		67,831	52,420
Estimated Staff Required for Years 1-5:		3.8 per yr	2.9 per yr
Hours		6,941 per yr	5,328 per yr
Estimated Staff Required for Years 6-10:		3.7 per yr	2.8 per yr
Hours		6,741 per yr	5,132 per yr

Source: WI Department of Natural Resources; WI Department of Agriculture, Trade and Consumer Protection and Land Conservation Department of Polk County.

Table 5-5. Polk County Total Project Cost and Grant Disbursement Schedule at 75 percent Landowner Participation

Item	Project Year			
	1	2-5	6-10	Total
Cost-Share Funds: Practices	$100,000	$1,534,323	$1,917,904	$3,552,227
Cost-Share Funds: Easements	$13,500	$54,000	$67,500	$135,000
Local Assistance Staff Support[1]	$138,320	$553,280	$673,400	$1,365,000
Information/Education: Direct	$4,500	$18,000	$15,000	$37,500
Other Direct: (travel, supplies, etc.)	$15,808	$63,232	$76,960	$156,000
Engineering Assistance[1]	$5,000	$20,000	$25,000	$50,000
Totals	$277,128	$2,242,835	$2,775,764	$5,295,727

[1] Local Assistance Staff Support includes staff time to perform engineering services. Some of this work may be contracted, decreasing the funds required for staff support and increasing the funds needed for engineering assistance.
Additional staff may be requested if an erosion control ordinance is implemented.
Source: Wisconsin Department of Natural Resources; Wisconsin Department of Agriculture, Trade and Consumer Protection; and the Polk County Land Conservation Department

Implementation Schedule

Grant Disbursement and Project Management Schedule

Implementation may begin upon approval of this watershed plan by the Polk County Board of Supervisors; Wisconsin Department of Agriculture, Trade and Consumer Protection; and the Wisconsin Department of Natural Resources. The priority watershed project implementation period lasts ten years. It includes an initial five year period for contacting eligible landowners and signing cost-share agreements. Practices on any cost-share agreement must be installed within a five years of signing the CSA.

Under extenuating circumstances, the initial period for entering into cost-share agreements can be extended by DNR for a limited period of time if it will result in a significant increase in nonpoint source control. Limited extensions for the installation period for practices on individual cost-share agreements must also be approved by DNR and DATCP.

The disbursement of the grants (Local Assistance and Nonpoint Source) to Polk County will be based on an annual workload analysis and grant application process. The estimated grant disbursement schedule based on 75% participation by eligible landowners can be found in Table 5-5.

Total Project Cost

The total state funding required to meet the rural nonpoint source pollution control needs at a 75% level of landowner participation is presented Table 5-5. This figure includes the capital cost of practices, staff support, and easement costs presented above. The estimated cost to the state is $5.3 million, and the estimated cost to landowners and others is $2.1 million.

This cost estimate is based on projections developed by the agency planners and land conservation staff. Historically, the actual expenditures for projects are less than the estimated costs. The factors affecting expenditures for this watershed project include: the time it takes to plan the project; the length of time the project is under implementation; the amount of cost sharing that is actually expended; the number of staff working on the project; the amount of support costs; and the time local assistance is necessary.

Involvement of Other Programs

Coordination With State and Federal Conservation Compliance Programs

The Balsam Branch Watershed Project will be coordinated with the conservation compliance features of the Wisconsin Farmland Preservation Program (FPP) administered by DATCP and the Federal Food Security Act (FSA) administered by the Natural Resource Soil Conservation Service. DATCP will assist the LCD and the NRCS offices to identify landowners within the watershed that are subject to the compliance provisions of FPP and FSA. Conservation Farm Plans were completed for all landowners in FSA programs by December 31, 1989. There are 7 FPP plans and approximately 165 FSA plans within the watershed project.

Implementation and amendment of these conservation plans will be necessary during the implementation phase of the watershed project. Watershed project staff will inform FPP and NRCS staff of changes in plans resulting from management decisions and the installation of needed BMPs for nonpoint source pollution abatement. This comprehensive approach to farm planning will facilitate consideration of the various goals and objectives for all the programs in which the landowner participates.

Some eroding uplands in management categories 1 and 2 may need control in addition to that required for meeting sediment delivery targets, in order to meet soil erosion program goals established through other state and federal programs. Where this occurs, technical and financial assistance from the Nonpoint Source Program can be used to support practice design and installation on these critical lands. This assistance applies only where the additional control needed to meet soil erosion goals can be achieved using low cost practices.

CHAPTER SIX
Information and Education Strategy

OVERALL GOAL: *Residents of the watershed will make decisions and take actions that protect surface and ground water quality in the Balsam Branch Watershed.*

OBJECTIVES:

1) *Agricultural producers will minimize nutrient, sediment, and other polluting inputs from farming activities by adopting best management practices.*

2) *Lakeshore residents will minimize phosphorus, sediment, and other polluting inputs from lakeshore property and septic systems.*

3) *Village residents will minimize phosphorus, sediment, and other polluting inputs to stormwater systems.*

4) *Landowners will protect and restore wetlands in the watershed.*

5) *Watershed residents will understand the value of surface and ground water resources and how to preserve them.*

6) *Local government officials will make decisions that protect water quality.*

For each objective identified above, the following are identified: audience, message, and suggested activities.

Audience: Groups or individuals that should be targeted. Subwatersheds of focus are indicated.

Message: Key information to communicate to the target audience.

Activities: Suggested activities to get messages to the target audience and encourage actions.

Activities will be selected and presented in an annual information and education plan. The 1995 plan is included in Appendix B. Activities included in the 1995 plan are indicated with a "*" in this chapter. A strong educational program is important to the success of this plan. The 1995 plan requires 1,182 hours and $3,000 to implement. A similar number of hours and budget will be required throughout plan implementation. New activities may be included as needed to respond to changing needs of the program and the evaluation of past activities. Recognition programs for cost share participants and residents using BMPs will begin in 1996.

Implementation Team

The education strategy was developed by Polk County Land Conservation Department (LCD) staff with assistance from the watershed Citizens Advisory Committee, UW Extension, DNR, and the Land Conservation Committee.

The Polk County LCD will take lead responsibility for the implementation of the information and education strategy. The University of Wisconsin Cooperative Extension (UW-Ex), the Department of Natural Resources, (DNR), and the Department of Agriculture (DATCP) will provide supporting assistance. The LCD will work with and seek support from local units of government and organizations such as lake rehabilitation districts, villages, lake associations, and other community groups and businesses.

Strategy

Objective 1

Agricultural producers will minimize nutrient, sediment, and other polluting inputs from farming activities by adopting best management practices.

Audience

Who must take action?	Who supports?
Individual farmers (operators)	Ag consultants (agronomists)
Farm and land owners	Cooperatives
	Implement dealers
	Bankers
	Seed salespersons
	FFA, VoAg (youth education)
	Cooperating agencies (ASCS, NRCS, DNR, UW-Ex, DATCP)
	Farm Bureau, Farmers Union

Messages

Good water quality is important to everyone.
Good neighbors protect water quality.
Nutrient management planning can help you manage your farm efficiently.
BMPs can help keep soil and nutrients on your farm.
BMPs help preserve ground and surface water quality.
Cost sharing is available to implement BMPs (emphasis year 1-5).
List and describe BMPs and cost share eligibility
e.g., manure pits and barnyard run-off systems
BMPs require regular maintenance.
Ground water quality problems are difficult to correct.
Abandoned wells are a potential source of groundwater contamination.
Preserving stream corridors and wetlands is important

Activities

* One-on-one contacts (e.g., follow-up to Nutrient Management plans)
  Informational meetings
* Demonstration tours
* Demonstration documentation (slides, fact sheets)
* Presentations at meetings of farmers groups
  Watershed newsletter
* Articles for other newsletters (CFSA, UW-Ex, Rural Electric, lake organizations, cooperatives)
* News releases
  Recognition for farms that install best management practices
* Displays (e.g., Polk County Fair, UW-Ex Dairy Day, Crop Day, Farm City Day)
* Nutrient Management Field Days

Objective 2

Lakeshore residents will minimize phosphorus, sediment, and other polluting inputs from lakeshore property and septic systems.

Audience

Who must take action?

Lakeshore residents
Rehabilitation districts
Lakeshore homeowner associations

Who supports?

Builders and developers
Landscapers
Zoning Board of Adjustment

Emphasis on Balsam Lake and Antler Lake

Messages

Good water quality is important to everyone.
Maintain water quality for fish/water sports
Yard waste/pet waste should be managed properly.
Lawn fertilizer requirements are limited - don't over-fertilize.
Buffer strips of vegetation preserve water quality.
Septic systems require regular maintenance.
Excessive amounts of run off cause problems.
Infiltration areas minimize run off.
Erosion from construction sites should be controlled.

Activities

  Watershed newsletter
* Articles in association, school newsletters
* News releases
* Workshops on lawn care and landscaping

* Demonstration sites: landscaping, erosion control

* Survey current management practices/knowledge
  Coupons for low-P fertilizer
  Posters in restaurants, bait shops, gas stations
* Presentations at meetings
  Certification/recognition for following practices
* Information at marinas when boats are launched
  Door to door information distribution
  Exchange lake organization newsletters
  Competition between lake organizations (clean-up)
  Mandatory septic system inspections at property sale
  Parade of residents (buffers on lakes, proper lawn care, aquatic vegetation management)
* Lake fairs
* Distribute informational handouts
  Construction site erosion control workshops

Objective 3
Village residents will minimize phosphorus, sediment, and other polluting inputs from stormwater systems.

