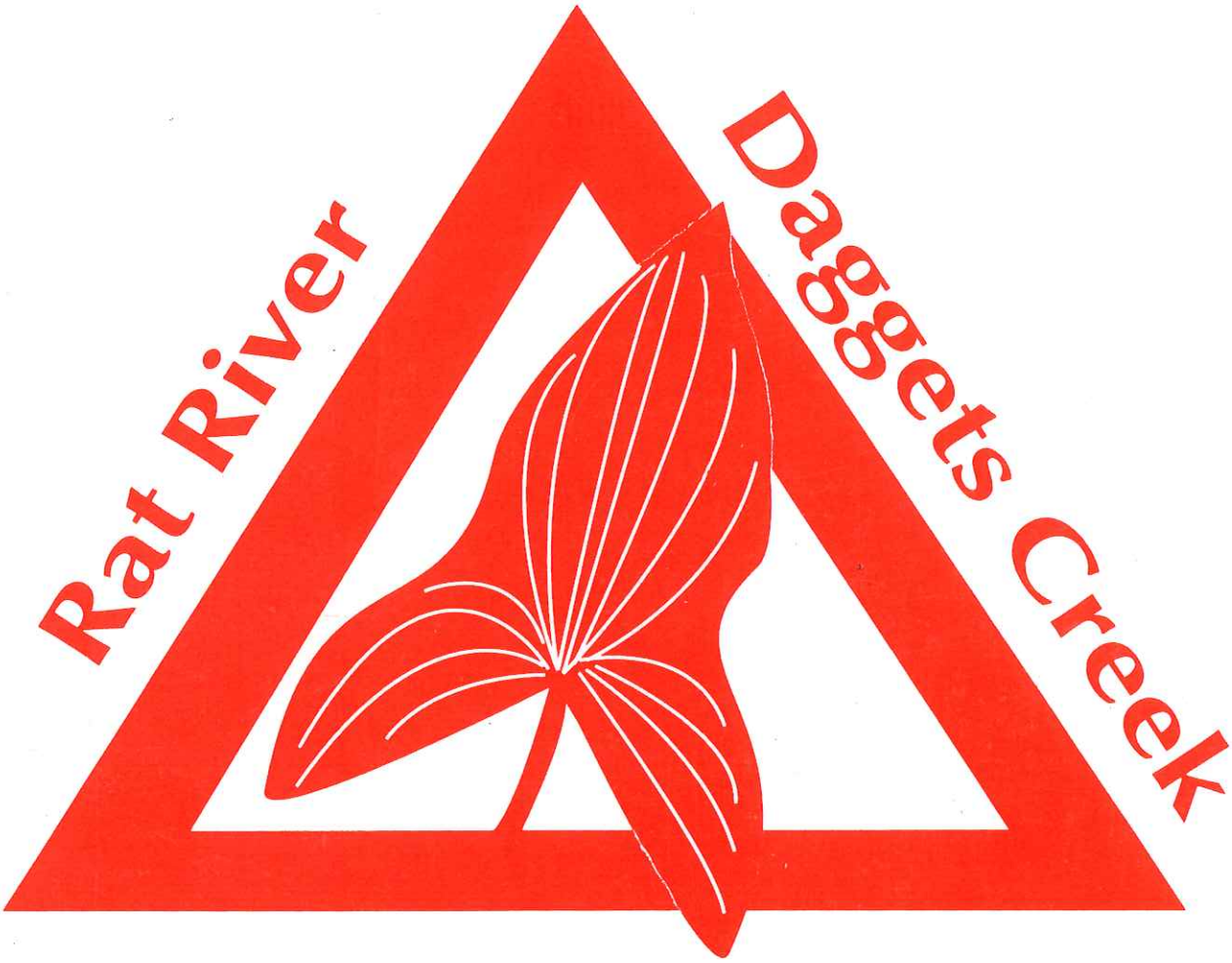
Nonpoint Source Control Plan for the Arrowhead River, Rat River and Daggets Creek Priority Watershed Project



Arrowhead River

This Plan was prepared under the provisions of the Wisconsin Nonpoint Source Water Pollution Abatement Program by the **Wisconsin Department of Natural Resources**, the **Department of Agriculture, Trade and Consumer Protection**, and the **Land Conservation Departments** of Outagamie and Winnebago counties.

