

**LINCOLN COUNTY  
LAND AND WATER RESOURCE MANAGEMENT  
PLAN**



**LINCOLN COUNTY  
LAND INFORMATION and CONSERVATION  
DEPARTMENT**

**2010**

**LINCOLN COUNTY**  
**LAND AND WATER RESOURCE MANAGEMENT PLAN**

**DECEMBER, 2010**

Prepared under the direction of the  
Lincoln County Land Information, Conservation and  
University Extension Committee

James Alber, Chair  
David Fox, Vice-Chair  
Frank Saal, Jr., Secretary  
Ramona Pampuch  
Ray Bloomer  
Hans Breitenmoser Jr., Farm Service Agency Member

Prepared by the  
Lincoln County Land Information and Conservation Department  
(LICD)

Diane Hanson, County Conservationist  
Eric Johnson, Conservation Specialist

Primary Author

Diane Hanson, County Conservationist

## **ACKNOWLEDGEMENTS**

The Lincoln County Land Information and Conservation Department appreciates the efforts of the Agriculture and Natural Resources Advisory Committee who helped us in planning for the future of Lincoln County resources.

### Department of Natural Resources

Rick Wiede, Wildlife Manager  
Bill Millis, Forester  
Rich LaValley, Forester

### University of Wisconsin – Extension

Thomas Cadwallader, Agricultural Agent

### Land Conservation Committee

James Alber, Chair  
David Fox, Vice-Chair  
Frank Saal, Jr., Secretary  
Ramona Pampuch  
Ray Bloomer  
Hans Breitenmoser, Jr. Farm Service Agency Member

### Agricultural Producers

Hans Breitenmoser, Jr. – Dairy - Conventional – Large Scale  
Marty Sosnovske – Dairy - Conventional/Grazer – Small Scale  
Dave Pagoria - Orchard  
Ed Sabey – Cranberry  
Joe Polak – Maple Syrup

### Private/Industrial Foresters

Bill Wengeler, Consulting Forester  
Darrell Pierson, Packaging Corporation of America

### Lake Representative

A. J. Theiler, Friends of Lake Mohawksin and Lincoln County Lakes and Rivers Association

### Lincoln County Forestry Department

Kevin Kleinschmidt, Forestry Administrator

### Lincoln County Zoning Department

Daniel Miller, Zoning Administrator  
Dan Bowers, Zoning Specialist

### Lincoln/Marathon Grazing Project

Paul Daigle, Conservation Specialist

### Town Government

Bill Burgener, Town of Merrill Chair  
Stacy Pettit, Town of Merrill Land Use Committee  
Joe Polak, Town of Schley

# **TABLE OF CONTENTS**

Introduction.....	5
Plan Development and Public Participation .....	6
Assessment of Water Quality and Resource Conditions .....	7
Land Use.....	7
Figure 1 – Lincoln County Land Use Map .....	8
Geology and Topography.....	9
Soils.....	9
Figure 2 – General Soil Map of Lincoln County.....	11
Soil Erosion Inventory.....	12
Figure 3 – Soil Erosion Control Priority Area .....	12
Basins and Watersheds .....	13
Figure 4 – Lincoln County Watersheds.....	13
Table 1 – Nonpoint Source Watershed Scores.....	15
Rivers, Lakes and Outstanding and Exceptional Resource Waters.....	16
Table 2 – Outstanding and Exceptional Resource Waters .....	17
Impaired Waters.....	18
Figure 5 – Impaired Waters of Lincoln County .....	18
Groundwater, Shorelands and Invasive Species .....	19
Goals, Objectives and Actions .....	20
Table 3 – Workplan – Goal #1 .....	21
Table 4 – Workplan – Goal #2.....	22
Table 5 – Workplan – Goal #3.....	26
Performance Standards and Prohibitions Implementation.....	27
Agricultural Performance Standards .....	27
Table 6 – Implementation Strategies – Agricultural Performance Standards .....	27
Table 7 – Agricultural Performance Standards.....	29
Non – Agricultural Performance Standards.....	30
Table 8 – Non – Agricultural Performance Standards .....	30
Regulations .....	30
Information and Education Strategy.....	31
Coordination, Monitoring and Evaluation .....	32
Plan Implementation Budget.....	34
Conclusion .....	35
Appendices.....	36
Appendix A – 2005-2010 Land and Water Resource Management Accomplishments .....	37
Appendix B – Department of Natural Resources Basin Plan Data .....	40
Headwaters Basin Plan .....	40
Central Wisconsin River Basin Plan.....	43
Trappe River Watershed.....	45
Devil Creek Watershed .....	45
Pine Creek Watershed.....	46
Little Rib River Watershed.....	47
Upper Rib River Watershed.....	48
Appendix C – Lincoln County Comprehensive Plan – Goals, Objectives, Policies and Recommendations .....	49

## **INTRODUCTION**

Through 1997 Wisconsin Act 27, Chapter 92 of the Wisconsin Statutes was amended, requiring counties to develop land and water resource management plans. The intent of this change was to foster and support a locally led process that improves decision-making, streamlines administrative and delivery mechanisms, and better utilizes local, state, and federal funds to protect Wisconsin's land and water resources.

In May, 1999, the first Lincoln County Land and Water Resource Management Plan was approved by the Wisconsin Land and Water Conservation Board. This plan was developed through community input and provided an evaluation and assessment of natural resource conditions and identified five priority natural resource concerns and strategies to address those concerns.

In 2005, a revised Lincoln County Land and Water Resource Management Plan was developed that was a compilation of some significant legislative changes and planning efforts that occurred at both the state and county level. Those changes and planning efforts included: Lincoln County Comprehensive Plan - September, 2001; Administrative Rules NR 151 and ATCP 50 - October, 2002; Headwaters Basin Integrated Management Plan - December, 2002; Lincoln County Shoreland Zoning Ordinance Revisions - October, 2003; North Central Regional Planning Commission - Regional Comprehensive Plan - December, 2003; Lincoln County Forest Access Plan - May, 2004; Administrative Rule NR 216 - August, 2004; Lincoln County Zoning and Subdivision Code Rewrite - December, 2004.

Currently, Lincoln County is in the process of revising the Lincoln County Comprehensive Plan. The development of the 2010 Land and Water Resource Management Plan coincided with this planning effort. The revisions to the Lincoln County Comprehensive Plan are being accomplished through a public participation process that ultimately provided for overwhelming support for the protection and wise use of Lincoln County's natural resources. The data collected during the public participation process of the Lincoln County Comprehensive Plan has been utilized for the development of this plan. The 2010 Lincoln County Land and Water Resource Management Plan maintains the vision that has been adopted by the Lincoln County Board.

### ***LINCOLN COUNTY'S VISION...***

***Lincoln County desires to preserve its abundant rural character.***

***The County's rural character is defined by its forests; pristine lakes, rivers, wetlands, and other natural areas; farms and open spaces; clear separation between "city" and "country", schools and other institutions; careful placement and design of development; and most importantly, its people. At the same time, the County will accommodate and promote thoughtfully planned housing and economic development, and seek to balance community goals with private property rights. Lincoln County seeks to achieve this vision in close partnership with towns, cities and others interested in the County's long-term health, success and beauty.***

## **PLAN DEVELOPMENT AND PUBLIC PARTICIPATION**

An Agriculture and Natural Resource Advisory Committee was formed to assist in the development of the Agriculture and Natural Resource component of the Lincoln County Comprehensive Plan as well as the Lincoln County Land and Water Resource Management Plan. The membership of this Advisory Committee was diverse and covered the many aspects of agriculture and natural resources within Lincoln County. A list of the members and areas of representation can be found on Page 3 of this plan.

In addition to the Advisory Committee, the Land Information and Conservation Department/Committee has sought and continues to seek input from a diverse group of agencies, associations and organizations involved in resource management and protection in Lincoln County. These include: United States Department of Agriculture – Farm Service Agency (FSA) and Natural Resource Conservation Service (NRCS); NRCS Local Workgroup, Wisconsin Department of Natural Resources (DNR); University of Wisconsin – Extension (UWEX); Lincoln County Forestry and Zoning Departments, Lincoln County Lakes and Rivers Association and agricultural producers.

The Advisory Committee met five times (April 24<sup>th</sup>, June 2<sup>nd</sup>, June 18<sup>th</sup>, July 16<sup>th</sup> and October 15<sup>th</sup>, 2009) in person and was involved in email discussions to further develop plan priorities, resource concerns, goals and objectives. Priority issues/resource concerns discussed were the preservation of large, contiguous parcels of land, guiding development away from agricultural and forest lands, protection of the county's water resources, invasive species threats, etc. In addition, the Advisory Committee discussed and provided guidance on implementation strategies for the agricultural/non-agricultural performance standards and the Working Lands Initiative in Lincoln County. Program coordination was also discussed during the Advisory Committee meetings. The Committee was also given the opportunity to review and comment on the draft plans.

Upon completion of the final draft of this plan, the Land Information, Conservation and University Extension Committee held a public hearing on November 10, 2010 at the Lincoln County Service Center in Merrill. This public hearing announcement met the Class 2 public notice requirements. In addition, public hearing notices were placed in the Foto News and Tomahawk Leader. Copies of the plan were available for the public to review at the Land Information and Conservation Department and on the Lincoln County webpage ([www.co.lincoln.wi.us](http://www.co.lincoln.wi.us)).

Documentation related to the Advisory Committee and the public hearing is available upon request from the Land Information and Conservation Department.

# **ASSESSMENT OF WATER QUALITY AND RESOURCE CONDITIONS**

Lincoln County is located in north central Wisconsin and covers approximately 900 square miles (584,960 acres). It is located on the dividing line between the largely agricultural central part of the state and the “northwoods” region. Lincoln County is a rural county with residential areas contained within the cities of Merrill and Tomahawk, the village of Gleason and waterfront developments.

Lincoln County has a wealth of natural resources within its boundaries. Surface water resources include 766 lakes and 246 rivers and streams. This multitude of lakes, rivers and streams provides the county with 16,840 acres of water and 668 miles of rivers and streams of which 428 miles are designated trout streams. With the abundance of surface water, it is important that these resources are improved and protected for all citizens of Lincoln County.

## **LAND USE**

Land use within each watershed is diverse. The **agricultural** landscape within Lincoln County contains a variety of agricultural commodities including dairy, beef, cash crop, ginseng, Christmas trees, strawberries, cranberries and apple orchards. Based on the 2007 Census of Agriculture, these agricultural commodities are produced on approximately 575 farms with 86,770 acres of land on these farms. The majority of agricultural land is located in the southern and eastern portion of the county. Although the total number of dairy farms within the county has been decreasing, some dairy farmers have expanded into larger dairy facilities, have switched to management intensive grazing systems or have switched to a beef or cash grain operation. Of the 575 farms, only 9 are currently under agreement in the Farmland Preservation Program.

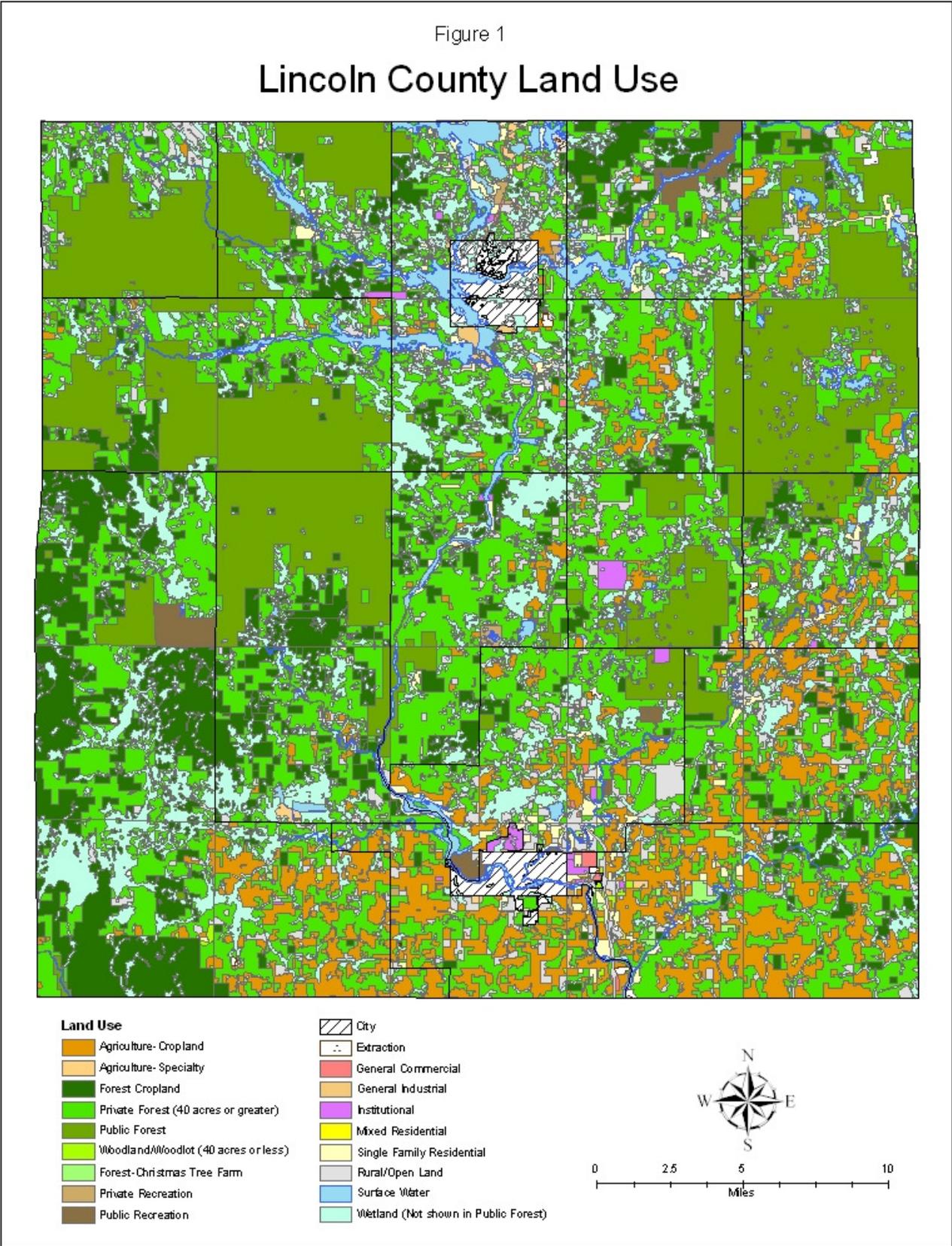
The **forested** landscape covers a large portion of Lincoln County. Approximately 110,000 acres of forest land is owned by city, town, county or state government and approximately 298,000 acres are under private ownership. The majority of forests in Lincoln County contain species found in typical northern forests that provide mixed deciduous and coniferous stands. Forested uplands are comprised primarily of aspen and northern hardwoods, while fir-spruce, lowland hardwoods, tamarack and cedar occupy the forested lowlands.

The publicly owned forests are managed by the governmental entity that owns the land. Management plans are developed by these government entities to ensure resource protection. Forestry best management practices for water quality and sustainable silvicultural methods are followed on those acres. Approximately 52 percent of the privately owned forests are entered into a forest management program that requires silvicultural guidance from a professional forester and to voluntarily follow forestry best management practices for water quality.

Forests in Lincoln County provide habitat for wildlife common to Northern Wisconsin. Two very popular wildlife game species in the county are the white-tailed deer and the ruffed grouse. The county is home to a number of federal and state listed endangered, threatened, or rare wildlife species and ecologically unique complexes. Bald Eagles, Osprey and the Eastern Timber Wolf are prime examples. The forested landscape contains numerous natural and man-made flowages created for shallow water habitat. These flowages offer habitat for a variety of waterfowl, songbirds, shorebirds, furbearer, reptiles, amphibians and invertebrates.