Audience
Residents of Milltown and Balsam Lake
Public officials

Messages
Stormwater drains run directly into Rice Creek and Balsam Lake.
Fertilizer, detergents, leaves, and grass in storm drains cause water quality problems.

Activities
* Fact sheet - direct mail
* News releases
* School/volunteer group activity- storm drain stenciling
  Tour of homes
  Resident certificate/recognition program
  Watershed newsletter
  On-grass car wash fund-raiser

Objective 4
Landowners will protect and restore wetlands in the watershed.
Audience
Landowners throughout the watershed
Landowners at inventoried sites/CRP and pasture
Emphasis on Rice Lake subwatershed

Messages

Many wetlands in the watershed and across the country have been drained.
Farming wetlands generally isn't cost effective
Wetlands protect water quality by trapping nutrients from run off.
Wetlands provide wildlife habitat.
Buffer area around wetlands are beneficial to both wildlife and water quality.
Money is available to cover the cost of restoring wetlands on your property (emphasis in years 1-5).

Activities/delivery

* Personal contacts with landowners at inventoried sites
* Newsletter articles
* News releases
* Demonstration site tours
* Demonstration documentation (fact sheets, slides)
  Wetland visits/bird watching
  "User manual" for wetlands
  Informational meetings by subwatershed
* Displays (Lakefair)
* School group activities (teacher training to support)
  Presentations

Objective 5

Watershed residents and visitors will understand the value of water resources and the importance of preserving them.

Audience

Absentee land owners
Residents
Visitors
Elected officials
School groups
Science teachers
Youth groups
Resort/motel owners

Messages

Water resources are community assets.
We all have a role in keeping the water clean and protecting habitat.
Acknowledge contributions of cost share participants toward improved water quality.
Clean water (especially groundwater) is important to health.
Quality groundwater is key to the success of the local economy.
Point out economic impact of water resource, and the importance of preserving it.
Maintain water quality for fish/water sports.
Unused wells are a conduit for pollutants to groundwater. They must be capped.

Activities/delivery

* Lake fairs
* Watershed newsletter
* News releases

Presentations

* Youth education (teacher training)

Adopt-a-lake

Billboards at public access (w/telephone # for emergency, brochures attached)

Distribution of informational materials (e.g., telephone book covers, placemats, shopping bags, etc.)

Well abandonment workshops.

Objective 6

Government officials will make changes to improve water quality.

Audience

Elected officials
County staff
Public works employees

Message

Standards are in place for highway/road construction, and training may be available.
Cost sharing/other funding sources available for structural BMPs and stormwater planning.
Clean streets mean clean water.
Settling basins may be needed to clean stormwater.
A construction site erosion control ordinance will help to maintain water quality in the area.
Land use impacts water quality. Growth and development needs to consider water quality.

Activities

* Meetings/presentations with elected officials and staff

Evaluation

An evaluation report of information and education activities will be prepared annually. Evaluation will be built into program activities where feasible. Activities may be evaluated through recording the number of attendees at a function, the number of target audience members reached, event surveys, or other methods. A survey will be used every two years to assess how watershed residents are getting information about the program and how effective the activities are at delivering messages, and where behavioral changes have occurred.

CHAPTER SEVEN
Integrated Resource Management

Introduction

The purpose of this chapter is to define the principles and guidelines for assuring that the watershed project is integrated with other resource management programs, organizations, and activities. Each of these activities is described below.

Fisheries

BMPs, such as streambank protection, shoreline buffer strips, easements, and in-lake treatments should be implemented in such a way that will enhance fishery habitat management. The DNR fishery manager should be consulted during the design phase of BMPs that may affect fishery habitat.

Wetland Restoration

Many restorable wetland areas exist in the watershed. General guidelines for wetland restoration, easement acquisition, and shoreline buffers to protect existing wetlands should be followed (see chapter four). Restorable wetlands were identified in the wetlands inventory conducted by DNR staff as part of a Federal 319 Grant awarded to the state.

The Balsam Branch watershed lies within what has been identified as the Wisconsin Northwest Focus Area under the North American Wetlands Conservation Act. This area is a small part of a much larger area being targeted under this act. Work associated with this act will include the restoration and enhancement of wetlands and associated uplands to increase the populations of waterfowl, nongame birds, and provide the benefits of an extensive wetland-upland complex. Some of the benefits include improved water quality, controlling flooding and erosion, and providing for public recreation. The wetlands inventory conducted for the Balsam Branch watershed shall be used to support the goals of the Wisconsin Northwest Pothole Habitat Initiative as part of the North American Wetlands Conservation Act.

Stewardship Program

Under this program, the DNR can obtain an easement on both sides of the stream (generally 66 feet wide on each side). If needed, the DNR will financially support the fencing of the stream to protect it from livestock access. Streams in the watershed should be nominated for eligibility when the DNR nomination period is opened if this program is to be used.

Endangered and Threatened Species Sites

Endangered, threatened, and special concern species and natural areas are listed in chapter two of this plan. To the extent possible, every effort should be made to protect these species. If site-specific information is needed, contact the DNR Bureau of Endangered Resources.

Cultural Resources

Procedures for coordination with state and federal historic preservation laws can be obtained from the DNR Nonpoint Source Coordinator. Since archaeological sites are found within the Balsam Branch watershed, special consideration must be given to their protection when BMP installations are being considered. Detention basins, manure storage structures, and streambank or shoreline shaping and riprapping are the most common practices that may disturb archaeological sites.

Coordination with State and Federal Conservation Compliance Programs

The Balsam Branch Priority Watershed Project will be coordinated with the conservation compliance features of the Wisconsin Farmland Preservation Program (FPP) administered by DATCP, and the Federal Food Security Act (FSA) administered by the Soil Conservation Service.

Coordination with Lake Management Districts

Lake management districts are local units of government established for the purpose of protecting and rehabilitating lakes. Balsam Branch Watershed Project staff members will continue to cooperate with the three lake districts on watershed projects, attending board meetings, and public meetings

upon request. Fact sheets and other educational materials targeting riparian landowners will be distributed to lake district representatives. As local units of government, lake management districts may apply for local assistance grants (see chapter five). Balsam Lake, Long Lake, and Half Moon Lake each have an established inland lake protection and rehabilitation district under Ch. 33 Wis. Stats.

Coordination with Lake Associations

Lake associations are voluntary organizations. They raise money for special projects, cosponsor lake fairs and other events that educate and inform the public about lake issues, and participate in local actions to protect and improve lakes. Lake associations are eligible for nonpoint source program local assistance grant funds if they meet the following criteria:

* They must be incorporated under Chapter 181 Wisconsin Statutes.
* They must specify in the articles of incorporation or by-laws that they support the protection or improvement of inland lakes for the benefit of the general public and demonstrate this by their past actions.
* They must allow membership in the association to any individual living on or within one mile of the lake for at least one month each year or individuals who own real estate on or within one mile on that lake.
* They do not limit or deny the right of any member or class of members to vote as provided under Chapter 181.16(1), Wisconsin Statutes.
* They have been in existence for at least one year, have at least 25 members, and requires annual membership fees of not less that $10 nor more that $25.

State Lake Planning and Lake Protection Grant Programs

Local units of government and qualified lake associations in the watershed are eligible to receive Lake Planning Grants and/or Lake Protection Grants to do the following:

* Gather lake and watershed information and prepare lake management plans.
* Develop environmental ordinances to improve and protect lake water quality and lake ecosystems.

* Purchase property such as wetlands or shoreline buffers which will significantly contribute to lake water quality or lake ecosystems. (Note: dam property purchase or alteration is ineligible.)
* Restore wetlands.

Lake Planning Grant funds are available at a 75% cost share rate for up to $10,000 per two-year period and $30,000 for the life of the program. Lake Protection Grant funds are limited to $100,000 for property purchased, wetland restorations, and regulation development, and program funds must be matched with an equal share by the local government.

Aquatic Plant Management Program

The Department's Aquatic Plant Management (APM) program, operated under NR 107 Wis. Adm. Code, provides for the designation of "sensitive areas" of aquatic vegetation that "offer critical or unique fish and wildlife habitat, including seasonal or lifestage requirements, or offer water quality or erosion control benefits to the body of water." The lakes in the Balsam Branch watershed with sensitive area designations are Antler, Half Moon, Long, Balsam, Deer, Wapogasset, and Bear Trap. The recommendations associated with each of sensitive areas are used to evaluate permit applications for chemical treatment of lake vegetation.

Coordination with Other Organizations and Activities

In addition to those activities and organizations listed above, others such as the St. Croix Watershed Alliance, Lake Management Plan activities, and Conservation Corps activities should be integrated with the watershed project to more effectively achieve water resources objectives of this plan.

CHAPTER EIGHT
Project Evaluation

Introduction

This chapter briefly summarizes the plan for monitoring the progress and evaluating the effectiveness of the Balsam Branch Priority Watershed Project. The evaluation strategy includes these components:

(1) administrative review, and
(2) pollution reduction evaluation

Information on these components will be collected by the Polk County Land Conservation Department (LCD) and reported on a regular basis to DNR and DATCP. Additional information on the numbers and types of practices on cost share agreements, funds encumbered on cost share agreements, and funds expended will be provided by DNR's Bureau of Community Assistance.