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Nonpoint Source Control Plan for the Arrowhead River, Rat River & Daggets Creek Priority Watershed Project

The Wisconsin Nonpoint Source Water Pollution Abatement Program

July 1993

This Plan Was Cooperatively Prepared By:

The Wisconsin Department of Natural Resources and
The Department of Agriculture, Trade and Consumer Protection

In cooperation with:

The Arrowhead River, Rat River & Daggets Creek Watershed Citizens Advisory Committee
Outagamie County Land Conservation Department
Winnebago County Land and Water Conservation Department

Publication PUBL-WR-331-93

For copies of this document please contact:

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The Wisconsin 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 Acknowledgements

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TELEPHONE 608-266-2621
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TDD 608-267-6897

October 6, 1992

Joseph N. Maehl
528 Chatham Court
Neenah, WI 54956

Dear Mr. Maehl:

I am pleased to approve A Nonpoint Source Control Plan For The Arrowhead River, Rat River & Daggets Creek Priority Watershed. This plan meets the intent and conditions of s.144.25, Wisconsin Statutes, and Chapter NR 120 of the Wisconsin Administrative Code.

The plan has been approved by Outagamie and Winnebago counties and by the Wisconsin Department of Agriculture, Trade and Consumer Protection. This letter completes the approval process for Winnebago County set forth in Wisconsin Statutes and allows for granting of funds through the Nonpoint Source Water Pollution Abatement Program to implement the project.

I am also approving this plan as an amendment to the areawide water quality management plan for the Wolf River Basin.

This plan, prepared jointly by staff from the Department of Natural Resources, the Department of Agriculture, Trade and Consumer Protection, the Outagamie Land Conservation Department, and the Winnebago Land and Water Conservation Department, is an example of the cooperative efforts that can help improve and protect the streams, rivers, and wetlands of the Arrowhead River, Rat River & Daggets Creek watershed. I'm confident that the cooperative spirit shown throughout the development of this plan will continue during the implementation of this project.

Sincerely,

C.D. Besadny
Secretary

cc: Dave Jelinski, Department of Agriculture, Trade and Consumer Protection
Bill Selbig, DNR Lake Michigan District Director
Craig Karr, DNR Bureau of Community Assistance

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October 6, 1992

James P. Schuette
137 West Walnut Street
P.O. Box 114
Seymour, WI 54165

Dear Mr. Schuette:

I am pleased to approve A Nonpoint Source Control Plan For The Arrowhead River, Rat River & Daggets Creek Priority Watershed. This plan meets the intent and conditions of s.144.25, Wisconsin Statutes, and Chapter NR 120 of the Wisconsin Administrative Code.

The plan has been approved by Outagamie and Winnebago counties and by the Wisconsin Department of Agriculture, Trade and Consumer Protection. This letter completes the approval process for Outagamie County set forth in Wisconsin Statutes and allows for granting of funds through the Nonpoint Source Water Pollution Abatement Program to implement the project.

I am also approving this plan as an amendment to the areawide water quality management plan for the Wolf River Basin.

This plan, prepared jointly by staff from the Department of Natural Resources, the Department of Agriculture, Trade and Consumer Protection, the Outagamie Land Conservation Department, and the Winnebago Land and Water Conservation Department, is an example of the cooperative efforts that can help improve and protect the streams, rivers, and wetlands of the Arrowhead River, Rat River & Daggets Creek watershed. I'm confident that the cooperative spirit shown throughout the development of this plan will continue during the implementation of this project.

Sincerely,

C.D. Besadny
Secretary

cc: Dave Jelinski, Department of Agriculture, Trade and Consumer Protection
Bill Selbig, DNR Lake Michigan District Director
Craig Karr, DNR Bureau of Community Assistance

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State of Wisconsin
Department of Agriculture, Trade and Consumer Protection

Alan T. Tracy, Secretary

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

September 25, 1992

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

Dear ~~Mr. Baker~~ Bruce:

The Department of Agriculture, Trade and Consumer Protection has reviewed and hereby approves the "Nonpoint Source Control Plan For The Arrowhead River, Rat River & Daggets Creek Priority Watershed Project".

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

Please contact Sue Porter (273-6205) if we can be of any further assistance in moving the project to implementation.

Sincerely,

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

cc: Becky Wallace
Pete Van Airsdale, Winnegbago County Land Conservation Dept.
Roy Burton, Outagamie County Land Conservation Dept.

RESOLUTION NO. 74--1992-1993

TO THE HONORABLE, THE OUTAGAMIE COUNTY BOARD OF SUPERVISORS

LADIES & GENTLEMEN: ***MAJORITY***

APPROVE THE NONPOINT SOURCE POLLUTION CONTROL PLAN
AND AUTHORIZE GRANT APPLICATION FOR THE
ARROWHEAD RIVER, RAT RIVER, DAGGETS CREEK PRIORITY WATERSHED

The Arrowhead River, Rat River, Daggets Creek Priority Watershed Project, authorized and funded through the Wisconsin Nonpoint Source Water Pollution Abatement Program (Sec. 114.25 Wis. Stats., and Chapter NR 120, Wis. Admin. Code), was previously accepted by the Board (12/90).