Forest-based recreation has expanded rapidly in recent years in Lincoln County. Recreational facilities include parks, beaches, campgrounds, waysides, boat landings, trails for horseback riding, biking, hiking, snowmobiling, all-terrain vehicles, hunting, and cross country skiing.

Figure 1 shows the current land use in Lincoln County. This map was created as part of Lincoln County's Comprehensive Planning Process.



## **GEOLOGY and TOPOGRAPHY**

Lincoln County is located in the Northern Highland physiographic region. The terrain of Lincoln County is a direct result of glaciations and the glacial activity left a landscape of hilly, morainic areas composed of glacial till with small kettle lakes in the northern part of the County. Glacial landforms in this area include drumlins, outwash fan, terraces, eskers and recessional moraines. The southern portion of the county contains areas of outwash plains, drumlins and glacial ground morainic deposits consisting of gravel, sand, silt, clay and boulders. Lincoln County lies within the Canadian Precambrian Shield, which consists of granite and metamorphic rocks.

In general, the topography of Lincoln County is gently rolling. The northeast and east-central portions of the county contain hilly areas with steep slopes and many small lakes. The western part is relatively level with few hills and lakes, more gentle slopes and numerous areas of water at or near the surface. The northwestern portion is generally flat with large swamp and marshy areas. The southern portion contains gently rolling hills and a “branch like” stream pattern.

## **SOILS**

The county consists of eleven general soil units and fifty detailed soil map units. Most soils in Lincoln County are part of the Magnor-Freeon-Capitola Association (~20% of the land area of the county), much of it is located in the most intensively farmed areas of the county; Ossmer-Minocqua-Sconsin Association (~16% of the county), much of it used for farming; Magnor-Lupton-Capitola Association (~13% of the county), much of it in woodland and Saron-Keweenaw-Goodman Association (~12% of the county), most of it in forest. Following are brief descriptions of the eleven general soil units:

Magnor-Freeon-Capitola soil association underlies most of the southern and western portion of the county (Towns of Somo, Corning, Harding, Scott, Pine River, and Schley). This association is characterized in nearly level to sloping topography with moderately well-drained silty soils on moraines. Bedrock is close to the surface on slopes that are adjacent to major river valleys. Most of the areas in Lincoln County with this soil association are used for farming and are some of the most intensively farmed areas in the county. Septic systems, building sites, and roadways are generally limited due to wetness, ponding, slope and restricted permeability.

Ossmer-Minocqua-Sconsin soil association underlies much of the eastern part of the county within the Prairie River and Pine River drainage basins, and in the western portion of the county within the Copper River and Newwood River drainage basins. This association is characterized by moderately well-drained silty and mucky soils on outwash plains. Most of the acreage in Lincoln County with this soil association is used for permanent pasture. Woodlands, including wooded swamps, are found in this soil association. The use of these soils for septic systems, building sites and roadways is generally limited due to wetness or ponding.

Magnor-Lupton-Capitola soil association underlies most of the west central and northwestern portion of the county (Towns of Somo, Tomahawk and northern Harding). This association is characterized in nearly level to gently sloping topography with somewhat poorly drained silty and mucky soils on moraines and drumlins. Most of the areas in Lincoln County with this soil association are woodlands including many wooded swamps.

Sarona-Keweenaw-Goodman soil association underlies much of the Harrison Hills area of the county and is characterized by steep topography with loamy and silty soils on moraines. This well drained soil association also covers much of the central part of the county, especially the Towns of Rock Falls and Birch. Most of the acreage with this soil association is wooded, interspersed with many small kettles and lakes that contain bogs or swamps. Generally, these soils have few limitations affecting septic systems or building site development, except for slope. This soil association has more potential sites for landfills than the other associations in the County.

Newood-Magnor-Freeon soil association underlies much of the west-central part of the county in the Towns of Harding and Corning and is characterized by moderately well drained loamy and silty soils on glacial moraines. Most of the acreage in Lincoln County with this soil association is wooded. Septic systems, building sites, and roadways are generally limited in most areas by wetness, slope, and restricted permeability.

Sarwet-Moodig-Lupton soil association underlies part of the northwest-northcentral part of the county in the Towns of Bradley, Tomahawk and Somo and is characterized by moderately well drained, somewhat poorly drained loamy and mucky soils on glacial moraines and drumlins. Most of the acreage in Lincoln County with this soil association is wooded with many wooded swamps.

Vilas-Croswell-Markey soil association underlies much of the Town of Bradley, the Wisconsin River drainage basin in the Town of King, and the Somo River drainage basin in the Town of Wilson. This association is characterized by moderately well drained to very poorly drained sandy and mucky soils on outwash plains. Most acreage in Lincoln County with this soil association is wooded, particularly used for pine plantations. The use of these soils for septic systems, building sites, and roadways are generally limited due to ponding and wetness.

Lupton-Padwet-Minocqua soil association underlies a small area in the north central part of county in the Towns of Bradley, Skanawan and King. This association is characterized by very poorly drained and moderately well drained mucky and loamy soils on outwash plains. Most acreage in Lincoln County with this soil association is wooded, with many wooded swamps.

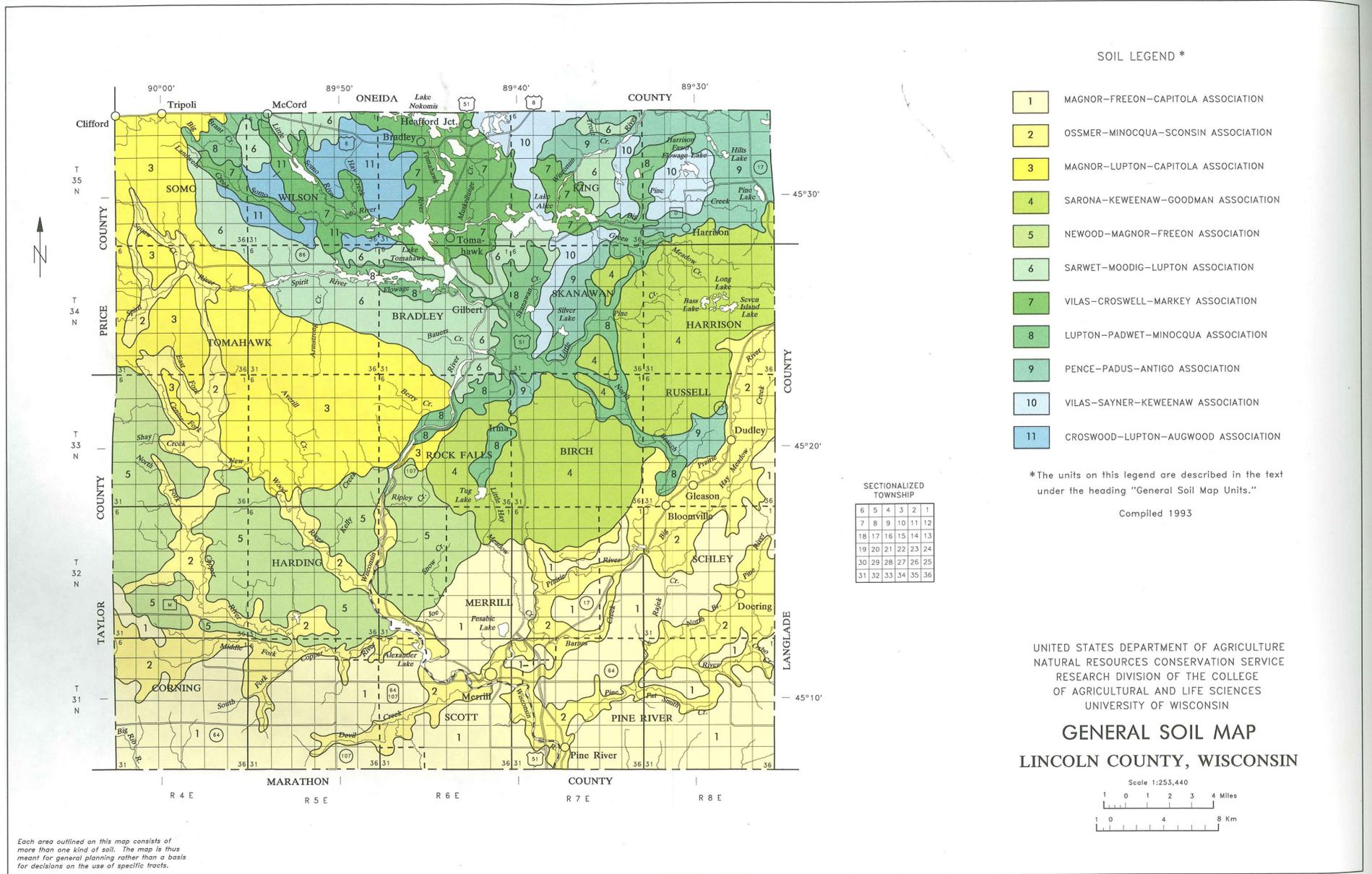
Pence-Padus-Antigo soil association underlies a small area in the northeastern area of the county and is characterized by nearly level to very steep topography with well drained loamy and silty soils on outwash plains. Most of the acreage with this soil association is wooded with a few wooded swamps.

Vilas-Sayner-Keweenaw soil association underlies a small area in the northeastern area of the county and is characterized by rolling to very steep topography with excessively drained to well drained sandy and loamy soils on outwash plains and moraines. Most of the acreage with this soil association is wooded, with a few wooded swamps.

Croswood-Lupton-Augwood soil association underlies a small area in the north central/northwestern area of the county and is characterized by nearly level and gently sloping sandy and mucky soils on outwash moraines and drumlins. This moderately well drained, very poorly drained to somewhat poorly drained soil association covers about half of the Town of Wilson. Most of the acreage with this soil association is wooded, with a few wooded swamps.

Figure 2 shows the general soil map units for Lincoln County. For more detailed soils information, please refer for the Soil Survey of Lincoln County Wisconsin.

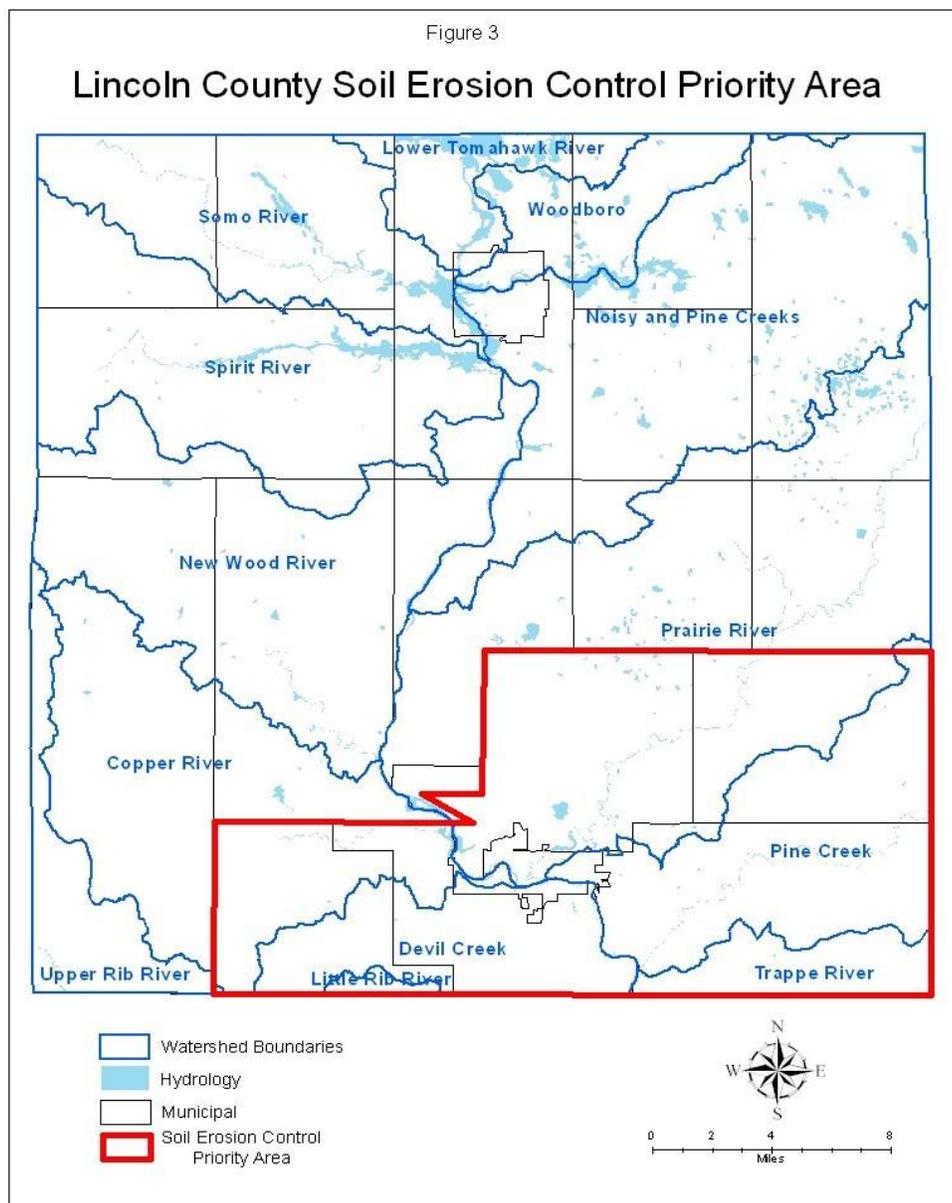
Figure 2 – General Soil Map Units of Lincoln County, Wisconsin



## SOIL EROSION INVENTORY

The Land Information and Conservation Department (LICD) staff have completed a countywide cropland transect survey in 1999, 2000, 2003, 2005, 2008 & 2010 as a method of determining the current status of soil loss within the county. The transect surveys showed that 67% of all cropland in Lincoln County meets the tolerable soil loss. Based on this percentage, 28,634 acres of cropland are exceeding the tolerable soil loss. Factors that may be causing these acreages to exceed the tolerable soil loss include: increase in corn and soybean production, decrease in hay in the rotation, winterkill of alfalfa and increase in field size.

Historically, a soil loss inventory was also completed in 1984 as part of the Lincoln County Erosion Control Plan. The inventory chose the towns of Pine River, Scott, Schley, Coming and Merrill as the priority areas as shown in Figure 3. This area is still utilized as a priority area for implementation of the performance standards.



**BASIN AND WATERSHEDS**

The majority of Lincoln County is located in the Upper Wisconsin River Basin known as the Headwaters Basin. A small portion of Lincoln County is within the Central Wisconsin River Basin. Thirteen watersheds are contained completely or partially within Lincoln County as shown in Figure 4.

