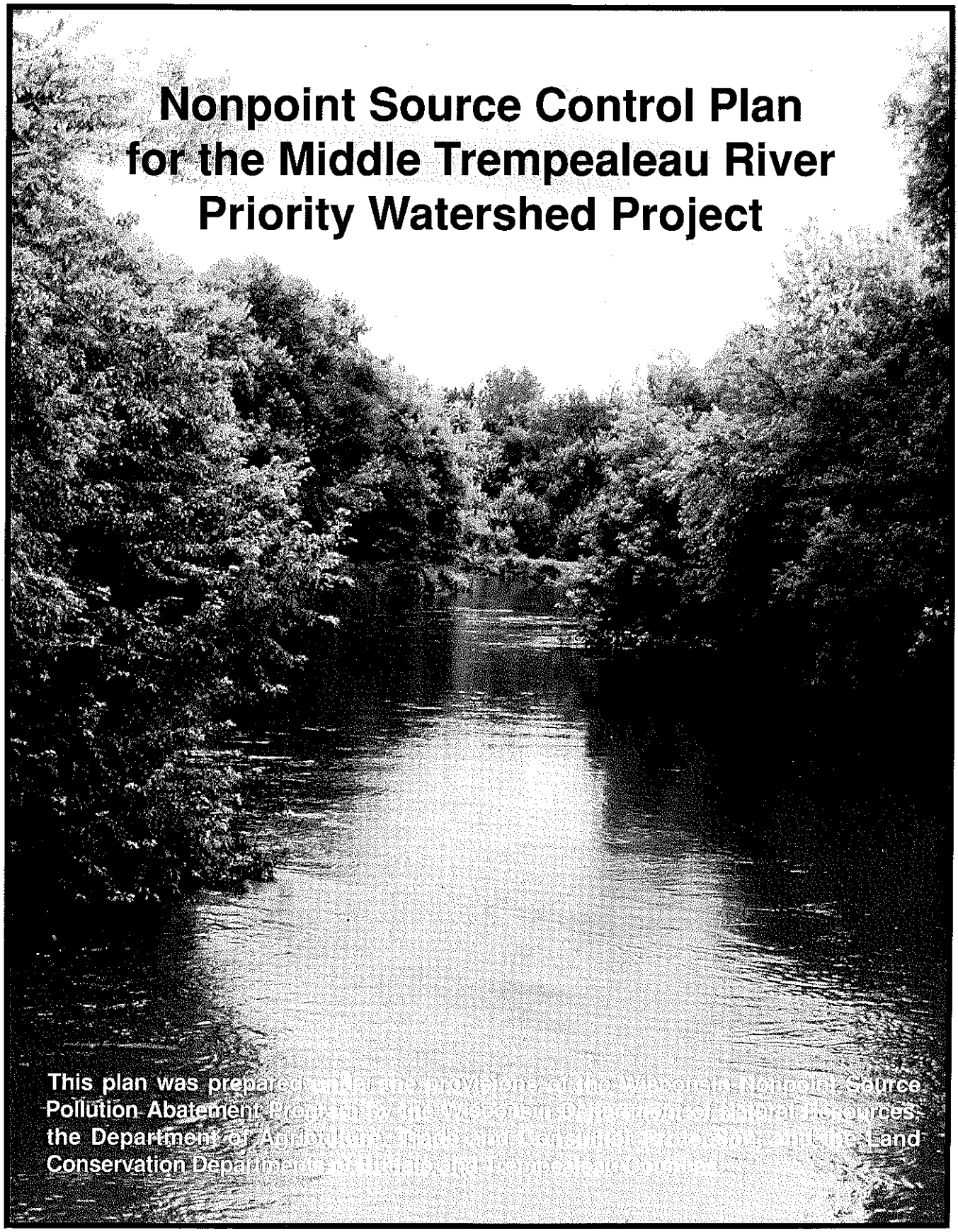
Nonpoint Source Control Plan for the Middle Trempealeau River Priority Watershed Project



This plan was prepared under the provisions of the Wisconsin Nonpoint Source Pollution Abatement Program by the Wisconsin Department of Natural Resources, the Department of Agriculture, Trade and Consumer Protection, and the Land Conservation Departments of Buffalo and Trempealeau Counties.

WATERSHED PLAN ORGANIZATION INFORMATION

Natural Resources Board

Herbert F. Behnke, Chair
Trygve A. Solberg, Vice Chairman
Neal Schneider, Secretary
James E. Tiefenthaler, Jr.
Stephen D. Willett
Betty Jo Nelsen
Mary Jane Nelson

Buffalo County Land Conservation Committee

Bernita Ness, Chair
Clem Herold
Janine Ehrat
Bob Wittig
Duane Gray

Trempealeau County Land Conservation Committee

Peter J. Speerstra, Chair
Gary Monson
Larry Amundson
David Mahlum
Eugene Halama
David Quarne

Wisconsin Department of Natural Resources

George E. Meyer, Secretary
Lyman Wible, Administrator, Division for Environmental Quality
Bruce Baker, Director, Bureau of Water Resources Management
Rebecca Wallace, Chief, Nonpoint Source & Land Management Section

Wisconsin Department of Agriculture, Trade and Consumer Protection

Alan Tracy, Secretary
Nicholas Neher, Administrator, Division of Agricultural Resource Management
Dave Jelinski, Director, Bureau of Land and Water Resources
Keith Foye, Chief, Soil and Water Resource Management Section

Nonpoint Source Control Plan for the Middle Trempealeau River Priority Watershed Project

The Wisconsin Nonpoint Source Water Pollution Abatement Program

Plan Approved
August, 1992

This Plan Was Cooperatively Prepared By:

The Wisconsin Department of Natural Resources
Wisconsin Department of Agriculture, Trade and Consumer Protection
and
The Buffalo and Trempealeau County Land Conservation Departments

Publication WR-367

For copies of this document please contact:

Department of Natural Resources
Bureau of Water Resources Management
Nonpoint Source and Land Management Section
P.O. Box 7921
Madison, WI 53707

The Department of Natural Resources acknowledges the Environmental Protection Agency's Region V Office for their involvement in the partial funding of this activity through Section 319 of the Water Quality Act.