The Outagamie Land Conservation Department, the Winnebago County Land and Water Conservation Department, and the Watershed Project Citizens Advisory Committee, along with the Wis. Department of Natural Resources and the Wis. Dept. of Agriculture, Trade and Consumer Protection, worked cooperatively to prepare a pollution control plan for the Watershed Project.

Said plan assesses nonpoint sources of pollution throughout the watershed; identifies Best Management Practices needed to control those pollutants; and guides the voluntary implementation of those practices by landowners in an effort to achieve specific water quality and water resource improvement goals.

Upon approval of the watershed plan, Wis. Nonpoint Source Grant funds will be made available to landowners through the County Land and Water Conservation Department in the form of cost share assistance for purposes of installing Best Management Practices.

NOW, THEREFORE, the undersigned members of the Agriculture, Extension Education, Zoning and Land Conservation Committee recommend adoption of the following resolution.

BE IT RESOLVED, that the Outagamie County Board of Supervisors does hereby approve the Nonpoint Source Pollution Control Plan and authorizes the Nonpoint Source Grant application for the Arrowhead River, Rat River, Daggets Creek Priority Watershed Project, and

BE IT FURTHER RESOLVED, that the Chairman of the Outagamie County Board is

hereby authorized to notify the Wisconsin Department of Natural Resources of the Board's action, and that said notification be accompanied by a copy of this resolution.

Dated this 8 day of September, 1992.

Respectfully submitted,
AGRICULTURE, EXTENSION EDUCATION, ZONING & LAND CONSERVATION COMMITTEE

Marvin Fox

Shirley M. Stevens

Lawrence Kiel

Lloyd S. Kloehn

Dale Nichols, Sr.

Duly and officially adopted by the County Board on: Sept. 8, 1992

Signed: James P. Schuette
Board Chairperson

James D. Hensel
County Clerk

Approved: 9/17

Vetoed: _____

Signed: _____
County Executive

72-892

RESOLUTION: **Approve The Nonpoint Source Pollution Control Plan and Authorize Grant Application For The Arrowhead River, Rat River, Daggets Creek Priority Watershed**

TO THE WINNEBAGO COUNTY BOARD OF SUPERVISORS:

WHEREAS, the Arrowhead River, Rat River, Daggets Creek Priority Watershed Project, authorized and funded through the Wisconsin Nonpoint Source Water Pollution Abatement Program (Sec. 144.25 Wis. Stats., and Chapter NR 120, Wisconsin Administrative Code), was previously accepted by the Outagamie, and Winnebago County Boards (12/90); and

WHEREAS, the Outagamie County Land Conservation Department, the Winnebago County Land and Water Conservation Department, and the Watershed Project Citizens Advisory Committee, along with the Wisconsin Department of Natural Resources and the Wisconsin Department of Agriculture, Trade and Consumer Protection, worked cooperatively to prepare a pollution control plan for the Watershed Project; and

WHEREAS, said plan assesses nonpoint sources of pollution throughout the watershed; identifies Best Management Practices needed to control those pollutants; and guides the voluntary implementation of those practices by landowners in an effort to achieve specific water quality and water resource improvement goals; and

WHEREAS, upon approval of the watershed plan, Wisconsin Nonpoint Source Grant funds will be made available to landowners, through the County Land and Water Conservation Department, in the form of cost share assistance for purposes of installing Best Management Practices; and

$301,138 ✓

WHEREAS, the Wisconsin Nonpoint Source Grant amount for Winnebago County in 1993, estimated at **$~~256,833~~.00**, is to be budgeted within the Land and Water Conservation Department Fund #42850: NPS Grant Revenue Account.

NOW, THEREFORE, BE IT RESOLVED, that the Winnebago County Board of Supervisors does hereby approve the Nonpoint Source Pollution Control Plan and authorizes the Nonpoint Source Grant application for the Arrowhead River, Rat River, Daggets Creek Priority Watershed Project.

BE IT FURTHER RESOLVED that the Chairman of the Winnebago County Board is hereby authorized to notify the Wisconsin Department of Natural Resources of the Board's action, and that said notification be accompanied by a copy of this resolution.

Submitted by,

LAND CONSERVATION COMMITTEE

/s/ Joseph Maehl

/s/ Nancy Barker

/s/ Charles Duffy

/s/ John Hue

/s/ Stephen Rankin

Committee Vote:
6-0

Vote Requirement for Passage:
Majority of those present.