Figure 4

**LINCOLN COUNTY WATERSHEDS**



-  WaterShed Boundaries
-  Municipal Boundaries
-  Hydrology



Following is a brief description of these thirteen watersheds:

- Little Rib River – The Little Rib River Watershed is located in Marathon and Lincoln Counties. Steep slopes and shallow soils characterize the Little Rib Rivers Watershed. Stream flows vary significantly depending on the gradient of the slopes.
- Upper Rib River – The Upper Rib River Watershed is located in the counties of Marathon, Lincoln and Taylor. The portion of the Upper Rib River Watershed in Lincoln County contains high valued streams not degraded by nonpoint source pollution and apparently not seriously threatened by watershed land use. Existing natural areas act as buffer zones, preventing non point source pollution from reaching the stream. However, the streams need protection from major changes in land us through development. Biotic index sampling showed streams in the watershed had both excellent and fair water qualities.
- Trappe River – The Trappe River Watershed is located in Marathon, Lincoln and Langlade Counties. The Lincoln County Nonpoint Source Assessment Report conducted by the DNR in1982, stated that the Trappe River Watershed contains streams with moderate value for county residents or a moderate potential for water quality or fishery improvement. Land use in this watershed may indicate moderate or high non point source pollution potential. More current monitoring data needs to be collected to determine current water quality conditions.
- Devil Creek – The Devil Creek Watershed is located in Lincoln and Marathon counties. The Nonpoint Source Assessment Report for Lincoln County conducted by DNR in 1982 stated that Devil Creek Watershed contains distinguished lakes and streams which have either been degraded by non point source pollution or are directly threatened by identified changes in the watersheds land use. The Upper Wisconsin River Task Force Non point Source Pollution Management Plan 1979 indicated that the Devil Creek Watershed was seriously affected by non point source pollution. High densities of cattle, streambank pasturing and the “flashy” watershed contribute to water quality problems and in stream sedimentation in Devil Creek Watershed. More current monitoring data needs to be collected to determine current water quality conditions.
- Pine Creek – The Pine Creek (River) Watershed is located in Lincoln and Langlade Counties. A Lincoln County Nonpoint source assessment report conducted by the DNR in 1982 indicated that the Pine Creek (River) Watershed contained streams with a moderate value for county residents or a moderate potential for water quality or fishery improvement. Land use in the watershed indicates high nonpoint source pollution potential.
- Prairie River – The Prairie River Watershed lies in Langlade, Lincoln and Oneida counties. The watershed is 168954 acres in size and contains 273 miles of rivers and streams, 2082 acres of lakes and 34162 acres of wetlands. The watershed is dominated by forest (60%) and wetlands (20%).
- Copper River – The Copper River Watershed is 65949 acres in size and contains 187 miles of streams and rivers, 65 acres of lakes and 15346 acres of wetlands. The watershed is dominated by forest (61%) and wetlands (23%).
- New Wood River – The New Wood River Watershed is located in Lincoln, Price and Taylor counties. It is 74069 acres in size and includes 150 miles of streams and rivers, 267 acres of lakes and 17302 acres of wetlands. The watershed is dominated by forest (71%) and wetland (23%).
- Noisy and Pine Creeks – The Noisy and Pine Creeks Watershed is located in Langlade, Lincoln and Oneida counties. It is 114783 acres in size and contains 175 miles of rivers and streams, 2718 acres of lakes and 25929 acres of wetlands. The watershed is dominated by forest (60%) and wetlands (23%).

- Spirit River – The Spirit River Watershed is located in Lincoln, Price and Taylor counties. It is 108174 acres in size and contains 198 miles of streams and rivers, 1045 acres of lakes and 27054 acres in wetlands. The watershed is dominated by forest (63%) and wetlands 25%.
- Somo River – The Somo River Watershed is located in Lincoln, Oneida and Price counties. It is 90435 acres in size and contains 168 miles of streams and rivers 643 acres of lakes and 31815 acres of wetlands. The watershed is dominated by forest (52%) and wetlands (35%).
- Lower Tomahawk – The Lower Tomahawk River Watershed is located in Lincoln and Oneida Counties. It is 85676 acres in size and contains 107 miles of streams and rivers, 5219 acres of lakes and 23295 acres of wetlands. The watershed is dominated by forest (53%) and wetlands (27%).
- Woodboro - The Woodboro River Watershed is located in Lincoln and Oneida counties. It is 39670 acres in size and contains 37 miles of streams and rivers, 2840 acres of lakes and 5403 acres of wetlands. The watershed is dominated by forest (55%), wetlands (13%) and barrens (12%).

The Department of Natural Resources ranked the Lincoln County watersheds for non point source pollution potential for streams, groundwater, lakes and an overall ranking. Table 1 below lists the Lincoln County watersheds and their subsequent Department of Natural Resources ranking. Further information on the resource assessment and concerns within these watersheds can be found in Appendix C and on the Watershed Planning page on the Wisconsin Department of Natural Resources website at: (<http://www.dnr.state.wi.us/org/water/condition/wtplans/>).

**TABLE 1 - NONPOINT SOURCE POLLUTION WATERSHED SCORES**

<b>WATERSHED</b>	<b>STREAM RANKING</b>	<b>GROUNDWATER RANKING</b>	<b>LAKE RANKING</b>	<b>OVERALL RANKING</b>
Little Rib River (UW 24)	Medium	High	Not Ranked	High
Upper Rib River (UW26)	Low	Low	Low	Low
Trappe River (UW27)	Low	Medium	Low	Medium
Devil Creek (UW28)	Medium	High	Low	High
Pine Creek (UW29)	Low	Low	Low	Low
Prairie River (UW30)	Medium	Low	Medium	Low
Copper River (UW 31)	Not Ranked	Low	Low	Low
New Wood River (UW32)	Low	Low	Medium	Low
Noisy and Pine Creeks (UW33)	High	Low	High	Low
Spirit River (UW 34)	Low	Low	Low	Low
Somo River (UW 35)	Not Ranked	Low	Low	Low
Lower Tomahawk River (UW 36)	Low	Low	Low	Low
Woodboro (UW 39)	Low	Low	High	Low

*Information in Table 1 taken from DNR Surface Water Data Viewer website (<http://dnrmapping.wisconsin.gov>)*

## **RIVERS**

Lincoln County has approximately 668 miles of rivers/streams with approximately 428 miles classified as trout streams. The largest river flowing through Lincoln County is the Wisconsin River, which flows in a southerly direction through the center of the County. All the drainage of the county flows through the major tributaries into the Wisconsin River. The major tributaries are the Somo, Spirit, New Wood, Copper, Pine, Prairie and Tomahawk Rivers.

The Prairie River in the eastern portion of the county is especially known for its trout fishery and is encompassed by the Prairie River Fishery Area. Within this Fishery Area, nearly 70 percent of the land has been acquired through land purchases, perpetual easements and leases. This area encompasses approximately 1600 acres with a recommendation to expand to 3300 acres for the purposes of protecting and maintaining the stream/trout habitat.

## **LAKES**

Lincoln County has a wealth of water resources including 766 lakes comprising 12,172 acres. Natural seepage lakes account for 42 percent of the surface acres and impoundments comprise 58 percent of the lake surface acres. Lakes under 10 acres constitute 86 percent of the lakes, however only 9 percent of the lake acreage. Only 23 lakes are 100 acres or larger. Natural lake depths range from less than one foot in several spring ponds to 70 feet in Hilts Lake. Lake Mohawksin, an impoundment, is the largest body of water with approximately 1900 acres. Popular sport fish found in these lakes include walleye, bass, panfish, and muskellunge. Currently, ten lakes are being monitored through the Citizen Lake Monitoring Program for water clarity, temperature, total phosphorus and chlorophyll. The lakes being monitored are: Bass Lake, Deer Lake, Hilts Lake, Lake Mable, Long Lake, Mohawksin Lake, Pesobic Lake, Pickerel Lake, Seven Island Lake and the Spirit River Flowage.

## **OUTSTANDING AND EXCEPTIONAL RESOURCE WATERS**

Outstanding Resource Waters (ORW) includes waters with unique characteristics and waters largely unaffected by cultural activities. They do not presently receive wastewater discharges, nor will point source discharge be allowed to these waters in the future, unless discharge is so controlled it is of the same or better quality than the receiving water. This classification includes national and state wild and scenic rivers and the highest quality Class 1 trout streams.

Exceptional Resource Waters (ERW) have excellent quality and valued fisheries, but already receive wastewater discharges or may receive future discharges. Dischargers to ERW waters are required to maintain background water quality levels; however, exceptions can be made for certain situations when and increase of pollutant loading to an ERW is warranted because human health would otherwise be compromised. This classification includes all Class 1 trout streams which are not outstanding resource waters and other water bodies with significant resource values and high water quality. Table 2 lists the Outstanding and Exceptional Resource Waters of Lincoln County.

**Table 2**  
**OUTSTANDING AND EXCEPTIONAL RESOURCE WATERS**

<b>WATERSHED</b>	<b>STREAM/RIVER</b>	<b>CLASS</b>
Trappe River (UW27)	Big Cain Creek	ERW
	Little Cain Creek	ERW
	Little Trappe River	ERW
	Prospect Creek	ERW
Devil Creek (UW28)	None	
Pine River (UW29)	Little Oxbo Creek	ERW
	Oxbo Creek	ERW
	Pat Smith Creek	ERW
	Rajek Creek	ERW
Prairie River (UW30)	Black Alder Creek	ERW
	Joe Snow Creek	ERW
	Kippenberg Creek	ERW
	Manacke Creek	ERW
	N.Br. Prairie River	ERW
	Prairie River	ERW/ORW
	Ripley Creek	ERW
	Spring Creek	ERW
	Stevens Creek	ERW
	Wedlers Creek	ERW
	Copper River (UW31)	Prast Creek
New Wood River (UW32)	Camp Twenty-Six Creek	ERW
	Center Fork New Wood River	ORW
	East Fork New Wood River	ERW
	Krueger Creek	ERW
	Shea Creek	ERW
	Wolf Creek	ERW
	New Wood River	ORW
Noisy/Pine Creek (UW33)	Big Pine Creek	ERW
	Green Meadow Creek	ERW
	Little Pine Creek (T34N,R06E,S36,NENW)	ORW
Spirit River (UW 34)	Armstrong Creek	ERW
	Flanigan Creek	ERW
	Gus Johnson Creek	ERW
	Spirit River	ORW
	Squaw Creek	ERW
Somo River (UW35)	Brant Creek	ERW
	Hay Creek	ERW
Lower Tomahawk River (UW36)	Trout Creek	ERW
Woodboro (UW39)	Spring Creek	ERW
	Trout Creek	ERW
Wisconsin River	From Hat Rapids Dam to Lincoln County Road A Crossing	ERW
	From Grandfather Dam to inlet of Alexander Lake	ERW

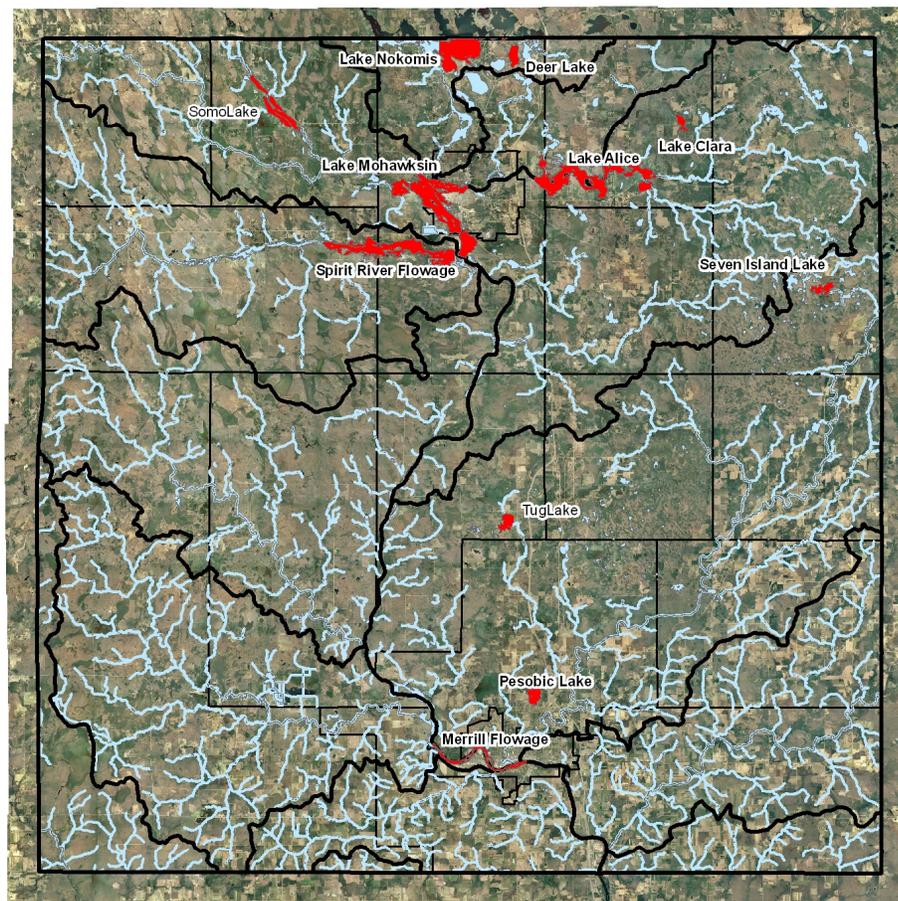
*Information in Table 2 taken from Wisconsin Department of Natural Resources Website (www.dnr.state.wi.us)*

## IMPAIRED WATERS

Section 303 (d) of the Clean Water Act requires the State to prepare a list of impaired water bodies. Waters on this list are impacted by point and non-point sources of pollution and mercury contamination, and as a result are not meeting specific water quality standards. These waterbodies receive higher priority for water quality monitoring efforts. The following waterbodies in Lincoln County are on the 303 (d) list because of fish health advisories due to mercury contamination: Lake Clara (T35N R7E Section 14); Deer Lake; Lake Mohawksin; Pesobic Lake; Seven Island Lake; Somo Lake; Spirit River Flowage, Tug Lake; Wisconsin River – Lake Alice & Merrill Flowage. Figure 5 is a map with the locations of these impaired waters.

Figure 5

### IMPAIRED WATERS IN LINCOLN COUNTY



- Impaired\_Waters
- Hydrology
- Watershed Boundaries
- Municipal Boundaries



0 5 10 Miles

## GROUNDWATER

Groundwater is the only source of drinking water in Lincoln County and provides the base flow for lakes, rivers, streams and wetlands. Groundwater quality is generally good but can be high in iron and tannins. Through the DNR Basin Planning process, each watershed was ranked based on land coverage and groundwater sample analytical results in the DNR Groundwater database. The Devil Creek Watershed and Lower Rib River Watershed ranked high for potential groundwater contamination and the Trappe River Watershed ranked medium. All other watersheds within Lincoln County ranked low for potential for groundwater contamination, though there was limited analytical groundwater data to make these determinations.

Lincoln County currently has three municipal water systems, two of which that have a wellhead protection plan (Cities of Merrill and Tomahawk) and one of the three (City of Tomahawk) has a wellhead protection ordinance. A large portion of Lincoln County's population is served by private wells. In regard to drinking water quality, from 1990-2006, 96% of 155 private well samples collected met the health based drinking water limit for nitrate-nitrogen. In addition, 98% of 45 private well samples collected met the health standard for arsenic. The most current data related to Lincoln County groundwater quality can be found at <http://wi.water.usgs.gov/gwcomp/index.html>.

## SHORELANDS

As part of the 2000 Lincoln County Comprehensive Plan development, Applied Ecological Services, Inc.—an ecological planning and design firm—conducted an inventory of existing shoreland conditions in the Spring of 2000. The inventory found the following in regard to shoreland areas in Lincoln County:

- There are many forested, undeveloped waterfronts in the County.
- There are several roads along river and lake shorelines in the County, sometimes with little vegetative buffer and runoff from roads too close to the shore can pollute the water
- There are unmanaged construction sites at the shoreline, which can cause serious erosion problems.
- Many homesites along lake and river shorelines in the County have lawn planted down to the shoreline.
- Many waterfront properties had rip rap or seawalls intended to protect the shoreline, however these techniques provide little habitat, filtering or visual buffer.
- Several waterfront properties are pasturelands. Open livestock access to shoreline areas can pollute water and result in bare soil and the possibility of non native vegetation in trampled areas.