Administrative Review

The first component, the administrative review, will focus on the progress of Polk County and other units of government, in implementing the project. The project will be evaluated with respect to accomplishments, financial expenditures, and staff time spent on project activities.

1. **Accomplishment Reporting**

   The Field Office Computing System (FOCS) is a computer data management system that has been developed by the US Natural Resources Conservation Service (NRCS). It is used by NRCS, DNR and DATCP to meet the accomplishment reporting requirements of all three agencies. Data on administrative accomplishments will be collected by the county LCD or using FOCS where appropriate, and will be provided to DNR and DATCP for program evaluation.

The County LCD will provide the following data to DNR and DATCP on an annual basis:

- number of personal contacts made with landowners,
- completed I&E activities,
- number of farm conservation plans prepared for the project,

- number of cost share agreements signed,
- pollutant load reductions associated with planned practices,
- number of farm conservation plan and cost share agreement status reviews completed, and
- number of farms and acres of cropland checked for proper maintenance of Best Management Practices,

In addition to quarterly reports, County LCD representatives will meet with DNR and DATCP staff annually to review progress and plan for the next year.

2. **Financial Expenditures**

Local Assistant Grants are disbursed on the basis of the approved annual budget. The grant recipient receives 45% of this budget in January and 55% in late July or August. The grant recipient does not have to request either disbursement. By April 15 of the following year, the grant recipient must file a report of the total, actual expenses for the year with the Bureau of Community Assistance. If, as is usually the case, the grant recipient has spent less than the annual budget, the next July's disbursement will be adjusted downward by that amount. The following schedule illustrates the system. Assume that the LAG recipient has a $100,000 annual budget in Year 1 and in Year 2 and that there are $95,000 in actual expenses in Year 1.

Year 1		
	January	$45,000
	July/August	$55,000
Year 2		
	January	$45,000
	April 15	Report of Year 1 expenses ($95,000)
	July/August	$50,000

The LCD will provide the following financial data to DNR and DATCP on a quarterly basis:

- number of landowner cost share agreements signed,
- amount of money encumbered in cost share agreements,
- number of landowner reimbursement payments made and amount paid for BMP installation
- expenditures for staff travel,
- expenditures for information and education program,
- expenditures for equipment, materials, and supplies,
- expenditures for professional services and staff support costs,
- total project expenditures for LCD staff,
- staff training expenditures,
- interest money earned and expended, and
- total county LCD budget and expenditures on the project.

3. **Time Spent On Project Activities**

The LCD will provide time summaries to both departments for the following activities on a quarterly basis:

- project and fiscal management,
- clerical assistance,
- pre-design and conservation planning activities,
- technical assistance: practice design, installation, cost share agreement status review and monitoring,
- educational activities,
- training activities, and
- leave time.

Pollutant Reduction Evaluation

Purpose

The purpose of the second evaluation component, pollutant load reduction, is to estimate reductions in nonpoint source pollutants as a result of installing BMPs. The primary means for tracking planned and installed pollutant reductions is through the use of the Operating Unit's Wisconsin Data Listing report in FOCS or its substitute. Running this report for each landowner at the time of cost share agreement preparation will provide the initial planned reductions, and also will ensure the base of information necessary to run future summary reports is entered in FOCS. Five key sources have been identified for estimating changes in pollutant loads in the Balsam Branch Watershed: a) upland sediment b) runoff from barnyards, c) number of acres managed under a nutrient management plan, d) gully erosion, and e) streambank erosion. Tracking procedure for each source is described below.

Cropland Sediment Sources

County LCD staff will use the WIN HUSLE (Wisconsin Nonpoint Source) model to estimate the percent sediment reductions due to changes in cropping practices. The county will report the information to DNR through FOCS a quarterly basis, as described above.

Animal Lot Nutrient Runoff

The Polk County LCD will use the BARNY (Modified ARS) model to estimate phosphorus reductions due to the installation of barnyard control practices. The county will report the information to DNR through FOCS. In the event that FOCS is replaced, the replacement system will be used for all project tracking.

Nutrient Management Planning

The county staff shall record the number of NRCS 590 nutrient management plans developed, the number of acres managed by the plans, and the average pounds per acre of nitrogen and phosphorus credited from manure and other sources.

Gully Erosion

The county will record for each landowner, the number of gullies and the sediment being generated by the gullies at the time of contact, the number of gullies to be controlled through best management practices identified on the Cost Share Agreement, and the tons of sediment reduced through control of the gullies.

Streambanks and Shorelines

The county LCD will calculate changes in streambank and shoreline sediment in terms of tons of sediment and length of eroding sites. A tally will be kept of landowners contacted, the amount of sediment being generated at the time of contact, and changes in erosion levels estimated after installing best management practices.

Construction Sites

An annual tally of excavation plans with erosion control practices will be reported to the Department. This information will be used to further evaluate the need for a construction site erosion control ordinance.

Evaluation Monitoring

Evaluation monitoring activities in priority watersheds are planned and conducted according to monitoring program guidance in the Bureau of Water Resources, Surface Water Monitoring Strategy. However, evaluation monitoring is not conducted in every priority watershed, Currently, many of the lakes in this watershed project are monitored regularly through the DNR Self Help Monitoring Program. Water quality information is collected and submitted to the Department by lakeshore residents. These monitoring activities should continue and possibly be expanded where there is local interest. Any additional monitoring to be conducted by the DNR Northwest District water resources staff will be identified in the annual Surface Water Monitoring Strategy.

Sites will be evaluated for use in the Signs Of Success (SOS) program. This program is coordinated by the Department and is used to evaluate the effectiveness of best management practices being

installed. It is also hoped that information from the SOS program will be effective in promoting landowner participation in the project.

APPENDIX A
Watershed Planning Methods

This chapter describes the steps and procedures used to prepare this plan. These are:

- Evaluating water quality and aquatic habitat.
- Assessing pollution sources.
- Establishing water resource objectives.
- Establishing pollution reduction goals.
- Developing a nonpoint source control strategy.
- Involving the public and local units of government.

Evaluating Water Quality and Aquatic Habitat

The Department of Natural Resources (DNR) is responsible for: designating the biological and recreational uses that surface waters can support under proper management; prescribing the water quality required to sustain these designated uses; and indicating the methods to implement, achieve and maintain those conditions.

The DNR's Northwest District Water Resources Management staff conducted investigations of the existing quality and natural resource conditions for lakes and streams during 1993. Their purpose was to evaluate water quality problems and establish a basis for setting water resources management objectives. Detailed assessment results are documented in water resource appraisal reports.

Data Collection

The following is a summary of the five elements comprising the water quality and aquatic habitat investigation.

Subwatershed Delineation and Stream Segmentation

Prior to collecting field data, the watershed was divided into nine hydrologic subwatersheds. This was accomplished using 1988 1"=400' scale aerial photographs and 1"=2,000' (7.5 minute) U.S. Geological Survey quadrangle maps. These maps were also used to divide the perennial and intermittent stream network into segments. Stream segments were used to separate portions of waterways where either natural conditions or human-induced changes resulted in pronounced differences in stream character and/or water quality.

Water Quality Assessment

Surface water quality was assessed through review of historical water chemistry data and an evaluation of bottom dwelling animals (macroinvertebrates) using the Hilsenhoff Biotic Index (Hilsenhoff, 1982). Extensive bacteria (fecal coliform) surveys were conducted to assess the suitability of surface waters for recreational use. Private well samples were collected and analyzed for nitrate + nitrite and triazine herbicides. Analytical data were used to assess the quality of groundwater in the watershed.

Navigability and Recreational Use Determinations

The extent and degree to which streams are navigable was determined based on evidence of canoeing or boating, field data including evidence of stream alteration or use, and information that landowners or other local experts provided. Recreational uses were determined through field observations, file data, and information from local users.

Lake Appraisal

Lakes were evaluated for nutrient responses with various phosphorus reduction levels using a computer driven model named TROPIC. Spring phosphorus data was collected from the lakes in addition to monthly summer water quality samples.

Lake Sensitive Area Designations

An evaluation of lakeshore habitat provided by the aquatic plant community on each of the major lakes in the watershed was conducted. The evaluations were conducted by a team of resource managers including a fish manager, wildlife manager, water regulation and zoning manager and a water quality manager. Each sensitive area has identified restrictions on it to limit the plant management activities that maybe permitted.

Assessing Pollution Sources

The purpose of the pollution source assessment is to identify the rural and urban sources and quantities of pollutants impacting surface waters. Rural and urban pollutant sources assessed for this watershed are discussed below.

Rural Nonpoint Sources

Excessive quantities of sediment, nutrients, oxygen demanding substances, pesticides and bacteria are pollutants carried in runoff draining agricultural areas. These pollutants degrade surface water quality thereby restricting recreational and biological uses. The principal rural nonpoint sources evaluated in preparing this plan include:

- Barnyards and livestock area runoff.
- Eroding uplands delivering sediment to surface waters.
- Eroding, slumping, or trampled streambanks.
- Gullies.

The Polk County Land Conservation District (LCD) staff conducted inventories during 1993. Inventory procedures are documented at the LCD office. The LCD in cooperation with DNR and the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) completed the data analyses. Inventory and evaluation procedures are summarized below.