Aprpoved by Winnebago County Executive this 24th day of August, 1992.

Paul W. Stevenson

Paul W. Stevenson

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SUMMARY

Introduction

This priority watershed project plan assesses the nonpoint sources of pollution in the Arrowhead River, Rat River and Daggets Creek watershed and guides the implementation of nonpoint source control measures. These control measures are needed to meet water resource objectives for the three river systems which are all tributary to Lakes Poygan, Winneconne, and Butte des Morts. Nonpoint sources of pollutants most commonly found in this watershed include:

- sediment from eroding croplands and gullies
- polluted runoff from barnyards and feedlots
- sediment from eroding streambanks and shorelines
- 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 Arrowhead River, Rat River & Daggets Creek Priority Watershed Project area. This watershed is one of eleven watersheds identified in the *Lower Green Bay Remedial Action Plan* as contributing significant amounts of pollutants from nonpoint sources to the waters of the Winnebago system, the Fox River, and Lower Green Bay. Similarly, the *Winnebago Comprehensive Management Plan* identified this watershed area as a major contributor of nonpoint source pollutants. This watershed plan will allow the recommendations and needs identified in these two other documents to be implemented.

The DNR selected the Arrowhead River, Rat River and Daggets Creek watershed as a priority watershed project through the Wisconsin Nonpoint Source Water Pollution Abatement Program in the fall of 1990. It joined over 50 similar watershed projects statewide in which nonpoint source control measures are being planned and implemented. The plan was prepared by the Wisconsin Department of Natural Resources (DNR), the Department of Agriculture, Trade, and Consumer Protection (DATCP), the Outagamie County Land Conservation Department (LCD), and the Winnebago County Land and Water Conservation Department (LWCD), with assistance from the University of Wisconsin-Extension and the USDA Soil Conservation Service (SCS).

The project is administered on the state level by the DNR and DATCP. The Outagamie County LCD and Winnebago County LWCD administer and implement the project locally

with assistance from the UW-Extension and the SCS. Participation in the program by landowners is voluntary. However, all participants must follow the requirements of the program's administrative rules (NR 120) and the Nonpoint Source Control Plan (summarized by this document).

General Watershed Characteristics

The Arrowhead River, Rat River and Daggets Creek Watershed covers approximately 131 square miles or 84,200 acres in Winnebago and Outagamie counties. The watershed project is bounded on the north by Bear Creek and Black Otter Lake watersheds, to the east by Mud Creek and Neenah Slough watersheds, and to the west by the Wolf River.

The east half of the Village of Winneconne is the only incorporated community in the watershed. Allenville, Butte des Morts, Dale, Larsen, Medina, and Winchester are the unincorporated communities within the watershed. Public lands within the watershed include the 4042 acre Rat River State Wildlife Area and a portion of the Wolf River State Wildlife Area.

The watershed is nearly level or gently sloping with land use being primarily agricultural as shown in table S-1. Dairy farming is the predominant land use at the present time. Cash grain farming is increasing in the watershed with corn and soybeans being the principal crops. Potential construction site erosion from rural residential development is becoming an area of increasing concern for water quality.

Table S-1. Land Use in the Arrowhead River, Rat River and Daggets Creek Watershed

Land Use	Acres	Percent
Cropland	43,030	51%
Developed Land	5,686	7%
Grassland	7,122	8%
Woodlot	11,184	13%
Wetland	17,142	20%
Watershed Totals	84,164	100%

Water Quality and Water Resource Objectives

This watershed is divided into seven smaller drainage areas, called subwatersheds. They are the: Lower Rat River, Dale Swamp, Upper Rat River, Arrowhead River, Winneconne-Poygan (direct drainage to the lakes), Butte des Morts (direct drainage to the lake), and Daggets Creek.

All of the watershed's streams were assessed for their current recreational and biological uses and their potential recreational and biological uses if nonpoint source pollutants were controlled. Groundwater conditions present in the watershed were assessed through a private well sampling program that tested wells for nitrate and atrazine (triazine screening) concentrations.

Nitrate contamination above the state enforcement standard of 10 milligrams per liter (mg/l) occurred in 36 (18%) of the 191 wells tested within the watershed. Only four (2%) of the 176 samples analyzed for atrazine exceeded the state standard of 3.0 micrograms per liter (ug/l). These results are very similar to the average results within other recently tested priority watershed projects in the state.

