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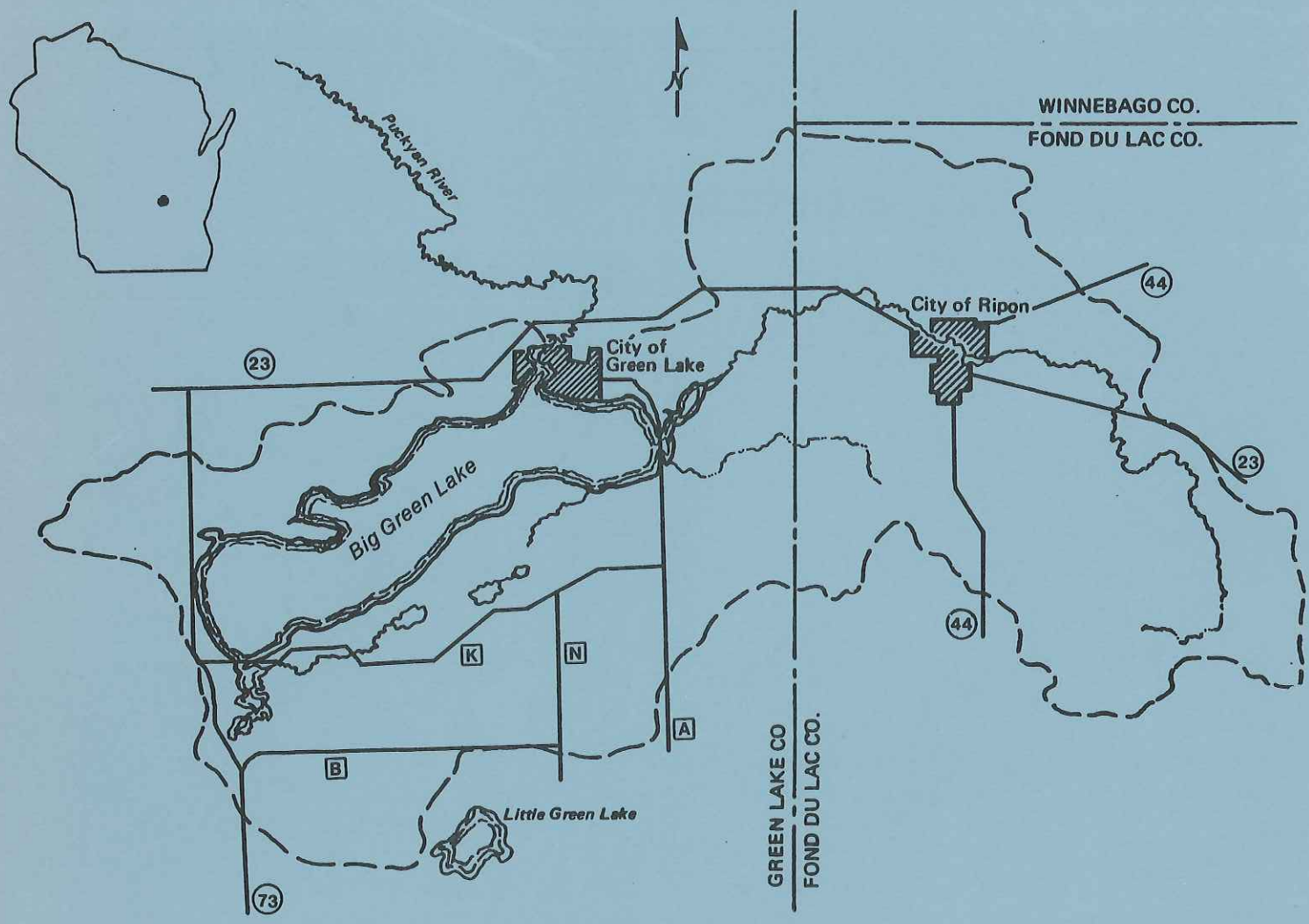
Big Green Lake Priority Watershed Plan



DESIGNATED MANAGEMENT AGENCIES

- Green Lake Soil and Water Conservation District
- Green Lake County Board
- Fond du Lac Soil and Water Conservation District
- Fond du Lac County Board
- City of Ripon
- City of Green Lake

COOPERATING AGENCIES

- U.S.D.A. Soil Conservation Service
- U.S.D.A. Agricultural Stabilization and Conservation Service
- University of Wisconsin Extension
- Green Lake Sanitary District
- Green Lake Association
- Wisconsin Board of Soil and Water Conservation Districts
- Wisconsin Department of Natural Resources

GREEN LAKE COUNTY
SOIL AND WATER CONSERVATION DISTRICT
492 Hill Street • Courthouse House • Phone 414-294-6881
Green Lake, Wisconsin 54941

N 1981

November 9, 1981

C. D. Besadny
Secretary
Dept. of Natural Resources
Box 7921
Madison, WI 53707

Dear Mr. Besadny:

The Green Lake County Soil and Water Conservation District, functioning as the Lead Designated Management Agency for the Big Green Lake Watershed, has reviewed and approves the Big Green Lake Watershed Plan.

The Green Lake County Soil and Water Conservation District will proceed with the watershed plan implementation upon final Dept. of Natural Resources approval.

Sincerely,

Richard Quade

Richard Quade
Chairman, Green Lake County
Soil and Water Conservation District

nkg

Green Lake County is an Equal Employment Opportunity Employer

Fond du Lac Soil and Water Conservation District
Agricultural Service Center - 548 Prairie Rd. - Fond du Lac, Wisconsin 54935 - Phone (414) 923-3033

November 13, 1981

Mr. Carroll D. Besadny
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

NOV 17 1981

Dear Mr. Besadny:

The Fond du Lac County Soil and Water Conservation District, as a designated management agency for the Big Green Lake Watershed, authorizes approval of the Big Green Lake Watershed Water Quality Management Plan provided that additional modifications of the plan meet Soil and Water Conservation District specifications. We do not expect, however, that changes would significantly alter the document.

We will proceed with implementation of the plan immediately upon final Department of Natural Resources approval.

Sincerely,

George C. Haase

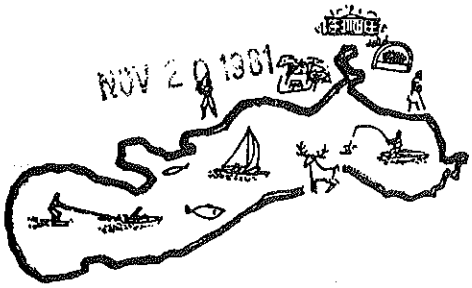
George C. Haase
Chairman, FDLSWCD

cc - Jim Bachhuber, DNR
Special Studies Section
Madison, Wisconsin 53707

GCH:am

CITY OF GREEN LAKE

Green Lake, Wisconsin 54941 (414) 294-6912



NOV 18 1981

November 12, 1981

Mr. C. D. Besadny, Secretary
Department of Natural Resources
Box 7921
Madison, Wisconsin 53707

Dear Mr. Besadny,

I, Mayor of the City of Green Lake, have reviewed and approved the Big Green Lake Watershed Plan.

We will proceed with the watershed plan implementation as far as the City of Green Lake is concerned, upon final Department of Natural Resources approval.

Sincerely,

Fred W. Wilkin

Mayor Fred W. Wilkin

FWW/bls

PREFACE TO THE BIG GREEN LAKE WATERSHED PLAN

Two general categories of water pollution sources are point sources and nonpoint sources. Point sources of pollution are defined as concentrated discharges of wastewater from discrete, specific sites. Examples of point sources are sewage treatment plant outfalls and industrial waste outfalls. Nonpoint sources of water pollution are defined as diffuse discharges of pollutants which cannot be readily identified as a point source. Nonpoint sources include stormwater and snowmelt runoff from urban and rural land surfaces, livestock operations and construction activities.

The Wisconsin Nonpoint Source Water Pollution Abatement Program (Wisconsin Fund) was enacted by the Wisconsin Legislature in 1978 to provide cost-sharing and technical assistance to local agencies for the control of nonpoint sources of water pollution. Since then, this program has been a primary source of funding for implementing nonpoint source pollution control in Wisconsin. The overall purpose of the program is to abate of water pollution in severely degraded watersheds while preserving good water quality in less disturbed watersheds.

The Big Green Lake watershed is one of the first nine priority watersheds throughout the state. Priority watersheds are selected through a three-step process involving an impartially ranked list of watersheds, regional advisory groups and the State Nonpoint Source Coordinating Committee. The Big Green Lake watershed was selected because of the severity of water quality problems, the relative importance of nonpoint sources to the achievement of water quality standards, and the capability and willingness of local governmental agencies to carry out the planning and implementing program.

The following water pollution control plan is within the framework of the areawide water quality management plan for the Lower Fox River Basin. It is consistent with that plan and serves to implement it.

The purpose of a priority watershed plan is twofold: to set project goals and objectives and to outline an implementation program to reach those objectives. As part of accomplishing this purpose the following must be identified:

1. water quality problems;
2. significant nonpoint and point sources;
3. water quality objectives;
4. priority management area;
5. needed best management practices;
6. implementing and participating agencies and responsibilities; and
7. costs.

Aside from the above purpose there are other uses for a priority watershed plan. The plan represents a thorough inventory of pollution sources and control needs in a watershed and as such, highlights the cause and effect relationship between land management and water quality. This can be very useful from an educational standpoint. Also, the plan is a guide for managing the project. It details procedures and responsibilities and aids staff in working more effectively. And, finally, the watershed plan functions as an application for state and federal funding.

BIG GREEN LAKE PRIORITY WATERSHED PLAN

TABLE OF CONTENTS

	Page
List of Tables	ii
List of Figures	iii
WATERSHED PLAN	
Introduction	2
Watershed Description	2
Water Quality Investigations	4
Sedimentation	5
Nutrient Loading	5
Bacteria	8
Aquatic Plants	8
Transparency	11
Land and Land use Investigations	11
Water Quality Objectives	11
Priority Management Area	14
Project Justification	16
IMPLEMENTATION PLAN	
Participants	17
Designated Management Agencies	17
Cooperating Agencies	17
Implementation Approach	18
Best Management Practices	18
Cost Sharing for Practices	19
Planned Action and Priorities	20
Schedule for Practice Installation	20
Information and Education Program	21
Costs of Implementation Plan	24
Costs of Best Management Practices	24
Administration and Technical Assistance Needs	28
Program Management	28
Program Manager	28
Fiscal Management	28
Record Keeping	29
Program Evaluation	29
Landowner Participation	30
APPENDIX	
SWCD Memorandum of understanding, Green Lake and Fond du Lac counties	
DNR and SWCD Service Contracts	
Lead DNA and ASCS Contracts	
ASCS Request for Cost-sharing	
ASCS Referral for Technical Assistance	
Request for Advance or Reimbursement Wis. Fund - Nonpoint Source Program	
Wisconsin Fund Reimbursement Claim Worksheet	
Wisconsin Fund Nonpoint Source Cost-Share Agreement	

Page

LIST OF TABLES

Table 1: Physical Characteristics of Lakes in Big Green Lake Watershed 2
Table 2: Stream Characteristics of Big Green Lake Watershed 4
Table 3: Annual Sediment Loading to Big Green Lake 5
Table 4: Results of Nutrient Level Analyses in Big Green Lake 7
Table 5: Annual Phosphorus Loads to Big Green Lake 7
Table 6: Tons (wet) of Harvested Macrophytes from Big Green Lake 8
Table 7: Best Management Practices and Maximum Cost-Share Rates 19
Table 8: Implementation Goals and Schedule for Watershed Project - Green Lake County 20
Table 9: Implementation Goals and Schedule for Watershed Project - Fond du Lac County 21
Table 10: Big Green Lake Education Program Goals 23
Table 11: Best Management Practices - Estimated Cost per Unit 24
Table 12: Quantity and Estimated Costs for BMP Needs in the Cities of Ripon and Green Lake 25
Table 13: Quantity and Estimated Costs for BMP Needs in the Rural Portions of the Watershed 26,27
Table 14: Estimated Personnel Requirements for the Watershed Project 28
Table 15: Forms Used in the Cost-Share Process 29

LIST OF FIGURES

Figure 1: Big Green Lake Watershed 3
Figure 2: Littoral Expansion - Green Lake Wisconsin 6
Figure 3: Fecal Coliform Contamination in Big Green Lake 9
Figure 4: Mean Transparency for Ice Free Periods in Big Green Lake 10
Figure 5: Critical Soil Loss Areas in Big Green Lake Watershed 12
Figure 6: Animal Concentration Areas in Big Green Lake Watershed 13
Figure 7: Big Green Lake Watershed Priority Management Area 15

WATERSHED PLAN

INTRODUCTION

The Green Lake Watershed is one of four watersheds selected in Wisconsin for participation in the Wisconsin Nonpoint Source Pollution Abatement Program for 1980. The Green Lake Priority Watershed Plan has been prepared to consolidate information relative to nonpoint source pollution in the Green Lake Watershed. The Plan defines water quality problems and outlines management practices that can protect the water from further decline. The Plan is the first part of the Green Lake Priority Watershed Project; actual application of management practices comprises the second part.

WATERSHED DESCRIPTION

Water Bodies and Drainage

The Green Lake Watershed is located in Fond du Lac and Green Lake Counties. Big Green Lake is located within one hundred miles of the highly populated southeastern portion of Wisconsin and offers numerous recreational opportunities. These activities include; fishing, swimming, powerboating, sailing, underwater diving, sightseeing, and hunting.

Although Big Green Lake is a central feature of the watershed, Spring Lake, Big Twin Lake, and Little Twin Lake also are located within watershed boundaries, just south of Big Green Lake. These lakes are small by comparison to Big Green; however, they have public access points and are used primarily for fishing and hunting.