Barnyard and Livestock Area Runoff

The LCD staff mapped the locations of 98 barnyards in the watershed on 1988 1"=400' scale aerial photographs. A field survey of each barnyard was conducted to collect information needed to determine its pollution potential.

The barnyard data was used in the "BARNY" Model (Baun, 1992), a modification of the animal lot runoff model, which the U.S. Department of Agriculture, Agricultural Research Service developed (Young, 1982). Information about the mass loading of total phosphorus annually was generated to evaluate the relative pollution potential of each barnyard. The livestock operations were ranked according to their potential to impact surface and/or groundwater quality.

Upland Erosion and Sediment Delivery

The LCD staff conducted the inventory on about 19 square miles, or 32 percent of the watershed that is not internally drained, using existing data and field investigations. Cropland, pastures, grasslands, woodlands, residential land, and other open (non-urban) land uses were investigated. Existing data sources included site specific farm conservation plans, 1988 1"=400' scale aerial photographs, and U.S. Geological Survey 1"=2,000' scale quadrangle maps. The information obtained for each parcel included size, soil type and erodibility, slope percent and length, land cover, crop rotation, present management, overland flow distance and destination, channel type, and receiving water.

Upland erosion and sediment delivery was estimated using the Wisconsin Nonpoint Source (WIN HUSLE) Model (Baun & Snowden, 1992). The WIN HUSLE model calculates the average annual quantity of eroded soil reaching surface waters from each farm field. The determination is made based on a "typical" year of precipitation. Estimated sediment delivery was used to assess the relative pollution potential of each farm field in the watershed.

The WIN HUSLE model appears to over-predict the sediment and phosphorus delivery for the pitted topography of this watershed. When estimates of phosphorus calculated from WIN HUSLE were used to predict in-lake phosphorus concentration for lakes in the waters, the values were 4-10 times higher than actual measurements. For this reason, WIN HUSLE was not used to estimate absolute values for sediment and phosphorus delivery. Instead, the percentage change in predicted sediment and phosphorus delivery after implementation of management methods will be used to estimate the effectiveness of the changes.

Streambank/Shoreline Erosion

The LCD staff conducted field surveys on about 44 miles of perennial and intermittent streams and 64 miles of lake shoreline. The method used is a modification of the streambank erosion analysis included in Phase II of the Land Inventory Monitoring process used by the U.S. Department of Agriculture, Soil Conservation Service. At locations where erosion was occurring, the following information was recorded:

- Length of trampled or eroding bank.
- Vertical height.
- Estimated annual rate of recession.
- Adjacent land uses.
- Potential management measures.

The amount of sediment lost annually was calculated for each erosion site. In addition, areas adjacent to streams impacted by livestock, but which were not necessarily eroding at a high rate, were also noted.

Other Pollution Sources

Additional sources of surface water pollution beyond those discussed in this plan are degrading water quality in the watershed. These pollution sources have the potential of overshadowing improvements in water quality that might otherwise occur as a result of the priority watershed program.

The DNR conducted an inventory and evaluation of these other pollution sources. Inventory results and recommendations for alleviating the water quality impacts of these other pollution sources are documented in Chapter Four of this plan.

Establishing Water Resource Objectives

Recreational and biological water resource objectives were established for each of the streams and lakes in the watershed. These objectives identify how the project is anticipated to change the quality of the aquatic environment for recreational and biological uses. Factors considered in establishing water resource objectives include: existing water quality and aquatic habitat; factors or pollutants that may be preventing the surface water from reaching its full potential of supporting biological and recreational uses; and the practicality of reducing pollutants.

Establishing Pollution Reduction Goals

Nonpoint pollution reduction goals are estimates of the level of nonpoint source control needed to meet the water quality and recreational use objectives identified in this plan. Pollution reduction goals and water resource objectives are established together since they are integrally related.

Developing a Nonpoint Source Management Strategy

The final step in the planning process is the development of a strategy for achieving the nonpoint source pollution reduction goals identified in the plan. Several items are addressed in developing the management strategy including:

- Critical nonpoint pollution sources.
- Effective management practices and guidelines for use of state cost-share funds for practice installation.

- Responsibilities, estimated workloads, and work schedules for local implementing agencies, and guidelines for use of state funds to support local implementation activities.
- Estimated cost of installing practices and supporting staff at the local level.
- Information and education needs.
- Project evaluation needs.

Identification of critical nonpoint sources eligible for cost share and technical assistance under the Nonpoint Source Water Pollution Abatement (NPS) Program were determined by:

- Evaluating pollutant loading for major nonpoint sources in each subwatershed.
- Developing criteria to determine which sources need to be controlled.
- Applying the criteria to determine eligibility for participation in the priority watershed project.

This evaluation was carried out on a subwatershed and watershed basis for the nonpoint sources. The result is a site specific ranking of nonpoint sources and a determination of financial and technical assistance to be made available through the nonpoint source program for the control of NPS pollution.

Involving the Public and Local Units of Government

A citizen's advisory committee and two technical work groups were convened to assist in preparing this watershed plan. The advisory committee contained representatives from towns in the watershed, lake associations and districts, agricultural producers, and an environmental organization. This committee primarily provided policy guidance during the planning process and reviewed the draft plan.

APPENDIX B
1995 Education Plan

PLANNED INFORMATION AND EDUCATION ACTIVITIES
Balsam Branch Watershed Project

April 10, 1995 - December 31, 1995

MULTIPLE OBJECTIVES

Activity	Schedule	Number	LCD Hours	UW-Ex Hours	Cost
Preimplementation	1/95-5/95		48		$150
Develop 1996 plan	10/95	1	20	C8 A8	0
1995 Evaluation	10/95(d) 12/95(f)	1	20	C4 A4	0
OBJ1 SUBTOTAL			328		$1,185
OBJ2 SUBTOTAL			612		$650
OBJ3 SUBTOTAL			32		$205
OBJ4 SUBTOTAL			74		$410
OBJ5 SUBTOTAL			48		$400
TOTAL			1,182.00		$3,000.00

C = County Extension Agent
A = Area Water Quality Specialist

OBJECTIVE 1: Agricultural producers will minimize nutrient, sediment, and other polluting inputs from farming activities by adopting best management practices.

Activity	Schedule	Number	LCD Hours	UW-Ex Hours	Cost
One-on-One visits	7/95-12/95	20	80		$0
News releases/articles	6/95, 8/95 10/95	3	12	C8	$0
Barnyard demo tour	8/95	1	40	C8	$100
BY demo fact sheet	7/95	1	15	C2	$35
Presentations	on demand	4	32		$100
Newsletter articles	7/95 10/95	2	8	C4	$0
Develop displays (NPM/cost share)	4/95, 5/95	2	50		$400
Present displays (dairy days, County Fair)	4/95, 8/95	2	75		$400
Nutrient mgmt. field day	8/95	1	16	C16, NPM60	$100
Subtotal			328.00		1,235.00

OBJECTIVE 2: Lakeshore residents will minimize phosphorus, sediment, and other polluting inputs from lakeshore property and septic systems.

Activity	Schedule	Number	LCD Hours	UW-Ex Hours	Cost
News releases/articles	5/95, 6/95, 7/95, 8/95, 9/95	5	20	C16	$50
Demo sites, lakefront BMPs	6/95	4	40	C20	$300
Lakefront BMP workshop	7/95	3	20	C20	$100
Newsletter articles	5/95, 7/95, 9/95	3	12		$0
Presentations	as needed	10	40		$0
Lakeshore resident survey/ Info distribution at marinas	6/95, 8/95		400		$200
Lake fair (Amery)	7/95		80		paid through another grant
SUBTOTAL			612.00		$650.00

OBJECTIVE 3: Village residents will minimize phosphorus, sediment, and other polluting inputs from stormwater systems.

Activity	Schedule	Number	LCD Hours	UW-Ex Hours	Cost
Fact sheet - distributions	7/95, 9/95	2	16	A4	$155
News releases/articles	6/95, 9/95	2	8		$0
Storm drain stenciling	?		8		$50
SUBTOTAL			32.00		$205.00

OBJECTIVE 4: Landowners will protect and restore wetlands in the watershed.

Activity	Schedule	Number	DNR Hours	LCD Hours	UW-Ex Hours	Cost
One-on-one contacts	ongoing	20	60	30		$0
Newsletter articles	6/94, 9/94,	2	2	8		$0
News releases	6/94, 9/94	2	2	8		$0
Demo site tour	7/95	1	16	16		$100
Demo fact sheet/pictures	6/95	1	2	4		$40
Lakefair display	7/95	1	2	8		$20
Support wetland teacher training	?	5 teachers	2	2		$250
SUBTOTAL			86.00	76.00		410.00

OBJECTIVE 5: Watershed residents and visitors will understand the value of water resources and the importance of preserving them.

Activity	Schedule	Number	LCD Hours	UW-Ex Hours	Cost
Lakefair (see obj 2)					
News releases	6/95, 9/95	2	8		$0
Teacher training	9/95	1	40	40 (YA)	$200
Supplies for student activities	as requested				$200
SUBTOTAL			48.00		400.00

YA = Youth Agent

PREIMPLEMENTATION ACTIVITIES

Activity	Schedule	Number	LCD Hours	UW-Ex Hours	Cost
Farmer Meetings	2/95	3	24		$125
CAC Meetings	2/95, 3/95, 4/95	3	24		$25
SUBTOTAL			48.00		$150.00

APPENDIX C
Glossary

ACUTE TOXICITY:

Any poisonous effect produced by a single short-term exposure to a chemical that results in a rapid onset of severe symptoms.