Watershed Plan Credits

Author

Dan Simonson, Wisconsin Department of Natural Resources, Western District

Principal Contributors

Jim VandenBrook, Department of Agriculture, Trade and Consumer Protection
Darin Rudis, Trempealeau County Land Conservation Department
Gregg Stanzel, Buffalo County Land Conservation Department
Dave Appleyard, Trempealeau County Land Conservation Department
Ken Schreiber, Wisconsin Department of Natural Resources, Western District

Editor

Sabrina D. Charney, Department of Natural Resources, Water Resources Bureau

Graphics/Maps

Geographic Services Section, Department of Natural Resources

Word Processing

Document Design and Support Staff, Department of Natural Resources

Additional Contributors

In addition to the people listed on the inside front cover, the author and principal contributors would like to acknowledge the contributions of the following people:

Ken Baun, DNR Nonpoint Source & Land Management Section
Cindy Hoffland, DNR Bureau of Community Assistance
Laura Chern, DNR Groundwater Management Section
Jim Bauman, Wisconsin Department of Natural Resources
Becky Wallace, Wisconsin Department of Natural Resources
Keith Foye, Department of Agriculture, Trade and Consumer Protection
Lynn Hess, Department of Agriculture, Trade and Consumer Protection

Middle Trempealeau River Citizens Advisory Committee

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

WISCONSIN
DEPT. OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

101 South Webster Street
Box 7921
Madison, Wisconsin 53707
TELEPHONE 608-266-2621
TELEFAX 608-267-3579
TDD 608-267-6897

August 4, 1992

File Ref: 3200

Peter J.Speerstra, County Board Chair
Trempealeau County
Courthouse
1720 Main Street
Whitehall, WI 54773

Dear Mr. Speerstra:

I am pleased to approve the Middle Trempealeau River Priority Watershed Plan prepared through the Wisconsin Nonpoint Source Water Pollution Abatement Program. This plan meets the intent and conditions of s. 144.25, Wisconsin Statutes, and Chapter NR 120, Wisconsin Administrative Code. This plan has also been approved by the Department of Agriculture, Trade and Consumer Protection. I am also approving the Middle Trempealeau River Priority Watershed Plan as an amendment to the Buffalo-Trempealeau Water Quality Management Plan.

I would like to express the Department's appreciation to the Trempealeau County staff that participated in preparing this plan. We look forward to assisting Trempealeau County in implementing the Middle Trempealeau River Watershed Plan.

Sincerely,

C. D. Besadny
Secretary

cc: Dave Appleyard - Trempealeau Co. LCD
Buffalo Co. LCD
Dan Simonson - WD
Dave Jelinski - DATCP
Becky Wallace - WR/2
Cindy Hoffland - CA/GEF 1

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

WISCONSIN
DEPT. OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

101 South Webster Street
Box 7921
Madison, Wisconsin 53707
TELEPHONE 608-266-2621
TELEFAX 608-267-3579
TDD 608-267-6897

August 4, 1992

File Ref: 3200

Vernon V. Martzke, County Board Chair
Buffalo County
Courthouse
Alma, WI 54610

RECEIVED
AUG 5 1992
DNR-WD

Dear Mr. Martzke:

I am pleased to approve the Middle Trempealeau River Priority Watershed Plan prepared through the Wisconsin Nonpoint Source Water Pollution Abatement Program. This plan meets the intent and conditions of s. 144.25, Wisconsin Statutes, and Chapter NR 120, Wisconsin Administrative Code. This plan has also been approved by the Department of Agriculture, Trade and Consumer Protection. I am also approving the Middle Trempealeau River Priority Watershed Plan as an amendment to the Buffalo-Trempealeau Water Quality Management Plan.

I would like to express the Department's appreciation to the Buffalo County staff that participated in preparing this plan. We look forward to assisting Buffalo County in implementing the Middle Trempealeau River Watershed Plan.

Sincerely,

C. D. Besadny
Secretary

cc: Dave Appleyard - Trempealeau Co. LCD
Buffalo Co. LCD
Dan Simonson - WD
Dave Jelinski - DATCP
Becky Wallace - WR/2
Cindy Hoffland - CA/GEF 1

State of Wisconsin
Department of Agriculture, Trade & Consumer Protection

Alan T. Tracy
Secretary

801 West Badger Road
PO Box 8911
Madison, WI 53708-8911

July 15, 1992

Mr. Bruce Baker, Director
Bureau of Water Resources Management
Wisconsin Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

Bruce

Dear ~~Mr.~~ Baker:

The Department of Agriculture, Trade and Consumer Protection has received your request to approve the "Nonpoint Source Control Plan For The Middle Trempealeau River Priority Watershed". The Department approves the Middle Trempealeau River Watershed plan.

We look forward to assisting DNR and the Land Conservation Committees in Trempealeau and Buffalo Counties in implementing the project.

Please contact Keith Foye (273-6203) if we can be of any further assistance in moving the project to implementation.

Sincerely,

Dave Jelinski

Dave Jelinski, Director
Land and Water Resources Bureau
AGRICULTURAL RESOURCE MANAGEMENT DIVISION
(608) 273-6411

cc: Becky Wallace
Dave Appleyard, Trempealeau Co. Land Conservation Department
James Straskowski, Buffalo Co. Land Conservation Department.

Trempealeau County Land Conservation Department
Courthouse Annex
Whitehall, WI 54773
(715) 538-2311

April 2, 1992

Mr. C. D. Besadny, Secretary
Department of Natural Resources
101 S. Webster St.
P.O. Box 7921
Madison, WI 53701

Dear Mr. Besadny:

The Trempealeau County Land Conservation Committee and the Trempealeau County Board of Supervisors have reviewed and approved the Middle Trempealeau River Nonpoint Source Pollution Abatement Plan as amended on February 27, 1992. Please find a copy of the Resolution enclosed.