## INVASIVE SPECIES

Currently, there is documentation of aquatic invasives within 30 waterbodies within Lincoln County. The aquatic invasives found include: rusty crayfish, Chinese mystery snail, banded mystery snail, eurasion watermilfoil, curlyleaf pondweed, freshwater jellyfish and purple loosestrife. Aquatic plant sampling by the Wisconsin Department of Natural Resources has occurred on several waterbodies in the past few years and is anticipated to continue. This sampling monitors for aquatic plant phenology, long term milfoil management, the effects of watershed disturbance on aquatic plant communities and aquatic invasives such as spiny waterfleas and zebra mussel veligers. In addition to DNR monitoring, lake associations/districts are participating in the voluntary Citizens Lake Monitoring program to document and report the presence of aquatic invasives. These lake associations/districts are also involved in the development of lake management plans where the plant community, water quality and invasive species are monitored. The most current data related to aquatic invasives in Lincoln County can be found on the DNR website at <http://dnr.wi.gov/lakes/invasives>.

Terrestrial invasives have been documented within the Lincoln County Forest boundary. Terrestrial invasive species found include: honeysuckle, garlic mustard, leafy spurge, buckthorn, black locust, giant knotweed and spotted knapweed. The Lincoln County Forestry, Lands and Park Department monitors and implements controls on invasive species within the county owned forests. In addition, Lincoln County is currently in the process of inventory invasive species within all County Highway right of ways. Restricted invasive species identified within the right of way include: common buckthorn, Eurasian bush honeysuckle, glossy buckthorn, Canada thistle, European marsh thistle, hemp nettle, spotted knapweed, common tansy, narrow leaved cattail, and dames rocket. Other invasive species that were found but are not regulated include: bull thistle, crown vetch, white sweet clover, yellow sweet clover, reed canary grass, bird's foot trefoil and Japanese barberry. Once the inventory is completed, the highway department will pursue measures to control or remove the invasives within the right of way.

## **GOALS, OBJECTIVES AND ACTIONS**

Based on the discussions of the Agriculture and Natural Resource Advisory Committee, the primary goals for the 2010 Lincoln County Land and Water Resource Management Plan are:

- Conserve and protect productive agricultural land, forestland and cultural areas
- Protect the water resources of Lincoln County
- Monitor and manage threats from invasive species

These goals can be achieved through numerous existing programs (local, state and federal) and the development of local programs. Table 3, 4 & 5 are work plans that outline strategies to protect the natural resources and achieve these goals. These work plans will guide the resource management efforts of the Land Conservation staff through 2015 and beyond.

**The priority objectives and action items are identified in bold and will be the primary focus of existing staff time and funding. As additional funding becomes available, staff resources and cost sharing may be shifted to other objectives and action items. Ultimately the achievement of objectives and actions to meet these goals will be based on the amount of funding and staffing available.**

**TABLE 3 – WORKPLAN - GOAL 1**

**GOAL #1:** Conserve and protect productive agricultural land, forestland and cultural areas

<b>OBJECTIVES</b> (Priority Objective identified in <b>BOLD</b> )	<b>2010-2015 ACTION PLAN</b> (Priority Action Items identified in <b>BOLD</b> )	<b>AGENCY</b> (Lead agency in <b>BOLD</b> )	<b>PROGRESS TRACKING</b>
<b>Preserve productive farmland</b>	- <b>Update the Lincoln County Farmland Preservation Plan</b> - <b>Pursue Agricultural Enterprise Area(s) designation within the Working Lands Initiative Program</b> (possibly 2 areas) - <b>Complete Conservation Compliance monitoring requirements</b> -- <b>Require development in agricultural areas to be consistent with the approved and/or amended Comprehensive Land Use Plan and Zoning Code Standards</b>	<b>LICD</b> NRCS Zoning Town Officials UWEX	Plan completed AEA’s designated # of farms monitored
Manage and protect private forest land	- Continue educational efforts on Forestry Best Management Practices for water quality by working with small woodland owners and loggers. -Pursue a Forestry Best Management Practice demonstration site -Sponsor a field day with woodland owners and loggers -Adopt the Forestry Best Management Practices for water quality as a minimum countywide standard on private and industrial forest - Work with the Wisconsin Woodland Owners Association, Tree Farm Program, etc. to encourage forest landowner participation in programs that encourage sustainable forestry. -Encourage landowners to develop and implement Forest Management Plans. - <b>Provide technical assistance on stream crossings and trail development/maintenance issues</b> (5 sites per year) -Inform landowners on the impacts of parcelization of forests	<b>DNR</b> UWEX LICD Zoning	Number of educational events sponsored Technical assistance provided
Protect and improve the public forestland	- Support logical expansions to the County forest as appropriate properties come available on the market. - Promote active involvement of all forest users in the development of forest management policy to identify and prevent use conflicts. - Cooperate with other units of government on natural resources which are under shared authority or cross government boundaries. - <b>Provide technical assistance on stream crossings and trail development/maintenance issues</b> (5 sites per year)	<b>Lincoln County Forestry Department</b> LICD DNR	Technical assistance provided
Protect and inventory unique cultural resources	-As required by the Lincoln County Zoning Code, collect and track more detailed cultural resource data on areas proposed for land development -Check natural heritage resource inventory for all sites that will be disturbed during construction of conservation practices -Protect cultural resource sites	DNR Lincoln County	# of sites tracked/monitored # of sites preserved/protected

**TABLE 4 - WORKPLAN - GOAL 2**

**GOAL #2:** Protect the water resources of Lincoln County.

<p align="center"><b>OBJECTIVES</b> (Priority Objectives identified in <b>BOLD</b>)</p>	<p align="center"><b>2010-2015 ACTION PLAN</b> (Priority Action Items identified in <b>BOLD</b>)</p>	<p align="center"><b>AGENCY</b> (Lead Agency in <b>BOLD</b>)</p>	<p align="center"><b>PROGRESS TRACKING</b></p>
<p><b>Animal Waste Management</b></p>	<ul style="list-style-type: none"> <li>- Educate landowners about Manure Management Prohibitions through landowner visits, newsletters or informational meetings</li> <li>- Determine landowner compliance with the Manure Management Prohibitions by inventorying farms located in Soil Erosion Control Priority Area, have significant water quality problem or a citizen complaint first, then inventory all farms as time permits</li> <li>- Ensure that all Farmland Preservation Program/Working Lands Initiative participants are in compliance with the performance standards/prohibitions</li> <li>- <b>Continue to administrate, implement and enforce the Lincoln County Animal Waste Management Ordinance</b></li> <li>- <b>Provide technical assistance and/or cost sharing (if available) to landowners who have or plan to build manure storage structures (5 landowners per year)</b></li> <li>- <b>Identify landowners with direct animal waste/feedlot runoff issues and provide technical assistance and cost sharing (if available) to them to correct the problem (5 landowners annually)</b></li> <li>- <b>Provide technical assistance and cost sharing (if available) to landowners for manure storage abandonment. (2 annually)</b></li> <li>- Apply for grants to provide cost sharing to landowners and staff funding for technical assistance to landowners</li> <li>- Review and revise, if needed, the Lincoln County Animal Waste Management Ordinance to ensure coordination with NR 151 Administrative Code.</li> <li>- <b>Provide technical assistance and cost sharing (if available) to landowners to divert clean water from feedlots. (5 annually)</b></li> <li>- Assist in review of permit applications under the Livestock Siting Standards in the Lincoln County Ordinance</li> </ul>	<p><b>LICD</b> DNR NRCS</p>	<p>Number of landowners contacted/assisted Amount of cost sharing distributed Number of practices designed and implemented</p>

**GOAL #2:** Protect the water resources of Lincoln County. (continued)

<b>OBJECTIVES</b> (Priority Objectives identified in BOLD)	<b>2010-2015 ACTION PLAN</b> (Priority Action Items identified in BOLD)	<b>AGENCY</b> (Lead Agency in BOLD)	<b>PROGRESS TRACKING</b>
<b>Nutrient Management</b>	<ul style="list-style-type: none"> <li>- <b>Notify landowners of nutrient and pest management requirements to ensure compliance with performance standard/track compliance</b></li> <li>- <b>Work with Technical College staff to provide educational opportunities for agricultural producers developing nutrient management plans on their property</b></li> <li>- <b>Pursue grants and cost share funding for nutrient management (LWRM funds, EQIP, etc.)</b></li> <li>- <b>Ensure that all landowners installing waste storage systems develop and maintain a nutrient management plan (5 landowners annually)</b></li> <li>- <b>Identify local crop consultants certified for nutrient management planning</b></li> <li>- <b>Educate rural non-farm residents about proper manure handling and spreading techniques</b></li> <li>- <b>Review nutrient management plans (10 landowners per year) and track nutrient management checklists and submit to DATCP</b></li> <li>- <b>Develop or update conservation plans for landowners developing nutrient management plans (10 landowners per year)</b></li> </ul>	LICD UWEX NRCS  North Central Technical College  Certified Crop Consultants	Number of landowners informed/assisted Number of acres with nutrient management plans
<b>Promote Management Intensive Grazing</b>	<ul style="list-style-type: none"> <li>- <b>Provide educational opportunities for landowners interested in management intensive grazing including: Pasture walks/demonstrations (12 annually), Newsletters (15 annually), Annual Winter Conference</b></li> <li>- <b>Develop management intensive grazing plans for landowners (5 annually).</b></li> <li>- <b>Provide technical assistance and cost sharing (if available) to landowners interested in management intensive grazing. (7 landowners with follow up technical assistance annually – 5 cost share contracts annually)</b></li> <li>- <b>Assist landowners with pasture renovation/improvement (5 landowners or 150 acres annually)</b></li> </ul>	<b>Marathon/ Lincoln County Grazing Specialist</b> LICD NRCS UWEX	Number of educational opportunities Number of acres planned for management intensive grazing Amount of cost sharing distributed Number of landowners informed/assisted Total reduction in soil loss or runoff
Groundwater Protection	<ul style="list-style-type: none"> <li>- <b>Provide technical assistance and cost sharing (if available) to landowners for well decommissioning (3 landowners annually)</b></li> <li>- <b>Ensure the proper placement and maintenance of on-site waste disposal (septic) systems and appropriate maintenance and replacement of older systems as a means to protect ground water quality.</b></li> <li>- <b>Work with municipalities to protect groundwater recharge areas outside of the city limits/jurisdiction.</b></li> <li>- <b>Distribute educational material on groundwater protection issues</b></li> </ul>	LICD  <b>Zoning</b>	Number of wells decommissioned

**GOAL #2:** Protect the water resources of Lincoln County. (continued)

<b>OBJECTIVES</b> (Priority Objectives identified in BOLD)	<b>2010-2015 ACTION PLAN</b> (Priority Action Items identified in BOLD)	<b>AGENCY</b> (Lead Agency in BOLD)	<b>PROGRESS TRACKING</b>
<b>Control soil erosion on agricultural lands</b>	<ul style="list-style-type: none"> <li>- <b>Conduct Transect Survey every two years</b></li> <li>- <b>Develop conservation plans that meet the tolerable soil loss on all cropland using RUSLE 2 model</b></li> <li>-<b>Review &amp; update (as needed) conservation plans for Farmland Preservation/Working Lands Initiative participants (3 per year)</b></li> <li>- <b>Develop conservation plans for landowners participating in cost share programs (10 per year)</b></li> <li>-<b>Provide technical assistance and cost sharing (if available) to landowners, contractors, and others as requested related to erosion issues</b></li> <li>-<b>Educate landowners on performance standards related to soil erosion through newsletters, landowner visits and informational meetings</b></li> </ul>	<b>LICD</b> <b>Summer Intern</b> <b>DNR</b> <b>Zoning</b> <b>NRCS</b>	Transect survey completed Acres of conservation plans developed/updated Number of landowners assisted Amount of cost sharing distributed Total reduction in soil loss
Streambank and Shoreline Protection	<ul style="list-style-type: none"> <li>- <b>Protect and restore natural shoreline areas in the county by providing technical assistance to landowners. (3 landowners/year)</b></li> <li>- <b>Provide cost share funds (if available) to landowners for the implementation of shoreland erosion control measures (3 landowners/year)</b></li> <li>- Enforce development standards in shoreland areas, depending in part on the quality and sensitivity of the associated water and the relative presence or absence of development. (Lake Classification)</li> <li>- <b>Continue to provide technical assistance to landowners to comply with the shoreland zoning ordinance mitigation requirements (10 annually)</b></li> <li>- <b>Coordinate the activities of the county wide lake association</b></li> <li>- <b>Assist Lake Associations/Districts in applying for lake planning and management grants</b></li> <li>- <b>Provide technical assistance to landowners, contractors, and others as requested related to erosion issues (10 annually)</b></li> <li>- <b>Distribute Shoreland Owners packets, shoreland information and videos to interested citizens</b></li> </ul>	<b>LICD</b> <b>Zoning</b> <b>DNR</b>	Feet of shoreland restoration Total reduction in soil loss
Monitor Lincoln County's water resources	<ul style="list-style-type: none"> <li>-Encourage volunteers to participate in monitoring for water quality through the DNR Citizens Lake Monitoring Network</li> <li>-Encourage protection of aquatic endangered species such as spiny hornwort, etc.</li> </ul>	<b>LICD</b> <b>DNR</b> <b>Lake Association members</b>	Number of waterbodies monitored

**GOAL #2:** Protect the water resources of Lincoln County. (continued)

<b>OBJECTIVES</b> (Priority Objectives identified in BOLD)	<b>2010-2015 ACTION PLAN</b> (Priority Action Items identified in BOLD)	<b>AGENCY</b> (Lead Agency in BOLD)	<b>PROGRESS TRACKING</b>
Stormwater Management and Construction Site Erosion Control	<ul style="list-style-type: none"> <li>-<b>Assist with the implementation of the stormwater and erosion control performance standards as identified in NR 151, NR 216 and the Lincoln County Zoning Ordinance</b></li> <li>-Pursue the development of a stormwater management ordinance</li> <li>-<b>Provide education and technical assistance to landowners regarding rain gardens.(5 annually)</b></li> <li>-Provide for certification of contractors if they attend the state sponsored construction site erosion control workshop</li> <li>-Sponsor a workshop for town boards and local contractors on erosion control techniques during road construction</li> <li>- Sponsor a construction site erosion control demonstration project</li> <li>- <b>Review stormwater management plans for subdivision/plat development (10 annually)</b></li> </ul>	LICD <b>Zoning</b> DNR	Number of landowners assisted Number of plans reviewed
Non-metallic Mine Reclamation	<ul style="list-style-type: none"> <li>- Continue to administer the Non-metallic Mine Reclamation Ordinance</li> <li>-Conduct annual training for new and existing mine operators</li> </ul>	<b>Zoning</b>	Implementation of program per ordinance requirements

**TABLE 5 – WORKPLAN- GOAL 3**

Goal # 3: Monitor and manage threats from invasive species

<b>OBJECTIVES</b> (Priority Objectives identified in BOLD)	<b>2010-2015 ACTION PLAN</b> (Priority Action Items identified in BOLD)	<b>AGENCY</b> (Lead Agency in BOLD)	<b>PROGRESS TRACKING</b>
Terrestrial Invasives	<ul style="list-style-type: none"> <li>-Continue to monitor and manage invasives on County owned property</li> <li>-Complete inventory of invasives in County highway right of way (per NR 40), monitor and manage as necessary</li> <li>-Maintain GIS database of invasive locations</li> </ul>	<b>Forestry Land and Parks Dept. Highway Department LICD</b>	Inventory completed Number of removal/treatment efforts
Aquatic Invasives	<ul style="list-style-type: none"> <li>- <b>Apply for Lake Management grants for educational programs and control of aquatic invasives</b> including continuation of the Tri County Aquatic Invasives Project and Treehaven student project</li> <li>- Inform the community of invasive aquatic plants occurring in the county and the potential harmful impacts the plants have on the ecosystem.</li> <li>-Initiate Clean Boats/Clean Waters watercraft inspections</li> <li>-Initiate a purple loosestrife control project</li> <li>- Educate people on how to identify invasive species through newsletters, paper articles, handouts, presentations and field visits.</li> <li>-Assist local lake associations/districts in grant applications for the development of aquatic plant management plans</li> </ul>	LICD DNR Lumberjack RC&D	Number of lake grants applied for and received

# **PERFORMANCE STANDARDS and PROHIBITIONS IMPLEMENTATION**

## **AGRICULTURAL PERFORMANCE STANDARDS**

Lincoln County is committed to implementing the performance standards as time and funding allows. Currently, due to limited staff and cost share funding, a backlog list of landowners voluntarily willing to resolve water quality issues has been created. This list is ranked annually to determine which landowners have the most significant water quality or soil erosion problem. Factors used to rank the landowners are proximity to water resources and severity of resource concern (animal waste runoff, runoff from sediment etc.). The high-ranking landowners are then the priority projects for technical assistance and cost sharing during that calendar year. Lower-ranking landowners remain on the list for future assistance and cost sharing. Those landowners that do not have a water quality or soil erosion problem are removed from the list.