ADVANCED WASTEWATER TREATMENT:

The highest level of wastewater treatment for municipal treatment systems. It requires removal of all but 10 parts per million of suspended solids and biological oxygen and/or 50 percent of the total nitrogen. Advanced wastewater treatment is also known as "tertiary treatment."

AGRICULTURAL CONSERVATION PROGRAM (ACP):

A federal cost-sharing program to help landowners install measures to conserve soil and water resources. ACP is administered by the USDA ASCS through county ACP committees.

ALGAE:

A group of microscopic, photosynthetic water plants. Algae give off oxygen during the day as a product of photosynthesis and consume oxygen during the night as a result of respiration. Therefore, algae effect the oxygen content of water. Nutrient-enriched water increases algae growth.

AMMONIA:

A form of nitrogen (NH_3) found in human and animal wastes. Ammonia can be toxic to aquatic life.

ANAEROBIC:

Without oxygen.

AREA OF CONCERN:

Areas of the Great Lakes identified by the International Joint Commission (IJC) as having serious water pollution problems.

AREAWIDE WATER QUALITY MANAGEMENT PLANS (208 PLANS):

A plan to document water quality conditions in a drainage basin and make recommendations to protect and improve basin water quality. Each basin in Wisconsin must have a plan prepared for it, according to section 208 of the Clean Water Act.

ANTIDEGRADATION:

A policy stating that water quality will not be lowered below background levels unless justified by economic and social development considerations. Wisconsin's antidegradation policy is currently being revised to make it more specific and meet EPA guidelines.

AVAILABILITY:

The degree to which toxic substances or other pollutants are present in sediments or elsewhere in the ecosystem and are available to affect or be taken up by organisms. Some pollutants may be "bound up" or unavailable because they are attached to clay particles or are buried by sediment. Oxygen content, pH, temperature and other conditions in the water can affect availability.

BACTERIA:

Single-cell, microscopic organisms. Some can cause disease, but others are important in organic waste stabilization.

BASIN PLAN:

See "Areawide Water Quality Management Plan".

BENTHIC ORGANISMS (BENTHOS):

Organisms living in or on the bottom of a lake or stream.

BEST MANAGEMENT PRACTICE (BMP):

The most effective, practical measures to control nonpoint sources of pollutants that runoff from land surfaces.

BIOACCUMULATION:

The uptake and retention of substances by an organism from its surrounding medium and food. As chemicals move through the food chain, they tend to increase in concentration in organisms at the upper end of the food chain such as predator fish, or in people or birds that eat these fish.

BIOASSAY STUDY:

A test for pollutant toxicity. Tanks of fish or other organisms are exposed to varying doses of treatment plant effluent. Lethal doses of pollutants in the effluent are then determined.

BIOCHEMICAL OXYGEN DEMAND (BOD):

A measure of the amount of oxygen consumed in the biological processes that break down organic matter in water. BOD_5 is the biochemical oxygen demand measured in a five day test. The greater the degree of pollution, the higher the BOD_5.

BIODEGRADABLE:

Waste that can be broken down by bacteria into basic elements. Most organic wastes such as food remains and paper are biodegradable.

BIOTA:

All living organisms that exist in an area.

BUFFER STRIPS:

Strips of grass or other erosion-resisting vegetation between disturbed areas and a stream or lake.

BULKHEAD LINES:

Legally established lines that indicate how far into a stream or lake an adjacent property owner has the right to fill. Many of these lines were established many years ago and allow substantial filling of the bed of the river and bay. Other environmental laws may limit filling to some degree.

CARCINOGENIC:

A chemical capable of causing cancer.

CATEGORICAL LIMITS:

All point source discharges are required to provide a basic level of treatment. For municipal wastewater treatment plants this is secondary treatment (30 mg/1 effluent limits for SS and BOD). For industry the level depends on the type of industry and the level of production. More stringent effluent limits are required, if necessary, to meet water quality standards.

CHLORINATION:

The application of chlorine to wastewater to disinfect it and kill bacteria and other organisms.

CHLORORGANIC COMPOUNDS (CHLORORGANICS):

A class of chemicals that contain chlorine, carbon and hydrocarbon. This generally refers to pesticides and herbicides that can be toxic. Examples include PCB's and pesticides such as DDT and dieldrin.

CHRONIC TOXIcity:

The effects of long-term exposure of organisms to concentrations of a toxic chemical that are not lethal, but is injurious or debilitating in one or more ways. An example of the effect of chronic toxicity is reduced reproductive success.

CLEAN WATER ACT:

See "Public Law 92-500."

COMBINED SEWERS:

A wastewater collection system that carries both sanitary sewage and stormwater runoff. During dry weather, combined sewers carry only wastewater to the treatment plant. During heavy rainfall, the sewer becomes swollen with stormwater. Because the treatment plant cannot process the excess flow, untreated sewage is discharged to the plant's receiving waters, i.e., combined sewer outflow.

CONFINED DISPOSAL FACILITY (CDF):

A structure built to contain and dispose of dredged material.

CONGENERS:

Chemical compounds that have the same molecular composition, but have different molecular structures and formula. For example, the congeners of PCB have chlorine located at different spots on the molecule. These differences can cause differences in the properties and toxicity of the congeners.

CONSERVATION TILLAGE:

Planting row crops while only slightly disturbing the soil. In this way a protective layer of plant residue stays on the surface. Erosion rates decrease.

CONSUMPTION ADVISORY:

A health warning issued by DNR and WDHSS that recommends people limit the fish they eat from some rivers and lakes based on the levels of toxic contaminants found in the fish.

CONTAMINANT:

Some material that has been added to water that is not normally present. This is different from a pollutant, which suggests there is too much of the material present.

CONVENTIONAL POLLUTANT:

Refers to suspended solids, fecal coliforms, biochemical oxygen demand, and pH, as opposed to toxic pollutants

COST-EFFECTIVE:

A level of treatment or management with the greatest incremental benefit for the money spent.

CRITERIA:

See water quality standard criteria.

DDT:

A chlorinated hydrocarbon insecticide that was banned because of its persistence in the environment.

DIOXIN (2,3,7,8-tetrachlorodibenso-p-dioxin):

A chlorinated organic chemical which is highly toxic.

DISINFECTION:

A chemical or physical process that kills organism that cause disease. Chlorine is often used to disinfect wastewater.

DISSOLVED OXYGEN (DO):

Oxygen dissolved in water. Low levels of dissolved oxygen cause bad smelling water and threaten fish survival. Low levels of dissolved oxygen often result from inadequate wastewater treatment. The DNR considers 5 ppm DO necessary for fish and aquatic life.

DREDGING:

Removal of sediment from the bottom of water bodies.

ECOSYSTEM:

The interacting system of biological community and its nonliving surrounding.

EFFLUENT:

Solid, liquid or gas wastes (byproducts) that are disposed on land, in water or in air. As used in the RAP, effluent generally means wastewater discharges.

EFFLUENT LIMITS:

The DNR issues WPDES permits establishing the maximum amount of pollutant to be discharged to a receiving stream. Limits depend on the pollutant and the water quality standards that apply for the receiving waters.

EMISSION:

A direct (smokestack particles) or indirect (busy shopping center parking lot) release of any contaminant into the air.

ENVIRONMENTAL PROTECTION AGENCY (USEPA):

The federal agency responsible for enforcing federal environmental regulations. The Environmental Protection Agency delegates some of its responsibilities for water, air and solid waste pollution control to state agencies.

ENVIRONMENTAL REPAIR FUND:

A fund established by the Wisconsin Legislature to deal with abandoned landfills.

EPIDEMIOLOGY:

The study of diseases as they affect populations rather than individuals, including the distribution and incidence of a disease mortality and morbidity rated, and the relationship of climate, age, sex, race and other factors. EPA uses such data to establish national air quality standards.

EROSION:

The wearing away of the land surface by wind or water.

EUTROPHIC:

Refers to a nutrient-rich lake. Large amounts of algae and weeds characterize a eutrophic lake (see also "Oligotrophic" and "Mesotrophic").

EUTROPHICATION:

The process of nutrient enrichment of a lake loading to increased production of aquatic organisms. Eutrophication can be accelerated by human activity such as agriculture and improper waste disposal.

FACILITY PLAN:

A preliminary planning and engineering document that identifies alternative solutions to a community's wastewater treatment problems.

FECAL COLIFORM:

A group of bacteria used to indicate the presence of other bacteria that cause disease. The number of coliform is particularly important when water is used for drinking and swimming.

FISHABLE AND SWIMMABLE:

Refers to the water quality goal set for the nation's surface waters by Congress in the Clean Water Act. All waters were to meet this goal by 1984.

FLOURANTHENE:

A polyaromatic hydrocarbon (PHA) with toxic properties.

FLY ASH:

Particulates emitted from coal burning and other combustion, such as wood burning, and vented into the air from stacks, or more likely, collected by electrostatic precipitators.

FOOD CHAIN:

A sequence of organisms where each uses the next as a food source.

FURANS (2,3,7,8-tetra-chloro-dibenzpfurans):

A chlorinated organic compound which is highly toxic.

GREEN STRIPS:

See buffer strip.