The Trempealeau County Land Conservation Committee would like to request immediate funding, as outlined in the Middle Trempealeau River Watershed Plan, so implementation of the watershed project can begin promptly.

Sincerely,

Donald C Forsythe

Donald Forsythe, Chairman
Trempealeau County
Land Conservation Committee

cc: Jim Bauman, DNR
Dan Simonson, DNR

DF:rds

enclosure: 1

Resolution #92-03-04 was read in regard to the Board approving the implementation plan entitled, "A Nonpoint Source Control Plan for the Middle Trempealeau River Watershed Project." Gregg Stangl, County Conservationist, spoke to the Board in regard to this resolution.

RESOLUTION #92-03-04
MIDDLE TREMPEALEAU RIVER WATERSHED PROJECT

WHEREAS, the Buffalo County Board of Supervisors through a Resolution on July 19, 1989, has expressed its support for selection of the Middle Trempealeau River Watershed as a Priority Watershed Project; and

WHEREAS, the inventory and planning phases of the project have been completed under the direction of the Buffalo County Land Conservation Committee in cooperation with the Wisconsin Department of Natural Resources; and

WHEREAS, an implementation plan has been prepared for the Middle Trempealeau River Watershed Project which assesses the existing water quality conditions, identifies the management practices and actions necessary to improve or protect the water quality conditions of the watershed, outlines the tasks required and the agency responsible for each, and establishes the time frame and cost estimates for the project; and

WHEREAS, a draft of the implementation has been available for review and comments were accepted at a public hearing held on January 6, 1992, and

WHEREAS, the Implementation of this plan will provide both technical assistance and cost share funds to eligible landowners within the priority watershed for the installation of best management practices that are designed to reduce the sources of nonpoint pollution and protect or improve the quality of Buffalo County's water resources;

NOW, THEREFORE BE IT RESOLVED that the Buffalo County Board of Supervisors approve the implementation plan entitled A Nonpoint Source Control Plan for the Middle Trempealeau River Watershed Project and that the Buffalo County Land Conservation Committee be given the authority and responsibility to act in behalf of Buffalo County to administer the Priority Watershed Project as outlined in the Plan.

Respectfully submitted:

Wayne Litscher	Wayne Litscher
Merle Severson	Merle Severson
Bernita Ness	Bernita Ness
Stanley Doebbert	Stanley Doebbert
Duane Gray	Duane A. Gray

Land Conservation Committee

Adopted by the Buffalo County Board on this 17th day of March, 1992

To: The Honorable Board of Supervisors
Trempealeau County, Wisconsin

Supervisors:

WHEREAS, the inventory and project planning phases of the Middle Trempealeau River Non-Point Watershed Project have been completed, and

WHEREAS, the Priority Watershed Plan assesses existing water quality conditions and identifies Best Management Practices needed to maintain and/or improve existing water quality conditions, and

WHEREAS, the plan allocates up to 7.4 million dollars of state funding to implement the plan during the next eight year period, and

WHEREAS, the plan was presented to the public on January 6, 1992 and has been available for public review within the Land Conservation Department since January 6, 1992, and

WHEREAS, the Land Conservation Department has not received either verbal or written public objection towards implementation of this plan, and

WHEREAS, the Land Conservation Committee has approved the plan during their March 11, 1992 session.

THEREFORE, BE IT RESOLVED, that the Trempealeau County Board of Supervisors accept and approve the Middle Trempealeau River Non-Point Source Pollution Abatement Plan as amended on February 27, 1992.

Dated at Whitehall, Wisconsin, March 16, 1992.

Respectfully Submitted,

Land Conservation Committee:

Donald Forsythe

Donald Forsythe

Aldred Sexe

Larry Amundson

Larry Amundson

Peter Speerstra

Peter Speerstra

Gary O. Monson

Gary Monson

TABLE OF CONTENTS

Page

Watershed Plan Organization Information . . . . . Inside Front Cover

Watershed Plan Credits iii

Resolutions and Letters of Approval v

TABLE OF CONTENTS xi
- List of Tables xvi
- List of Maps xviii
- List of Appendices xviii

SUMMARY 1

CHAPTER ONE
Introduction, Purpose, Legal Status, and Plan Organization 13
- Introduction 13
- Legal Status of the Nonpoint Source Water Pollution Abatement Program 13
- Plan Organization 17

CHAPTER TWO
General Watershed Characteristics 19
- Location 19
- Cultural Features 19
  - Civil Divisions and Population 19
  - Land Use Characteristics 20
  - Water Sources 21
- Physical Characteristics and Geography 21
  - Climate 21
  - Soils 22
- Water Resources 22
  - Streams 22
  - Lakes 22
  - Wetlands 23
- Groundwater Resources 23
- Endangered and Threatened Resources 24

CHAPTER THREE
Water Quality Conditions, Objectives, and Nonpoint Sources 27
- Introduction 27
  - Sediment 28

Page

Organic loading 28
Water temperature 28
Bacteria 28
Nitrates 28
Water Quality Impacts of Nonpoint Sources 28
Nonpoint Source Inventory Results 29
Sediment (upland erosion) 29
Sediment (stream bank erosion) 30
Sediment (gully erosion) 31
Organic pollutants (animal lot runoff) 32
Organic pollutants (manure spreading) 33
Water Quality Objectives 34
Subwatershed Discussion, Trempealeau River 34
Water Resource Conditions 35
Water Resource Objectives 36
Tappen Coulee Subwatershed 37
Water Resource Conditions 37
Water Resource Objectives 38
Reynolds Coulee Subwatershed 38
Water Resource Conditions 38
Water Resource Objectives 41
Lakes Coulee Subwatershed 41
Water Resource Conditions 41
Water Resource Objectives 42
Larkin Valley Subwatershed 42
Water Resource Conditions 42
Water Resource Objectives 43
Welch Coulee Subwatershed 43
Water Resource Conditions 43
Water Resource Objectives 43
Irvin Creek Subwatershed 44
Water Resource Conditions 44
Water Resource Objectives 44
Maule Coulee Subwatershed 47
Water Resource Conditions 47
Water Resource Objectives 47
Traverse Valley Subwatershed 47
Water Resource Conditions 48
Water Resource Objectives 53
Wickham Valley Subwatershed 53
Water Resource Conditions 54
Water Resource Objectives 54
Lewis Valley Subwatershed 54
Water Resource Conditions 54
Water Resource Objectives 55