In regard to a “priority farm strategy”, a “priority farm” is one that is found to be non-compliant with the state prohibitions and performance standards (Table 7). Farms located in the soil erosion control priority area will receive higher priority. Farms located outside of this priority area will be considered “priority” if the farm has a significant water quality problem or has a citizen complaint filed against it. As time and funding allows, the staff will complete a performance standard and prohibition inventory targeting landowners in the soil erosion control priority area, first.

The Advisory Committee established for the development of this plan recommended that the Performance Standards continue to be implemented on a voluntary basis and that enforcement components are handled by the Department of Natural Resources. Table 6 outlines Lincoln County’s intentions of implementing the agricultural performance standards as time and funding allows.

**Table 6 – Implementation Strategy – Agricultural Performance Standards**

<b>COMPONENT</b>	<b>ACTIVITY</b>	<b>RESPONSIBLE PARTY</b>
Information and Education	<ul style="list-style-type: none"> <li>-Inform landowners of the performance standards and prohibitions through mass mailings, newspaper articles, landowner site visits, newsletter inserts.</li> <li>- Sponsor landowner educational workshops about the agricultural performance standards and prohibitions, conservation practices, cost share opportunities, agency roles and compliance procedures</li> </ul>	LCD <b>UWEX</b>
Determine Current Compliance	<ul style="list-style-type: none"> <li>- Complete site inventory on all parcels owned by landowners that are working voluntarily with the department</li> </ul> <b>RECORDS INVENTORY</b> <ul style="list-style-type: none"> <li>- Compile existing records (conservation plans, Farmland Preservation spotchecks, nutrient management plans, status reviews, etc.)</li> <li>- Based on existing records, evaluate which parcels are subject to specific standards and prohibitions</li> </ul> <b>ONSITE EVALUATIONS</b> <ul style="list-style-type: none"> <li>-Develop list of parcels that need on-site evaluations</li> <li>-Review parcels at the request of the landowner or by complaint</li> <li>-Contact landowners, schedule site visits, conduct onsite.</li> </ul>	LCD

COMPONENT	ACTIVITY	RESPONSIBLE PARTY
Landowner Notification	<ul style="list-style-type: none"> <li>-Prepare and issue status reports per administrative code requirements including appeals process</li> <li>-If landowner is non compliant, encourage voluntary participation to achieve compliance</li> <li>-If landowner does not voluntarily comply, issue a letter documenting field/farmstead location, non compliant performance standard, best management practice to be installed, estimated cost, status of cost sharing and compliance timeline</li> </ul>	LCD DNR*
Funding/Technical Assistance	<ul style="list-style-type: none"> <li>-Confirm cost share availability</li> <li>-Confirm whether cost sharing is required and landowner eligibility for cost sharing</li> <li>-Determine availability of technical assistance</li> <li>-Develop and issue cost share contract if available and required</li> <li>-Provide technical assistance (conservation planning, engineering design, construction oversight, cost containment, etc.)</li> <li>-Upon completion of project, conduct an evaluation to determine if compliant</li> <li>-If non compliant, seek remedies or initiate enforcement</li> </ul>	LCD DATCP DNR*
Enforcement	<ul style="list-style-type: none"> <li>-Determine if landowner is out of compliance with compliance period outlined in notification process</li> <li>-Issue notice of violation letter</li> <li>-Schedule enforcement conference</li> <li>-Participate in enforcement conference</li> <li>-Initiate enforcement action</li> </ul>	DNR*
Compliance Monitoring	<ul style="list-style-type: none"> <li>-Conduct periodic evaluations to verify compliance</li> <li>-Respond to complaints alleging non compliance</li> <li>-Ensure new property owners are aware of compliance information</li> </ul>	LCD
Annual Reporting	<ul style="list-style-type: none"> <li>-Maintain a record of annual site evaluations and landowner notifications (status and violations)</li> <li>-Report estimated timeframe and staff resources need to complete site evaluations</li> <li>-Maintain a record of estimated costs of corrective measures for each parcel that has been evaluated and for which corrective measures have been estimated</li> <li>-Maintain a record of parcels where public cost sharing has been applied to implement the standards and prohibitions, the amount and source of those funds and the landowner share</li> <li>-Maintain record of costs associated with providing technical and administrative assistance for performance standard implementation.</li> </ul>	LCD

\*All concerns and correspondence involving implementation of the agricultural performance standards will be sent to DNR Headwaters Basin Team Leader in Rhinelander. Copies of all concerns and correspondence will also be sent to Terry Lohr, DNR-Bureau of Watershed Management – Madison. Lincoln County will continue to work cooperatively with DNR – Division of Water staff to accomplish these tasks. For non-agricultural performance standards, the DNR Water Resources Management Specialist will assist the County in implementation.

Table 7 identifies the Agricultural Performance Standards and the conservation practices that would be used to ensure compliance.

**Table 7– Agricultural Performance Standards**

AGRICULTURAL PERFORMANCE STANDARD	EFFECTIVE DATE	CONSERVATION INITIATIVES
Control soil erosion to meet tolerable soil loss (T) calculated by RUSLE 2. (Cropland)	October 1, 2002	Install contour farming, crop rotation, diversions, residue management, and management intensive grazing. Related runoff controls: critical area stabilization, water and sediment control basins, waterway systems and heavy use area protection.
Construct, maintain and close manure storage facilities to prevent manure overflows and leaks. (Livestock operations and facilities)	October 1, 2002	Meet NRCS standards for construction, maintenance, and closure using technical standards: 313 (waste storage facility), 360 (closure of waste impoundments), 634 (manure transfer standard). Animal Waste Management Ordinance Compliance and Enforcement
Divert clean water from feedlots. (Livestock operations and facilities within Water Quality Management Areas)	October 1, 2002	Install diversions, roof runoff systems, subsurface drains, and underground outlets.
<p>Manure Management Prohibitions</p> <ul style="list-style-type: none"> <li>a. No overflow from manure storage facilities.</li> <li>b. No unconfined manure stacks within the Water Quality Management Area.</li> <li>c. No direct runoff from feedlots and manure storage facilities.</li> <li>d. No unlimited access of livestock to shore lands that prevents maintenance of adequate sod cover. (Livestock operations and facilities)</li> </ul>	October 1, 2002	<ul style="list-style-type: none"> <li>a. Design and construct facilities to technical standards, maintain facilities including adequate freeboard, repair or replace facilities, as needed.</li> <li>b. Relocate manure piles, construct manure storage facilities.</li> <li>c. Install barnyard runoff control systems, including diversions, milking center waste control systems, relocating or abandoning animal feeding operations, roof runoff systems, sediment basins, subsurface drains, underground outlets, water and sediment control basin, wastewater treatment strips, well decommissioning. For manure storage facility runoff, see (a.) above.</li> <li>d. Install access roads and cattle crossings, animal trails and walkways, critical area stabilization, livestock fencing, livestock watering facilities, prescribed grazing, riparian buffers, stream bank and shoreline protection.</li> </ul> <p>Animal Waste Management Ordinance Compliance and Enforcement.</p>
Control Nutrient Runoff into waters of the state (Cropland)	Effective in 2003 for new operations, 2005 for land near impaired or exceptional waters, and 2008 for other existing farms.	Develop and follow an annual nutrient management plan for applying fertilizer or manure. Base plans on soil tests conducted by DATCP certified laboratory. Become qualified to prepare plan or use qualified planners. Apply nutrients according to UWEX recommendations for crops. Install additional conservation or management practices to reduce nutrient loading.

NON-AGRICULTURAL PERFORMANCE STANDARDS

Lincoln County finds that construction site erosion and uncontrolled stormwater runoff from land disturbing activities can have significant adverse impacts upon local water resources. Therefore, Lincoln County adopted erosion control and stormwater management standards to assure that Lincoln County would meet or exceed the non-agricultural performance standards. The implementation of these standards will be in coordination with the Lincoln County Zoning Department. The Land Conservation staff will provide technical assistance as requested by the zoning department or the landowner impacted by the non-agricultural performance standard. Enforcement activities will be handled by the Zoning Department. The Developed Urban Areas performance standard impacts the City of Merrill and will be the City’s responsibility to implement and enforce.

**Table 8 – Non-agricultural Performance Standards**

NON-AGRICULTURAL PERFORMANCE STANDARD	EFFECTIVE DATE	CONSERVATION INITIATIVES
Control 80% of sediment load from construction sites one acre or larger.	October 1, 2002 for construction sites 5 acres or larger. March 10, 2003 for construction sites one acre or larger.	Develop and implement construction site erosion control plan that may include: silt fence, temporary seeding, seed/mulch, matting, polymers, sediment traps, and sediment basins.
Stormwater Management Plans Total Suspended Solids Peak Discharge Rate Infiltration Buffers	October 1, 2002	Develop and implement a stormwater management plan that may include: dry pond, wet detention basin, infiltration basins, grassed swales, buffers.
Developed urban areas Public Education Yard Waste Management Nutrient Management Reduction of suspended solids	October 1, 2002 – to be implemented by March 10, 2008	Develop public education campaign to include: proper use of lawn and garden fertilizers, managing pet wastes, dumping of oil and other chemicals into storm sewer. Develop and implement nutrient management plan on all municipal controlled properties over 5 acres. Develop and implement plan to reduce illicit discharges and suspended solids discharges to storm sewers.

**REGULATIONS FOR PLAN IMPLEMENTATION**

Lincoln County has existing regulations relating to soil and water resource management/protection. These regulations include the following:

- ✓ Lincoln County Animal Waste Management Ordinance – Adopted February 20, 2001
  - Regulates animal waste storage facilities, malfunctioning and/or mismanaged animal waste storage facilities, idle animal waste storage facilities and the Animal Waste Prohibitions outlined in State Statute 281.16 (3).
  - Implemented and enforced by Land Information and Conservation Department
- ✓ Lincoln County Non-metallic Mine Ordinance – Adopted May 22, 2001
  - Regulates new and existing non-metallic mines and requires reclamation of mine site.
  - Implemented and enforced by Lincoln County Zoning Department

- ✓ Lincoln County Shoreland Zoning Ordinance – Adopted October 21, 2003, Amended in 2008
  - Regulates land use activities (building site development, boathouses, grading, preservation/removal of vegetative cover, etc.) within the shoreland zone. Also requires shoreland restoration for certain activities.
  - Implemented and enforced by Lincoln County Zoning Department. The LICD provides technical assistance for shoreland erosion, grading and restoration activities.
- ✓ Lincoln County Comprehensive Zoning Code which includes Performance Standards related to Cultural Resource and Habitat Identification, Shoreland Development, Stormwater, Erosion Control, the Keeping of Farm Animals and Livestock Siting – Adopted December, 2004, Amendments in 2006 & 2007
  - Defines and outlines zoning districts within rural Lincoln County and regulates land uses within those specific districts.
  - Identifies performance standards related to landscaping, cultural resources, habitat identification, shoreland protection, erosion control, stormwater management, the keeping of farm animals and livestock siting.
  - Implemented and enforced by the Lincoln County Zoning Department. The LICD provides technical assistance for shoreland protection, erosion control, stormwater management, the keeping of farm animals and livestock siting.

Copies of these regulations are available from the department that implements and enforces the specific ordinance as well as on the Lincoln County website ([www.co.lincoln.wi.us](http://www.co.lincoln.wi.us)).

In addition to these local regulations, Lincoln County has relied heavily on state regulations for the protection of natural resources. The State Regulations include:

- ✓ Department of Natural Resources – Chapter 30, Wisconsin Statutes – Navigable Waters
- ✓ Department of Natural Resources - Wisconsin Pollution Discharge Elimination System Permits
- ✓ Department of Natural Resources - Performance Standards - Administrative Code NR 151
- ✓ Department of Natural Resources - NR216 Stormwater Discharge Permits and Construction Site Erosion Control
- ✓ Department of Natural Resources – Chapter 29.601, Wisconsin Statutes – Noxious Substances
- ✓ Department of Agriculture, Trade and Consumer Protection – Livestock Facility Siting – ATCP 51

Lincoln County will utilize all existing county, state and federal regulations to assist with the implementation of the Performance Standards and to achieve the goals of this Land and Water Resource Management Plan. Compliance procedures for the implementation of the performance standards, including notice, hearing, enforcement and appeals procedures, will comply with county, state and federal codes and will be completed in cooperation with the regional Department of Natural Resources staff.

## **INFORMATION AND EDUCATION STRATEGY**

Information and education strategies are an integral part of this plan and Lincoln County's conservation programs. Educational opportunities for youth and adults need to be developed to create an awareness of the importance of resource protection and enhancement. Many of the concerns and objectives within the plan emphasize information and education strategies needed to address the resource issue. Resource objectives where educational strategies will be utilized include: performance standards and prohibitions, forestry best management practices, management intensive grazing, nutrient management, streambank/shoreland protection and invasive species. Some of the specific strategies identified include: informational handouts, nutrient management education, demonstration projects, field demonstrations, tours, etc. Specific information and education activities are outlined within the workplans.

## **COORDINATION**

As stated previously, the Conservation staff seeks input from and works closely with a diverse group of agencies, associations and organizations involved in resource management and protection in Lincoln County. These include: United States Department of Agriculture – Farm Service Agency (FSA) and Natural Resource Conservation Service (NRCS); Wisconsin Department of Natural Resources (DNR) (Water Resources Management Specialists, Fisheries Biologists, Water Regulations and Zoning Specialists, Water Program Management staff, Watershed Management staff, Forestry and Wildlife staff); Army Corp of Engineers, University of Wisconsin – Extension; Lincoln County Forestry and Zoning Departments, Trout Unlimited, the Friends of the Prairie River, Lincoln County Sports Club, Marathon County Conservation, Planning and Zoning Department, the Lincoln County Lakes and Rivers Association, individual lake districts/associations, Lumberjack Resource Conservation and Development Council, agricultural producers and interested/concerned landowners.