TABLE 1: Physical Characteristics of Lakes in Green Lake Watershed (Surface Water Resources of Green Lake County - DNR 1971)

	Big Green Lake	Spring Lake (Spirit)	Big Twin Lake	Little Twin Lake
Area (acres)	7,325	75	78.3	33.2
Max. Depth (ft.)	229	39	46	11
Length (miles)	7.4	.56	.50	.20
Width (miles)	2.0	.25	.30	.20
Length of Shoreline (miles)	21.2	1.5	2.14	2.02
Public Frontage (miles)	2.88	.06	.06	none
Watershed Area (sq. miles)	94	1.1	2.9	.3

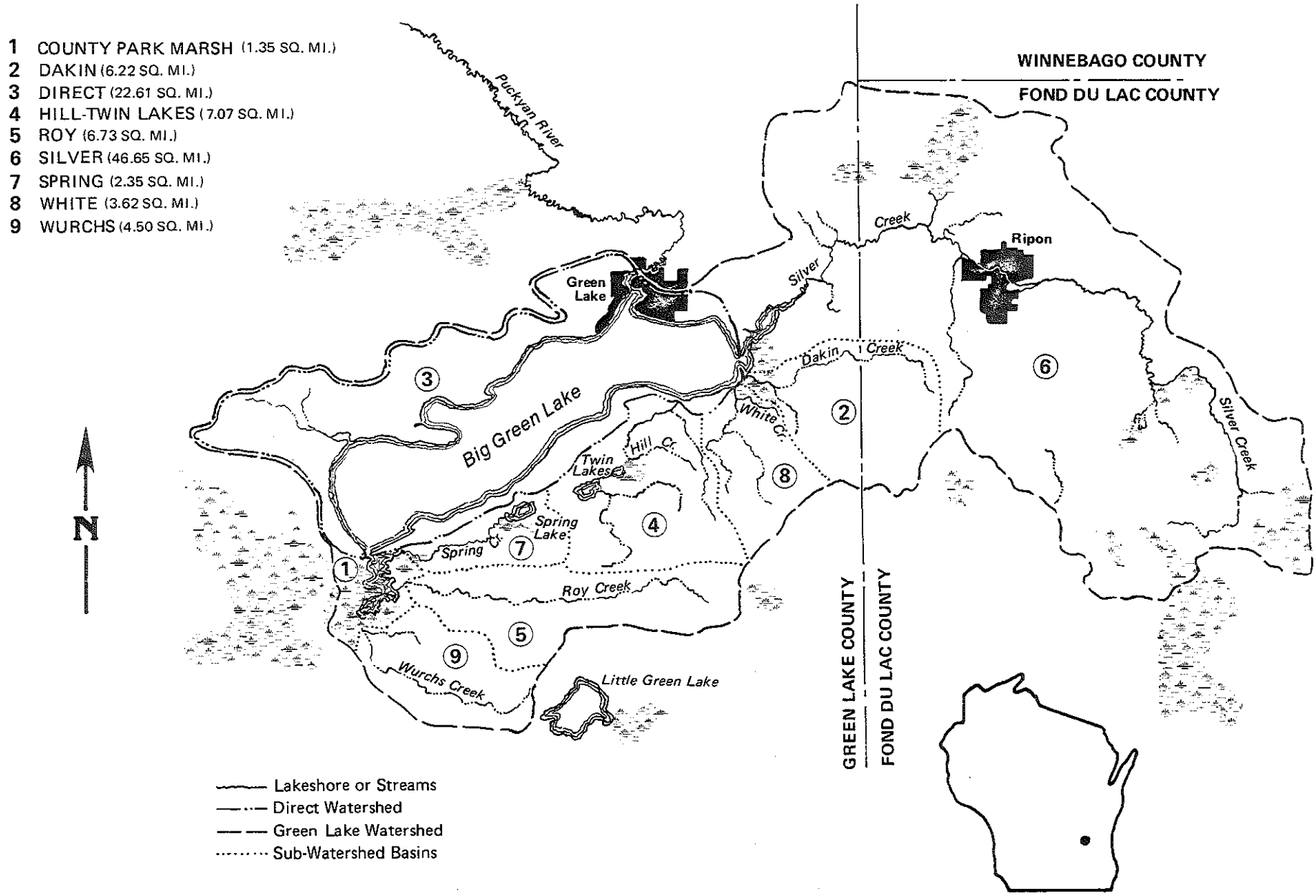


Figure 1: Big Green Lake Watershed

TABLE 2: Stream Characteristics of Green Lake Watershed (Surface Water Resources of Green Lake County - DNR 1971) (Donohue and Associates 1978)

Stream Name	Flow Type	Length (miles)	Gradient (ft./mi.)	Average Discharge (cfs)*	Extent of Drainage Basin (sq. mi.)
Dakin	permanent	2.5	68.67	1.85	6.22
Hill	permanent	1.7	24.1	1.13	7.07
Roy	intermittent	6.0	36.67	4.65	6.73
Silver	permanent	3	. . .	10.87	46.65
Spring	permanent	2.2	19.1	3.63	2.35
White	permanent	0.9	114.4	.98	3.62
Wurchs	permanent	2.0	. . .	3.56	4.50

* cfs = cubic feet per second

Direct drainage to Green Lake covers 22.61 square miles. A dendritic type of drainage basin characterizes the watershed and results from surface runoff on steep to gentle slopes.

Soils, Topography, and Land Use

The geological origin of most soils in the watershed is extensive glaciation and windblown deposits of silt. Topographic features include ground moraines, kettles, wetlands, and some sedimentary rock escarpments. Most escarpments of bedrock are dolomite, but in some places the underlying sandstone has been exposed by erosion. The major soil associations in the watershed are described in the Soil Conservation Service Survey of 1977. The plano soils are a combination of silt loam and silty clay loam formed over glacial till and cover a large part of the watershed south and east of Green Lake.

Most of the watershed is used agriculturally. Residential and urban areas are located in the Cities of Ripon (population 7,079) and Green Lake (population 1,194). Surburban residential development occupies considerable land area in the direct drainage basin of Green Lake. The cities have a combined area of drainage within the cities' limits of 1,685 acres. The City of Green Lake drainage is collected and discharged to Dartford Bay, Green Lake. The City of Ripon discharges drainage and treated wastewater to Silver Creek.

Because land use has a significant impact on water quality, a more detailed analysis of that impact will be presented later in this report.

WATER QUALITY INVESTIGATIONS

Quality of water in the Big Green Lake Watershed has been investigated and reported for numerous years by various researchers. For the Wisconsin Geological and Natural History Survey, C. Dwight Marsh and E. F. Chandler conducted a lake depth survey in 1891. These authors constructed a hydrographic map of Big Green Lake and found it to be the deepest inland lake in Wisconsin and the Midwest excluding the Great Lakes. In 1911, Birge and Juday collected and reported information on chemical and biological characteristics for Big Green Lake. In 1924, W. H. Rickett reported a quantitative study of aquatic plants of Big Green Lake.

These early investigations of Big Green Lake provide important evidence to support more recent studies concluding an increased eutrophic condition for waters in the Big Green Lake Watershed. Most notable of these investigations are those conducted by Ripon College in 1972 and by the Green Lake Sanitary District in 1978. A eutrophic condition in the lake is caused by an increase in the nutrient levels in the water and results in excessive weed and algae growth.

The Ripon College study of eutrophication in Green Lake, 1972, compiled the most extensive information about the lake in a single report up to that time. In 1976, the Green Lake Sanitary District contracted with Donohue and Associates, Inc., an engineering and consultant firm from Sheboygan, Wisconsin, to construct an hydrologic and nutrient budget for Green Lake. A report was completed in 1978 outlining the major sources of sediment and nutrients to the lake.

A 1970 investigation by DNR found Big Green Lake to be relatively oligotrophic compared to eleven other lakes. This relatively favorable rating for Big Green Lake can be explained by an earlier onset of culturally induced eutrophication for the other lakes in the study. A more meaningful evaluation of Big Green Lake can be had by comparing conditions of the lake over time. The results of water quality investigations carried out during the last 89 years represent the most convincing evidence for declining water quality, caused mainly by nonpoint source pollution.

Sedimentation

Water quality problems in the Big Green Lake Watershed are of a physical, chemical, and biological nature. Sedimentation in Big Green Lake was investigated by the Green Lake Sanitary District in 1977. A survey of depth of soft sediment in selected areas of the lake found extensive accumulations of sediments. The area of Hill creek was found to have forty feet of sediment deposits. Analysis of sediment samples from five sites for organic and inorganic substances indicated the sediments had a relatively low level of organic material. When sediments have high levels of organic material, the sediment's origin is considered to be from a long build-up of plants, algae, and other living organisms within the lake. When sediments have high levels of inorganic material, the sediments are considered to be transported to the lake. Dartford Bay was found to contain relatively high levels of organic solids and the predicted abundant plant growth. Sediment at the remaining sites were found to be more inorganic; sediments are probably transported by Hill, White, and Silver Creeks. An investigation of the external sources of sediment found sediment was transported by direct runoff and tributary stream beds. Sediment loading (expressed as tons per year) was estimated from suspended solids concentrations for the five sites. Table 3 details the loading rates to Big Green Lake from the five sites.

TABLE 3: Annual Sediment Loading to Big Green Lake from Tributary Stream andDirect Drainage (Donohue and Associates, 1978)

Tributary	Sediment (Tons/Year)
County Park Marsh (outlet)	75
Silver Creek Marsh (outlet)	450
White Creek	500
Hill Creek	500
Direct Watershed	500
Total	2,025

In 1969, the DNR measured the bottom contour in Big Green Lake and found 24.5% of the lake bottom was 20 feet or less below water. In 1978, Donohue and Associates made similar measurements and comparing their data with DNR's 1969 data, it appears the littoral zone (the area of the lake with shallow water) increased 4% during the nine year period. An increase of the bottom area lying under 20 feet or less of water can be caused by sediment transport and accumulation over the entire lake. Because most of the expansion of the littoral zone has been on the west end of the lake while most of the sediment loading seems to be on the east end, near shore currents may be one transport mechanism for sediment entering Big Green Lake. Figure 2 maps the extent of the littoral zone expansion.

Sediment transported to Big Green Lake is causing more rapid eutrophication than normal. As the littoral zone expands, rooted aquatic plants also can expand; the additional sediment provides new areas for plant colonization, and plants flourish in water made slightly warmer from the effect of sun on the lake bottom. In addition to filling in areas of the lake, sediment also carries with it nutrients which help support the algae and other water plants.

Big Green Lake is being adversely affected by sediment loading. Eutrophication is accelerated when sediment carried to the lake is uncontrolled. The sources of sediment to the lake have been identified throughout the watershed. The tributary streams and channels that drain the upland parts of the watershed are carrying sediments to the lake in quantities measured by suspended solids stream sampling, depths of sediment, and extent of accumulation. A more detailed analysis of the sources of the sediment is included in the nonpoint source inventory of this report.

Nutrient Loading

Tributary streams and overland runoff carry more than sediments to Big Green Lake. Nutrients are transported in solution or attached to sediment particles and present added problems for the lake. Specific sources of nutrients include cropland, animal wastes, fertilizer runoff, organic material decomposition, waterfowl excretions, motor vehicle exhaust, road salt, groundwater, and atmospheric. Excessive nutrient loading in Big Green Lake is causing increased algae and rooted plant growth and the resultant decline in water quality.

Nutrient levels in the lake have been reported for several years. Ranges of concentration for three nutrients over several years are listed in Table 4. Early investigations determined phosphorus to be an important nutrient responsible for increased productivity in Big Green Lake. In 1977 water sampling enabled Donohue and Associates to construct a nutrient budget for Big Green Lake which indicates how much phosphorus is entering the lake and where it is coming from.

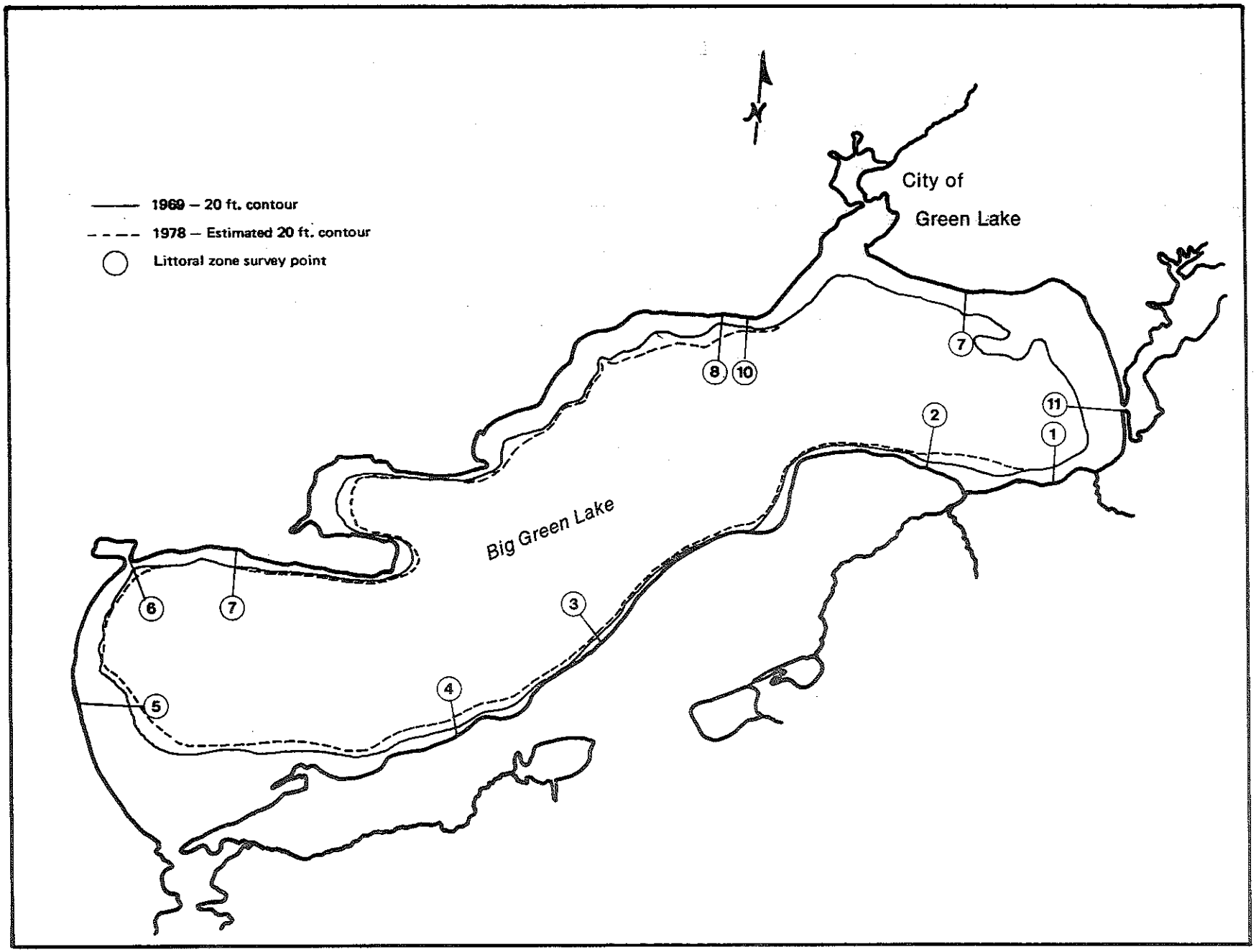


Figure 2. Littoral zone expansion – Green Lake, Wisconsin (Donohue and Associates, Inc., 1978).

TABLE 4: Results of Nutrient Level Analyses - Green Lake, Wisconsin (Donohue and Associates, 1978) (Green Lake Sanitary District, 1980)

Investigator Date	Nitrate (mg/l)	Organic Nitrogen (mg/l)	Total Phosphorus (mg/l)
Domogalla et. al. 1925	.03	.42	. . .
Lueschow 1963	.05-.06	.34-3.67	.08-.64
Hasler 1967	.20-.50	.58-.84	.07-.17
DNR 1969-70	.00-.30	.38-.82	. . .
Lueschow 1970	. . .	. . .	.028-.12
Donohue & Associates 1977	.02-1.25	.05-2.0	.05-.50
Green Lake Sanitary District 1980	. . .	.44-1.4	.01-.15

The total phosphorus load to Big Green Lake from specific sources was calculated using field surveys, water quality monitoring data, and a model of calculating phosphorus runoff due to livestock. Table 5 illustrates the contribution of phosphorus from each source.