Common water resource problems in the watershed include sedimentation of the tributaries and sediment loading to the lakes, channelization, excessive filamentous algae and periphyton growth from nutrient loading, limited habitat, low dissolved oxygen levels, high bacteriological levels, low stream flows during dry weather, and streambank and shoreline erosion. There is also concern for water quality problems caused by urban nonpoint sources from extensive shoreline development.

The lower stream reaches near the mouths of the Arrowhead River, the Rat River, and Daggets Creek are classified as warm water sport fish (WWSF). A small portion of the watershed is classified as warm water forage fish (WWFF); however, large portions of the streams and tributaries are limited forage fish or limited aquatic life. Habitat ratings for most of the watershed ranged from fair to poor with only an occasional good rating. The Hilsenhoff Biotic Index (HBI) ratings, which provide a relative measure of organic loading to streams based on the number and type of macro-invertebrates present, were poor for all stream stretches except one. Sedimentation and nutrient enrichment were identified as problems in all streams.

Water resource objectives for the watershed include increasing aquatic life by improving overall habitat conditions, protecting and enhancing wildlife by improving wetland and grassland habitat, controlling lake shoreline erosion, and reducing developed area nonpoint source loadings.

Sources of Pollution

The Outagamie County LCD and the Winnebago County LWCD collected data on agricultural lands, barnyards, gullies, shorelines and streambanks in the watershed. These data were used to estimate the pollutant potentials from these sources. The results of the inventories of these nonpoint sources are summarized below.

Barnyard Runoff Inventory Results:

- 156 barnyards were assessed.
- 25 barnyards contribute 51% of the organic pollutants.
- 13 barnyards show substantial potential to adversely impact groundwater.

Manure Management Inventory Results:

- Improper manure management accounts for 42% of the phosphorus loading.
- Landowners without suitable acreage for winter spreading 180 days of manure production are considered a water quality risk.
- An estimated 29 landowners with herd sizes greater than 30 animal units have insufficient acreage for winter spreading manure based on a nutrient management plan.

Streambank and Shoreline Erosion Inventory Results:

- 15,271 feet of eroded, trampled, or slumped banks.
- 5,515 feet (36%) of degraded banks are lake shoreline sites
- 267 tons of sediment annually from degraded banks.

Upland Sediment Inventory Results:

- 19,257 tons of sediment are delivered to streams annually (84% from cropland).
- 16,198 acres contribute 62% of the sediment.
- Nearly 20% of sediment is from the Arrowhead River Subwatershed.

Gully Erosion Estimates:

- Gullies are estimated to contribute 6,584 tons or 25% of all sediment delivered to surface waters in the project area.
- 2,909 tons or 11% of all sediment is from gullies in the Arrowhead River Subwatershed.

Pollutant Reduction Goals

To improve water quality in the Arrowhead River, Rat River and Daggets Creek watershed, this plan calls for:

- 50% reduction in phosphorus loadings from barnyards and improperly spread manure.
- 50% reduction in the total sediment from all sources reaching surface waters.
- 75% reduction in streambank sediment from adjacent agricultural lands in the watershed.
- 75% reduction in sediment from shoreline erosion.
- 75% reduction in sediment from gully erosion.

Management Actions and Cost-share Eligibility

The watershed plan establishes criteria to define which nonpoint sources are eligible for cost sharing through the project. Cost-share funds for installing pollutant control measures will be targeted only at those sources which meet these conditions.

These conditions are established because the majority of pollutants that reach surface waters come from less than one-half of the farm operators in the watershed. All landowners eligible to receive cost-share funds will be contacted by the Outagamie County Land Conservation Department and Winnebago County Land and Water Conservation Department during project implementation. All critical sources of nonpoint pollutants must be controlled if a landowner wishes to participate in any aspect of the program.

The following is a brief description of critical nonpoint pollutant source conditions that will be eligible for cost sharing through the project. These conditions are further explained in chapter four of the full watershed plan. Practices eligible to control the identified nonpoint sources are listed on table S-4.

Upland Runoff

All lands with sediment delivery rates greater than or equal to 0.41 t/ac/yr (according to the WIN model) will be eligible for cost sharing and must be brought down to a delivery rate of 0.2 t/ac/yr. Fields meeting this condition must be controlled for a landowner to participate in the program.

Lands with sediment delivery rates less than 0.41 t/ac/yr, but greater than 0.20 t/ac/yr are eligible for cost sharing. Controls on fields meeting this condition are optional for a participating landowner.

Barnyard Runoff

Barnyards with phosphorus loading values of 50 pounds or greater annually (according to BARNY model) are required to control the barnyard runoff to a value of 15 pounds or less to participate in the program. Barnyards with phosphorus loading values less than 50 pounds annually, but greater than or equal to 30 pounds are eligible for cost sharing to control the barnyard runoff. Where a barnyard is ineligible for priority watershed cost-share funds every effort will be made to provide assistance through other programs such as ACP.