GROUNDWATER:

Undergroundwater-bearing areas generally within the boundaries of a watershed, which fill internal passageways of porous geologic formations (aquifers) with water that flows in response to gravity and pressure. Often used as the source of water for communities and industries.

HABITAT:

The place or type of site where a plant or animal naturally lives and grows.

HEAVY METALS:

Metals present in municipal and industrial wastes that pose long-tern environmental hazards if not properly disposed. Heavy metals can contaminate ground and surface waters, fish and other food stuffs. The metals of most concern are: arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium and zinc (see also separate listings of these metals for their health effects).

HERBICIDE:

A type of pesticide that is specifically designed to kill plants and can also be toxic to other organisms.

HYDROCARBONS:

Any chemical of a large family of chemicals containing carbon and hydrogen in various combinations.

INCINERATOR:

A furnace designed to burn wastes.

INFLUENT:

Influent for an industry would be the river water that the plant intakes for use in its processing. Influent to a municipal treatment plant is untreated wastewater.

IN-PLACE POLLUTION:

As used in the RAP, refers to pollution from contaminated sediments. These sediments are polluted from post discharges from municipal and industrial sources.

INTERNATIONAL JOINT COMMISSION (IJC):

An agency formed by the United States and Canada to guide management of the Great Lakes and resolve border issues.

ISOROPYLBIPHENYL:

A chemical compound used as a substitute for PCB.

LANDFILL:

A conventional sanitary landfill is "a land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading solid wastes in thin layers, materials at the end of each operating day". Hazardous wastes frequently require various types of pretreatment before they are disposed of, i.e., neutralization chemical fixation encapsulation. Neutralizing and disposing of wastes should be considered a last resort. Repurifying and reusing waste materials or recycling them for another use may be less costly.

LC-1:

The concentration that results in 1% mortality of the test animal populations exposed to the contaminant.

LC_{50}:

Lethal concentration for 50% of the test population exposed to a toxicant substance.

LD_{50}:

Lethal dose for 50 percent of the test population exposed to a toxicant substance.

LEACHATE:

The contaminated liquid which seeps from a pile or cell of solid materials and which contains water, dissolved and decomposing solids. Leachate may enter the groundwater and contaminate drinking water supplies.

LOAD:

The total amount of materials or pollutants reaching a given local.

MACROPHYTE:

A rooted aquatic plant.

MASS:

The amount of material a substance contains causing it to have weight in a gravitational field.

MASS BALANCE:

A study that examines all parts of the ecosystem to determine the amount of toxic or other pollutant present, its sources, and the processes by which the chemical moves through the ecosystem.

MESOTROPHIC:

Refers to a moderately fertile nutrient level of a lake between the oligotrophic and eutrophic levels. (See also "Eutrophic" and "Oligotrohpic.")

MILLIGRAMS PER LITER (mg/1):

A measure of the concentration of substance in water. For most pollution measurement this is the equivalent of "parts per million".

MITIGATION:

The effort to lessen the damages caused, by modifying a project, providing alternatives, compensating for losses or replacing lost values.

MIXING ZONE:

The portion of a stream or lake where effluent is allowed to mix with the receiving water. The size of the area depends on the volume and flow of the discharge and receiving water. For streams the mixing zone it is one-third of the lowest flow that occurs once every 10 years for a seven day period.

NONPOINT SOURCE POLLUTION (NSP):

Pollution whose sources cannot be traced to a single point such as a municipal or industrial wastewater treatment plant discharge pipe. Nonpoint sources include eroding farmland and construction sites, urban streets, and barnyards. Pollutants from these sources reach water bodies in runoff, which can best be controlled by proper land management.

NPS:

See nonpoint source pollution.

OLIGOTROPHIC:

Refers to an unproductive and nutrient-poor lake. Such lakes typically have very clear water. (See also "Eutrophic" and "Mesotrophic.")

OUTFALL:

The mouth of a sewer, drain, or pipe where effluent from a wastewater treatment plant is discharged.

PATHOGEN:

Any infective agent capable of producing disease. It may be a virus, bacterium, protozoan, etc.

PELAGIC:

Referring to open water portion of a lake.

PESTICIDE:

Any chemical agent used to control specific organisms, such as insecticides, herbicides, fungicides, etc.

PH:

A measure of acidity or alkalinity, measured on a scale of 0 to 14 with 7 being neutral and 0 being most acid, and 14 being most alkaline.

PHENOLS:

Organic compounds that are byproducts of petroleum refining, textile, dye, and resin manufacture. High concentrations can cause taste and odor problems in fish. Higher concentration can be toxic to fish and aquatic life.

PHOSPHORUS:

A nutrient that, when reaching lakes in excess amounts, can lead to overfertile conditions and algae blooms.

PLANKTON:

Tiny plants and animals that live in water.

POINT SOURCES:

Sources of pollution that have discrete discharges, usually from a pipe or outfall.

POLLUTION:

The presence of materials or energy whose nature, location, or quantity produces undesired environmental effects.

POLYCHLORINATED BIPHENYLS(PCBs):

A group of 209 compounds, PCBs have been manufactured since 1929 for such common uses as electrical insulation and heating/cooling equipment, because they resist wear and chemical breakdown. Although banned in 1979 because of their toxicity, they have been detected on air, land and water. Recent surveys found PCBs in every section of the country, even those remote from PCB manufacturers.

POLYCHLORINATED ORGANIC COMPOUNDS:

A group of toxic chemicals which contain several chlorine atoms.

PRETREATMENT:

A partial wastewater treatment required from some industries. Pretreatment removes some types of industrial pollutants before the wastewater is discharged to a municipal wastewater treatment plant.

PRIORITY POLLUTANT:

A list of toxic chemicals identified by the federal government because of their potential impact in the environment and human health. Major dischargers are required to monitor all or some of these chemicals when their WPDES permits are reissued.

PRIORITY WATERSHED:

A drainage area about 100,000 acres in size selected to receive Wisconsin Fund money to help pay the cost of controlling nonpoint source pollution. Because money is limited, only watersheds where problems are critical, control is practical, and cooperation is likely are selected for funding.

PRODUCTIVITY:

A measure of the amount of living matter which is supported by an environment over a specific period of time. Often described in terms of algae production for a lake.

PUBLIC LAW 92-500 (CLEAN WATER ACT):

The federal law that sets national policy for improving and protecting the quality of the nation's waters. The law set a timetable for the cleanup of the nation's waters and stated that they are to be fishable and swimmable. This also required all dischargers of pollutants to obtain a permit and meet the conditions of the permit. To accomplish this pollution cleanup, billions of dollars have been made available to help communities pay the cost of building sewage treatment facilities. Amendments in the Clean Water Act were made in 1977 by passage of Public Law 95-217, and in 1987.

PUBLIC PARTICIPATION:

The active involvement of interested and affected citizens in governmental decision-making.

PUBLICLY OWNED TREATMENT WORKS (POTW):

A wastewater treatment plat owned by a city, village or other unit of government.

RAP:

See Remedial Action Plan.

RECYCLING:

The process that transforms waste materials into new products.

REMEDIAL ACTION PLAN:

A plan designed to restore beneficial uses to a Great Lakes Area of Concern.

REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RF/FS):

An investigation of problems and assessment of management options conducted as part of a superfund project.

RESOURCE CONSERVATION AND RECOVERY ACT OF 1976 (RCRA):

This federal law amends the Solid Waste Disposal Act of 1965 and expands on the Resource Recovery Act of 1970 to provide a program that regulates hazardous wastes, to eliminate open dumping and to promote solid waste management programs.

RETRO-FIT:

The placement of an urban structural practice in an existing urban area, which may involve rerouting existing storm sewers and/or relocating existing buildings or other structures.

RIPARIAN:

Belonging or relating to the bank of a lake, river or stream.

RIPRAP:

Broken rock, cobbles, or boulders placed on the bank of a stream to protect it against erosion.

RULE:

Refers to Wisconsin administrative rules. See Wisconsin Administrative Code.

RUNOFF:

Water from rain, snowmelt, or irrigation that flows over the ground surface and returns to streams. Runoff can collect pollutants from air or land and carry them to receiving waters.

SECONDARY IMPACTS:

The indirect effects that an action can have on the health of the ecosystem or the economy.

SECONDARY TREATMENT:

Two-stage wastewater treatment that allows the coarse particles to settle out, as in primary treatment, followed by biological breakdowns of the remaining impurities. Secondary treatment commonly removes 90% of the impurities. Sometimes "secondary treatment" refers simply to the biological part of the treatment process.

SEDIMENT:

Soil particles suspended in and carried by water as a result of erosion.

SEICHES:

Changes in water levels due to the tipping of water in an elongated lake basin whereby water is raised in one end of the basin and lowered in the other.

SEPTIC SYSTEM:

Sewage treatment and disposal for homes not connected to sewer lines. Usually the system includes a tank and drain field. Solids settle to the bottom of the tank. Liquid percolates through the drain field.

SLUDGE:

A byproduct of wastewater treatment; waste solids suspended in water.

SOLID WASTE:

Unwanted or discharged material with insufficient liquid to be free flowing.

STANDARDS:

See water quality standards.

STORM SEWERS:

A system of sewers that collect and transport rain and snow runoff. In areas that have separated sewers, such stormwater is not mixed with sanitary sewage.

SUPERFUND:

A federal program that provides for cleanup of major hazardous landfills and land disposal areas.