TABLE 5: Annual Phosphorus Loadings to Big Green Lake[1]

Transport Mechanism to Green Lake	Livestock Operations (Barnyards)	Agricultural and Forested Areas (includes field spread manure)	Developed Areas	Other	Total Phosphorus
		Pounds (%) Contribution to Big Green Lake			
Groundwater	-	-	-	220(1)*	220(1)
Precipitation	-	-	-	1,450(7)**	1,450(7)
Waterfowl	-	-	-	730(4)+	730(4)
Overland Runoff					
Direct Drainage	-	-	620(3)	-	620(3)
Hill Creek	586(3)	1,480(7)	-	-	2,066(10)
White Creek	42(0)	460(2)	-	-	492(2)
Roy Creek	233(1)	1,090(6)	-	-	1,323(7)
Spring Creek	0	460(2)	-	-	460(2)
Wurchs Creek	760(4)	2,790(14)	-	-	3,550(18)
Silver Creek	257(1)	6,270(31)	400(2)	1,280(6)++	8,207(40)
Dakin Creek	273(1)	930(5)	-	-	1,203(5)
Totals	2,151(10)	13,480(67)	1,020(5)	3,680(18)	20,331(100)

[1]The figures are based on the report by Donohue & Associates (1977) and a master's thesis by I.C. Moore (1979)

* Groundwater transports phosphorus from septic systems and phosphorus found naturally in the system.

** Precipitation carries air-borne phosphorus from various sources directly to the lake.

\+ Waterfowl contribute phosphorus to the lake mainly during spring and fall.

++ This is phosphorus from the Ripon Sewage Treatment Plant.

It is important to note that not all of these phosphorus sources are controllable. In fact, 18% of the phosphorus loading cannot be altered by installing rural and urban conservation practices. However, the remaining 82% could be reduced by better management of animal concentration areas, rural land, urban land, and suburban land, all of which are nonpoint sources. The phosphorus nutrient budget is important because it illustrates the distribution of phosphorus sources and indicates the potential for improving water quality in Big Green Lake by controlling nonpoint sources.

Bacteria

Water samples of Big Green Lake and its tributaries reveal a wide range of bacteriological contamination levels. Sampling of Big Green Lake was reported by the Big Green Lake Sanitary District for 1965-1968, 1971, 1978-1980. The result of the testing for the years 1965 to 1971 found fecal coliform contamination at many sites around Big Green Lake. Figure 3 summarizes the results of this and other samplings.

Samplings for fecal coliform continued in 1972 with Ripon College's investigation of selected sites on Big Green Lake. A total of 18 sites were sampled between June 1 and August 22, 1972. Values for fecal coliform exceeded 400 MFFCC/100 ml at two sites as shown on Figure 3. Generally a level of 400 MFFC/100 ml is considered the maximum safe level for human contact. In addition, contamination was recorded both by the Sanitary District and Ripon College for one site on Silver Creek at the Highway 23 bridge (near the City of Ripon).

The Sanitary District tested five beaches and several other areas for fecal coliform contamination in 1978, 1979, 1980, and 1981. Results of this monitoring program are used to advise beach users of the quality of water which they are using. Only 3 samples had fecal coliform levels exceeding 400 MFFCC/100 ml before 1981 but during the summer of 1981 7 samples at 4 different sites had bacteria levels labeled as "too numerous to count." It is believed that livestock are the source of the bacteria.

Aquatic Plant Nuisance

In 1924, W. H. Rickett conducted a quantitative study of aquatic plants in Big Green Lake, establishing an historical record of the plant speciation and distribution for the lake. In 1971, M. J. Bumby conducted a similar investigation on Big Green Lake. The information she collected suggests a change in the plant community characteristic of declining water quality and increasing rates of eutrophication. For example, Rickett reported, "the rocks of the shore (Big Green Lake) are nearly destitute of the tufts of Cladophora that are so characteristic of Mendota." (Rickett had investigated Lake Mendota several years before his Big Green Lake study and found filamentous algae, Cladophora, to be common.) Cladophora is considered to be a nuisance algae when its growth detracts from recreational use by fouling rocks and shoreline areas with masses of its filamentous colonies.) Fifty years later, Bumby found masses of Cladophora so prevalent, they accounted for the largest part of the total biomass for the zone of water between the surface and one meter below it. Bumby summaries: "It appears that the littoral plant community in Green Lake has diminished in the past fifty years, especially in the deepest zone, although macrophytes of foreign origin, . . . and filamentous algae are increasing in importance." According to Bumby, the apparent decline in plant biomass in the deepest zone (3-10m) may have been caused by decreasing light penetration. It is reasonable to assume that light penetration decreases as turbidity, caused by suspended sediments or algae "blooms", increases.

Big Green Lake is infested with a foreign plant called Eurasian Water Milfoil, a species growing in nuisance proportions in Big Green Lake and other lakes in Wisconsin and North America. In fact, in 1971 the total dry weight of Milfoil accounted for 56% of the total dry biomass reported in Bumby's study.

In addition to the harvesting, some private property owners and local agencies have resorted to chemical applications to control plants and algae. Records of the DNR and the Green Lake Sanitary District indicate chemical application permits were first issued in 1950.

It is generally believed excessive plant growth is caused by excessive sediment and nutrient loading from diffuse sources in the watershed.

In an effort to control excessive macrophyte growth in Big Green Lake, harvesting was initiated in 1978 and continued through the summer of 1980. The Agweed Inc., a nonprofit corporation formed by mutual agreement of the Sanitary District, City of Green Lake, and the Green Lake Association conducts the harvesting operations. Table 6 illustrates tons (wet) of harvested macrophytes.

TABLE: 6 Tons (wet) of harvested macrophytes from Big Green Lake.

Year	Tons Removed
1978	268
1979	665
1980	423

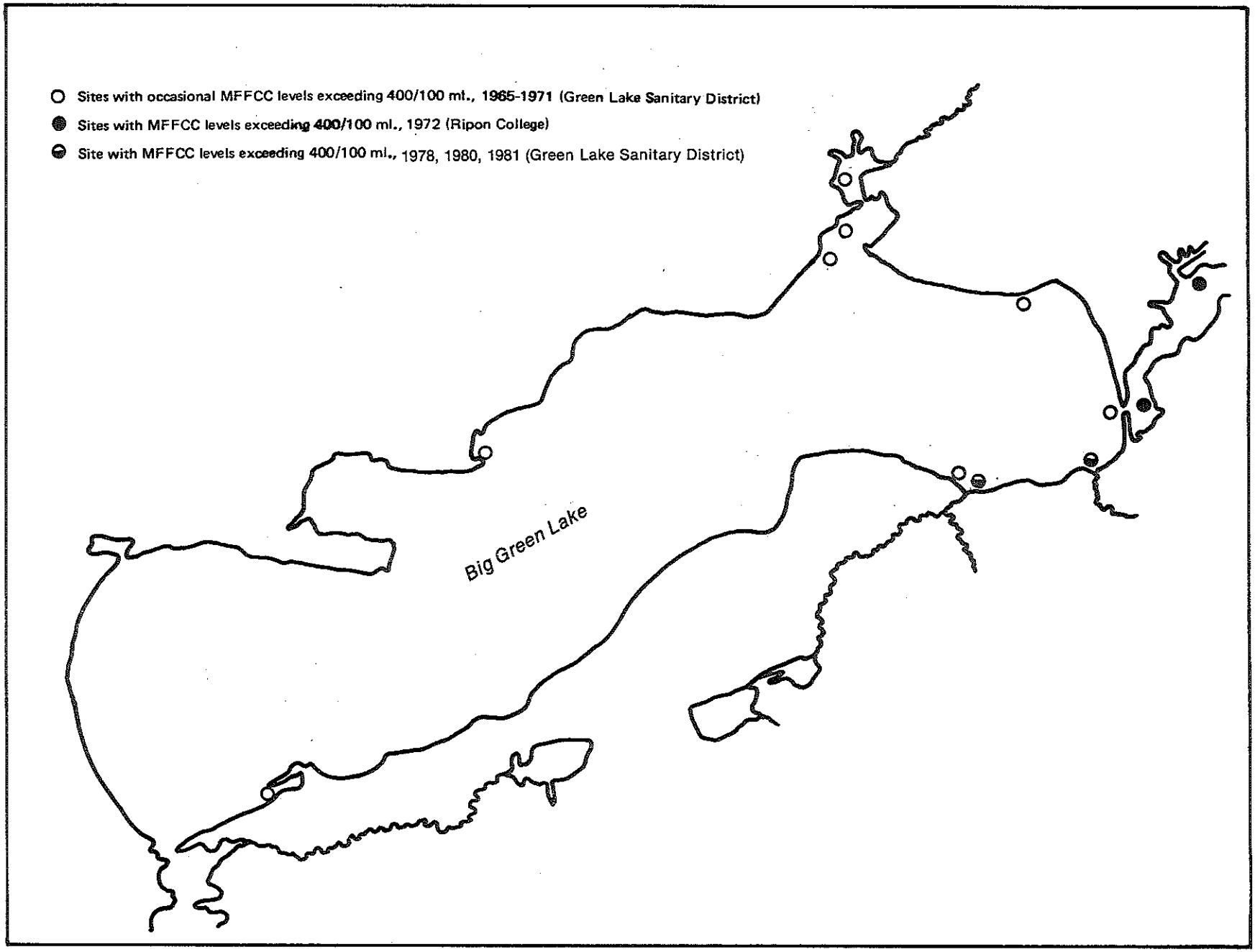


Figure 3. Fecal coliform contamination greater than 400/100 ml. MFFCC, Green Lake, Wisconsin.

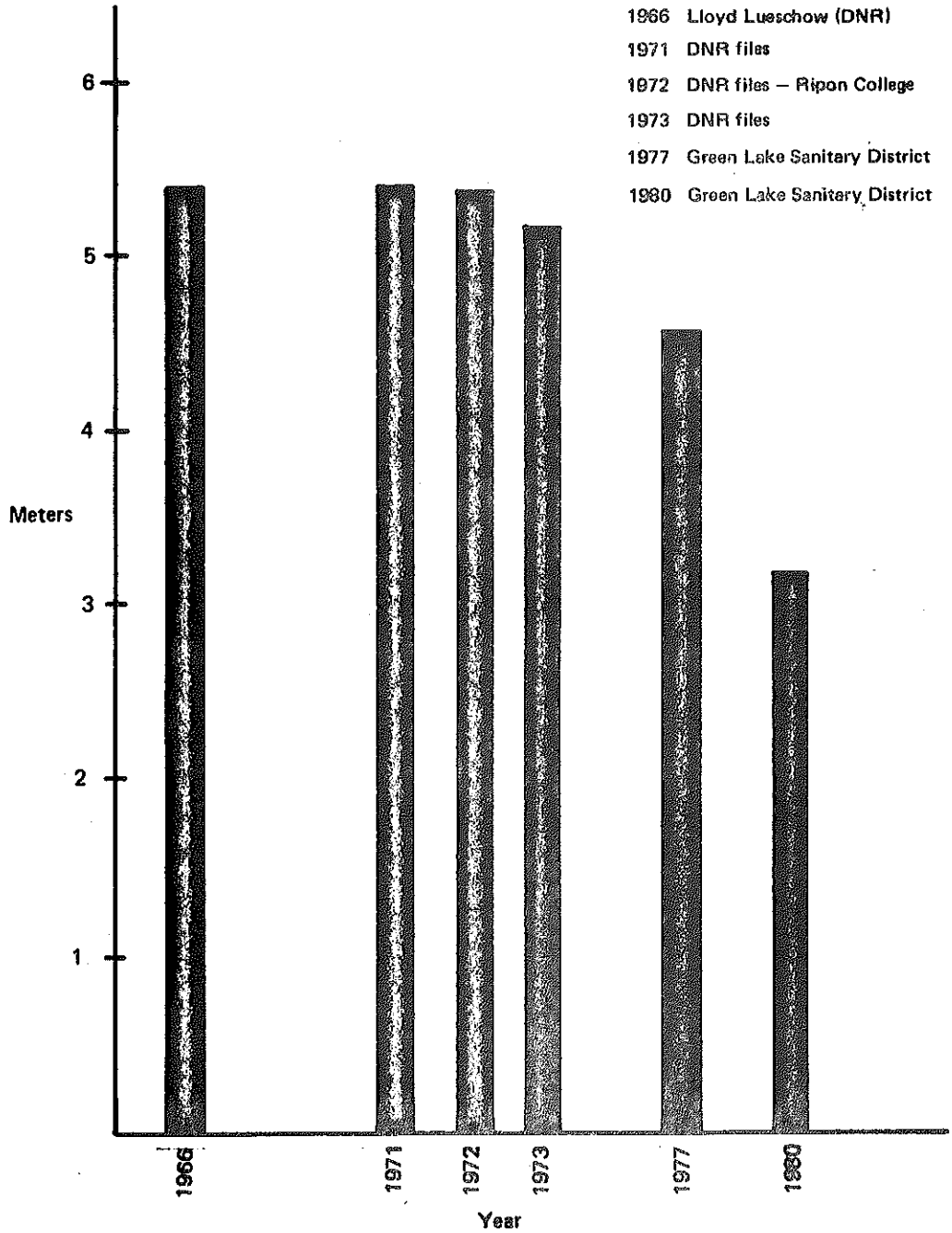


Figure 4: Mean transparency for ice free periods – Big Green Lake.

Analysis of macrophyte tissue (total cut parts) revealed harvesting as an ineffective method of nutrient control for phosphorus. Removal of 423 tons of macrophytes resulted in 226 lbs. of phosphorus removal for 1980. This amount is equivalent to 1.4% of the phosphorus loading rate and 2% of retained phorphorus. (Green Lake Sanitary District has complete reports on file concerning weed harvesting in Big Green Lake).

Lake Water Transparency

The depth at which a submerged 20 cm diameter black and white disc can be seen is called "Secchi transparency" for surface waters. Measuring the transparency of a water body is an inexpensive method to estimate the water's quality. It is an especially effective method for Big Green Lake because Big Green Lake has few suspended sediments in open water sites; in addition, Big Green Lake is quite deep eliminating interference from light reflected from the bottom. Fortunately, earlier investigators considered Secchi transparency important and reported their results for a number of years on Big Green Lake. Figure 4 illustrates the trend towards decreasing Secchi transparency depth for Big Green Lake, dating back to 1966. Clearly, the average transparency for Big Green Lake during the ice free period (April through December) has diminished significantly. The sample sites used in 1972, 1977, and 1980 are open water sites; thus, declining transparency is very probably not caused by suspended sediment. Rather, transparency decreases as plankton productivity increases.

LAND AND LAND USE INVESTIGATIONS

Field evaluations were conducted by SWCD and SCS offices in Green Lake and Fond du Lac counties in an attempt to locate the specific sources of nonpoint pollution in the Green Lake Watershed. All of the animal concentration ares in the watershed were surveyed and information was collected on the numbers of livestock; distance from nearest stream or drainage way, and runoff controls needed at each site. The survey also included an inventory of the croplands where these was high erosion causing sediment to enter streams or lakes. Areas of severe gully and streambank erosion were also noted. Wherever apparent sources of pollutants were found an estimate was made on the type and cost of management practice needed to control the source. This information was used to calculate the costs for the practice installation portion of the project. These estimates are given later in this report. Previous efforts were undertaken in 1977 by the Green Lake Sanitary District to identify areas of critical soil loss and animal concentrations. White and Hill Creek subwatersheds have the largest number of critical soil loss sites with lessor amounts in the direct subwatershed, Roy Creek and Wurchs Creek as illustrated in Figure 5. Many of the calculated soil loss areas occur on moderate slopes of cropland especially that land under continuous row cropping. Other soil loss sites include ravines and gullies that are not stabilized. Figure 6 indicates the distribution of all livestock concentration areas.