Manure Spreading

SCS 590 Appendix B criteria will be used to determine the need for, and appropriateness of short term stacking or manure storage needs. A landowners rotation and herd size will be used to determine available suitable acres for spreading and the amount of manure produced. If the landowner does not have enough suitable acreage to safely spread a 180 day quantity of manure at the rate of 100 pounds of phosphorus per acre, the landowner will be eligible for manure storage cost-share assistance. If the landowner is short by 10 or more suitable acres for safely spreading 180 days of manure, storage will be required for a landowner to participate in the program. All other landowners who are lacking suitable acreage based on criteria outlined in the plan will be considered eligible for cost-share assistance.

Streambanks and Shorelines

All participating landowners throughout the watershed project will be required to control 75% of the sediment loading from shorelines and sites adjacent to agricultural lands. All other shoreline and streambank sites will be eligible for cost-share assistance.

Land acquisition in the form of easements will be promoted along the perennial main channels of the Arrowhead River, Rat River, and Daggets Creek. Other streambank or shoreline area may be eligible for easements if cost-effective and criteria described in the watershed plan are applicable.

Fencing or limited term grazing will be required as a management practice throughout the watershed project where eroded, trampled, or slumped streambanks are used for grazing.

Gully Erosion Control

All participating landowners will be required to control at least 75% of the sediment generated from the gullies on their property. All remaining gullies will be eligible for cost-share assistance.

Nutrient and Pesticide Management

All landowners eligible to receive assistance through this plan for the control of nonpoint pollution from either barnyard runoff, winter spread manure, or eroding croplands or uplands will also be eligible for assistance to develop SCS 590 and 595 nutrient and pest management plans.

Funds Needed for Cost Sharing, Staffing, and Educational Activities

Grants will be awarded to Outagamie and Winnebago counties by the DNR for cost sharing, staff support, and educational activities. Table S-2 shows estimates of the financial assistance needed to implement nonpoint source controls in the Arrowhead River, Rat River and Daggets Creek watershed, assuming a 75% participation rate of landowners.

Table S-2. Estimated Financial Assistance Needed to Implement Nonpoint Source Controls

Item	Costs (State Share)	
	Outagamie County	Winnebago County
Cost-share Funds: Practices	$466,268	$1,095,688
Cost-share Funds: Easements	$300	$900
Local Assistance Staff Support*	$419,204	$659,472
Information/Education Direct	$23,475	$23,475
Other Direct (travel, supplies, etc.)	$37,000	$75,000
Total:	$946,247	$1,854,535

* Salary + Indirect = $35,000/year

Project Implementation Procedures

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

1. "A Nonpoint Source Control Plan for the Arrowhead River, Rat River and Daggets Creek Priority Watershed" is formally approved by the Outagamie and Winnebago County Boards, the Dept. of Agriculture, Trade, and Consumer Protection, and the Dept. of Natural Resources.

2. DNR awards two grants to each of the counties in the watershed:
   a. Local Assistance Grant Agreement - Amendment: This provides funds to the county to hire the staff and support 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 (BMPs).

3. County project staff contact eligible landowners (as identified in the plan) to explain the program and encourage the signing of a Cost-share Agreement. Landowners may enter into Cost-share Agreements with the county only during the first 3 years of the project. The Cost-share Agreement defines the types and amounts of BMPs needed, the estimated costs, the cost-share amount, the schedule for installation, and the landowner's responsibilities for maintaining the BMPs.

4. Upon entering into a Cost-share Agreement, the county schedules practice installation (no more than 5 years after signing of agreement), designs the BMPs, and insures that the BMPs are installed in compliance with the approved designs.

5. After paying for the BMPs, the landowner submits proof of payment to the county project staff and the landowner is reimbursed the cost-share amount.

Information and Education

An information and education program will be conducted throughout the project period with the Outagamie and Winnebago county project staff having overall responsibility for the program. University of Wisconsin-Extension in the county will also have major responsibilities for assistance. This program will be most intensive during the first three years of the project, and activities will taper off during the rest of the project. The activities will include Best Management Practice demonstrations, tours, newsletters, and public meetings.

Project Evaluation and Monitoring

The evaluation strategy for the project involves the collection, analysis, and reporting of information so that progress may be tracked in three areas:

1. **Administrative** - This 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 county project staff and reported to the DNR and DATCP quarterly.