Each agency, organization, association and individual has its individual resource issues, programs and plans, but cooperatively, we can work together for the greater good of Lincoln County natural resources. Examples of related plans and cooperative efforts include: the Marathon/Lincoln County Grazing Project; NRCS – Environmental Quality Incentive Program assistance; Lincoln County Zoning Department – Shoreland project and technical assistance for stormwater and construction site erosion control; the Lincoln County Forestry Department – 10 Year Comprehensive Land Use Plan and Recreation Plan; DNR – water regulation assistance and Basin Plans; Lincoln County Farmland Preservation Plan and the Lincoln County Comprehensive Plan.

In addition to the related plans and cooperative efforts, the LICD staff meets monthly with the Land Services Group. This group consists of all land related departments within county government as well as representation from the Lincoln County Board and the Cities of Tomahawk and Merrill. This group provides an opportunity for awareness, interaction and discussion on land resource issues within the county. The conservation staff also meets annually with the NRCS Local Workgroup to coordinate federal conservation program efforts. Meetings with agencies, organizations, associations and individuals are set up as needed to seek input from and ensure that resource management efforts are coordinated to meet everyone's needs.

## **MONITORING AND EVALUATION**

The Lincoln County Land and Water Resource Management Plan is intended to be a working document. The Plan will be reviewed and updated annually by the Land Information, Conservation and University Extension Committee and staff to track progress in accomplishing the goals and actions. Monitoring and evaluation of specific resource issues can be accomplished in many different ways. Following are some of the methods that will be used to track the progress of the Land and Water Resource Management Plan:

### **1. Performance Standards and Prohibitions Monitoring and Evaluation**

GIS technology will be used as a tool to track and monitor landowner compliance with the performance standards and prohibitions. GIS data layers will be created as data is collected including a priority farms and nutrient management planning data layers. In addition, all data regarding landowner compliance with the performance standards and prohibitions will be kept in hard copy format in the landowner file.

## **2. Cropland Erosion and Sediment Delivery**

A transect survey will be conducted every other year (as staff time permits) to monitor cropland erosion levels in Lincoln County. The survey was completed in 2010. A database will track progress on compliance with the soil loss performance standards. In addition, conservation plans and management intensive grazing plans that have been implemented and meet RUSLE 2 calculations will be tracked using GIS technology.

## **3. Water Quality Monitoring**

Currently, 20 lakes are being monitored by citizen volunteers through the Self-Help monitoring program. Of these 20, 14 are currently being monitored for clarity and/or chemistry and 6 lakes are being monitored for Eurasian Watermilfoil and Curly leaf pondweed. The data collected is submitted to the DNR staff in Rhinelander, who review and monitor the data for specific changes in water quality. Lincoln County supports this monitoring program and will continue to encourage lake associations and lake property owners to voluntarily participate in this program.

Lake associations/districts also continue to apply for grants to fund lake studies or water quality appraisals. In addition, on an annual basis, the DNR staff will identify waterbodies within the northern area and complete a Sensitive Area Designation and/or aquatic plant survey. Several Lincoln County lakes have had this completed and Lincoln County will continue to support this effort. Unfortunately, due to limited staff, water quality monitoring on our rivers and streams is minimal. Lincoln County will continue to pursue River Planning and Protection Grants to fund monitoring projects on our streams and rivers.

## **4. Phosphorus Loading**

Nutrient loading can adversely affect water quality by promoting excessive plant growth. In order to reduce nutrient loading by animal waste, all newly installed barnyard systems will be evaluated to ensure compliance with the Waste Water Treatment Strip Standard, which requires phosphorus reduction. The Barnyard Evaluation Rating Tool (BERT) and Vegetative Treatment Area – Buffer Design using BARNY spreadsheets will be used to determine compliance with the standard.

## **5. Nutrient Management**

In cooperation with DATCP, Lincoln County will monitor and measure nutrient management progress by tracking Nutrient Management Plan Checklists with the acres and planner and performing periodic plan review to monitor compliance with soil test levels. Snap Plus will be a tool used to track and monitor nutrient management

## **6. Annual Reporting/Spotchecks**

As required, Lincoln County will report to DATCP and DNR on progress towards implementation of the performance standards and prohibitions as well as other soil and water resource activities. In addition, DATCP and NRCS conduct annual engineering and conservation planning spotchecks to ensure compliance with all applicable technical standards.

## **PLAN IMPLEMENTATION BUDGET**

Currently, Lincoln County is staffed with a Conservationist, a Conservation Specialist and a Program Assistant that are part of a consolidated Land Information and Conservation Department. This provides approximately 4500 hours of staff time committed to administration and technical assistance for conservation programs. Lincoln County also contracts with Marathon County for additional technical assistance. Currently, 20% of a Marathon County Conservation Specialist position (approximately 416 hours) is funded to provide technical assistance for management intensive grazing and 40% of a Marathon County Conservation Specialist position (832 hours) is funded to provide technical assistance for nutrient management and stormwater/construction site erosion control assistance. The total current budget for this staffing is \$252,502. Lincoln County has received approximately \$100,000 from the Wisconsin Department of Agriculture, Trade and Consumer Protection for staff. In addition to the county staff, the Natural Resource Conservation Service is staffed with a District Conservationist and Soil Conservation Technician that cover two counties.

In recent years, more opportunities for cost share funding have been made available to Lincoln County landowners. Cost share funding for conservation projects has been provided to landowners through Department of Agriculture, Trade and Consumer Protection programs (Soil and Water Resource Management grants, etc.), Department of Natural Resources programs (Targeted Runoff Management grants, Lake grants, etc.) and United States Department of Agriculture Programs (Environmental Quality Incentives Program, Wildlife Habitat Incentives Program, etc.) Currently, Lincoln County receives approximately \$60,000 for cost share funding through the DATCP Soil and Water Resource Management grants and approximately \$80,500 through the USDA – Environmental Quality Incentive Program. Lincoln County continues to pursue all available resources to provide funding for the implementation of conservation practices and programs.

As stated previously, the implementation of this plan will be based on the amount of funding for staff; cost sharing and program development is available. Projecting estimated costs for plan implementation is extremely difficult and can vary from year to year depending on the current fiscal situation, program timeliness, landowner willingness and staffing. Table 9 (below) outlines estimated cost sharing and staffing costs for the next 5 years. These estimates are based on the current level of staffing and estimated increases in state and federal cost sharing. These budget numbers are very likely will change.

Table 9 – Plan Implementation Budget

<b>FUNDING TYPE</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<b>Cost Share</b> (SWRM, EQIP, TRM, etc.)	\$140,500	\$145,500	\$150,500 (SWRM + EQIP) + \$150,000 (TRM)	\$155,500	\$160,500
<b>Staffing</b>	\$252,502	\$253,741	\$261,353	\$269,194	\$277,270
<b>TOTALS</b>	<b>\$393,002</b>	<b>\$399,241</b>	<b>\$561,853</b>	<b>\$424,694</b>	<b>\$437,770</b>

## **CONCLUSION**

Land and Water Resource Management Plans provide counties an opportunity to explain how they will meet the state performance standards and prohibitions as well as address other local resource management concerns. The Plan provides the counties with the ability to develop local strategies to address the concerns; target limited staff and cost share dollars toward these concerns; provide for integration of programs and funding from all sources; develop a variety of implementation tools and ultimately ensure accountability.

The Lincoln County Land and Water Resource Management Plan provides a framework for local/state/federal conservation program implementation efforts. It is a working document that will utilize existing partnerships to achieve the goals and objectives identified. The availability of funding for staff and cost sharing will determine the progress in achieving the goals and objectives of this plan. Ultimately, implementation of the Plan will protect and improve the valuable natural resources of Lincoln County as well as maintain the vision of preserving Lincoln County's abundant rural character.

# APPENDICES

## APPENDIX A

### **2005 - 2010 LAND AND WATER RESOURCE MANAGEMENT PLAN ACCOMPLISHMENTS**

#### **Goal #1: Continue to protect and improve surface water and groundwater quality**

##### Objectives: Animal Waste Management

###### Action Items Completed:

- ✓ Assisted 29 landowners with animal waste management issues
- ✓ Assisted 23 landowners with barnyard runoff control issues. Utilizing Soil and Water Resource Management cost share funds, provided funding for 7 barnyard runoff control facilities and one milking center waste control system.
- ✓ Assisted 22 landowners with manure storage related issues. Utilizing Soil and Water Resource Management cost share funds, provided funding for two manure storage systems, one manure transfer and one manure storage system closure.
- ✓ Applied for and received two DNR TRM grant for landowners for the closure of a failing manure storage system and the installation of two new animal waste storage facilities. Grant funding totaled \$300,000.

##### Objective: Promote Management Intensive Grazing

###### Action Items Completed:

- ✓ 22 Grazing plans were developed covering a total of 1522 acres. Cost shared the implementation of 444 acres of prescribed grazing, 2100 feet of animal trails and walkways, 526 feet of access roads/cattle crossings, and 5 livestock watering facilities.
- ✓ 38 landowners assisted in the implementation of management intensive grazing and other related practices.
- ✓ 74 pasture walks were held and 73 newsletters/press releases distributed
- ✓ Hosted the Wisconsin Grazing School and an annual grazing conference
- ✓ Three times per summer, hosted University of Wisconsin – Stevens Point students at a grazing based dairy

##### Objective: Control soil erosion on agricultural lands

###### Action Items Completed:

- ✓ Utilizing Soil and Water Resource Management cost share funds, provided funding for 1500 feet of a waterway system and 1770 feet of diversion.
- ✓ See accomplishments of grazing project above.
- ✓ Conduct Transect Survey in 2005 and 2008
- ✓ 15 Conservation plans per year are reviewed and updated as needed for Farmland Preservation Program participants.

## Objective: Nutrient Management

### Action Items Completed:

- ✓ In cooperation with Marathon County and North Central Technical College, applied for and received a Multi –Agency Land and Water Education Grant to provide classes to landowners on nutrient management planning. (2008-2009)
- ✓ Utilizing Soil and Water Resource Management cost share funds, provided funding for the implementation of 1276 acres of nutrient management plans
- ✓ Assisted 21 landowners with nutrient management and conservation plan updates and/or development.

## Objective: Stormwater Management and Construction Site Erosion Control

### Action Items Completed:

- ✓ Provided technical assistance in the review of stormwater and erosion control plans on 15 major subdivisions.
- ✓ Provided technical assistance to 12 landowners in the development of site specific stormwater and erosion control plans.

## Objective: Groundwater Protection

### Action Items Completed:

- ✓ Utilizing Soil and Water Resource Management cost share funds, provided funding for two well decommissioning.

## Objective: Aquatic Invasives

### Action Items Completed:

- ✓ Lincoln County assisted 7 lake groups with grant applications for the development of lake management plans/aquatic plant management plans as well as rapid response treatment for aquatic invasives. In addition, the conservation staff assisted the Lincoln County Lakes and Rivers Association in grant applications to provide educational opportunities on aquatic invasives to the general public.
- ✓ Two Clean Boats/Clean Waters and aquatic invasive species monitoring workshops were sponsored as well.
- ✓ According to the DNR website, 272 boats have been inspected in Lincoln County through the Clean Boats/Clean Waters program which put the volunteers in contact with 577 people.
- ✓ In 2008, Lincoln County applied for and received a grant to fund a Tri County Aquatic Invasive Species Coordinator. This position is in cooperation with Lumberjack Resource Conservation and Development Council and assists lake groups and citizens in Lincoln, Langlade and Forest Counties.
- ✓ In 2009, Lincoln County applied for a received a grant to hire University of Wisconsin – Stevens Point students attending Treehaven summer camp to complete Clean Boat/Clean Water inspections on Lincoln County lakes on weekends.

## Objective Streambank and Shoreline Protection

### Action Items Completed:

- ✓ Utilizing Soil and Water Resource Management cost share funds, provided funding for 290 feet of streambank and shoreland protection
- ✓ Assisted 16 landowners with shoreland and streambank erosion issues.

## **Goal #2: Conserve and protect productive farmland, forestland and other sensitive natural areas**

### Objective: Protect and improve the public forestland

#### Action Items Completed:

- ✓ Conservation staff served on the Merrill Area Public Schools – School Forest Advisory Committee and assisted in the development of a Long Range Forest Management Plan for the School Forest property.
- ✓ Assisted in completion of permit applications and the development of an erosion control plan for a privy and warming shelter at the Merrill School Forest.
- ✓ Assisted in the development of the Lincoln County Forest Management Plan.
- ✓ Assisted the Lincoln County Forestry Department with boat landing and trail development issues.

## **APPENDIX B**

### **DEPARTMENT OF NATURAL RESOURCES** **HEADWATERS BASIN INTEGRATED MANAGEMENT PLAN** **DATED DECEMBER, 2002**

#### **Summary**

The Headwaters Integrated Basin Plan comprises a six county area in the northeastern portion of Wisconsin including the counties of Forest, Florence, Lincoln, Langlade, Oneida and Vilas. The Headwaters Basin includes 42 watersheds from five basins. The five basins are the Green Bay, Lake Superior, Upper Chippewa, Wolf River and Upper Wisconsin. The basin plan provides a snapshot of the current condition of land and water resources in the basin and identifies priority resource issues and concerns. The major resource issues concerns and recommendations identified in the plan are:

#### **Fisheries**

- ❖ Education – Promote education/information about area waters, fish species and survey results to the general public.
- ❖ Volunteer water quality monitoring – Expand efforts in self help monitoring. This includes: adding more lakes, expanding the type of monitoring being done, promote public understanding of lake ecology.
- ❖ Exotics – Provide awareness to the public concerning exotics and participate in long-term solutions to prevent their spread.
- ❖ Shoreline Development – Increase public awareness, increase enforcement of water regulations and zoning, work with lake associations, governmental entities or others to promote shoreline preservation and restoration.
- ❖ Stocking Guidelines – Ensure that stocking provides a good return to the angler is biologically sound, cost effective and maintains the genetic integrity of natural reproducing populations.
- ❖ Private Stocking – Develop Basin policies on private stocking and educate the public on the facts behind stocking.
- ❖ Sport Fishery Investigations – Plan fisheries surveys on a minimum of 20 lakes less than 200 acres in size to manage these waters more effectively. Evaluate current fishing regulations applicable to each lake. Plan fisheries surveys on a minimum of 20 classified trout waters to determine impacts of current regulations or to investigate the need for future regulations.
- ❖ Promoting quality fishing opportunities – Plan regulations evaluations for all waters managed under the “quality opportunity” category and report effectiveness of special regulations.
- ❖ Bioaccumulation of contaminants (mercury) – Continue to monitor fish from lakes for mercury and provide information to the public.
- ❖ Implement Baseline monitoring strategy – Collect information on lakes and streams to establish baseline conditions.
- ❖ Identify critical habitat – Identify and protect critical fish habitat through stream surveys, Sensitive Area Designations or the Northern Rivers Strategy.
- ❖ Stream Habitat Restoration/Streambank Protection – Identify sites suitable for stream habitat restoration or streambank protection
- ❖ Beaver Control – Continue to control beaver at priority locations
- ❖ Native Brook Trout Restoration - Restore natural reproducing native brook trout and associated cold water communities at suitable sites.
- ❖ Large River Fish Communities – Evaluate the impact of harvest and regulations on sportfish in large river systems.

- ❖ Lake Sturgeon – Preserve or enhance naturally reproducing sturgeon populations as well as reestablish populations within their original range.
- ❖ Inland Lake Trout Recovery Plan – Maintain inland lake trout populations.
- ❖ Native mussels salvage operations – Protect native mussel populations and remove native mussels if they are in danger and restock in suitable locations.
- ❖ Walleye Management Plan – Implement the plan within the basin.
- ❖ Species Evaluations – Continue surveys of northern pike, walleye, muskellunge, and bass populations in lakes.
- ❖ Northern Rivers Strategy – Protect the highest quality rivers.
- ❖ Facilities Planning – Develop a facilities plan to address maintenance or development of fisheries properties or boat landings.