The field investigations also determined that there were potential nonpoint sources of pollution within the cities of Green Lake and Ripon. Leaf disposal procedures appear to be a source of water quality impact in both cities. In Green Lake it is common practice for the residence to rake leaves into the roadside ditches and leave them there or burn them. This allows for the nutrients to enter the lakes and streams during runoff times. This could be corrected by starting a leaf pickup program in the city. Ripon collects leaves within the city and dumps them at a site along Silver Creek on the northeast side of Ripon. Snow removed from the streets is also dumped at this site. Because of the proximety of Silver Creek, nutrients, salt and other pollutants are likely entering the stream during runoff periods. This site will have to be studied further in order to determine the best method of controlling the nonpoint source pollution.

WATER QUALITY OBJECTIVES

Based on land use and water quality investigations, the water quality goals for the Big Green Lake Watershed Project are:

(1) protect the areas that currently have good or excellent water quality

(2) improve the water bodies that have been degraded by nonpoint sources of pollution

(3) halt and, where possible, reverse the trend in declining water quality

The changes in water quality will likely occur in the streams long before any changes are noticed in Big Green Lake. Because the volume of the lake, it will take many years before a trend in the lake's water quality can be measured.

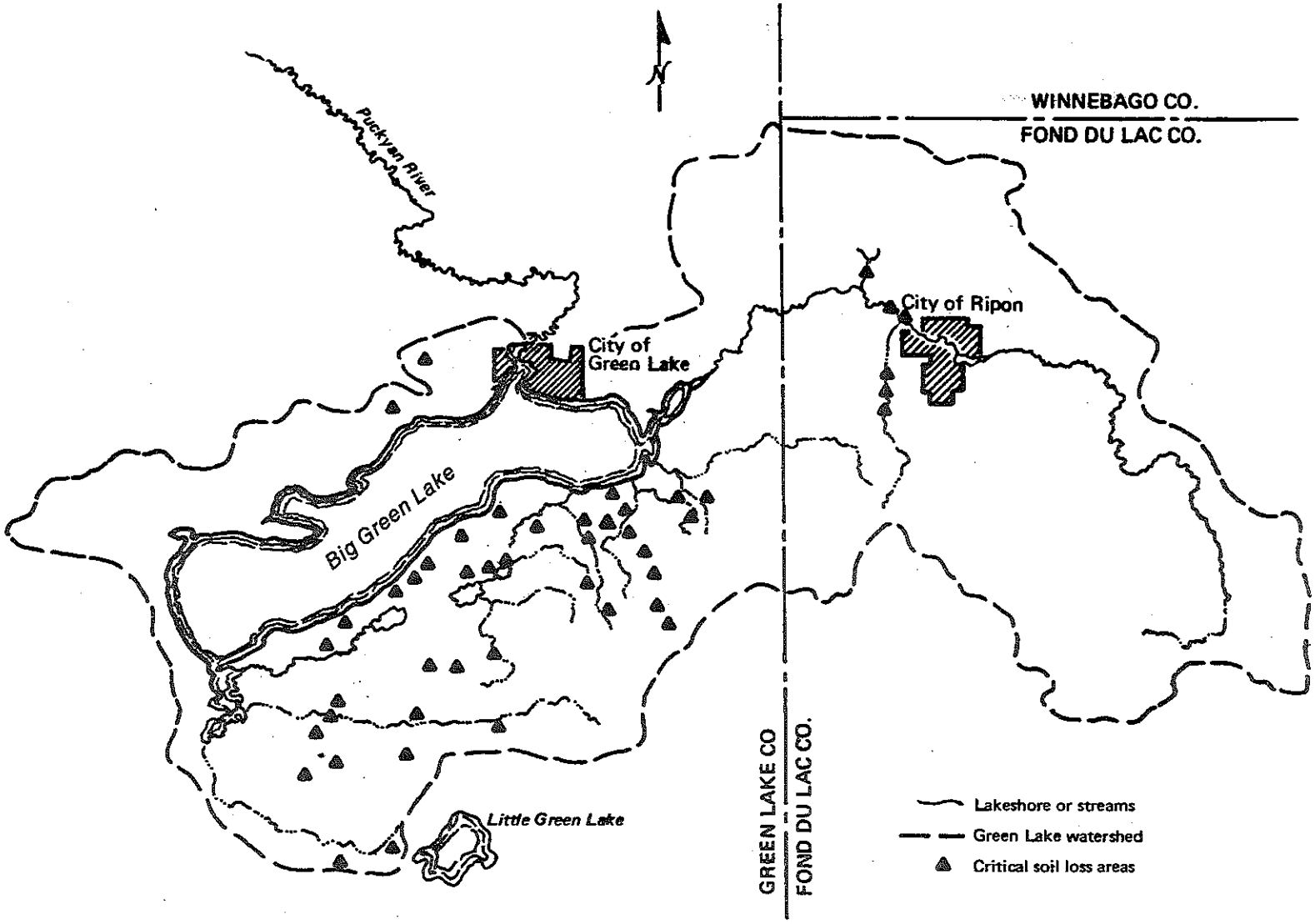


Figure 5. Critical soil loss areas, Big Green Lake watershed.

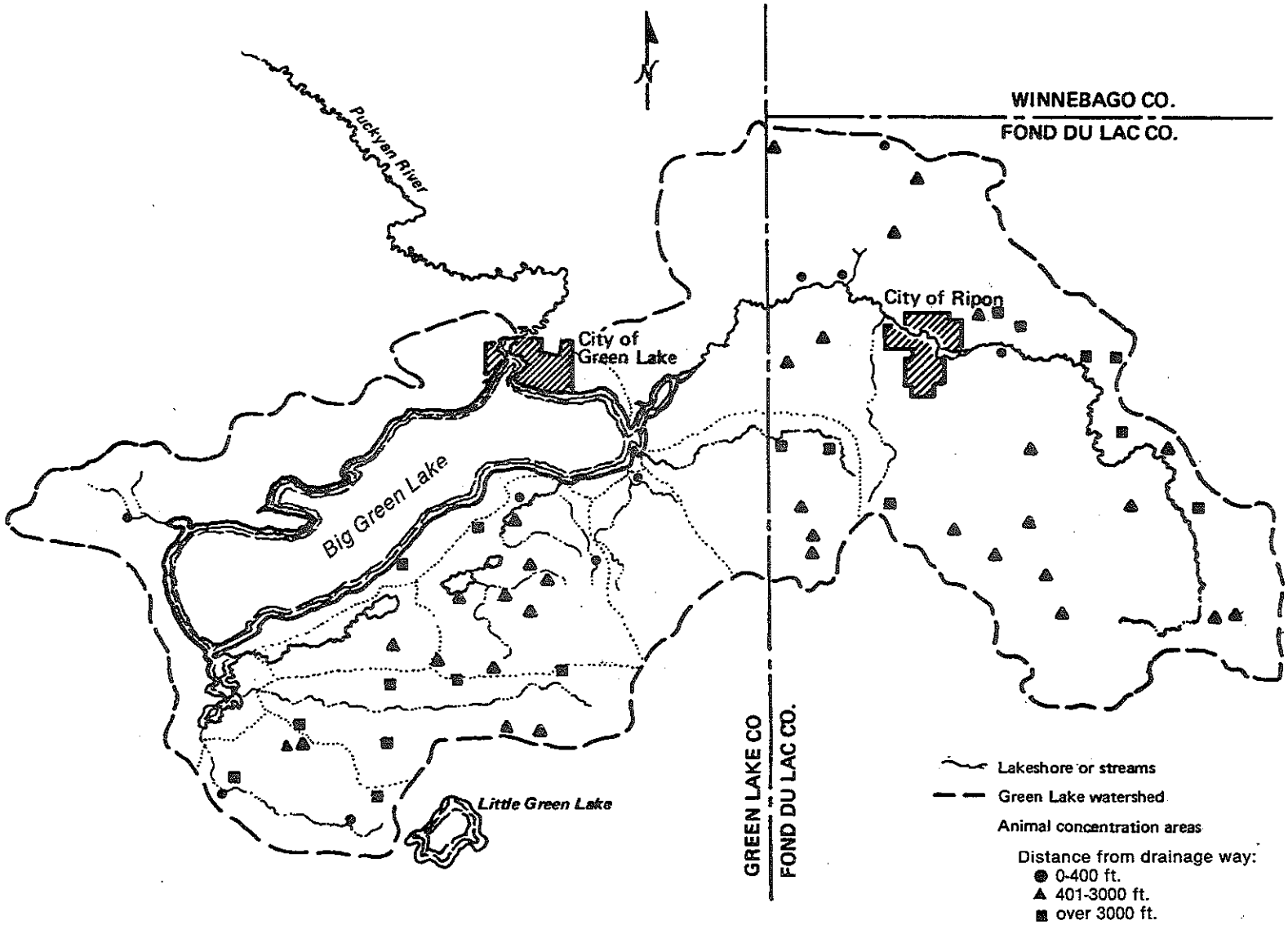


Figure 6: Animal concentration areas, Big Green Lake watershed.

These goals are appropriate for the water bodies in the Big Green Lake Watershed and represent the ultimate reason for the project. Improved or protected water quality wil be defined in terms of the following criteria:

(1) sediment (both inlake and instream)

(2) biotic index (instream)

(3) nutrient concentration (both inlake and instream)

(4) transparency (inlake)

(5) bacteria levels (both inlake and instream)

In order to meet the water quality goals as measured by these criteria the following objectives will have to be met for the Big Green Lake Watershed:

(1) Reduce the concentration of bacteria to "acceptable" levels (that is 400 fecal coliform colonies per 100 mls of sample) wherever this level is now exceeded. This is especially important in areas of the lake and streams used for swimming. In addition to limiting bacterial contamination in areas with high levels, it is necessary to reverse the trend of increasing bacterial concentrations for those areas now considered "safe" as reported in the bacteriological water quality section of this report.

(2) Reduce the nutrient (nitrogen and phosphorus) loading levels of the streams from nonpoint sources by 40% on a yearly basis. This should in turn (over a period of years) reduce the amount of nutrients within Big Green Lake. The reason for this objective is to lessen the duration and intensity of the lake's algae blooms and weed growth.

(3) Increase the average transparency readings within the lake during the open water times. In the case of Big Green Lake transparency measurements will reflect the relative amount of algae growth occurring in the lake at the time of the test.

(4) Halt the trend of the increase in the lake's littoral zone as a result of sediment loading to the lake from the shoreline and streams. This sediment not only interferes with recreational boating by making parts of the lake shallower, but it also provides a habitat for aquatic weeds to grow.

In order to determine if these objectives are being met a water quality monitoring program will have to be set up for the watershed. The specifics of the program will be determined by the local agencies within the watershed and the Department of Natural Resources. In general the monitoring program will call for the periodic high and low flow sampling of the streams flowing into Big Green Lake for phosphorus, nitrogen, sediments, and bacteria. Also Big Green Lake will be monitored for the same parameters plus transparency, temperature, and dissolved oxygen. The monitoring will have to be an ongoing program for many years in order to measure any changes in the water quality due to the implementation of nonpoint source control practices.

PRIORITY MANAGEMENT AREAS

Although the entire Green Lake Watershed area has been selected for the Nonpoint Source Pollution Abatement Project, only a part of it will actually be eligible for cost-sharing grants to landowners. The Priority Management Area (PMA) is that portion of a watershed from which the quantity of pollutants is most significant and where the application of best management practices will be the most effective in improving water quality. A map of the PMA appears in Figures 7 and illustrates the extent of the boundary.

The rationale for establishing the PMA in the Big Green Lake Watershed was based on the findings of field investigations conducted by the counties. In defining the priority area for the watershed, land management, animal waste concentrations, streambank erosion, and critically eroding areas were considered along with past water quality monitoring. Parts of the direct subwatershed were selected because of the known contribution of sediments and nutrients. The subwatersheds with potential pollution from animal waste and soil erosion include Wurchs, White, Roy, and Hill Creeks. Dakin Creek was chosen based on high bacterial levels from suspected animal concentration areas. Subwatershed boundaries were used for the most part instead of "corridors" along streams because it was felt that there was significant pollution from diverse parts of the subwatershed. Also, in the western half of Green Lake Watershed, almost all of the land is within 1/4 mile of a permanent or intermittent stream. In Fond du Lac County, a quarter mile corridor along Silver Creek was used to delineate the PMA.

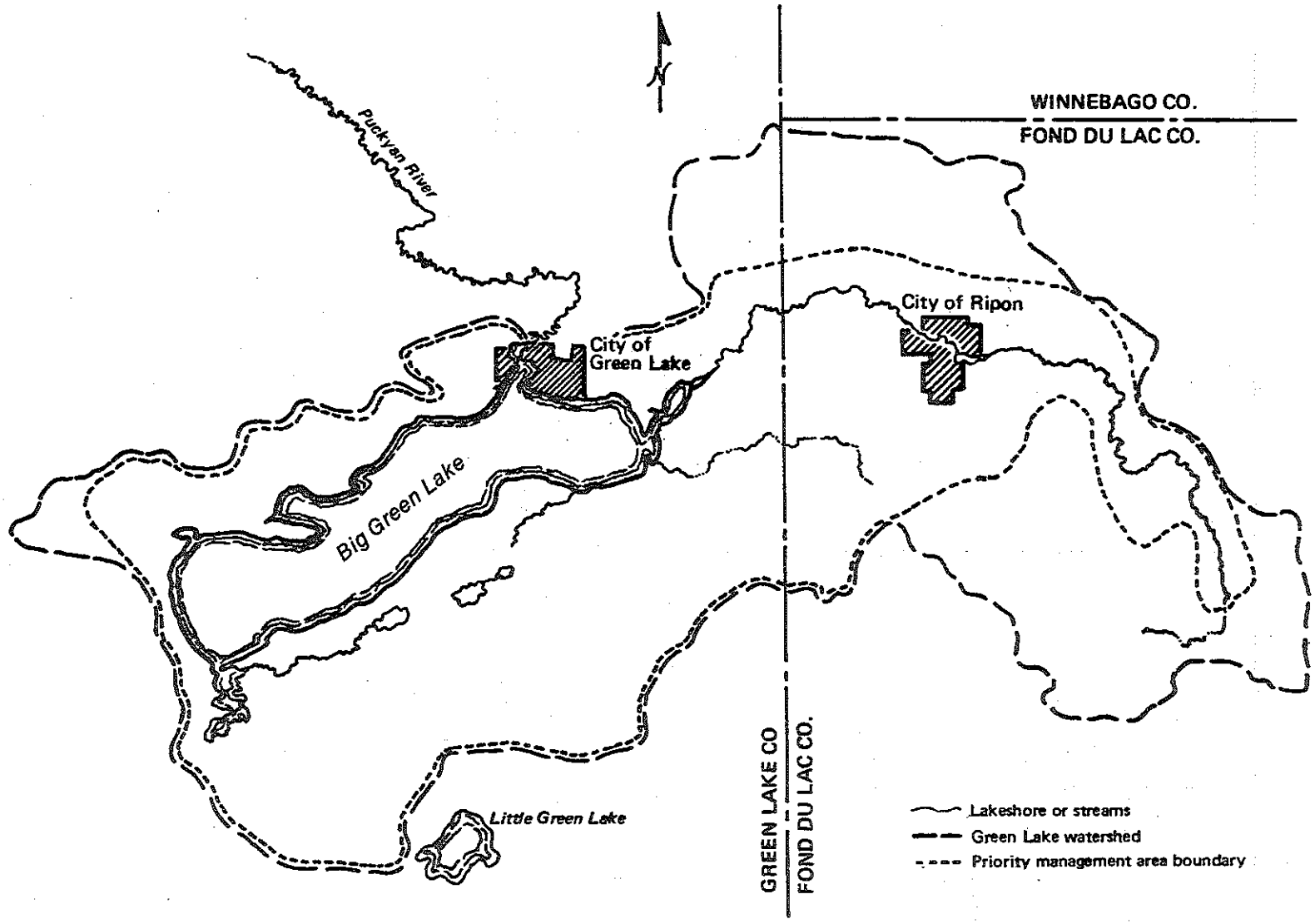


Figure 7: Big Green Lake watershed — Priority management area.