2. **Pollutant Reduction Levels** - Reductions in nonpoint source pollutant loadings resulting from changes in land use practices will be calculated by the county project staff and reported to DNR and DATCP through the use of computer tracking sheets generated at the time of Cost-share Agreement development.

3. **Water Resources** - Changes in water quality, habitat, and water resource characteristics may be monitored by the DNR during implementation and at the end of the project period in association with updates to the Wolf River Water Quality Management Plan.

Table S-3. Practices Using a Flat Rate for State Cost-Share Funding

Best Management Practice	Flat Rate
Contour Farming	$6.00/ac.
Strip Cropping	$12.00/ac.
Field Strip Cropping	$10.00/ac.
Reduced Tillage	$15.00/ac. [1]
Reduced Tillage	$45.00/ac. [2]

1. Reduced tillage systems for short crop rotations, and establishment of forages and small grains (includes no-till methods). One year only.
2. Reduced tillage systems for continuous row cropping over three years.

Table S-4. Eligible Management Practices & State Cost-Share Rates	
Best Management Practice	State Cost-share Rate
Contour Farming	50% [1, 2]
Contour Strip Cropping	50% [1, 2]
Field Diversions and Terraces	70%
Grassed Waterways	70%
Reduced Tillage (No-till)	50% [1,2]
Critical Area Stabilization [6]	70% [3]
Grade Stabilization Structures [6]	70%
Agricultural Sediment Basins	70%
Shoreline and Streambank Stabilization [6]	70% [1]
Shoreline Buffers [6]	70% [3]
Wetland Restoration [6]	70%
Barnyard Runoff Management	70%
Animal Lot Relocation [6]	70%
Manure Storage Facilities	70% [5]
Livestock Exclusion from Woodlots	50% [1]
Wetland Restoration	70% [3]
Nutrient and Pesticide Management	50% [4]

1. Flat rates for these BMPs can be found in table four (below)
2. Wildlife habitat restoration components of this practice are cost-shared at 70%
3. Easements may be entered into with landowners identified in the watershed plan in chapter four with these BMPs. See chapter four for where easements apply.
4. Spill control basins have a state cost-share rate of 70%
5. Maximum cost-share is $20,000 including no more than $5,000 for manure transfer equipment
6. State share can be raised to 80% if County provides 10% cost sharing

CHAPTER ONE
Introduction, Purpose, and Legal Status

Nonpoint Source Water Pollution Abatement Program

The Wisconsin Nonpoint Source Water Pollution Abatement Program was created in 1978 by the state legislature. The goal of the program is to improve and protect the water quality of streams, lakes, wetlands, and groundwater by reducing pollutants from urban and rural nonpoint sources. The 132 square-mile Arrowhead River, Rat River and Daggets Creek watershed, located in Outagamie and Winnebago counties, was designated a "priority watershed" in October 1990.

Nonpoint sources of pollution include: erosion from agricultural lands, streambanks, and developing urban areas, and runoff from livestock wastes and established urban areas. Pollutants from nonpoint sources are carried to the surface water or groundwater through the action of rainfall runoff, snow melt, and seepage.

The following is an overview of the program:

- The program is administered by the Department of Natural Resources (DNR) and the Department of Agriculture, Trade, and Consumer Protection (DATCP). The program focuses on critical hydrologic units called priority watersheds and is implemented through priority watershed projects.

- 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 citizen's 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 quality and water resource objectives. The plan guides implementation of these practices in an effort to improve water quality.

- Upon approval by state and local authorities, the plan is implemented by local units of government. Water quality improvement is achieved through voluntary implementation of nonpoint source controls (Best Management Practices) and the adoption of ordinances. Landowners, land renters, counties, cities, villages, towns,

metropolitan sewerage districts, sanitary districts, lake districts, and regional planning commissions are eligible to participate.

- Technical assistance is provided to aid in the design of Best Management Practices. State level cost-share assistance is available to help offset the cost of installing these practices. Eligible landowners and local units of government are contacted by the County Land Conservation Departments to determine their interest in voluntarily installing the Best Management Practices identified in the plan. Cost-share agreements are signed listing the practices, costs, cost-share amounts and a schedule for installation of management practices.

- Informational and educational activities are offered to encourage participation.

- The DNR and DATCP review the progress of the counties and other implementing units of government, and provide assistance throughout the eight year project. The DNR monitors improvements in water quality resulting from control of nonpoint sources in the watershed.

Legal Status Of The Nonpoint Source Control Plan

The Arrowhead River, Rat River and Daggets Creek Priority 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 the DNR, DATCP, the Outagamie County Land Conservation Department, the Winnebago County Land and Water Conservation Department, local units of government, and the Arrowhead River, Rat River and Daggets Creek Priority Watershed Citizens Advisory Committee.