### **Aquatic Habitat Protection**

- ❖ Staffing – Work with Region and Bureau staff to secure additional positions and funding for aquatic habitat efforts.
- ❖ Shoreline Protection and Restoration – Restore and protect shoreline vegetative buffer zones, continue to research and document the impacts of shoreline development and provide assistance to counties on water classification systems and shoreland zoning issues.
- ❖ Oversized Piers – Provide educational material on pier placement, sizing and impact to water resources.
- ❖ Dams – Develop and prioritize inspection schedules, evaluate impact to aquatic resources, educate public on dam safety issues.
- ❖ Wetlands – Evaluate wetlands in need of protection, restoration or enhancement.

### **Watershed, Wastewater and Stormwater**

- ❖ In place pollutants and wildlife health assessments – Identify contaminated sites, assess the extent of contamination and the effects of contaminants on fish and wildlife health.
- ❖ Stormwater and Construction Site Erosion – Priority issue that needs to be addressed but has no staff.
- ❖ WPDES Permit Issuance – Ensure permits are issued in a timely manner.
- ❖ Total maximum daily loads - Continue to develop TMDL modeling and monitoring program on impaired waters.
- ❖ Nonpoint source priority watershed program – Pursue funding through the Targeted Runoff Management Program for protection projects and data collection.
- ❖ Nonmetallic mining – In cooperation with County government, monitor the effects of nonmetallic mining on water resources and document water quality improvements as a result of reclamation.
- ❖ Education – Provide educational information to the general public on watershed, wastewater and stormwater issues.
- ❖ Sewer Service Area Planning – Encourage larger communities to develop plans identifying their sewer service area and direct development away from environmentally sensitive areas.

### **Drinking Water Groundwater**

- ❖ Wellhead Protection – Encourage the development of Wellhead Protection Plans.
- ❖ Groundwater Contamination – Educate the general public and well drillers on practices that minimize the potential for groundwater contamination.
- ❖ Improper application of wastes – Provide information to the general public on potential impacts of improper application of wastes.
- ❖ Chemical spills – Monitor spills for potential impacts to groundwater.

## **Wildlife**

- ❖ Lack of knowledge regarding wildlife by the public – Provide the public with informational and educational programs pertaining to wildlife and the science of wildlife management.
- ❖ Loss of wildlife habitat – Protect, maintain and restore both terrestrial and aquatic habitats from fragmentation, degradation and destruction.
- ❖ Deer herd population goals – Manage deer herd and related issues to ensure goals are biologically and socially acceptable.
- ❖ Loss of opportunity for public to recreate – Actively pursue conservation easements and land acquisitions.
- ❖ Lack of Staffing – Ensure staffing is adequate to meet public demands and land management needs.
- ❖ Protection of endangered resources – Continue to monitor, protect and improve habitats for endangered resources.
- ❖ Property Management – Develop an integrated plan of wildlife properties that includes working relationships with all partners.
- ❖ Wildlife Population Management – Continue to monitor and manage wildlife populations.

## **Recreation**

- ❖ Silent Sport vs. Motorized Sports – Continue to work with diversified sport interests to meet recreational demands.
- ❖ Crowding – Work towards providing more recreational opportunities while maintaining the expected quality of experience.
- ❖ Personal Safety – Address public concerns about personal safety while recreating.
- ❖ Camping and campground amenities – Ensure that campgrounds are developed and maintained for diversified camping needs.
- ❖ Timber Harvest – Consider recreational activities when planning for timber harvesting.

## **Forestry**

- ❖ Lack of knowledge by individuals using forests – Work with partners to encourage private landowners to work with professional foresters on forest management issues. Provide forestry information and education to the general public regarding silvicultural practices.
- ❖ Lack of Forest Management Planning on non-industrial private forests – Work with private landowners to develop integrated resource management plans for their property.
- ❖ Conflicting demands on public owned forestlands – Identify and address conflicting demands on public land.
- ❖ Silvicultural Practices – Explore ways to mitigate conflict between the need to maintain a healthy ecosystem and public perception.
- ❖ Staffing Issues – Ensure DNR staffing meets forestry workload.

## **Partner Group Priorities**

- ❖ Lake/Shoreline Development – Increase public awareness on the value of the shoreline area.
- ❖ Use Conflicts – Through Master Planning and Smart Growth Planning work with local units of government to reduce use conflicts.
- ❖ Land Use – Promote comprehensive land use planning.
- ❖ Septic Effluent Impacts – Conduct assessments of septic systems around lakes.
- ❖ Education – Improve efforts to inform the public about important resource issues.
- ❖ Highway Buffers – Work to maintain the “Northwoods” appearance along our highway corridors.
- ❖ Rivers management – Protect rivers and streams from overdevelopment through the implementation of the DNR Northern Rivers Initiative.
- ❖ Habitat Loss – Protect wildlife habitat through sound land use planning.
- ❖ Trail Development – Promote the development of recreational trails.

- ❖ Preserving Wild Lakes – Ensure protection of lakes with little or no development through the Wild Lakes Program.
- ❖ Non-hunting/Hunting issues – Promote public information/education on the merits of hunting.

### **Land Use**

- ❖ Protect Water Resources – Work with other entities to protect rivers, lakes, wetlands, and groundwater recharge areas.
- ❖ Protect the pearls – Protect the last remaining high quality and unique natural areas.
- ❖ Protect functioning ecosystems - Protect, maintain and restore natural landscapes that help keep common species intact.
- ❖ Maintain accessibility and usability of public land – Protect land close to where people live and establish buffers that ensure these lands remain useable and enjoyable.
- ❖ Think Big – Protect large blocks of land.
- ❖ Improve the trail network – Link public lands through a network of corridors and trails.
- ❖ Promote partnerships – Partner with federal, state, local agencies, private conservation groups to leverage funds.
- ❖ Diversify protection strategies – Utilize options other than purchasing property to accomplish conservation and recreation goals.

**DEPARTMENT OF NATURAL RESOURCES**  
**THE STATE OF THE CENTRAL WISCONSIN RIVER BASIN**  
**PUBLIC REVIEW DRAFT**  
**APRIL, 2002**

The Central Wisconsin Basin is a subset of the entire Wisconsin River corridor, located in Central Wisconsin. The Central Wisconsin Basin extends south from the Merrill dam located on the Wisconsin River in Lincoln County to the Castle Rock Flowage Dam in Juneau and Adams Counties. The Central Wisconsin River Basin is comprised of 29 watersheds, in the counties of Adams, Clark, Jackson, Juneau, Langlade, Lincoln, Marathon, Marquette, Portage, Shawano, Taylor, Waushara and Wood.

### **Basin Wide Priorities**

- Monitor and comprehensively study the Wisconsin River and its tributaries for water quality.
- DNR staff should persuade against the construction of dams and encourage removal of existing dams on basin streams.
- Continue to monitor groundwater and surface water consumption and their impacts on surface aquatic life and groundwater level sustainability. Where possible regulate the withdrawals of both surface and groundwater to protect water dependent natural resources. Where regulations are not adequate, work with local communities to reduce impacts. Encourage conservation measures to minimize these impacts.
- Evaluate impacts to water quality from Nonmetallic Mining through permit compliance monitoring in Central WI.
- Continue monitoring surface waters to support the 303 (d) report and identify impaired waterbodies for the 303 (d) list.
- Continue trout habitat improvements and maintenance on state owned and easement properties.
- Continue to monitor and address contaminants of concern basin-wide in surface water, sediment, groundwater, fish, and other water dependent resources.
- Continue to collect information, water samples, etc. to document the non-point contamination of Central Sands and other aquifers in the basin.
- Continue efforts to reduce agricultural NPS inputs into waters of the state.
- Continue to work with stakeholders to identify and designate sensitive habitat areas.

- Encourage municipal water systems to adopt comprehensive Well Head Protection Plans.
- Encourage Best Management Practices in all agricultural areas designated as vulnerable to groundwater contamination.
- Encourage NRCS to extend their funding program that offers financial assistance to farmers for abandonment of unused wells on agricultural properties.
- Encourage municipal water systems to reduce water losses in their distribution systems and expand water conservation measures by their customers.
- Continue to monitor aquatic and terrestrial exotics, document the distribution, and work with partners to prioritize control efforts to minimize the spread of exotic species on state lands and waters within Central Wisconsin River Basin.
- Continue to monitor aquatic and terrestrial communities, and document the distribution and status of endangered, threatened, special concern species and natural communities within the Central Wisconsin River Basin.
- Continue to identify and pursue the abandonment of noncomplying water supply wells that serve as conduits for contamination of groundwater
- Continue to work with local government departments such as health departments and zoning departments; private sector businesses; and professional associations on educational programs and materials addressed to the general public/farmers concerning the protection of all waters of our basin.

### **CENTRAL WISCONSIN RIVER MAINSTEM RECOMMENDATIONS**

- Continue to monitor fish tissue for contaminants of concern between Merrill and Castle Rock Dams.
- Evaluate the following stream segments for inclusion in NR 102 as Exceptional Resource Waters
  - Wisconsin River (Business Hwy 51 in Merrill downstream to the Lincoln/Marathon Co. line.)
  - Wisconsin River (Lincoln/Marathon Co. line downstream to Cty Hwy WW at Brokaw).
- Conduct sampling of sediments for contaminants of concern between Merrill and Castle Rock Dams.
- Work closely with Wisconsin Valley Improvement Company and other consumptive water users to determine the allowable water diversion (loss) on the Wisconsin River mainstem.
- Maintain and extend the reintroduction of Sturgeon and other native species to the Wisconsin River.
- Continue to work to eliminate flashboards, which can fail and result in sudden water level changes.
- Monitor carp on the Wisconsin River and look for alternatives and methods for the removal and control of carp.
- Work towards a long-term goal of establishing a Total Maximum Daily Load (TMDL) on the entire Wisconsin River Mainstem.
- Develop a phosphorus mass balance study for the Wisconsin River.
- Basin Staff should construct barrier islands or breakwaters at suitable locations to break up wind fetch, create fish and wildlife habitat, provide shelter for establishment of aquatic vegetation, and prevent shoreline erosion.

## **TRAPPE RIVER WATERSHED (UW27)**

The Trappe River Watershed (Map UW27) is located in Marathon, Lincoln and Langlade counties. The Lincoln County Nonpoint Source Assessment Report, conducted by the DNR in 1982, stated that the Trappe River Watershed contains streams with a moderate value for county residents or a moderate potential for water quality or fishery improvement. Land use in this watershed may indicate a moderate or high NPS pollution potential. More monitoring data needs to be collected to determine current water quality conditions. The main streams in the watershed are:

### **Big Cain Creek**

Big Cain Creek is a Class I trout stream. It is impaired by beaver dams, which impede water flow, thus increasing in-stream water temperatures. Inactive sand and gravel operations exist on or near the stream. It is unknown whether these operations are harming the fishery or water quality by discharging sediment-laden water, warm water, or by decreasing base flow to the creek if groundwater dewatering is involved.

### **Little Cain Creek**

Little Cain Creek is classified as a Class I trout stream. Beaver dams are having an impact on this creek. Cattle pasture parts of the creek, which causes bank erosion resulting in severe habitat destruction.

**WATERSHED RECOMMENDATIONS** - Fish and Aquatic Habitat Staff should conduct baseline monitoring on watershed streams.

## **DEVIL CREEK WATERSHED (UW28)**

The Devil Creek Watershed is located in Lincoln and Marathon counties. The Nonpoint Source Assessment Report for Lincoln County conducted by the DNR in 1982 stated that Devil Creek Watershed contains distinguished lakes and streams which have either been degraded by NPS pollution or are directly threatened by identified changes in the watershed's land use. The Upper Wisconsin River Task Force NPS Pollution Management Plan 1979 indicated that the Devil Creek Watershed was seriously affected by NPS pollution. High densities of cattle, streambank pasturing and the "flashy" watershed contribute to water quality problems and in-stream sedimentation in the Devil Creek Watershed. The watershed was ranked per the Nonpoint Source Priority Watershed Selection Criteria. The main streams within the watershed are:

### **Devil Creek**

A 1975 stream survey indicated Devil Creek suffers from severe streambank pasturing and streambank erosion. Protection of streambanks by fencing cattle out would benefit the stream. Biotic index sampling indicates fair to good water quality. Reduction of sediment, nutrient and organic loading from NPS is needed to improve water quality and the fishery. Liquid manure spills occurred in both 1988 and 1990, causing fish kills. The County received a DNR Targeted Runoff Management grant in 1999. Seven landowners received funding for the implementation of best management practices to control streambank erosion and streambank pasturing.

### **Unnamed Creeks (T31N, R6E, S19, SE¼, SW¼, AND T31N, R6E, S19, SE, SE)**

These two creeks are tributaries of Devil Creek. The Devil Creek Stream Survey indicated that both of these creeks suffer from intensive streambank pasturing. This is destroying fish habitat by eliminating cover. Increased sediment load from eroding streambanks enters these creeks as well as Devil Creek.

## **GROUNDWATER**

The Central Wisconsin Groundwater Center of the University of Wisconsin-Stevens Point conducted well sampling on 97 wells located throughout the entire Devil Creek Watershed for nitrate concentrations. Of the 97 wells tested in the Devil Creek Watershed, 3.8 percent had nitrate concentrations greater than 10 parts per million. Of the 8.3 percent, none of the wells contained nitrate concentrations 20 parts per million or greater. The drinking water standards set by the Department of Health stated that 10 parts per million is the maximum parts per million of nitrates that is considered to be safe drinking water, in the state of Wisconsin.

One well was tested for triazine in the Devil Creek Watershed; it did not contain triazine greater than .3 parts per billion, well below the drinking water standards for Wisconsin. Since triazine can not be used to set standards for drinking water limitations it is strongly recommend that if a test result comes back above 1 part per billion of triazine the well should be tested further for total concentrations of atrazine.

## **WATERSHED RECOMMENDATIONS**

1. Fish and Aquatic Habitat Staff should conduct baseline monitoring on watershed streams.
2. Fisheries Staff should conduct an evaluation of trout in County Line Creek.
3. Devil Creek Watershed should be considered a priority for future grant eligibility under the Targeted Runoff Management Grant program.

### **PINE CREEK WATERSHED (UW29)**

The Pine Creek Watershed (Map UW29) is located in Lincoln and Langlade Counties. A Lincoln County NPS assessment report conducted by the DNR in 1982 indicated that the Pine Creek Watershed contained streams with a moderate value for county residents or a moderate potential for water quality or fishery improvement. Land use in the watershed indicates a high NPS pollution potential. The major streams in the watershed are:

#### **North Branch Pine River**

Sand, gravel, or granite operations exist on or near the North Branch of the Pine River but their impact on water quality, if any, is unknown.

#### **Oxbo Creek**

A 1971 stream survey report indicated streambank pasturing was having an adverse impact on fish habitat from Swamp Road upstream.

#### **Pat Smith Creek**

A 1980 comprehensive survey of Pat Smith Creek indicated streambank pasturing and resulting streambank erosion was adversely affecting fish habitat and water quality. Elimination of streambank pasturing at the NE $\frac{1}{4}$ , of the NE $\frac{1}{4}$ , of Section 20, T31N, R8E would benefit the creek.

#### **Pine River**

The DNR Report titled "Lincoln County Water Quality and Nonpoint Assessment Report" indicates that the Pine River had severe water quality problems compared to other Lincoln County streams. Problems include high nutrient levels and high bacteria counts. Sources of these impacts are usually from NPS runoff and animal waste. Biotic index sampling conducted in 1978 and 1979, showed excellent water quality. The effect on water quality of active sand and gravel sites on the Pine River in Lincoln County is unknown.