In all cases, before the installation of a practice, it must be determined by the field personnel that the practice will have a positive impact on surface water quality. In other words, not all practices needed within the priority management area outlined on the map can be cost shared with Wisconsin Fund money. In each case a practice cost shared with Wisconsin Fund money must have a benefit on water quality (not simply a soil conservation benefit).

PROJECT JUSTIFICATION

Before implementing a project such as the Big Green Lake Watershed Plan it should be determined: 1) if the public benefit derived from project is worth the public cost, and 2) if the project is of sufficient scope and detail to accomplish its objectives.

Based on information about the use of the lake and the surrounding area, it is clear that the public benefit would far out-weigh the costs. The main attraction of the region is Big Green Lake itself. It is one of Wisconsin's largest natural lakes and is the deepest in the state (at 237 feet). The lake provides for a diverse recreational use including sailing, boating, swimming and fishing (summer and winter). This is the only inland lake in southern Wisconsin which supports a lake trout population along with a good population of walleye and northern pike. Perhaps the most important feature of the lake is its location and accessibility. By automobile, it is only 3-1/2 hours from Chicago, 2 hours from Milwaukee, 1-1/2 hours from the Fox Valley area, and 1-1/2 hours from Madison. There are over ten public boat ramps to the lake and several public parks around the lake. The area is heavily used both in summer and winter. As a result of the popularity of the area, there are several resorts around the lake and much second home development pressure. Almost the entire shoreline (of 21 miles) is developed. It is clear that with increasing energy costs, the lake region of northern Wisconsin will become less attractive and Green Lake will grow in importance because of its proximity to metropolitan areas.

Based on the information gathered during the planning stage of this project, it is evident that the water quality objectives described in the previous section of this report can be accomplished. There are two facts made clear from the data collected: 1) the water quality of Big Green Lake, although presently in good condition, has been declining the past few decades, and 2) most of the nutrients and sediments entering the lake originate from agricultural nonpoint sources (76% of the phosphorus). The only point source in the watershed is Ripon's Wastewater Treatment Plant. It contributes only 6% of the total phosphorus load and has been generally meeting its required permit limits since being upgraded. It is now believed that the largest cause of water quality impacts on the lake is agricultural nonpoint sources. The lake's watershed is relatively small (60,000 acres) and the scope of this project encompasses the entire watershed. The most critical areas contributing pollutants to the surface waters have been identified and the problems can be controlled with the proper practices. Reduced pollutant loads from the sources will not be immediately evident in the lake. Green Lake itself contains a large reservoir of nutrients which will continue to support the macrophyte and algae life in the lake for many years. But the alternative of allowing the pollutants to continue entering the lake will mean a continued trend of decreasing water quality in the lake.

IMPLEMENTATION PLAN

PARTICIPANTS

Designated Management Agencies

Designated Management Agencies (DMAs) are those local units of government identified in the areawide water quality plans as having responsibility for soil and water conservation, including implementation of best management practices. For unincorporated areas, the Soil and Water Conservation Districts of Green Lake and Fond du Lac Counties will serve as DMAs jointly with their respective County Boards. The cities of Green Lake and Ripon are the identified DMAs for nonpoint source responsibilities within their respective incorporated limits. Together these units of government are able to provide program funding to landowners, to install practices on public lands, and develop regulatory processes to protect water resources if voluntary programs prove unsuccessful.

The Green Lake County SWCD was selected as the lead DMA by a vote of the four DMA's. The lead DMA is responsible for coordinating activities among the designated management agencies. Green Lake County SWCD will also be under contract with the State of Wisconsin for overall management of the watershed project.

These agencies have been named by the DNR to manage the nonpoint source water pollution abatement project for the Big Green Lake Watershed. Wisconsin Administrative Rule NR 120.06 defines the responsibility for DMAs. A brief summary of the DMA responsibilities appear in the following list.

1. Assist or lead in the development and approval of priority watershed plans.
2. Recommend revisions to the plan to allow for changes.
3. Carry out education and information programs about nonpoint pollution and management needs.
4. Administer the cost-sharing element of the project including sign-ups, approval, authorization of payments, and record keeping.
5. Certify installation, operation, and maintenance of best practices.
6. Coordinate and control cost-sharing monies with local contributions.
7. Report to DNR on project progress and recommended project modifications.
8. Screen applications for variances to established cost-sharing rates.
9. Determine priority of assistance among grant applications.

All of these activities may be carried out by the DMA's or by delegation to other agencies or units of government.

Cooperating Agencies

In addition to the designated management agencies, the Big Green Lake Watershed Project will receive assistance from other agencies listed below.

University of Wisconsin Extension

This agency will be responsible for information and education programs for the project. Using the resource and farm agents, they will plan and conduct many different tasks outlined in the information and education section of the plan.

Agricultural Stabilization and Conservation Service

Both Green Lake and Fond du Lac DMAs have proposed similar contractural agreements with each county ASCS office. A copy of the proposed contract appears in the Appendix. The major responsibility of ASCS will be the fiscal management portion of the project. The details of this agency's responsibility appear in the fiscal management section of the plan.

Soil Conservation Service (U.S.D.A.)

This agency works through the local Soil and Water Conservation District for Green Lake and Fond du Lac Counties. The SCS provides technical assistance for installing conservation practices. Working with a staff, this agency will contribute to the project by providing inventories of conservation needs, estimated costs for BMPs, planning, designing, layout, supervision, and certification of practice installations.

Green Lake Sanitary District

This agency is a local unit of government representing the immediate area surrounding Big Green Lake excluding the City of Green Lake. The Sanitary District is responsible for the writing of the watershed plan and for local cost-share assistance for the implementation phase of the project. The District Commissioners have budgeted up to $30,000 for cost-sharing conservation practices during the first year of the project. In addition to plan writing and cost-sharing, the District will conduct water quality monitoring in the watershed to measure the effects of the BMPs on water quality.

Green Lake Association

This is a private lake association interested in protecting and enhancing water quality in Green Lake. The responsibility of this association falls within the education and information area along with a commitment as a local source of cost-sharing to landowners.

The Association has budgeted $4,000.00 for the first year of the project to aid landowners in the cost-sharing of projects which will be especially beneficial to the lake and which cannot be fully funded otherwise.

The Association is committed, also, to providing similar support on a continuing basis thereafter.

Department of Natural Resources

The DNR has an overall responsibility for administration of the project if it is funded by the Wisconsin Fund. DNR has entered into a contract with both Green Lake and Fond du Lac County DMAs for the purpose of developing the priority watershed plan. The contents of the contracts appear in the Appendix. As the authorized agency of the state, the DNR will;

1. develop and implement state/local agreements for managing the project,

2. aid in the preparation of the priority watershed plan and approve the local implementation program,

3. evaluate the project through water quality monitoring, (with the help from local agencies)

4. report to the governor and the state legislature on the progress of the program.

Board of Soil and Water Conservation Districts

This agency also has a state level responsibility to the nonpoint source abatement projects. Specificially, the BSWCD will assist the DMAs with preparation of the implementation program, record keeping, fiscal management, information and education programs, and general program management.

IMPLEMENTATION APPROACH

Best Management Practices

Those practices which will control the water pollutants from nonpoint sources are called best management practices (BMPs). The practices eligible for cost sharing under the Wisconsin Fund program are listed on Table 7. These are the types of practices which will be used in the Big Green Lake Watershed to control water quality problems. The cost sharing rates range from 50% to 70% with a possible 80% under certain conditions.

TABLE 7: BMPs and Maximum Cost-share Rates

Practice	Maximum State Cost-sharing Rate
Contour Cropping	50%***
Strip Cropping	50%***
Diversions	70%
Terraces	70%
Waterways	70%
Minimum Tillage	50%***
Critical Area Stabilization	70%*
Grade Stabilization Structure	70%*
Shoreline Protection	70%*
Settling Basins	70%*
Barnyard Runoff Management	70%
Manure Storage Facilties	70%**
Livestock Exclusions from Woodlots	50%
Street Cleaning	50%

* May be increased to 80%. At the discretion of the DMA, State funds may be used to match county cost-sharing funds on a one-to-one basis up to an additional 10% (addition 10% state + 10% local)

** Up to $6,000 per facility.

*** A flat rate per acre equal to the cost-share rate applied to an average installation may be used.

The BMPs included in Table 8 are those practices which will help meet the water quality objectives set for the watershed. The specifications used for these practices must meet the Soil Conservation Service requirements concerning technical design. It is possible some practices may be recommended that are not included on the BMP list. Adminstrative Rule NR 120.10(4)(b) and (c) provides for substitute practices under conditions which are set on a case by case basis.

Cost-Sharing For BMPs

The following general policies apply to the cost-share eligibility under the Wisconsin Fund Program:

1. Only BMPs installed at specific locations necessary to improve or protect water quality are eligible

2. Rural and urban areas are eligible

3. Cost-sharing limited to areas of the state with approved areawide water quality management plans

4. Cost-sharing is limited to priority management areas

Cost-sharing is not available for practices which:

1. are normally and routinely used in growing crops.

2. are normally and customarily used in cleaning of streets and roads (increased street cleaning is eligible if it benefits water quality)

3. have drainage of land as the primary objective

4. installation costs can reasonably be passed on to potential consumers.

It is possible some practices may be "custom" plans that do not fit the established definition for a particular practice. The Nonpoint Program will provide for substitute management practices after review and approval by the DNR and the Board of Soil and Water Conservation District. The DNR will make a final determination on eligilibity for cost-sharing and assign a maximum cost-sharing rate. Design specifications will be recommended by the SCS Technical Guide Work Group.

Planned Action and Priorities

Upon notification of funding approval and availability of funds, the County Soil and Water Conservation Districts will begin actively seeking landowner cooperators. The program will be announced to the public using the media methods selected in the information/education program. Sign-ups will be accepted at the local ASCS office. The SWCD and SCS will also contact landowners/farmers in the watershed to explain the programs and practices under the Wisconsin Fund.

In Green Lake County the project effort will be allocated in the following sequence.

Hill and White Creek subwatershed areas will be visited first to continue the soil conservation work started with the local priority project.

The local priority project was begun in April of 1980 to contact certain nonpoint sources of pollution in this subwatershed.

Roy and Wurch's Creek subwatersheds would be next in priority of visiting with landowners with the direct drainage and Dakin Creek subwatershed next in order of priority. This order of landowner contacts was determined based on the degree of nonpoint source pollution from each subwatershed discovered during field surveys and water quality studies. Basically, areas causing the most problem will be worked on first.

In Fond du Lac County the work will initially concentrate on the area within the PMA west and south of Ripon. This is the region with the steepest topography and the most critical streambank, gully, and cropland erosion.

In the first year of the program one hundred percent of the landowners within the watershed will be notified by mail about the Wisconsin Fund Program. In addition to this 50% of the landowners in the priority management area will be personally contacted by SCS or SWCD personnel.

Schedule for Practice Installation

Since there will be only three years for landowners to sign up for practices and an additional five years for the design and installation, most of the effort during the first year will be concentrated on obtaining landowner cost/share agreements. Green Lake County has set a goal of 30 landowner agreements in the first year and Fond du Lac has a goal of 18 landowner agreements in the first year. The design and installation of practices will be spread out over future years. This should commit a maximum number of landowners in the time allowed. Table 8 and 9 are schedules for the installation of recommended practices in each county.

Table 8: Implementation Goals and Schedule for Watershed Project - Green Lake County (75% of total needs)

Activity	Unit	1982	1983	1984	1985	1986	1987	1988	Total
Landowner Contacts(100%)	(No)	150	125	125	-	-	-	-	400
Conservation Planning	(Ac)	4,500	3,750	3,000	-	-	-	-	11,250
Cost-Share Agreements	(No)	30	23	22	-	-	-	-	75
Revision of Agreements	(No)	-	1	2	2	1	1	1	8
Contour Strip Cropping	(Ac)	-	15	30	75	75	75	30	300
Diversion	(Ft)	375	750	1,500	3,375	3,750	3,375	2,250	15,375
Terraces	(Ft)	750	2,250	7,500	15,000	11,250	7,500	3,750	48,000
Waterways	(Ac)	1	4	15	22	15	3	-	60
Minimum Tillage	(Ac)	75	750	750	3,000	2,250	150	-	6,975
Critical Area Stabilization	(Ac)	-	1	1	1	1	1	-	5
Grade Stab. Structure	(No)	2	2	2	5	6	3	2	22
Shoreline Protection									
Fencing	(Rd)	8	23	75	150	225	150	22	653
Shaping & Seeding	(Rd)	37	38	38	57	56	19	18	263
Riprap	(Rd)	7	8	15	15	23	15	7	90
Livestock Crossing	(No)	-	2	-	2	1	-	-	5
Rock Lined Chute	(Ft)	150	750	-	750	750	-	-	2,400
Animal Waste Runoff Control	(No)	2	4	2	6	5	-	-	19
Animal Waste Storage Fac.	(No)	1	1	2	2	-	-	-	6
Annual Review of BMP's	(No)	-	15	26	38	57	67	75	278

Table 9: Implementation Goals and Schedule for Watershed Project - Fond du Lac County (75% of total needs)

Activity	Unit	1982	1983	1984	1985	1986	1987	1988	Total
Landowner Contacts (100%)	(No)	60	60	50	-	-	-	-	170
Conservation Planning	(Ac)	1,500	1,500	1,200	-	-	-	-	4,200
Cost-Share Agreements	(No)	18	18	17	-	-	-	-	53
Revision of Agreements	(No)	-	1	1	1	1	1	-	5
Contour Strip Cropping	(Ac)	15	37	38	225	150	74		539
Diversion	(Ft)	-	-	-	-	-	-	-	-
Terraces	(Ft)	-	300	300	3,000	2,250	1,500	750	8,100
Waterways	(Ac)	1	1	1	7	5	4	1	20
Minimum Tillage	(Ac)	75	75	75	600	750	600	375	2,550
Grade Stab. Structure	(No)	-	-	-	1	1	-	-	2
Shoreline Protection									
Fencing	(Rd)	75	75	75	75	75	-	-	375
Shaping & Seeding	(Ft)	-	-	-	-	-	-	-	-
Riprap	(Rd)	4	4	7	23	15	7	-	60
Livestock Crossing	(No)	-	-	1	1	-	-	-	2
Animal Waste Runoff Control	(No)	1	1	-	-	-	-	-	2
Animal Waste Storage Fac.	(No)	1	1	1	-	-	-	-	3
Annual Review of BMP's	(No)	-	11	23	30	38	44	53	199

Information and Education Program

The objective of the information and education program is to create an awareness and understanding and to generate interest and support among landowners for the Big Green Lake Watershed Program. It is also the intent of this program to develop and distribute sufficient information to allow the landowner to evaluate and make intelligent decisions regarding his involvement and participation in this cost-sharing program.