SUSPENDED SOLIDS (SS):

Small particles of solid pollutants suspended in water.

SYNERGISM:

The total effect is greater than the sum of the individual effects. For example, the characteristic property of a mixture of toxicants that exhibits a greater-than-additive cumulative toxic effect.

TACs:

Technical advisory committees that assisted in the development of the Remedial Action Plan.

TERTIARY TREATMENT:

See advanced wastewater treatment.

TOP-DOWN MANAGEMENT:

A management theory that uses biomanipulation, specifically the stocking of predator species of fish to improve water quality.

TOTAL MAXIMUM DAILY LOADS:

The maximum amount of a pollutant that can be discharged into a stream without causing a violation of water quality standards.

TOXIC:

An adjective that describes a substance which is poisonous, or can kill or injure a person or plants and animals upon direct contact or long-term exposure. (Also, see toxic substance.)

TOXIC SUBSTANCE:

A chemical or mixture of chemicals which, through sufficient exposure, or ingestion, inhalation of assimilation by an organism, either directly from the environment or indirectly by ingestion through the food chain, will, on the basis of available information cause death, disease, behavioral or immunologic abnormalities, cancer, genetic mutations, or development of physiological malfunctions, including malfunctions in reproduction or physical deformations, in organisms or their offspring.

TOXICANT:

See toxic substance.

TOXIcity:

The degree of danger posed by a toxic substance to animal or plant life. Also see acute toxicity, chronic toxicity and additivity.

TOXIcity REDUCTION EVALUATION:

A requirement for a discharger that the causes of toxicity in an effluent be determined and measures taken to eliminate the toxicity. The measures may be treatment, product substitution, chemical use reduction or other actions that will achieve the desired result.

TREATMENT PLANT:

See wastewater treatment plant.

TROPHIC STATUS:

The level of growth or productivity of a lake as measured by phosphorus content, algae abundance, and depth of light penetration.

TURBIDITY:

Lack of water clarity. Turbidity is usually closely related to the amount of suspended solids in water.

UNIVERSITY OF WISCONSIN-EXTENSION (UWEX):

A special outreach, education branch of the state university system.

VARIANCE:

Government permission for a delay or exception in the application of a given law, ordinance or regulation. Also, see water quality standard variance.

VOLATILE:

Any substance that evaporates at a low temperature.

WASTELOAD ALLOCATION:

Division of the amount of waste a stream can assimilate among the various dischargers to the stream. This limits the amount (in pounds) of chemical or biological constituent discharged from a wastewater treatment plant to a water body.

WASTEWATER:

Water that has become contaminated as a byproduct of some human activity. Wastewater includes sewage, washwater and the water-borne wastes of industrial processes.

WASTE:

Unwanted materials left over from manufacturing processes, refuse from places of human habitation or animal habitation.

WASTEWATER TREATMENT PLANT:

A facility for purifying wastewater. Modern wastewater treatment plants are capable of removing 95% of organic pollutants.

WATER QUALITY AGREEMENT:

The Great Lakes Water Quality agreement was initially signed by Canada and the United States in 1972 and was subsequently revised in 1978 and 1987. It proves guidance for the management of water quality, specifically phosphorus and toxics, in the Great Lakes.

WATER QUALITY LIMITED SEGMENT:

A section of river where water quality standards will not be met if only categorical effluent standards are met.

WATER QUALITY CRITERIA:

A measure of the physical, chemical or biological characteristics of a water body necessary to protect and maintain different water uses (fish and aquatic life, swimming, etc.).

WATER QUALITY STANDARDS:

The legal basis and determination of the use of a water body and the water quality criteria, physical, chemical, or biological characteristics of a water body, that must be met to make it suitable for the specified use.

WATER QUALITY STANDARD VARIANCE:

When natural conditions of a water body preclude meeting all conditions necessary to maintain full fish and aquatic life and swimming, a variance may be granted.

WATERSHED:

The land area that drains into a lake or river.

WETLANDS:

Areas that are inundates or saturated by surface or groundwater at a frequency and duration sufficient to support a variety of vegetative or aquatic life. Wetland vegetation requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs and similar areas.

WISCONSIN ADMINISTRATIVE CODE:

The set of rules written and used by state agencies to implement state statutes. Administrative codes are subject to public hearing and have the force of law.

WISCONSIN FUND:

A state program that helps pay the cost of reducing water pollution. Funding for the program comes from general revenues and bonds and is based on a percentage of the state's taxable property value. The Wisconsin Fund includes these programs:

Point Source Water Pollution Abatement Grant Program - Provides grants for 60% of the cost of constructing wastewater treatment facilities. Most of this program's money goes for treatment plant construction, but three percent of this fund is available for repair or replacement of private, on-site sewer systems.

Nonpoint Source Water Pollution Abatement Grant Program - Funds to share the cost of reducing water pollution. Nonspecified sources are available in selected priority watersheds.

Solid Waste Grant Program - Communities planning for solid waste disposal sites are eligible for grant money. $500,000 will be available each year to help with planning costs.

WISCONSIN NONPOINT SOURCE WATER POLLUTION ABATEMENT GRANT PROGRAM:

A state cost-share program established by the State Legislature in 1978 to help pay the costs of controlling nonpoint source pollution. Also known as the nonpoint source element of the Wisconsin Fund or the Priority Watershed Program.

WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM (WPDES):

A permit system to monitor and control the point source dischargers of wastewater in Wisconsin. Dischargers are required to have a discharge permit and meet the conditions it specifies.

Priority Watershed Projects in Wisconsin — Selected as of 1994

Year Selected-Map Number	Large-scale Priority Watershed Project	County(ies)
79-1	Galena River*	Grant, Lafayette
79-2	Elk Creek*	Trempealeau
79-3	Hay River*	Barron, Dunn
79-4	Lower Manitowoc River*	Manitowoc, Brown
79-5	Root River*	Racine, Milwaukee, Waukesha
80-1	Onion River*	Sheboygan, Ozaukee
80-2	Sixmile-Pheasant Branch Creek*	Dane
80-3	Big Green Lake*	Green Lake, Fond du Lac
80-4	Upper Willow River*	Polk, St. Crox
81-1	Upper West Branch Pecatonica River*	Iowa, Lafayette
81-2	Lower Black River*	La Crosse, Trempealeau
82-1	Kewaunee River*	Kewaunee, Brown
82-2	Turtle Creek*	Walworth, Rock
83-1	Oconomowoc River	Waukesha, Washington, Jefferson
83-2	Little River	Oconto, Marinette
83-3	Crossman Creek/Little Baraboo River	Sauk, Juneau, Richland
83-4	Lower Eau Claire River*	Eau Claire
84-1	Beaver Creek	Trempealeau, Jackson
84-2	Upper Big Eau Pleine River	Marathon, Taylor, Clark
84-3	Sevenmile-Silver Creeks	Manitowoc, Sheboygan
84-4	Upper Door Peninsula	Door
84-5	East & West Branch Milwaukee River	Fond du Lac, Washington, Sheboygan, Dodge, Ozaukee
84-6	North Branch Milwaukee River	Sheboygan, Washington, Ozaukee, Fond du Lac
84-7	Milwaukee River South	Ozaukee, Milwaukee
84-8	Cedar Creek	Washington, Ozaukee
84-9	Menomonee River	Milwaukee, Waukesha, Ozaukee, Washington
85-1	Black Earth Creek	Dane
85-2	Sheboygan River	Sheboygan, Fond du Lac, Manitowoc, Calumet
85-3	Waumandee Creek	Buffalo
86-1	East River	Brown, Calumet
86-2	Yahara River - Lake Monona	Dane
86-3	Lower Grant River	Grant
89-1	Yellow River	Barron
89-2	Lake Winnebago East	Calumet, Fond du Lac
89-3	Upper Fox River (Ill.)	Waukesha
89-4	Narrows Creek - Baraboo River	Sauk
89-5	Middle Trempealeau River	Trempealeau, Buffalo
89-6	Middle Kickapoo River	Vernon, Monroe, Richland
89-7	Lower East Branch Pecatonica River	Green, Lafayette
90-1	Arrowhead River & Daggets Creek	Winnebago, Outagamie, Waupaca
90-2	Kinnickinnic River	Milwaukee
90-3	Beaverdam River	Dodge, Columbia, Green Lake
90-4	Lower Big Eau Pleine River	Marathon
90-5	Upper Yellow River	Wood, Marathon, Clark
90-6	Duncan Creek	Chippewa, Eau Claire
91-1	Upper Trempealeau River	Jackson, Trempealeau
91-2	Neenah Creek	Adams, Marquette, Columbia
92-1	Balsam Branch	Polk
92-2	Red River - Little Sturgeon Bay	Door, Brown, Kewaunee
93-1	South Fork Hay River	Dunn, Polk, Barron, St. Croix
93-2	Branch River	Manitowoc, Brown
93-3	Soft Maple/Hay Creek	Rusk
93-4	Tomorrow/Waupaca River	Portage, Waupaca, Waushara
94-1	Duck Creek	Outagamie, Brown
94-2	Apple/Ashwaubenon Creeks	Outagamie, Brown
94-3	Dell Creek	Sauk, Juneau
94-4	Pensaukee River	Shawano, Oconto
94-5	Springbrook Creek	Langlade, Marathon
94-6	Sugar/Honey Creeks	Walworth, Racine