## **GROUNDWATER**

The Central Wisconsin Groundwater Center of the University of Wisconsin-Stevens Point conducted well sampling on 94 wells located throughout the entire Pine Creek Watershed for nitrate concentrations. Of the 94 wells tested in the Devil Creek Watershed, 4.3 percent of the wells tested had nitrate concentrations greater than 10 parts per million. Of the 4.3 percent, 1.1 of the wells contained nitrate concentrations 20 parts per million or greater. The drinking water standards set by the Department of Health stated that 10 parts per million is the maximum parts per million of nitrates that is considered to be safe drinking water, in the state of Wisconsin. Three wells were tested for triazine in the Pine Creek Watershed. Of the three wells tested none of them had triazine concentrations greater than .3 parts per billion well below the drinking water standards for Wisconsin. Since triazine can not be used to set standards for drinking water limitations it is strongly recommend that if a test result comes back above 1 part per billion of triazine the well should be tested further for total concentrations of atrazine.

## **WATERSHED RECOMMENDATIONS**

1. Fish and Aquatic Habitat Staff should conduct baseline monitoring on watershed streams.

### **LITTLE RIB RIVER WATERSHED (UW24)**

The Little Rib River Watershed (Map UW24) is located in Marathon and Lincoln Counties. Steep slopes and shallow soils characterize the Little Rib River Watershed. Stream flows vary significantly depending on the gradient of the slopes. During runoff events, elevated levels of bacteria and BOD occur in watershed streams, likely from animal waste . The potential for surface and groundwater contamination is high because steep slopes, shallow soils and bedrock that is within five feet of the surface, characterize the area.

#### **Little Rib River**

The Little Rib River is a twenty-two mile warm water stream that flows into the Big Rib River west of the City of Wausau. The lower portion of the Little Rib River is classified as a warm water sport fishery while the upper portion is classified as a warm water forage fishery. The lower portion habitat had extensive bank erosion and lacked coarse substrate. Limiting factors of in-stream habitat for the upper portion include, lack of fish cover, bank erosion, and sedimentation.

Fishery surveys were completed at 4 sites that were previously studied in 1975 and 1981. Fewer trout or no trout were found in 2001 when compared to the earlier years. Decreased trout densities in 2001 may be the result of changes in stream habitat or water temperatures. According to 1981 observations, substrate was comprised of coarse materials. The 2001 habitat surveys indicated that in-stream habitat was limited by sedimentation and lack of cover. Water temperatures may have also resulted in fewer trout collected in 2001. These surveys were completed in August, while the historic studies were conducted in May. Although trout may inhabit these areas when water temperatures are favorable, they would more often migrate to areas where water temperatures are suitable.

## **WATERSHED RECOMMENDATIONS**

1. Basin Team should use the Groundwater Information Network (GIN) when identifying potential groundwater impacts due to NPS pollution, to determine any public drinking water supplies affected by high nitrates or bacteria levels in the Little Rib River Watershed, possibly linking those sites back to poorly designed barnyards or manure pits

2. Little Rib River Watershed should be considered a priority for future grant eligibility under the State Nonpoint Source Pollution Abatement Program.

### **UPPER RIB RIVER WATERSHED (UW26)**

The Upper Rib River Watershed (Map UW26) is located in the counties of Marathon, Lincoln and Taylor. The portion of the Upper Rib River Watershed in Lincoln County contains high valued streams not degraded by NPS pollution and apparently not seriously threatened by watershed land use. Existing natural areas act as buffer zones, preventing NPS pollution from reaching the streams. However, the streams need protection from major changes in land use through development. Biotic index sampling showed streams in the watershed had both excellent and fair water qualities. Not all streams were evaluated. More monitoring needs to be conducted in the watershed to determine if a low priority ranking is justified.

Numerous sand and gravel washing operations are on or near the Big Rib River in Lincoln, Marathon, and Taylor Counties. Zmuda (1987) indicated that there were 75 excavation sites disturbing nearly 900 acres of the Big Rib River Watershed. The long-term cumulative impacts to this riverine system caused by sand and gravel excavations are unknown.

#### **Big Rib River (Upper)**

The Upper Big Rib River has an excellent fishery. Classified as a Class I, II, and III trout stream, it also contains Class A musky waters, and small mouth bass and walleye fisheries. Biotic index sampling conducted in 1978 indicated excellent water quality. As noted above, sand and gravel excavations affect the Big Rib River (Upper). Fish stranding has occurred in isolated excavations adjacent to the river. Sediment may be entering the stream as a result of gravel washing.

#### **McGinnis Creek**

The lower portion of McGinnis Creek is classified as a Class II trout stream. Beaver are active in this creek. Sand and gravel excavations occur on lower McGinnis Creek. It is unknown if these operations are having an adverse impact on water quality. A 1976 stream survey report conducted by the DNR revealed streambank pasturing occurs on lower McGinnis Creek resulting in destruction of fish habitat, bank erosion and stream sedimentation.

### **GROUNDWATER**

In the Upper Rib River Watershed 96 wells were tested for traces of nitrates, of the 96 wells tested, none of the wells tested were over the allowable 10 parts per million for safe drinking water in the state of Wisconsin. Of the 3 wells tested for triazine in the Upper Rib River Watershed, all the wells had triazine concentrations below .1 parts per billion. All the wells tested are way below the standards for drinking water limitations in the state of Wisconsin. It is strongly recommend that if a test result comes back above 1 part per billion of triazine the well should be tested further for total concentrations of atrazine.

### **WATERSHED RECOMMENDATIONS**

1. Fish and Aquatic Habitat Staff should conduct baseline monitoring on watershed streams and lakes.
2. Watershed Staff should conduct NPS appraisal monitoring on Rib Lake's 3.7-mile watershed area to determine if the source of phosphorus load entering Rib Lake is natural, from high-phosphorus soils, or from nonpoint sources of pollution.
3. Watershed Staff should conduct spring runoff-related NPS impact assessment monitoring on Joe Martin Creek to see if this is the source of low dissolved oxygen levels.

## APPENDIX C

### **LINCOLN COUNTY COMPREHENSIVE PLAN GOALS, OBJECTIVES, POLICIES AND RECOMMENDATIONS**

#### **GOAL**

The County's overall goal is to work with local governments to promote an economically efficient, environmentally sustainable, and compatible development pattern. That pattern should preserve and enhance rural character, open space, natural areas, forests, and productive farms. Careful management of the location, impacts, appearance, and pace of development will assure a pattern that meets this goal.

#### **OBJECTIVES**

- a. Work with the towns and cities on growth and development issues.
- b. Preserve productive forestland, productive farmland, shoreland areas, and other sensitive natural areas.
- c. Use open space, historic resources, community recreational and gathering spots, and educational facilities as defining aspects of Lincoln County's character.
- d. Support redevelopment and new development that is consistent with and advances this *Comprehensive Plan* and the more detailed Town Land Use Plans.
- e. Assure that the amount and pace of development does not exceed the capacity of roads, utilities, schools, recreational resources, and the land and water.
- f. Encourage high-paying jobs and a diverse tax base through coordinated economic development efforts that capitalize on the County's natural advantages.
- g. Support the design of neighborhoods and non-residential areas in a manner compatible with the County's desired character.

#### **POLICIES**

- a. Coordinate with towns, cities, and school districts in Lincoln County, along with adjacent counties and communities, to address growth issues of mutual concern.
- b. Update regulations as necessary to control the type, quality, impacts, location, and mix of private development.
- c. Rezone properties and change or add zoning districts and standards to match the recommendations of this *Comprehensive Plan* and the Town Land Use Plans.
- d. Develop planned land use designations and subsequent zoning districts to address not only use, but also the character of future land development.
- e. Require development to be consistent with or improve on this *Comprehensive Plan*, subsequent amendments to this *Plan*, and any more detailed plans.
- f. Promote a mix of commercial, industrial, recreational, and residential land uses in the County to provide a range of housing, shopping, and job opportunities.
- g. Direct intensive urban development to urban (sewer) service areas and sanitary districts, where a full array of municipal services is available.
- h. Encourage redevelopment and infill development, including lands within existing City limits.
- i. Assure that clearly incompatible uses are not located close to one another, and that appropriate separation and screening is used in other instances where incompatibilities might otherwise occur.
- j. Support the long-term protection, conservation, and production of large blocks of forestland and farmland, including identifying new markets for products.
- k. Protect and enhance sensitive natural resources, open space, and scenic vistas when reviewing development proposals and making public expenditures.
- l. Charge new development for the additional services and facilities it generates, or require such development to provide such facilities and services.

- m. Consider site plan and design review to ensure high-quality building, site, and landscaping design, particularly for non-residential and large-scale developments.
- n. Encourage design of new neighborhoods and developments in a manner that respects, reflects, and enhances Lincoln County’s character.
- o. Protect the visual quality of major highways and entryways (particularly Highway 51) through site plan, lighting, landscaping, signage, and other standards.
- p. Working closely with local governments, update the *Lincoln County Comprehensive Plan* at least once every ten years.
- q. Work with towns on the preparation and update of Town Land Use Plans.

**AGRICULTURAL, NATURAL, AND CULTURAL RESOURCES ELEMENT**

**GOAL**

Lincoln County’s overall goal is to preserve, conserve, enhance, and carefully use precious agricultural, forest, natural, historic, and archeological resources to serve multiple functions. These functions include preservation and enhancement of rural character, rural economic viability and lifestyles, scenic beauty, stormwater management, wildlife habitat, rare natural communities, shoreland areas, ground and surface water quality, public health, real property values, connections with our past, public recreation, and appropriate recreational development.

**OBJECTIVES**

1. Conserve productive forestland and farmland.
2. Work to preserve farming as a viable occupation.
3. Encourage multiple uses of forest resources.
4. Protect the County’s most important and sensitive natural resources and areas.
5. Direct development away from environmentally sensitive areas and productive farm and forest lands.
6. Protect and enhance surface water, ground water, and shoreline quality.
7. Protect the County’s scenic beauty, heritage, and archeological resources.
8. Engage in intergovernmental cooperation to protect natural and cultural resources.

**POLICIES**

1. Conserve productive forestland and farmland as key parts of the County’s economy, rural character and lifestyle, recreational resource base, and wildlife habitat.
2. Encourage long-term farmers to enroll in the State’s Farmland Preservation Program.
3. Support the introduction and operation of agriculture support businesses, and provide families with opportunities for small non-farm businesses to supplement farm income.
4. Encourage farmers to work with UW-Extension staff to develop farming operations that emphasize community and environmental sustainability.
5. Explore other strategies to preserve the family farm in Lincoln County.
6. Work with the towns to minimize scattered, large parcel residential development in farming areas.
7. Work with towns to locate new development in farming areas away from productive fields.
8. Explore new markets for agriculture and forestry products.
9. Promote use of the forestry “best management practices for water quality” as minimum standards for logging.
10. Support logical expansions to the County Forest as appropriate properties come available on the market.
11. Promote active involvement of all forest users in the development of forest management policy to identify and prevent use conflicts.
12. Encourage forest landowners to participate in programs that encourage sustainable forestry.

13. Delineate, refine, and protect “environmental corridors” as a composite of the County’s most sensitive natural areas.
14. Identify environmentally sensitive areas most likely to be subject to rapid degradation, and work to protect these areas first.
15. Prioritize the use of incentives and acquisition (land or easements) to protect environmentally sensitive areas, relying on regulations where necessary.
16. Cooperate with other units of government on natural resources which are under shared authority or cross government boundaries.
17. Undertake concerted efforts to improve water quality in the most impacted watersheds.
18. Protect and restore natural shoreline areas in the county.
19. Enact and enforce development standards in shoreland areas, depending in part on the quality and sensitivity of the associated water and the relative presence or absence of development.
20. Promote development and agricultural practices which protect surface and ground water quality, including proper erosion control, manure management, and stormwater management strategies.
21. Promote the proper placement of new on-site wastewater systems, and appropriate maintenance and replacement of older systems as a means to protect ground water quality.
22. Consider protection and enhancement of sensitive natural resources, open and recreational space, large blocks of farmland and forestland, historic and archeological resources, and scenic vistas when reviewing development proposals and making public expenditures.
23. Protect the visual quality of scenic roadways through site plan, lighting, landscaping, signage, and other standards.
24. Before approving any change in land use, consider the impact on wildlife habitat, potential locations of rare plant and animal species, and archeological sites.
25. Support the continued identification and protection of key natural, cultural, and historic resources in Lincoln County.
26. Develop and implement policies and procedures for the consideration and review of nonmetallic and metallic mineral extraction operations.

**AGRICULTURAL RESOURCE RECOMMENDATIONS**

1. Minimize nonagricultural development in farming areas
2. Support the continuation of the “family” farm
3. Update the County’s Farmland Preservation Plan

**FOREST RESOURCE RECOMMENDATIONS**

1. Explore opportunities to expand the County Forest
2. Promote the use of “best management practices for water quality”
3. Support participation in programs that encourage sustainable forestry
4. Update the Lincoln County Forest-15 year Comprehensive Land Use Plan, as needed.

**ENVIRONMENTALLY SENSITIVE AREA RECOMMENDATIONS**

1. Environmental corridors
2. Water quality
3. Shoreland areas
4. Rare species occurrences and wildlife habitat

**MINERAL RESOURCE RECOMMENDATIONS**

1. Standards for reclamation of nonmetallic mineral extraction sites
2. Recommended submittal and operational standards for nonmetallic mineral extraction sites
3. Nonmetallic mineral reserve identification
4. Development of Metallic Mineral Resource Policy

## **LAND USE PLAN**

### **GOAL**

Lincoln County's land use goal is to work cooperatively with town and city governments to promote an economically efficient, environmentally sustainable, and compatible development pattern that also respects private property rights. The County supports careful consideration of the location, impacts, appearance, and pace of development to minimize land use conflicts and negative impacts; promote the efficient provision of roads, utilities, and public services; preserve the rural character and lifestyle in most parts of the County; and provide appropriate opportunities for community and economic development.

### **OBJECTIVES**

1. Promote new land development that is consistent with this *Comprehensive Plan*, the component Town Land Use Plans, and more detailed planning efforts.
2. Working directly with towns and cities, plan for a compatible land use pattern throughout the County.
3. Guide the location, mix, and quality of private development to meet both private and public land use objectives.
4. Assure that the pace of development does not exceed the capacity of utilities, roads, and community facilities.
5. Manage public lands in a manner compatible with land use goals, objectives, policies, and plans.

### **POLICIES**

1. Plan for a sufficient supply of developable land for a range of different uses, in areas, types, and densities consistent with town wishes and service requirements.
2. Update land use regulations to better guide and manage the location, mix, quality and impacts of development in the County.
3. Over the 20 year planning period, work with the towns to rezone properties and change or add zoning districts and standards to match the recommendations of this *Comprehensive Plan* and the component Town Land Use Plans.
4. Work with towns and cities to resolve remaining incompatibilities between local land use plans.
5. Prepare or require detailed neighborhood development plans and phasing plans prior to zoning, platting, and development of large planned residential areas.
6. Encourage the use of conservation neighborhood design strategies for rural residential development in appropriate areas and where consistent with town wishes (see also Chapter VII).
7. Work with the towns to assure that incompatible uses are not located close to one another, and that appropriate separation and screening is used in other instances where incompatibilities might otherwise occur.
8. Promote the mixing of compatible, complimentary uses in close proximity to one another, such as small-scale neighborhood retail and service uses close to residential neighborhoods, if in accordance with town wishes.
9. Use site plan review to encourage high-quality building and site design for planned nonresidential development areas.