Overall responsibility for implementing and coordinating the information/education program will be provided by the University of Wisconsin-Extension Service in each county. Assistance will also be provided when necessary and appropriated by the other agencies involved in this project - namely the Soil and Water Conservation Districts and the Soil Conservation Service. It is essential that the information/education program is closely coordinated with other aspects of the Big Green Lake Program, therefore, close contact and coordination will be maintained between the project manager and University Extension Agents in each county.

During the early stages of the implementation of the Big Green Lake Watershed Program, information/education efforts will be directed to all landowners in the watershed area. This informational effort will be general in nature and designed to acquaint the landowners with the basic features and concepts of the program. This information will be carefully developed to impress upon residents of the watershed area that not all landowners will be eligible for cost-sharing assistance during the initial phases of the project. The concept of "priority management areas" will be clearly identified in these informational activities.

Information/education activities will be conducted throughout the duration of the implementation of the Big Green Lake Watershed Program. The main thrust of information/education efforts will be exerted during the early stages of the project and will gradually taper off through later stages of project implementation.

The following activities are listed below in two separate categories and will comprise the educational program for the Big Green Lake Watershed.

Interpersonal Programs

1) Personal Contacts - Perhaps one of the best mechanisms for informing landowners about the program is through one-to-one contacts, both in the field and in the office. These personal visits will serve as a means for generating interest in the program as well as discussing the technical aspects of management practices.

2) Neighbor Discussion Groups - This program will consist of a discussion between a small group of landowners (4-5) and the different agency personnel involvement in the program. Four to five farmers will be contacted who have a positive attitude towards soil and water conservation and are also viewed as "leaders" in their communities.

   These neighbor discussion groups will discuss common problems in respect to their given area and will decide, with the assistance of the SWCD and the SCS, the best management practices needed in that area. The SWCD's and the SCS will use their discretion in implementing this program.

3) Watershed Meetings - Watershed meetings will consist of educational programs in which information on general subjects will be presented to landowners. Suggested topics include seminars on best management practices and the watershed program in general. These will be presented and available to landowners that are in need of and have expressed an interest in learning more about the Watershed Program.

   For these Watershed meetings a great deal of educational material will be developed, pictures, slide sets as well as a vast array of publications, etc.

4) Field Tours - Tours of farms and urban areas within and outside of the priority management areas will give farmers, homeowners and government officials a firsthand look at the different management practices that are eligible for cost sharing. It is also possible that these tours can be used as an educational tool with school groups. This activity will begin in the Fall of 1981.

5) Presentations - These will be more formal and generalized than town meetings and aimed primarily at school classes, conservation groups and service organizations.

Educational Projects

1) Mass Media - the media will be utilized when appropriate to announce meeting and provide updates on the status of the program. This will be an ongoing activity throughout the duration of the project. If possible, feature articles detailing the involvement and participation of specific farmers in the program wil also be developed.

2) Newsletters - Developed and distributed throughout the duration of the project. Used as a means to provide background information and status reports on the progress of the program. Developed initially to all potentially eligible landowners in the Watershed area, then later to landowners in priority management areas. The newsletter will be distributed on a quarterly basis, or as needed.

3) Information Packets - Two-pocket folders containing information such as a map of the Watershed and priority management areas; schedule of cost-share rates, fact sheets, tax management aspects of pollution control and other information as determined to be necessary. The packet will be given to landowners through personal contacts and will serve as a place to file new information as it is developed and distributed.

   The packet as well as the information within the packet will also be distributed at meetings, tours and other events when appropriate.

4) Self Evaluation Questionnaires - A questionnaire consisting of a series of questions for the landowner to answer. This will not be mailed to the designated management agency offices, but rather to be used by the landowner to help him decide for himself "how he measures up". To be developed by the University Extension Service with review by appropriate agencies involved.

5) Educational Signs - There will be six educational signs displayed on well traveled roads depicting and explaining a best management practice in that area.

Table 10: Big Green Lake Education Program Goals

PRODUCT	Rate/Unit	FY '81	82	83	84	85	86	87	Total
Farm Calls		30	60	60					150
Watershed Meetings		1	1	1				1	4
Tours		1	2	2				1	6
Presentations		3	4	4	1	1	1	1	15
Newsletters		4	4	4	3	2	2	1	20
Radio		12	12	12					36
News Articles		8	8	8	2	2	2	2	32
Self-evaluation Questionnaire		1	1	1					3
Educational Signs		6							6
Slide Programs		1	1						2
Practice Maintenance Calls			8	20	20	20	10	10	88
Demonstrations		1	2	2					5
Administration Coordination	Hours	124	124	124	40	20	10	5	447

COSTS OF IMPLEMENTATION PROGRAM

Costs of Best Management Practices

According to the Wisconsin Administrative Code NR 120.10(5), not all nonpoint sources of pollution are eligible for the cost-sharing monies provided by the Wisconsin Fund. The following list indicates the activities which are not eligible.

1. Mining
2. Construction (on privately owned lands)
3. Silviculture (except farm woodlots)
4. Private septic systems
5. Dredging
6. Practices installed primarily for flood control purposes

Best Management Practices recommended by Fond du Lac and Green Lake Counties and their costs per unit were determined during the land surveys conducted by each County SWCD office. Generally the practices recommended are related to the control of nonpoint sources of pollution from agricultural activities. Table 11 lists the recommended practices and the estimated costs per unit.

Table 11: BMP's Estimated Cost per Unit

Practice	Estimated Cost per Unit
Minimum Tillage	$15/acre
No Till	$25/acre
Grassed Waterway	$2/ft.
Strip Cropping	$10/acre
Contour Strips	$10/acre
Animal Waste Storage	$23,000/unit (average)
Barnyard Runoff Management	$ 3,000/unit(average)
Terraces	$2.00/ft.
Rock Crossings	$1,000/unit
Diversions	$1.50/ft.
Shaping and Seeding	$32/rod
Grade Stabilization Structures	$1,000/unit
Rip-Rap	$160/rod
Rock Chute	$10/ft.
Critical Area Stabilization	$4/acre (average)
Fencing	$8.40/rod

Information was collected by various agencies in both counties describing the location and extent of streambank, channel, cropland, and roadside erosion. In addition, areas with livestock concentrations were evaluated for present or potential runoff problems. Urban nonpoint sources represent a small part of the total nonpoint contribution. Table 13 indicates the urban practice needs and estimated costs while Table 14 shows the same information by subwatershed for rural areas.

Table 12 Quanity and Estimated Costs in Dollars for BMP Needs in the Cities of Green Lake and Ripon

City	BMP	Unit	Quantity	Cost/ Unit	Estimated* Costs in $ for Annual Operation
Green Lake	Leaf Collection & Street Cleaning	Linear Feet of Street	41,600'	$40.00** curb mile	15,400
Ripon	Infiltration Systems	Number	1	$10,000	10,000
Ripon	Leaf Collection & Street Cleaning	Linear Feet of Street	308,700'	$ 40.00** curb mile	116,800
				Total Cost	142,200

*Annual Operation means number of linear feet times cost/unit of street cleaning once a week for twenty-five weeks.

**This is cost for street cleaning only, leaf collection costs will be estimated at time of implementation.

Table 13: Total Management Practice Needs: Quantity and Costs by Subwatershed

Best Management Practice	Fond du Lac County Quantity	Fond du Lac County Cost ($)	Wurchs Creek Quantity	Wurchs Creek Cost ($)	White Creek Quantity	White Creek Cost ($)	Hill Creek Quantity	Hill Creek Cost ($)	Roy Creek Quantity	Roy Creek Cost ($)
Contour Strip Cropping (acres)	718	7,180	140	1,400	-	-	240	2,400	-	-
Diversions (feet)	-	-	4,250	6,375	-	-	5,650	8,475	1,600	2,400
Terraces (feet)	10,800	21,600	2,800	5,600	10,800	21,600	10,600	21,200	10,600	21,200
Waterways (acres)	26	28,314	24	26,136	1	1,089	25	27,225	21	22,869
Minimum Tillage (acres)	3,400	51,000	600	9,000	1,000	15,000	2,500	37,500	2,500	37,500
Critical Area Stabilization (acres)	-	-	2	1,000	-	-	2	600	6	1,800
Grade Stabilization Structures (number)	3	30,000	4	40,000	2	2,000	1	10,000	11	100,000
Shoreline Protection										
-Fencing (rods)	511	4,300	-	-	250	2,100	300	2,520	150	1,260
-Shaping & Seeding (rods)	-	-	-	-	137	4,385	57	1,825	-	-
-Rip Rap (rods)	80	12,800	-	-	-	-	38	6,080	30	4,800
-Livestock Crossing (numbers)	2	2,000	1	1,000	-	-	2	2,000	1	1,000
Rock Lined Chute (feet)	-	-	-	-	500	5,000	500	5,000	-	-
Animal Waste Runoff Controls (number)	3	6,000	8	16,000	-	-	5	10,000	4	8,000
Animal Waste Storage Facility (number)	4	60,000	3	60,000	-	-	2	82,000	-	-
Totals		223,194		166,511		51,174		216,825		200,829

Table 13: Total Management Practice Needs: Quantity and Costs by Subwatershed (Cont.)

Best Management Practice	Direct Watershed Quantity	Direct Watershed Cost ($)	Silver Cr (G.L.Co.) Quantity	Silver Cr (G.L.Co.) Cost ($)	Spring Cr Quantity	Spring Cr Cost ($)	Dakin Quantity	Dakin Cost ($)	Totals Quantity	Totals Cost ($)
Contour Strip Cropping (acres)	310	3,100	-	-	32	320	-	-	1,440	14,400
Diversions (feet)	8,700	13,050	300	450	-	-	-	-	20,500	30,750
Terraces (feet)	27,000	54,000	9,400	18,800	5,600	11,200	-	-	87,600	175,200
Waterways (acres)	40	43,560	7	7,623	2	2,178	-	-	146	158,994
Minimum Tillage (acres)	200	3,000	-	-	600	9,000	800	12,000	11,600	174,000
Critical Area Stabilization (acres)	2	600	-	-	-	-	-	-	12	4,000
Grade Stabilization Structures (number)	10	130,000	-	-	1	1,000	-	-	32	313,000
Shoreline Protection										
-Fencing (rods)	-	-	-	-	-	-	-	-	1,211	10,180
-Shaping & Seeding (rods)	156	5,000	-	-	-	-	-	-	350	11,210
-Rip Rap (rods)	31	4,960	-	-	-	-	-	-	179	28,640
-Livestock Crossing (numbers)	1	1,000	-	-	-	-	-	-	7	7,000
Rock Lined Chute (feet)	1,700	17,000	-	-	600	6,000	-	-	3,300	33,000
Animal Waste Runoff Controls (number)	2	4,000	-	-	-	-	3	6,000	25	50,000
Animal Waste Storage Facility (number)	2	70,000	1	10,000	-	-	-	-	12	282,000
Totals		349,270		36,873		29,689		18,000		1,292,374

Administrative and Technical Assistance Needs

Green Lake and Fond du Lac Counties SWCD and ASCS have determined the technical needs and program management needs in order execute the watershed plan.

These needs have been estimated in the amount of time required to complete various tasks ranging from designing a waterway to preparing payment vouchers from cooperating landowners. Table 15 shows the total estimated hours to complete these tasks. At present staffing levels, Green Lake County has 538 hours per year it must commit to the project and Fond du Lac will commit 305 hours per year. The remainder of the hours needed will be picked up by staff funded through the state watershed program. The county commitment was computed based on the amount of watershed which is within each county and the size of each county's SWCD and SCS staff.

Table 14: Estimated Personnel Requirements in Hours for Watershed Project for Green Lake and Fond du Lac Counties

Work Effort	1982	1983	1984	1985	1986	1987	1988	Total
Technical Assistance	2,848	2,855	2,827	2,214	1,813	798	452	13,807
Program Management	900	900	780	600	540	460	370	4,550
Fiscal Management	95.1	202.8	240.1	220.6	220.6	184.1	147.8	1,311.1
Total Watershed Needs	3,843	3,958	3,847	3,035	2,574	1,442	970	19,668
Hours Available From Local Units of Government	1,063	1,063	1,063	1,063	1,063	1,063	1,063	7,441
Additional Watershed Needs	2,780	2,895	2,784	1,972	1,511	379	-	

PROGRAM MANAGEMENT

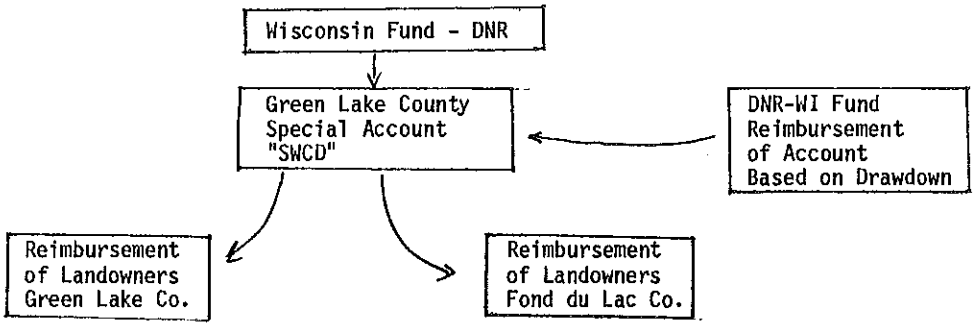
Project Manager

The steering committee for the Big Green Lake Watershed Project has selected a project manager to supervise the implementation phase of the project. For Green Lake, the manager is currently a member of the Green Lake Soil and Water Conservation District Committee. Duties of the project manager include the following:

1. Supervise project staff
2. Coordinate technical assistance
3. Coordinate information and education
4. Maintain liaison with other DMAs
5. Conduct meetings

Fiscal Management

The Administrative Services management system of both Green Lake and Fond du Lac DMAs will likely be assigned by contract to the ASCS offices for both counties. Because the ASCS has established financial management systems, it is best to allow this agency to conduct the funding procedures. Under the proposed arrangement between the SWCD and ASCS, the ASCS office will be reimbursed for their services at a flat hourly rate per product completion from the project funds made available for local assistance with landowners for their respective counties. At the end of the contract period (or at least quarterly) the ASCS will be reimbursed by the lead DMA. The Green Lake County DMA will provide a special account to receive the money from the state. Initially, a certain amount of "up front money" will be deposited in the account for the first cost-sharing agreements needing reimbursement. A probable flow chart illustrating the funding channels appears below.



This simplified flow chart involves more procedural and administrative steps than appear on the chart. Landowners who are interested in participating in the project need to know how they can receive cost-sharing assistance. Fortunately, landowners can expect a process for cost-sharing under the Nonpoint Source Pollution Abatement Project which is very similar to the established ACP cost-sharing program conducted annually by the ASCS and SWCD for both counties.

Table 15 shows forms that can be expected by the landowner in order of completion.