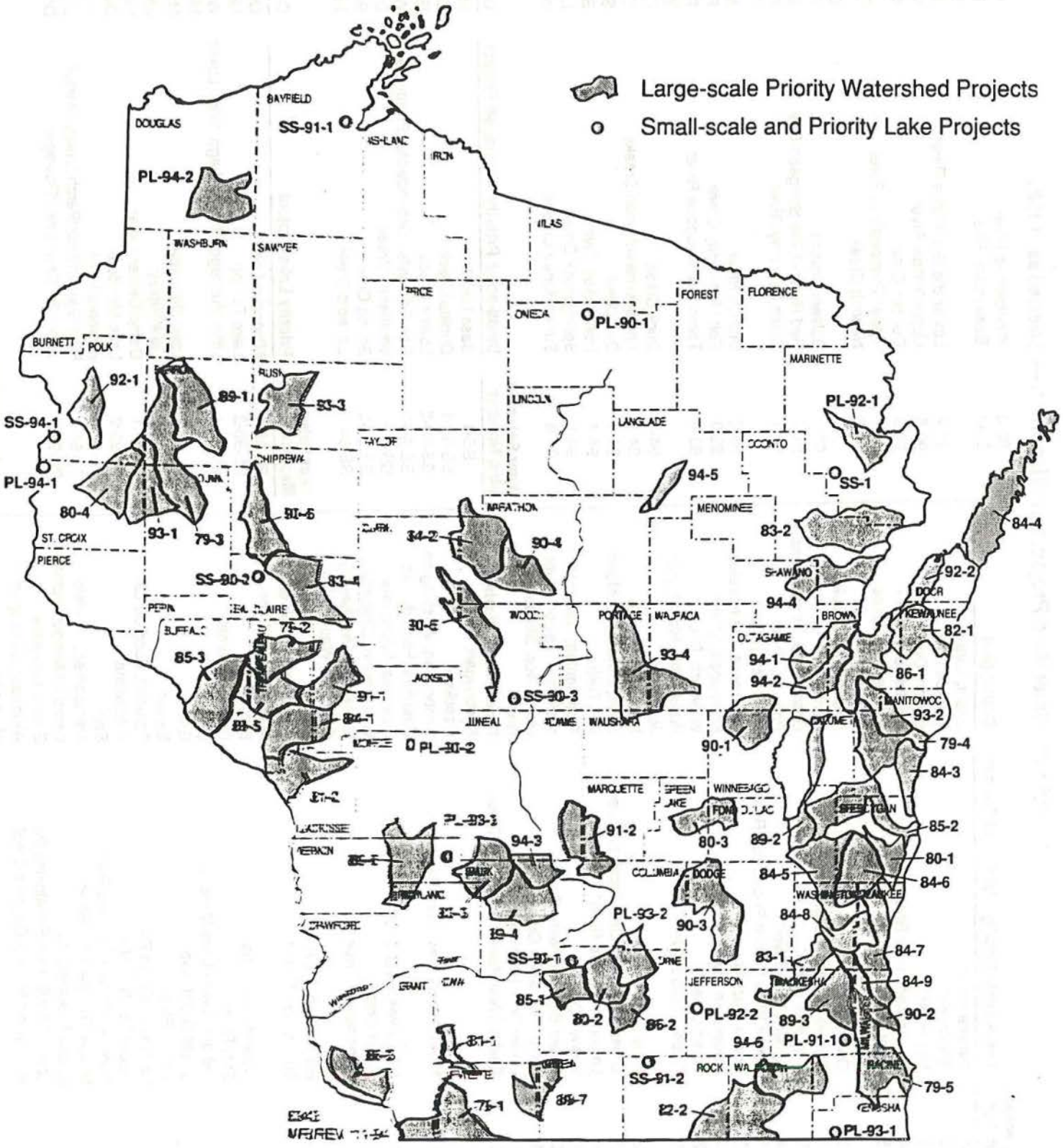
Year Selected-Map Number	Small-scale Priority Watershed Project	County(ies)
SS-1	Bass Lake*	Marinette
SS-90-1	Dunlap Creek	Dane
SS-90-2	Lowes Creek	Eau Claire
SS-90-3	Port Edwards - Groundwater Prototype	Wood
SS-91-1	Whittlesey Creek	Bayfield
SS-91-2	Spring Creek	Rock
SS-94-1	Osceola Creek	Polk

Year Selected-Map Number	Priority Lake Project	County(ies)
PL-90-1	Minocqua Lake	Oneida
PL-90-2	Lake Tomah	Monroe
PL-91-1	Little Muskego, Big Muskego, Wind Lakes	Waukesha, Racine Milwaukee
PL-92-1	Lake Noquebay	Marinette
PL-92-2	Lake Ripley	Jefferson
PL-93-1	Camp/Center Lakes	Kenosha
PL-93-2	Lake Mendota	Dane, Columbia
PL-93-3	Hillsboro Lake	Vernon
PL-94-1	Pine/Squaw/Bass/Perch Lakes Cluster	St. Croix
PL-94-2	Upper St. Croix Lake/Flowage	Douglas

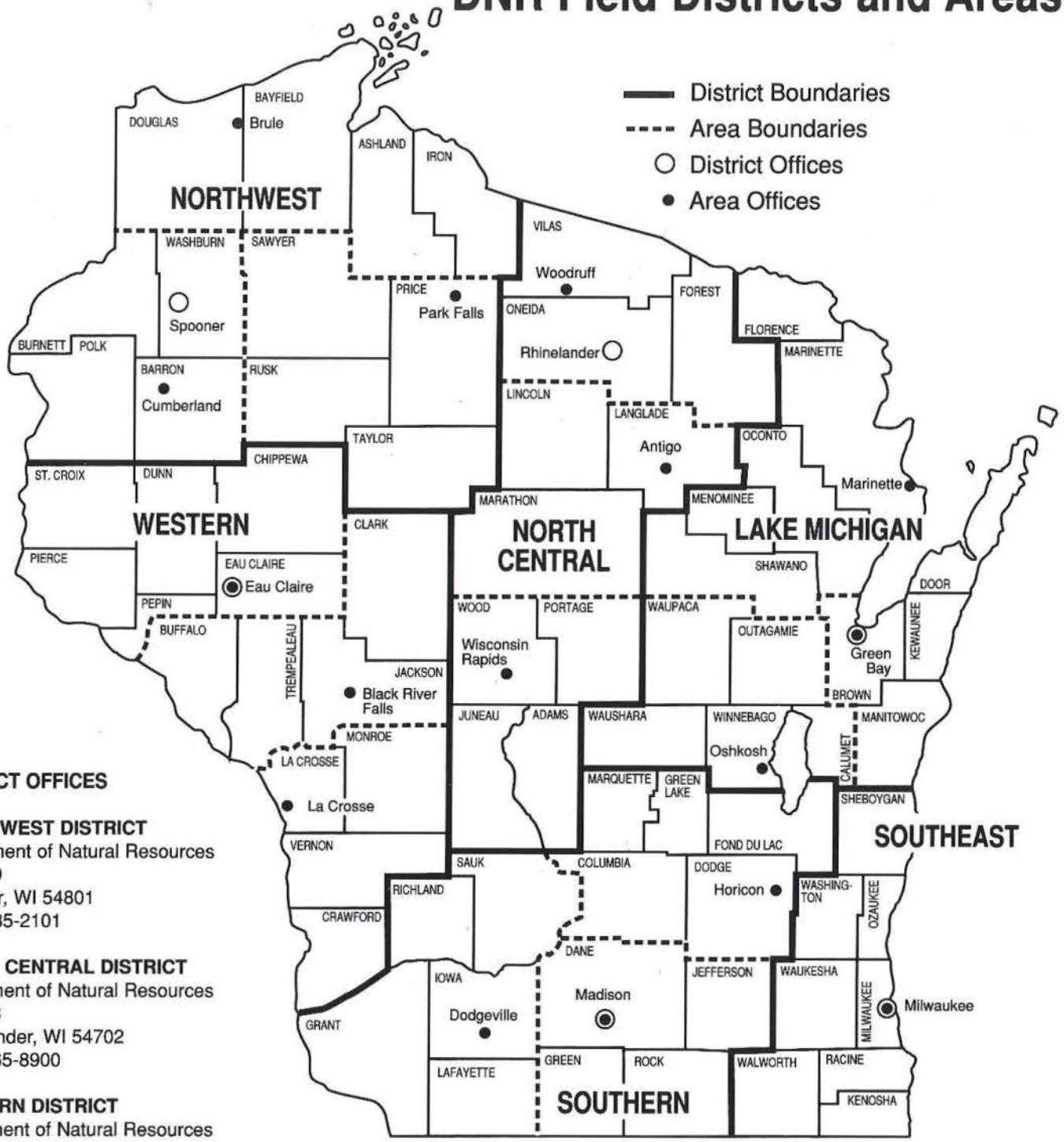
** Project completed*

Priority Watershed Projects in Wisconsin

Selected as of 1994



DNR Field Districts and Areas



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Our Mission:

To protect and enhance our Natural Resources—
our air, land and water;
our wildlife, fish and forests.

To provide a clean environment
and a full range of outdoor opportunities.

To insure the right of all Wisconsin citizens
to use and enjoy these resources in
their work and leisure.

And in cooperation with all our citizens
to consider the future
and those who will follow us.

WISCONSIN
DEPT. OF NATURAL RESOURCES