Page

Swinns Valley Subwatershed 55
Water Resource Conditions 55
Water Resource Objectives 56
Botana Valley Subwatershed 56
Water Resource Conditions 56
Water Resource Objectives 56
Meyers Valley Subwatershed 59
Water Resource Conditions 59
Water Resource Objectives 59
American Valley Subwatershed 60
Water Resource Conditions 60
Water Resource Objectives 61
North Creek Subwatershed 61
Water Resource Conditions 62
Water Resource Objectives 62
Plum Creek Subwatershed 62
Water Resource Objectives 65
Other Pollutant Sources 65
Municipal Wastewater Treatment Facilities 65
Arcadia 65
Independence 66
Whitehall 66
Industrial Wastewater Treatment Facilities 66
AMPI 66
A-G Coop 66
Solid Waste Landfill Sites 67
Blair 67
Independence 67
Arcadia 67

CHAPTER FOUR
Management Actions: Control Needs and Eligibility for Cost-Share Funding 69
Introduction 69
Specific Management Actions by Source and Type 69
Croplands and other rural lands 69
Gullies 71
Animal Lot Runoff 71
Manure spreading 73
Stream Bank Erosion 76
Livestock Access 76
Fish structures 77
Easements 77
Easements to Support Wetland Restoration 77
Ordinances 78
Developed Urban Lands 79

Page

Nutrient and Pesticide Management 80
Pesticide Management 80

CHAPTER FIVE
Local Government's Implementation Program 81
Introduction 81
Project Participants: Roles and Responsibilities 82
Landowners and Land Operators 82
DNR 83
Project Administration 83
Financial Support 83
Project Evaluation 84
Technical Assistance 84
DATCP 84
Other Agencies 85
Agricultural Best Management Practices (BMPs) 86
BMPs Eligible For Cost-Sharing And Their Rates 86
BMPs Not Cost-Shared 90
Activities and Sources of Pollution Not Eligible For Cost Share Assistance 91
Cost-Share Budget 92
Easement Costs 92
Cost Containment 96
Bids and Average Costs 96
Flat Rates 96
Cost-Share Agreement Reimbursement Procedures 96
Nonpoint Source Grant Agreement and Administration 96
Cost Share Agreement and Administration 97
Landowner Contact Strategy 98
Procedure for Developing a Cost Share Agreement 99
Identifying Wildlife and Fishery Needs 100
Submittal to the DNR 101
Local Assistance Grant Agreement Administration 101
Budget and Staffing Needs 102
Staff Needs 102
Staffing Costs 104
Implementation Schedule 105
Grant Disbursement and Project Management Schedule 105
Total Project Cost 105
Involvement of Other Programs 105
Information and Education Program 106
Introduction 106
Objectives 106
Audience 107
Delivery Team 107

Page

Specific Information and Educational Activities 107
Newsletters 107
Direct mailings 108
Newspaper Articles 108
Radio 109
Video Tape Production 109
Public Information Meetings 110
Public Educational Meetings 110
Educational Meeting for Contractors 111
Field Days 111
Nutrient and Pesticide Management Education 112
Nutrient Management Demonstration Plots 112
Objectives 112
Demonstration Site 113
Evaluation Criteria 113
Treatments 113
Pesticide Management Demonstration Plot 114
Objectives 114
Demonstration Site 114
Evaluation Criteria 114
Treatments 114
Manure Management Demonstration Plots 115
Objectives 115
Demonstration Site 115
Evaluation Criteria 116
Treatments 116
Deep Soil Nitrate Testing 116
Manure Testing 117
Educational Tour 117
Promotional Items 118
Abandon Well Protection 118

CHAPTER SIX
Integrated Resources Management 123
Introduction 123
Stewardship Program - DNR 123
Fish Habitat Improvement 123
Agricultural Programs 124
DNR Forestry Program 124
Wildlife Management Program 124

CHAPTER SEVEN
Progress Assessments 127
Introduction 127
Administrative Review 127

Page

Accomplishments Reporting 127
Financial Expenditures 128
Time Spent on Project Activities 129
Pollutant Reduction Evaluation 129
Purpose 129
Procedure 130
Cost-Share Agreements 130
Watershed mapping 131

CHAPTER EIGHT
Evaluation Monitoring Plan 133
Introduction 133
Objectives of the Watershed Project 133
Water Resources To Be Monitored 133
Monitoring Techniques 135
Habitat Evaluation 135
Fisheries 136
Macroinvertebrate Sampling 136
Dissolved Oxygen and Temperature 136
Water Quality Monitoring 137
Sampling Approach 137
Habitat Suitability Index 137
Water Quality Monitoring 138
Fish Surveys 139
Macroinvertebrate Sampling 140
Dissolved Oxygen and Temperature 140
USGS Monitoring 140
Data Management and Analysis 141
Workload and Cost Analysis 142
Workload Analysis 142
Project Costs 142
Watershed mapping 142

List of Tables

Table 2-1. Watershed Project Areas by County 19
Table 2-2. Middle Trempealeau River Wathershed Civil Division and Population Estimates 20
Table 2-3. Land Use Categories in the Middle Trempealeau River Watershed 21
Table 2-4. Results of Well Sampling in the Middle Trempealeau River Project 24