This plan is the basis for the DNR to enter into cost-share and local assistance grants and is used as a guide to implement measures to achieve desired water quality conditions. In the event that a discrepancy occurs between this plan and the statutes or the administrative rules, or if the statutes or rules change during implementation, the statutes and rules will supersede the plan.

Plan Organization

Watershed Assessment

Chapter 2, "General Watershed Characteristics," is an overview of the cultural and natural resource features pertinent to planning and implementation efforts for the priority watershed project.

Chapter 3, "Water Quality Conditions, Objectives, and Nonpoint Pollution Sources," presents field inventory results and identifies the water quality or water resource problems, and the improvements that can be obtained through implementation of a nonpoint source control project. The chapter discusses the level of pollutant control needed to achieve the water resource objectives, and describes the nonpoint sources and other sources of pollution.

Chapter 4, "Recommended Management Actions," identifies the level of urban and rural nonpoint source pollution control needed to meet the water quality objectives. Eligibility criteria for funding to control nonpoint sources under the priority watershed project are also presented.

Detailed Program for Implementation

Chapter 5, "Local Government's Implementation Program," describes the means by which the local units of government administer the project, estimates a local assistance and management practice cost-share budget, and identifies an information and education program.

Chapter 6, "Integrated Resource Management," presents the strategy for involving DNR resource management programs (fisheries management, wildlife, etc.) in the nonpoint source pollution abatement efforts in the Arrowhead River, Rat River and Daggets Creek Watershed.

Project Evaluation

Chapter 7, "Progress Assessments," discusses ways to assess the level of nonpoint source control gained through installing best management practices in the watershed.

Chapter 8, "Evaluation Monitoring," presents a statewide nonpoint source monitoring strategy for determining the water quality impacts of implementing nonpoint source controls in priority watershed projects.

CHAPTER TWO
General Watershed Characteristics

Location

The Arrowhead River, Rat River and Daggets Creek watershed is located in east central Wisconsin. The watershed is a sub-basin of the larger Wolf River basin and drains approximately 131 square miles or 84,200 acres. The watershed project is bounded on the north by Bear Creek and Black Otter Lake watersheds, to the east by Mud Creek and Neenah Slough watersheds, and to the west by the Wolf River (See map 2-1).

Cultural Features

Units of Government

The Arrowhead River, Rat River, Daggets Creek Watershed lies within Winnebago, Outagamie, and Waupaca counties (see map 2-1). Land distribution by county is:

- Winnebago 70%
- Outagamie 29%
- Waupaca 1%

The east half of the Village of Winneconne is the only incorporated community in the watershed. Allenville, Butte des Morts, Dale, Larsen, Medina, and Winchester are the unincorporated communities within the watershed. Public lands within the watershed include the 4042 acre Rat River State Wildlife Area and a portion of the Wolf River State Wildlife Area.

Population

The 1990 population estimate for the Arrowhead River, Rat River, Daggets Creek watershed is about 10,200 people. About 12% of the total population lives within the east half of the village of Winneconne, with the remaining 88% residing in the unincorporated communities and rural areas.

The largest percentage of property owners within the watershed are small tract landowners (less than five acres of land). This group includes property owners in unincorporated communities and rural residential developments, and accounts for 45% of the total property owners. Dairy, cash grain, and hobby farms account for 33% of the total property landowners (greater than five acres of land). Lakeshore residents account for the remaining 22% of the total number of property owners.

Land Use

Land uses in the watershed are mainly agricultural. Agricultural lands account for 51% of the total drainage area. Natural areas such as wetlands, woodlands, and grasslands cover about 41% of the watershed. Developed land uses such as residential areas, industrial and commercial areas, and farmsteads occupy 7% of the watershed (see table 3-1).

Dairy farming is the predominant agricultural land use at the present time. Cash grain farming is increasing in the watershed with corn and soybeans being the principal crops grown. Residential development within the rural areas is becoming an increasing concern because of the potential for construction site erosion.

Public Water Sources

Winneconne is the only community within the watershed that has a public source of water. All the remaining communities rely on individual, privately owned wells. Municipal wastewater treatment facilities exist in Winneconne, Butte des Morts, Dale, and Larsen-Winchester. The remaining residents use private septic systems to treat their wastewater. Because of unsuitable septic system drainage conditions, many residents must store their wastewater in holding tanks and have the tanks pumped out several times a year. Holding tanks are frequently used along the shores of Lake Butte des Morts, Lake Winneconne, and Lake Poygan.