Table 15 Forms Used in Cost Share Account

Person or Agency	Form
Landowner - ASCS	ACP - 245, Request for Cost- sharing Assistance
ASCS - SCS + SWCD	ACP - 247, Referral for Technical Determination (SCS)
DMA - Landowner	3400-68, Water Quality Contract
SCS - ASCS	ACP - 247 and G.L. 39, Certification of Completion from Participants
DMA	ACP - 245, Complete Cost-shares Earned
SCS	ACP - 245 and G.L. 39, Report of Practice Performance to DMA
ASCS	ACP - 259 and Map, Maintenance of Records Showing Ledger of Funds and Map Location of Conservation Practices

Checks for payment to landowners will be issued after certification by the SCS or SWCD that individual projects have been completed and meet specifications. A complete set of forms appears in the Appendix.

RECORD KEEPING

As the lead DMA, the Green County SWCD will keep a complete and separate record of all correspondence, contracts, agreements, memoranda of understanding, certifications, progress reports, bills, checks, and any other records pertining to the watershed project. Fond du Lac County SWCD will keep all records pertaining to its administration of the project and will furnish the Green Lake County SWCD with access to all records. In addition, the ASCS offices of both counties will keep records of their operations and furnish copies to the lead DMA. Copies of records from Green Lake and Fond du Lac County ASCS and SWCD will be forwarded to the lead DMA by mail once a month during the implementation phase of the project.

PROGRAM EVALUATION

Periodic reports concerning the progress and status of the project must be completed and used to make decisions about changes in the project. The program evaluation will consist of a summary of the important records concerning the following:

1. Financial transactions
   a. program management tasks
   b. cost-share agreements
   c. miscellaneous expenses

2. Installed conservation practices.

The program evaluation will consist of changes in plans, strategies, and adjustments after comparing the records with the goals and objectives set by the DNR and the steering committee. The evaluations can be made during monthly meetings of the steering committee. The effectiveness of conservation practices can be evaluated based on water quality monitoring conducted by the Green Lake Sanitary District and DNR.

Annually the DMA shall report to the DNR the following information:

1. Number of practices implemented

2. Funds expended, encumbered, balance, and total for project

3. Source and application of all funds

4. Number of potential, signed and interested, grant recipients.

During the project it will be necessary to make annual reviews of the cost-sharing rates. At the annual review, the DNR and the DMA will evaluate the program based on the following criteria:

1. Effectiveness in reducing pollutant discharge.

2. Capital cost and benefits.

3. Relationship of BMP to customary operating practices.

OPERATING AND MAINTAINING PRACTICES

The operating and maintenance requirements are part of the cost-sharing agreement between landowner and DMA. These requirements vary depending on the type of practice installed. The maintenance procedures and life span of the practice are described in the Soil Conservation Service Technical Guide. In the event the practice is made ineffective due to negligence in maintenance,a penalty will be incurred by the grant recipient. The Wisconsin Administrative Rules call for the full amount of cost-shared funds to be repaid to the state in the event of practice failure due to negligence in maintenance.

In the event a parcel of land is sold with existing BMP installations, the new owner must assume in writing the responsibility for operation and maintenance of the BMP. A change in land use or management that results in the failure of a practice will cause the grant recipient to repay the cost-shared funds.

LANDOWNER PARTICIPATION

What will the landowner need to do in order to earn cost-sharing under this project? The SCS/SWCD/ASCS offices have provided a multiple step process explaining the procedure from beginning to practice installation and payment of cost-share grant:

1. Project announcement (no formal sign-up period) by UWEX or SWCD.

2. Landowner contacts SWCD, SCS, UWEX or ASCS office for information on Wisc. Fund. (or is contacted by these agencies.

3. Landowner can expect a visit from SCS/SWCD to determine practices needed and on site feasibility of the practices. At this time, the SCS/SWCD agent can explain the need for practice and give cost-share estimate, a conservation plan and a contract.

4. If SCS/SWCD determination of need for water quality control is favorable then the landowner may sign a "water quality agreement" with the county DMA. This agreement is a required part of the Nonpoint Source Pollution Abatement Program and lists the practices needed, the estimated costs, the cost share rates, and the schedule for installing the practices.

5. SWCD and ASCS Committees review the application and DMA approves it.

6. Sign-up with ASCS - 245 application for cost-share.

7. ASCS issues 247 to SCS.

8. Landowner must hire their own contractor and make sure the practice is installed according to SCS standards or other standards that are approved by the DMA. It is possible for alternative practices to be approved for installation after the DMA reviews the proposed alternative.

9. Landowner submits cost data for cost-sharing payment to ASCS upon proof of payment from contractor or letter of intent from landowner.

10. After receipt of construction cost data, the landowner can expect ASCS to issue an application for payment after receiving the SCS performance report (ACP-247).

11. ASCS (1) verifies cost data and receipts, (2) figures payment, and (3) approves cost data.

12. ASCS forwards final cost data and receipts to the lead DMA for their approval.

13. Project manager approves and signs check for landowner.

14. Landowner must maintain conservation practice according to "water quality agreement."

APPENDICES

MEMORANDUM OF UNDERSTANDING

BETWEEN

FOND DU LAC COUNTY SOIL AND WATER CONSERVATION DISTRICT

AND THE GREEN LAKE COUNTY SOIL AND WATER CONSERVATION DISTRICT

Relative To: Cost-sharing distribution in the Wisconsin Nonpoint Source Water Pollution Abatement Program in the Big Green Lake Watershed

THIS AGREEMENT is made and entered into this 31st day of December, 1980 by and between the Fond du Lac County and Green Lake County Soil and Water Conservation Districts.

Purpose: The purpose of this memorandum of understanding is to delineate cost-sharing responsibilities of the Fond du Lac and Green Lake County Soil and Water Conservation Districts for implementation of Best Management Practices in the Big Green Lake Watershed Management Plan authorized under the Wisconsin Nonpoint Source Water Pollution Abatement Program.

Both Soil and Water Conservation Districts have a common objective of helping to bring about conservation development and the wise use of land, water, and related resources in the Big Green Lake Watershed. Therefore, both Soil and Water Conservation Districts deem it mutually advantageous to cooperate in this undertaking and to agree as follows:

1) The Green Lake County Soil and Water Conservation District agrees:

A. To accept Wisconsin Fund Revenues or any other available funds from the Wisconsin Department of Natural Resources and to process in a speedy and efficient manner all cost-shared vouchers from the Fond du Lac County DMA relating to the Big Green Lake Watershed.

B. To provide manpower for technical assistance in planning, design, and layout of best management practices within the Big Green Lake Watershed in Green Lake County according to the guidelines outlined in the Water Quality Plan.

II. The Fond du Lac County Soil and Water Conservation District agrees:

A. To forward a request to the Green Lake County DMA for payment of any cost-share vouchers relating to the Big Green Lake Watershed. It is mutually understood that all records relating to the Big Green Lake Watershed within Fond du Lac County shall be retained in the Fond du Lac County Soil Conservation District office.

B. To forward upon request any material needed by the Green Lake DMA to verify cost-share vouchers for payment.

III. <u>It is Mutually Understood and Agreed</u>:

A. That both Soil and Water Conservation Districts may attend and assist in the other's annual planning meetings of both Districts.

B. Bimonthly meetings will be scheduled and attended by both DMA's to assess and evaluate Big Green Lake Watershed Plan.

<u>This Memorandum of Understanding Shall</u>:

A. Be modified at any time by mutual consent of all parties to it.

B. Remain in effect for a period of one year and be automatically renewable except that it may be terminated at any time by mutual consent of all parties or by any party upon not more than 60 days, nor less than 30 days, written notice to the others prior to the anniversary date of the agreement.

Fond du Lac County
Soil and Water Conservation District

Signature

Chairman Fond du Lac Co. S.W.C.D.
Title

12-31-80
Date

Green Lake County
Soil and Water Conservation District

Signature

Chairman Green Lake S.W.C.D.
Title

12-31-80
Date

CONTRACT
Wisconsin Department of Natural Resources
Green Lake County Soil and Water Conservation District

This contract is entered into by and between the Wisconsin Department of Natural Resources (hereinafter referred to as the Department) and the Green Lake County Soil and Water Conservation District (hereinafter referred to as the District) for the purpose of developing the Priority Watershed Plan for the Big Green Lake watershed within Green Lake County.

I. Purpose of this Contract: The purpose is to contract for the collection and analysis of data for the development of components of the Priority Watershed Plan for the Big Green Lake watershed.

II. Scope of the Contract:

Activity A: The District may spend a maximum of 150 hours in the collection and analysis of data characterizing streambank and lakeshore erosion. This data shall be collected through on-site inspection of all streams and shoreline of Big Green Lake where current data do not exist and shall be reported to the Department in the form of a map of areas with streambank and lakeshore erosion and needed management practices, and a listing of the quantity of management practices needed by subwatershed. The Department shall reimburse the District at a rate of $7.36 per hour for activity A.

The District may incur costs for travel, supplies and secretarial services in support of this activity up to a maximum of $200.00 which the Department shall reimburse.

Activity B: The District may spend a maximum of 350 hours in the collection and analysis of the data characterizing areas of expected high erosion such as cropland, woodlands, roadsides and development sites in rural and urban areas. This data shall be collected by using soils maps and through a field survey of expected high erosion areas and shall be reported to the Department in the form of a map of specific locations of high erosion and needed management practices, and a listing of the quantity of management practices needed by subwatershed. The Department shall reimburse the District at a rate of $7.36 per hour for activity B.

The District may incur costs for travel, supplies and secretarial services in support of this activity up to a maximum of $460.00 which the Department shall reimburse.

Activity C: The District may spend a maximum of 150 hours in the collection and analysis of the data characterizing barnyards, herd and flock sizes. This data shall be collected by using assessors data, field inspections and other means and shall be reported to the Department in the form of a map of all barnyards with each herd and flock size noted, a listing of the number of barnyards, a list of best management practices per barnyard, the total animal units by subwatershed. The Department shall reimburse the District at a rate of $7.36 per hour for activity C.

The District may incur costs for travel, supplies and secretarial services in support of this activity up to a maximum of $200.00 which the Department shall reimburse.

Activity D: The District may spend a maximum of 340 hours for the writing of the plan including secretarial services. The Department shall reimburse the District at a rate of $7.36 per hour.

III. Period Covered: This contract shall commence upon execution of this document by both the Department and the District and shall terminate on December 31, 1980.

IV. Billing:

A. The Department agrees to pay the District up to $8146.00 to be used to complete the activities identified in II above. These funds shall be used towards the payment of salary, fringe benefits, travel, supplies, support facilities and secretarial services.

B. The Department shall withhold the last 10 per cent of the payment to the District until a final work report is approved by the Department. The Department shall within 90 days of submission of the report approve the report as submitted or reject it and forward the reasons of rejection.

C. The District agrees to provide the Department with an itemized monthly bill for service completed in that month. This itemized bill shall account for time by task, shall include the total expenses for salary, fringe benefits, travel, supplies, support facilities and secretarial services, and shall delineate the amount paid by the District and the amount to be paid by the Department. This bill shall be sent to Wisconsin Department of Natural Resources, c/o Jim Bachhuber, Box 7921, Madison, Wisconsin 53707.

V. Liaison Between the Department and District:

A. The Department liaison will be Jim Bachhuber, DNR, Box 7921, Madison, Wisconsin 53707.

B. The District liaison will be Conrad Naparalla, Route 1, Box 146, Princeton, Wisconsin 54968.

VI. Modifications of the Agreement:

A. The Department and the District agree that any changes or modifications to this contract shall not be effective unless agreed to by the parties in writing and attached to this contract. It is further agreed that the District shall not assign, subcontract or otherwise transfer this agreement.

B. Either the District, or the Department, may on thirty (30) days written notice, unilaterally and without cause, terminate this contract without liability, except that the District shall be paid for services actually rendered by it up to and including the termination date and it shall provide to the Department a report summarizing its work and findings to the date of termination.

VII. Arbitration: To the extent that Section 16.76(1), Wisconsin Statutes, is applicable to this contract, any dispute between the Department and the District regarding quality and quantity shall be settled by arbitration and according to Chapter 298, Wisconsin Statutes.

VIII. Nondiscrimination: (a) In connection with the performance of work under this contract, the District agrees not to discriminate against any employe or applicant for employment because of age, race, religion, color, handicap, sex, physical condition developmental disability as defined in Section 51.01(5), Wisconsin Statutes or national origin. This provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The District further agrees to take affirmative action to ensure equal employment opportunities. The District agrees to post in conspicuous places, available for employes and applicants for employment, notices to be provided by the District setting forth the provisions of the nondiscrimination clause.

IX. Liability: The District agrees to protect, indemnify and hold harmless the Department and its employes against and from any and all claims, damages, accidents, injuries, costs, expenses, demands, suits, but only if arising in whole or part by reason of any negligent act or ommission of the District or any person or organization for whose acts or omissions the District is legally responsible.

X. Audit, Access to Record: The District shall, for a period of three (3) years after completion and acceptance of the plan by the Department, maintain books, records, documents, and other evidence directly pertinent to performance on grant work under this contract in accordance with generally accepted accounting principles and practices. The District shall also maintain the financial information and data used in the preparation or support of the cost submission in effect on the date of execution of this contract and a copy of the cost summary submitted to the Department. The Department or any of its duly authorized representatives shall have access to such books, records, documents and other evidence for the purpose of inspection, audit and copying. The District shall provide proper facilities for such access and inspection.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

7 October 1980
Date

Anthony S. Earl, Secretary

Oct. 11-1980
Date

Richard Quade, Chairperson
Green Lake County Soil and Water
Conservation District

CONTRACT
Wisconsin Department of Natural Resources
Fond du Lac County Soil and Water Conservation District

This contract is entered into by and between the Wisconsin Department of Natural Resources (hereinafter referred to as the Department) and the Fond du Lac County Soil and Water Conservation District (hereinafter referred to as the District) for the purpose of developing the Priority Watershed Plan for the Big Green Lake watershed within Fond du Lac County.

I. Purpose of this Contract: The purpose is to contract for the collection and analysis of data for the development of components of the Priority Watershed Plan for the Big Green Lake watershed.

II. Scope of the Contract:

Activity A: The District may spend a maximum of 32 hours in the collection and analysis of data characterizing streambank and lakeshore erosion. This data shall be collected through on-site inspection of all streams and shoreline of Big Green Lake where current data do not exist and shall be reported to the Department in the form of a map of areas with streambank and lakeshore erosion and needed management practices, and a listing of the quantity of management practices needed by subwatershed. The Department shall reimburse the District at a rate of $8.60 per hour for activity A.

The District may incur costs for travel, supplies and secretarial services in support of this activity up to a maximum of $45.00 which the Department shall reimburse.

Activity B: The District may spend a maximum of 340 hours in the collection and analysis of the data characterizing areas of expected high erosion such as cropland, woodlands, roadsides and development sites in rural and urban areas. This data shall be collected by using soils maps and through a field survey of expected high erosion areas and shall be reported to the Department in the form of a map of specific locations of high erosion and needed management practices, and a listing of the quantity of management practices needed by subwatershed. The Department shall reimburse the District at a rate of $8.60 per hour for activity B.

The District may incur costs for travel, supplies and secretarial services in support of this activity up to a maximum of $500.00 which the Department shall reimburse.