Page

Table 2-5. Threatened Species of the Middle Trempealeau River Priority Watershed 25
Table 3-1. Upland Sediment Loading for Each Subwatershed in the Middle Trempealeau River Project by Source (in tons/year). 30
Table 3-2. Stream Bank Sediment Loading for Each Subwatershed in the Middle Trempealeau River Project (in tons/year) 31
Table 3-3. Organic Pollutant Loading for Each Subwatershed in the Middle Trempealeau River Report (in lbs/year) 32
Table 3-4. Manure Spreading on Critical Acres in the Middle Trempealeau River Project 33
Table 3-5. Amount of Inventoried Pollutant Sources in the Middle Trempealeau River Project 33
Table 3-6. Subwatersheds of the Middle Trempealeau River Watershed. 35
Table 3-7. Trempealeau River - 1990 Bacteriological Sampling Results 36
Table 3-8. Point Source Dischargers of the Middle Trempealeau River Watershed . . . 67
Table 4-1. Upland Sediment Eligibility Criteria 70
Table 4-2. Eligible Categories for Barnyard Runoff Management by Subwatershed . . 72
Table 4-3. Manure Spreading Eligibility Criteria for Manure Management Planning 76
Table 5-1. State Cost-Share % Rates for Best Management Practices[5] 86
Table 5-2. Practices Using a Flat Rate for State Cost-Share Funding 87
Table 5-3. Cost-Share Budget Needs for Rural Management Practices in the Middle Trempealeau River Watershed 93
Table 5-3a. Cost-Share Budget Needs for Rural Management Practices in the Middle Trempealeau River Watershed 94
Table 5-3. Cost-Share Budget Needs for Rural Management Practices in the Middle Trempealeau River Watershed 95
Table 5-4. Estimated County LCD Staff Needs for Project Implementation 103
Table 5-5. Total Project Costs at 75% Landowner Participation Rate 103
Table 5-6a. Grant Disbursement Schedule at 75% Landowner Participation Rate for Buffalo County 104
Table 5-6b. Grant Disbursement Schedule at 75% Landowner Participation Rate for Trempealeau County 104
Table 5-7. Information and Education Plan Summary 118
Table 5-8. Labor Requirements for I. and E. Activities 120
Table 5-9. Budget for Information and Education Plan 120
Table 8-1. A Partial Listing of HSI Model Variables for Stream Studies (Modified from Terrell, et al., 1982). 138
Table 8-2. Summary of Proposed Monitoring Activities in the Middle Trempealeau Watershed. 143
Table 8-3. Workload Requirements for Monitoring in the Middle Trempealeau Watershed 143
Table 8-4. Costs of Middle Trempealeau River Evaluation Monitoring Plan 144

Page

List of Maps

Map 1. Middle Trempealeau Priority Watershed. 15
Map 2. Lakes Coulee, Reynolds Coulee, and Tappen Coulee Subwatersheds. 39
Map 3. Irvin Creek, Larkin Valley, and Welch Coulee Subwatersheds. 45
Map 4. Maule Coulee and Plum Creek Subwatersheds. 49
Map 5. Traverse Valley and Wickham Valley Subwatersheds. 51
Map 6. Botana Valley, Lewis Valley, and Swinns Valley Subwatersheds. 57
Map 7. American Valley, Meyers Valley, and North Creek Subwatersheds 63

List of Appendices

APPENDIX A
Glossary A-1

SUMMARY

Introduction

This priority watershed project plan assesses the nonpoint sources of water pollution in the Middle Trempealeau River Watershed and guides the implementation of nonpoint source water pollution control measures. These pollution control measures are needed to meet water resource objectives for the Middle Trempealeau River and its tributaries. Nonpoint source water pollution refers to water pollution that occurs when runoff water becomes polluted as it runs over the land or seeps through the soil. Nonpoint source pollutants most commonly found in this watershed include:

- sediment from cropland erosion;
- sediment from eroding streambanks and gullies;
- polluted runoff from barnyards and feedlots;
- nutrients and pesticides from cropland runoff.

The purpose of this project is to reduce the amount of pollutants from nonpoint sources that reach surface water and groundwater within the Middle Trempealeau River Priority Watershed Project area. It plans to accomplish this by assisting project area landowners in applying "Best Management Practices" that will control sources of nonpoint source water pollution. The project will assist landowners in the application of Best Management Practices through financial, technical, and educational support.

The plan was prepared by the Buffalo and Trempealeau County Land Conservation Departments (LCD), the DATCP (DATCP), the DNR (DNR), with assistance from the University of Wisconsin-Extension (UWEX). The DNR selected the Middle Trempealeau River Watershed as a priority watershed project through the Wisconsin Nonpoint Source Water Pollution Abatement Program in the fall of 1989. It joins over 50 similar watershed projects statewide in which nonpoint source water pollution control measures are being planned and implemented.

The project is administered on the state level by DNR and DATCP. The Buffalo and Trempealeau County Land Conservation Departments administer the project on the local level with assistance from UW-Extension and the Soil Conservation Service (U.S. Department of Agriculture).

Participation in the program by landowners is voluntary. However, those who participate must follow the requirements of the program's administrative rules (NR 120) and the *Nonpoint Source Water Pollution Control Plan* (which this document summarizes).

General Watershed Characteristics

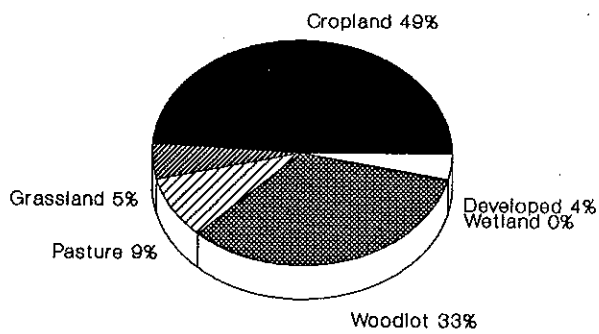
The Middle Trempealeau River Watershed is a 220 square mile drainage area located in the central portion of Trempealeau County in West Central Wisconsin. Eighty four percent of the watershed is located in Trempealeau County and 16% in the eastern part of Buffalo County. Municipalities include Blair, Whitehall, Independence and Arcadia. The watershed has numerous streams that drain into the Trempealeau River and includes all of the following named streams:

American Valley Creek
Botana Valley Creek
Dubiel Creek
Hunt Valley Creek
Irvin Creek
Lakes Coulee Creek
Larkin Valley Creek
Lewis Valley Creek
Lyga Valley Creek
Maule Coulee Creek
Meyers Valley Creek
Newcomb Valley Creek
North Creek
Peterson Coulee Creek
Plum Creek
Rainey Valley Creek
Reynolds Coulee Creek
Swinns Valley Creek
Tappen Coulee Creek
Traverse Valley Creek
Trempealeau River
Turton Creek
Welch Coulee Creek
Wickham Valley Creek

The steep topography of the area is characterized with wooded slopes and agricultural croplands in the valleys. Most of the streams are considered cold water streams and some contain populations of trout. Sixty three percent of the area is in agricultural land use, 23% is woodland, and the remainder is developed or wetlands. (see table 1 and figure 1) There are an estimated 9,573 residents that live in the project area. Sixty two percent of the residents live in the four municipalities and 38% live in the townships.

Table 1., Figure 1: Land Use in the Middle Trempealeau River Watershed

Land Use	Acres
Cropland	60,783
Grassland	6,382
Pasture	11,151
Woodlot	41,363
Wetland	217
Developed	4,604
Total Area	124,500



Water Quality and Objectives

The streams of the project area were evaluated as to their current condition and the detail of what was found is reported in the draft *Nonpoint Source Water Pollution Control Plan.* The purpose of establishing current stream condition is to help project planners identify the types of nonpoint source water pollution problems present and to predict the potential condition of each stream if nonpoint sources of pollution are controlled. This process results in the establishment of specific water resource objectives for each major stream in the project area.

Most of the water resource objectives for project area streams involve either protecting existing conditions or improving upon them. Water quality objectives for several subwatersheds include improving stream conditions so that trout will thrive and reproduce naturally where currently they do not.

Water quality problems identified through the evaluation include streambank erosion, sedimentation of stream bottoms, organic pollution from livestock waste, warm water temperatures (harmful to trout), and high stream flows. During rainstorms or snowmelt runoff, stream water runs brown, carrying with it visible amounts of eroded soil. Some of this soil stays in the stream as sediment, filling in and destroying such value aquatic habitats as deep pools gravel stream bottoms. Sources of sediment include cropland soil erosion, gullies, and eroding streambanks. Bacteria from livestock waste are other pollutants affecting water quality, limiting recreational use of project area streams.

Sources of Pollution

Field investigations reveal that the sources of pollution in the Middle Trempealeau River Watershed are primarily from agricultural land. Major sources of water pollution identified in the project area are:

- upland erosion
- Streambank erosion
- gully erosion
- barnyard runoff

Through field assessment, County Land Conservation Department staff have quantified the extent to which each of these pollution sources are affecting water quality. The amount of pollution from each nonpoint source has been determined for every farm in the project area, and from this information, quantities of pollutants originating in each subwatershed have been estimated. Sources of pollution and their amounts are summarized below:

Barnyard Runoff Inventory Results

- 410 barnyards were evaluated for the amount of organic pollution entering nearby streams.
- 8,150 pounds of phosphorus (a critical pollutant) enter streams from barnyards during every major storm event.

Runoff of Field Applied Manure

- There are 4,628 acres of cropland that receive manure applications which are prone to excessive runoff to streams.
- 217 landowners are applying manure to one or more acres of land that are unsuitable for manure spreading.
- 49 landowners are applying manure to 30 or more acres that are unsuitable for manure spreading.

Streambank Erosion

- 191 miles of streambank were field checked for bank erosion.
- 18,695 tons of sediment fall into the streams from eroding streambanks each year.

Upland erosion

- 124,500 acres of land were evaluated for soil loss to project area streams.
- 44,667 tons of sediment enter project area streams each year from these acres; 91% of the total sediment comes from cropland.
- 49% of the above sediment comes from "highly erodible" cropland.

Gully erosion

- 16,000 tons of sediment are estimated to reach project area streams each year from eroding gullies.

Pollutant Reduction Needs

If the project is to achieve its water resource objectives, the current level of pollution occurring in the project area needs to be reduced. The *Nonpoint Source Water Pollution Control Plan* details the reduction required for each pollution source and discusses how such reductions are to be obtained.

Table 2. Pollutant Reduction Levels by Source

Source	Amount	Number of Affected Landowners or Acres
Barnyard runoff	50 to 60%	154 landowners
Upland sediment	50%	27,466 acres
Manure spreading	50%	49 landowners
Gully sediment	Unknown	unknown
Streambank sediment	40%	all participants with bank erosion

Management Actions and Cost Share Eligibilities

The Nonpoint Source Water Pollution Control Plan establishes which nonpoint sources of pollution are eligible for cost share assistance. Not every erosion site or barnyard is eligible for cost sharing through the project. Only those sources of pollution whose control are considered critical to reaching project objectives will be eligible for cost sharing.

Pollution sources are placed into two categories in regards to eligibility for cost share assistance:

Category 1: Eligible and required to be controlled for project participation

Sources of pollution in this category are eligible for cost share assistance, and are required to be controlled as part of a landowner's participation in the project. These are considered to be the more serious sources of pollution in the project area.

Category 2: Eligible but not required to be controlled for project participation

Sources of pollution in this category are eligible for cost share assistance, but their control is not a requirement of landowner participation in the project. These sources of pollution are considered to be significant, but not as serious a problem as those pollution sources in Category 1.

In order to participate in the project, a landowner will need to control all "Category 1" sources of pollution on portions of his or her land that fall within the project area. The Buffalo and Trempealeau County Land Conservation Departments have information on the sources of pollution eligible for project cost sharing for each landowner in the project area.

The criteria used to establish eligibility for each pollution source is explained below:

Cropland erosion

Eligible for cost sharing and required for project participation:
Control of erosion on land that has a sediment delivery rate greater than 0.3 tons/acre/year and has soil erosion losses greater than the allowable soil loss (sometimes referred to as "T"), is eligible for cost sharing. Control of such erosion would be a requirement of project participation.

Eligible for cost sharing but not required for project participation:
Control of erosion on land that has less than 0.3 tons/acre/year of sediment delivery is eligible for cost sharing if the land has a soil loss rate greater than the allowable soil loss ("T"). Control of such erosion, however, is not a requirement of project participation.

Gully erosion

Eligible for cost sharing and required for project participation:
Control of active gullies that are greater than 4' in depth and 4' in width is eligible for cost sharing and would be a requirement of project participation.

Eligible for cost sharing but not required for project participation:
Control of active gullies smaller than 4' depth and 4' in width is eligible for cost sharing but is not a requirement of project participation.

Barnyard runoff

Eligible of cost sharing and required for project participation:
Control of barnyard runoff is eligible for cost sharing and will be a requirement of project participation in certain situations. Criteria of whether or not control of barnyard runoff is required for project participation varies between subwatersheds and can be found in Chapter 4 of the *Nonpoint Source Water Pollution Control Plan.*

Eligible for cost sharing but not required for project participation:
Control of barnyard runoff will be eligible for cost sharing but not be a requirement of project participation in certain situations. Criteria of whether or not control of barnyard runoff is required for project participation varies between subwatersheds and can be found in Chapter 4 of the *Nonpoint Source Water Pollution Control Plan.*

Runoff from field applied manure

Eligible for cost sharing and required for project participation:
Landowners with 30 acres or more of unsuitable land receiving manure applications are required to adopt a nutrient management plan as part of project participation.

Eligible for cost sharing but not required for project participation:
Landowners who cannot reduce the number of unsuitable manure spread acres to below 30 with a nutrient management plan will be eligible for cost sharing on manure storage. Construction of manure storage will not be required of any landowner for project participation.

Streambank erosion

Eligible for cost sharing and required for project participation:
Control of streambank erosion is eligible for cost sharing, and reduction of streambank erosion by 40% is requirement of project participation for landowners with eroding streambanks.

Livestock access to streams

Eligible for cost sharing and required for project participation:
Restricting livestock access to streams is eligible for cost sharing and is required for participation where there is evidence of erosion and trampling.

Best Management Practices

Best Management Practices, often abbreviated as "BMPs", are conservation practices that have been shown to be both effective and practical in controlling nonpoint source water pollution. The types of Best Management Practices available through the project are listed in table 3. Cost share rates indicated in table 3 will be used to determine the amount of cost sharing provided for each eligible practice installed.

Table 3. Eligible Management Practices and State Cost Share Rates

Best Management Practice	State Cost Share Rate
Contour Strip Cropping	50% (1.)*
Field Strip Cropping	50% (1.)*
Field Diversions and Terraces	70%
Grassed Waterways	70%
Reduced Tillage	50%
Critical Area Stabilization	70% (2.)
Grade Stabilization Structures	70%
Agricultural Sediment Basins	70%
Shoreline and Streambank Stabilization	70% **
Shoreline Buffers	70% (2.)
Barnyard Runoff Management	70%
Animal Lot Relocation	70%
Manure Storage Facilities	70% ***
Livestock Exclusion from Woodlots	50%
Wetland Restoration	70% (2.)
Nutrient and Pesticide Management	50% (3.)
Well Abandonment	70%
Trout Structures	70%****
Spring Development	70%

1. Flat cost share rates will be established for these BMPs.

2. Easements may be entered into with landowners identified in the watershed plan in conjunction with these BMPs.

3. Spill control basins have a state cost-share rate of 70%.

* Wildlife habitat restoration components of this practice are cost-shared at 70%.

** Pasture pumps are an eligible component to this BMP.

*** Maximum cost share amount is $10,000 including no more than $5,000 for manure transfer equipment.

**** Only approved for American, Irvine, Lakes, Reynolds, Swinns and Traverse subwatersheds.

Project Funding

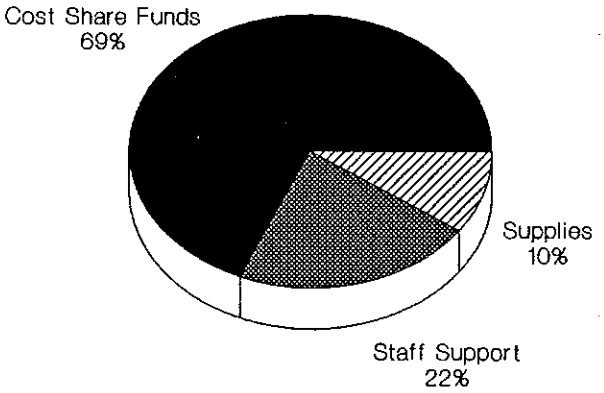
State of Wisconsin grant funds will be offered to both Buffalo and Trempealeau Counties to be used for paying staff and related costs as well as providing cost share assistance to landowners. If 75% of eligible landowners participate in the project, estimated project costs are $8.3 million. Table 4 and figure 3 shows the funding categories and the total costs for the eight year project implementation period:

Table 4: Project Costs Assuming a 75% Participation Level

Category	Amount
Cost share funds	$ 5,692,205
Staff support	1,787,971
Supplies and services *	812,910
Total	$8,293,086

* Includes supplies, travel, engineering support, and information and education.

Figure 3: Project Costs at 75% Participation Level Divided as to Use



Project Implementation Procedures

The following is an outline of the steps in carrying out this plan:

1. The *Nonpoint Source Water Pollution Plan for the Middle Trempealeau River* is formally approved by the Buffalo and Trempealeau County Boards, the DATCP, and the DNR.

2. The DNR awards two grants to each of the counties in the watershed:

   a. Local Assistance Grant Agreement: This provides funds to the county to hire staff and obtain supplies, services and materials needed to carry out the plan.

   b. Nonpoint Source Grant Agreement: This provides funds for the county to pay landowners cost sharing for the proper installation of approved Best Management Practices.