Activity C: The District may spend a maximum of 110 hours in the collection and analysis of the data characterizing barnyards, herd and flock sizes. This data shall be collected by using assessors data, field inspections and other means and shall be reported to the Department in the form of a map of all barnyards with each herd and flock size noted, a listing of the number of barnyards, a list of best management practices per barnyard, the total animal units by subwatershed. The Department shall reimburse the District at a rate of $8.60 per hour for activity C.

The District may incur costs for travel, supplies and secretarial services in support of this activity up to a maximum of $166.00 which the Department shall reimburse.

III. Period Covered: This contract shall commence upon execution of this document by both the Department and the District and shall terminate on December 31, 1980.

IV. Billing:

A. The Department agrees to pay the District up to $4856.00 to be used to complete the activities identified in II above. These funds shall be used towards the payment of salary, fringe benefits, travel, supplies, support facilities and secretarial services.

B. The Department shall withhold the last 10 per cent of the payment to the District until a final work report is approved by the Department. The Department shall within 90 days of submission of the report approve the report as submitted or reject it and forward the reasons of rejection.

C. The District agrees to provide the Department with an itemized monthly bill for service completed in that month. This itemized bill shall account for time by task, shall include the total expenses for salary, fringe benefits, travel, supplies, support facilities and secretarial services, and shall delineate the amount paid by the District and the amount to be paid by the Department. This bill shall be sent to Wisconsin Department of Natural Resources, c/o Jim Bachhuber, Box 7921, Madison, Wisconsin 53707.

V. Liaison Between the Department and District:

A. The Department liaison will be Jim Bachhuber, DNR, Box 7921, Madison, Wisconsin 53707.

B. The District liaison will be Conrad Naparalla, Route 1, Box 146, Princeton, Wisconsin 54968.

VI. Modifications of the Agreement:

A. The Department and the District agree that any changes or modifications to this contract shall not be effective unless agreed to by the parties in writing and attached to this contract. It is further agreed that the District shall not assign, subcontract or otherwise transfer this agreement.

B. Either the District, or the Department, may on thirty (30) days written notice, unilaterally and without cause, terminate this contract without liability, except that the District shall be paid for services actually rendered by it up to and including the termination date and it shall provide to the Department a report summarizing its work and findings to the date of termination.

VII. Arbitration: To the extent that Section 16.76(1), Wisconsin Statutes, is applicable to this contract, any dispute between the Department and the District regarding quality and quantity shall be settled by arbitration and according to Chapter 298, Wisconsin Statutes.

VIII. Nondiscrimination: (a) In connection with the performance of work under this contract, the District agrees not to discriminate against any employe or applicant for employment because of age, race, religion, color, handicap, sex, physical condition developmental disability as defined in Section 51.01(5), Wisconsin Statutes or national origin. This provision shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The District further agrees to take affirmative action to ensure equal employment opportunities. The District agrees to post in conspicuous places, available for employes and applicants for employment, notices to be provided by the District setting forth the provisions of the nondiscrimination clause.

IX. Liability: The District agrees to protect, indemnify and hold harmless the Department and its employes against and from any and all claims, damages, accidents, injuries, costs, expenses, demands, suits, but only if arising in whole or part by reason of any negligent act or ommission of the District or any person or organization for whose acts or omissions the District is legally responsible.

X. Audit, Access to Record: The District shall, for a period of three (3) years after completion and acceptance of the plan by the Department, maintain books, records, documents, and other evidence directly pertinent to performance on grant work under this contract in accordance with generally accepted accounting principles and practices. The District shall also maintain the

OCT 13 1980

financial information and data used in the preparation or support of the cost submission in effect on the date of execution of this contract and a copy of the cost summary submitted to the Department. The Department or any of its duly authorized representatives shall have access to such books, records, documents and other evidence for the purpose of inspection, audit and copying. The District shall provide proper facilities for such access and inspection.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

7 October 1980
Date

Anthony S. Earl, Secretary

Oct. 9, 1980
Date

George Haase, Chairperson
Fond du Lac County Soil and Water
Conservation District

Form Approved OMB No. 40R-3944

ACP-245
(8-21-79)

U.S. DEPARTMENT OF AGRICULTURE
Agricultural Stabilization and Conservation Service

REQUEST FOR COST SHARING

AGREEMENT (Check one)
ACP ANA ☐ LTA ☐
FIP ANA ☐ LTA ☐
ECP ☐
WBP ☐
OTHER ☐

COST-SHARES POSTED TO RE - 259

	DATE APPROVED		DATE EARNED
1		2	
3		4	
5		6	

FARM NO. | NAME AND ADDRESS | FISCAL YEAR | PHONE NO.

7. DESCRIPTION OF CONSERVATION AND/OR ENVIRONMENTAL PROBLEM

EXPIRATION NOTICE

8. PRACTICE MUST BE COMPLETED AND REPORTED B

9. DELETE PHRASE WHICH DOES NOT APPLY
The Extent Performed — The Word "Yes"

10. *FOR COUNTY COMMITTEE USE*

NO. A	PRACTICE TITLE B	EXTENT REQUESTED	EXTENT APPROVED C	RATE D	COST/SHARED APPROVED E	F	G
				$	$		$

H.

STATISTICAL DATA	EXTENT	EARNED
		$

CONSERVATION PLAN	YES	NO
For farm by SCS		
Forest management by FS		
Other *(Written)*		

OTHER FARMS

APPROVAL ISSUED FOR THE COUNTY COMMITTEE | DATE

BY

APPLICANT'S CERTIFICATION

I request cost-sharing under the current program to solve the problem shown above. The practice solution is needed to conserve soil and water resources on the farm identified above, and would not be performed to the extent requested and needed by me without Federal cost-sharing.

I PLAN TO START PRACTICE *(Month)* | AND COMPLETE IT BY *(Month)*

DATE

SIGN HERE

REMARKS

COMMITTEE ACTION

ESTIMATED COST-SHARE VALUE $ | C/S COC WILLING TO APPROVE $

The county committee approves the extent shown in Col. C and the cost shares shown in Col. E for this practice.

FOR THE COUNTY COMMITTEE | DATE

BY

ACP-247
(10-3-79)

U.S. DEPARTMENT OF AGRICULTURE
Agricultural Stabilization and Conservation Service

REFERRAL FOR TECHNICAL DETERMINATION

AGREEMENT (Check one)
ACP: ANA [ ] LTA [ ]
FIP: ANA [ ] LTA [ ]
ECP [ ] WBP [ ] OTHER [ ]

REFERRED TO
SCS [ ] FS [ ]

FARM NO.	NAME AND ADDRESS	FISCAL YEAR	ACP-301 (Page and Line No.)
			PRACTICE TO BEGIN (Month)
		PHONE NO.	REFERRAL EXPIRES (Date)

FARM LOCATION (And Practice Location, If Desired)	FOR COUNTY COMMITTEE	DATE

PRACTICE OR COMPONENT(S)			PRACTICE UNITS NEEDED	PRACTICE UNITS PERFORMED	ACRES SERVED (Actual or estimated)
NO.	DESCRIPTION	EXTENT			
A	B	C	D	E	F

SECTION I - NEEDS STATEMENT

THE PRACTICE SHOWN IN COLUMN B WITH THE UNITS SHOWN IN COLUMN D IS NEEDED AND PRACTICAL FOR THE FARM.

SIGNATURE (Designated Technician)	DATE	ESTIMATED COST (If needed)

PRACTICE EVALUATION DATA BEFORE COMPLETION

WATER EROSION		WIND EROSION	
R		I	
K		K	
L		C	
S		L	
C		V	
P		LCC	
AVE. T/A		AVE. T/A	

SECTION II - PERFORMANCE REPORT

THE PRACTICE SHOWN IN COLUMN B HAS BEEN PERFORMED TO THE EXTENT SHOWN IN COLUMN E AND MEETS PROGRAM REQUIREMENTS. IF THE PRACTICE DOES NOT MEET PRACTICE SPECIFICATION OR IF ADDITIONAL WORK IS REQUIRED, EXPLAIN.

SIGNATURE (Designated Technician)	DATE

PRACTICE EVALUATION AFTER COMPLETION

WATER EROSION		WIND EROSION	
R		I	
K		K	
L		C	
S		L	
C		V	
P			
AVE. T/A		AVE. T/A	

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

REQUEST FOR ADVANCE OR REIMBURSEMENT
WISCONSIN FUND - NONPOINT SOURCE PROGRAM

FORM 3400-70 10-79

Complete Items 1 through 8 and 13 for all payment requests. See instructions on reverse side for completing Items 9 through 12. Send one copy of this form to:

Wisconsin Department of Natural Resources
Bureau of Finance, Audit Section
Box 7921
Madison, Wisconsin 53707

1. GRANTEE/DMA	2. COUNTY	3. GRANT NO.	4. PAY. REQ. NO.
5. MAIL CHECK TO:	6. PERIOD COVERED BY THIS REPORT (MO-DAY-YR): FROM TO		
	7. TYPE OF PROJECT ☐ PRIORITY WATERSHED ☐ LOCAL PRIORITY	8. TYPE OF REQUEST ☐ ADVANCE ☐ PARTIAL ☐ FINAL	

	AMOUNT	LEAVE BLANK DNR USE ONLY
9. Request for Advance Payment		
a. Initial State Grant Amount		
b. Advance Payment Requested (Maximum 10% of Above)		
10. Summary of Payment Requests		
a. Reimbursement Requested This Claim (From Form 4400-47)		
b. Total Prior Pay Requests (Including Advance)		
c. Total All Payment Requests to Date		
11. Computation of Maximum Partial Payment		
a. Total Cumulative Grant to Date		
b. Enter 95% of Above Total		
12. Computation of Net Payment Due		
a. Enter 95% of Total Cumulative Grant (Line 11b. Above)		
b. Less: Total Prior Payment Requests (Line 10b. Above)		
c. Net Payment Due (Line 12a. Minus Line 12b.)		
	Amount Allowed This Claim	

13. CERTIFICATION:

I certify that to the best of my knowledge and belief the billed costs of expenditures are based on actual payments of record and are in accordance with the terms of the project agreement and the reimbursement represents the grant share due which has not been previously requested.

Auditor Initials _____

Date _____

Bur. Finance Initials _____

Date _____

SIGNATURE OF AUTHORIZED REPRESENTATIVE	DATE SIGNED
TYPED OR PRINTED NAME AND TITLE	TELEPHONE NO. (INCLUDE AREA CODE & EXTENSIONS)

INSTRUCTIONS

Item 9 - Complete for Advance Payment Request Only

9a Enter the amount of grant shown on the original agreement.
9b Advance requested may not exceed 10% of original grant amount.

Item 10 - Complete for Partial and Final Payment Requests. (See required attachments below.)

10a Enter total amount from worksheet (Form 4400-47) attached to this pay request.
10b Enter total amount of all previous payment requests, including the advance.
10c Sum of 10a and 10b.

Item 11 - Complete for Partial Payment Requests Only

11a Enter the sum of the original grant amount and any amendment increases.
11b Enter 95% of the above amount, which represents the maximum that shall be paid on a grant prior to final accounting and audit. (Compare this amount with Item 10c before completing Item 12.)

Item 12 - Complete for Partial Payment Requests Only when the amount shown on line 10c above exceeds the amount shown on line 11b.

12a & b Self-explanatory.
12c The net result when subtracting line 12b from line 12a is the maximum amount which may be paid with this pay request.

REQUIRED ATTACHMENTS

Attach the following documentation with each Partial and Final Payment Request:

1. One copy of reimbursement claim worksheet (Form 4400-47) listing individual payments on cost share agreements.

2. Photocopy of cost share agreements (Form 3400-68) for each payee listed in this report. (If not previously submitted.)

3. Photocopy of form showing approval of final cost share amount by the DMA for each practice listed in this report.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

WISCONSIN FUND REIMBURSEMENT CLAIM WORKSHEET

FORM 4800-47 3-79

NAME OF GRANTEE	PROJECT NUMBER	DATE SUBMITTED

DATE OF CHECK	NUMBER		PAYEE	DESCRIPTION OF EXPENDITURE	AMOUNT
	CHECK	VOUCHER			
				TOTAL EXPENDITURES	

PAGE _____ OF _____ PAGES.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

WISCONSIN NONPOINT SOURCE WATER POLLUTION ABATEMENT PROGRAM COST-SHARE AGREEMENT

FORM 3400-68
REV. 4-80

Cost-Share Agreement Number	Total Est. Grant Amount $
Name of Grant Recipient	Telephone Number
Street or Route	
City, State, Zip Code	
Legal Description of Property	
Name of Landowner (if other than Grant Recipient)	Telephone Number
Street or Route	
City, State, Zip Code	
Installation Period From	To

Name of Designated Mgt. Agency	Telephone Number
Street or Route	
City, State, Zip Code	

SECTION 1. AGREEMENT PROVISIONS

1. The grant recipient agrees:
   A. To install the best management practice(s) listed in section 2 consistent with the specifications listed in section 3 during the installation period identified above.
   B. To operate and maintain each best management practice for the life span identified in section 2.
   C. To certify, on forms provided by the designated management agency, best management practices installed under this agreement are being maintained.
   D. To repay the full amount of the cost-share payments made and forfeit all rights to future cost-share payments if:
      (1) Any best management practice is rendered ineffective during its life span due to improper maintenance, operation or neglect;
      (2) The applicable conditions identified in section 3 are not met; ~~and~~ or
      (3) The grant recipient adopts any land use or practice which defeats the purposes of the best management practices.
   E. To retain responsibility for this agreement if a change in ownership occurs unless the new owner assumes, in writing, the operation and maintenance of the best management practices and other provisions of this agreement pertaining to the grant recipient.
   F. Not to discriminate against contractors because of age, race, religion, color, handicap, sex, physical condition, developmental disability, or national origin, in the performance of responsibilities under this agreement.
2. The designated management agency agrees:
   A. To provide technical assistance for best management practices identified in section 2.
   B. To make cost-share payment after receipt of a payment request and evidence of completion status.
3. Satisfactory evidence of completion status will consist of a technical performance report signed by a technician assigned by the designated management agency.
4. The total state cost-share payment for each practice identified in section 2 shall be based on the cost-share rate for the practice as applied to the eligible costs actually incurred, as substantiated to the designated management agency. If the total cost-share payment for a practice identified in section 2 exceeds the estimated grant amount for that practice, payment of the overrun will be made only if there are funds available.
5. The agreement may be amended, by mutual agreement, during the installation period as long as the changes will provide equal or greater pollution control.

SECTION 2. BEST MANAGEMENT PRACTICES, COSTS, INSTALLATION SCHEDULE, LIFE SPANS

This section contains all best management practices, both those eligible for cost-sharing and those not eligible, needed to control significant nonpoint sources in eligible areas owned or operated by the grant recipient.

1. Cost-shared best management practices

Location (Field Number)	Practice Code	Practice Title	Quantity	Units	Estimated Total Cost	Cost-Share Rate	Estimated Grant-Amount	Cost-Sharing From Other Programs	Year of Instal-lation	Practice Life-span

Total:

2. Noncost-shared best management practices

Location (Field Number)	Practice Code	Practice Title	Quantity	Units	Year of Installation	Practice Life-span

SECTION 3. BEST MANAGEMENT PRACTICE CONDITIONS

Attached are the conditions for each best management practice listed in section 2.

Grant Recipient or Authorized Representative's Signature	Date Signed	Authorized Representative of Des. Mgt. Agency - Signature	Date Signed
Title		Title	