3. County Land Conservation Departments contact eligible landowners (as identified in the plan) to explain the program and encourage the development and signing of Cost Share Agreements. Landowners may enter into Cost Share Agreements with the county only during the first three years of the project. The Cost Share Agreement defines the types and amounts of Best Management Practices needed, the estimated costs, the cost share amount, the schedule for installation, and the landowner's responsibilities for maintaining installed Best Management Practices.

4. Upon entering into a Cost Share Agreement, the County Land Conservation Department schedules practice installation (no more than five years after signing of agreement), designs Best Management Practices, and insures that the Best Management Practices are installed in compliance with the approved designs.

5. After paying for an installed Best Management Practice, the landowner submits proof of payment to the County Land Conservation Department and the landowner is reimbursed the cost share amount.

Information and Education

An information and education plan is part of the overall watershed plan document. It details the various activities to be conducted by the agencies and organizations to assist the public in understanding the purpose of the project and how landowners can be involved. Some of the these activities will include:

- demonstrations
- newsletters
- mailings
- educational meetings

Project Evaluation and Monitoring

Watershed projects are evaluated by collecting information annually during project implementation, and at the project's conclusion. Three areas will be evaluated in this project:

Administrative - Includes the progress in providing technical and financial assistance to eligible landowners and carrying out education activities identified in the plan. Progress in this area will be tracked by the Land Conservation Departments and reported to DNR and DATCP.

Pollutant Reduction Levels - Reductions in nonpoint source pollutant loadings resulting from changes in land use practices will be calculated by the Land Conservation Departments and reported to DNR and DATCP.

Water Resources - Changes in water quality, habitat, and water resource characteristics will be monitored by DNR during implementation and at the end of the project period.

For More Information

For more information on the Middle Trempealeau River Watershed Project, or to obtain a draft copy of the full *Nonpoint Source Water Pollution Control Plan*, contact either the Buffalo County or Trempealeau County Land Conservation Department:

Buffalo County Land Conservation Department
Buffalo County Courthouse, Alma, Wisconsin
608/685-6260

Trempealeau County Land Conservation Department
Trempealeau County Courthouse, Whitehall, Wisconsin
715/538-2311

CHAPTER ONE
Introduction, Purpose, Legal Status, and Plan Organization

Introduction

The Middle Trempealeau River watershed was selected in October 1989 as a large-scale priority watershed project through the Wisconsin Nonpoint Source Water Pollution Abatement Program. The purpose of the priority watershed program is to achieve and maintain the water quality of lakes, streams, wetlands, and groundwater in the watershed and downstream in an efficient and effective manner.

The watershed, as shown in map 1, was selected because of the water quality problems in the watershed's lakes and streams. The land use in the watershed is primarily agricultural. Dairy farming is the predominant agricultural land use with some related uses, and the area is experiencing growing poultry production.

Legal Status of the Nonpoint Source Water Pollution Abatement Program

The Wisconsin Nonpoint Source Water Pollution Abatement Program was created in 1978 by the Wisconsin Legislature and Governor. They recognized the need to address the extensive water quality threats and problems in Wisconsin's lakes, streams, and groundwater that are not caused by point sources. The program is administered by the DNR (DNR) with assistance from the DATCP (DATCP). Section 144.25 of the Wisconsin Statutes authorizes the program, and Chapter NR 120 of the Wisconsin Administrative Code governs its operation.

The Middle Trempealeau River Watershed Plan was prepared under the authority of the Wisconsin Nonpoint Source Water Pollution Abatement Program described in Section 144.25 of the Wisconsin Statutes and Chapter NR 120 of the Wisconsin Administrative Code. It was prepared under the cooperative efforts of DNR, DATCP, the Trempealeau and Buffalo County Land Conservation Departments, local units of government, and the Middle Trempealeau River Priority Watershed Citizens Advisory Committee.

The nonpoint source program operates on a project basis where the project area is a watershed. State funds are available to cost-share the installation of urban and rural nonpoint

source controls termed "best management practices" on critical sites within the priority watershed. Cost-share rates range from 50 to 70 percent. State funds are also available to hire additional local staff to implement the priority watershed project. Participation by landowners is voluntary.

Each project is divided into two phases. In the first phase, the project development phase, a priority watershed plan is developed jointly by DNR, DATCP, and local units of government. Generally, the county Land Conservation Department represents the county government. The purpose of this plan is to guide the second phase of the project, the implementation phase, towards achieving the water quality needs. The project development phase plan lasts up to 18 months. Program funds are provided to local units of government to hire staff to participate in developing the plan. Assistance is also provided by the University of Wisconsin-Extension and the Soil Conservation Service.

The implementation phase is normally eight years. During the first three years, landowners may sign cost-share agreements with local units of government. These agreements must contain all of the best management practices needed to control the nonpoint sources identified as critical in the watershed plan. Landowners have up to five years after signing a cost-share agreement to install all of the best management practices on the cost-share agreement. Municipalities are also eligible to enter into agreements. Similar to the plan development phase, program funds are available to local units of government to support staff needed to assist landowners and conduct other implementation activities. Assistance is also provided by the University of Wisconsin-Extension and the Soil Conservation Service. All best management practices must be maintained for ten years starting with the installation of the last practice on the cost-share agreement. Presently there are over 50 priority watershed projects statewide.

Purpose

The program for abating nonpoint sources is based on establishing projects in priority areas. There are several steps involved in developing a project from start to finish, and they involve different state agencies, local governments, citizen groups, and landowners.

1. The Plan - A priority watershed project is guided by a plan prepared cooperatively by the DNR, DATCP, and local units of government, with input from a local citizens advisory committee. Project staff evaluate the conditions of surface water and groundwater, and inventory the types of land use and nonpoint sources of pollution throughout the watershed. The priority watershed plan assesses nonpoint and other sources of water pollution and identifies best management practices needed to control pollutants to meet specific water resource objectives. The plan guides implementation of these practices in an effort to improve water quality.